

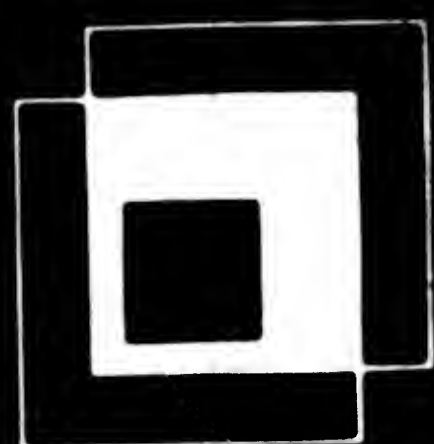
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UNITED STATES
PATENT OFFICE

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MICRO PHOTO DIVISION



BELL & HOWELL

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PATENT OFFICE NOTICES

Proposed Change of Drawing Requirements

[37 CFR Part 1]

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793, 35 U.S.C. 6), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising sections 1.59, 1.84, 1.85, 1.123 and 1.165 and revoking sections 1.82 and 1.87.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231, on or before March 23, 1971, on which date a hearing will be held at 10:30 a.m., e.s.t., in Room 8-C 06, Building 2, 2011 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

These proposed changes would reduce the overall drawing size from 10 by 15 inches to 8½ by 14 inches while maintaining the same "slight" size available for drawings. This reduction permits the use of standard storage and reproduction equipment by both the applicants and the Patent Office and greatly simplifies processing.

Names will not be permitted on the drawings, thereby making additional space available for illustrations and tending to reduce the total number of sheets of drawing required. Further, certain formal requirements will be liberalized to permit the use of drawing materials other than bristol board and the filing of color prints in plant patent applications.

The proposed new rule language is as follows:

§ 1.59. *Papers of complete application not to be returned.*

Papers in a complete application, including the drawings, will not be returned for any purpose whatever. If applicants have not preserved copies of the papers, the Office will furnish copies at the usual cost.

§ 1.82. *Signature to drawing.* Revoked.

§ 1.84. *Standards for drawings.*

(a) *Paper and ink.*—Drawings must be made upon pure white paper of a thickness corresponding to two-ply or three-ply bristol board or upon flexible, strong, smooth, non-shiny, white, opaque, translucent or transparent material of a permanent nature which will permit erasure and correction with India ink on its face. The surface of the paper must be calendered and smooth and of a quality which will permit erasure and correction with India ink. India ink alone must be used for pen drawings to secure perfectly black solid lines. The use of white pigment to cover lines is not acceptable.

(b) *Size of sheet and margins.*—The size of a sheet on which a drawing is made must be exactly 8½ by 14 inches. One of the shorter sides of the sheet is regarded as its top. The drawing must include a top margin of two inches and bottom and side margins of one-quarter inch from the edges, thereby leaving a "slight" precisely 8 by 11¾ inches. Margin border lines are not permitted unless they are in non-reproducible blue color. All work must be included within the "slight." The sheets may be provided with two ¼ inch diameter holes having their centerlines spaced 1½ inch below the top edge and 2¾ inches apart, said holes being equally spaced from the respective side edges.

(c) *Character of lines.*—All drawings must be made with drafting instruments or by photolithographic process which will give them satisfactory reproduction characteristics. Every line and letter must be absolutely black and permanent. This direction applies to all lines however fine, to shading, and to lines representing cut surfaces in sectional views. All lines must be clean, sharp, and solid, and fine or crowded lines should be avoided. Solid black should not be used for sectional or surface shading. Freehand work should be avoided wherever it is possible to do so.

(h) *Locations of signature and names.*—Revoked.

(j) *Arrangement of views.*—All views on the same sheet must stand in the same direction and should, if possible, stand

so that they can be read with the sheet held in an upright position. If views longer than the width of the sheet are necessary for the clearest illustration of the invention, the sheet may be turned on its side so that the two-inch margin is on the right hand side. One figure must not be placed upon another or within the outline of another.

* (i) *Extraneous matter.*—An inventor's, agent's, or attorney's signature, name, stamp, or address, or other extraneous matter, will not be permitted upon the face of a drawing, within or without the margin, except that the title of the invention and identifying indicia, to distinguish from other drawings filed at the same time, may be placed in erasable pencil within ¾ inch of the top edge.

§ 1.85. *Informal drawings.*

The requirements of § 1.84 relating to drawings will be strictly enforced. A drawing not executed in conformity thereto, if suitable for reproduction, may be admitted, but in such case the drawing must be corrected or a new one furnished, as required. The necessary corrections or mounting will be made by the Office upon applicant's request or permission and at his expense. (See §§ 1.21 and 1.165.)

§ 1.87. *Return of drawings.* Revoked.

§ 1.123. *Amendments to the drawing.*

(a) No change in the drawing may be made except by permission of the Office. Permissible changes in the construction shown in any drawing may be made only by the Office. A sketch in permanent ink showing proposed changes, to become part of the record, must be filed. The paper requesting amendments to the drawing should be separate from other papers.

§ 1.165. *Drawings.*

(b) The drawing may be in color and when color is a distinguishing characteristic of the new variety, the drawing must be in color. Two copies of color drawings must be submitted. Color drawings may be made either in permanent water color or oil, or in lieu thereof may be photographs made by color photography or properly colored on sensitized paper. Permanently mounted color photographs are acceptable. The paper in any case must correspond in size, weight and quality to the paper required for other drawings. See § 1.84. Non-permanently mounted copies will be correctly mounted at applicant's expense, § 1.21(1).

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Jan. 4, 1971.

Approved: Jan. 12, 1971.

RICHARD O. SIMPSON,
Acting Assistant Secretary
for Science and Technology.

[P.R. Doc. 71-568; Filed 1-14-71; 8:49 a.m.]

Published in 36 F.R. 610, Jan. 15, 1971

Abbreviated First Actions on the Merits

Starting on or about February 1, 1971, and continuing for a trial period of up to twelve months, a newly developed form (PO-1142) will be used for first actions on the merits of patent applications involving claims subject to rejection and/or objection on statutory or other legal grounds.

The form is designed to furnish a clear, full, and complete first action including the reasons for rejection and/or objection together with such information and references as may be useful in judging the propriety of continuing the prosecution, all in accordance with the statute (35 U.S.C. 132); and it is intended to abridge the action with condensed language using essential words and phrases in abbreviated form, in order to expedite the prosecution and reduce the pendency time of applications awaiting examination. Where found necessary in exceptional cases, a regular action without the form will be used.

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U. S. PATENT OFFICE

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For abbreviation purposes, references referred to on the form will be designated by capital letters and identified on revised reference list PO-892, and their correlation as applied to the claims will be indicated by symbols illustrated and explained on the bottom of the form. Sections 100-103, and 112 of the patent statute are reproduced on the back of the form.

Summary sheet PO-326 will continue in use with all first actions, and has been revised to identify different parts of the sheet as "Part I" and "Part II." Form PO-1142 will be distinguished as "Part III," and if a second copy of the form is necessary and is used to complete the action it will be marked for distinction as "Part IIIa" (a regular typed page if annexed to an action with the form will be designated as "Part IV"). All parts of the action after Part I (Parts II, III, and IV) will each have numbered paragraphs starting with the numeral 1, and communications relating thereto may be properly identified by the number on the particular part (for example, paragraph 2 on Part III may be identified as paragraph III-2).

As noted, Form PO-1142 will be used only for first actions on the merits concerned with claims subject to rejection and/or objection on statutory or other legal grounds. It will not be used for any subsequent action nor a first action made final as in a continuing application.

Second actions on the merits will be final according to prevailing practice, and any reference referred to in these or subsequent actions will be identified by name or otherwise in conventional manner, not by capital letters as used on Form PO-1142. For this reason, use of conventional reference identification in response to all Office actions will be helpful.

Only one carbon copy of the action will be furnished in accordance with the Notice of October 21, 1970, entitled "Office Actions" and appearing in 880 O.G. 740.

All other Office policies, practices, and procedures remain in effect.

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 5, 1971.

Disclosure Document Program

This notice consolidates and supersedes the notices of Mar. 26, 1969 (862 O.G. 1) and Aug. 11, 1970 (878 O.G. 1) relating to the Patent Office Disclosure Document Program.

Under this program the Patent Office accepts and preserves, for a period of two years, papers referred to as "Disclosure Documents." These papers may be used as evidence of the dates of conception of inventions.

THE PROGRAM

A paper disclosing an invention and signed by the inventor or inventors may be forwarded to the Patent Office by the inventor (or by any one of the inventors when there are joint inventors), by the owner of the invention, or by the attorney or agent of the inventor(s) or owner. It will be retained for two years and then be destroyed unless it is referred to in a separate letter in a related patent application within said two years.

A Disclosure Document is not a patent application and the date of its receipt in the Patent Office will not become the effective filing date of any patent application subsequently filed. However, like patent applications, these documents will be kept in confidence by the Patent Office. If patent protection is desired, a patent application should be filed as soon as possible.

This program does not diminish the value of conventional witnessed and notarized records as evidence of conception of an invention, but it should provide a more credible form of evidence than that provided by the popular practice of mailing a disclosure to oneself or another person by registered mail. The program is made available as a service to those persons desiring to use it.

CONTENT OF DISCLOSURE DOCUMENT

Although there are no restrictions as to content and claims are not necessary, the benefits afforded by a Disclosure Document will depend directly upon the adequacy of the disclosure. Therefore, it is strongly urged that the document contain a clear and complete explanation of the manner and process of making and using the invention in sufficient detail to enable a person having ordinary knowledge in the field of the invention to make and use the invention. When the nature of the invention permits, a drawing or sketch should be included.

The use or utility of the invention should be described, especially in chemical inventions.

The Disclosure Document must be limited to written matter or drawings on paper or other thin, flexible material, such as linen or plastic drafting material, having dimensions or being folded to dimensions not to exceed 8½ by 13 inches. Photographs also are acceptable. Each page should be numbered. Text and drawings should be sufficiently dark to permit reproduction with commonly used office copying machines.

A \$10 fee is charged for filing a Disclosure Document. Payment must accompany the Disclosure Document when it is submitted to the Patent Office.

In addition to the \$10 fee, the Disclosure Document must be accompanied by a stamped, self-addressed envelope and a separate paper in duplicate, signed by the inventor, stating that he is the inventor and requesting that the material be received for processing under the Disclosure Document Program. The papers will be stamped by the Patent Office with an identifying number and date of receipt, and the duplicate request will be returned in the self-addressed envelope together with a warning notice indicating that the Disclosure Document may be relied upon only as evidence and that a patent application should be diligently filed if patent protection is desired. The inventor's request may take the following form:

"The undersigned, being the inventor of the disclosed invention, requests that the enclosed papers be accepted under the Disclosure Document Program, and that they be preserved for a period of two years."

RETENTION

The Disclosure Document will be preserved in the Patent Office for two years after its receipt and will then be destroyed unless it is referred to in a separate letter in a related patent application filed within the two-year period. The Disclosure Document must be referred to in the separate letter by title, number, and date of receipt. Acknowledgment of receipt of such letters will be made in the next official communication or in separate letter from the Patent Office. Unless it is desired to have the Patent Office retain the Disclosure Document beyond the two-year period, it is not required that it be referred to in a patent application.

WARNING AS TO LIMITATIONS

The two-year retention period should not be considered to be a "grace period" during which the inventor can wait to file his patent application without possible loss of benefits. It should be recognized that in establishing priority of invention an affidavit or testimony referring to a Disclosure Document must usually also establish diligence in completing the invention or in filing the patent application since the filing of the Disclosure Document.

Inventors are also reminded that any public use or sale in the United States, or publication of the invention anywhere in the world, more than one year prior to the filing of a patent application on that invention will prohibit the granting of a patent on that invention.

If the inventor is not familiar with what is considered to be "diligence in completing the invention" or "reduction to practice" under the patent law, or if he has other questions about patent matters, the Patent Office advises him to consult an attorney or agent registered to practice before the Patent Office. Patent attorneys and agents may be found in the telephone directories of most major cities. Also, many large cities have associations of patent attorneys which may be consulted.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Jan. 4, 1971.

United States Adopted Names

List No. 27

July 1, 1970 to October 31, 1970

The following nonproprietary names for the drugs described have been adopted by the USAN Council (the nomenclature committee sponsored by the American Medical Association, the American Pharmaceutical Association, and the United States Pharmacopoeial Convention) in cooperation with the interested manufacturers. The designation "United States Adopted Names" (USAN) has been coined to distinguish these formally adopted nonproprietary names from other nonproprietary names. Adoption of such names does not imply en-

dorsement of the products involved by the A.M.A. Council on Drugs, the United States Pharmacopoeia or the National Formulary.

Any comments or suggestions should be addressed to Doctor Joseph B. Jerome, Secretary, United States Adopted Names Council, American Medical Association, 535 N. Dearborn St., Chicago, Ill. 60610.

amadinone acetate: progestogen
amclnafil: topical anti-inflammatory
amedalin hydrochloride: antidepressant
amoxapine: antidepressant
aspartame: artificial sweetener
butirosin sulfate: antibacterial
cephacetrile sodium: antibiotic
daledalin tosylate: antidepressant
deterenol hydrochloride: anti-glaucoma
dexetimide: antiparkinsonism
difenoazin: antidiarrheal
enflurane: inhalation anesthetic
epicillin: antibiotic
estrofurate: estrogen
flucoronide: glucocorticoid
fluocinolide: glucocorticoid
fosfomycin: antibiotic
moxidine: anti-anginal
nefopam hydrochloride: muscle relaxant
pemerid nitrate: antitussive
polidnate sodium: anti-ulcer (pepsin inhibitor)
robenidine hydrochloride: veterinary coccidiostat
sevoflurane: inhalation anesthetic
slsomicin: antibiotic
suncillin sodium: antibiotic
suxemerid sulfate: antitussive
tesicam: anti-inflammatory
ticarbodine: anthelmintic
treloxinate: anticholesteremic
trestolone acetate: antineoplastic androgen

Patent Suits

2,817,737, W. W. Morris, ELECTRICAL RESISTANCE NETS, filed Nov. 15, 1970, D.C.N.J. (Newark), Doc. 1534-70, *Neocold Corporation and Connecticut Dev. Credit Corp. v. Cooperheat and Peter J. Cooper*.

2,823,775, R. E. Zwyer, HOIST MOTOR AND BRAKE CONTROL, filed Nov. 17, 1970, D.C., E.D. Mich. (Detroit), Doc. 35671, *Aro Corp. v. Mich. Pneumatic Tool, Inc. and Irving Wine*.

2,884,649, G. A. Scharmer, STAINLESS SHEET METAL WORK SURFACES, filed Feb. 1, 1966, D.C., E.D.N.Y. (Brooklyn), Doc. 66-C-85, *George A. Scharmer v. Agnew Associates, Inc.* Complaint dismissed with prejudice, Nov. 19, 1970.

2,895,950, V. K. Kriebel, COMPOSITIONS CONTAINING HYDROPEROXIDE POLYMERIZATION CATALYST AND ACRYLATE ACID DIESTER; 3,435,012, B. W. Nordlander, ANAEROBIC SEALANT COMPOSITION CONTAINING MONOACRYLATE ESTERS, filed Oct. 21, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70-2378-EC, *Loctite Corporation v. Tokyo Three Bond Company*.

2,935,776, Clark and Stubberfield, CABLE SHACKLE, filed Nov. 9, 1970, D.C., E.D. Calif. (Sacramento), Doc. C-S-1852, *A-I Steel and Iron Foundry, Ltd. v. D. Ehlert, doing business as Ehlert Foundry & Manufacturing*.

2,945,666, Freeman and Vaudreuil, BALL VALVE, filed Oct. 30, 1970, D.C., S.D. Tex. (Houston), Doc. CA-70-H-1194, *James Bury Corp. v. Kitamura Valve Mfg. Co., Ltd. and KTM Industries, Inc.*

2,951,761, J. T. Stephan, FISH BAIT, filed July 31, 1968, D.C., Idaho (Boise), Doc. C-1-69-60, *Puget Sound Salmon Egg Company, Inc. v. Shoshoni, Inc., Lucky Brands, Inc. and K. Clint Stephens*. Judgment and decree restraining defendants from infringement, Nov. 6, 1970.

2,958,872, F. J. Meyer, SWIMMING POOL COVER, filed Nov. 6, 1970, D.C., E.D.N.Y. (Brooklyn), Doc. 70-C-k386, *Fred J. Meyer, Jr. v. Roslyn Cover Company*.

3,001,191, E. O. Richter, HEIGHT FINDING RADIO DETECTION AND RANGING DEVICE, filed Nov. 4, 1970, U.S. Court of Claims, Washington, D.C., Doc. 382-70, *Lockheed Aircraft Corporation v. The United States of America*.

3,002,868, H. Bolvin, SPONGE BACK FLOOR COVERING, filed Mar. 16, 1966, D.C., S.D.N.Y., Doc. 66-C-754, *The Flintkote Co. v. Armstrong Cork Co., et al.* Judgment order, defendants Armstrong Cork Co., Empire Carpet Corp. and Fashion Floors Inc. have judgment against the plaintiff dismissing the complaint, Nov. 5, 1970.

3,018,968, G. S. Levey, CLOSED SYSTEM RECIRCULATING ASSEMBLY, filed Apr. 1, 1969, D.C., S.D. Tex. (Houston), Doc. 69-H-288, *The Spee-Flo Manufacturing Corporation v. Gray Company, Inc.* Order, complaint and defendant's counterclaims be dismissed without prejudice, Nov. 16, 1970.

3,077,951, K. E. Ramsey, LIFT TRUCK MAST OPERATION SEQUENCE MECHANISM, filed Nov. 13, 1970, D.C., E.D. Mich. (Detroit), Doc. 35651, *Clark Equipment Co. v. Knickerbocker Co.*

3,100,897, S. Langer, COVERALL, filed June 14, 1968, D.C., S.D.N.Y., Doc. 68-C-2426, *Andray Products, Inc. v. Gimbel Brothers, Inc. et al.* Consent judgment, defendant's herein after forever enjoined, Oct. 28, 1970.

3,104,924, F. E. Capel, LAMP CONNECTOR, filed Oct. 28, 1970, D.C., S.D.N.Y., Doc. 70-C-4748, *Ward Foods, Inc. v. Spartans Industries, Inc.*

3,134,718, A. Noble, PREGNA-1,4-DIENES AND COMPOSITIONS CONTAINING SAME, filed Nov. 9, 1970, D.C.N.J. (Newark), Doc. 1499-70, *Schering Corporation v. Moore-Kirk Laboratories, Inc.*

3,146,290, D. M. Park, ELECTRONIC MUSIC CIRCUIT; 3,383,452, Park and Campbell, MUSICAL INSTRUMENT; Re. 26,521, D. M. Park, AUTOMATIC REPETITIVE RHYTHM INSTRUMENT TIMING CIRCUITRY, filed May 23, 1969, D.C., N.D. Ill. (Chicago), Doc. 69c1123, *The Seeburg Corporation v. National Baron Corp.* Order, case reinstated, Oct. 8, 1970.

3,166,154, J. M. Titzel, PORTABLE SCAFFOLDS AND WORK TOWERS, filed Nov. 23, 1970, D.C., W.D. Penn. (Pittsburgh), Doc. 70-1333, *Titzel Engineering Co., Inc. v. M. & G. Industrial Associates, Inc. and Robert N. Monroe*.

3,169,612, Wolf, Holland and Sharp, OVERHEAD DOOR CONSTRUCTION; D. 194,094, Wolf and Holland, OVERHEAD GARAGE DOOR, filed Mar. 1, 1967, D.C., E.D. Wis. (Milwaukee), Doc. 67-C-335, *Frantz Manufacturing Company v. Phenix Manufacturing Co., Inc.* Judgment, Patent No. 3,169,612 invalid and unenforceable, D. 194,094 valid and defendant enjoined, Nov. 11, 1970.

3,170,063, J. A. Webb, HIGH SPEED BINARY ADDER AND/OR SUBTRACTOR CIRCUIT, filed Nov. 9, 1970, D.C., N.D. Tex. (Dallas), Doc. CA-3-4277B, *Joseph A. Webb, Sr. v. Motorola Semiconductor Products, Inc.*

3,172,824, S. F. Mulford, EVAPORATOR CONSTRUCTION, filed Feb. 13, 1969, D.C., N.D. Ill. (Chicago), Doc. 69c310, *Aqua Chem, Inc. and Richard W. Goeldner v. Baldwin Lima Hamilton Corp.* Plaintiffs' complaint dismissed and defendant awarded its costs, Sept. 28, 1970.

3,209,228, A. F. Gawron, SYSTEM FOR CONTROLLING ELECTRIC MOTORS IN POWER TOOLS AND THE LIKE, filed Nov. 16, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2858, *Skil Corporation v. Rockwell Manufacturing Company and Wen Products, Inc.*

3,264,411, M. J. Reaves, TELEPHONE CONFERENCE SYSTEMS, filed Nov. 20, 1970, D.C., N.D. Tex. (Dallas), Doc. CA-3-4308-A, *Michael John Reaves v. David Wade Industries*.

3,312,124, Meier and Meier, STEERING-WHEEL ASSEMBLY FOR AUTOMOTIVE VEHICLES, filed Nov. 3, 1970, D.C., E.D. Mich. (Detroit), Doc. 35605, *Kamei-Autokomfort, Superior Industries, Inc. v. Anton Co., Inc.*

3,313,477, G. Brown, TRANSPARENT BANK CONSTRUCTION HAVING COIN SORTING MEANS, filed Nov. 12, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2830, *Grant Co. v. Syndicate Products Inc., Spinrite Yarns & Dyers, F. W. Woollicorth and Ted Kienes*.

3,330,182, Gerber and Webster, DEVICE FOR EXPOSING DISCRETE PORTIONS OF A PHOTSENSITIVE SURFACE TO A VARIABLE INTENSITY LIGHT BEAM, filed Oct. 25, 1968, D.C., S.D. Ohio (Cincinnati), Doc. 6893, *The Gerber Scientific Instrument Co. v. Baldwin-Kongsberg Co.* Stipulation of dismissal, complaint dismissed with prejudice, Nov. 23, 1970.

3,383,452. (See 3,146,290.)

3,389,236, L. A. Guthart, VIBRATION ACTUATED CONTACT SWITCH, filed Nov. 5, 1970, D.C.N.J. (Newark), Doc. 1485-70, *Alarm Device Manufacturing Co., etc. v. On-Guard Corporation of America, Electronic Locator Corp., and Stanley Geller*.

3,401,909, T. L. Kalahar, SUPPORT FIXTURE, filed Jan. 5, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c9, *Thomas L. Kalahar, doing business as Perfiz Mfg. Co. v. Dur-O-Peg Inc. Industrial Precision Co. and Archie Anders*. Ordered, all proceeding and all claims and counterclaims are dismissed without prejudice, Nov. 13, 1970.

3,435,012. (See 2,895,950.)

3,482,324, J. K. Samhat, COMBINED OPTICAL SIGHT AND CENTER PUNCH, filed Nov. 12, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70-2545-EC, *Jack K. Samhat v. Barton Tool & Engineering Co., and David L. Sawyer*.

3,503,082, M. Kerwit, HOSPITAL BED, filed Nov. 9, 1970, D.C., N.D. Tex. (Dallas), Doc. CA-3-4282-C, *Kerwit Medical Products, Inc. v. N. & H. Instruments*.

Re. 26,521. (See 3,146,290.)

D. 194,094. (See 3,169,612.)

Certificates of Correction for the Week of Feb. 2, 1971

Re. 26,976	3,525,080	3,535,591	3,539,286
3,370,960	3,526,274	3,535,731	3,539,309
3,454,641	3,527,120	3,536,090	3,539,513
3,459,273	3,527,423	3,536,094	3,539,559
3,472,933	3,528,418	3,536,201	3,539,605
3,487,105	3,528,814	3,536,913	3,539,635
3,488,041	3,531,675	3,537,322	3,539,986
3,489,518	3,532,085	3,537,684	3,540,071
3,491,119	3,532,990	3,537,839	3,540,110
3,492,361	3,533,360	3,537,932	3,540,705
3,509,859	3,533,469	3,538,075	3,541,117
3,511,315	3,534,011	3,538,094	3,541,181
3,513,386	3,534,019	3,538,122	3,541,211
3,516,190	3,534,340	3,538,301	3,541,630
3,517,173	3,535,153	3,538,892	3,541,792
3,520,032	3,535,324	3,539,090	3,542,265
3,523,089	3,535,408	3,539,216	3,542,435
3,524,537			

Disclaimers

3,300,927.—*Phillip Stephen Bettoli*, Martinsville, N.J. LAMINATED SHEET MATERIAL. Patent dated Jan. 31, 1967. Disclaimer filed Dec. 23, 1970, by the assignee, *GAF Corporation*.

Hereby enters this disclaimer to claims 2 and 13 of said patent.

3,511,173.—*Allen E. Morrow*, Portland, Oreg. APPARATUS FOR PRESSING AND STRAPPING LUMBER. Patent dated May 12, 1970. Disclaimer filed Dec. 23, 1970, by the assignee, *Mac-Fab Manufacturing, Inc.*

Hereby enters this disclaimer to claim 18 of said patent.

Lapsed Patents

The following patents have lapsed under the provisions of 35 U.S.C. 151 for failure of payment of remaining balances of issue fees due therein.

3,495,248 issued Feb. 10, 1970
3,499,131 issued Mar. 3, 1970

Plant Variety Protection

German Protection for Kentucky Bluegrass and Roses

Printed below is a translation of the pertinent portion of the official Federal Republic of Germany "Announcement Governing Protection Equivalent to Varietal Protection Outside the Area Where the Breeders' Rights Act Applies" (*Bundesgesetzblatt* p. 1123/1970) dated July 17, 1970.

This announcement, together with Article 23, paragraph 1(3) of the West German Breeders' Rights Act of May 20, 1968, permits United States nationals to apply for the grant of plant variety protection in the Federal Republic of Germany on new varieties of Kentucky bluegrass and roses.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

ANNOUNCEMENT GOVERNING PROTECTION EQUIVALENT TO VARIETAL PROTECTION OUTSIDE THE AREA WHERE THE BREEDERS' RIGHTS ACT APPLIES DATED JULY 17, 1970

The Federal Minister for Food, Agriculture and Forestry announces in accordance with Section 23, paragraph 1(3) of the Breeders' Rights Act of May 20, 1968 (*Bundesgesetzblatt* I p. 439) that protection equivalent to protection under the Breeders' Rights Act is granted German Citizens or persons with residence or place of business in the area where the Act applies for varieties of the following species:

Kentucky Bluegrass—*Poa pratensis* L.
Rose—*Rosa* L. hort.

in the United States of America

Bonn, July 17, 1970.

The Federal Minister for Food,
Agriculture and Forestry.

Erratum

All references to Patent No. 3,554,965 to Dwain R. Chapman, Carborane-Siloxane Polymers, appearing in the OFFICIAL GAZETTE of January 12, 1971 should be deleted as the application was withdrawn from issue and the patent was not issued.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JANUARY 26, 1971

PATENT EXAMINING GROUPS

	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	7-08-69
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	4-01-60
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director.....	10-09-69
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director.....	11-03-69
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director.....	4-29-69
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	3-18-70
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	
SECURITY, GROUP 220—R. L. CAMPBELL, Director.....	6-16-69
Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	11-24-70
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.....	12-17-69
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
PHYSICS, GROUP 280—R. L. EVANS, Director.....	9-29-69
Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	
DESIGNS, GROUP 290—R. L. CAMPBELL, Director.....	5-01-70
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.....	12-01-69
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	9-04-69
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director.....	10-02-69
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director.....	1-29-70
Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director.....	12-04-69
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	

Expiration of patents: The patents within the range of numbers indicated below expire during February, 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,667,637 to 2,670,467 inclusive
Plant Patents..... Numbers 1,248 to 1,259, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED FEBRUARY 2, 1971

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T883,001 CORE STRUCTURES FOR NUCLEAR REACTORS

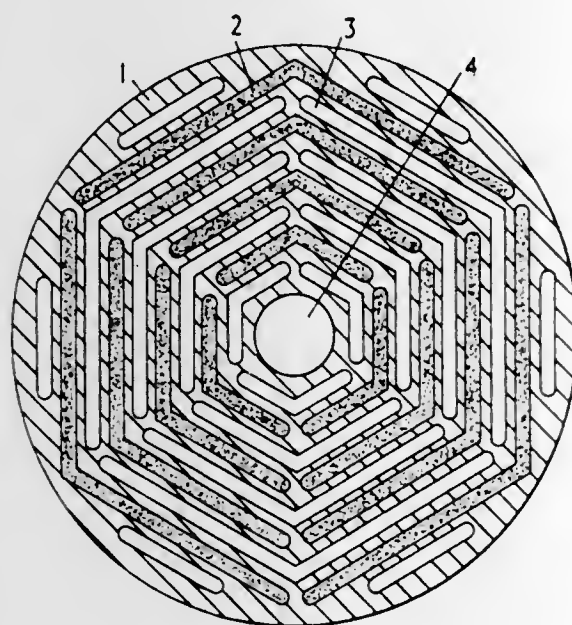
Donald Stanley Pettinger, Radbrooke Hall,
Knutsford, England

Filed Feb. 19, 1969, Ser. No. 800,680

Int. Cl. G21c 5/00

U.S. Cl. 176-84

5 Sheets Drawing, 4 Pages Specification



A graphite block for use in a nuclear reactor, wherein passages are formed in the block for the passage of cooling fluid, or for containing nuclear fuel, or for both purposes, at least some of the sides of each passage being flat or straight to define passages of triangular, rectangular or polygonal cross-section. The passages may be formed by using mortise chain cutting gear.

T883,002 ELECTROLYTIC RECORDING MEDIUM

Derek D. Chapman and Dorothy J. Beavers, Rochester, N.Y. (both of Kodak Park Works, Rochester, N.Y. 14650)

Filed July 22, 1969, Ser. No. 843,808

Int. Cl. B21h 1/20

U.S. Cl. 204-2

No Drawing, 13 Pages Specification

This invention relates to an improved electrolytic recording medium including an electrically conducting support having a hydrophilic surface into which is imbibed an electrosensitive agent, the improvement being that the hydrophilic surface is a hydrophilic colloid layer such as gelatin in which is dispersed a pigment such as barium sulfate. The pigment is dispersed in the hydrophilic colloid in an amount of from, for example, 3 to 12 parts by weight per part of hydrophilic colloid. This inclusion of a hydrophilic colloid surface layer having a pigment dis-

persed therein promotes image sharpness, fosters image dimensional stability over a period of time and contributes to the preservation of the initial image density.

T883,003 CAMERA WITH FILM METERING AND DOUBLE EXPOSURE PREVENTION MECHANISM

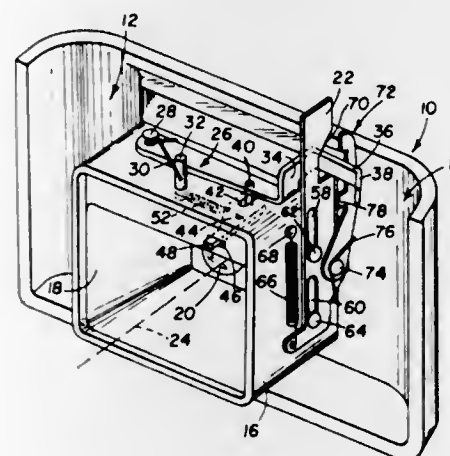
Hubert Nerwin, 901 Elm Grove Road,
Rochester, N.Y. 14650

Filed Aug. 22, 1969, Ser. No. 852,405

Int. Cl. G03b 1/62

U.S. Cl. 95-31

3 Sheets Drawing, 8 Pages Specification



A camera is described having a film metering and double exposure prevention mechanism. The camera is adapted to receive roll film having a plurality of exposure areas and a series of perforations for locating the exposure areas. A film advance mechanism includes a film drive member to which is coupled a ratchet wheel. A pawl is carried by a pivoted lever and is movable into and out of locking engagement with the ratchet wheel to selectively prevent film advance. The lever is biased toward its film advance locking position, but is normally held away from that position by contact between a film sensing finger and film in the camera. The lever is released to move the pawl into locking engagement with the ratchet wheel when a perforation in the film aligns with the finger. The lever extends under a cam surface on a shutter release member so that upon depression of the shutter release member the pawl is moved from engagement with the ratchet and the finger is withdrawn from the perforation to permit film advance until the next perforation aligns with the finger. Double exposure is prevented by a latch member pivotally connected to the shutter release member. The latch member is positioned to overlie the lever when the lever is positioned to permit film advance, thereby preventing depression of the shutter release member. When the film advance mechanism is locked, the latch member clears the lever during shutter release member movement to permit the taking of a picture.

FEBRUARY 2, 1971

U. S. PATENT OFFICE

9

T883,004 PRODUCTION OF LAMINATES

Denis James Henry Sandiford and Alan George Smith, Welwyn Garden City, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

Filed Oct. 27, 1969, Ser. No. 869,859

Claims priority, application Great Britain, Nov. 6, 1968,

52,658/68

Int. Cl. B29d 27/04

U.S. Cl. 264-45

No Drawing, 10 Pages Specification

A laminate of synthetic polymeric materials is produced by an injection molding process wherein the first layer of the laminate is injected into a mold through a first sprue. The first injection is permitted to cool to be sufficiently self-supporting to prevent the material of the first injection from blocking the second injection. The mold cavity is subsequently enlarged, and a second amount of polymeric material is injected into the mold through a second sprue extending through the first layer formed by the first injection.

The two layers may be of the same or different polymeric materials, and may be thermoplastic or thermosetting. Fillers may also be present in the polymeric material. One of the layers, preferably the second, may be a foamable composition. Laminates produced according to the process are useful in the production of large area moldings, such as door panels, interior trim panels of automobiles, and any application in which a smooth surface attached to a bulky backing is required.

T883,005 METHOD FOR PRODUCING DIMENSIONALLY STABLE PHOTOSENSITIVE RESIST PATTERN

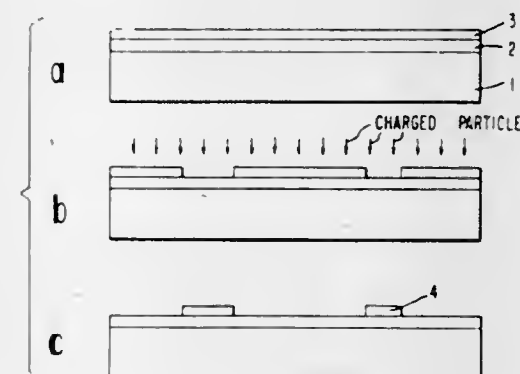
Max J. Schuller, 917 Sycamore Drive, Palo Alto, Calif. 94303; Michael J. Urban, 27 London Lane, Stamford, Conn. 06902; and Erwin Littau, 75 Grand View Ave., Norwalk, Conn. 06850

Continuation of application Ser. No. 525,018, Feb. 4, 1966. This application Nov. 6, 1969, Ser. No. 871,540

Int. Cl. G03c 5/00

U.S. Cl. 96-36.2

1 Sheet Drawing, 4 Pages Specification



A method for depositing thin film electrical elements of closely controlled dimensions onto a substrate wherein a coating of a photosensitive resinous resist (KTFR) is applied to the surface of the substrate; selected areas of the resist are exposed to light; the unexposed areas of the resist are removed by developing; remaining resist pattern is subjected to a bombardment of electrically charged particles from a glow discharge initiated by an impressed potential of from 800 to 2,000 volts to stabilize the dimensions of the photosensitive resist pattern; and thin film elements are deposited at elevated temperatures to areas from which the resist has been removed.

T883,006 POLYARYLENE ETHER IONOMERS

Derek Morris Holt Waring, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

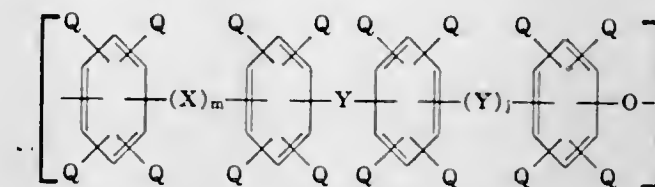
Filed Dec. 15, 1969, Ser. No. 885,302

Int. Cl. C08g 23/00, 23/16

U.S. Cl. 260-49

No Drawing, 9 Pages Specification

The composition having the recurring unit



wherein the X, Y and O linkages to the phenylene radicals are in the meta or para positions on the phenylene radicals; n is at least 25; m and j are 1 or 0; X and Y are —O—, —S—, —CO—, —SO₂—, —CRR'— in which R is hydrogen, non-ionic aliphatic, cycloaliphatic, or aromatic hydrocarbon radicals or aliphatic, cycloaliphatic or aromatic hydrocarbon radicals substituted with at least one of the following: —CO₂Z_g, —NWW'W''W'''A_g, —SO₃Z_g, and —PWW'W''W'''A_g, and in which R' is R or —CO₂Z_g, —NWW'W''W'''A_g, —SO₃Z_g, or —PWW'W''W'''A_g.

or —POAr— in which Ar is either a non-ionic aromatic hydrocarbon radical or is an aromatic hydrocarbon radical substituted with at least one of

—CO₂Z_g, —NWW'W''W'''A_g

—SO₃Z_g, and —PWW'W''W'''A_g

W, W', W'', and W''' are hydrogen, non-ionic aliphatic, cycloaliphatic or aromatic hydrocarbon radicals; Z is a cation; A is an anion; Q may differ within and among the phenylene radicals and is R' or a halogen; and g is 1/2 or 1.

T883,007 ELECTROPHOTOGRAPHIC APPARATUS

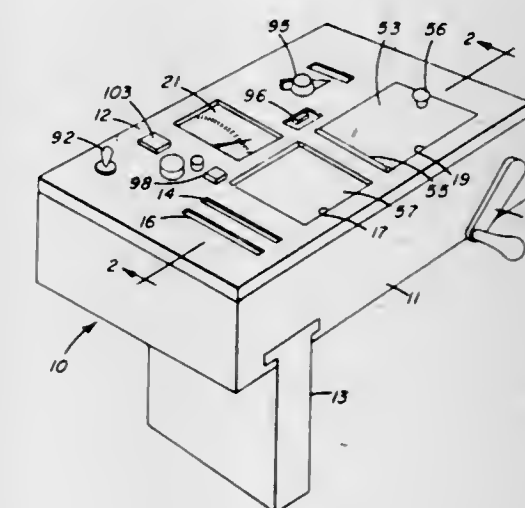
Ivan B. Ville, 2000 Lake Ave, Rochester, N.Y. 14650; James D. Walling, 78 Pinewoods Ave., Troy, N.Y. 12180; and Dale L. Smith, 2000 Lake Ave., Rochester, N.Y. 14650

Filed Feb. 5, 1970, Ser. No. 8,908

Int. Cl. G03g 15/00, 15/22

U.S. Cl. 355-12

3 Sheets Drawing, 6 Pages Specification



An electrophotographic apparatus in which unit magnification duplication of positive or negative transparent

originals can be made on a material comprising a transparent support having a layer of a photoconductive material. The apparatus comprises means for uniformly charging the layer of photoconductive material, image-wise exposing the layer of photoconductive material through the original by means of ambient light, and liquid developing the latent electrostatic image. The charge placed on the photoconductive material is measured by an electrometer which visually displays, on a meter, the measured charge on the photoconductive material. Thus, the sufficiency of the charge as well as the exposure time can be established and controlled. Inasmuch as the apparatus is very compact, it can be readily transported and can also be used for testing as well as demonstrating the electrophotographic properties of different photoconductive materials.

T883,008

NOVEL COMPOSITION OF MATTER 1,2,4-TRIS (PHENOXY) BENZENE

Gether Irick, Jr., Lloyd P. Foster, Jr., and Robert W. Kennedy, all of P.O. Box 511, Kingsport, Tenn. 37662. Continuation of application Ser. No. 701,565, Jan. 30, 1968. This application Mar. 19, 1970, Ser. No. 19,536. Int. Cl. C07c 43/22. U.S. Cl. 260—613.

No Drawing. 9 Pages Specification

A new polyphenyl ether, 1,2,4-tris(phenoxy)benzene is disclosed which possesses definite advantages such as oxidative stability and low melting point, making it an excellent high temperature heat transfer agent, lubricant, hydraulic fluid, diffusion pump oil and specialty processing fluid. The ratio of cross section of a molecule of 1,2,4-tris(phenoxy)benzene to length is relatively low, resulting in a good viscosity-temperature relationship. A good viscosity-temperature relationship is needed to provide as constant a viscosity as possible over a wide temperature range, thereby facilitating easy equipment design in regard to flow, lubricity, etc. The compound may also be blended with linear polyphenyl ethers to improve the properties thereof.

T883,009

PROCESS FOR THE MANUFACTURE OF THIN GAGE POLYSTYRENE FILMS

Max Goldman, 23 Batavia Drive, Williamsville, N.Y. 14221. Continuation of abandoned application Ser. No. 735,456, June 7, 1968. This application Mar. 23, 1970, Ser. No. 20,450.

Int. Cl. B29f 3/10; C08f 7/02; D01d 5/12. U.S. Cl. 264—166.

1 Sheet Drawing. 11 Pages Specification



A process for the production of polystyrene film having a thickness of less than 1 mil by coextruding at least one polystyrene film and thermoplastic supporting film having a melt strength of at least 0.02 k.p.s.i. at 100° C. and which is non-orientable above about 100° C.; quenching the resulting structure; molecularly orienting the polystyrene at a temperature of about from 100° to 125° C. and separating the films of the structure. Preferred support films include branched polyethylenes.

T883,010 PROTECTIVE CAP FOR OUTBOARD EDGES OF BREAKER BAR ON BREAKER ROLLS

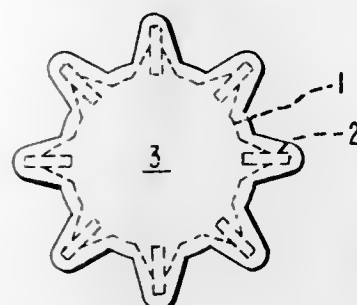
Charles A. Amos, Waynesboro, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware.

Filed Apr. 8, 1970, Ser. No. 26,502

Int. Cl. D01g 1/08

U.S. Cl. 19—37

1 Sheet Drawing. 4 Pages Specification



A protective cap is provided as an improvement to an apparatus for stretch-breaking synthetic tows. This apparatus includes a breaker means which comprises a pair of cantilevered shafts, breaker rolls formed at the outboard ends of said shafts and a plurality of substantially flat breaker bars radially aligned on said breaker rolls. The breaker rolls are mounted in such a manner that when rotated in opposite directions, the breaker bars of one roll interdigitate to a controllable depth with the breaker bars of the other roll. The protective cap, identified by the numeral 3 in the drawing, fits snugly over at least about 1/4 inch of the outboard edges of the breaker bars of one of said breaker rolls. The cap protects the ceramic breaker bars against chipping when taut multifilament tows are inserted therebetween. Since only those circumferential forces which are applied to the outer 1/4 inch of the breaker bars is likely to lead to chipping and breaking, it is preferred that the protective cap fit snugly over the outboard 1/4 inch of the edges of the breaker bars. Alternatively, the protective cap can be attached to the outboard end of one of said breaker rolls. It is preferred that the protective cap be formed from a thin sheet metal.

T883,011

TWO-STAGE AIR COMPRESSOR

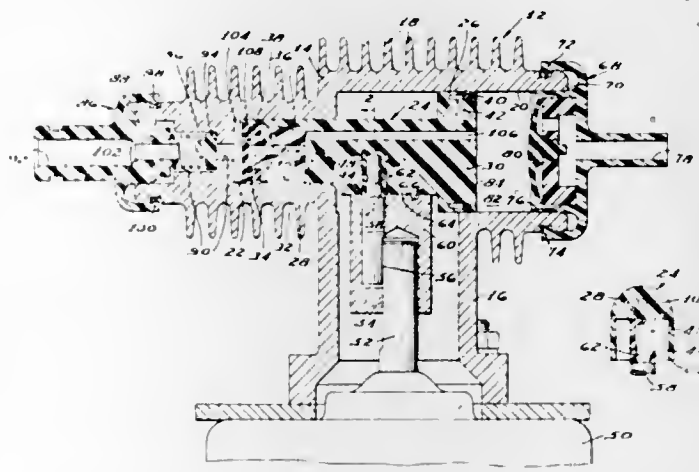
Gerald R. Miller, Northville, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware.

Continuation of application Ser. No. 769,582, Oct. 22, 1968. This application Apr. 27, 1970, Ser. No. 29,756.

Int. Cl. F04b 25/00

U.S. Cl. 417—259

1 Sheet Drawing. 7 Pages Specification



A two-stage air compressor having a stepped diameter reciprocating piston. A first compression chamber is sep-

arated from a second compression chamber by a passage-way and check valve formed within the stepped diameter piston.

T883,012

PROCESS FOR COAGULATING A LATEX OF AN ELASTOMER POLYMER

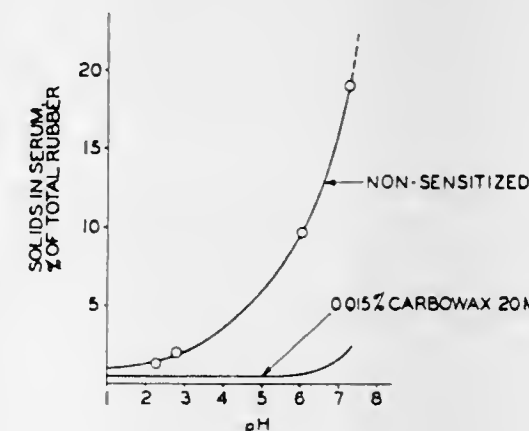
Ernst Schmidt and John H. Williams, Akron, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio, a corporation of Ohio.

Continuation of application Ser. No. 663,758, Aug. 28, 1967. This application May 1, 1970, Ser. No. 31,860.

Int. Cl. C08d 5/04; C08f 1/92

U.S. Cl. 260—85.1

1 Sheet Drawing. 9 Pages Specification



A latex of polybutadiene, polyisoprene, butadiene-styrene copolymer, butadiene-isoprene copolymer, butyl rubber, EPM rubber, EPDM rubber or an aqueous dispersion of reclaimed natural or synthetic rubber, stabilized with an acid-sensitive stabilizer, is coagulated usually at 130° to 140° F. by admixing an acid and/salt, e.g. sulfuric, acetic, formic or hydrochloric acid, aluminum sulfate, sodium chloride, zinc acetate, zinc chloride, zinc sulfate or sodium sulfate, to a pH of 2 to 7.5, and preferably 4 to 7.5. Before the coagulant is added there is added to the latex a sensitizing agent such as (1) the reaction product of a polyalkylene oxide and a coupling agent such as a diepoxide, a diamine or a diisocyanate, (2) polyethylene-polypropylene oxide block copolymer or (3) polyethylene oxide. Substantially complete coagulation is effected, and the serum which results on separation of the coagulum is almost entirely free of elastomer.

T883,013

RETOUCHING COLORED PHOTOGRAPHIC PICTURES

Arthur D. Kuh, Penfield, N.Y. (1669 Lake Ave., Rochester, N.Y. 14650).

Filed May 27, 1970, Ser. No. 41,102

Int. Cl. G03c 7/00

U.S. Cl. 96—56

No Drawing. 6 Pages Specification

Colored photographic images obtained in multilayer color films by color-forming development are retouched to reduce the cyan dye density by treatment of the colored images with a mixture of a 5-pyrazolone coupler and a competing coupler such as a naphthol sulfonic acid, to uncouple some of the cyan dye and form a soluble dye washing out of the film.

T883,014

SILVER HALIDE EMULSIONS CONTAINING IMIDAZOLIUM SPECTRAL SENSITIZING DYES

Donald W. Heseltine, 22 Edgewater Lane, and Leslie G. S. Brooker, 915 Winona Blvd., both of Rochester, N.Y. 14617.

Filed June 1, 1970, Ser. No. 42,534

Int. Cl. G03c 1/08, 1/10

U.S. Cl. 96—131

No Drawing. 27 Pages Specification

Novel dyes of the carbocyanine, dicarbocyanine, merocyanine and merocarbocyanine classes derived from imidazolium salts are used to advantage as spectral sensitizing dyes for photographic silver halide emulsions. Our symmetrical carbocyanines and dicarbocyanines are advantageously prepared by condensing one of our imidazolium salts with an appropriate intermediate, such as, diethoxymethyl acetate, ethyl orthoformate, ethyl orthoacetate, ethyl orthopropionate, trimethoxypropene, β -anilinoacrolein anil hydrochloride; our unsymmetrical carbocyanines and dicarbocyanine dyes are advantageously prepared by condensing our imidazolium salts with intermediates having any of the 5- to 6-membered basic heterocyclic nuclei, e.g., a thiazole, a benzothiazole, a naphthothiazole, a thianaphtho-7',6',4,5-thiazole, an oxazole, a benzoxazole, a naphthoxazole, a selenazole, a benzoselenazole, a naphthoselenazole, a thiazoline, a pyridine, a quinoline, an isoquinoline, a 3,3-dialkylindolenine, a benzimidazole, a naphthimidazole, etc. used in cyanine-type dyes while the merocyanine and merocarbocyanine dyes are advantageously prepared by condensing our imidazolium salts with any of the intermediates containing 4- to 6-membered heterocyclic ketomethylene nuclei, e.g., a 3-thietanone-1,1-dioxide, a 2-thio-2,4-thiazolidinedione, a rhodanine, a 2-thiobarbituric acid, a barbituric acid, a 2-thiohydantoin, a hydantoin, a 2-thio-2,4-oxazolidinedione, a 2-thiazolin-4-one, a 2-pyrazolin-5-one, a 2-imidazolin-4-one, a 2-imidazolin-4-thione, a 2-imidazolin-4-selenone, etc. used to make merocyanine-type dyes.

T883,015

SILVER HALIDE PRINTOUT PHOTOGRAPHIC MATERIALS

Robert D. Lindholm, Kodak Park Works, Rochester, N.Y. 14650.

Filed June 1, 1970, Ser. No. 42,594

Int. Cl. G03c 1/02

U.S. Cl. 96—114.6

No Drawing. 9 Pages Specification

There are disclosed photographic emulsions containing silver halide-diamine complexes. Radiation-sensitive papers of the print-out type coated with such complexes are also disclosed. The complexes are represented by the formula $[(AgX)_2 \text{ diamine}]$ wherein X is a halogen atom. Exemplary of such compounds are the following complexes: silver chloride-ethylenediamine



silver bromide-ethylenediamine

silver iodide-ethylenediamine $[(AgI)_2NH_2CH_2CH_2NH_2]$; silver chloride-propylenediamine

silver bromide-propylenediamine



silver iodide-propylenediamine



Effective complexes include the silver halide-alkylene diamines such as silver halide-ethylenediamine, silver ha-

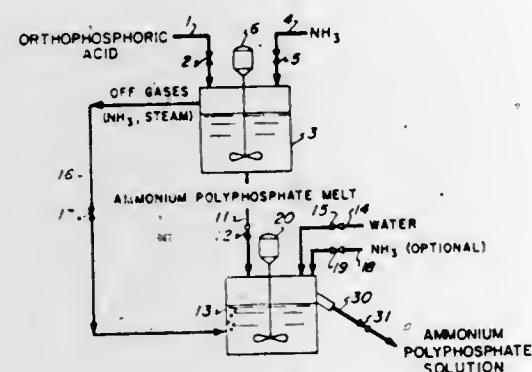
lide - propylenediamine, silver halide - tetramethylenediamine, silver halide-pentamethylenediamine, silver halide-hexamethylenediamine, etc.

0.3 micron. The effect is obtained with concentrations of the dyes well below the effective spectral sensitizing concentrations, e.g., of the order of 0.1 to 25 mg. of dye per mole of silver halide. Examples of the dyes include:

T883,016 **PRODUCTION OF AMMONIUM POLYPHOSPHATE SOLUTION**

John M. Potts, Florence, Ala., assignor to Tennessee Valley Authority, a corporation of the United States
Substituted for abandoned application Ser. No. 542,779, Aug. 15, 1966. This application June 11, 1970, Ser. No. 45,475

Int. Cl. C05b 7/00, 21/00
U.S. Cl. 71-34
2 Sheets Drawing, 19 Pages Specification



DIRECT PRODUCTION OF AMMONIUM POLYPHOSPHATE SOLUTION FROM ORTHOPHOSPHORIC ACID

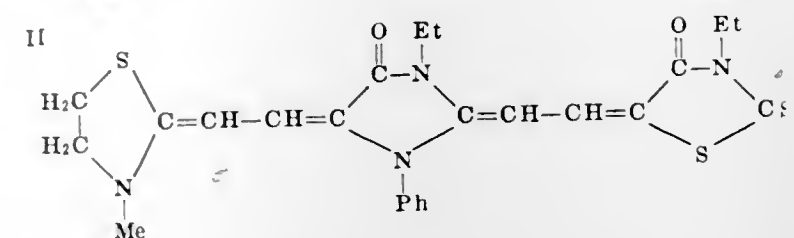
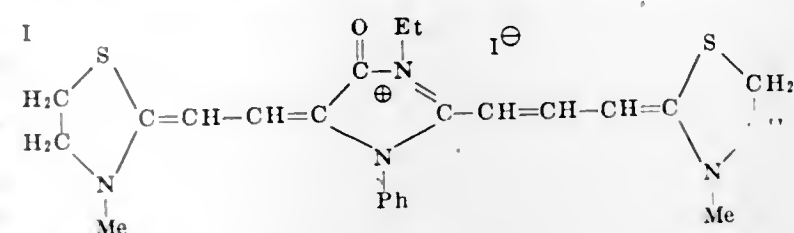
A method for producing improved high-analysis ammonium polyphosphate fertilizer solutions or suspensions directly from orthophosphoric acid and anhydrous ammonia by simultaneously introducing into a vessel said orthophosphoric acid and said anhydrous ammonia; maintaining in the vessel a resulting melt of ammonium polyphosphates; continuously agitating the melt of ammonium polyphosphate and causing the intimate mixing of the incoming streams of orthophosphoric acid and anhydrous ammonia with the melt; withdrawing from the vessel a portion of the melt of ammonium polyphosphates and introducing it into a solution tank, together with a stream of aqueous medium; simultaneously introducing into the solution tank the off gases from the vessel consisting of steam and unreacted ammonia; continuously agitating the resulting fertilizer solution or suspension in the solution tank; and withdrawing a portion of the resulting solution or suspension as product, said product characterized by the fact that it contains, in addition to ammonium orthophosphate, substantial portions of ammonium pyrophosphate, ammonium tripolyphosphate, and ammonium polyphosphates more highly condensed than ammonium tripolyphosphate.

T883,017 **PHOTOGRAPHIC SILVER HALIDE MATERIALS CONTAINING CYANINE DYES AS CHEMICAL SENSITIZERS**

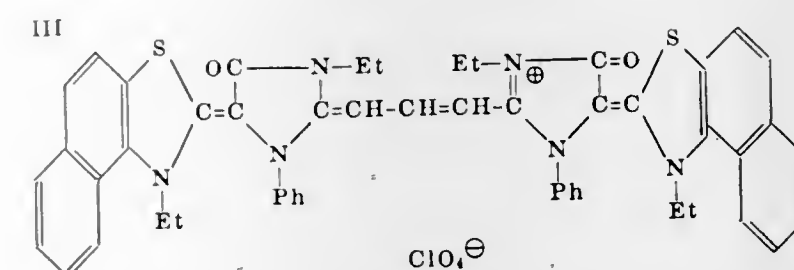
Cynthia Geer Ulbing, Kodak Park Works, 1669 Lake Ave., Rochester, N.Y. 14650
Filed June 29, 1970, Ser. No. 51,021
Int. Cl. G03c 1/28
U.S. Cl. 96-107

No Drawing, 20 Pages Specification

Low concentrations of certain quaternary trinuclear complex cyanine I, trinuclear complex merocyanine II and quaternary tetranuclear complex cyanine dyes III chemically sensitize fine grain silver halide photographic emulsions having an average grain size less than about

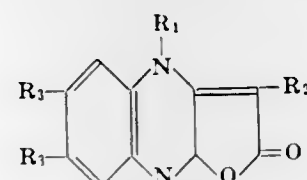


and



When I, II or III is added in amounts of 1.0 mg./mole Ag to a fine grain (0.2μ) cubic silver bromide gelatin emulsion which is gold and sulfur sensitized and the emulsion is coated on cellulose acetate film support at 400 mg. Ag/ft.² and 400 mg. gelatin/ft.², an increase in blue speed without substantial spectral sensitization is observed.

T883,018
OPTICAL BRIGHTENING AGENTS
Derek D. Chapman and John W. Gates, Jr., both of Kodak Park Division, Rochester, N.Y. 14650
Filed July 9, 1970, Ser. No. 53,701
Int. Cl. G03c 1/12
U.S. Cl. 96-82
No Drawing, 15 Pages Specification
Compounds having the structure:



wherein each of R₁ and R₃ can be hydrogen; alkyl, including substituted alkyl; aryl, including substituted aryl, and R₂ is halogen; alkyl, including substituted alkyl; aryl, including substituted aryl, have been found to be optical brighteners, especially for photographic elements, for example, a photographic element comprising a photographic silver halide layer, photographic print materials and particularly for photographic color print materials. The brighteners are inert photographically and may be used without any deleterious effect in photographic silver halide emulsion layers, Baryta layers, backings, undercoats and other layers where the compounds can be employed advantageously. The brighteners may be dissolved in a dispersing solvent prior to incorporation into the photographic element. The brighteners can be present in a photographic layer in an amount of from about 2 to 10 mg.

per square foot of surface. Although the optical brighteners of the invention have particular applicability to photographic elements, their use is not limited thereto. They may also be used, for instance, in lighting panels; in various types of plastic compositions, in inks, paints, and the like or in any application applied to a surface or in a film for the emission of visible light upon exposure to ultraviolet light.

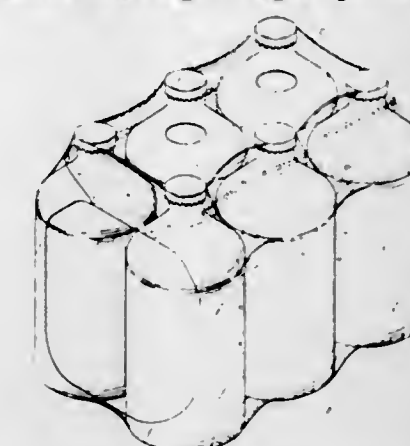
Illustrative compounds useful as optical brighteners in accordance with the present invention are:

3-methylfuro(2,3-b)quinoxalin-2(4H)-one
3-phenylfuro(2,3-b)quinoxalin-2(4H)-one
3-methyl-4-n-octyl-furo(2,3-b)-2(4H)-one
3-methyl-4-n-octadecylfuro(2,3-b)quinoxalin-2(4H)-one
3-decylfuro(2,3-b)quinoxalin-2(4H)-one
2-methyl-3-decylfuro(2,3-b)quinoxalin-2(4H)-one.

The photographic silver halide emulsions and elements containing the optical brighteners can be chemically sensitized, e.g., with noble metal sensitizers alone or in combination with sulfur or selenium sensitizers. They can contain spectral sensitizers, incorporated color-forming couplers, incorporated developing agents, antifoggants, hardeners, plasticizers, coating aids, and other suitable photographic addenda, such as described in U.S. Pat. 3,297,446 (columns 4-9).

T883,019
BOTTLE PACKAGE OR SIMILAR ARTICLE
Joseph Daniel Greenwell, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Continuation of design application Ser. No. 14,124, Oct. 23, 1968. This application Feb. 27, 1970, Ser. No. 21,666

Int. Cl. D9-99
U.S. Cl. D9-176
2 Sheets Drawing, 3 Pages Specification



The design relates to a bottle package or similar article, substantially as shown.

REISSUES

FEBRUARY 2, 1971

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,044

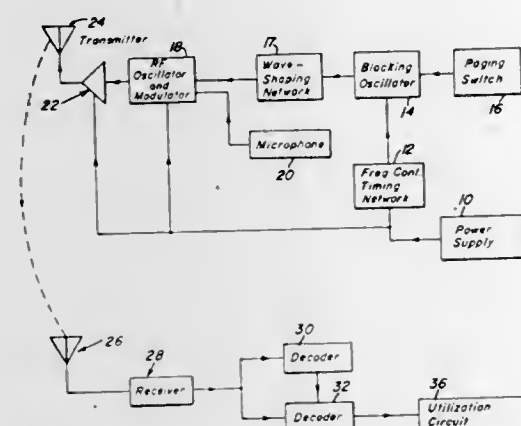
TWO-TONE REMOTE CONTROL SYSTEM

Howard E. Rothenbuhler and Dale A. Crowe, Sedro Woolley, Wash., assignors to Rothenbuhler Engineering Co., a corporation of Washington
Original No. 3,339,141, dated Aug. 29, 1967, Ser. No. 395,680, Sept. 11, 1964. Application for reissue Nov. 18, 1968, Ser. No. 794,826

Int. Cl. H04b 1/00

U.S. Cl. 325-37

12 Claims



A system is disclosed for controlling the blowing of a whistle employed in logging operations from a distance by radio control. A transmitter sends and a receiver responds to a carrier frequency modulated by a burst of a first audio frequency tone of limited duration followed immediately by a second audio frequency tone modulation of indefinite duration. The burst of first frequency modulation is sufficiently short that receivers of conventional single tone modulation systems will not respond.

27,045

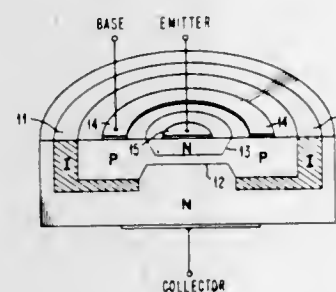
TRANSISTOR WITH LIMITED AREA BASE-COLLECTOR JUNCTION

Hwa N. Yu, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Original No. 3,312,881, dated Apr. 4, 1967, Ser. No. 322,383, Nov. 8, 1963. Application for reissue Jan. 15, 1969, Ser. No. 796,638

Int. Cl. H011 5/00, 11/00, 11/08

U.S. Cl. 317-235

9 Claims



A transistor device is disclosed wherein its collector region forms a junction of limited extent with the base region and an intrinsic or high resistivity region of the same conductivity type as the collector region extends

from the extremity of the junction to the surface of the device. The emitter is located within the base region and in spaced alignment with the junction of limited extent.

27,046

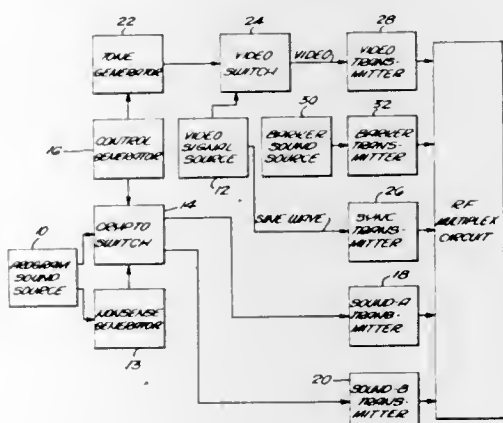
SUBSCRIPTION TELEVISION SYSTEM

Phil H. Weiss, deceased, late of Van Nuys, Los Angeles, Calif., by Mildred L. Weiss, administratrix, Van Nuys, Los Angeles, and Abraham M. Reiter, Reseda, Los Angeles, Calif., assignors, by mesne assignments, to Paramount Pictures Corporation, New York, N.Y., a corporation of New York
Original No. 3,001,011, dated Sept. 19, 1961, Ser. No. 742,114, June 16, 1958. Application for reissue Aug. 23, 1962, Ser. No. 219,375

Int. Cl. H04n 7/16

U.S. Cl. 178-5.1

20 Claims



A subscription television system provides security by replacing horizontal blanking and synchronizing pulses with a signal having a grey level amplitude. A reconstituting signal is generated having the frequency of horizontal synchronizing pulses, and is transmitted on a separate carrier. Program audio and nonsense audio are randomly alternately transmitted over two audio channels. Control tone signals are transmitted which are indicative of program price and audio signal switching intervals. The receiver includes an attachment which may include a coin box, selector switches for establishing a decoder pattern, and a cyclic counter which advances in step with the transmitted control signals. Logic circuitry determines whether proper control settings have been made at the receiver. With proper settings and payment of the proper amount of money, the attachment applies the received reconstituting signal to a rectangular pulse generator to derive pulses for increasing the gain of an RF amplifier to which the composite video is applied, providing a normal composite signal to the receiver.

27,047

DIGITAL ADAPTIVE EQUALIZER SYSTEM

Robert W. Lucky, Fair Haven, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Original No. 3,414,819, dated Dec. 3, 1968, Ser. No. 483,129, Aug. 27, 1965. Application for reissue Sept. 8, 1969, Ser. No. 862,989

Int. Cl. H04b 3/04, 3/14

U.S. Cl. 325-42

13 Claims

An adaptive transversal equalizer system for multilevel digital data in which attenuators connected to equally

FEBRUARY 2, 1971

U. S. PATENT OFFICE

15

spaced taps therealong are incrementally adjusted according to a correlation of the polarity of each received data symbol with an error polarity component to minimize intersymbol interference. The error polarity component is obtained from the difference between the actual

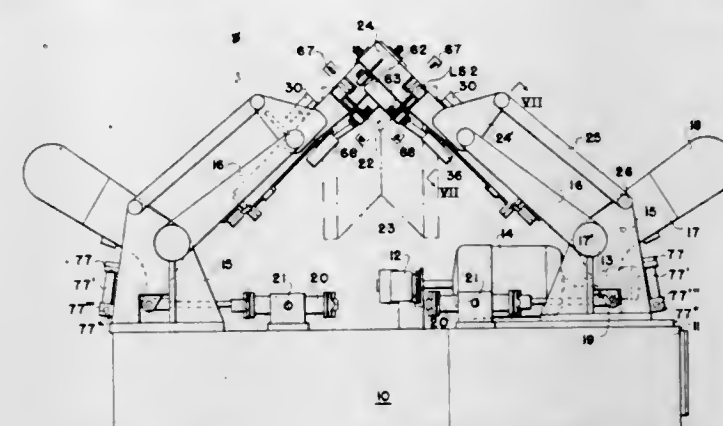
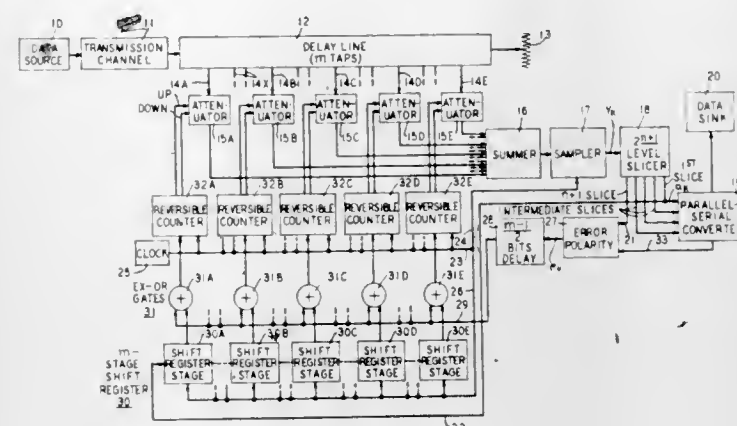
27,048

AUTOMATIC BILLET SCANNING APPARATUS
John S. Miller, Poland, and John A. Toth, Highland Heights, Ohio, assignors, by mesne assignments, to Republic Steel Corporation, Cleveland, Ohio, a corporation of New Jersey
Original No. 3,311,819, dated Mar. 28, 1967, Ser. No. 284,956, June 3, 1963. Application for reissue Mar. 25, 1969, Ser. No. 830,890

Int. Cl. G01r 33/12

U.S. Cl. 324-37

6 Claims



Billet faces are scanned by apparatus in which a flaw detector, supported for laterally reciprocating movement across a billet face, is carried on a pivoted arm movable by motor means toward and away from the billet. Arm movement is controlled so that the arm approaches a billet first at rapid speed and then at a slower speed and is maintained against the billet under pressure reduced from that used to advance it toward the billet.

level of each received signal sample and the normalized digital encoding level assigned thereto. For smoothing purposes correlation results are averaged in reversible digital counters and tape attenuators are adjusted only upon overflow of such counters.

PLANT PATENTS

GRANTED FEBRUARY 2, 1971

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,022

PEACH TREE

Grant Merrill, 416 N. Anderson Road,
Exeter, Calif. 93221
Filed Jan. 22, 1969, Ser. No. 793,198
Int. Cl. A01h 5/03

U.S. Cl. Plt.—43

1 Claim

1. A new and distinct variety of peach substantially as illustrated and described, which is characterized by the vigorous growth and regular bearing habits of the tree; and by its fruit which is large for its season, and has a red blush over half of its surface and firm flesh which remains firm on the tree so only one or two pickings are necessary but which soften a few days after picking, and which is then completely free from the stone in most fruit; and which most nearly resembles Harmony (U.S. Plant Pat. No. 2,152) but is distinguished therefrom in that it ripens about one week earlier, has more red in its skin color, and remains firm longer on the tree.

3,024

PEACH TREE

Grant Merrill, 416 N. Anderson Road,
Exeter, Calif. 93221
Filed Feb. 6, 1969, Ser. No. 797,286
Int. Cl. A01h 5/03

U.S. Cl. Plt.—43

1 Claim

1. A new and distinct variety of peach substantially as illustrated and described, which is characterized by a very productive tree, bearing fruit which has a highly colored skin with red covering about half of the surface, and flesh which is buttery, completely free from the stone, clear yellow in color with very little red except bright red near the stone, and has a high flavor which carries into the frozen product when frozen; and which most nearly resembles Mardigras 2 (U.S. Plant Patent applied for, Ser. No. 730,688, now Plant Pat. No. 2,966) but is an improvement thereon in that the fruit ripens a few days earlier, has less red in the flesh, a higher flavor, and a texture that is more buttery when frozen.

3,023

PEACH TREE

Grant Merrill, 416 N. Anderson Road,
Exeter, Calif. 93221
Filed Jan. 29, 1969, Ser. No. 795,127
Int. Cl. A01h 5/03

U.S. Cl. Plt.—43

1 Claim

1. A new and distinct variety of peach substantially as illustrated and described and which is characterized by a vigorous and productive tree, bearing large size fruit with a skin color which is red over half or more of the surface; which fruit is sufficiently firm to require fewer pickings, and permit machine handling, with less bruising than other peaches of like season, has flesh which is sufficiently free from the stone, and is clear enough in flesh color to make a good freezing peach; and by its resemblance to Angelus (U.S. Plant Pat. 1,966) from which it is distinguished primarily by its greater firmness and more extensive red coloring on the skin.

3,025

APPLE TREE

Harold Matson, Zillah, Wash., assignor to Stark Bro's
Nurseries & Orchards Company, Louisiana, Mo., a
corporation of Missouri
Filed Feb. 26, 1969, Ser. No. 802,692
Int. Cl. A01h 5/03

U.S. Cl. Plt.—35

1 Claim

1. A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a general resemblance of the tree and fruit to the variety "Ryan Red Delicious," a uniform, more stable bright red fruit blush that is completely free of stripes, as distinguished from the prominently striped color pattern of "Ryan Red Delicious," and an earlier fruit coloring habit occurring at least a full month before fruit maturity and being earlier than any other known strain of "Red Delicious" now in commerce, with the fruit developing an extra fancy grade color in early August at Zillah, Wash.

PATENTS

GRANTED FEBRUARY 2, 1971

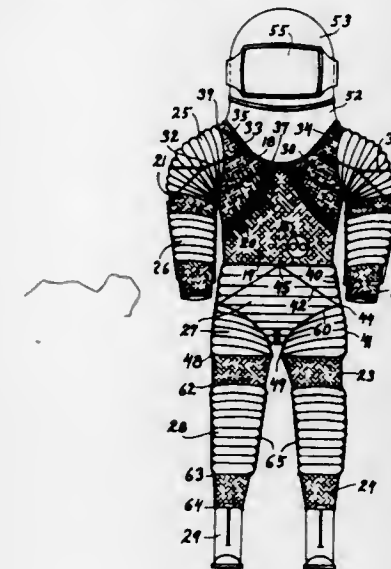
GENERAL AND MECHANICAL

3,559,209

SPACE SUIT PROTECTIVE ASSEMBLY
Edwin G. Vail, 20 Whitcomb Drive,
Simsbury, Conn. 06070
Filed Mar. 17, 1967, Ser. No. 624,028
Int. Cl. A62b 17/00

U.S. Cl. 2—2.1

6 Claims



A space suit comprising a helmet formed of an upper and a lower section with a fluid-tight detachable connection in the region of the neck, an upper torso section permanently joined to the lower helmet section and provided with arm coverings, a lower torso section joined to the upper torso section by a detachable fluid-tight zipperlike junction extending horizontally around the rear of the body and converging upwardly in front, the upper torso section being formed of a woven fabric positioned on a bias, the lower torso section being formed of an upper portion of woven fabric and a lower corrugated portion covering the waist and hip joint region, the lower corrugated portion carrying leg coverings, an integrated system of tensile members connecting each arm covering with the lower edge of the lower helmet section and another integrated system of tensile members connecting each leg covering with the junction between the fabric portion and the corrugated portion of the lower torso section.

3,559,210

COMPOSITE CERAMIC BODY ARMOR OR SHIELD

John V. E. Hansen, 11 Pinecrest Drive,
Westboro, Mass. 01581

Continuation-in-part of application Ser. No. 737,914,
June 18, 1968. This application May 16, 1969, Ser.
No. 830,187

Int. Cl. F41h 5/08

U.S. Cl. 2—2.5

10 Claims



Lightweight body armor effective to protect the wearer against close range small arms fire consists of a ceramic plate adhered to a backing element. The armor conforms

generally to body shape, and while of adequate size to cover and protect a man's torso, it may yet be worn unseen and undetected under conventional garments, even street clothes. The armor of the invention, accordingly, is particularly useful among political figures, or persons guarding political figures.

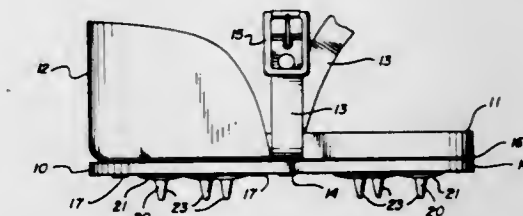
3,559,211

KNEE PAD

Art Malisani, Jr., 474 W. Easter Ave.,
Littleton, Colo. 80120
Filed July 30, 1969, Ser. No. 845,997
Int. Cl. A41d 13/06

U.S. Cl. 2—24

10 Claims



A knee pad for protecting the knees and clothing of workers engaged in laying tile floors or in producing epoxy and other plastic material floors, comprising a sole of moisture resistant material, a cushioning material layer overlying and fastened to the sole, means for holding the pad on the knee of a wearer, a cuff extending upwardly from the front and forward sides of the sole having its lower edge confined between the sole and cushioning layer, and a plurality of spikes or cleats depending from the sole and located in spaced relation adjacent each longitudinal side edge of the sole, with an additional cleat located in the center forward area and another in the center rearward area of the sole, to prevent tipping or sliding of the pad when the wearer shifts his weight sideways, the location of the cleats being such that the central area of the sole is free of cleats and adapted to conform to the contour of the knee in use.

3,559,212

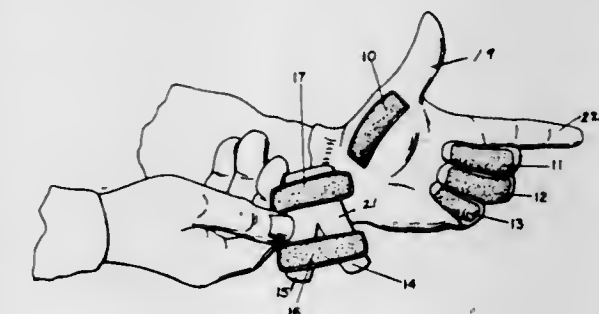
GOLFING GLOVE

Michael Skovron, 439 W. Arlington Road,
Erie, Pa. 16509

Filed June 12, 1969, Ser. No. 832,694
Int. Cl. A41d 19/00

U.S. Cl. 2—161

5 Claims



A golfer's glove for the three finger control in the left hand guiding the club. The fingers of the glove

have Velcro on their outside and an elastic flap having Velcro on both ends is attached to the glove at the base of the thumb and is attachable to the Velcro on the fingers. Thus the fingers may be held in closed grip position and the grip of the fingers controls the golf club.

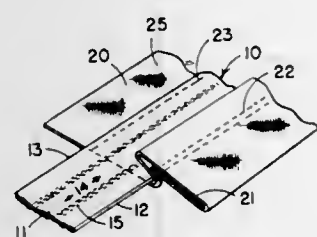
3,559,213 STRETCHABLE CURTAIN FOR APPLICATION TO OUTER GARMENTS AND GARMENTS CONTAINING THE SAME

Sheldon Goodman, 66 Essex Place,
Dumont, N.J. 07628

Continuation-in-part of application Ser. No. 767,108,
Oct. 14, 1968. This application May 12, 1969, Ser.
No. 823,825

Int. Cl. A41d 1/06

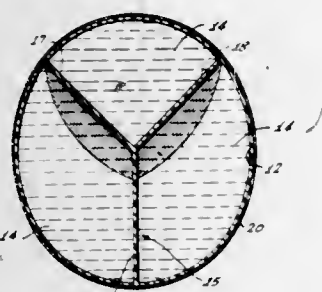
U.S. Cl. 2-237



The invention discloses an elastic curtain to replace the normal inelastic curtains of outer garments such as trousers, skirts, shorts, culottes, etc., or to be added to other outer garments where a close fitting comfortable waistline is desired. The elastic curtain comprises a heavy core of elastic strip material with finished edges which strip material is stretchable in one direction and a two-way stretch elastic fabric covering the heavy strip material, or that part of the strip material which is nearest the wearer's body.

3,559,214
COMPOUND PROSTHESIS
William J. Pangman, 865 Comstock Ave. W., Apt. 12A,
Los Angeles, Calif. 90024
Filed Oct. 17, 1968, Ser. No. 768,315
Int. Cl. A41c 3/00; A61f 1/00
U.S. Cl. 3-36

9 Claims



A compound prosthesis for surgical implantation is provided with internal partitions that divide the hollow container into a plurality of internal compartments. Each of the compartments is substantially filled with a soft fluid gel which allows the prosthesis to change shape readily, but the compartmentalization minimizes any visible change in shape due to movements of the wearer.

3,559,215 PREFABRICATED COVERED SWIMMING POOL

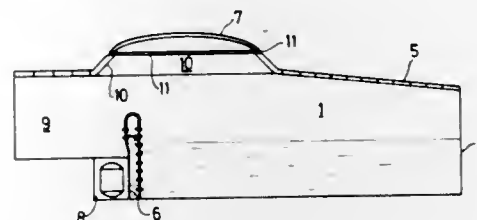
Alfred Kormann, 8011 Eglharting, near
Munich, Germany

Filed June 9, 1969, Ser. No. 831,385

Int. Cl. E04h 3/16

U.S. Cl. 4-172.12

14 Claims

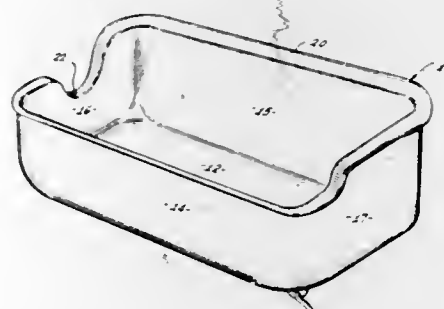


A covered steel shell swimming pool has corrugated sides. A transparent cover has a domed and hinged overhead access over a diving area. A deck is provided at one end of the pool forming an anteroom with high head clearance. The roof slopes downward over the pool area where head clearance is not important.

3,559,216
PORTABLE BATHTUB
Dorothy F. Kyte, 2747 Rimpau,
Los Angeles, Calif. 90016
Filed Apr. 15, 1968, Ser. No. 721,502
Int. Cl. E03c 1/18

U.S. Cl. 4-178

10 Claims

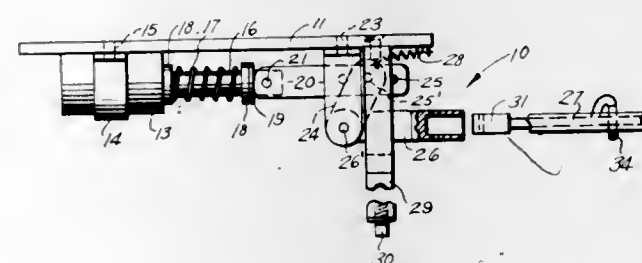


A portable bathtub is provided for use on a bed by bed patients. It is designed especially to allow the patient to enter and leave the bathtub with a minimum amount of lifting of the patient, the bathtub resting upon the bed when in use. It is a lightweight portable structure.

3,559,217
AUTOMATIC FLUSHING DEVICE FOR COMMODES
Howard Webster Johnson, 56195 East Ave.,
Mishawaka, Ind. 46544
Filed Dec. 16, 1968, Ser. No. 783,829
Int. Cl. E03d 5/00

U.S. Cl. 4-67

4 Claims



An apparatus for automatically flushing toilet commodes having a solenoid and associated linkage that is

actuated by a control electric cell or other switching devices.

3,559,218 SLUDGE EXTRACTOR FOR HOME WASTE DISPOSALS

Stephen Hopkins, Glenn Echo Heights, Md., assignor to
Hopkins Science and Research Corporation, Washing-
ton, D.C.

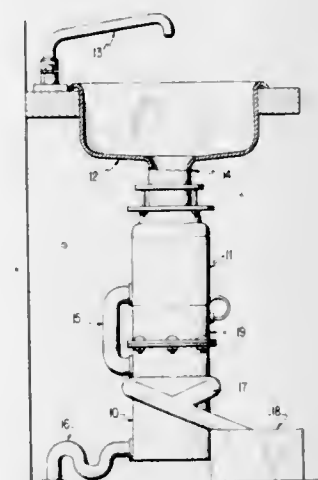
Filed June 26, 1968, Ser. No. 740,274

Int. Cl. B02c 18/42

U.S. Cl. 4-187

9 Claims

A centrifuge extractor for use with a waste disposal, such as might be used in a home, to remove sludge from the disposal discharged to the drainage system. The extractor unit is provided with compact arrangement for placement along with such a waste disposal beneath a

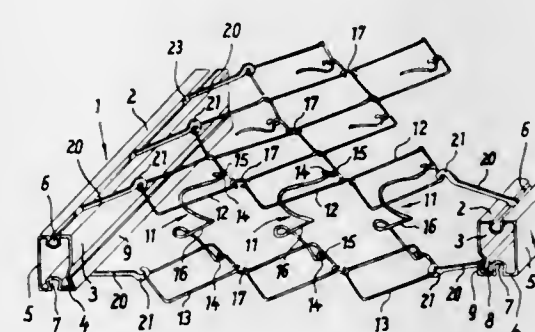


kitchen sink and is adapted to retain sludge particles above a minimum size without incurring clogging of the extractor unit.

3,559,219
BED FRAME WITH A BUILT-IN SPRING CORE
Otto P. Molt, Haubersbronn, Wurttemberg, Germany
Filed Dec. 26, 1968, Ser. No. 787,028
Claims priority, application Germany, Dec. 28, 1967,
P 16 54 321.8

Int. Cl. A47c 23/02, 23/04
U.S. Cl. 5-247

11 Claims



This invention is directed to bed frame with a built-in spring core. The spring core is constructed from elastic springs connected to each other at their corners. Tension members of elastic material act to brace the elastic springs against the bed frame, the tension members being provided with hooks at one end and anchoring elements at their other end. The tension members are connected at one end to the springs by means of the hooks, and are secured to the bed frame by the anchoring elements which are inserted into anchoring grooves provided in the bed frame.

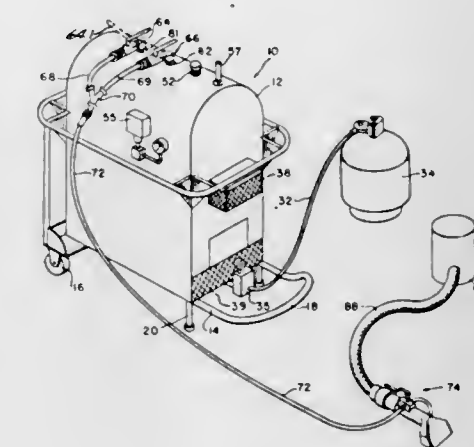
3,559,220 PORTABLE RUG DYEING MACHINE AND METHOD

John A. Thompson, Portland, Oreg., and William H. Wisdom, Portland, Oreg. (Rte. 2, Box 178E, Sherwood, Oreg. 97140); said Thompson assignor to said Wisdom
Application Mar. 29, 1968, Ser. No. 723,325, which is a continuation of abandoned application Ser. No. 344,085, Feb. 11, 1964. Divided and this application May 29, 1968, Ser. No. 751,634

Int. Cl. B08b 3/00, 5/04

U.S. Cl. 8-149.1

6 Claims



Method of cleaning and/or dyeing rugs, upholstery and the like materials while the same are in place. Incremental strip of material instantaneously beneath a moving nozzle is first sprayed with heated cleansing or dyeing fluid, the exposed to a vacuum to prevent excessive wetting.

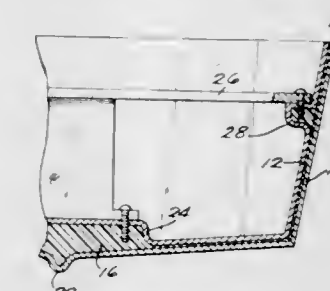
3,559,221
MULTILAYER HULL FOR A SMALL BOAT
Paul B. Juhnke, Rte. 2, Box 228,
East Troy, Wis. 53120

Filed Jan. 11, 1968, Ser. No. 697,094

Int. Cl. B32b 15/20; B63b 3/12, 3/20

U.S. Cl. 9-6

1 Claim



This disclosure comprises a panel, shell, hull of a boat, or other formed shape which consists of outer and inner thin sheets of aluminum bonded together and made rigid by an internal layer of epoxy or other resinous cement.

3,559,222
BOAT WITH ADJUSTABLE BOTTOM
Harold L. Walker, Whitestone, N.Y., assignor to Albert C. Nolte, Jr., New York, N.Y., a fractional part interest
Continuation-in-part of application Ser. No. 650,955,
July 3, 1967. This application Oct. 28, 1968,
Ser. No. 795,369

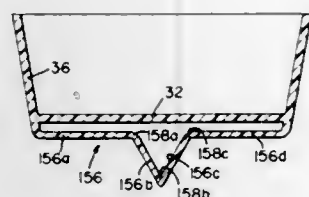
Int. Cl. B63b 3/00, 5/00

U.S. Cl. 9-6

25 Claims

A boat which has a deck situated between a pair of sides of the hull, these sides extending downwardly below the deck where the sides respectively have bottom edges. The

hull includes a bottom wall connected to these bottom edges to be carried by the sides of the hull, and this bottom wall of the hull is adjustable so that it can assume a number of different configurations. These configurations can include a range from a substantially flat configuration to a V-shaped configuration. An adjusting structure is connected to the bottom wall to adjust the latter so that it



will assume a configuration determined by the adjusting structure, and a structure which responds to the condition of the water in which the boat is situated is capable of automatically actuating the adjusting structure to act through the latter on the bottom wall to provide it automatically with a configuration which is adapted to the particular conditions under which the boat is operated.

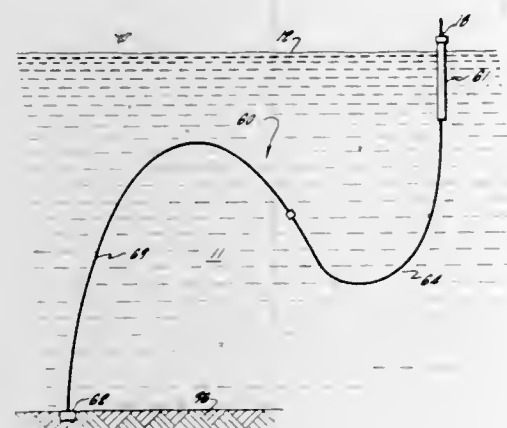
3,559,223 LONG SPAR BUOY CONSTRUCTION AND MOORING METHOD

George S. Lockwood, Jr., and Robert K. Atwater, Los Angeles, Calif., assignors to Global Marine Inc., Los Angeles, Calif.

Continuation of application Ser. No. 548,566, May 9, 1966. This application July 30, 1969, Ser. No. 863,402
Int. Cl. B63b 21/26, 21/52

U.S. Cl. 9—8

5 Claims



A positively buoyant long spar buoy having a length of at least about 100 feet and a maximum body diameter of about 36 inches, the body being fabricated of lengths of pipe rigidly connected in end-to-end relation, the body including anti-flooding means adjacent each interpipe connection and being ballasted to float upright with a selected minor portion of its length out of water.

3,559,224 AUTOMATIC LIGHTING DEVICE FOR SALVAGE

Kunio Shimizu, 1-33-2 Asagaya-Minami, Suginami-ku, Tokyo, Japan
Filed Aug. 25, 1969, Ser. No. 852,762
Claims priority, application Japan, Sept. 3, 1968, 43/62,741

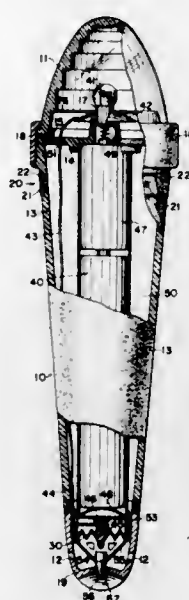
Int. Cl. B36b 45/00

U.S. Cl. 9—8.3

5 Claims

A lighting device comprises a casing having openings at the lower end portion thereof, through the openings

of which water enters into the casing as the lighting device floats on the water while revealing the top portion thereof above the surface of water, a diaphragm water-tightly fixed within the casing so as to be pushed up by the water entered therein, and an electric circuit including a contact assembly for lighting the lighting device to



be switched on by means of the diaphragm pushed up. Around the upper portion of the casing and above the surface of the water, there is provided a material permeable by gas but impervious to water to separate a sealed inner chamber from the outer air, and thereby balancing the inner air pressure with the outer air pressure through the material.

3,559,225 VEHICLE CLEANING APPARATUS

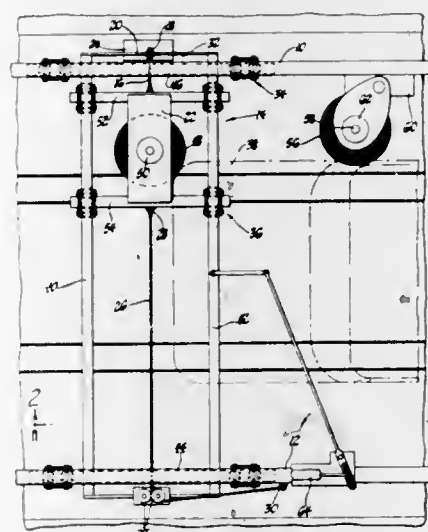
Harry K. Gougoulas, 1875 Philomine, Lincoln Park, Mich. 48146

Continuation-in-part of application Ser. No. 754,526, July 30, 1968. This application Apr. 14, 1969, Ser. No. 825,092

U.S. Cl. 15—21

Int. Cl. B60s 3/06

27 Claims



Vehicle cleaning apparatus comprising a washing area through which a vehicle progresses and at least one brush having a vertical axis of rotation and being suspended from trolleys so as to be movable transversely

and longitudinally of the vehicle to be cleaned. In one embodiment, a single brush is moved in a substantially triangular path around a moving vehicle so that at least three complete sides of the vehicle are cleaned automatically. In another embodiment, two brushes are moved through reversely symmetrical triangular paths so that each brush cleans each of two sides of the vehicle partially and one side of the vehicle completely. In both embodiments, the brush or brushes and the trolleys to which the brush or brushes are mounted are connected by cables to counterweights to control brush movement relative to the vehicle in accordance with the individual dimensions of the vehicle.

3,559,226 TOOTH BRUSH FOR INTERPROXIMAL AREAS

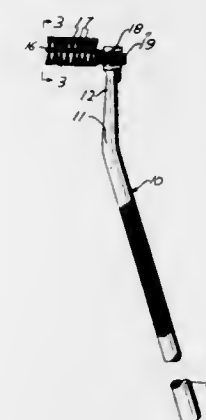
Robert L. Burns, Lexington, Ky., assignor to The University of Alabama Medical Center Foundation, a corporation of Alabama

Filed May 31, 1968, Ser. No. 734,191

Int. Cl. A46b 3/10, 9/04

U.S. Cl. 15—167

1 Claim



A tooth brush for interproximal areas having elongated wire members twisted on each other with radially extending bristles fixedly secured in place therebetween. A laterally opening passageway is provided in an elongated handle for receiving ends of the twisted wire members which are secured in place by an adjustable retaining member, the handle being bent to position the wire members at an obtuse angle relative to the remainder of the handle.

3,559,227 WINDOW CLEANING DEVICE

George R. Schleicher, 1749 Grand Concourse, Bronx, N.Y. 10453

Filed Apr. 14, 1969, Ser. No. 815,643

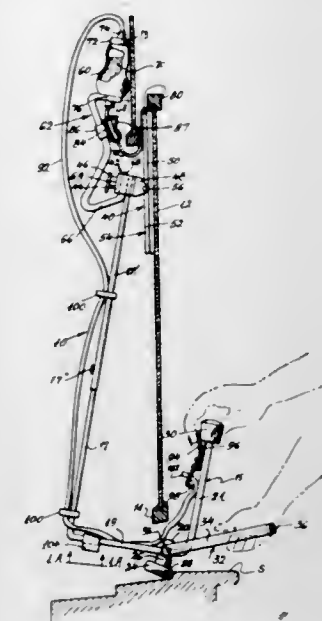
Int. Cl. A47l 1/08

U.S. Cl. 15—250.04

11 Claims

A window cleaning device whereby the outer side of a window may be readily and easily washed without the necessity of the operator or washer passing through the window to the outer side thereof, the construction being such as to permit the washing of the outer side of a window by an operator positioned at the inner side of the window with ease. The device consists of a squeegee mounted and carried on a frame and wheel operable over the window sill and provided with two handles, one for each hand of the operator, the squeegee being on the outside of the window when in operative position the handles being inside the window actuating the device. A small container of detergent and water is connected to

the squeegee and a highly controlled slow drip of water is delivered to the squeegee wiper blade end just sufficiently



to lubricate and clean the blade and to wash the window surface.

3,559,228 DOCTOR BLADE HOLDING ASSEMBLY

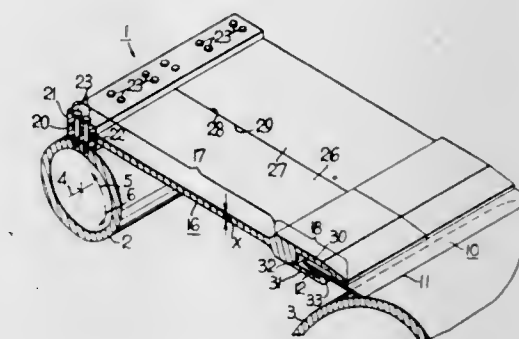
Donald B. De Noyer, Beloit, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Dec. 19, 1968, Ser. No. 785,198

Int. Cl. D21g 3/00, 3/02, 3/04

U.S. Cl. 15—256.51

1 Claim



A doctor blade holding assembly is disclosed having a pivotable doctor back parallel to and spaced from a roll of a paper making machine. A resilient blade extends along the entire width of the roll for engaging and scraping the surface of the roll. A resilient means of one or more moldings having integral first and second portions connect the blade to the doctor back. The first portion of the molding is relatively long and thin so as to be resilient and is connected to the doctor back to project the entire molding as a cantilever toward the roll with the second portion of the molding providing a blade holder on the projecting end of the molding and the first portion providing resiliency to supplement the resiliency of the blade for improved contour following and pressurized scraping of the roll. The resilient means, either a single molding or segments bonded together along edges normal to the roll, may cover the entire space between the doctor back and the roll. A molding is also disclosed with a first portion that is tapered to provide a decreasing thickness from the doctor back end thereof toward the blade holding portion to provide desired flexibility and deflection characteristics with the greater thickness of the molding being in the area where the bending movement is concentrated, that results from bending the molding in a direction transverse to the blade.

3,559,229

DOCTOR ASSEMBLY

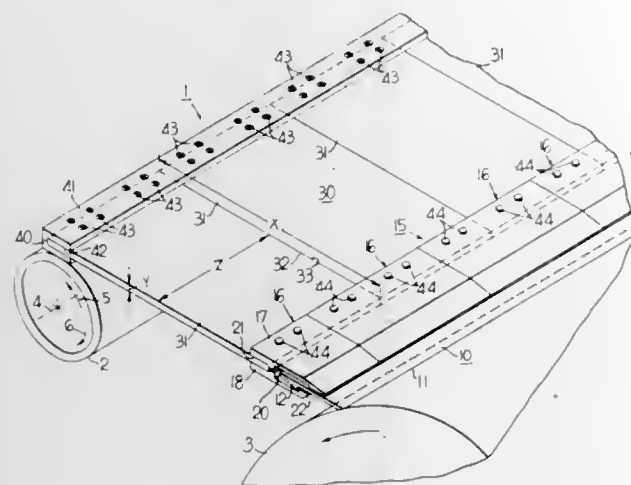
Donald B. De Noyer, Beloit, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Dec. 19, 1968, Ser. No. 785,199

Int. Cl. D21g 3/00, 3/02, 3/04

U.S. Cl. 15—256.51

1 Claim



A doctor is disclosed having a pivotable doctor back parallel to and spaced from a roll of a paper making machine. A blade carried by a blade holder is resiliently connected to the doctor back by a thin plate of substantial width and sufficient length relative to its thickness so as to be resilient and supplement the resiliency of the blade for improved contour following and pressurized scraping of the roll. The thin plate, made up of several segments abutting each other along edges normal to the roll, extends the full width of the roll and covers the space between the roll and doctor back. The blade holder comprises segments which overlap the plate segments, with adjacent blade holder segments held in alignment for blade insertion and removal, by an overlapped plate segment.

3,559,230

ESCALATOR CLEANER

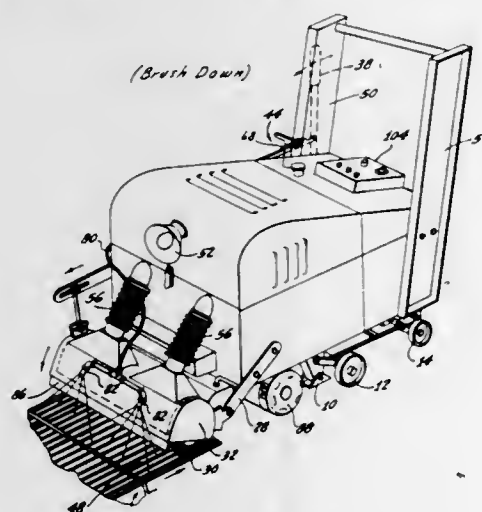
Robert R. Ogle, 666 N. Park Ave.,
Pomona, Calif. 91617

Continuation-in-part of application Ser. No. 667,574,
Sept. 13, 1967. This application Mar. 24, 1969,
Ser. No. 814,504

Int. Cl. A47l 7/02

U.S. Cl. 15—302

5 Claims



An improved vacuum cleaning machine is described herein which may be wheeled to a position over the moving

platform of an escalator; and which functions in an improved manner to clean the escalator as it moves under a rotating cleaning brush of the machine.

3,559,231

VINYL FLOOR RUNNER

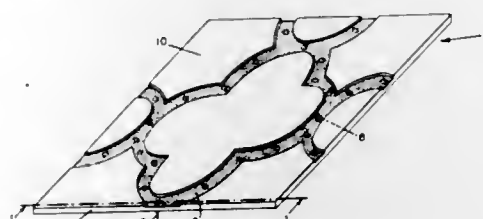
John P. Hill, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

Filed Oct. 25, 1968, Ser. No. 770,642

Int. Cl. A47g 27/04

U.S. Cl. 16—4

1 Claim



A vinyl floor runner made from a transparent sheet with a decorative pattern on one side and floor gripping projections on the opposite side. The placement of the floor gripping projections is coordinated with the design on the other side to mask the projections. Masking of the projections tends to permit the transparent vinyl runner to blend in with the floor that it overlies to create a more pleasing overall aesthetic effect.

3,559,232

ELECTRICALLY ACTUATED DOOR HOLDER WITH MANUAL OPENING AND CLOSING OVERRIDE, AND AUTOMATIC RELEASE TO EFFECT CLOSURE

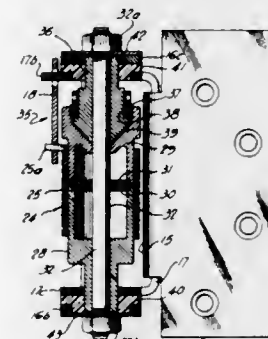
Burke J. Crane, Lombard, Ill., assignor to
Rixson, Inc., Franklin Park, Ill.

Filed Mar. 21, 1969, Ser. No. 809,297

Int. Cl. E05f 3/22

U.S. Cl. 16—50

10 Claims



An electrically actuated door holder applied to a hinged door having a closer. The door holder may be manually overridden and also automatically released.

Functionally, the door is held open at any desired angular position when a solenoid is energized to cause a helical spring torque clutch to lock in engagement two relatively rotatable clutch shafts enveloped by the spring. Each clutch shaft is mechanically coupled to a different hinge leaf. In the door opening direction, the spring is unwound relative the clutch shafts to permit manual enlargement of the door opening.

A second cone or torque limiting clutch is mechanically connected in series with the helical spring clutch to enable manual closing of the door when sufficient door closing torque is applied to disengage the cone clutch,

even though this closing torque is insufficient to disengage the helical spring clutch in the door closing direction.

Deenergization of the solenoid by the manual operation of a switch, or by an automatic fire detector, for example, disengages the helical clutch and permits the closer to close the door automatically.

3,559,233

METHOD AND APPARATUS FOR Eviscerating Poultry

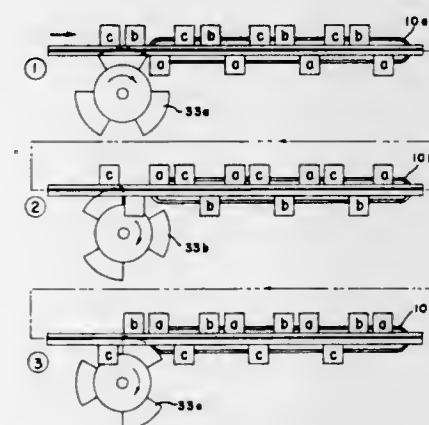
Gary J. Bottomley, P.O. Box 88, Wilkesboro, N.C. 28697; William M. Nichols, Rte. 4, Box 654, North Wilkesboro, N.C. 28659; Clyde E. Watkins, Box 125, Millers Creek, N.C. 28651; and Larry D. Wilson, Kenleigh Circle, Ken Acres, Wilkesboro, N.C. 28697

Filed Apr. 24, 1969, Ser. No. 818,946

Int. Cl. A22c 21/00

U.S. Cl. 17—45

5 Claims



A system for diverting, sequentially, predetermined series of birds from a predetermined path of travel to prescribed paths of travel to present each predetermined series of birds to respective inspection stations longitudinally spaced from each along an eviscerating line. Upper and lower spaced guides cooperate with a drive wheel to convey shackles, of a chicken eviscerating line, to one of two sides of the guides to increase the spacing between shackles presented to an inspection station.

3,559,234

CORNER TOOL AND APPLICATOR NOZZLE

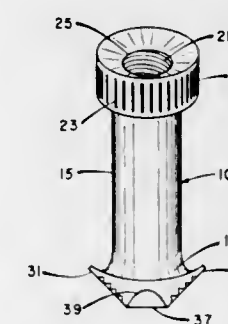
Clark E. Swayze, Midland, Mich., assignor to
Dow Corning Corporation, Midland, Mich.

Filed Jan. 8, 1969, Ser. No. 789,814

Int. Cl. E04f 21/28

U.S. Cl. 18—3.5

10 Claims



A combination corner finishing tool and fluid applicator nozzle adapted to be removably mounted on the discharge nozzle of a dispensing tube is disclosed. The applicator nozzle has two legs which are perpendicular to

each other and have cross ribs or fins on their outer surfaces which serve to scrape clean a surface which the legs are moved along. When one leg of the nozzle is held against one of two perpendicular surfaces, the other leg of the nozzle automatically is flush against the second surface. Thus, the nozzle is especially suited for dispensing caulking materials. As the nozzle is guided along the seam between a wall and a bathtub, for example, the caulking material is dispensed into the seam and smoothed to a predetermined angle to the wall and bathtub.

3,559,235

DEVICE FOR MAKING HOLLOW BODIES FROM PREFORMED THERMOPLASTIC MATERIAL ACCORDING TO A BLOW MOLDING PROCESS

Reinold Hagen, Hanglar uber Siegburg,
Rhineland, Germany

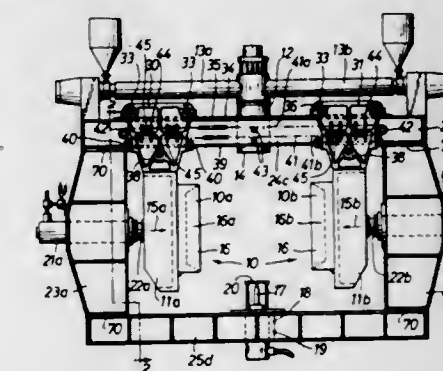
Filed Dec. 20, 1967, Ser. No. 692,194

Claims priority, application Germany, Dec. 23, 1966,
K. 60,999

Int. Cl. B29f 3/014

U.S. Cl. 18—5

8 Claims



The disclosure relates to improvements in a method and apparatus for blow molding preformed articles which are positioned between reciprocal mold elements, the carriers of which are arranged for reciprocal movement between spaced beam members.

3,559,236

APPARATUS FOR MOLDING PLASTIC

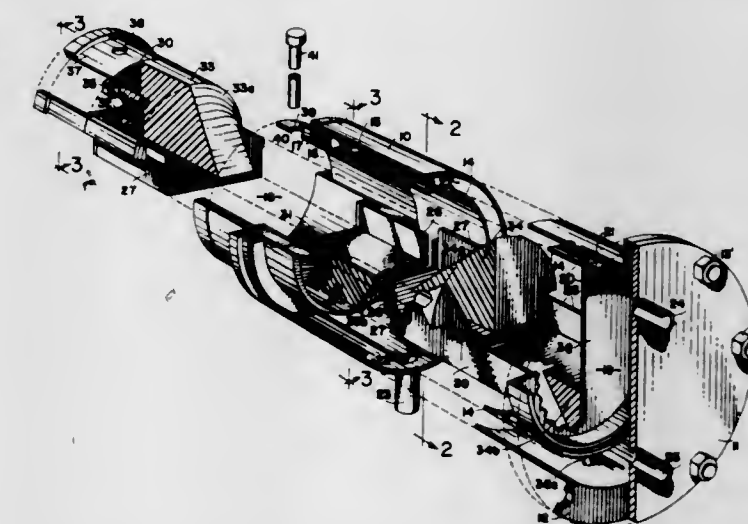
James A. Merritt, Livermore, Calif., assignors to Glass Reinforced Engineered Materials, Inc., Haywood, Calif.

Continuation of application Ser. No. 665,055, Sept. 1,
1967. This application Dec. 2, 1969, Ser. No. 876,178

Int. Cl. B30b 5/02, 11/32

U.S. Cl. 18—5

10 Claims



Plastic molding apparatus of an autoclave type having a hot gas or steam deformable inner liner which conforms to a light-weight, two-part mold containing curable

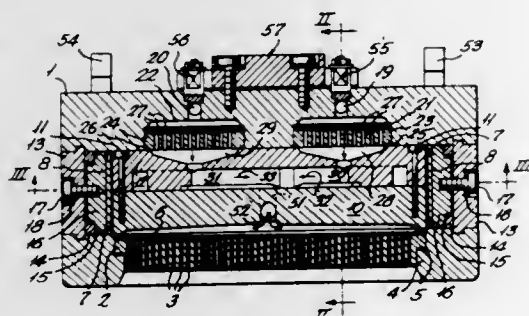
plastic. The introduction of steam conforms the liner to the exterior of the mold and provides heat and pressure to cure the plastic.

3,559,237 APPARATUS FOR PRODUCING SYNTHETIC YARNS FORMED OF BICOMPONENT FILAMENTS

Paul V. M. van den Biggelaar, Dieren, Gelderland, and Jan C. Rijkaart, Arnhem, Netherlands, assignors to American Enka Corporation, Enka, N.C.
Filed Nov. 22, 1967, Ser. No. 685,049
Claims priority, application Netherlands, Nov. 23, 1966, 6616462
Int. Cl. D01d

U.S. Cl. 18—8

23 Claims



An apparatus for the spinning of synthetic yarns made up of bicomponent filaments comprising a feed means for each liquid spinning component and a spinning assembly housing connected to the feed means. The assembly housing includes a substantially horizontal spinneret plate with spinning orifices arranged in a pattern, a closable access means and guide means for directing the spinning components from the feed means to the orifices in the spinneret plate. The guide means is insertable and removable through the closable access means. The assembly housing has a horizontal section which is oblong and has a length which is approximately about one and one half to about two times its width and the spinneret plate which is placed within the assembly housing has, in the horizontal plane, an oblong configuration and also dimensions which are about the same order of magnitude as those of the assembly housing. The assembly, in this manner, provides a rigid compact construction that promotes rapid and uniform heat transfer to the spinning components within the housing upon being placed in a heated jacket or the like.

3,559,238 WALKING DIE PELLET MILL AND IMPROVEMENTS THEREFOR

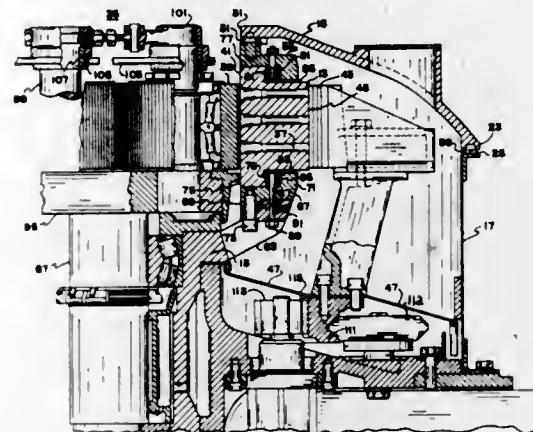
Robert W. Gilman, San Francisco, Calif., assignor to California Pellet Mill Company, San Francisco, Calif.
Filed July 11, 1967, Ser. No. 652,539
Int. Cl. B29f 3/01

U.S. Cl. 18—12

8 Claims

An apparatus for securing a die to the frame of an extrusion mill including segmental wedge rings which engage trapezoidal flanges on the die and are wedged within annular flanges on the frame thereof with clamping means for interlocking the wedge rings in the frame. An apparatus for retarding the downward flow of extrusion material into an extrusion mill having a horizontal radially perforated die comprising helical like blades disposed internally of the die and which rotate ahead of and above the extrusion rollers. An apparatus for retaining extrusion rollers in operating position internally of the die of an extrusion mill comprising a cover plate which is secured to drive posts and supports the upper ends of the roller

journal shafts. An apparatus for adjusting rollers of an extrusion mill comprising an adjustable link extending between a drive post in the roller assembly and a radial extension arm secured to the roller journal shaft which has a journal center eccentric of its roll center. An extrusion assembly for a walking die pellet mill characterized by a segmental wedge ring which engages a trapezoidal flange on the extrusion die to secure the die to the frame of the



mill, by extrusion material flow retarders formed of helical like blades which rotate ahead of and above the extrusion rollers, by a drive plate secured to drive posts and supports the upper ends of the roller journal shafts retaining the rollers in operating position, and by a roller adjustment means which includes adjustable links extending between said drive posts and radial extension arms secured to the roller journal shafts which have their journal centers eccentric of their roll centers.

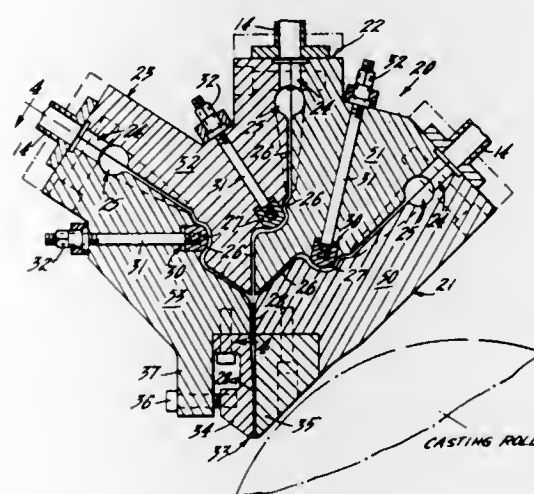
3,559,239 MULTILAYER EXTRUSION DIE

William A. Work, Neenah, Wis., and George A. Huppenthal, Butler, N.J., assignors to American Can Company, New York, N.Y.

Filed Feb. 27, 1968, Ser. No. 708,677
Int. Cl. B29f 3/00

U.S. Cl. 18—12

7 Claims



An improved extrusion die for the simultaneous extrusion of multilayer flat films or sheets of thermoplastic materials wherein improved flow passages between a plurality of manifolds supplying material from separate sources of resins and a common flow passage are provided.

3,559,240 BULK PLASTIC HANDLING

Edward J. Kosinsky and William E. Saunders, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed July 19, 1967, Ser. No. 654,458
Int. Cl. B29f 3/01

U.S. Cl. 18—12

4 Claims

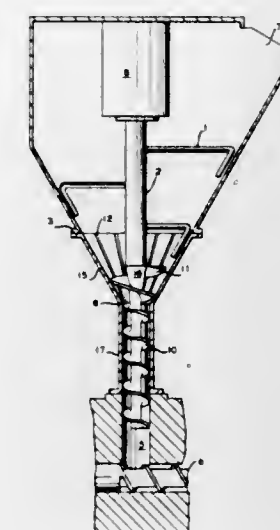
3,559,242 HIGH PRESSURE CELLS

Jacob Marcovitch, Johannesburg, Transvaal, Republic of South Africa, assignor to Rotary Profile Anstalt, Vaduz, Liechtenstein

Filed Mar. 12, 1968, Ser. No. 712,498
Int. Cl. B29c 3/00

U.S. Cl. 18—16

27 Claims



Compressible bulk material in particulate form is fed to an extruder by means of a force feeder having compression and metering sections provided with grooves substantially aligned with the direction of plastic flow wherein the bulk plastic is substantially compressed prior to injection into the extruder.

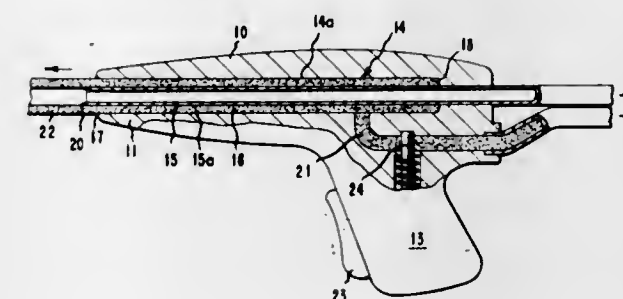
3,559,241 APPARATUS FOR PRODUCING A HOLLOW STRIP OF POLYMERIC MATERIAL

Edward Chu, Philadelphia, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed May 31, 1968, Ser. No. 733,583
Int. Cl. B29d 23/04

U.S. Cl. 18—14

2 Claims



The disclosure describes an apparatus which is adapted for use in producing a hollow strip or tube of polymeric material of any desired length from a fluid polymeric composition; the apparatus preferably is a gun-like device which can be held by a person and operated with one hand during extrusion of the product from the front (discharge) end; the apparatus comprises (A) a chamber (e.g. a cylinder) for holding a pressurized fluid, for example a thixotropic polymeric composition, (B) a mandrel (e.g. a tube) mounted within chamber (A) to form an extrusion chamber between the sidewall of chamber (A) and the outer wall of mandrel (B), the front end of mandrel (B) extending a short distance beyond the front end of chamber (A), and (C) a duct means for introducing a fluid polymeric composition into the rear portion of said extrusion chamber.

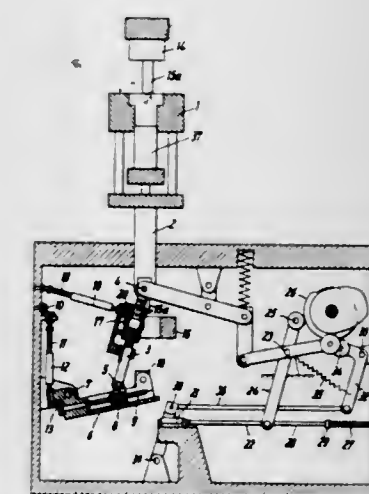
3,559,243 APPARATUS FOR CONTROLLING THE MOVE- MENT OF THE MATRIX OF METAL-POWDER PRESSES

Rolf Hermes, Rheyd-Giesenkirchen, Germany, assignor to Mannesmann-Meer Aktiengesellschaft, Monchengladbach, Germany

Filed May 28, 1968, Ser. No. 732,606
M 74,631
Claims priority, application Germany, July 5, 1967, M 74,631

Int. Cl. B30b 11/02, 15/14
U.S. Cl. 18—16.5

3 Claims

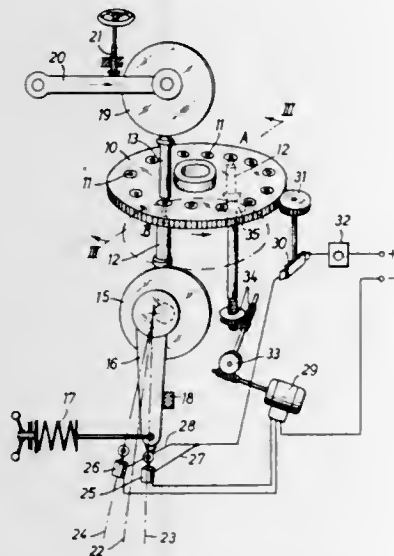


A mechanism controls, for instance steplessly adjustably, the movement of the matrix of a press during the compression stroke, in dependence on the movement of the upper punch. An element is connected to the upper

punch which moves synchronously therewith and engages a mechanism that is connected to the matrix for effecting movement of the latter after a predetermined movement of the upper punch.

3,559,244 PRESS FOR MAKING OBJECTS OF EQUAL WEIGHT

Fritz Grether, Cologne-Neu Ehrenfeld, and Helmut Janson, Cologne-Heimersdorf, Germany, assignors to Kilian & Co. G.m.b.H., Cologne-Niehl, Germany
Filed June 27, 1968, Ser. No. 740,723
Claims priority, application Germany, June 29, 1967, K 62,677
Int. Cl. B29c 3/06
U.S. Cl. 18—20 9 Claims

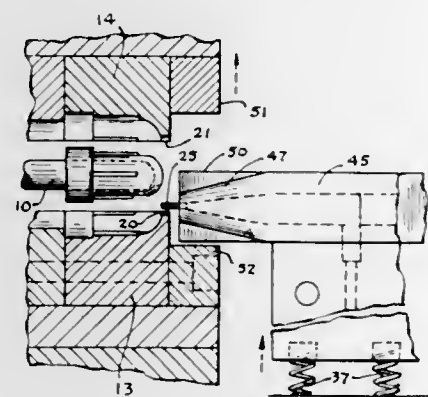


The volume of the mold chambers of a tabletting press is adjusted in accordance with the measured compressing pressure so that the same amount of a powdery substance is filled into the mold chambers irrespective of its consistency whereby tablets of equal weight are pressed.

3,559,245 MOLDING APPARATUS

George R. Ryan, 1431 Henry Place,
Waukegan, Ill. 60085
Filed Apr. 2, 1968, Ser. No. 718,160
Int. Cl. B29f 1/03

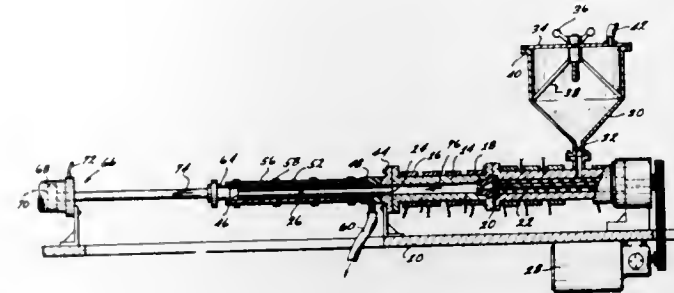
U.S. Cl. 18—30 10 Claims



Runnerless molding apparatus employing cooled mold sections and a heated manifold assembly in which the only contact between the heated manifold assembly and the cooled mold sections is by injection nozzles extending outwardly from the manifold assembly and movable transversely into an out of contact with the mold sections between each molding cycle.

3,559,246 APPARATUS FOR MAKING OPTICAL FIBERS

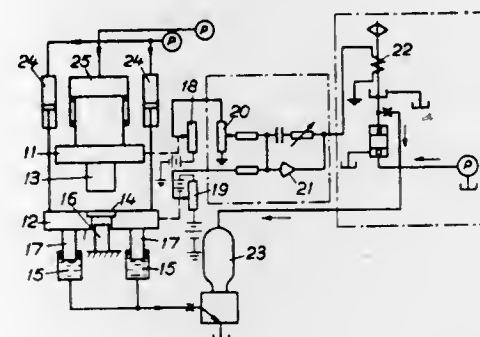
Paul Fyfe, Downey, Calif., assignor to Poly-Optics, Inc.
Original application May 20, 1965, Ser. No. 457,407, now Patent No. 3,472,921. Divided and this application May 31, 1968, Ser. No. 740,812
Int. Cl. B29f 1/00
U.S. Cl. 18—30 10 Claims



An apparatus for extruding optical fiber plastic material into a preformed tubular member of optical fiber plastic material which includes an extrusion nozzle which is relatively movable with respect to the preformed tubular member as the extruded material fills the tubular member.

3,559,247 MEANS FOR HYDRAULIC PRESSES

Paul Larsson, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed Mar. 18, 1968, Ser. No. 713,910
Claims priority, application Sweden, Mar. 22, 1967, 3,999/67
Int. Cl. B29c 3/00
U.S. Cl. 18—32 7 Claims



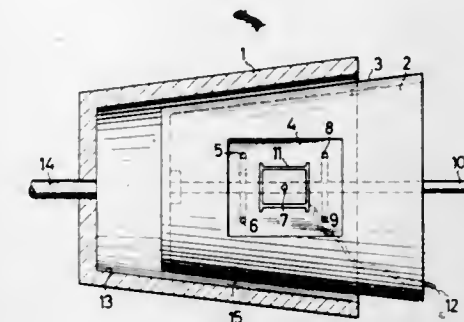
In hydraulic presses, preferably powder presses, there are arranged position measuring means, measuring the movements of upper and lower press heads or movements of inbuilt tools. The outputs of said means are modified in quota means and are combined into a comparison signal for controlling a hydraulic valve to control the movements of the heads.

3,559,248 DEVICE FOR APPLYING PRINTED FOILS TO MOLDED ARTICLES

Günther Stockmann, Uchte, Germany, assignor to Dr. Ing. Fritz Sommer NACHF., Ludenscheid, Germany
Filed Mar. 22, 1968, Ser. No. 715,408
Claims priority, application Germany, Mar. 25, 1967, St 26,668
Int. Cl. B29c 24/00; B29d 3/00
U.S. Cl. 18—36 3 Claims

An apparatus for transferring a printed foil from the surface of a first member within close tolerance to a predetermined portion of the surface of a second member. The members constitute a matrix and a patrix, the second member preferably being the matrix, and the second mem-

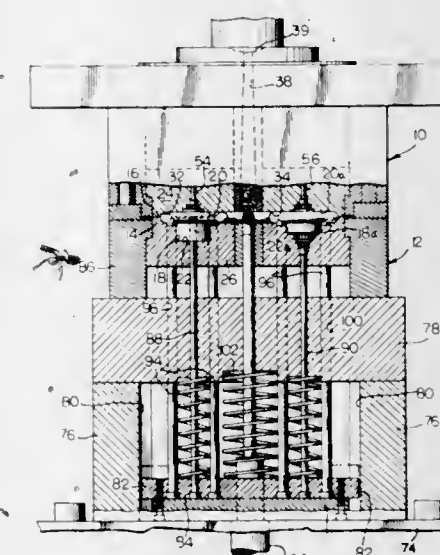
ber is part of a mold such as an injection mold. The first member has a depression in the surface thereof having an outline corresponding to the outline of the foil and suction means communicating with the depression for holding the foil within the depression. An electrostatic charging means is partly located within the depression for charging the foil held within the depression. Means are



provided for moving the members relative to each other so as to juxtapose the positioned foil with the area on the second member to which the foil is to be transferred and pneumatic pressure means are provided in communication with the depression for blowing the foil toward the second member.

3,559,249 PLASTIC-MOLDING APPARATUS

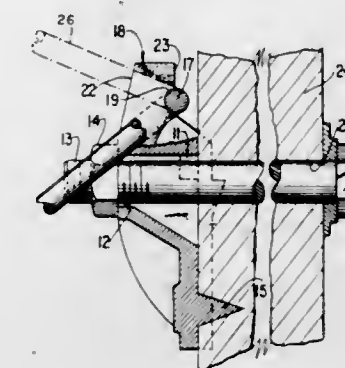
Roy A. Patton, Jr., Grabill, Ind., assignor to Hood, Gust, Irish & Lundy, Fort Wayne, Ind.
Filed June 8, 1967, Ser. No. 644,573
Int. Cl. B29f 1/00
U.S. Cl. 18—42 6 Claims



The molding apparatus of this invention includes a die having a mold cavity, the die including two mold sections selectively movable into and out of closing engagement, these mold sections having parting surfaces which are sealably engageable with each other, the mold cavity being defined by two mating cavity portions in the parting surfaces, respectively, the cavity having opposite ends, one end being in one cavity portion and the other end being in the other cavity portion, a circular gate provided in the parting surfaces, which encircles the cavity, and an annular sprue also provided in the parting surfaces, which encircles the cavity, the sprue being radially positioned between the gate in the cavity and located approximately midway between the opposite ends of the cavity.

3,559,250 GUY HOOK FOR MOUNTING ON UTILITY LINE POLES

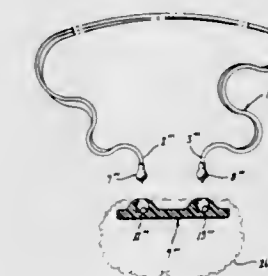
Owen R. Huggins, 136 West Ave.,
Darien, Conn. 06620
Continuation-in-part of application Ser. No. 655,160,
July 21, 1967. This application June 23, 1969, Ser.
No. 835,590
Int. Cl. B63b 21/04; F16g 11/06
U.S. Cl. 24—115 10 Claims



A guy and strand hook for mounting on utility line poles wherein the width of the upwardly loop-retaining portion is the same as the widths of the upper hub portion and intermediate portion and where the rear corners of the top of the loop-retaining portion project over the forwardly diverging ends of the groove for the loop to restrain upward movement of a loop seated therein while permitting vertical movement of the loop from substantially vertical downwardly to well above the horizontal.

3,559,251 SHOESTRING ACCESSORY

Jean D. Wilson, 1610 Fernside Blvd.,
Alameda, Calif. 94501
Filed Aug. 22, 1969, Ser. No. 852,264
Int. Cl. A43c 9/02
U.S. Cl. 24—143 5 Claims



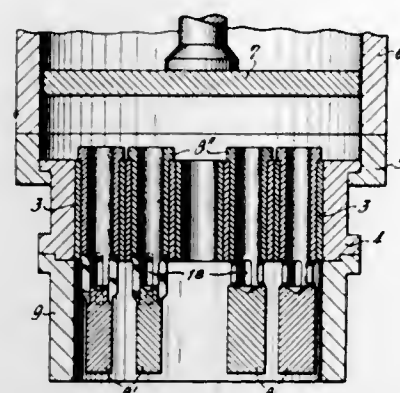
The accessory consists briefly of a shoestring having an end protruding through an eyelet of the shoe, a resiliently spherical member connected to the end of the shoestring, and a base member formed with a generally spherical chamber having an opening to the surface thereof for receipt of the spherical member in a "pop" fit. The accessory in the form of a decorative novelty is attached to the base.

3,559,252 EXTRUSION APPARATUS

Jürgen Schmidt, Monchen-Gladbach, and Hans-Georg Nitzsche, Oeslau, Germany, assignors to Schneider & Co., Frechen/Cologne, Germany
Filed Feb. 6, 1968, Ser. No. 703,355
Int. Cl. B28b 3/26
U.S. Cl. 25—17 5 Claims

Improved apparatus for the extrusion of articles having elongated cavities in them, including an array of parallel tubes removably mounted in a holding plate and having blocked downstream ends and lateral openings extending in the direction of extrusion. During extrusion, the clay or other material first passes through upstream parts of

the tubes then, after having passed beyond the holding plate, passes through the lateral openings in the tubes, and then between the blocked downstream ends of the tubes. In accordance with the invention the tubes are re-



tained in the holding plate by means of collars at their upstream ends, and the thickness of the plate is approximately equal to the distance between the collars and the lateral openings in the tubes.

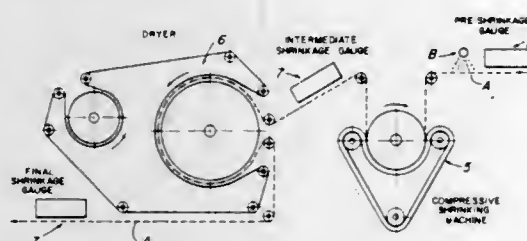
3,559,253

TEXTILE WEB SHRINKING APPARATUS COMPRISING MEANS FOR MEASURING DISTANCE BETWEEN INDEX MARKS ON THE WEB

Nestor W. Pandell, Waccabuc, and Robert M. Dowling, New Rochelle, N.Y., assignors to Cluett, Peabody & Co., Inc., Troy, N.Y.

Filed Nov. 5, 1968, Ser. No. 773,576
Int. Cl. D06c 21/00; G01t 1/16; H01j 39/12
U.S. Cl. 26—18.6

8 Claims



This invention is directed to apparatus for the compressive shrinking of textile fabrics and having a gauge for measuring the distance between equally spaced longitudinally aligned photo-sensitive index marks on a continuously advancing web of material and includes a trigger photocell for detecting the passage of a first index mark and for activating a plurality of counting photocells to measure the continuing passage of the first index mark until a second index mark reaches the trigger photocell and causes it to cause discontinuance of the passage measurement of the first index mark. Visual means are provided to indicate the length of passage of the first index mark along the counting photocells until passage measurement is discontinued.

3,559,254

APPARATUS FOR STUFFER CRIMPING TEXTILE STRANDS

Robert K. Stanley, Media, Pa., assignor to Techniservice Corporation, Kennett Square, Pa.

Continuation-in-part of application Ser. No. 650,762, July 3, 1967, which is a continuation-in-part of application Ser. No. 349,338, Mar. 4, 1964, now Patent No. 3,348,283, dated Oct. 24, 1967. This application June 9, 1969, Ser. No. 835,883

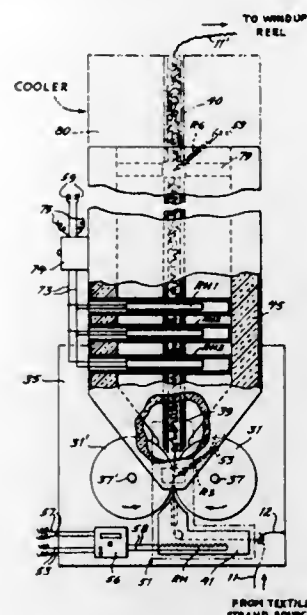
The portion of the term of the patent subsequent to Oct. 24, 1984, has been disclaimed
Int. Cl. D02g 1/12

U.S. Cl. 28—1.6

4 Claims

A stuffer-crimper for textile strands is provided with means for preheating such a strand to crimping tem-

perature, means for maintaining the strand at substantially such crimping temperature while it is being crimped



and subsequently being stress-relieved therein, and means for cooling the crimped, stress-relieved strand.

3,559,255

THREADING DEVICE FOR YARN HEATERS

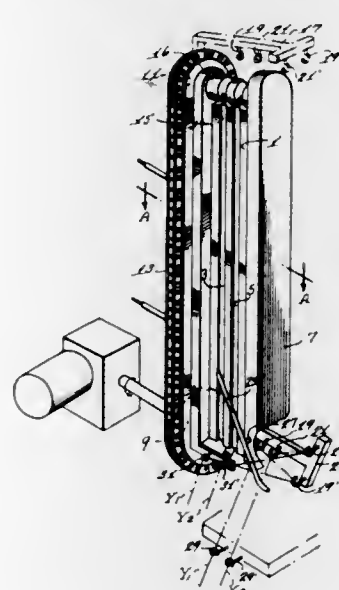
Christopher Hugh John Cockroft, Pontypool, England, assignor to Imperial Chemical Industries Limited, London, England

Filed July 12, 1968, Ser. No. 744,464
Claims priority, application Great Britain, July 19, 1967, 33,229/67

Int. Cl. D02j 13/00

U.S. Cl. 28—62

3 Claims



A two-sided contact heater for one or more thread-lines is threaded up by means of a guide device travelling orbitally around the heater on an endless chain.

3,559,256

MACHINE CONTROL APPARATUS

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Continuation-in-part of applications Ser. No. 387,954, Aug. 6, 1964, now Patent No. 3,372,568, and having as a parent application Ser. No. 557,415, Apr. 10, 1956, now Patent No. 3,049,247. This application Mar. 12, 1968, Ser. No. 712,443

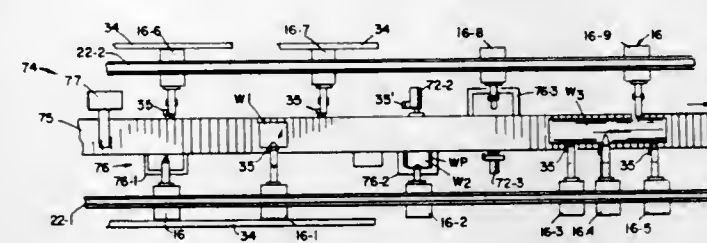
Int. Cl. B23q 91/00, 91/02

U.S. Cl. 29—33

5 Claims

A machine tool apparatus is provided employing a plurality of machines which are simultaneously auto-

matically controlled to perform preprogrammed operations on either the same or different work pieces. In one form, two machine tools or tool heads are supported on the same guide way or track and may separately move



therealong under remote, automatic control to perform preprogrammed operations either in cooperation with each other on the same work piece or on separate work pieces.

3,559,257

MACHINE CONTROL APPARATUS

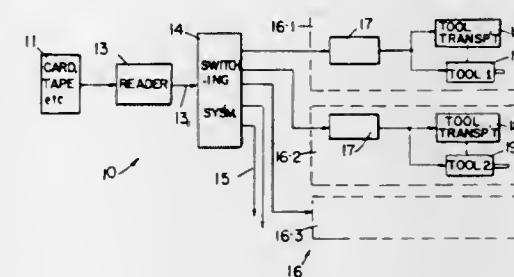
Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Continuation-in-part of application Ser. No. 387,954, Aug. 6, 1964, now Patent No. 3,372,568, which is a continuation-in-part of application Ser. No. 219,357, Aug. 13, 1962, which in turn is a continuation-in-part of application Ser. No. 557,415, Apr. 10, 1956, now Patent No. 3,049,247. This application Mar. 12, 1968, Ser. No. 717,065

The portion of the term of the patent subsequent to Mar. 12, 1985, has been disclaimed
Int. Cl. B23q 91/00

U.S. Cl. 29—33

8 Claims



A control apparatus and method for machines such as production machine tools and work transfer machines, are provided to permit automatic machine tool operation. In one form, a plurality of machine tools or operating portions of a single machine tool are remotely controlled from a computer to simultaneously operate on the same or different articles of work by the simultaneous generation of command control signals. Means are provided at each tool or operating component thereof for discriminating between different simultaneously generated messages so that the message destined to control the machine tool or component may be utilized without interference from other messages.

3,559,258

METHOD AND APPARATUS FOR BURNISHING A BORE

William A. Gardner, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

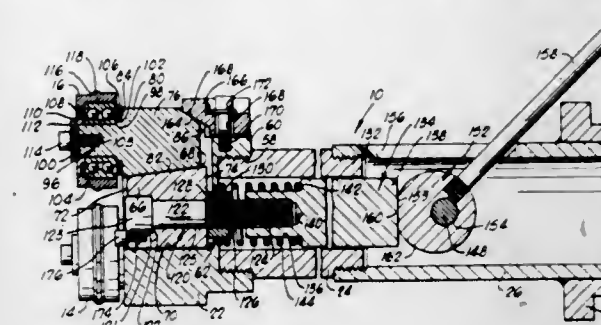
Filed Jan. 29, 1969, Ser. No. 795,009
Int. Cl. B24b 39/02

U.S. Cl. 29—90

11 Claims

A tool for burnishing and work hardening a bore comprising an elongated flexible body having narrow rotatable rollers positioned around the periphery thereof. One of said rotatable rollers is adjustable in directions perpendicular to the axis of said body so that it may be locked in a position against the bore causing the body to deflect and the other rollers to contact the bore. The bore to be burnished is rotated while the tool is moved

progressively along the bore. When the tool has passed through the bore thereby burnishing the bore, the ad-



justable roller is retracted allowing the tool to be removed without scratching the burnished surface of the bore.

3,559,259

METHOD FOR CONNECTING A LONGITUDINAL VIBRATOR WITH A BENDING VIBRATOR IN AN ULTRASONIC VIBRATING CUTTING SYSTEM, A TOOL AND A TOOL HOLDER THEREOF

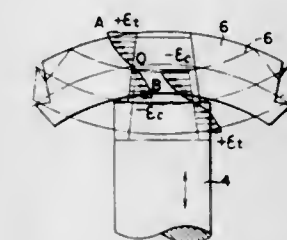
Junichiro Kumabe and Osamu Taniguchi, Tokyo, Japan, assignors to Rikagaku Kenkyusho, Kitaadachi-gun, Saitama-ken, Japan

Filed Dec. 26, 1968, Ser. No. 787,060
Claims priority, application Japan, Dec. 30, 1967, 43/85,205, 43/85,206, 43/85,211

Int. Cl. B26d 1/00; B23b 3/00

U.S. Cl. 29—96

6 Claims



A tapered hole in the thickwise direction of a bending vibrator being adapted to fit with a mating tapered shape of a longitudinal vibrator and said tapered hole being provided with reliefs toward the upper and under sides of bending vibrator thereby avoiding heat development from the connection, eliminating the adverse effect of thermal expansion of the cutting edge and reducing the cutting cost accordingly.

3,559,260

DETACHABLE CUTTING INSERTS

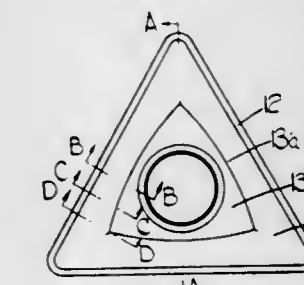
Lionel Fine, Coventry, England, assignor to Wickman Wimet Limited, Coventry, England

Filed Mar. 10, 1969, Ser. No. 805,659
Claims priority, application Great Britain, Mar. 13, 1968, 12,141/68

Int. Cl. B26d 1/00

U.S. Cl. 29—96

3 Claims



A machine tool cutting insert comprising a polygonal body having on at least one face a continuous land extending around its marginal edges, and a co-planar central plateau having sides opposite sides of the body characterised in that the sides of the plateau are convex so that

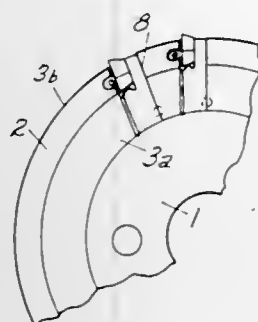
the intervening groove formed between the plateau and the land widens from points midway between the corners of the body towards the corners.

3,559,261 **MILLING CUTTER WITH BIT SEAT MEMBERS** **WELDED TO THE BODY**

Walter J. Greenleaf, 608 N. Main St.,
Meadville, Pa. 16335
Filed Nov. 20, 1968, Ser. No. 777,240
Int. Cl. B26d 1/12

U.S. Cl. 29—105

7 Claims



Patent 3,104,453 is improved by arc welding the bit seat members to the body at at least two points on the junctions between each bit seat member and the body and the trailing sides of the slots receiving the bit seat member, the points being remote from the bit seats.

3,559,262 **WRINGER ROLLERS**

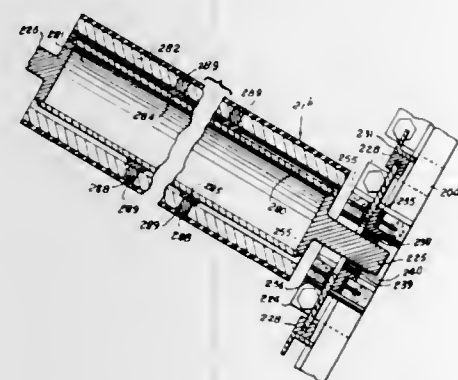
John D. Glenn and Owen G. Robbins, Dallas, Warren C. Schwemer, Arlington, and Joseph R. Silverman, Dallas, Tex., assignors to Ling-Temco-Vought, Inc., Dallas, Tex.

Continuation-in-part of application Ser. No. 368,038,
May 18, 1964. This application June 28, 1967, Ser.
No. 649,712

Int. Cl. D06f 61/02, 67/02

U.S. Cl. 29—130

4 Claims



A wringer assembly having a pair of rollers between which wet material is transportable and compressed to wring excess moisture therefrom. Each wringer roller has means for limiting bowing or deflection thereof intermediate the ends thereof.

3,559,263 **METHOD FOR MAKING FORMED ARTICLES** **WITH SHAPED END PORTIONS FROM STRIP** **STOCK**

Erman V. Cavagnero and Joseph F. Loftus, Torrington, Conn., assignors to The Torrington Manufacturing Company, Torrington, Conn.

Filed Apr. 24, 1968, Ser. No. 723,764

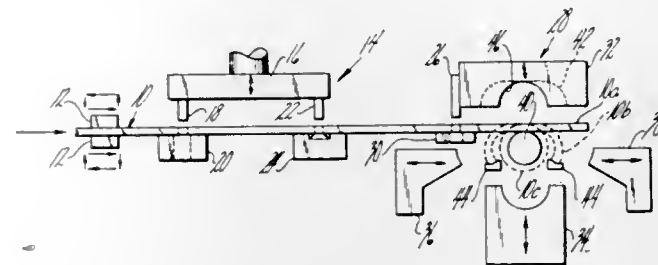
Int. Cl. B21h 1/12; B21d 53/10; B23p 17/00

U.S. Cl. 29—148.4

21 Claims

Method for making formed articles with shaped end portions from strip stock comprising the steps of advancing a strip, partially severing and at least partially shaping end portions of adjacent workpieces, severing workpieces, forming workpieces to provide articles, and optionally welding together end portions. The partial severing and partial end portion shaping step may be carried out in a

single step or in subsidiary steps involving respectively partial severing and end shaping. The forming step may comprise subsidiary partial and full forming steps with additional end shaping interposed therebetween. A wide variety of end shapes may be provided.



3,559,264 **REGENERATOR SPACER MANUFACTURE**

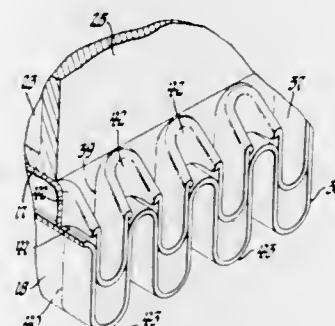
Joseph W. Bracken, Jr., Redford Township, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 25, 1968, Ser. No. 778,398

Int. Cl. B21d 53/00; B21k 29/00; B23p 15/26

U.S. Cl. 29—157.3

12 Claims



A radial-flow rotary regenerator matrix includes an outer sealing ring or outer rim. A radially yieldable structure disposed between this sealing ring or rim and the heat transfer body of the matrix is made up of two interdigitated corrugated strips which may slide radially one within the other.

3,559,265 **APPARATUS FOR FORMING LINING CAPS FOR** **BALL AND SOCKET JOINTS**

Claudio Noris and Carlo Cane, Turin, Italy, assignors to Fiat Societa per Azioni, Turin, Italy

Filed July 15, 1968, Ser. No. 744,978

Claims priority, application Italy, July 28, 1967,

52,593/67, Patent 808,396

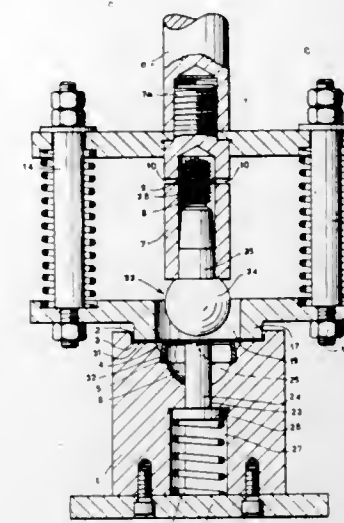
Int. Cl. B23p 11/00, 19/00

U.S. Cl. 29—200

6 Claims

An apparatus for forming lining caps for ball and socket joints has a shaping die has a hemispherical cavity conforming to the curvature of the socket. A first and a second annular seating are formed in the die coaxially with each other and with the hemispherical cavity. A fabric disc is located on the first seating. A resilient ring is located on the second seating and surrounds the hemispherical cavity. A holder for the ball member of the joint presses the ball portion thereof onto the fabric disc and

presses the disc through the resilient ring and into the hemispherical cavity, whereby the disc is shaped into



its proper form and is surrounded by the resilient ring. The resilient ring holds the shaped cap on the ball.

3,559,266 **ASSEMBLY TOOL FOR LAMINATED** **STATOR PACKS**

Tony Frederick Miles, Stamford, England, assignor to Newage Lyon Limited, Stamford, England

Filed Aug. 5, 1968, Ser. No. 750,248

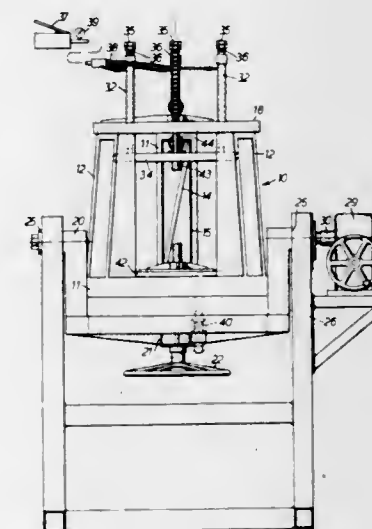
Claims priority, application Great Britain, Aug. 4, 1967,

36,026/67

Int. Cl. H05k 13/00

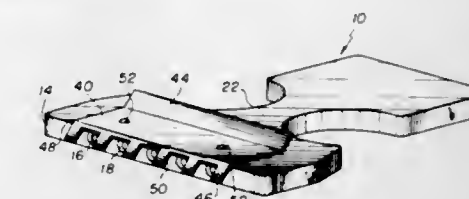
U.S. Cl. 29—203

4 Claims



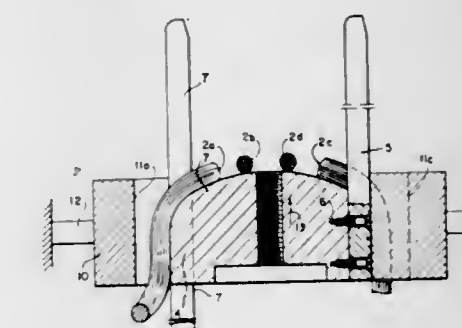
The invention relates to an assembling machine for assembling packs of stamped laminations for welding to constitute the iron stator cores of dynamo-electric machines. The machine comprises a cage into which the laminations can be inserted individually one upon another to form a stack, the cage having a hydraulic press at one end for compressing the stack. The cage is mounted for rotation about the axis of the stack in a cradle which is itself pivoted for rotation about a horizontal axis transverse the pivotal axis of the cage, so that after a stack of laminations has been inserted into the cage with its axis vertical and has been compressed by the hydraulic press, the cage can be swung down to a horizontal orientation with the stack still compressed in it by the press, to facilitate the welding of the edges of the laminations together. Locking means is provided for locking the cage in a number of predetermined angular positions convenient for performing the welding operation.

3,559,267 **TOOL** Edward J. Castellani, South Plainfield, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J. Filed Nov. 1, 1968, Ser. No. 772,584 Int. Cl. H05k 13/04 U.S. Cl. 29—203 5 Claims



The disclosure is directed to a tool for installing and removing bus connectors from a plurality of contact pins of a multi-pin connector board. The tool consists of two end faces each of which has a plurality of apertures therein sufficient in diameter and depth to receive therein the contact pins of said board. A bus connector will be applied to the uppermost portion of the pins then the pin tips will be introduced into the apertures within said tool and the tool by forcing downwardly thereon will cause the bus connector to take a position adjacent the surface of the board itself. The apertures are chamfered at their entry to facilitate the entry of the contact pins within the apertures and also to provide desired relief for deformation of any material of the bus connector about the pin as the pin is inserted. The opposite ends of the tool are of different lengths so that each may accommodate a different number of apertures to be used for short or long bus connectors. In addition, provision is made for the inclusion of an extracting plate adjacent either, or both, of the ends which extraction plate may be used to remove a bus connector already positioned upon the contact pins. The extraction plate consists of a comb-like end having a plurality of slots of sufficient size to go about the contact pins. The extraction plate is movable from a first position out of contact with the pins to a second position in contact with the pins thus trapping the bus connector therebetween and upon the application of force to the tool, in a direction away from the board, the bus connector may be removed therewith.

3,559,268 **DRAWING-IN TOOL FOR THE DRAWING OF** **COILS INTO STATOR GROOVES** Hans Droll, 6 Bergen-Enkheim, Nordring 75, Germany Filed Oct. 24, 1969, Ser. No. 869,286 Claims priority, application Germany, Apr. 11, 1969, P 19 18 485.1 Int. Cl. H02k 15/00 U.S. Cl. 29—205 4 Claims



A device for placing pre-wound coils into stator grooves including a generally circular stripper member movable through the stator. Teeth are arranged about the periphery of the stripper member with fingers in slots between the teeth. Some fingers, and preferably at least

one finger adjacent each tooth which contains a pre-wound coil to be placed into the stator is fixed onto the stripper member for movement therewith as the latter moves through the stator.

3,559,269

HIGH-IMPACT PORTABLE RIVETING APPARATUS

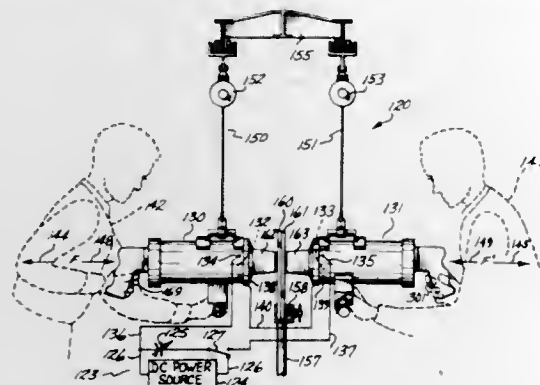
Hubert A. Schmitt, Auburn, Wash., and Jagdish S. Sekhon, Torrance, Calif., assignors to The Boeing Company, Seattle, Wash.

Filed Nov. 15, 1968, Ser. No. 776,014

Int. Cl. B23p 11/00

U.S. Cl. 29—243.54

16 Claims



A high-impact tool is disclosed as part of a ram component of an electro-mechanical gun, as shown in FIG. 1, which converts a rapidly changing electric current passing through its coil into a mechanical force acting between a conductor plate on the ram and the coil to propel the ram and its forming surface against a workpiece to form it. A pair of portable electro-mechanical riveting guns, as shown in FIGS. 3-7, is described along with an electrical system, shown in FIG. 8, which interlocks their operation to insure a simultaneous ram impact on each end of the rivet. The power supply, for operator safety, is isolated from ground as it discharges through the coils. A system, shown in FIGS. 5-7, for proper gun alignment is disclosed wherein increased back-pressure of fluid or gas outlets, blocked by proper gun positioning against the workpiece, operates control switches permitting firing of the guns.

3,559,270

DEVICE FOR EXTRUDING AN ANCHORING MEMBER ON A REINFORCING ELEMENT

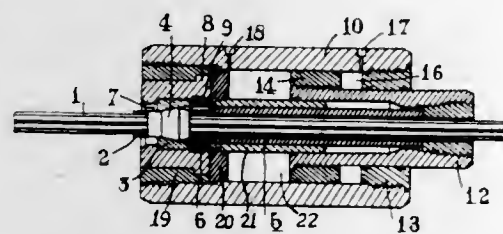
René Beghi, Bois Colombes, France, assignor to Societe des Grands Travaux de Marseille, Societe Anonyme, Paris, France

Filed Apr. 22, 1968, Ser. No. 723,110

Int. Cl. B21d 39/04

U.S. Cl. 29—282

1 Claim



The disclosure relates to a device for tensioning a pre-stressed reinforcing element on which the steel socket constituting the anchoring head is drawn.

This device consists essentially of a cylinder-and-piston actuator of which the annular cylinder receives on one side a hollow piston adapted to receive the reinforcing element therethrough, said piston being rigid with a thrust tube adapted to force said anchoring socket through a die fitted in the opposite end of the cylinder for drawing said socket on the reinforcing element.

3,559,271

HYDROSTATIC EXTRUSION OF POWDER

Jan Nilsson, Robertfors, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed June 24, 1968, Ser. No. 739,487

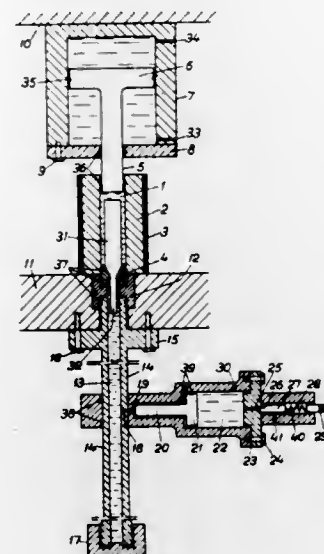
Claims priority, application Sweden, June 26, 1967,

9,071/67

Int. Cl. B22f 3/24

U.S. Cl. 29—420.5

13 Claims



Rods or wire are produced from powder by forming a billet compacted to great density and provided on its surface with a temporary, liquid-tight barrier of non-metallic yielding material.

The billet is enclosed in a pressure chamber located above a die, within which chamber a liquid can be compressed. The cold billet is formed by hydrostatic extrusion to a cross section determined by the nozzle of the die after which the temporary barrier is removed. The deformation is carried out under such pressure as to produce a sufficient increase in temperature to sinter the powder.

3,559,272

DRIVING CAP FOR DRIVEPIN, AND TOOL AND METHOD THEREFOR

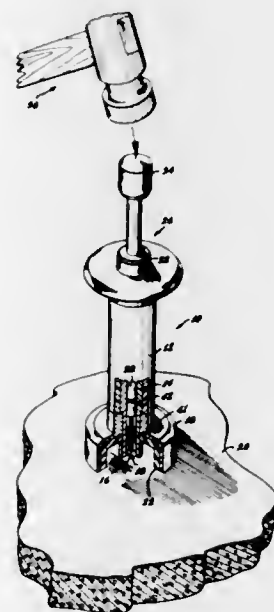
Yung Shing Hsu, Milwaukie, Oreg., assignor to Omark Industries, Inc., Portland, Oreg.

Filed Sept. 16, 1968, Ser. No. 759,855

Int. Cl. B23p 11/00

U.S. Cl. 29—432

6 Claims



A drivepin having a driving cap on one end, and a tool for positioning the drivepin in abutting engagement with a hard work surface. A ramrod in the tool ignites a

propellant contained in the driving cap to drive the drivepin into the work surface. A cushioning pad in the driving cap expands to form a gas tight seal within the tool for reducing noise.

3,559,273

CARPET ANCHORING STRIP METHOD

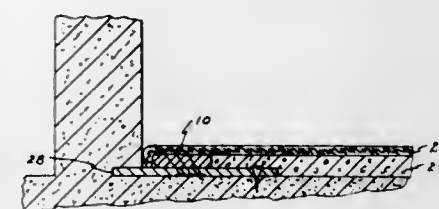
George Porzio, Bricktown, N.J., assignor to George Samaris, Peter Samaris and Nick Samaris, doing business as Samaris Bros., Eatontown, N.J., fractional part interest to each

Filed Jan. 2, 1969, Ser. No. 788,362

Int. Cl. B23p 11/02

U.S. Cl. 29—446

4 Claims



A method for laying wall-to-wall carpet on a concrete floor in which a pad is included under the carpet and in which the anchoring strip is utilized for securing the edges of said carpet adjacent the boundary or wall and in which the wall is routed out at floor level and the anchoring strip is inserted under the wall and secured to the concrete to prevent lifting of the edges of the said carpet.

3,559,274

PROCESS FOR THE SHEATHING OF TUBULAR NUCLEAR FUEL ELEMENTS

Saverio Granata, Milan, Italy, assignor to Snam Progetti S.p.A., Milan, Italy

Filed Aug. 3, 1966, Ser. No. 570,024

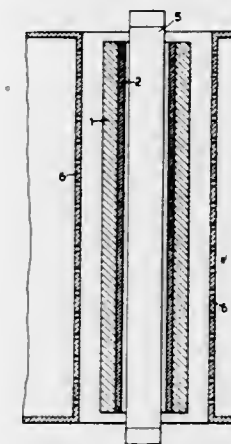
Claims priority, application Italy, Aug. 6, 1965,

17,768/65

Int. Cl. B23p 11/02

U.S. Cl. 29—447

4 Claims



A tubular nuclear fuel element is given an internal sheathing by thrusting a pipe, shrunk by cooling, into the element and then raising the temperature of the pipe to room temperature so that it expands and presses tightly against the inner wall of the fuel element; and thereafter the sheathing is heated internally and the fuel element is cooled externally to cause inter-diffusion at the interface between the sheathing material and the fuel element without establishing preferential crystalline orientations in the fuel.

3,559,275

METHOD OF FORMING AN ANCHORAGE FOR PRESTRESS REINFORCED STRUCTURAL MEMBERS

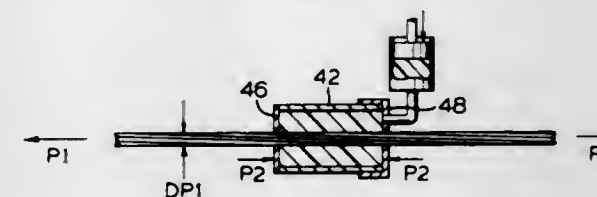
William M. Slater, 259 Heath St. E., Toronto 7, Ontario, Canada

Filed Oct. 12, 1967, Ser. No. 675,000

Int. Cl. B21d 39/00

U.S. Cl. 29—452

1 Claim



This invention is concerned with the anchoring of tendons of prestressed structural members. In particular the invention relates to an improved method of forming an anchoring device on a tendon at any point on the length of a tendon. The anchoring device is in the form of a molded protrusion of plastic or other material formed on the tendon, at a temperature sufficiently low to prevent weakening of the tendon, and bonded thereto either by an adhesive or by mechanically deforming the tendon.

The anchoring device may be reinforced internally or externally and may have any one of a number of different external contours as required in use. When the anchoring device has been formed on the tendon the tendon may be stressed to form a prestressed tendon of a structural member and the anchoring devices are adapted to bear against the bearing plates to transfer the tensile load on the tendon to a compressive load on the structural member.

3,559,276

METHOD FOR MAKING A METAL LAMINATE

Ray B. Anderson, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

No Drawing. Filed Dec. 30, 1968, Ser. No. 788,077

Int. Cl. B23k 21/00

U.S. Cl. 29—470.1

15 Claims

A method is shown for economically manufacturing an easily formed and easily brazed metal laminate of precisely controlled thickness for use in making corrosion-resistant automotive brake tubing, the laminate incorporating a very thin inner layer of stainless steel of substantially uniform thickness sandwiched between and metallurgically bonded to outer layers of low carbon steel. The method includes the steps of contacting opposite clean surfaces of an annealed stainless steel strip with respective clean surfaces of a pair of annealed low carbon steel strips, squeezing the strips together with substantial reduction in the thicknesses thereof for metallurgically bonding the strips together to form a laminate having an inner layer of stainless steel, and heating the laminate for increasing the strength of the metallurgical bonds between the strip materials and for annealing strip materials. The laminate is then subjected to substantial tension between two spaced locations for minimizing the difference in resistance to compressive reduction which would otherwise exist in the low carbon steel and stainless steel materials in the laminate. The tensioned laminate is then squeezed with substantial force between said spaced locations to achieve substantial reduction in the thickness of the laminate material, thereby to form the desired thin inner layer of stainless steel of substantially uniform thickness without risk of forming discontinuities in the stainless steel layer while simultaneously reducing the laminate material to substantially the desired overall thickness. The laminate is then annealed again to provide the laminate with the property of easy formability.

3,559,277

WELDING PROCESS FOR HIGH-HARDENABILITY STEEL

Edmondo Marianeschi, Rome, Italy, assignor to Terni Società per l'Industria e l'Elettricità, S.p.A., Rome, Italy
Continuation-in-part of application Ser. No. 338,979, Jan. 20, 1964. This application Nov. 15, 1968, Ser. No. 776,213

Claims priority, application Italy, Feb. 1, 1963, 1,743/63

Int. Cl. B23k 31/02

U.S. Cl. 29—471.1

1 Claim



A process for treating a high duty not readily weldable steel to provide it with a weldable surface. The surface is first buttered with a weldable coating and then the buttered layer is hot worked while plastic.

3,559,278

METHOD OF MANUFACTURING A HOLLOW ELONGATED THIN-WALLED METALLIC BODY

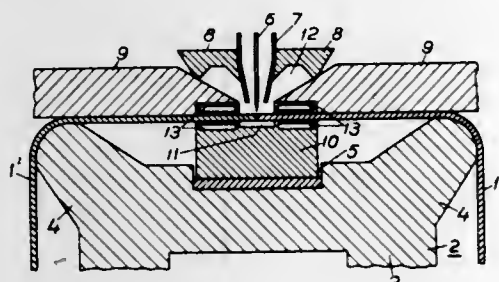
Sven Brandberg, Irsta, and Constan Glandin, Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a Swedish corporation
Filed June 3, 1968, Ser. No. 734,061

Claims priority, application Sweden, June 6, 1967, 7,889/67

Int. Cl. B23k 31/02

U.S. Cl. 29—487

7 Claims



A hollow, elongated, thin-walled body is formed by welding at least one seam to close the body around a mandrel of a material having a greater coefficient of thermal expansion than the material of the body, whereafter the body and mandrel are heated until the thermal stresses in the body are greater than the yield strength of the material of the body. The mandrel has projecting ridges running longitudinally at its corners, and a longitudinal groove in which is mounted a support member which underlies the seam. The body is then passed between rollers to finish the seam.

3,559,279

METHOD FOR BONDING THE FLIP-CHIP TO A CARRIER SUBSTRATE

Edwin P. Miklaszewski, Danbury, Conn., assignor to Sperry Rand Corporation

Filed Oct. 14, 1968, Ser. No. 767,431

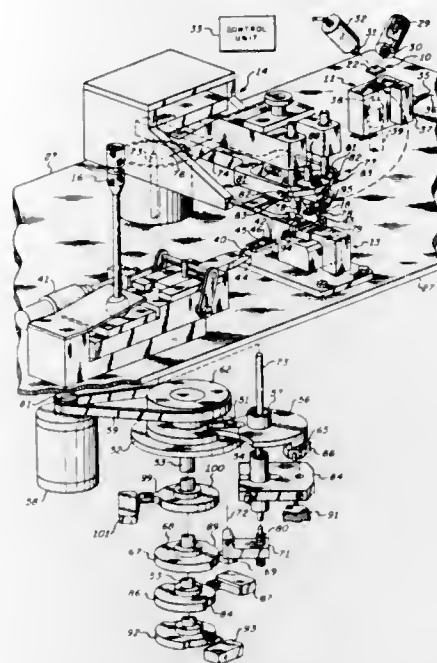
Int. Cl. B23k 5/22, 31/02

U.S. Cl. 29—493

1 Claim

A method for face down bonding a flip-chip to a carrier substrate including the steps of orienting the chip by direct

reference to its electrical terminals at a given position apart from the substrate; orienting the substrate with reference to the chip at a prescribed position separate from the chip position; transferring the chip from the given position to the substrate position, the transfer being ac-



complished in a manner to retain the relative orientation of the chip and substrate so that the corresponding electrical terminals thereof are placed in contacting relationship, and applying hot gas solder to the region between the chip and substrate to bond the contacting terminals.

3,559,280

METHOD AND APPARATUS FOR THE CONTINUOUS FORMING, GALVANIZING AND COLORING OF TUBING

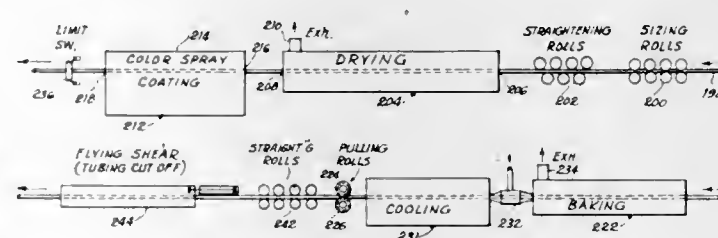
Alfred F. Mailhot, Tinley Park, and Paul J. Hreha, Park Forest, Ill., assignors to Allied Tube & Conduit Corporation

Filed Mar. 13, 1968, Ser. No. 712,716

Int. Cl. B23p 17/00, 25/00

U.S. Cl. 29—527.4

11 Claims



The continuous forming, galvanizing and coloring of tubing wherein the continuously formed and galvanized tubing is overcoated with a color coating as a continuous operation with the tube forming and galvanizing by advancing the tubing after the galvanize coat has been set through processing steps of coating the galvanized surface with a color coating composition formulated of a hardenable resinous vehicle containing a diluent and a tinctorial agent, rapidly heating the coated tubing to drive off the diluent and set the resinous base without bubble formation, cooling the heated tubing to harden the resin, engaging the tubing between driving rolls located upstream of the coating and heating sections to pull the tubing through said processing sections while supporting the tubing to avoid contact with the surface of the tubing from the time

3,559,283

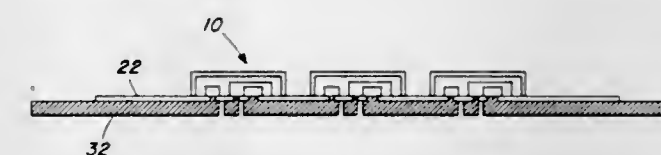
METHOD OF PRODUCING AIR-ISOLATED INTEGRATED CIRCUITS

Bernard L. Kravitz, Queens, N.Y., assignor to Dionics Incorporated, Westbury, N.Y.

Filed June 16, 1969, Ser. No. 833,559

Int. Cl. B01j 17/00; H01l 5/00, 7/10, 7/48, 7/12, 7/54
U.S. Cl. 29—578

6 Claims

**3,559,281
METHOD OF RECLAIMING PROCESSED SEMICONDUCTOR WAFERS**

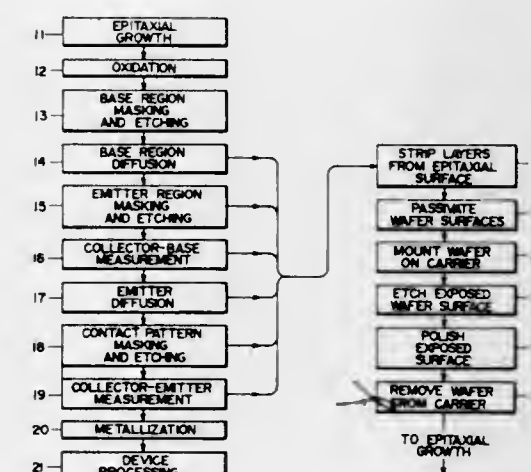
Bobby A. Mayberry and Albert E. Ozias, Jr., Tempe, Ariz., assignors to Motorola, Inc., Franklin, Park, Ill.

Filed Nov. 27, 1968, Ser. No. 779,489

Int. Cl. B01j 17/00; H01l 7/12

U.S. Cl. 29—575

7 Claims



A method of processing semiconductor wafers wherein wafers having epitaxial layers containing diffusion regions which have been rejected due to electrical failures or visual defects can be economically processed and reclaimed for further device fabrication. The method utilizes the combination of an epitaxial layer and an overlying oxide layer to essentially eliminate auto-doping by impurities diffused or contained therein during subsequent fabrication steps.

3,559,284

METHOD OF MANUFACTURING MAGNETIC STORE ARRANGEMENTS

Hans Wilhelm Nenhaus, Hamburg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

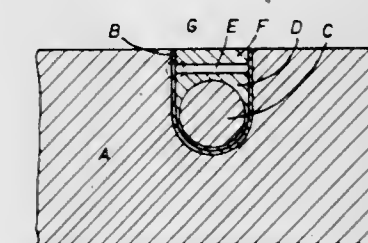
Continuation of application Ser. No. 514,225, Dec. 16, 1965. This application Mar. 7, 1969, Ser. No. 806,050

Claims priority, application Germany, Dec. 17, 1964, P 35,709

Int. Cl. H01f 7/06

U.S. Cl. 29—604

10 Claims

**3,559,282
METHOD FOR MAKING THIN SEMICONDUCTOR DICE**

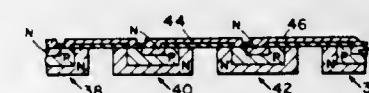
Israel A. Lesk, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Original application Apr. 25, 1967, Ser. No. 633,631, now Patent No. 3,445,925, dated May 27, 1969, Divided and this application Sept. 3, 1968, Ser. No. 798,209

Int. Cl. B01j 17/00; H01l 1/16, 1/24, 7/68

U.S. Cl. 29—577

3 Claims



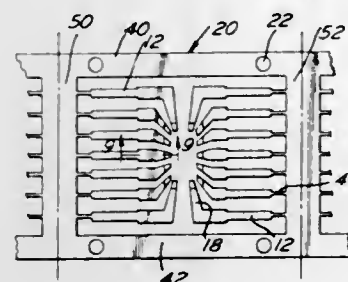
A process for making thin semiconductor devices wherein the semiconductor wafer starting material is initially lapped to a very thin value. Glass and a dummy substrate are then sandwiched to the wafer for further processing and to prevent breakage of the wafer when semiconductor devices such as transistors are constructed therein. Then the glass and dummy substrate are removed, leaving thin semiconductor dice having a very low thermal resistance to heat emanating from PN junctions therein.

An improved method of fabricating a magnetic storage array comprises the steps of forming a plate of synthetic material having grooves in at least one surface, spraying a molten ferrite material into the grooves so as to cover the entire surface of the grooves, placing a prefabricated cable of matrix wires in the grooves, filling the spaces between the cable and groove walls with a temperature-resistant lacquer to produce a flat surface within the grooves, and spraying a molten ferrite material over the lacquer surface to produce a covering ferrite layer that extends up to, and in contact with, the walls of the grooves, thereby producing a substantially closed magnetic path about the cable. The ferrite wall layers, or the ferrite covering layer, or both, are composed of a material having a square loop hysteresis property.

3,559,285
METHOD OF FORMING LEADS FOR ATTACHMENT TO SEMI-CONDUCTOR DEVICES
 John Edward Kauffman, Beth Ayres, Pa., assignor to The Jade Corporation, Beth Ayres, Pa.
 Continuation-in-part of application Ser. No. 653,890, July 17, 1967. This application Jan. 8, 1968, Ser. No. 789,857

Int. Cl. H01r 9/00
 U.S. Cl. 29—630

7 Claims

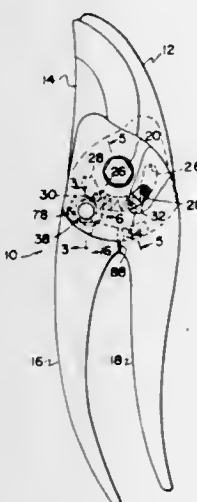


A method of attaching leads to a semi-conductor device includes the steps of inlaying a contacting metal compatible with a semi-conductor element along a metal strip, upsetting the metal strip at spaced portions therealong so as to provide a depression on one side and an upstanding portion on the opposite side of the metal strip, removing the upstanding portion so that the inlay and strip is substantially reduced in thickness at said spaced portions, and then stamping the strip at said spaced portions to define the integral cantilever leads having the contacting metal on their exposed ends.

3,559,286
CUTTING SHEAR
 Arthur K. Pfaffenbach, Watertown, Wis., assignor to McGraw-Edison Company, Elgin, Ill.
 Filed May 8, 1968, Ser. No. 727,648
 Int. Cl. B26b 13/16

U.S. Cl. 30—261

13 Claims

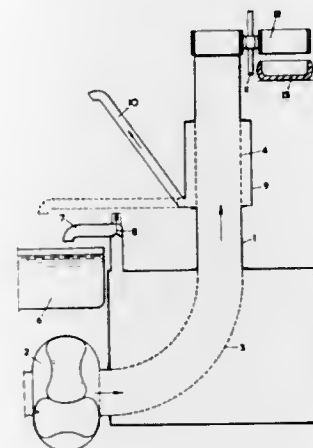


In a cutting shear having pairs of blades and handles pivoted to one another across mutually sliding body portions, a lock mechanism including opposed locking and releasing elements mounted reciprocally in respective body portion openings that become aligned with one another when the blades are closed to permit depression of the locking element into interfering engagement within the adjacent body portion opening which simultaneously shifts the releasing element outwardly for its subsequent depression to release the locking element, and detent means for releasably holding the elements as set.

3,559,287
APPARATUS FOR DRAINING CURD IN MAKING CHEESE
 Armand François Bronkhorst, Doorn, Netherlands, assignor to Holvrieka International N.V., Utrecht, Netherlands, a corporation of the Netherlands
 Filed Nov. 21, 1968, Ser. No. 777,839
 Claims priority, application Netherlands, Nov. 27, 1967, 6716103

Int. Cl. A01j 25/00, 25/12
 U.S. Cl. 31—46

3 Claims

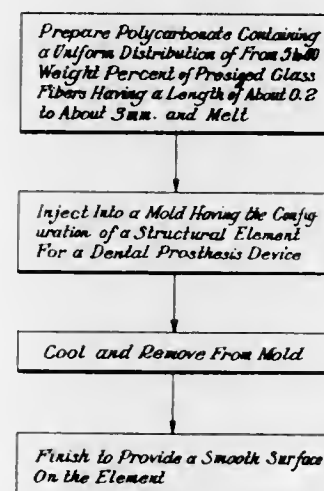


An apparatus for draining curd in making cheese comprising a riser tube consisting of one or more successive sections with perforated walls to subject a whey-curd composition to a ready pre-drainage and an accurately controllable after-drainage so as to make for a just control of the ultimate result.

3,559,288
DENTAL FILLINGS AND DEVICES COMPOSED OF A POLYCARBONATE FILLED WITH PRESIZED GLASS FIBERS
 Hans-Joachim Rehberg, Leverkusen, Hermann Schnell, Krefeld, Wilhelm Hechelhammer, Krefeld-Bockum, and Hugo Strelb, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
 Continuation of application Ser. No. 472,057, July 14, 1965. This application July 16, 1969, Ser. No. 846,638
 Claims priority, application Germany, July 15, 1964, F 43,440
 Int. Cl. A61c 13/00

U.S. Cl. 32—2

13 Claims

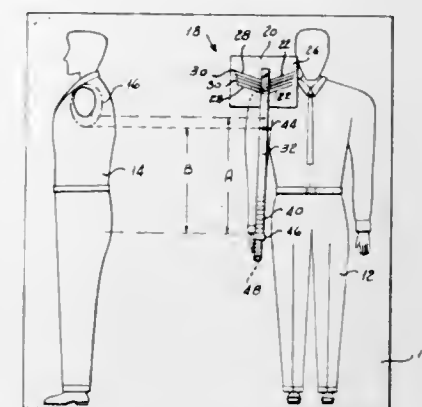


A dental filling or dental prosthesis device having an essential structural element composed of a thermoplastic, high molecular weight polycarbonate and from 5 to 40 percent glass fibers presized with a thermoplastic, high molecular weight polycarbonate or water and a method of making same.

3,559,289
GARMENT SLEEVE INNER SEAM MEASURING DEVICE
 Theodore Yonkler, Bronx, N.Y., assignor to The Photometric Corporation, New York, N.Y., a corporation of Delaware
 Filed Feb. 17, 1969, Ser. No. 799,696
 Int. Cl. A41h 1/00

U.S. Cl. 33—16

14 Claims

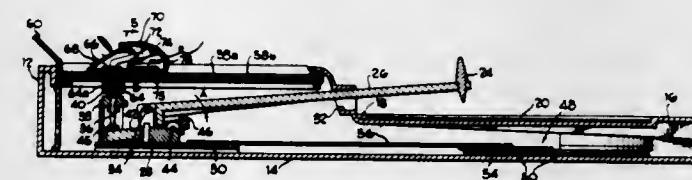


A device for measuring the sleeve inner seam length of a garment from a graphic representation of a person to be fitted in which a transparent plate carries respective pluralities of parallel indicator lines extending in opposite directions from a common line at slopes corresponding to the right and left shoulder slopes of a standard garment pattern and having lengths corresponding to the lengths of the shoulder seams of standard patterns for various sizes. A transparent arm pivoted on the plate at a point lying on an extension of the common line has a scale which increases in a direction away from the arm pivot from a zero point located at a point on the arm corresponding to the location of the bottom of a garment armhole measured from the intersections of the indicator lines with the common line. By use of the device a precise measurement of the sleeve inner seam of a garment can be obtained. In addition, the adequacy of the armhole and of the shoulder seam lengths can be checked.

3,559,290
TRACING DEVICE
 Marvin I. Glass and Rouben T. Terzian, Chicago, Ill., assignors to Marvin Glass & Associates, a partnership
 Filed Aug. 27, 1969, Ser. No. 853,269
 Int. Cl. B41i 13/10

U.S. Cl. 33—23

3 Claims

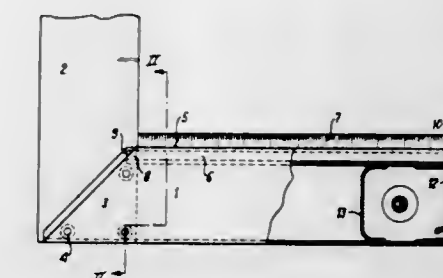


A tracing device which includes a tracing element mounted on a base structure for free movement to trace characters on a workpiece, and an image forming member movable in response to movement of the tracing element to reproduce an image of the traced characters onto a blank. The image forming member is disposed beneath the blank and a simulated live object, such as a small animal form, is positioned on top of the blank and moves with the image forming member by means of a pair of magnetic members mounted on the object and the image forming member. The blank comprises a laminated pressure sensitive structure which permits erasing the reproduced image on separation of the laminated layers thereof.

3,559,291
TRY-SQUARE
 André Quenot, Besancon, France, assignor to Quenot & Cie S.a.r.l., Zone Industrielle Trepillot, Besancon, France, a company of France
 Filed Feb. 18, 1969, Ser. No. 797,885
 Claims priority, application France, Apr. 22, 1968, 148,906
 Int. Cl. B43i 7/02; G01b 3/04

U.S. Cl. 33—113

3 Claims

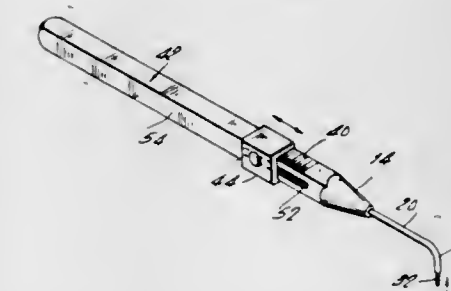


A try-square has a stock, a first blade extending perpendicular to the stock and a second blade set in a slot extending along the upper edge of the stock in the same plane as the first blade.

3,559,292
DENTAL GAUGE
 Bernard Weissman, 304 Ashland Place, Brooklyn, N.Y. 11217
 Filed July 16, 1968, Ser. No. 745,320
 Int. Cl. G01b 3/28

U.S. Cl. 33—169

1 Claim



A dental gauge comprising an elongated body member within which is contained a tubular member, a minor portion of the tubular member being disposed within the body member and a major portion of the tubular member extending externally thereof and terminating in a curved end, a probing member having a probing tip is positioned within the tubular member. The body member is provided with a graduated linear measuring scale and a sliding member is slidably disposed over the body member and secured to said probing member internally of said body member whereby the sliding member is operative to slide over the measuring scale in conjunction with the movement of the probe so that the measurement of the probe is directly readable on the measuring scale in dependence on the position of the sliding member.

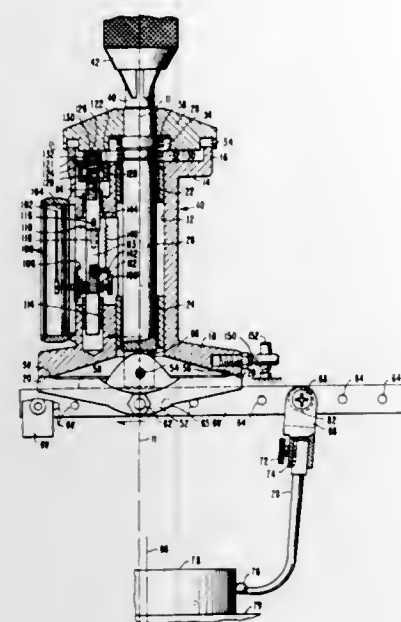
3,559,293
INDICATOR DEVICE
 John L. Blake, 419 E. Live Oak Ave., Arcadia, Calif. 91006
 Filed Feb. 5, 1969, Ser. No. 796,828
 Int. Cl. G01b 3/22

U.S. Cl. 33—172

8 Claims

An indicator device is disclosed for locating a workpiece on a machine tool and includes a housing enclosing a rotatable shaft and movable linearly relative thereto in proportion to the deflection of a feeler element carried

by the shaft for engagement with a surface of the work-piece. An actuating member transmits the relative linear movement between the housing and shaft to a dial indicator carried by the housing. The actuating member



includes first and second portions resiliently biased to a limiting relative position under a preload to protect the dial indicator transmission from shock loads above a minimum level applied to the feeler element.

3,559,294

POTENTIOMETER TILT INDICATOR

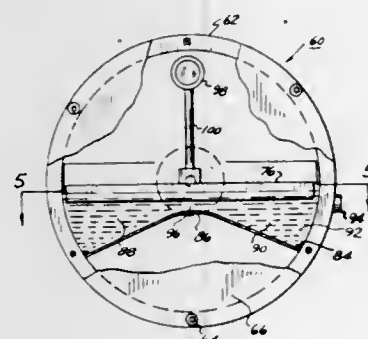
Russell E. Bauer, Grosse Pointe, Mich., assignor, by mesne assignments, to KDI-Bauer Corporation, Warren, Mich., a corporation of Delaware

Filed July 16, 1969, Ser. No. 842,228

Int. Cl. G01c 9/06, 9/08

U.S. Cl. 33—206

5 Claims



A tilt indicator having a partially liquid filled housing is provided with a potentiometer fixably mounted therein and connected in an appropriate electrical circuit. A shaft extending from a slider contact of the potentiometer has fixably secured thereto a pair of arms extending outwardly normal to the shaft, each of which has a float mounted thereon. As the indicator is tilted the liquid and floats remain in the same position relative to the earth and the slider contact moves with respect to the potentiometer resistor creating an output voltage which can be correlated to the angle of tilt of the indicator. In one embodiment a counterweight extending normally to the shaft and arms in a direction away from the liquid provides stabilization of the shaft and float assembly during periods of acceleration and the like. In a second embodiment, the liquid associated with the undersides of each float

is separated into two chambers, connected by means of a passageway which restricts the displacement of the fluid from one chamber to the other and thereby stabilizing the shaft and float assembly during periods of acceleration and the like.

3,559,295

DEVICE FOR MEASURING INCLINATION

Yasuo Iwafune, Tokyo, Japan, assignor to Tokyo Optical Company Limited, Tokyo, Japan

Filed June 26, 1967, Ser. No. 648,924

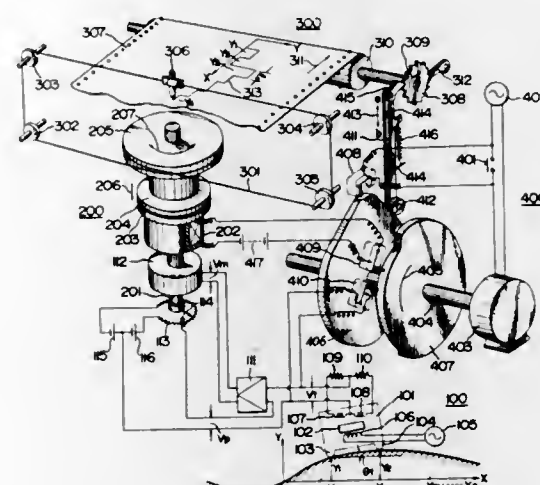
Claims priority, application Japan, July 12, 1966,

41/45,552

Int. Cl. G01c 7/00, 9/04

U.S. Cl. 33—206

2 Claims



A device for measuring inclination for use in measuring the inclination along straight portions of a machine such as a bed surface thereof, comprising a detector means including an instrument having two connected points, an indicator means including a recording pen in contact with a record sheet, a clutch means. The device is a programming means, and constructed and arranged such that the values measured by the two connected points can automatically be integrated and recorded in succession on the record sheet thus showing the deviation from the horizontal thereon.

3,559,296

PROCESS FOR THE REGENERATION OF HYDROCARBON ADSORBENTS

Heinrich Dratwa, Rheinhausen, Gunter Gappa, Gelsenkirchen-Buer, and Harald Juntgen, Martin Kruel, and Jurgen Schwarte, Essen, Germany, assignors to Bergwerksverband G.m.b.H., Essen, Germany

No Drawing. Filed Mar. 4, 1969, Ser. No. 804,284

Claims priority, application Germany, Mar. 5, 1968,

P 17 19 554.9

Int. Cl. F26b 3/00

U.S. Cl. 34—9

12 Claims

Granular or shaped hydrocarbon adsorbents are regenerated by subjecting the adsorbent to a heat treatment in contact with a hot solid heat exchanger.

3,559,297

PROCESS AND APPARATUS FOR REMOVING WATER FROM SOLID SURFACES

Francis J. Fligel, Boonton, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

Filed Mar. 10, 1969, Ser. No. 805,561

Int. Cl. F26b 3/00

U.S. Cl. 34—9

15 Claims

Process for removing water from a non-absorbent article comprises maintaining a boiling bath and a non-boiling bath of solvent which is heavier than water and

in which water is about .1-5% by weight soluble, immersing the article to be treated into the non-boiling bath to displace water therefrom, causing the displaced water and solvent to overflow into a separation zone wherein water is removed from the system and solvent is transferred to the boiling bath, withdrawing the article from the non-boiling bath and exposing it to contact with the vapors of the solvent generated by the boiling solvent bath. A preferred solvent is an azeotropic mixture of about 97 weight percent 1,1,2-trichloro-1,2,2-trifluoro-

flow blowers with their axes parallel to the surface of the material, discharging directly into the surface of the material. The outlet of the blowers is varied by movable flaps.

3,559,299

GRAIN DRYER AND METHOD OF DRYING GRAIN

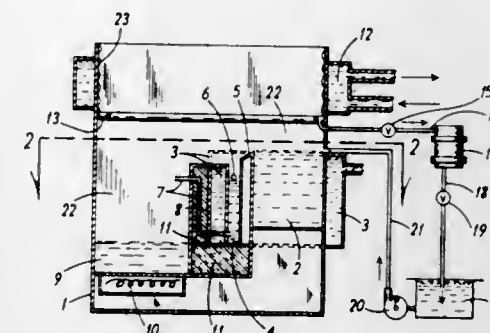
Duane W. Tyler, Danville, Ill., assignor to J. P. Burroughs & Son, Inc., Saginaw, Mich., a corporation of Michigan

Filed Feb. 28, 1969, Ser. No. 803,367

Int. Cl. F26b 7/00

U.S. Cl. 34—19

26 Claims



ethane and about 3 weight percent isopropanol. Apparatus comprises a dewatering sump, equipped with cooling means, positioned adjacent a water separating sump equipped with cooling means, which water separating sump collects water and solvent liquid which overflows from the dewatering sump, means for removing water from the water separating sump, a boiling sump, means for transferring solvent liquid from the water separating sump to the boiling sump, means for condensing solvent vapors generated in the boiling sump and cycling same to the non-boiling sump.

3,559,298

METHOD FOR DRYING OR HEATING OR COOLING A PROCESS MATERIAL AND A DEVICE FOR CONDUCTING SUCH METHOD

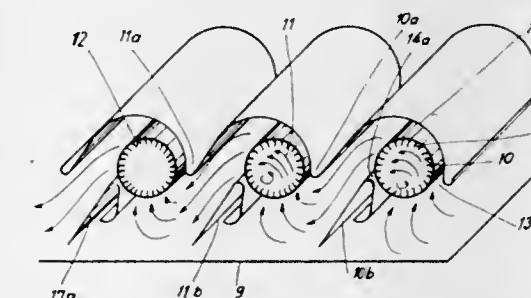
Horst Theilemann, Rudesheimer Strasse 11, Munich, Germany, and Kurt Zenkner, Hertzstrasse 12, Ettlingen, Germany

Filed Sept. 5, 1968, Ser. No. 757,635

Int. Cl. F26b 5/04

U.S. Cl. 34—15

14 Claims



A band or web of material or a layer of material carried on a band is treated by exposing the surface of the material while passing it through a treatment chamber to jets or a current of air, the jets impinging on the surface and forming a flow traveling along the surface of the material. The flow is repeatedly interrupted on its course and then reformed by producing an instability in the flow, as by the use of spoilers. The flow may be produced by cross-

A filtering method and apparatus for grain dryers for continuously filtering exhaust air after it has been used to dry grain. The air is filtered by passing through a column through which filtering media passes. Means are provided to selectively move the filter media relative to the air stream.

3,559,300

TOBACCO PIPE DRYER

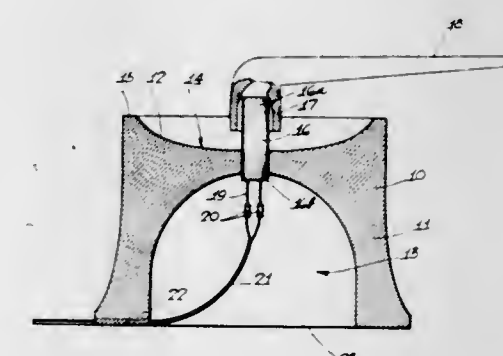
Lloyd G. Fox, 217 Wilson Road, Welland, Ontario, Canada

Filed Feb. 7, 1969, Ser. No. 797,478

Int. Cl. F26b 25/00

U.S. Cl. 34—104

5 Claims



The invention relates to a tobacco pipe dryer comprising a one-piece stand having a cylindrical heating device mounted therein, one end portion of the heating device projecting above a dish upper surface of the stand for reception of a pipe bowl and the other end portion being disposed in a recess in the stand with means for connecting it to a source of electric power.

3,559,301

AIR FLOTATION SYSTEM FOR CONVEYING WEB MATERIALS

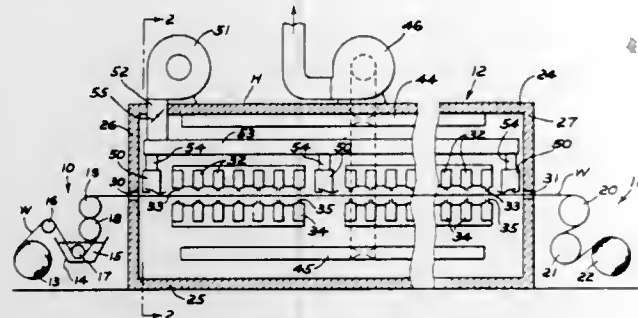
William A. R. Fraser, Belle Mead, N.J., assignor to Egan Machinery Company, Somerville, N.J., a corporation of New Jersey

Filed July 29, 1968, Ser. No. 748,319

Int. Cl. F26b 13/20

U.S. Cl. 34-156

14 Claims



A coated or impregnated web of flexible material is conveyed or subjected to desired treatment, such as drying, during movement through a housing in which the web is supported and guided in floating condition by support means using a gaseous medium and is maintained out of contact with devices within the housing. The support means comprises a plurality of spaced, novel, support nozzles that are positioned adjacent and across one side of the web and that are so constructed as to utilize the Bernoulli theorem as applied to gases and the "Coanda Effect" during operation.

3,559,302

EDUCATIONAL GAME DEVICE TO IMPROVE TYPING SKILL

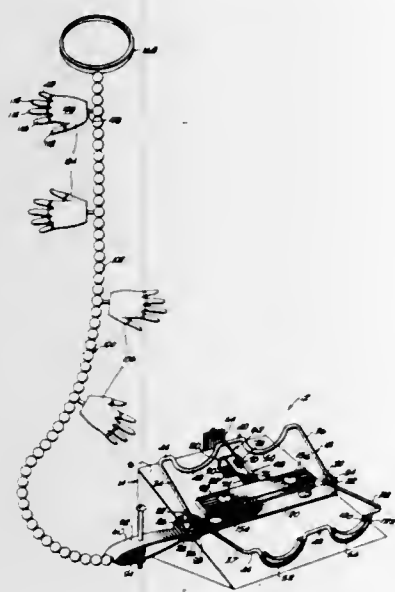
Ruben C. Little, 7800 SW. 52nd Court, South Miami, Fla. 33134

Filed July 18, 1968, Ser. No. 745,932

Int. Cl. G09b 13/00; A01m 23/24; A63b 67/00

U.S. Cl. 35-5

10 Claims



An educational game device which includes a gripping jaw type trap assembly with spring means to normally close the jaws and detent means to hold the jaws open against the bias of a spring which includes trip means to trip the detent means in bringing the jaws together under the urging of the spring, the jaws having a finger receiving opening for access to the trip means through which players extend their fingers to trip the mechanism and close the jaws.

3,559,303

PLANET SEQUENCE PROJECTOR

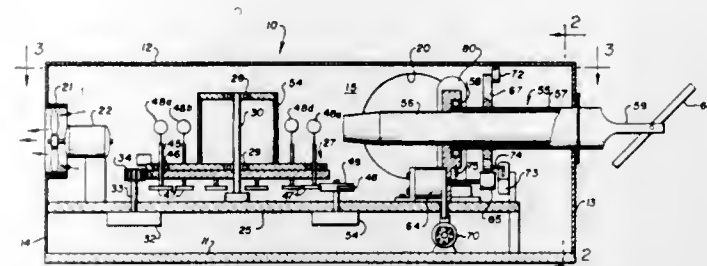
James D. Vickery, 670 Garland St., Lakewood, Colo. 80215

Filed Jan. 3, 1969, Ser. No. 788,906

Int. Cl. G09b 27/00

U.S. Cl. 35-42.5

10 Claims



A planetarium projector sequentially produces an individual image of each of the major planets of the solar system, each image depicting a planet spinning on its axis and moving across the dome of the planetarium. The projector system includes a turntable having a series of scale models mounted on rotatable shafts mounted on the table, and the table is arranged to sequentially index each of the models into a position in front of the projection lens system and into light path for projecting an opaque projection onto a pivoted mirror which moves the image across the planetarium dome.

3,559,304

APPARATUS FOR TEACHING

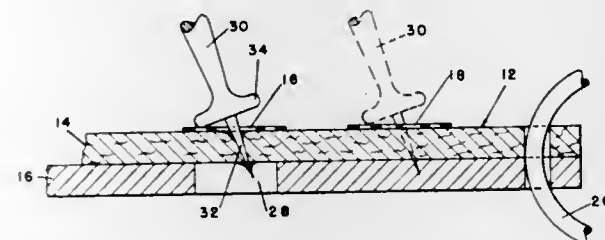
Patrick A. Kane, Hartline, Wash. 99135

Filed June 5, 1968, Ser. No. 734,797

Int. Cl. G09b 5/02

U.S. Cl. 35-48

4 Claims



An inexpensive throw-away answer sheet of opaque material adapted to be dispersed or punctured easily by a hand-held conductive stylus and having an electrical conductor on the back of the sheet effective to be electrically connected to said stylus upon the passage of said stylus through said sheet; and the method of using same to conserve more expensive educational forms.

3,559,305

GRADE AVERAGING DEVICE

Clyde S. Mundell, R.D. 1, Box 107, Carmichaels, Pa. 15320

Filed July 23, 1969, Ser. No. 843,936

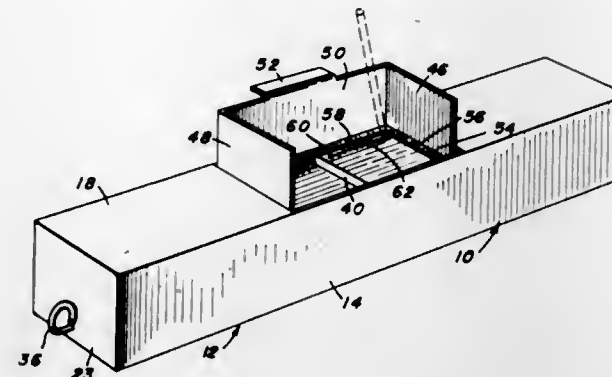
Int. Cl. G09b 23/00

U.S. Cl. 35-48

9 Claims

An averaging device including a housing enclosing vertically stacked elongated horizontal panels individually supported for longitudinal forward advancement from a first storage position through a second viewing position. The rear edge portion of each panel and the front edge portion of the next lower panel include coacting structure for forwardly advancing each of the lower panels in train

fashion behind the next upper panel as that upper panel is forwardly advanced past the viewing position with its rear edge portion vertically registered with the front edge portion of the next lower panel and the panels may thus be successively advanced in train fashion through the



viewing position. The housing includes first indicia spaced along the viewing position and second indicia at the viewing position spaced along a line disposed normal to the direction of the advancement of the panels with which the upper viewable surfaces of the panels are registrable.

3,559,306

SELF-CONTAINED COLOR DISPLAY

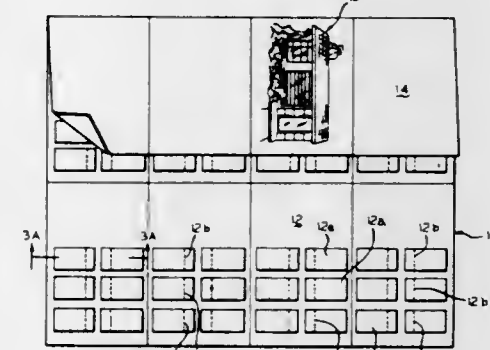
Robert E. Winans, 251 Cady Drive, Palatine, Ill. 60067

Filed Oct. 24, 1968, Ser. No. 770,364

Int. Cl. G09b 25/00

U.S. Cl. 35-53

3 Claims



Includes a number of color samples that are removably attached to a sample section, and they can be selectively detached therefrom and positioned in a color display or illustrative section to aid in the selection of colors for the exterior painting of a house, or the like.

3,559,307

STYLUS ACTUATED GAS DISCHARGE SYSTEM

Euval S. Barrekette, New York, and Herbert B. Baskin, Mohegan Lake, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

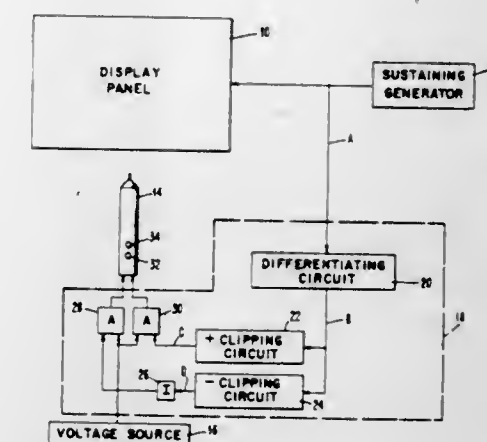
Filed May 26, 1969, Ser. No. 827,598

Int. Cl. B43I 1/00

U.S. Cl. 35-61

9 Claims

A display system including a gas discharge display panel made up of an assembly of glass films enclosing a gas and including electrodes that define an array of discrete cells. A source of sustaining voltage is applied to the electrodes to maintain the gas slightly below a thresh-



ing voltage and is employed to selectively excite the cells which then emit visible light until selectively extinguished.

3,559,308

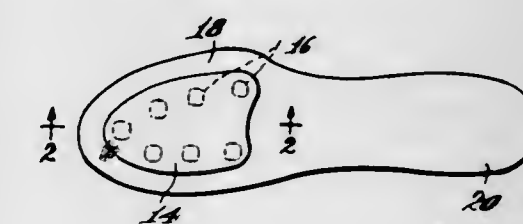
CLEATED OUTSOLE

Louis E. Bernier, Rockland, and James P. Gibling, Milton, Mass., assignors to E. T. Wright & Co., Inc., Rockland, Mass., a corporation of Massachusetts
Continuation-in-part of application Ser. No. 831,373, June 9, 1969. This application Sept. 17, 1969, Ser. No. 858,740

Int. Cl. A43b 23/28

U.S. Cl. 36-2.5

8 Claims



A cleated outsole having at its inner side a raised platform layer of such configuration and thickness as to fit into and substantially fill the cavity at the bottom of a welt lasted shoe in place of the conventional filling material and a plurality of cleats fixed to the outsole, each cleat having a relatively large head buried in the raised platform and a stem extending therefrom through the outsole and through the tread surface thereof.

3,559,309

MOISTURE AND MUD GUARD OVERSHOE

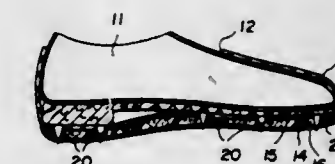
Clarence R. Taylor, 75 Panorama Trail, Rochester, N.Y. 14625

Filed Feb. 24, 1969, Ser. No. 801,307

Int. Cl. A43b 1/10

U.S. Cl. 36-7.3

5 Claims



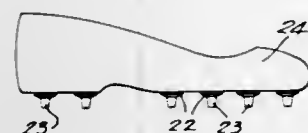
A moisture and mud guard overshoe mountable on a sport shoe of the type having spikes, such as a golf or baseball shoe. The overshoe is constructed of thin, strong

rubber, plastic, or any other suitable material that may be readily pierced by the spikes when weight is applied to the shoe. The overshoe further has a resilient inner-sole of a material which is also readily pierced by the spikes, and which serves when the overshoe is worn to wipe or clean off any foreign material such as mud, dirt, grass or the like from the spikes.

3,559,310
OVERSHOE FOR GOLF SHOES
Gene F. Klela, 411 Ridge Court,
Kohler, Wls. 53044
Filed Aug. 29, 1969, Ser. No. 854,091
Int. Cl. A43b 1/10

U.S. Cl. 36—7.3

6 Claims

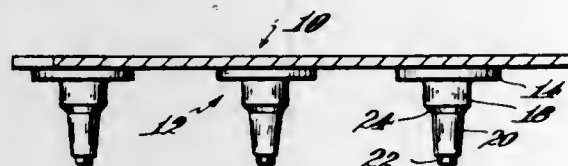


An overshoe for application over a golf shoe or the like having spikes projecting downwardly from the shoe sole. The overshoe has a sole with complementary hollow spikes bonded thereto and which interlockingly, telescopically receive the shoe spikes. The overshoe is worn during inclement weather and is foldable to facilitate storage when not in use.

3,559,311
GOLF SHOES
Louis E. Bernler, Rockland, and James P. Giblin, Milton,
Mass., assignors to E. T. Wright & Co., Inc., Rockland,
Mass., a corporation of Massachusetts
Filed June 12, 1969, Ser. No. 832,724
Int. Cl. A43b 23/28

U.S. Cl. 36—59

15 Claims



A cleat plate and cleats for use in the manufacture of golf shoes characterized in that the cleats are designed to last for the life expectancy of the shoe, and to a method of incorporating the plates and cleats in the shoe bottom by assembly with a preformed outsole or incorporation in an outsole formed by compression or injection molding processes. Also a golf shoe with a cleated bottom designed to be effective throughout the normal life of the shoe.

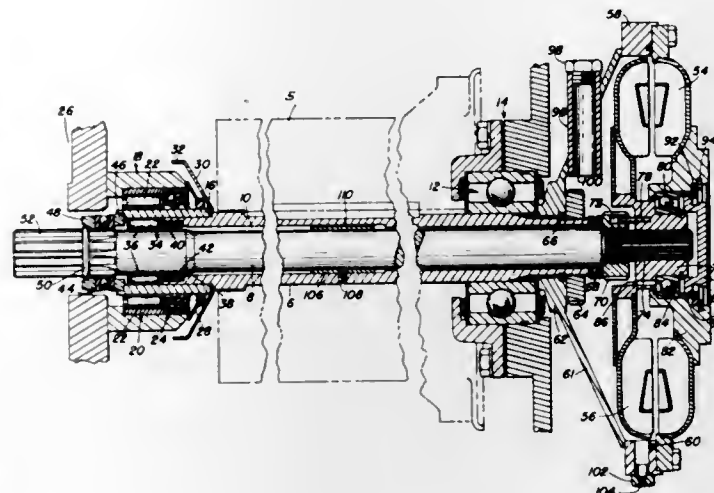
3,559,312
DRIVE TRAIN FOR ABSORBING HIGHLY VARIABLE SHOCK LOADS
Charles H. Fox, Washington, and Wayne H. McGlade,
Peoria, Ill., assignors to Westinghouse Air Brake Company, a corporation of Pennsylvania
Continuation of application Ser. No. 522,430, Jan. 24, 1966. This application July 25, 1969, Ser. No. 847,804
Int. Cl. B60p 1/36; H02h 7/08

U.S. Cl. 37—8

4 Claims

A drive train is provided having sufficient flexibility to absorb high variable shock loads such as those encountered in the driving of the elavting conveyor of a

self-loading scraper. This is accomplished by means of a hollow shaft and a second shaft disposed in the bore of the hollow shaft, with the torque source (an electric motor) drivingly connected with one of the two shafts and the conveyor driven by the other of the two shafts, the two shafts being connected by means of a flexible element such as a fluid coupling, the coupling and the motor being matched so that the maximum torque transmissible by

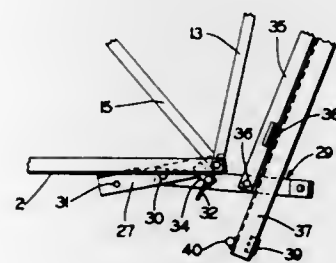


the fluid coupling is greater than the locked-rotor torque of the motor and is less than the maximum torque output of the motor, whereby the coupling stalls without stalling the motor. A fusible plug in the coupling melts to allow the escape of coupling fluid and unload the motor before the motor destroys itself through overheating. A bushing between the shafts keeps them aligned and is slotted to provide passage means to allow oil from the coupling to flow the length of the hollow shaft for lubrication.

3,559,313
SNOWPLOW FOR AUTOMOBILES, TRUCKS AND TRACTORS
Max Firestone, % The Avalon Motel, 1733 E. High Ave.,
New Philadelphia, Ohio 44663
Filed Nov. 18, 1968, Ser. No. 776,630
Int. Cl. E01h 5/00

U.S. Cl. 37—42

4 Claims



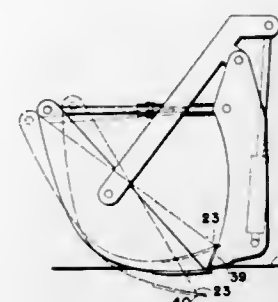
A snowplow for attachment to an automobile or other vehicle having a frame carrying runners at its forward end. A blade is hingedly mounted upon the runners which extend beneath and in front of the blade. One runner is directly attached to the frame and the other runner is connected to the frame by an adjusting lever for angling the blade.

There are rigid pins depending from the rear end of the frame and adapted to be inserted through apertures in brackets fixed upon a suitable portion of the vehicle such as the front bumper of an automobile. Means is provided for preventing accidental removal of the pins from the brackets.

3,559,314
BUCKET ATTACHMENT FOR BULLDOZER BLADES AND THE LIKE
John H. Funk, General Delivery, Prairie Grove,
Manitoba, Canada
Filed Sept. 16, 1968, Ser. No. 759,988
Int. Cl. E02f 3/76

U.S. Cl. 37—117.5

3 Claims

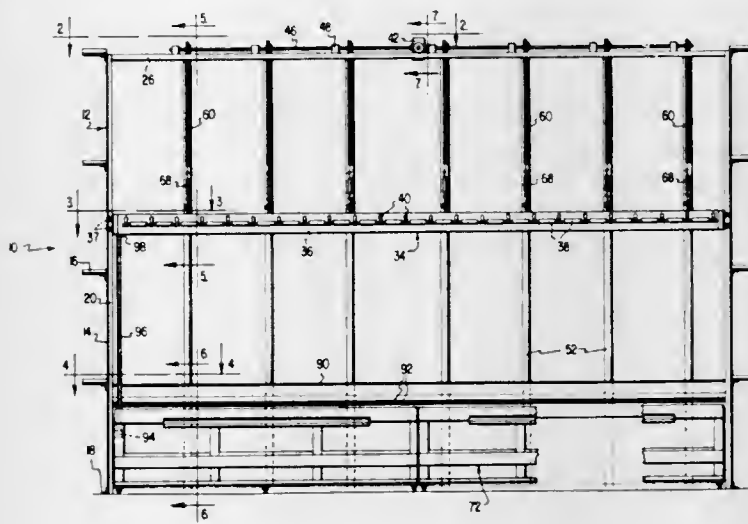


A bucket attached to a bulldozer blade by actuating arms extending from the upper sides of said blade to points substantially midway between the upper and lower edges of the bucket and stabilizer arms between the upper edge of the bucket and the upper edge of the blade to control the pivotal characteristics of the bucket when actuated.

3,559,315
SIZER FOR DRAPERIES
James D. Christensen, Maitland, Fla. (% Florida Decorators Inc., 1126 Solana Ave., Winter Park, Fla. 32789)
Filed Apr. 23, 1969, Ser. No. 818,721
Int. Cl. D06c 3/08

U.S. Cl. 38—102.3

8 Claims



A sizer for draperies and other material including an open upright frame, a movable clamp bar on the frame, a drive sheave and cable arrangement for raising the clamp bar, and a frame mounted drive motor for operating the sheave and cable arrangement. The material is supplied on movable work tables and is withdrawn and raised by elevating of the clamp bar.

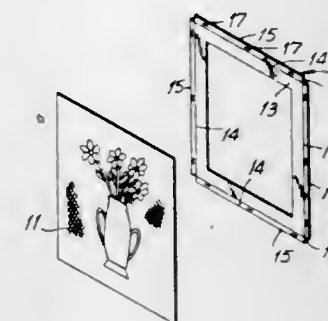
3,559,316
PICTURE STRETCHER
Samuel Galper, 224—42 Kingsbury Ave.,
Flushing, N.Y. 11364
Filed Aug. 6, 1969, Ser. No. 847,902
Int. Cl. D06c 3/08

U.S. Cl. 38—102.91

6 Claims

A picture stretcher of relatively thin material, such as paperboard, for mounting and stretching a canvas picture which is integrally formed with a central area substantially

the size of the completed picture and outwardly extending portions having the edges of the picture secured thereto in flat condition and bendable about score lines to

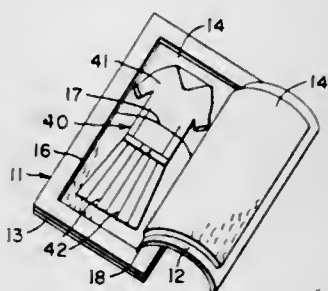


form flanges which can be held in bent position by a frame whereby the picture is stretched and held in the stretched position.

3,559,317
METHOD AND APPARATUS FOR APPLYING FABRIC FINISHES TO GARMENTS
Lillian L. Knight, Morris Plains, and Julie A. Lapham,
Denville, N.J., assignors to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed June 30, 1969, Ser. No. 837,486
Int. Cl. D06f 67/04

U.S. Cl. 38—144

5 Claims



A method of applying fabric finish to fabricated articles such as garments is disclosed in which the article is treated with a chemical by being placed within a closed liquid impervious bag containing a porous material to which the chemical has been applied, either directly in the case of liquid chemicals, or together with a suitable liquid carrier in the presence of which the chemical will be transferred to the article when it is placed adjacent to the porous material in the closed bag. Steps are disclosed by which a permanent press finish may be applied to garments using the above described method. A garment treating bag is also disclosed having a lining of porous material which may be saturated with liquid chemicals for treating fabric garments in the practice of the method of this invention.

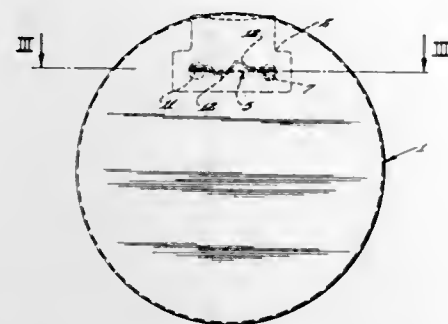
3,559,318
DISPLAY BUTTON
Frank J. Sitzberger, Oak Brook, Ill., assignor to Adcraft Mfg. Co., Chicago, Ill., a corporation of Illinois
Filed Nov. 29, 1968, Ser. No. 779,736
Int. Cl. A44c 3/00

U.S. Cl. 40—1.5

3 Claims

A display button comprising only two separate components, a pin structure by means of which a button may be attached to a garment or other objects, and a button blank, formed from sufficiently rigid sheet material, having a body portion with a peripheral configuration corresponding to the desired shape of the ultimate display button and a pin retaining member integrally connected with and formed from the same sheet material as the body portion, the pin structure, formed from wire stock having

a mounting portion, a pin portion provided with a free pointed end and connected at its opposite end to one end of the mounting portion, the opposite end of the mounting portion having a clasp portion cooperable with the pointed end of the pin structure, said retaining member having openings therein through which the portion of the pin structure connecting the pin portion and the mounting portion, and the clasp portion may extend, said retaining



member being folded back at its connection with the body to adjacent the rear face of the latter with the mounting portion of said pin structure disposed between said retaining member and said rear face. The spaced openings through which the respective portions of the pin extend are preferably connected by an elongated slit of a size to permit passage of the pin portion therethrough whereby it is unnecessary to open the pin structure to effect operative connection with the retaining member.

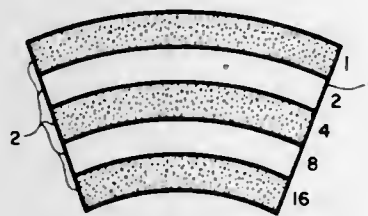
3,559,319

ROTATIONAL BODY IDENTIFYING MEANS
Graeme Scott, Kanata, Ontario, and Joseph Zelikovitz, Ottawa, Ontario, Canada, assignors, by mesne assignments, to Multiple Access General Computer Corporation, Limited, Don Mills, Ontario, Canada
Filed Oct. 15, 1968, Ser. No. 767,634

Int. Cl. G09f 3/02

U.S. Cl. 40—2.2

2 Claims



This invention relates to an article which is to be attached to a rotating body for unique identification thereof. Binary or other coded markings are placed upon an applique base which is applied to the body. The markings are segmental to a circle, and each is of approximately unvarying distance from a point on the axis of rotation of the body. When the body rotates with some speed, any decimal rotation upon the body becomes unreadable, while highly visible rings are produced which can be decoded into a decimal identifying number, unique for the rotating body.

3,559,320

FILM CARRYING FRAMES
Eric Oscar Ohlson, Ankdammsgatan 29, and Karl-Eric Ohlson, Lovgatan 68, both of Solna, Sweden
Filed Jan. 27, 1969, Ser. No. 794,300
Claims priority, application Sweden, Feb. 20, 1968, 2,187/68

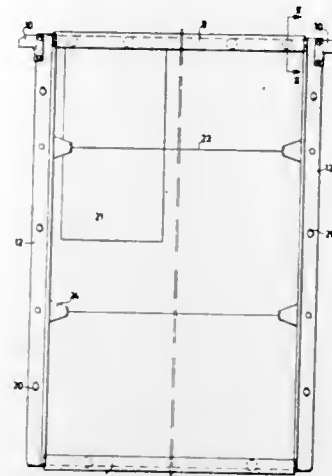
Int. Cl. G09f 11/00

U.S. Cl. 40—106.1

4 Claims

A translucent screen is connected to a frame by a series of resilient discs each of which is fixed by a pivot

close to an edge of the screen and has at least one boss extending inside an elongated frame element, as well as



a clamping web adapted to press an X-ray film or the like against the inner surface of the translucent screen.

3,559,321

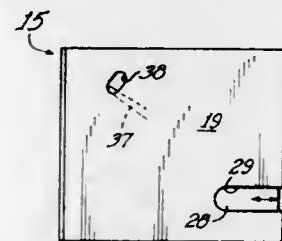
ANIMATION DEVICE
Charles Robert Helms, Barto, Pa., assignor to Container Corporation of America, Chicago, Ill., a corporation of Delaware

Filed Mar. 28, 1969, Ser. No. 811,465

Int. Cl. G09f 19/02

U.S. Cl. 40—106.41

9 Claims



An animation device, particularly useful as an advertising specialty, and formed from a number of laminae of paperboard or the like, at least one of such laminae having a portion which is movable in the plane thereof. The movable lamina may be provided with intelligence, and in some cases may cooperate with a window for observing the displacement of such intelligence portion.

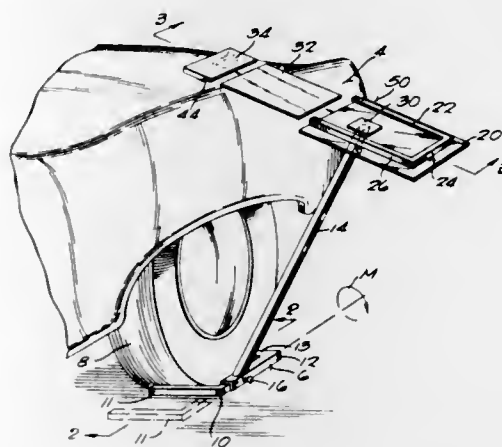
3,559,322

DISPLAY DEVICE
Hal G. Nickel, Brookfield, Wis., assignor to Display Corporation, Milwaukee, Wis., a corporation of Wisconsin
Filed July 25, 1968, Ser. No. 747,728

Int. Cl. G09f 7/00

U.S. Cl. 40—129

8 Claims



A display device includes a display support plate affixed to a column which extends upwardly from a base.

A copy or indicia bearing member is mounted on the support plate.

The support base is adjustable to fit beneath a standing vehicle tire and the column extends at an angle to the base such that the entire weight of the column and support plate creates a moment urging the base into engagement with the vehicle tire which supports the entire device.

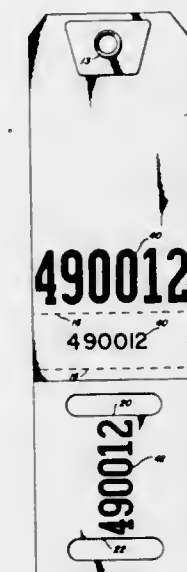
3,559,323

TAG FOR COTTON BALES
Joseph L. Mitchell, Mesa, Ariz., assignor to Texas Tag & Specialty Co., Wolfe City, Tex., a corporation of Texas
Continuation-in-part of application Ser. No. 659,772, Aug. 10, 1967. This application June 5, 1969, Ser. No. 830,691

Int. Cl. G06b 3/14

U.S. Cl. 40—305

6 Claims



A tag for cotton bales wherein a paper tag of flat pliable material having a plurality of severable portions and is provided with a relatively rigid adhered section provided with strap receiving openings for holding the tag on a bale of cotton, the relatively rigid tag portion being adhesive and ink pervious so as to permit the printing of large numbers on the first and second tags and to provide for substantial and strong mechanical attachments for the tag relative to a bale of cotton or the like; one of said severable sections also having a string or wire receiving eyelet means.

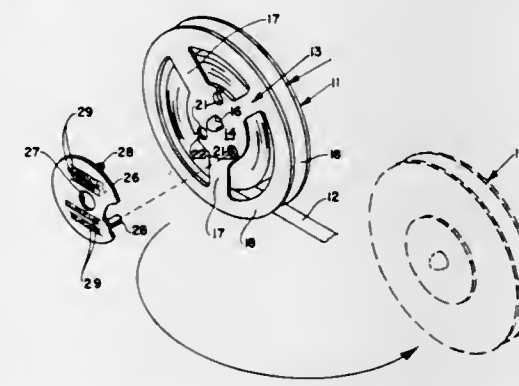
3,559,324

TRANSFERABLE TAPE REEL IDENTIFICATION DISK
Charles S. Blair, % 5th Ave. Rental, 101 5th Ave., Redwood City, Calif. 94061
Filed May 27, 1968, Ser. No. 732,132

Int. Cl. G09f 3/00

U.S. Cl. 40—309

1 Claim



Transfer of data identifying material recorded on tapes for recorders is accomplished by this invention when the

tapes are wound from one reel to another. A disk carries the identifying indicia and is provided with means detachably securing same to a reel so that when a tape is transferred from one reel to another the disk may be conveniently removed from the first reel and installed on the second.

3,559,325

GAS NOISEMAKER
John Webster, 20566 Debbie Lane, Saratoga, Calif. 95070
Filed Jan. 16, 1969, Ser. No. 791,758
Int. Cl. F41c 3/02

U.S. Cl. 42—55

12 Claims



A noisemaker which makes acetylene gas from calcium carbide and explodes the gas, when a fuse is ignited, all in a cardboard, plastic or other lightweight tube having a captive missile or cap at one end that is ejected at the time of the explosion.

3,559,326

HOOK SETTER
Clifford W. Henderson, 3804 Greenway Place, Shreveport, La. 71105
Filed Jan. 13, 1969, Ser. No. 790,625
Int. Cl. A01k 97/00, 97/12

U.S. Cl. 43—15

3 Claims



A device comprising a length of wire forming two elongated legs joined by a spring loop to provide spring tension to the legs. The end of one leg has a first loop and a transverse finger thereon and the other leg has a latch arm pivoted at its center to the end thereof. The latch arm has a second loop on one end and a downwardly-extending finger on the other end. The first leg

has means thereon for storing fishing line and a portion of the line extends through both loops on the legs and is provided with a hook at its free end. When the legs are brought together, the fingers are engaged to set the device, and when a fish bites, the fingers are disengaged and the legs spring apart to set the hook in the fish's mouth.

3,559,327

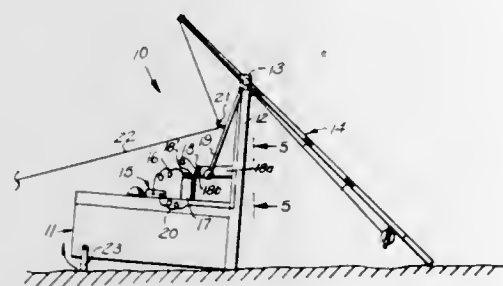
FISH WARNING DEVICE

Bernard A. Christopher, Wilkes-Barre, Pa., assignor of twenty-five percent each to Chester Baczynski, James Bartoletti and Chris Featherstone, all of Wilkes-Barre, Pa.

Filed Dec. 2, 1968, Ser. No. 780,412
Int. Cl. A01k 97/12

U.S. Cl. 43—17

2 Claims



An apparatus for signaling the movement of a fishing line of a fishing rod by the pull of a fish has a pendulum pivotally attached to and hanging freely from an upwardly extending member. The fishing line passes from the fishing rod, through a hook attached to the pendulum and into a body of water. The pull of a fish on the fishing line causes the pendulum to swing and touch a contact bar to close an electrical circuit and activate a signal, such as a bell.

3,559,328

LINE-CASTER ATTACHMENT FOR FISHING ROD

Royal B. Lesher, Spenard, Alaska
(3200 W. 29th Turnagain S., Anchorage, Alaska 99503)
Filed Dec. 24, 1968, Ser. No. 786,697
Int. Cl. A01k 91/02

U.S. Cl. 43—19

8 Claims



A manually actuable self-contained automatic caster attachment which can be readily mounted on a casting rod without altering said rod and where there is insufficient room for a backcast. A bendable spring steel or equivalent strip member is provided with guide eyes and a tip-end-eye for the lure-equipped fishing line. When the strip member is bent back, it is momentarily cocked by a novelly mounted pull-string. When the angle releases the suitably tensioned string, the momentum imparted to the fishing line carries the line and lure out over the water.

3,559,329

BAG WITH ONE-WAY ENTRANCE

Winton C. Chiu, 1901 E. 23rd St.,
Oakland, Calif. 94606

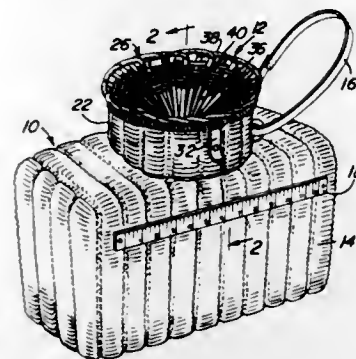
Filed Feb. 28, 1969, Ser. No. 803,311
Int. Cl. A01k 97/04

U.S. Cl. 43—55

1 Claim

A bag, container or the like having a closure associated with an opening therein with the closure incorporating a

one-way entrance in the form of a conical member having an open apex depending into the bag, container or the like with the conical member being constructed from a



peripherally expandible member to enable the open lower apex thereof to expand when entry from above is desired but remain closed when egress is attempted from the interior of the bag or container.

3,559,330

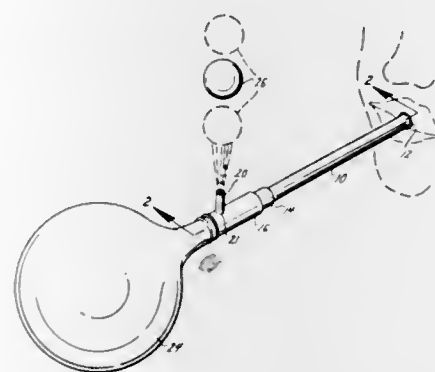
TOY

Marvin L. Matlock, 7501 Mars Drive,
Godfrey, Ill. 62035

Filed Apr. 11, 1969, Ser. No. 815,318
Int. Cl. A63h 29/16

U.S. Cl. 46—44

8 Claims



A toy has a chamber, a mouth piece through which air can be supplied to said chamber, a balloon which receives air from said chamber and thereafter returns air to said chamber, a nozzle which extends upwardly from said chamber to direct a jet of air upwardly, and a light-weight ball which can be suspended in mid air by said jet of air.

3,559,331

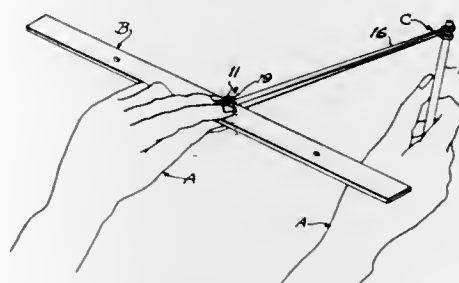
CATAPULT POWERED RECTANGULAR BLADE

Pernell D. Eller, 1331 Washington Blvd.,
Venice, Calif. 90291

Filed Apr. 21, 1969, Ser. No. 817,991
Int. Cl. A63h 27/00

U.S. Cl. 46—74

3 Claims



An elongated rectangular blade, horizontally projected and rapidly rotated on a horizontal axis by an elastic catapult, is thereby caused to soar on a rising trajectory until its spinning momentum is dissipated.

3,559,332

PULL-TOY ASSEMBLY

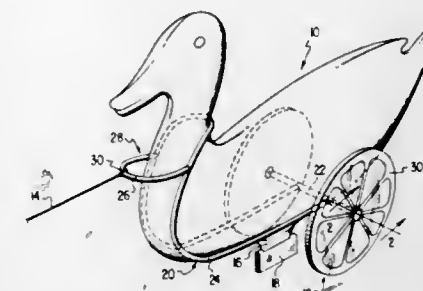
Robert A. Stephens, 2980 Risinger Drive,
Shreveport, La. 71102

Continuation-in-part of application Ser. No. 680,168,
Nov. 2, 1967. This application Aug. 11, 1969, Ser.
No. 848,933

Int. Cl. A63h 3/06

U.S. Cl. 46—88

4 Claims



A pull-toy assembly including an inflatable body member and a wheeled skeletal framework wherein assembly and disassembly of the same is facilitated by providing distinct body member supporting and encircling portions on said framework for supporting and encircling separate and distinct portions of the inflatable body member and wherein the inner periphery of the body encircling portion of the framework exceeds the outer periphery of the encircled inflatable body portion whereby the pull-toy may be assembled and disassembled with the body member in an inflated condition. Stability is imparted to the pull-toy by so arranging the body member supporting and encircling portions that the center of gravity of the body member is located intermediate and below a line passing through said last named portions.

3,559,333

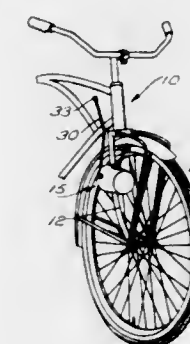
NOISEMAKING DEVICE

John Manzo, 1225 Cranston St., Cranston, R.I. 02920
Filed Sept. 4, 1968, Ser. No. 757,387

Int. Cl. A63h 5/00

U.S. Cl. 46—175

5 Claims



A cup device bodily movable into engagement with a bicycle wheel and having means for striking a diaphragm end of the cup to produce a noise simulating a motor sound.

3,559,334

TOY VEHICLE AND APPARATUS FOR MOVING THE VEHICLE

Janos Beny, 429 7th St., Manhattan Beach, Calif. 90266,
and Marshall B. Pearlman, 233 S. Barrington Ave.,
Apt. 105, Los Angeles, Calif. 90049

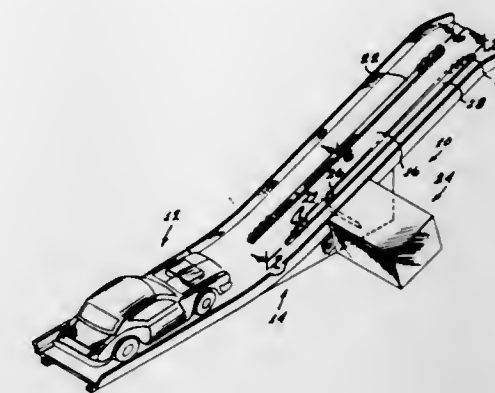
Filed Dec. 5, 1968, Ser. No. 781,394
Int. Cl. A63h 17/00

U.S. Cl. 46—206

2 Claims

Toy vehicle and apparatus for moving the vehicle up an inclined track area so the vehicle can thereafter coast downhill, comprising an elongated member extending along the incline with vehicle-engaging projections spaced

along its length. The projections are flexible and extend with down-path directional components (pointing up the incline) so that they can push the vehicle up the incline



3,559,335

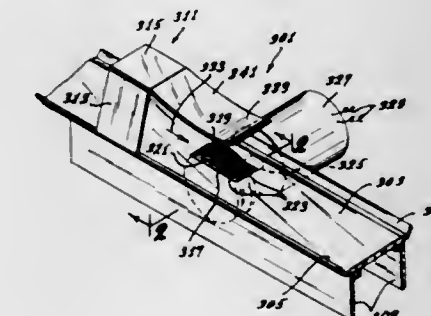
TOY VEHICLE ACCELERATION MECHANISM

Thomas E. See, Huntington Beach, and Arthur S. Woodward, Sylmar, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware

Filed May 26, 1969, Ser. No. 827,864
Int. Cl. A63h 11/00

U.S. Cl. 46—202

11 Claims



An action toy utilizing a motor-driven rotating drum positioned to come into contact with a surface of small, unpowered vehicles moving on a roadway, opposite another surface of the vehicles which is simultaneously in contact with a stationary pressure means, so that undesired components of forces acting between the drum and the pressure means are cancelled and only the component of accelerating force in the desired direction along the roadway is allowed to act on the vehicles.

3,559,336

TOY HAVING CAPACITANCE SWITCH

Zenkichi Nozaki, Tokyo, Japan, assignor to Asahi Trading Company, Limited, Tokyo, Japan, a corporation of Japan

Filed Sept. 16, 1968, Ser. No. 762,269
Int. Cl. A63h 33/26

U.S. Cl. 46—247

1 Claim

A self-propelled motorized toy whose movement is controlled by the distance between it and another object, such as a human operator. A transistor oscillator, resonant tank circuit, capacitive device whose capacitance is determined by the distance between it and the object connected to the resonant tank circuit, and a transistorized amplifier are connected together in such a manner that the increase or decrease in capacitance of the capacitive device causes a decrease or increase in the input signal

applied to the amplifier. The amplifier is connected to a relay switch which in a first state directs current from a power source to a motor which operates to move the



toy, and in a second state, directs current to other means which operate other movements of other parts of the toy, such as flaps and whistles.

3,559,337

APPARATUS FOR ELECTROCULTURE

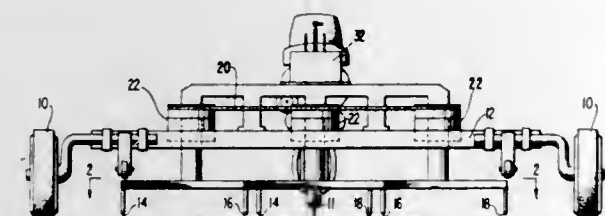
Vernon F. J. Marcoux, 1617 Morgan Ave., Saskatoon, Saskatchewan, Canada, and Stanley E. Wolf, Box 116, Cutknife, Saskatchewan, Canada

Filed Feb. 18, 1969, Ser. No. 800,087

Int. Cl. A01m 21/00

U.S. Cl. 47-1.3

3 Claims



An apparatus for the destruction of vegetation by means of an electric arc is disclosed which takes the form of a vehicle having a plurality of pairs of electrodes mounted for simultaneous rotation on vertical axes so spaced from each other that an overlapping pattern is created. High voltage is connected between ground and each electrode to cause an arc discharge as the vehicle is moved over ground and as the electrode pairs are rotated.

3,559,338

DRIVEWAY EDGING

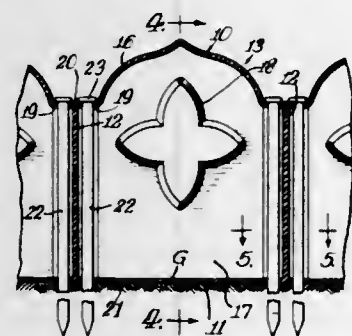
Arthur F. Klingberg, McHenry, Ill., assignor to Janier Plastic Mold Corporation, a corporation of Illinois

Filed Apr. 29, 1968, Ser. No. 725,075

Int. Cl. A01g 1/08

U.S. Cl. 47-33

13 Claims

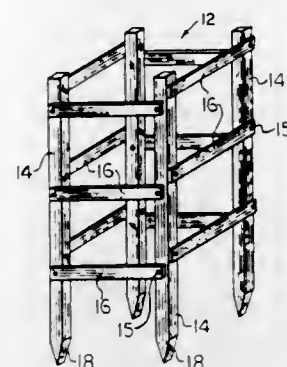


A driveway edging structure including a plurality of blocks and hinge means formed integrally with the blocks connecting the blocks to define an elongated unitary edging structure. The hinge means permits the edging structure to extend lengthwise substantially along the driveway edge which may be nonrectilinear. Stake means are associated with the edging for retaining the edging structure along the driveway edge.

3,559,339
COLLAPSIBLE PLANT STAKE ASSEMBLY
Robert W. Worley, 426 S. Clifton,
Wichita, Kans. 67218
Filed Nov. 4, 1968, Ser. No. 773,264
Int. Cl. A01g 9/12

U.S. Cl. 47-45

3 Claims



This invention relates to a stake assembly including a plurality of corner stakes interconnected as by lateral support or side rails so that the same may be positioned about a plant for supporting the same and readily movable into a compact, sturdy position for hanging or storing.

3,559,340

CHEMICAL AXE

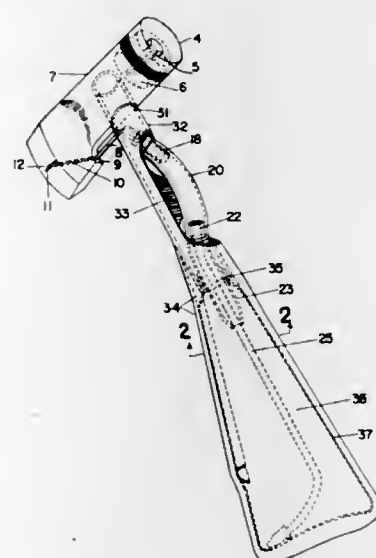
Vernon A. Good, 1925 NE. Liberty St.,
Portland, Oreg. 97211

Filed July 11, 1968, Ser. No. 744,156

Int. Cl. B26b 23/00; A01g 29/00

U.S. Cl. 47-57.5

3 Claims



A chemical axe containing a supply of fluid and having means whereby fluid can be injected into a tree after the axe blade is imbedded into the tree.

3,559,341

ROTATABLE TURNSTILE CONSTRUCTION

William T. Alvarado, 11204 E. Rush St.,
El Monte, Calif. 91733

Filed Aug. 29, 1969, Ser. No. 854,087

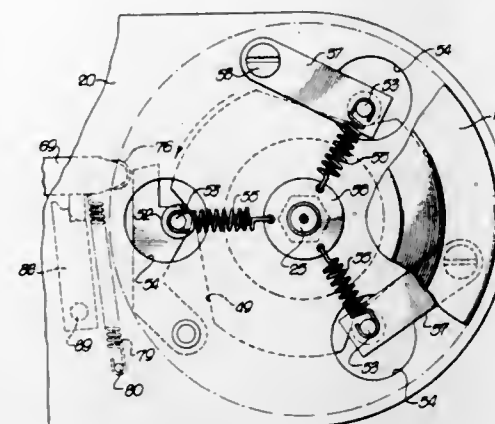
Int. Cl. E06b 11/08

U.S. Cl. 49-47

11 Claims

A rotatable turnstile construction adapted for use in supermarkets, theaters, auditoriums and the like and including a compact light weight readily assembled mounting means separable from a post and having rotatable arm means associated therewith and provided with cam means for locating and centering turnstile arms transverse to the passageway. Releasable lock means are provided to

secure each arm in passageway closing position, the lock means including a two-position latchable means, one position being locked position and the other position being a



hold open position. The construction also includes a novel arrangement for cam follower biasing means which facilitates assembly of the construction.

3,559,342

DOOR AND LATCH STRUCTURE

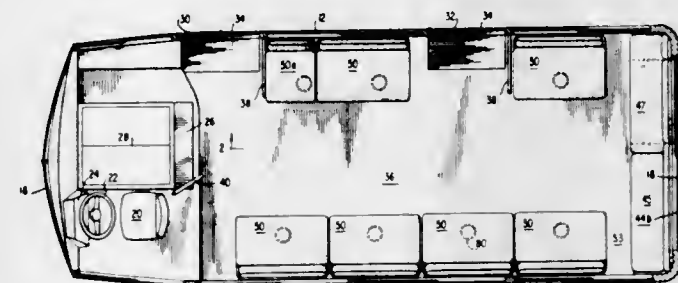
Thomas Leroy Sherbert, Lanham, Md., and Tillison Myron Sherbert, Washington, D.C., assignors to D.C. Transit System, Inc., Washington, D.C., a corporation of the District of Columbia

Original application July 20, 1967, Ser. No. 654,865, now Patent No. 3,455,597, dated July 8, 1969. Divided and this application Apr. 4, 1969, Ser. No. 813,460

Int. Cl. E06b 3/50

U.S. Cl. 49-143

5 Claims



In the back wall of a bus, a door enabling large packages or other items to be brought into the bus from the rear. Slidable above the door in the rear wall of the bus, is a window panel which must be slid to one side of the door before the door can be opened. The interior paneling in the bus overlying the door is removably attached to the door, and a spring bias latch mechanism is provided for latching the door with respect to the surrounding jamb structure. The latch is actuated through a handle which, when not in use, is concealed in a compartment in the top of the door.

3,559,343

SANDBLAST TRUCK

Willard F. Foster, Alden, N.Y., assignor to C. H. Heist Corporation, Buffalo, N.Y., a corporation of New York

Continuation-in-part of application Ser. No. 658,558, Aug. 4, 1967. This application July 5, 1968, Ser. No. 748,130

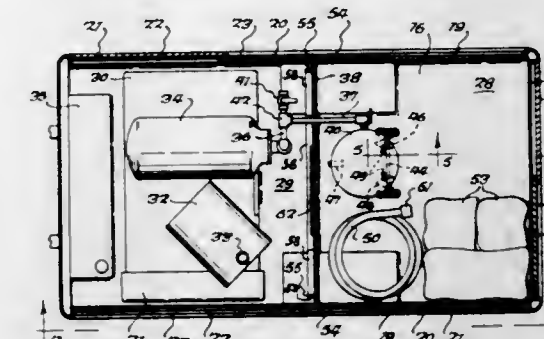
Int. Cl. B24c 3/00

U.S. Cl. 51-8

12 Claims

A sandblast truck including an enclosed truck body, an engine-driven compressor mounted crosswise within the truck body, a sandblast unit mounted within the truck body, a partition dividing the truck body into a first compartment for containing the compressor and a second

compartment for containing the sandblast unit, the partition being removable in the event access is required to the side of the compressor, and doors in the side of the truck body for selectively permitting the compressor to be



exposed to the air for cooling and air-intake purposes. In one embodiment a hopper is fixedly mounted on the floor of the second compartment for feeding a sandblast unit which extends downwardly through the floor of the truck.

3,559,344

AIR PRESSURE GUN

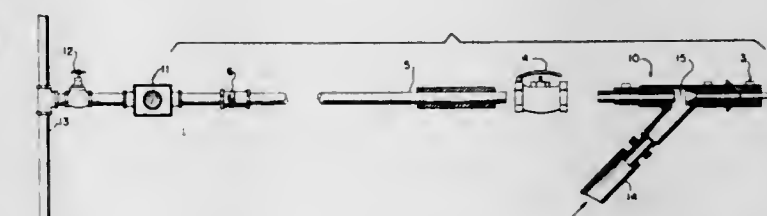
John A. Peterson, deceased, late of Portland, Oreg., by Ruth A. Peterson, helress, 110 SE. 168th Ave., Portland, Oreg. 97233

Filed Jan. 25, 1968, Ser. No. 702,501

Int. Cl. B24c 1/00, 3/06

U.S. Cl. 51-11

2 Claims



This invention relates to an air pressure gun for use in cleaning, for example, insulated generator windings with soft abrasive. The invention resides in the use of a curved nozzle whereby a layer of abrasive particles separate from the carrier air stream and impinge upon the surface to be cleaned with a wiping action rather than a conventional splattering which is inefficient and might injure the wiring or object being cleaned.

3,559,345

VALVE GRINDING TOOL

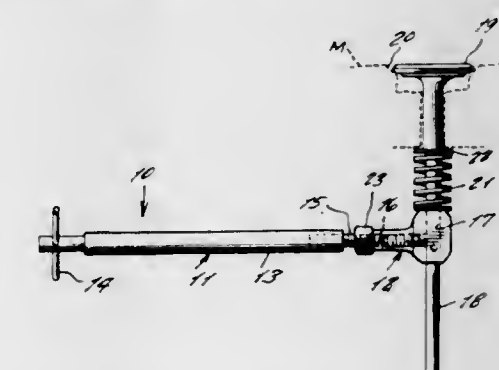
William J. Winters, 8930 Kilburn,
Houston, Tex. 77016

Filed Jan. 8, 1969, Ser. No. 789,830

Int. Cl. B24b 15/02

U.S. Cl. 51-29

10 Claims



A tool for grinding a valve by hand, the tool comprising a handle secured to an L-shaped head having an opening therethrough for being fitted upon the valve stem,

the head including a compression coil spring for bearing against an engine manifold while the valve head bears against the valve seat.

ERRATUM

For Class 51—46 see:
Patent No. 3,560,175

3,559,346

WAFER POLISHING APPARATUS AND METHOD
Carl R. Paola, Westfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Feb. 4, 1969, Ser. No. 796,384
Int. Cl. B24b 7/00, 9/00, 1/00
U.S. Cl. 51—57

8 Claims

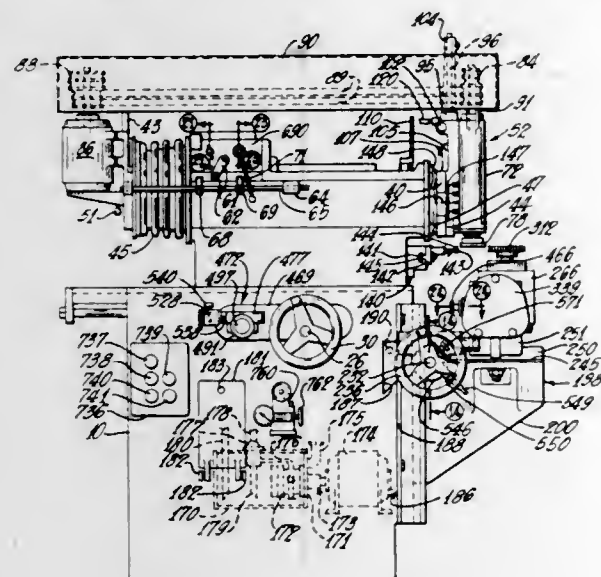


A wafer to be polished is mounted on one end of a mounting cylinder. An annular flange threaded to the mounting cylinder is adjusted such that the exposed wafer surface protrudes beyond a brake surface of the flange by a distance equal to the thickness of the wafer material to be removed. A stabilizing member slideably fits over the flange to form with the other components a polishing assembly that is then placed, wafer surface down, in a polishing pan. The pan is agitated such that the assembly describes a random motion until the wafer has been polished to its desired thickness, at which time the brake surface contacts the polishing surface of the pan and terminates movement of the assembly relative to the pan.

3,559,347 GRINDING APPARATUS

Clifford L. Garrison, Adrian, Mich., assignor to Oliver Instrument Company, Adrian, Mich., a corporation of Michigan
Filed Feb. 19, 1969, Ser. No. 800,395
Int. Cl. B24b 3/02, 7/00
U.S. Cl. 51—98.5

14 Claims



The disclosure embraces a grinding apparatus or machine especially adapted for grinding the teeth of toothed cutters or workpieces wherein the ram carrying the grinding wheel is reciprocated in a straight line, the grinding

apparatus including a universally mounted workpiece or cutter support for grinding teeth of various angularities, the cutter being automatically indexed between successive grinding strokes and the grinding apparatus automatically brought to rest upon completion of grinding operations on a cutter or workpiece.

3,559,348

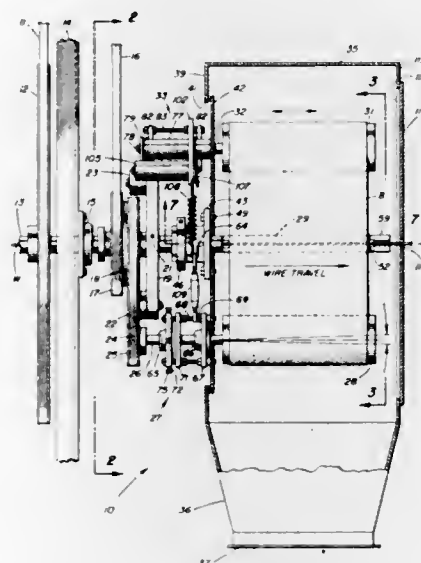
ABRADING MACHINE

John S. Case, Baltimore, Md., assignor to Anchor Post Products, Inc., Baltimore, Md., a corporation of New Jersey

Filed May 21, 1968, Ser. No. 730,820
Int. Cl. B24b 21/02

U.S. Cl. 51—135

23 Claims



An abrading machine is provided which consists of an abrasive belt bearing against and being drawn across the side of a traveling strand, wire, rod or pipe, and rotating about it. The strand is guided and backed by a grooved support on the axis of the rotating system. The belt drive and idler rollers, or carriers, are provided with aligning adjustments, and the latter additionally has a tensioning spring arrangement and is compensated for centrifugal force.

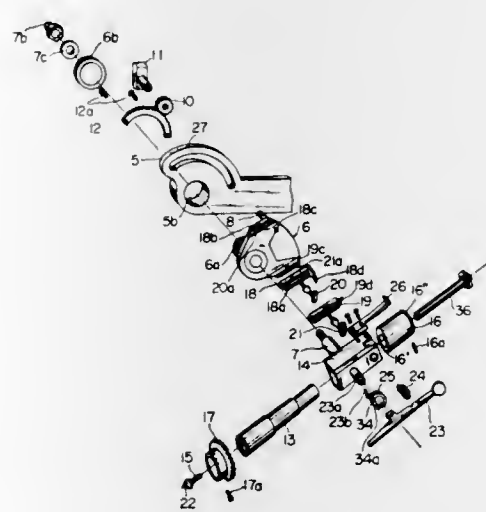
3,559,349 FACETING MACHINE

Takahiro Imahashi, 533 Hino, Hino, Tokyo, Japan
Filed Dec. 31, 1968, Ser. No. 788,160
Claims priority, application Japan, Jan. 25, 1968, 43/4,397

Int. Cl. B24b 19/00

U.S. Cl. 51—229

7 Claims



A faceting machine according to the present invention is capable of automatically setting different cutting angles

or polishing angles of different facets. The faceting machine includes a stationary protractor, an angle setting plate rotatable on the surface of the protractor about a shaft, a fastening means to fasten the angle setting plate to said protractor at a desired angular position, and a bearing block rotatably carrying a faceter spindle and secured to said shaft. The faceter spindle is swingable on the surface of the angle setting plate about the shaft while being rotatable about its own axis. The faceter spindle has a dop stick axially secured to one end thereof for holding a gemstone being cut or polished and a cam block secured to the opposite end thereof. The cam block rotates together with said faceter spindle and has a circular cross section at a portion thereof and non-circular cross sections at other portions thereof. The angle setting plate has a cam follower to be secured thereto at a selected position thereof so as to be kept in contact with the peripheral surface of said cam block.

3,559,350

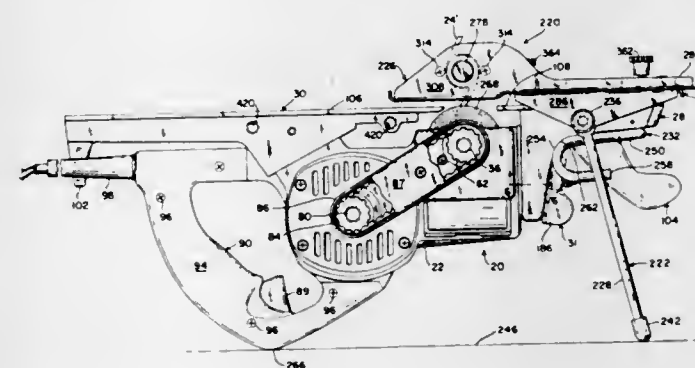
PLANE ATTACHMENTS

John Gordon Bentley, Liverpool, N.Y., assignor to Rockwell Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed May 3, 1967, Ser. No. 635,879
Int. Cl. B24b 19/00

U.S. Cl. 51—241

20 Claims



A cutter sharpening attachment for a hand-manipulated, power-operated plane is disclosed herein to comprise a grinding wheel interchangeable with the cutter element of the plane and a frame and cutter mounting arbor assembly which is adapted to be detachably mounted on the plane and which supports a bladed cutter to be sharpened for rotation and reciprocation with respect to an axis extending parallel to the rotational axis of said grinding wheel. For employing the cutter sharpening attachment, the plane is inverted and is supported in its inverted position on suitable surface by one of its handles and a pedestal which is adapted to be detachably secured to the plane. By supporting the plane in its inverted position with the pedestal, the plane may alternately be employed as a jointer by using its shoes as work-support tables and by providing a jointer fence attachment which is adapted to be detachably mounted on the plane.

3,559,351

METHOD FOR TREATING METALS

Edward S. Richter, 854 Moreland Ave. SE., Atlanta, Ga. 30316

Filed June 28, 1968, Ser. No. 740,948

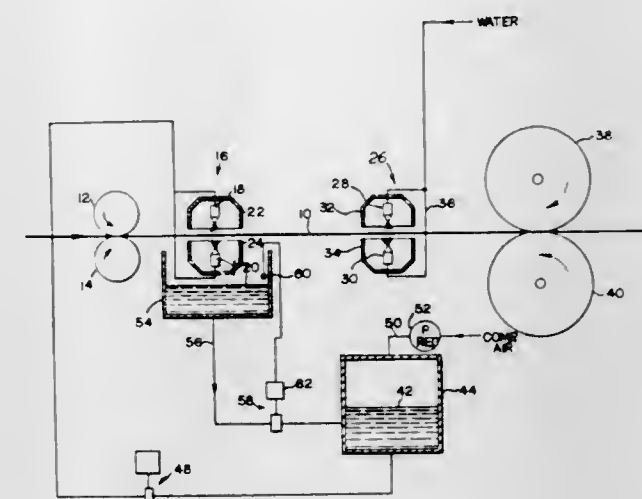
Int. Cl. B24b 1/00

U.S. Cl. 51—326

3 Claims

Metals are treated by directing a high pressure jet of high hardness particulate material in a fluid medium against the surface of the metal. The fluid material is

comprised of small marble particles dispersed in a liquid medium such as water and in some instances including other substances, such as clay and rust inhibitors. The high pressure jets prepare the metal for plating, remove flash, markings and imperfections from the metal. The metal is then washed and buffed. The apparatus for carry-



ing out the process includes high pressure systems for delivering the fluid mixture from nozzles at a station through which the metal is carried. A recovery system recirculates the material so that it is continuously re-used. The process and apparatus are useful for either sheet metal or individual metal parts.

3,559,352

INTERIOR SPACE DIVIDER ARRANGEMENT

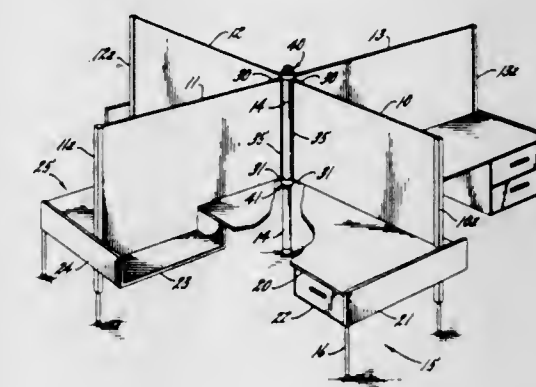
Raymond A. Magnuson, Hinsdale, Ill., assignor to Beatrice Foods Co., Chicago, Ill., a corporation of Delaware

Filed Mar. 12, 1969, Ser. No. 806,503

Int. Cl. A47b 96/12; E04b 1/343

U.S. Cl. 52—36

7 Claims



A versatile interior space dividing arrangement including one or more round vertical posts with each post having a plurality of panels or other space dividing elements mounted thereon. A pair of adjustable collars are fitted over each post for receiving mounting brackets secured to the panels, with the collars and brackets cooperating with each other to permit adjustment of the angular positions of the panels. The vertical positions of the panels may also be adjusted by moving the collars longitudinally along the posts. Each panel is preferably provided with a channel member secured to the edge of the panel adjacent the post and complementarily formed

with respect to the post so that the panel may be pivoted around the post and yet the channel member blocks the view between the panels and the posts.

3,559,353

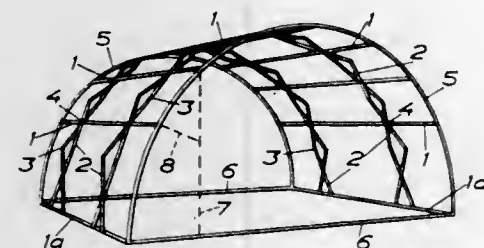
COLLAPSIBLE BUILDING STRUCTURES

Gordon Charles Partridge, Tadcaster, England, assignor to Easifold Buildings Limited, Lancaster, England, a British company
Filed Nov. 5, 1968, Ser. No. 773,391
Claims priority, application Great Britain, Nov. 6, 1967, 50,315/67; Mar. 19, 1968, 13,194/68; July 9, 1968, 32,609/68

Int. Cl. E04b 1/347, 7/16

U.S. Cl. 52—63

7 Claims



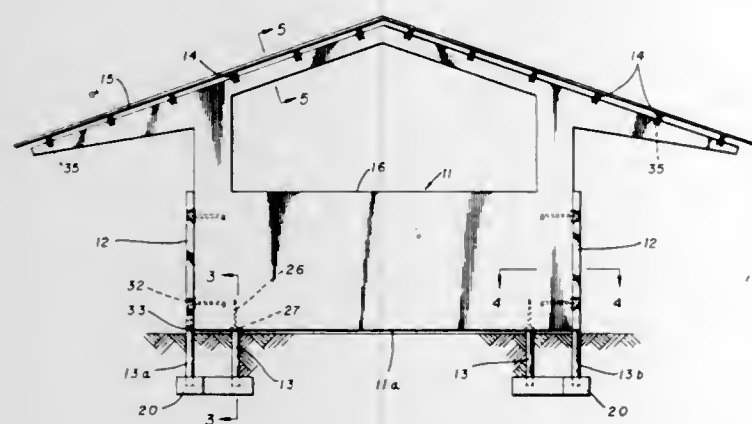
The invention comprises a collapsible building structure incorporating latticework units of pivoted together crossed links to form parallel beams or trusses joined by purlins, and which units can be extended in arched formation. The links of the units may be arranged in a horizontal or vertical plane and a flexible covering is located over the framework.

3,559,354

FREESTANDING BUILDING STRUCTURE

Thomas J. Dillon, 692 Woodbrook Road, Cuyahoga Falls, Ohio 44223
Continuation of application Ser. No. 722,342, Apr. 18, 1968. This application Dec. 22, 1969, Ser. No. 887,371
Int. Cl. E04b 7/02, 2/84; E02d 27/00
U.S. Cl. 52—90

6 Claims

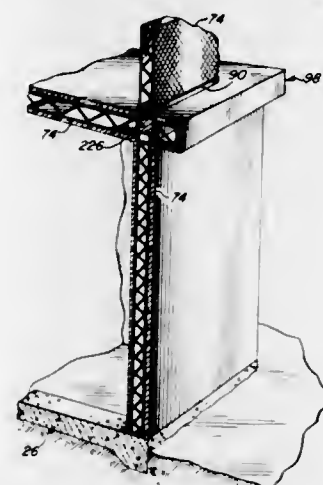
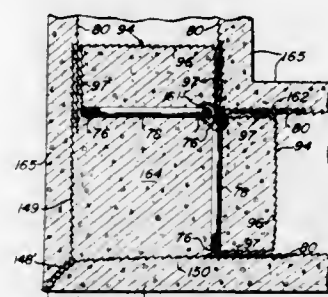


A freestanding building having particular adaptability for low cost stable construction and being characterized by the use of a plurality of identical pre-cast concrete bent members that are supported with respect to the ground by improved type, low cost foundation components including triangularly disposed upright rods which are embedded in the ground and secured both to the bottom edges of the bent members and to the bottom edges of transverse bracing members which are, in turn, secured to vertical edges of the bent members to form a building structure with a series of stalls or compartments in a novel and unique fashion, the entire structure being covered by roof decking.

**3,559,355
BUILDING CONSTRUCTION SYSTEM AND COMPONENTS THEREFOR**

Paul Thorndyke Day, Jr., Baltimore, Md., assignor to Inland-Ryerson Construction Products Company, Milwaukee, Wis., a corporation of Delaware
Continuation-in-part of applications Ser. No. 367,849, May 15, 1964, and Ser. No. 421,250, Dec. 28, 1964. This application Mar. 10, 1966, Ser. No. 533,356
Int. Cl. E04b 1/20, 1/16; E04c 2/42
U.S. Cl. 52—251

4 Claims



A composite, structural load bearing building unit having membrane panels separated by lightweight spacer members, the membrane panels having a reticulated sub-form covered with a skin of cementitious material to provide a composite structure which is capable of supporting loads much greater than the capability of the lightweight spacer members. A building system with interconnected composite structural assemblies.

3,559,356

RESILIENT CORNER BEAD

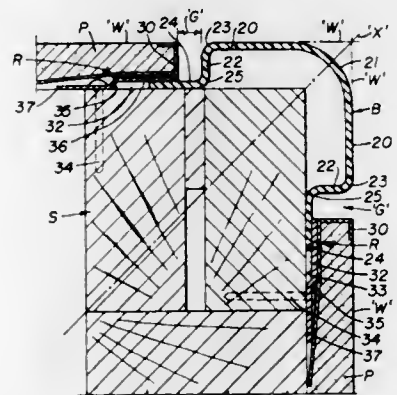
Ephraim Koral, Denver, Colo., assignor to Construction Specialties, Inc., Cranford, N.J., a corporation of New Jersey

Filed Apr. 19, 1968, Ser. No. 722,594

Int. Cl. E04f 13/06, 19/02

U.S. Cl. 52—254

22 Claims



A corner bead for external wall corners and corresponding caps for wall ends formed of a resilient, reinforced synthetic resin. The corner bead wraps about the

wall corner to protect the same against shocks and is carried in slot-like sockets in each wall section whereinto edge flanges of the corner bead extend to hold the same in position. In using corresponding end caps for wall-end protectors, the structure is similar, but clips are provided to hold the caps in place.

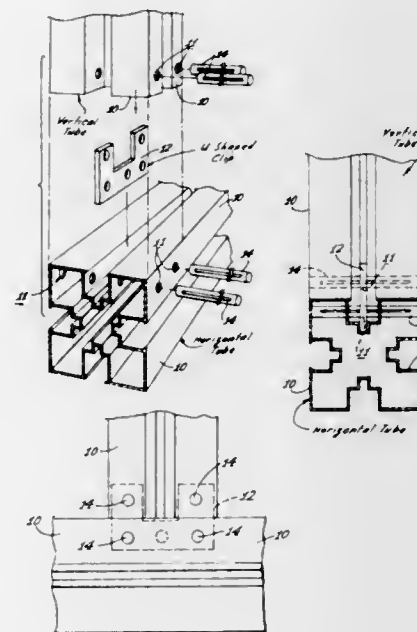
3,559,357

MODULAR BUILDING SYSTEM

David A. Lowe, 13041 Moorpark St., Studio City, Calif. 91604
Filed July 9, 1969, Ser. No. 840,299
Int. Cl. E04b 1/08, 1/48

U.S. Cl. 52—282

5 Claims



A modular building system is provided which includes extruded structural framing formed of metal or plastic, in which the individual tubular members have a rectangular multilateral configuration, and may be quickly and conveniently interconnected with one another and with other structural elements in a snap engagement or by structural pins. The resulting structure is a low cost modular building system, accommodating individual parts as removable, relocatable, replaceable, and additive, as required, for technological mass production, and easy transportation and assembly.

3,559,358

FACING WALL CONSTRUCTION

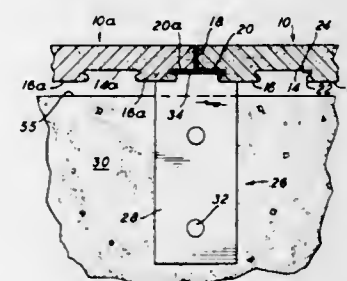
Robert Vincent Lohse, West Orange, N.J., and David George Fowler, Timmins, Ontario, Canada, assignors to Johns-Manville Corporation, New York, N.Y., a corporation of New York

Filed Sept. 15, 1967, Ser. No. 668,120

Int. Cl. E04b 1/16, 1/38

U.S. Cl. 52—379

2 Claims



Cementitious facing panels are secured to a building wall by means of clips, each clip having one portion attached to the wall and another portion fitted in an in-

tegrally formed groove in the back of a facing panel. The panel grooves slidably mate with the clips to permit easy installation.

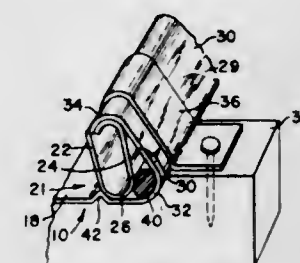
3,559,359

BUILDING PANEL SYSTEM

William L. Talbert, 355 Folkstone Way, York, Pa. 17402
Filed Jan. 10, 1969, Ser. No. 790,378
Int. Cl. E04d 3/363

U.S. Cl. 52—394

11 Claims



A building panel system wherein adjacent panels are provided with longitudinally extending interfitting lips which are contoured in such a manner that a camming or wedging action is secured when the lips are fitted together in order to provide a highly efficient interlocked joint between the assembled panels.

3,559,360

SKYLIGHT MOUNTING ASSEMBLY OF EXTRUDED ALUMINUM SECTIONS

Pierre Emmanuel E. J. Bogaert, Chalet du Dijk 20, Wemmel, Belgium

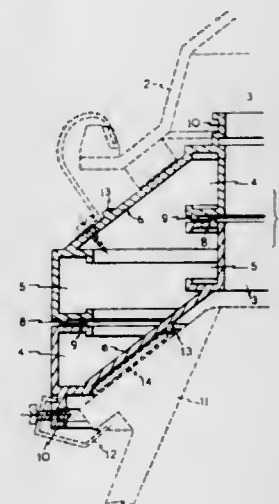
Filed Dec. 5, 1968, Ser. No. 781,446

Claims priority, application Luxembourg, Jan. 25, 1968, 55,349

Int. Cl. E04d 13/035

U.S. Cl. 52—656

10 Claims



A mounting assembly for a skylight consists of a fixed rectangular frame and an identical movable frame hinged to the fixed frame. Each frame consists of four sections of the same extruded shape connected by angle fasteners at the corners in such a manner as to deflect rain water away from the opening covered by the skylight and to minimize air flow through the closed skylight. The extruded shape has two C-channel portions whose webs extend in parallel planes, and at least one plate portion obliquely inclined relative to the planes of the webs and integrally connecting respective flanges of the channel portions.

3,559,361

METHOD FOR CONSTRUCTION

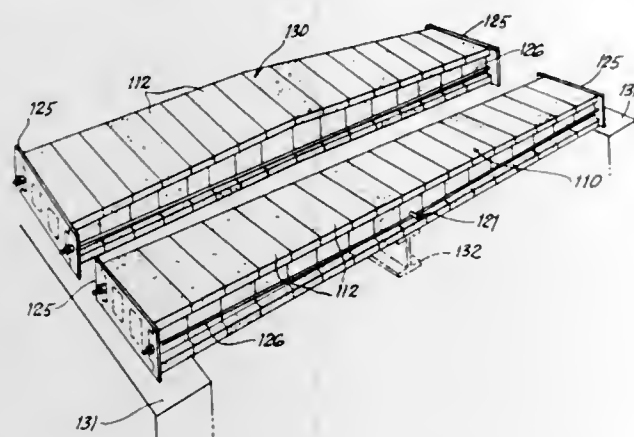
George S. Sarros, Calumet City, Ill., assignor to Sarros Construction Co., Inc., Calumet City, Ill., a corporation of Illinois

Continuation-in-part of application Ser. No. 418,953, Dec. 17, 1964. This application June 4, 1968, Ser. No. 734,301

Int. Cl. E04b 1/06; E04c 3/10

U.S. Cl. 52—743

4 Claims



A system for producing floor constructions extending across a span between upright walls wherein construction blocks are aligned in individual rows in side-by-side relationship. A supporting structure is provided for holding individual blocks as they are placed in position to form a row. Elongated tensioning members are applied to each row while still on the support whereby the blocks in the row are subjected to compressible forces making the row self-sustaining. The support can be moved after application of tension and repeatedly used for successive rows. A grouting material is disposed in the openings defined between adjacent rows of blocks whereby the tensioning members will be embedded in the grouting material between the adjacent rows.

3,559,362

METHOD OF FOLDING AND APPLYING WRAPPER SHEETS TO BALES OF COMPRESSED WOOD PULP OR THE LIKE

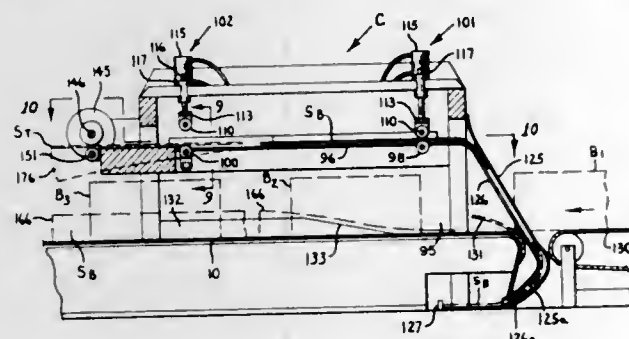
Albert E. Cranston, Jr., and Albert William Cranston, Milwaukee, and William J. Rowell, Portland, Oreg., assignors to Devco, Inc., Oak Grove, Oreg., a corporation of Oregon

Original application Aug. 8, 1966, Ser. No. 570,803, now Patent No. 3,471,994, dated Oct. 14, 1969. Divided and this application May 16, 1969, Ser. No. 825,270

Int. Cl. B65b 11/06

U.S. Cl. 53—3

1 Claim



A needle bar pickup device removes wrappers from a stack and feeds them to a dispensing tray above a bundle passageway. Bottom wrappers are fed forward from the tray and disposed in curtain position across the entrance to the bundle passageway so that oncoming bundles bend the wrappers down and override them, carrying these wrappers along under the bundles. Top wrappers are fed rearward from the tray through conical creasing rollers

which form downward folds in side portions of the wrappers. The creased top wrappers are then deposited on top of bundles leaving the bundle passageway.

3,559,363

ARTICLE HANDLING AND PACKAGING APPARATUS

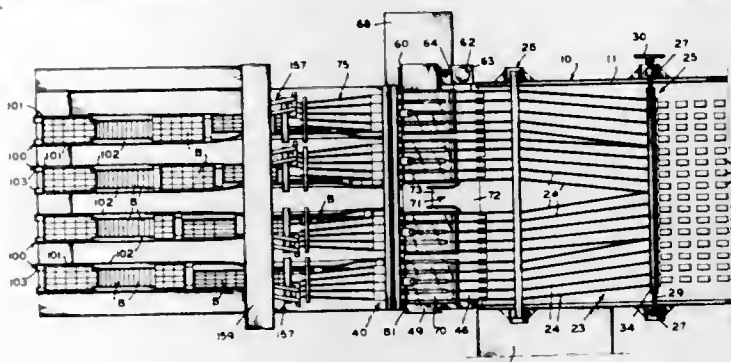
Melbourne A. Lipp, Carmel, Calif., assignor to L. S. Heath & Sons, Inc., Robinson, Ill.

Filed May 31, 1968, Ser. No. 733,523

Int. Cl. B65b 21/06

U.S. Cl. 53—26

27 Claims



Apparatus for separating relatively small individual articles into predetermined channels along a conveyor and discharging the same into an accumulator having multiple inclined chutes from which the articles are discharged into packages. At the discharge end of the accumulator the chutes are in stepped relation with each other with the discharge end of each chute being in a substantially horizontal plane and having generally parallel bottom walls, and the packages are disposed at a substantially corresponding angle and located closely adjacent to the discharge end of the chutes so that transfer mechanism can discharge the articles directly into the packages in a high speed operation and after the packages are filled they are discharged from the machine.

3,559,364

PACKAGE WITH OPEN ENDS AND METHOD OF SEALING WRAPPER THEREON

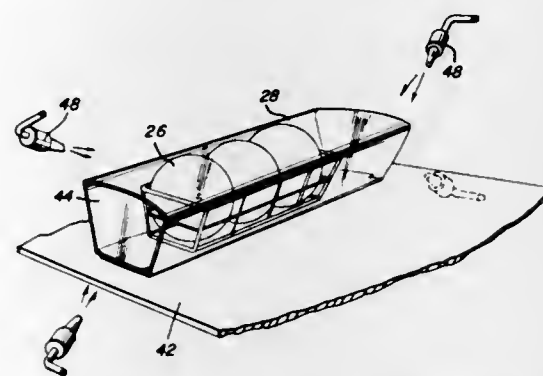
Sebastiano J. Petrella, 11-A Golden Ave., and Salvatore J. Petrella, 18 Wright Ave., both of Medford, Mass. 02155

Filed July 25, 1968, Ser. No. 747,620

Int. Cl. B65b 53/06

U.S. Cl. 53—33

2 Claims



A package for commodities covered with a sheet or film of material that protrudes beyond or extends beyond both ends of the package with the film being fused at the bottom of the package. The package in this condition is conveyed so that the two open end edges of the overlapping film pass under two streams of hot air which causes the film to shrink and fold over and cling to the edges of the package thereby molding itself to the package and forming a firm and rigid seal which may either completely close each end or leave a circular-type opening therein depending on the length of the overlapping film.

3,559,365

CAPPING APPARATUS AND METHOD

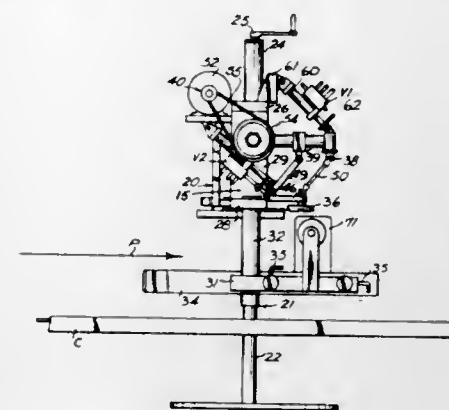
Gerry G. Hull and Eugene B. Morris, Jr., Atlanta, Ga., assignors to Haskon, Inc., Warsaw, Ind., a corporation of Delaware

Filed Feb. 27, 1968, Ser. No. 708,688

Int. Cl. B65b 7/28; B67b 3/20

U.S. Cl. 53—38

10 Claims



Method and apparatus for capping containers such as bottles with screw-type caps or closure members wherein the method includes the steps of moving the containers to be capped along a prescribed path at a substantially constant selected speed, positioning a screw-type cap over the mouth of the container in a position to be screwed thereon, and subsequently screwing the cap onto the container for sealing as said container is moved along said prescribed path at said substantially constant selected speed.

The apparatus is utilized in conjunction with means for moving containers to be capped along a prescribed path at a substantially constant selected speed and includes a first means for positioning screw-type caps for closing the containers in a position whereby the upper portion of the container will engage the cap and pivot the cap over the mouth of the container as the container is moved by said conveying means, and second means for screwing the cap onto the container to seal the open mouth of said container as the container is moved by the conveying means along its prescribed path.

3,559,366

CARTON LOADING APPARATUS AND METHOD

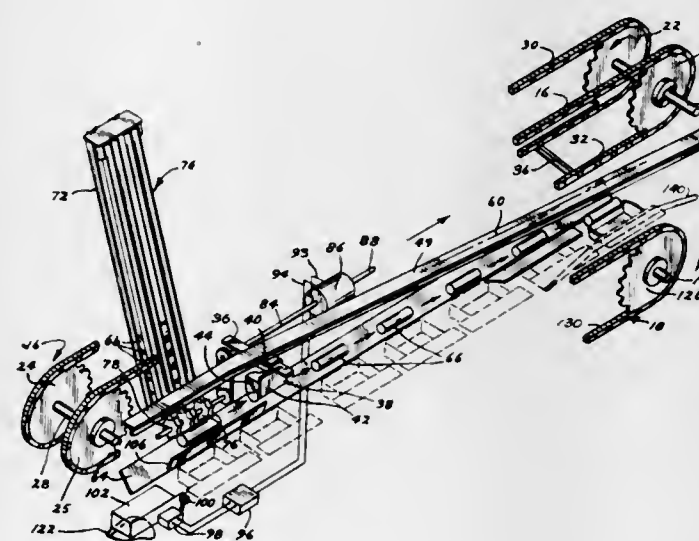
Jerry A. Maudlin, Pekin, Ind., and Carl K. Barnes, Lodi, Ohio, assignors to The Pillsbury Company, Minneapolis, Minn., a corporation of Delaware

Filed Nov. 29, 1968, Ser. No. 780,072

Int. Cl. B65b 5/04

U.S. Cl. 53—35

6 Claims



A carton loading machine consisting of two parallel conveyors mounted one above the other. Articles that are

to be inserted in containers are loaded on carriers provided on the upper conveyor. Receptacles advanced by the lower conveyor are positioned in vertical alignment with the carriers on the upper conveyor. The articles in the upper carriers are supported by and slide along a fixed bar which extends the length of the apparatus between the conveyors. The carriers of the upper conveyor are mounted for lateral sliding movement. A cam on the framework forces the upper carriers laterally so that the articles upon clearing the side of the bar fall into the cartons.

3,559,367

MACHINE FOR PACKAGING NEWSPAPERS

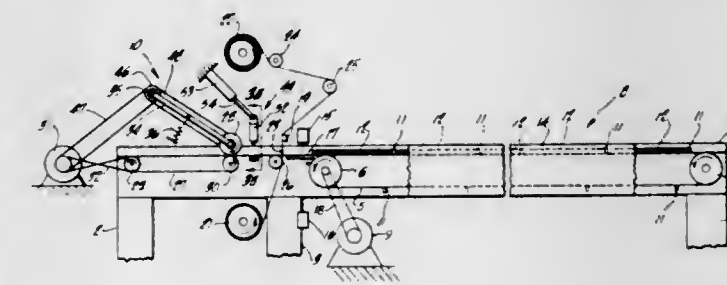
Albert V. Misik, Los Angeles, Calif., assignor to Belco Engineering, Inc., Pasadena, Calif., a corporation of California

Continuation-in-part of application Ser. No. 649,905, June 29, 1967. This application Feb. 28, 1969, Ser. No. 826,735

Int. Cl. B65b 9/02, 57/12

U.S. Cl. 53—74

6 Claims



A horizontal, continuously moving conveyor adapted to carry newspapers individually in a flat position to an enveloping station where the newspapers are packaged in a protective film. The enveloping station has a transport mechanism that is actuated responsive to a newspaper sensor located at the conveyor. Two rolls of protective film are supported above and below the plane of the conveyor to rotate about horizontal axes so as to feed film to the enveloping station. The ends of the two rolls of film are sealed together across the entrance to the enveloping station. As each newspaper approaches the enveloping station, the sensor actuates the transport mechanism of the enveloping station, thereby moving the newspaper through the enveloping station behind the sealed ends of the two rolls of film. Consequently, the film envelops the top and bottom surfaces of the newspaper. After the newspaper passes the sensor, the transport mechanism of the enveloping station stops and a film cutter and sealer is actuated. The film is thus cut and sealed transverse to its length near the entrance to the enveloping station and is sealed along its sides. One transverse seal is utilized for the rear edge of one packaged newspaper and the front edge of the next newspaper. The transport mechanism moves the newspaper through the enveloping station at a faster horizontal speed than the continuously moving conveyor.

3,559,368

U-FLOW FLAP SLITTER

Wendell E. Standley, Lake Forest, and Lamar W. Sorensen, Des Plaines, Ill., assignors to Johns-Nigrelli-Johns, Inc., Skokie, Ill., a corporation of Illinois

Filed Nov. 12, 1968, Ser. No. 774,897

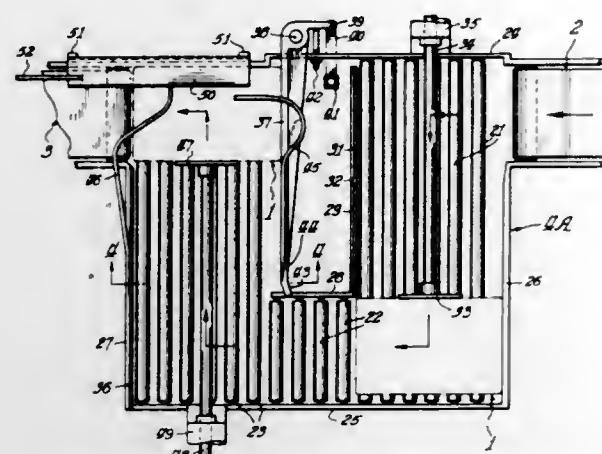
Int. Cl. B65b 11/20, 61/00

U.S. Cl. 53—167

13 Claims

A mechanism for severing the strip connections between the edges of downturned closure flaps held along the outer surfaces of the vertical walls of a paperboard case as it is advanced along a conveying means formed as a

U-shaped unit to adapt the unit to fit between aligned conveyor sections. As the case advances on the U-flow from the stack by tearing it along perforations which are provided across its lip portion, for example, so as to re-



unit, the flap connections are severed and the underlying flaps are folded toward closed position.

3,559,369

MACHINE FOR PRODUCING, FILLING, AND CLOSING PACKAGES

Norbert Buchner, Beutelsbach, Württemberg, Klaus Domke, Stuttgart-Weilimdorf, Rolf Kohnlein, Korntal, Württemberg, and Helmuth Zimmermann, Waiblingen, Württemberg, Germany, assignors to Fr. Hesser Maschinenfabrik A.G., Stuttgart, Bad Canstatt, Germany, a company

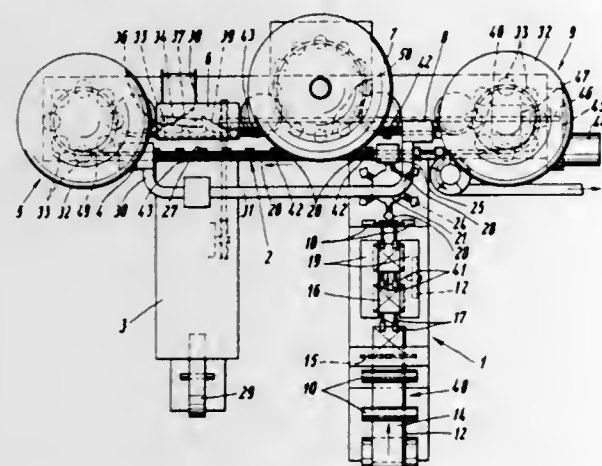
Filed Aug. 13, 1969, Ser. No. 849,791

Claims priority, application Germany, Aug. 16, 1968, 1,786,093

Int. Cl. B65b 5/02, 43/10

U.S. Cl. 53—183

10 Claims



An integrated packaging machine for producing and filling sleeve shaped containers, having work stations for cutting blanks from a web of packaging material, providing a seal, forming the containers around mandrels, welding equipment for securing a cover to one end, filling the container and weld securing a cover to the other end.

3,559,370

BAG DISTENDING MACHINE

A. C. Byington, West Los Angeles, and Elmer R. Richardson, Fountain Valley, Calif., assignors to Quality Poultry Co., Inc., Culver City, Calif., a corporation of California

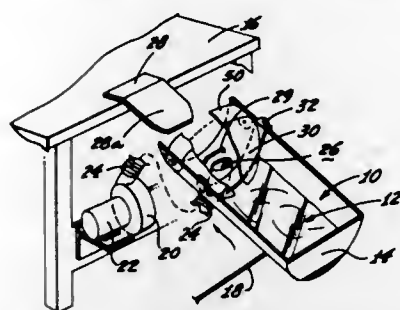
Filed Aug. 26, 1968, Ser. No. 755,064

Int. Cl. B65b 43/36

U.S. Cl. 53—385

4 Claims

An improved bagging machine is provided in which a stack of flat cellophane or polyethylene bags, or the like, are clamped by their lip portions which are provided adjacent the open end of each bag, and in which a stream of pressurized fluid is directed across the lip portion of the uppermost bag in the stack to distend that bag so that it may easily be filled with merchandise. After it is filled, the uppermost bag may conveniently be removed



move the bag from the lip portion thereof which is clamped in the machine.

3,559,371

DEVICE FOR LOADING STACKED EGGS INTO AN EGG CARTON

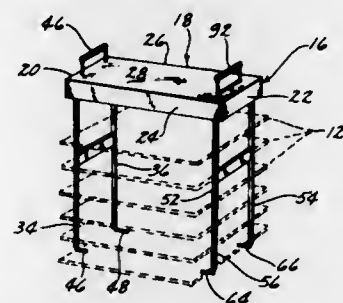
Charles A. Borrowman, Griggsville, Ill. 62340

Filed Sept. 23, 1968, Ser. No. 761,545

Int. Cl. B65b 67/02

U.S. Cl. 53—390

3 Claims



A device for loading a plurality of stacked egg flats into an egg carton including an upper frame means having four rotatable legs extending downwardly therefrom adapted to receive the egg flats therebetween. A handle means is provided on the frame means and is operatively interconnected with the legs by a linkage means to permit the handle means to rotate the legs from a first position to a second position. Each of the legs have a foot member extending transversely therefrom at the lower end thereof. The foot members are adapted to extend beneath the lowermost egg flat to support the stacked egg flats when the legs are in said first position. When the legs are rotated to said second position, the foot members are moved out of engagement with the egg flats to permit the frame means and the legs to be raised with respect to the egg flats.

3,559,372

APPARATUS FOR GRIPPING AND STRETCHING THE MOUTH OF SACKS AND SIMILAR NON-RIGID CONTAINERS IN PREPARATION FOR THEIR SEALING BY SEWING

Renzo Giuseppe Cerioni, Corso Venezia 10, Milan, Italy

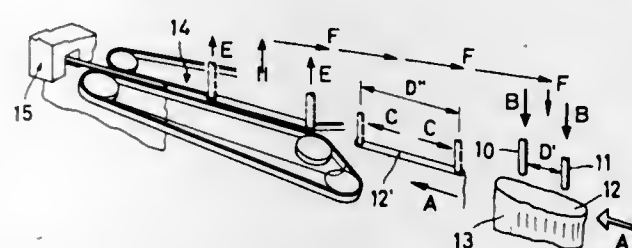
Filed Sept. 19, 1968, Ser. No. 760,878

Claims priority, application Italy, Oct. 13, 1967, 21,589/67, Patent 815,384

Int. Cl. B65b 65/00, 7/06, 61/00

U.S. Cl. 53—393

10 Claims



Apparatus for ripping the mouth of sacks and other nonrigid containers in order to stretch and flatten it, in preparation for a sealing operation.

3,559,373

SUPERSONIC FLOW SEPARATOR

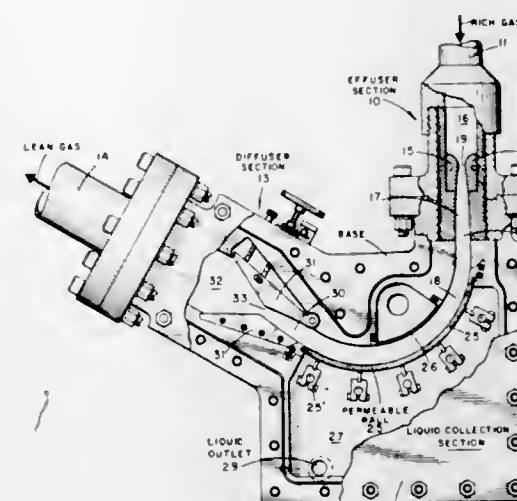
Robert L. Garrett, Houston, Tex., assignor to Esso Production Research Company, a corporation of Delaware

Filed May 20, 1968, Ser. No. 730,371

Int. Cl. B01d 53/00

U.S. Cl. 55—9

49 Claims



Method and apparatus for separating one or more components from a multicomponent, high-pressure gas stream. The gas stream is expanded to supersonic velocity through a supersonic effuser to achieve low temperatures and low pressures in the supersonic gas stream and cause condensed liquid particles (drops) and/or solid particles to form. The supersonic gas stream is made to traverse a planar bend provided with a permeable outer wall to and through which liquid and/or solid particles are inertially moved and thereby separated from the gas stream. The separated particles are collected along with the dissolved and entrained gases which also separate from the gas stream. The supersonic gas stream is then decelerated to subsonic flow through a supersonic diffuser and part of the pressure of the gas stream is recovered. Means are provided to move the final shock wave to a stable position which is an optimum position for practical operation when a supersonic flow is started through the supersonic flow separator. To achieve such movement of the final shock wave, the throat area and contour of the diffuser is made adjustable so that the throat area and size of the diffuser channel are initially enlarged to move the final shock wave through the diffuser throat to start supersonic flow in the separator and thereafter reduced to locate the final shock wave near the diffuser throat to operate the separator efficiently at maximum back pressure.

3,559,374

PROCESS FOR ISOLATING ACETYLENE AND CARBON DIOXIDE FROM CRACKED GASES

Walter Krause, Kelkheim, Taunus, Hartmut Schilken, Frankfurt am Main, and Günter Heck and Egon Malow, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

Filed Jan. 21, 1969, Ser. No. 792,612

Claims priority, application Germany, Jan. 30, 1968, P 16 68 086.7

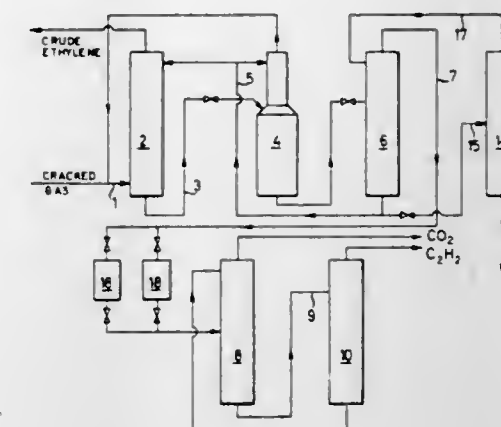
Int. Cl. B01d 53/14

U.S. Cl. 55—31

10 Claims

A process is described for the isolation of carbon dioxide and acetylene from a cracked gas by multistage washings using acetone and dimethylformamide, wherein

the cracked gas is first washed with acetone, then acetylene, carbon dioxide and ethylene are expelled from the



acetone solution by release from pressure and the acetylene is washed out of this mixture with dimethylformamide.

3,559,375

METHOD OF AND APPARATUS FOR COMPRESSING GAS

René Bidard, Paris, France, assignor to Compagnie Electro-Mecanique, Paris, France, a body corporate

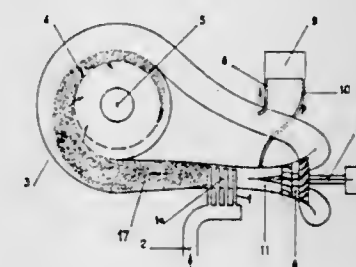
Filed Nov. 15, 1968, Ser. No. 776,169

Claims priority, application France, Nov. 24, 1967, 129,586

Int. Cl. B01d 19/00

U.S. Cl. 55—45

12 Claims



An arrangement for compressing gases of relatively low molecular weight consists in creating a gas-liquid emulsion from the gas, the emulsion being formed by injection of the gas into a liquid which has previously been brought up to speed; the emulsion is then slowed down in a diffuser thereby undergoing compression, and the two phases—gas and liquid—are then separated. The compressed gas is then passed to its point of utilization and the liquid is then put through a pump where it regains the energy which it had given up to the gas and is then re-cycled with fresh gas to be emulsified and compressed.

3,559,376

NAPHTHALENE ANALYSIS METHOD

Edward M. Emery, Brentwood, and Gerald M. Gasser, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Continuation-in-part of application Ser. No. 616,277, Feb. 15, 1967. This application Nov. 7, 1969, Ser. No. 870,585

Int. Cl. B01d 15/08

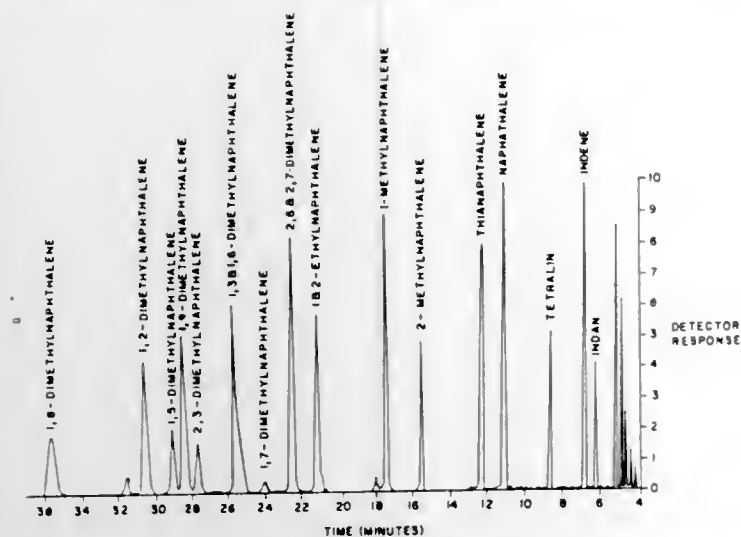
U.S. Cl. 55—67

9 Claims

Method for analysis of mixtures containing naphthal-

ene and alkyl-substituted naphthalene isomers by gas-liquid chromatography using certain polyphenyl thio-

contain hydrogen, carbon monoxide, methane, carbon dioxide, ethylene and acetylene, by multistage washings using acetone and dimethylformamide as solvents.



ethers, polyphenyl ether-thioethers or phenylmercapto-biphenyl compounds as absorbents.

3,559,377 PROCESS FOR SEPARATING CARBON BLACK FROM GASEOUS MIXTURES

Giovanni Perri, Giuseppe Tubiello, and Gaetano Palombella, Novara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
No Drawing. Filed Apr. 22, 1965, Ser. No. 450,201
Claims priority, application Italy, Apr. 29, 1964, 9,289/64

Int. Cl. B01d 47/06

U.S. Cl. 55—85 2 Claims

A process for separating carbon black from gaseous mixtures by contacting the gaseous mixture with an emulsion of oily hydrocarbon and water at a temperature below the dew point of water. The aqueous suspension of oil and carbon black is settled and additional oil is added to the carbon black and oil floating layer to make it fluid and pumpable.

3,559,378 PROCESS FOR ISOLATING CARBON DIOXIDE AND ACETYLENE FROM CRACKED GASES

Walter Krause, Kelkheim, Taunus, Hartmut Schilken, Frankfurt am Main, and Günter Heck and Egon Malow, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Melster Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

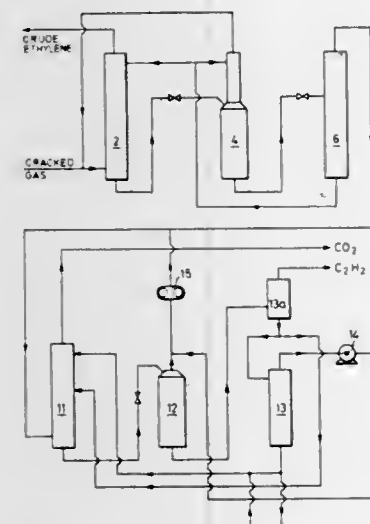
Filed Jan. 12, 1970, Ser. No. 2,033

Claims priority, application Germany, Jan. 16, 1969, P 19 01 963.7

Int. Cl. B01d 19/00

U.S. Cl. 55—64

1 Claim



Improvement in the process for isolating carbon dioxide and acetylene from cracked gases which substantially

3,559,379 AIR WASHER VIA ARTIFICIALLY PRODUCED ATMOSPHERE AND RAIN CONDITIONS

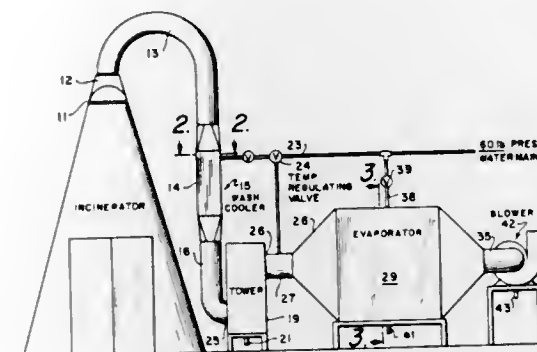
Robert Lambert, Rte. 4, Box 321,
Annapolis, Md. 21401

Filed Nov. 29, 1967, Ser. No. 686,519

Int. Cl. B01d 47/06, 47/12; B01f 3/09

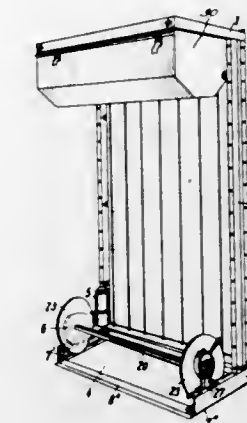
U.S. Cl. 55—223

3 Claims



A self cleaning air cleaner and cooler consisting of a sheet metal enclosure with a series of moistened burlap covered screens to produce an artificial atmosphere whereby air drawn through the artificial atmosphere is cooled and scrubbed. A first gas feed duct contains a stream of solids laden gas. Spray nozzles discharge liquid within the first gas feed duct for quenching and cooling the solids-laden gas and thereby entrapping solids in the liquid. A tower communicates with the first gas feed duct for collecting and disposing of solids entrapped in the liquid. A second gas feed duct communicates with the tower and has sensing and control valve communicating with the spray nozzles for regulating the temperature of the solids-laden gas. An evaporator has a chamber communicating with the second gas feed duct and having a plurality of filter members and a liquid source for supporting and wetting a first filter member. The filter members are positioned in upright position across the chamber and creates an artificial atmosphere for washing and scrubbing the solids-laden gas. A blower communicates with the chamber for force-fully drawing solids-laden gas through the apparatus and discharging the resulting quenched and scrubbed gas into the atmosphere. The chamber further comprises an enclosure having an inlet end communicating with the second gas feed duct and an outlet end communicating with the blower. The enclosure has top, bottom, and side walls. The liquid source further comprises a plurality of liquid spray nozzles for supplying a liquid in a volume exceeding the amount which will be evaporated. The liquid source is suspended diagonally across the top wall of the enclosure. A plurality of filter members each comprising a material capable of being saturated by a liquid and a sheet of open mesh material forming a rigid backing contiguous thereto. The liquid source supports the first filter member of the plurality of filter members and provides a liquid to saturate the first filter member. Second and third filter members of the plurality of filter members are disposed in an upright diagonal position within the enclosure position within the enclosure and is supported by the top wall. The second and third filter members are fastened firmly to the bottom and side walls of the enclosure. The filter members are arranged within the enclosure to include air passages between the filter members whereby the solids-laden air drawn through the filter members is quenched and scrubbed by an artificial atmosphere in the chamber.

3,559,380
ROLLER BAND AIR FILTER ASSEMBLY
Gerhard Max Neumann, Berlin-Dahlem, Germany, assignor to Delbag Luftfilter GmbH, Berlin, Germany
Filed Nov. 13, 1968, Ser. No. 775,290
Claims priority, application Germany, Nov. 22, 1967, D 37,009
Int. Cl. B01d 46/18
U.S. Cl. 55—354



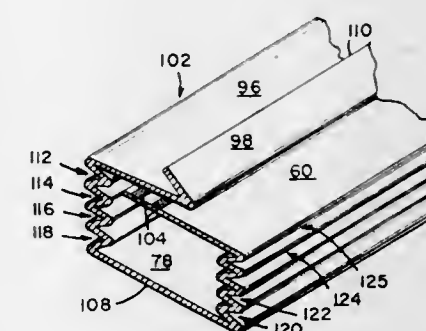
In automatic roller band filter assemblies for filtering air, the filter band passes from one bobbin in an upper portion of the assembly through an intermediate sealed filter portion to a driven bobbin in a lower portion of the assembly, the said driven bobbin being driven by a motor associated with the said lower portion.

It is often desirable to provide a plurality of assemblies side-by-side as near to each other as possible, and the invention provides an arrangement of motor and gear train on a frame member of the said lower portion whereby an adjacent band filter assembly may be positioned with maximum economy of space, and moreover which allows a plurality of band filter assemblies when arranged side-by-side to be driven by a single motor associated with one of the band filter assemblies.

3,559,381
VACUUM CLEANER FILTER BAG
John J. Fesco, Baldwin, N.Y., assignor to Studley Paper Company, Inc., Far Rockaway, N.Y., a corporation of New York
Filed Oct. 31, 1968, Ser. No. 772,344
Int. Cl. B01d 46/02

U.S. Cl. 55—357

4 Claims

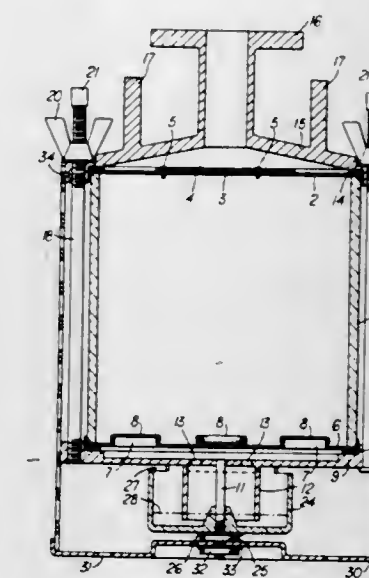


A vacuum cleaner filter bag formed of a blank sheet of material folded to define a front wall, a rear wall and opposing accordion folded side walls, said bag being closed at both ends and access means being provided into the interior of said bag in said front wall, said rear wall being provided with a convenient hand grip for causing expansion of the bag.

3,559,382
**DESICCANT BREATHING FOR ELECTRICAL
TRANSFORMERS, REACTORS AND ASSOCI-
ATED EQUIPMENT**
Peter Charles Jaggard, Wrayburg, Buckinghamshire, and
Graham George Hooper, Ashford, Middlesex, England,
assignors to W. R. Grace & Co.
Filed Apr. 10, 1968, Ser. No. 720,157
Claims priority, application Great Britain, Apr. 19, 1967, 18,082/67
Int. Cl. B01d 53/04

U.S. Cl. 55—274

3 Claims

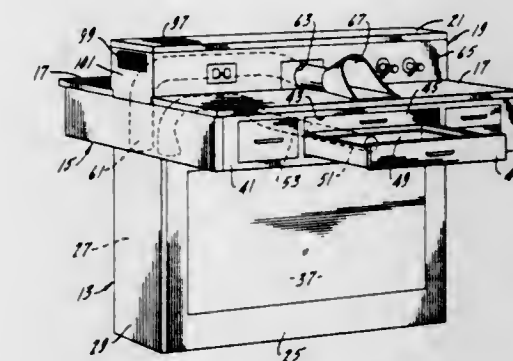


An apparatus for drying gases passing into or out of an otherwise closed chamber. Said apparatus comprises a transparent container for desiccant, a means to control the admission of atmospheric air into the desiccant container, and a releasable means for easily removing the desiccant from its container.

3,559,383
**BENCH STRUCTURE WITH BUILT-IN
DUST COLLECTOR**
James M. McCabe, Chicago, Ill., assignor to Coe Laboratories, Inc., Chicago, Ill., a corporation of Illinois
Filed Mar. 3, 1969, Ser. No. 803,563
Int. Cl. B01d 46/02

U.S. Cl. 55—472

1 Claim



A laboratory bench assembly including a bench table mounted on a pedestal and having a dust-collector mechanism located in the pedestal with the ducts leading to the dust collector concealed in the bench table. A dust-collecting hood may be located in a drawer of said bench table and provided with a telescoping slip joint to permit the drawer to be opened and closed.

3,559,384

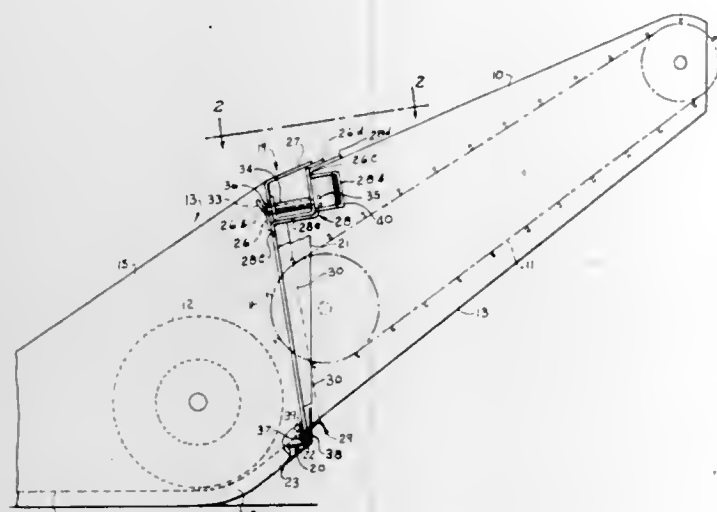
ATTACHING MEANS FOR MOUNTING A HEADER ON THE FEEDER HOUSING OF A COMBINE

Richard P. Bernhardt, Leola, and Ronald T. Sheehan, Lancaster, Pa., assignors to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware

Filed June 5, 1969, Ser. No. 830,666
Int. Cl. H01d 41/06

U.S. Cl. 56—20

9 Claims



The feeder housing of a combine and the harvesting header carried by the combine have attaching means comprising a generally L-shaped beam at the top front of the feeder housing and a U-shaped beam at the bottom front. Brackets are transversely spaced on the upper beam and receive the upper header beam for lifting and holding the header. The lower beam of the header engages the U-shaped beam on the feeder housing. The header has angled plates projecting towards the feeder housing and engaging the ends of the L-shaped beam to align the feeder housing with the header. Bolts extend through the upper beams and the lower beams and have nuts for fastening the header to the feeder housing.

3,559,385

SLOPEMOWER APPARATUS FOR HIGHWAY AND RAILROAD RIGHTS-OF-WAY

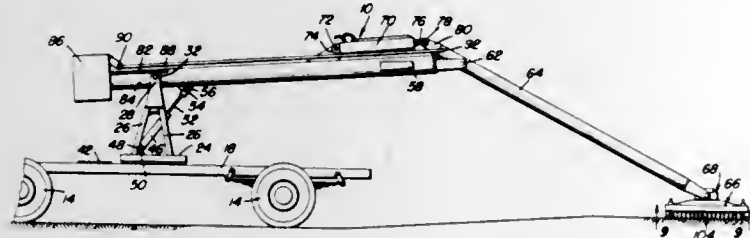
Jay S. Eaton, % Dixie Asphalt Co., P.O. Box 15195, West Palm Beach, Fla. 33406

Filed July 12, 1968, Ser. No. 744,562

Int. Cl. A01d 35/26

U.S. Cl. 56—25.4

11 Claims



This invention is a mower for cutting brush, bushes, shrubs, small trees, etc., and for mowing grass on either side or slope of a railroad trackway or the median strip or sides of a motor highway. It includes a small, preferably four wheel powered automobile truck that can travel on either a railroad track or a highway, with a cab offset to one side of the truck and both mower and truck controls in the offset cab for simultaneous or separate operation by a single operator. The operator may operate in either direction, a seat being provided on both forward

and rearward sides of the controls. A boom is rotatably mounted for limited rotation on the truck chassis, on a position midway between all four wheels thereof, and an arm pivoted on the boom carries a mower universally mounted on its end, for positioning between a rearward position and a side position on the cab side of the truck, the other end of the boom moving between a position alongside the cab to a position over the opposite side of the truck vehicle, and this end has a counterweight movable on a trackway on the boom end, the counterweight being linked to the mower arm. In addition to the truck controls in the offset cab, there are also hydraulic controls for operating the boom in its limited swinging position, for lifting the boom and pivoting the arm thereon, and provides lifting, locking and lowering controls for each of them, and floating control position for at least one of them as well as for operating the mower. Only one operator is needed for both truck and mower controls.

3,559,386

GRAPE HARVESTER

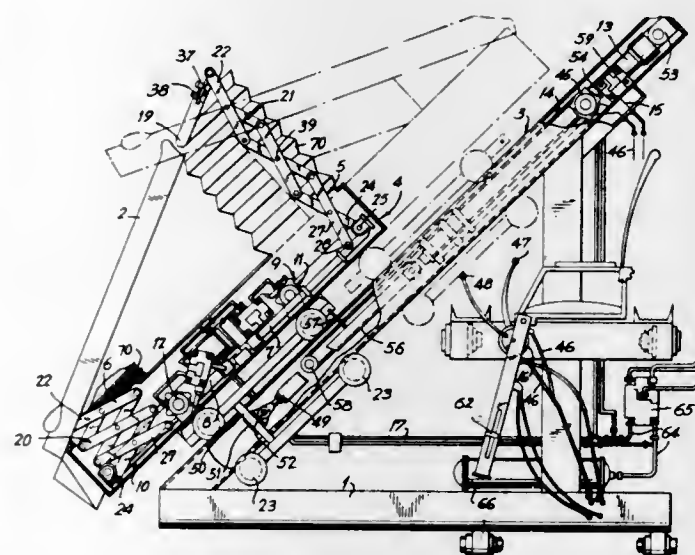
Vladimir Ivanovich Popov, Ulitsa Budennovskaya 203/2, kv. 9; and Cheslav Stanislavovich Tolochko, Ulitsa Budennovskaya 203/2, kv. 17, both of Novocherkassk; and Nikolai Grigorovich Kurgansky, Novocherkasskoe shosse 28, kv. 2; Vintslant Yakovlevich Prokopenko, Novocherkasskoe shosse 34, kv. 22; and Ivan Gerasimovich Babenko, Novocherkasskoe shosse 15, kv. 6, all of Rostov-on-Don, U.S.S.R.

Filed Oct. 12, 1967, Ser. No. 674,938

Int. Cl. A01g 19/00

U.S. Cl. 56—331

4 Claims



A grape harvester comprises a frame carrying inclined guides on which a carriage is mounted for displacement therealong by means of a hydraulic cylinder. The carriage carries two hoists in the form of lazy tongs linkages which are independently raisable and lowerable and hoists are connected to a cutter at the ends thereof to modify the elevation and attitude of the cutter.

3,559,387

FRUIT PICKING APPARATUS

Robert R. Myers, Boca Raton, Fla., assignor to Elliott Brothers (London) Limited, London, England, a company of Great Britain

Filed Dec. 2, 1968, Ser. No. 780,353

Int. Cl. A01g 19/08

U.S. Cl. 56—334

3 Claims

A fruit picking apparatus comprising, a vacuum pump having a vacuum line extending therefrom and having a hollow cannister secured to the end thereof. The hollow

cannister is in vacuum communication with the vacuum pump and has a fruit chute operatively connected to the lower end thereof which extends to a fruit receptacle. A flexible diaphragm extends across the upper end of the cannister and has a central opening formed therein which has a diameter less than the diameter of the fruit being picked. A pair of levers are pivotally secured to the can-



nister below the flexible diaphragm and are pivotally activated upon the passage of fruit through the diaphragm. The pair of levers have stem engaging portions extending upwardly therefrom which are pivotally moved into engagement with the fruit stem on the fruit passing through the central opening of the diaphragm and coming into engagement with the pair of levers.

3,559,388

BELT-TYPE GRAIN PICK-UP

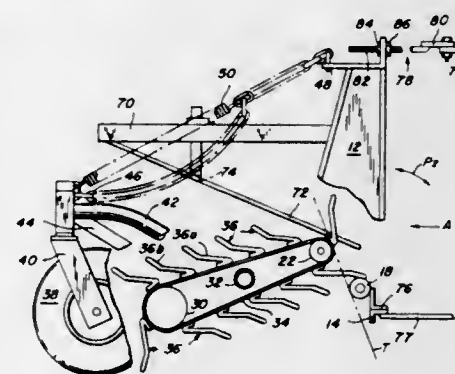
Reynold John Renn, Calgary, Alberta, Canada, assignor to Renn-Cupit Industries Ltd., Calgary, Alberta, Canada

Filed May 10, 1968, Ser. No. 728,131

Int. Cl. A01d 87/02

U.S. Cl. 56—350

14 Claims



An endless conveyor belt type grain pick-up provided with flexible pick-up tynes and a driven stripper roller for removing grain from the tynes. The stripper roller is located below the discharge end of the conveyor and kept a constant distance therefrom. The angular relationship of the stripper roller and discharge end of the conveyor relative to the ground is variable.

3,559,389

DEVICE FOR WORKING CROP LYING ON THE GROUND

Cornelis van der Lely, Bruschenrain 7, Zug, Switzerland, Ary van der Lely, Weverskade 10, Maasland, Netherlands; and Cornelis Johannes Gerardus Bom, Esdoornlaan 36, Rozenburg, Netherlands

Filed Aug. 31, 1966, Ser. No. 576,279

Claims priority, application Netherlands, Sept. 15, 1965, 6511984, 6511985; Sept. 22, 1965, 6512295; Oct. 13, 1965, 6513220

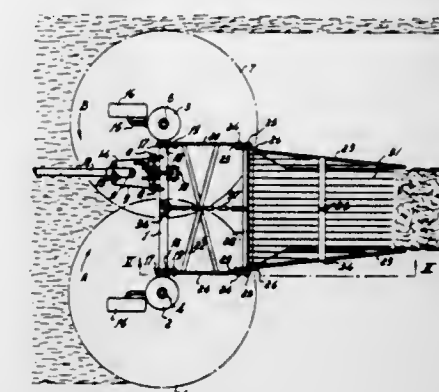
Int. Cl. A01d 79/00

U.S. Cl. 56—370

24 Claims

A device and method for working crop lying on the ground, the device including a plurality of rake members

mounted on a frame to rotate in either direction to work and displace crop. A guide is located to the rear of the rake members and the guide is pivoted to move vertically rela-



tive to the frame so that crop can be displaced and guided onto a strip of ground narrower than the working width of the vehicle.

3,559,390

APPARATUS FOR BONDING TWISTED PLASTIC INSULATED CONDUCTORS

Harry H. Staschewski, Langenhagen, Germany, assignor to Kabel- und Metallwerke Gutehoffnungshütte Aktiengesellschaft, Hannover, Germany, a corporation of Germany

Filed Oct. 22, 1968, Ser. No. 769,553

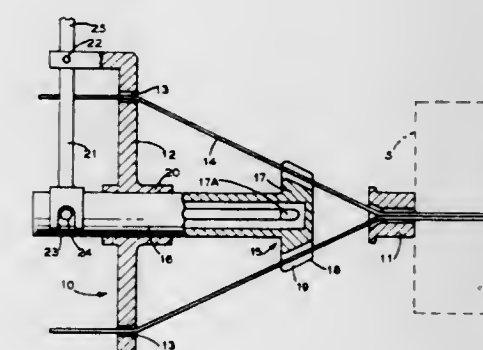
Claims priority, application Germany, Oct. 24, 1967,

P 17 04 154.2

Int. Cl. H01b 13/02

U.S. Cl. 57—6

6 Claims



Apparatus associated with mechanism for twisting the elements of electric cable wherein the direction of twist is reversed at intervals; the apparatus being adapted to bond the elements of the cable together by way of their thermoplastic insulation, the bonding action taking place at intervals.

3,559,391

PRODUCTION OF TORQUE YARN

Charles M. Rice, Candler, N.C., assignor to American Enka Corporation, Enka, N.C., a corporation of Delaware

Filed June 28, 1968, Ser. No. 740,869

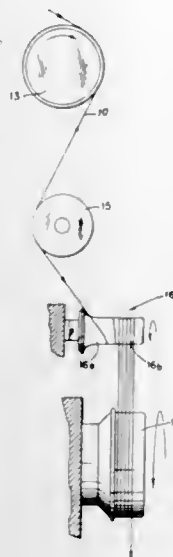
Int. Cl. D01h 7/92; D02g 1/02, 1/08

U.S. Cl. 57—34

9 Claims

A treating system is disclosed for creating torque in running lengths of continuous filament or spun yarn. In a preferred embodiment, the yarn is elongated simultaneously with the torque producing operation. The treating system utilizes a conical yarn-driven idler roller which

serves at least three functions, e.g., separates convolutions of yarn, derives energy from a motor-driven roller, and



twists yarn passing over the conical portion to produce torque. The torque may be set by any desired means.

3,559,392

FALSE-TWIST SPINDLE

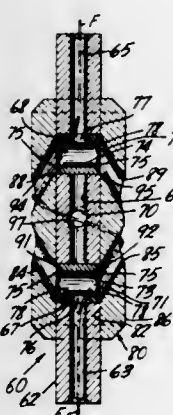
Henri Crouzet, 15 Rue Cuvier, Roanne, Loire, France

Filed May 7, 1968, Ser. No. 727,215

Int. Cl. D01h 7/92; D02g 1/06

U.S. Cl. 57—77.3

9 Claims



A system for twisting a yarn by a tubular member adapted to be rotated about its longitudinal axis, the tubular member having at least one longitudinal bore through which the yarn is fed while it is twisted, the tubular member also having a pair of lateral passageways which communicate with the longitudinal bore and which are disposed symmetrically about the longitudinal axis.

3,559,393

COLLECTING VESSEL AND TOP FOR SPINNING YARN CAKES

Howard Arthur Seeber, Martinsville, N.J., assignor to Johns-Manville Corporation, New York, N.Y., a corporation of New York

Filed May 21, 1969, Ser. No. 826,626

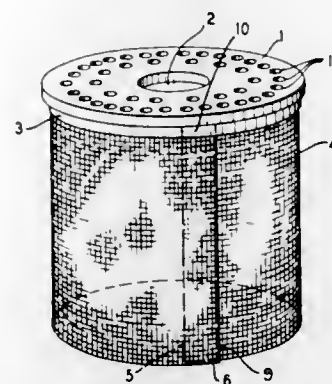
Int. Cl. D01h 7/78, 7/82, 1/08

U.S. Cl. 57—76

9 Claims

In a preferred embodiment, for use in a cylindrical container revolving around its axis for the collection of a yarn annulus or cake, a plastic annular disk, as a top to the container, having fused to one face thereof a

cylinder of screen material formed by forming a cylinder from a strip of the screen material with one end of the strip overlapping the other end, the width of the strip, i.e., the height of the screen cylinder, being slightly less



than the depth of the container, and the plastic annular disk having a plurality of perforations therein for the passing of water during the process of forming the yarn cake within the revolving screen.

3,559,394

CALENDAR CLOCKWORK

Pieter Wilhelmus, Maria Gaemers, Javastraat 273A,

The Hague, Netherlands

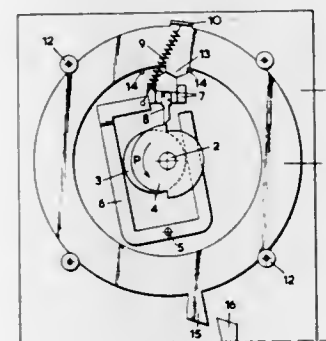
Filed Oct. 31, 1969, Ser. No. 872,961

Claims priority, application Netherlands, Oct. 31, 1968, 6815559

Int. Cl. G04b 19/24

U.S. Cl. 58—4

2 Claims



A calendar clockwork is safeguarded against faulty operation and constructed to make it possible for the calendar mechanism to be manually adjusted independently of the operation of the clockwork mechanism.

3,559,395

DIGITAL TIMEPIECE

Tadahiro Kikuchi, Tokyo, Japan, assignor to Kabushiki

Kaisha Daini Seikosha, Tokyo, Japan

Filed Dec. 19, 1967, Ser. No. 691,800

Claims priority, application Japan, Dec. 21, 1966,

41/83,436; Jan. 18, 1967, 42/3,102; Mar. 22, 1967,

42/23,382; Mar. 29, 1967, 42/25,496

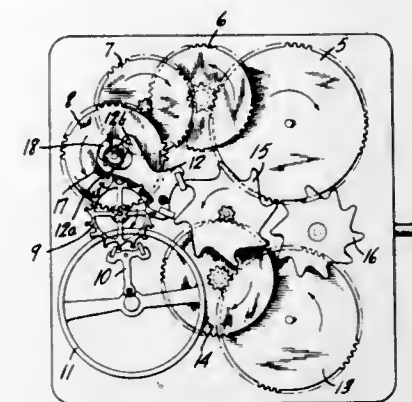
Int. Cl. G04b 15/00

U.S. Cl. 58—7

12 Claims

A timekeeper with digital recording or time indication in which "jumping" time indication is carried out as to hours, tens-of-minutes, and minutes by compact and simplified mechanism comprising two complete barrels with arbors each driving a respective going gear train with respective escapements and the escapement of one of the gear trains being under control of the other gear train.

Common winding and time setting mechanism winds the mainsprings of both barrels with arbors. The indicating example, by intake manifold pressure, and which diverts exhaust gases through a single flow channel at low en-



is operatively associated with one of the escapements and has "jumping" disks for indicating time in hours, tens-of-minutes, and minutes visually.

3,559,396

VARIABLE LOUDNESS ALARM MECHANISM

William C. Wingler, Stow, Mass., assignor to General

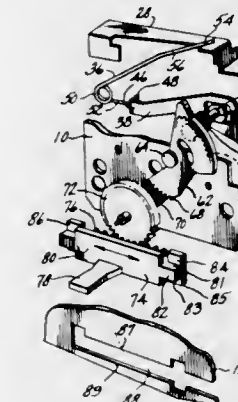
Electric Company, a corporation of New York

Filed Feb. 28, 1969, Ser. No. 803,355

Int. Cl. G04b 23/10

U.S. Cl. 58—21.12

4 Claims



A mechanism for adjusting the loudness of an alarm from the front of an alarm clock wherein a slider having a rack integrally formed thereon is located between a front mounting plate and a front wall of the clock casing. An actuating lever integrally formed with the slider extends through the front wall of the casing so that the volume of the alarm may be adjusted by simply sliding the actuating lever back and forth across the front wall of the clock.

3,559,397

TURBO SUPERCHARGER CONTROL MECHANISM

Bernard J. Navarro, 720 Geneva St.,

Glendale, Calif. 91206

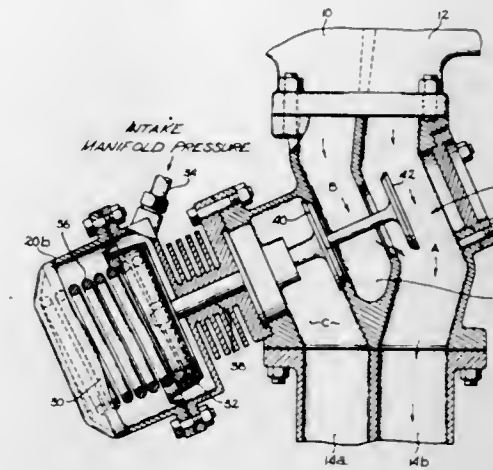
Filed Mar. 21, 1969, Ser. No. 809,327

Int. Cl. F02b 37/08

U.S. Cl. 60—13

5 Claims

An automatic control mechanism is provided which permits a turbo supercharger to be functional at low engine speeds without sacrificing efficiency at the higher engine speeds. The control mechanism of the invention also serves to remove the inherent rotational lag of the turbo supercharger when the engine is suddenly called upon to produce a high power output. The mechanism of the invention involves a diverter valve which is operated, for



gine speeds and through two separate flow channels at the higher engine speeds.

3,559,398

HOT-GAS PISTON ENGINE

Roelf Jan Meijer and Henricus Cornelis Johannes van

Beukering, Emmasingel, Eindhoven, Netherlands, as-

signors, by mesne assignments, to U.S. Phillips Corpo-

ration, New York, N.Y., a corporation of Delaware

Filed May 6, 1968, Ser. No. 726,667

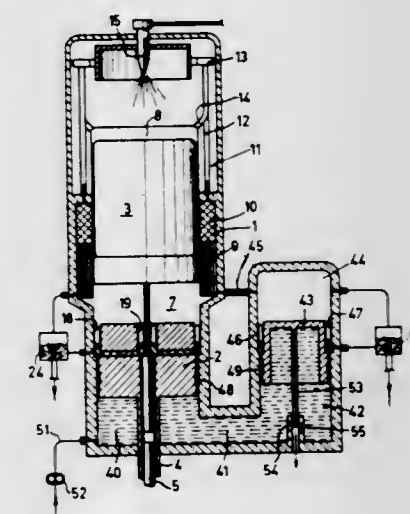
Claims priority, application Netherlands, May 10, 1967,

6706508

Int. Cl. F03g 7/06

U.S. Cl. 60—24

16 Claims



A hot gas piston engine has within its cylinder-housing (i) a working space containing a compressible medium adjacent a working surface of the piston, (ii) a buffer space containing an incompressible fluid adjacent the opposite second surface of the piston, and (iii) an annular space between the cylinder and piston containing an incompressible fluid. Secured between the cylinder and piston is a rolling diaphragm seal, its two sides respectively in communication with the working space and medium therein and the annular space and fluid therein, to seal one space from the other. A regulating device maintains a substantially constant pressure difference across the seal. The product of the fluid pressure in the buffer space and the area of the piston's second surface is substantially equal to the product of the working medium's mean

pressure and the area of the piston's working surface, whereby fluid forces acting on the piston from the working and buffer spaces are substantially neutralized.

3,559,399

SERVOMOTOR ASSEMBLY

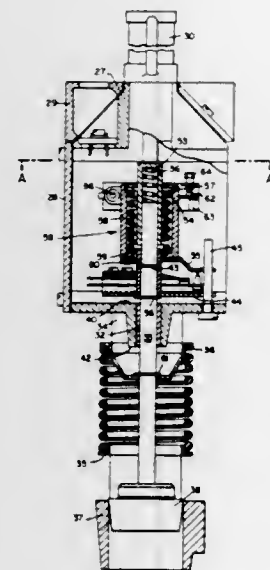
Ingolf Johnsen, Havnbjerg, near Nordborg, and Jens Gammelby Jensen, Holm, near Nordborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark, a company of Denmark

Filed Apr. 28, 1969, Ser. No. 819,740

Int. Cl. F01k 27/00; F03g 7/00

U.S. Cl. 60—23

10 Claims



The invention relates to a servomotor assembly with the servomotor being of the type having a piston which is displaceable by an electrically heatable expansion material. The assembly includes valve spindle means along with limit switches and mechanical spring means arranged so that when the spindle means is stopped by an abutment at the end of its stroke, the piston is allowed to continue its stroke a short distance further without unduly raising the pressure of the expansion material.

3,559,400

ACTUATOR

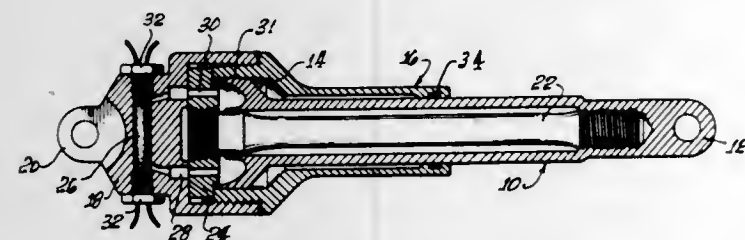
Erich J. Kleiner and Gerald A. Pierik, Palos Verdes Peninsula, Calif., assignors to The Garrett Corporation, Los Angeles, Calif., a corporation of California

Filed Sept. 19, 1969, Ser. No. 859,376

Int. Cl. F01b 29/08

U.S. Cl. 60—26.1

12 Claims



An actuator to either shorten or lengthen the distance between the two load connections. The actuator includes a tension member which is permanently deformed by actuation of the actuator and includes means to limit the magnitude of deformation upon activation.

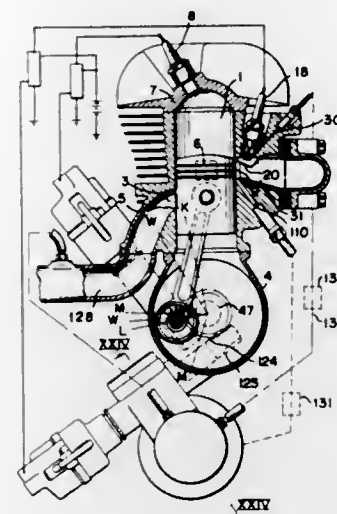
3,559,401
EXHAUST GAS CLEANING DEVICE FOR
INTERNAL COMBUSTION ENGINES

Satoru Takahashi, Hamamatsu-shi, Japan, assignor to Suzuki Jidosha Kogyo Kabushiki Kaisha, Hamana-gun, Shizuoka-ken, Japan, a corporation of Japan
Original application June 12, 1968, Ser. No. 736,391.
Divided and this application Sept. 15, 1969, Ser. No. 871,045

U.S. Cl. 60—30

Int. Cl. F01n 3/14

9 Claims



A spark plug is caused to spark at a point in the exhaust passageway immediately downstream from the exhaust port of each cylinder of an engine immediately after full closure of the exhaust port during the compression stroke in order to cause combustion of some fuel-air gas unavoidably blown past the exhaust port in the exhaust passageway as charge-loss gas before full closure of the port. A small quantity of supplementary fuel-air gas can be supplied as pilot gas with or without supplementary air to the spark gap to facilitate and ensure positive ignition and combustion. Other refinements include a precombustion chamber around the spark gap and control devices for causing the pilot gas to be supplied only when this supply of pilot gas is advantageous.

3,559,402

CLOSED CYCLE DIESEL ENGINE

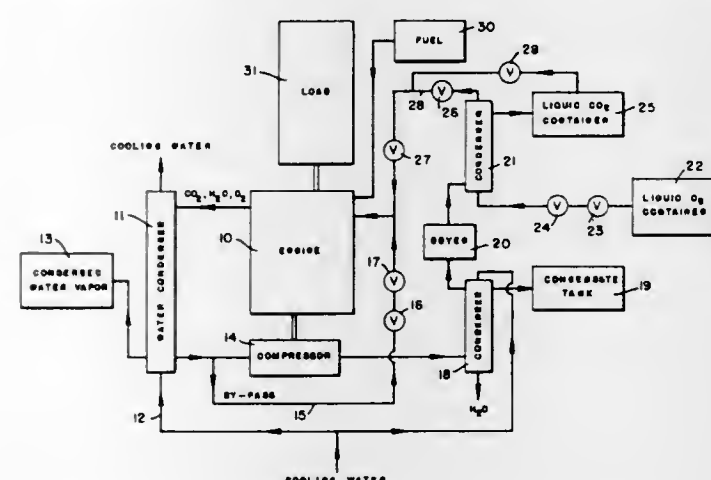
W. James Stone and James P. Diebold, China Lake, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed Apr. 24, 1969, Ser. No. 819,076

Int. Cl. F02n 25/06, 25/10

U.S. Cl. 60—31

2 Claims



A completely closed-cycle heat engine system for underwater application comprising a conventional heat engine and a system to condense the exhaust gases, including a water vapor condenser suitably connected to a com-

pressor means and a heat exchanger, a dryer, a carbon dioxide condenser and tanks for storing liquid carbon dioxide and water.

3,559,403

THERMAL POWER PLANT HAVING HEAT FLOW
CONTROL MEANS RESPONSIVE TO AMBIENT
TEMPERATURE

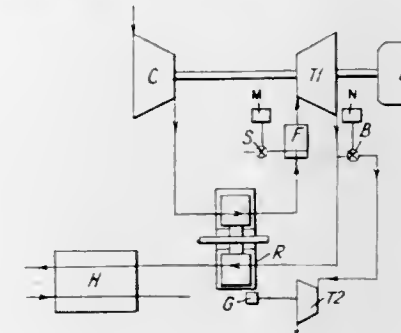
Waldemar Hrynyszak, Cullercoats, North Shields, England, assignor to Clarke Chapman & Co. Limited, Gateshead, Durham County, England, a company of Great Britain and Northern Ireland

Filed Jan. 2, 1969, Ser. No. 788,459

Int. Cl. F02c 7/10

U.S. Cl. 60—39.15

5 Claims



The specification describes a thermal power plant in which combustion products form the working fluid in a turbine working stage and are then directed through a rotary regenerator to preheat combustion air. The speed of the regenerator is regulated by temperature-sensitive means to vary the rate of heat transfer between the turbine exhaust flow and the incoming combustion air flow so that the heat flow to the working stage can be controlled thereby in dependence upon changes in ambient temperature. The supply of fuel may also be subject to temperature control so that it is varied together with the degree of preheat.

3,559,404

TORQUE CONVERTER STATOR BLADE PITCH
CONTROL CIRCUIT

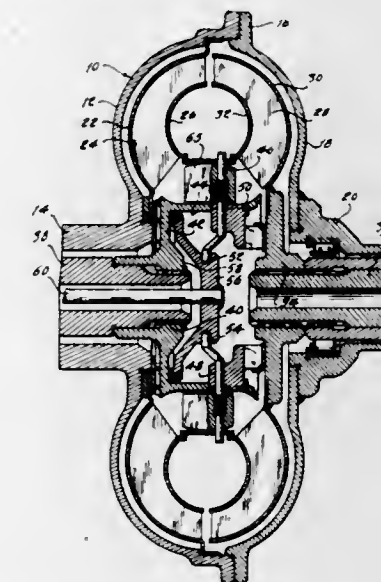
Richard D. Moan, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Apr. 15, 1969, Ser. No. 816,287

Int. Cl. F16d 33/04

U.S. Cl. 60—54

4 Claims



A hydrokinetic torque converter transmission for a single rotor gas turbine engine, the torque converter comprising a bladed impeller, a bladed stator and a bladed

turbine, the stator being held fast against rotation, a servo for adjusting the angularity of the blades of the stator with respect to the converter fluid flow vectors and valve means for actuating the servo to produce an infinitely-variable, hydrokinetic, torque multiplication that tends to maintain a desired torque and speed relationship for the engine.

3,559,405

SELF-BLEEDING, SELF-CIRCULATING
BRAKING SYSTEM

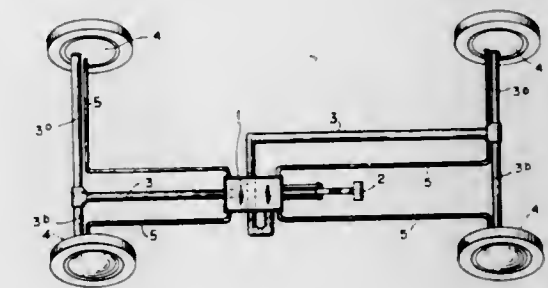
Roger L. Neilson, 70 Trafalgar Drive, Shirley, N.Y. 11967

Filed Mar. 20, 1969, Ser. No. 808,731

Int. Cl. B60t 11/10; F15b 7/00

U.S. Cl. 60—54.5

8 Claims



The present invention provides for hydraulic braking systems, which generally include a master cylinder and a plurality of conduits which extend from the master cylinder to hydraulically operable braking mechanisms and a return line communicating with the conduits at each braking mechanism for return flow back to the master cylinder. The return lines are of a lesser diameter than the conduits and preferably include an adjustable valve arrangement at the master cylinder inlet for each such line which allows a continual flow path, adjustable as to rate, between each line and the master cylinder.

3,559,406

VEHICLE BRAKING SYSTEM

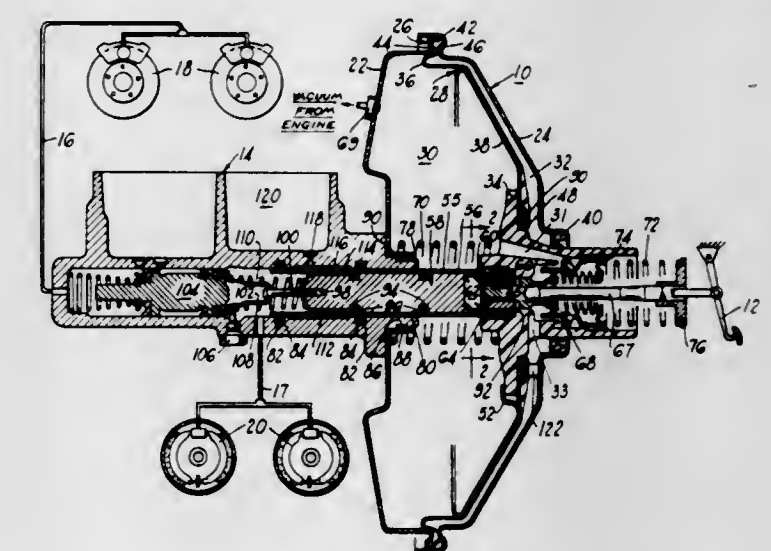
Delbert J. Gardner, South Bend, Ind., assignor to The Bendix Corporation, a corporation of Delaware

Filed May 2, 1969, Ser. No. 821,175

Int. Cl. F15b 7/00, 7/08

U.S. Cl. 60—54.5

6 Claims



A pressure ratio changing device for a servomotor of a power braking system. A first piston secured to the hub member of the movable wall of the servomotor extends into the hydraulic chamber of a master cylinder. A second piston located in a bore within the first piston also extends into the hydraulic chamber. Depression of

an actuator by an operator will open a valve in the hub member to create a pressure differential across the movable wall. As the wall moves, the first piston will energize the master cylinder to pressurize the hydraulic fluid in the braking system. Further depression of the actuator by the operator will move the second piston to add to the energizing force of the first piston. A reaction member adjacent the second piston will selectively position the movable wall and the actuator in proportion to an internal reactive back force to maintain equilibrium within the system during activation.

3,559,407

ARTIFICIAL SEAWEED

Gerrit Schuur, Delft, Netherlands, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 25, 1968, Ser. No. 778,757
Int. Cl. E02b 3/00

U.S. Cl. 61—3

3 Claims

An improved form of "artificial seaweed" for combating coastal erosion and the like comprises an anchored array of filamentary strands of foamed, stretched polyolefin, characterized by a internal plexiform structure surrounded by a substantially closed, thin skin, having a tensile strength of at least about 1 gram per denier and a final density below 500 g./l.

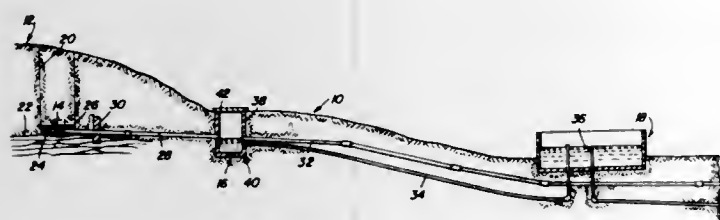
3,559,408

SPRING DEVELOPMENT SYSTEM

La Mar M. Earnhart, Box 45, Waynesville, Ohio 45068
Filed Sept. 26, 1968, Ser. No. 762,764
Int. Cl. E02b 11/00, 7/08

U.S. Cl. 61—10

10 Claims



The system contemplates the provision of a precast water collection box or reservoir communicated with collector drain tile in a spring or seep area through an inlet pipe, and communicated with a trough or holding tank through an outlet pipe. The box includes an overflow outlet pipe with the various pipes communicating with the precast box at predetermined points above the bottom thereof, the inlet pipe and the overflow outlet pipe being received and mortared within tapered precast holes for simplifying the assembly.

3,559,409

METHOD FOR CONSTRUCTING A LINED UNDERGROUND CAVITY BY UNDERREAMING, GROUTING, AND BORING THROUGH THE GROUTING

Walter H. Johnson, Las Vegas, Nev., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed June 24, 1969, Ser. No. 836,087
Int. Cl. E21d 5/00

U.S. Cl. 61—41

5 Claims

Drilling a borehole, locating a casing in the borehole, filling the space between the casing and the borehole with grout, underreaming a large borehole beneath the grout, underreaming the large borehole, filling the large underreamed borehole with additional grout that binds with the

previously underreamed grout, drilling a small borehole from the casing into the added grout, and underreaming



the small borehole but leaving a wall of grout to form a lined cavity.

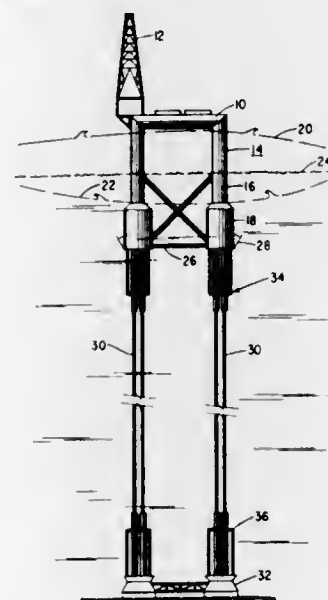
3,559,410

SYSTEM FOR RELIEVING STRESS AT THE TOP AND BOTTOM OF VERTICAL TUBULAR MEMBERS IN VERTICALLY MOORED PLATFORMS

Kenneth A. Blenkarn and David A. Dixon, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware
Filed July 30, 1968, Ser. No. 748,867
Int. Cl. B63b 35/44, 21/00

U.S. Cl. 61—46.5

12 Claims



Structure for relieving stresses at the top and bottom of elongated tubular members used to connect floating structure supported by a body of water to anchors on the floor thereof. Stop means surround each such connecting tubular member near each end thereof to limit the angular deflection of the tubular member at that point.

3,559,411

LOAD DISTRIBUTION IN ELONGATED MEMBERS OF VERTICALLY MOORED DRILLING VESSEL

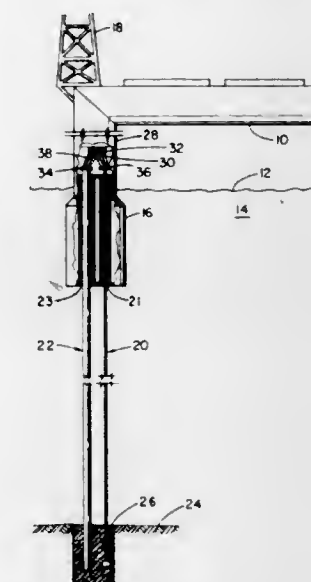
Kenneth A. Blenkarn, Tulsa, Okla., assignor to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware
Filed Feb. 10, 1969, Ser. No. 797,861
Int. Cl. E02d 21/00

U.S. Cl. 61—46.5

7 Claims

This invention relates to a system for mooring a floating structure to the ocean floor. Special buoyancy chambers support this structure, including a work deck above the body of water. The structure is connected to anchors

in the floor of the body of water by elongated members such as cables and pipes having different elongations per unit of stress. Because of wave action, the floating platform is subject to vertical heave forces. Because of such increased tension, the cable and pipe risers are both elongated but with the cable undergoing the most elongation. Hence, the influence of vertical heave forces is felt almost entirely by the pipe and not by the cable. In accordance



with this invention a load distribution means is provided to connect both the cable and the riser pipe to the floating structure. In a preferred embodiment the upper end of the riser pipe and the upper end of the cable are connected to opposite ends of a flexible member which goes over a pulley which is supported from a superstructure. The cable and pulley system proportions the total tension between the pipe and the cable according to a desired ratio.

3,559,412

METHOD OF FORMING ENLARGED BASE ENCASED CONCRETE PILES

Frank M. Fuller, Washington Township, Bergen County, N.J., assignor to Raymond International, Inc., New York, N.Y., a corporation of New Jersey
Filed July 15, 1968, Ser. No. 744,846
Int. Cl. E02d 5/44

U.S. Cl. 61—53.6

12 Claims



A method of forming enlarged base piles by forming a cylindrical hole in the ground, and thereafter placing a charge of bulk material such as zero slump concrete in the bottom of the hole, and then placing a pile shell with a closed tip over the mandrel and driving it into the hole and into the charge of material, and thereafter withdrawing the mandrel and filling the shell with concrete.

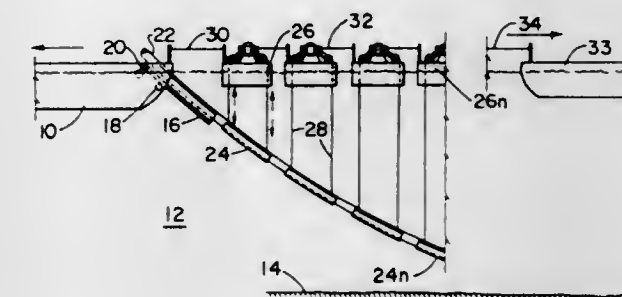
3,559,413

ADJUSTABLE STINGER FOR USE IN LAYING PIPELINE IN WATER COVERED AREAS

Daniel Silverman, Tulsa, Okla., assignor to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware
Filed Feb. 7, 1968, Ser. No. 703,680
Int. Cl. F16l 1/00

U.S. Cl. 61—72.3

9 Claims



A flexible stinger for use in laying pipelines from a floating barge in deep water. The stinger, which supports the pipe as it trails off the aft end of the barge, is composed of a plurality of trough or pipe-support sections. The trough sections are linked together by flexible or pivotal means. A float for each such trough section is positioned on the surface directly above the sections. Lines run from winches on the float to each end of each trough section. The floats are sufficiently large to support the trough sections and any pipe laid therein. Thus, by adjusting the length of the lines supporting the troughs, the stinger, composed of such trough sections, can be made to take any selected shape or contour.

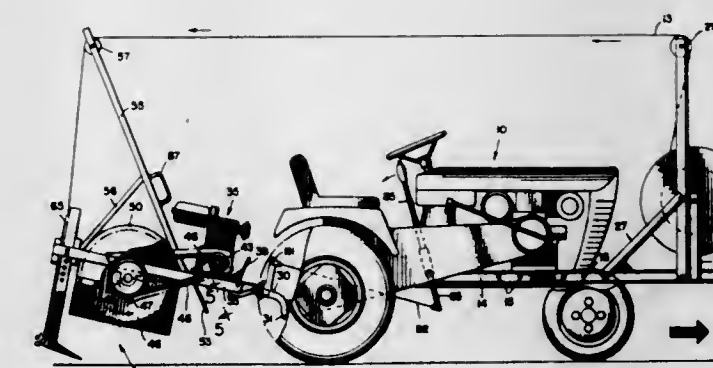
3,559,414

APPARATUS AND METHOD FOR LAYING FLEXIBLE CABLE

Fred W. Pike, 14 Garden Ave., and Darrell E. Armstrong, 105 Huber St., both of Pontiac, Ill. 61764
Filed Feb. 6, 1967, Ser. No. 614,336
Int. Cl. E02f 5/02, 5/18

U.S. Cl. 61—72.6

3 Claims



An attachment for use with a small garden tractor in laying flexible cable beneath the ground. Hitched to the rear of the tractor, the attachment includes a vertically-adjustable plow shoe for forming a tunnel or channel for the cable, a power-driven rotary blade or slicer in front of the plow shank for opening a narrow slit in the ground to a depth less than the depth of the shoe, and a cable guide for feeding cable into the tunnel behind the plow shoe. The plow shoe and the rotating blade cooperate with the tractor hitching mechanism to provide a tunnel having uniform depth beneath the surface of the ground.

3,559,415

EARTH CUTTING APPARATUS

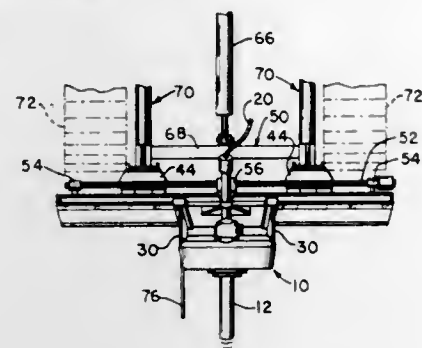
Donald R. Vaughan and Carl J. Falcon, Woodland, Calif., assignors, by mesne assignments, to Donald R. Vaughan, Woodland, Calif.

Filed Nov. 3, 1967, Ser. No. 680,487

Int. Cl. F16l 1/00; A01b 33/06

U.S. Cl. 61—72.6

13 Claims



Earth cutting apparatus having a cutter tool comprised of a rotatable shaft provided with a number of spaced cutter bits secured to and extending laterally from the shaft. A support mounts the shaft for axial rotation and is shiftably mounted on a guide bar attached to a forwardly moving vehicle. The guide bar extends transversely of the forward direction of travel of the vehicle and has means to move the support longitudinally of the guide bar in either direction to selectively position the cutter tool along a path transverse to said forward direction of travel. A depth control is provided to assure that the cutter tool will be maintained at a predetermined depth below ground level.

3,559,416

WATER ENERGIZED REFRIGERANT AND PACKAGE THEREFOR

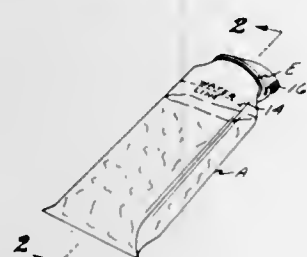
Thomas E. Cornwall, Buena Park, Calif., assignor, by mesne assignments, to Technology Investors, Inc., Los Angeles, Calif., a small business investment corporation

Filed Apr. 21, 1967, Ser. No. 632,775

Int. Cl. F25d 5/00

U.S. Cl. 62—4

10 Claims



The present invention relates to a granular material which, when water is added thereto, becomes cold and serves as a refrigerant, and a preferred and alternate forms of a waterproof package that so contains the material that water can be easily mixed therewith to obtain a refrigerating action.

3,559,417

SEPARATION OF LOW BOILING HYDROCARBONS AND NITROGEN BY FRACTIONATION WITH PRODUCT STREAM HEAT EXCHANGE

Michael L. Hoffman, Beverly Hills, Calif., assignor, by mesne assignments, to McDonnell Douglas Corporation, Santa Monica, Calif., a corporation of Maryland

Filed Oct. 12, 1967, Ser. No. 674,984

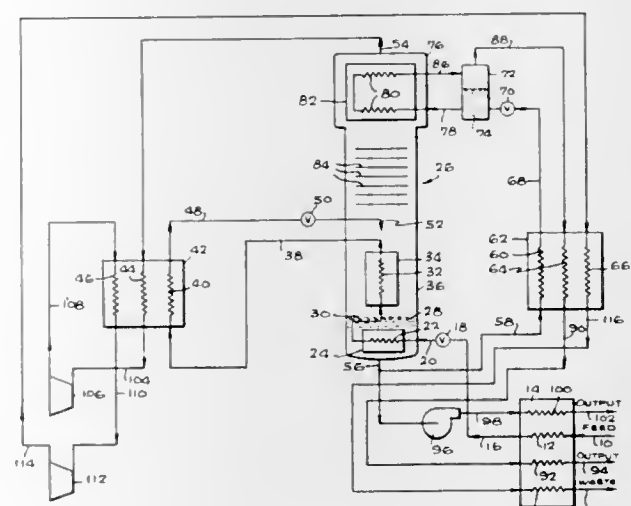
Int. Cl. F25j 3/02

U.S. Cl. 62—24

15 Claims

System for the separation of gases, particularly of mixtures of a low boiling hydrocarbon and nitrogen,

e.g., a mixture of methane and nitrogen, which involved providing a mixture of such low boiling hydrocarbon and nitrogen at relatively high pressure, e.g., about 1,000 p.s.i., cooling the compressed gas mixture to a temperature close to its saturation temperature, passing the cooled compressed mixture in heat exchange relation with the lower portion of a fractionating column operating at a pressure substantially lower than the pressure of the compressed gas mixture, and providing reboil heat to the column, subcooling the existing compressed feed gas mixture, reducing the pressure of the subcooled compressed mixture approximately to the pressure in the column, introducing the resulting mixture as feed into the fractionating column, and effecting a separation of the mixture in the column into a nitrogen fraction and a hydrocarbon fraction, passing overhead nitrogen from the column in heat exchange relation with the compressed feed mixture for subcooling same, preferably work expanding the exiting nitrogen and recycling the expanded nitrogen again



in heat exchange relation with the compressed feed mixture, work expanding the exiting nitrogen and further cooling same, withdrawing low boiling hydrocarbon in substantially pure liquid form from the lower portion of the column, passing a portion of such liquid hydrocarbon in heat exchange relation with the work expanded nitrogen for subcooling such hydrocarbon, throttling the subcooled portion of liquid hydrocarbon and further reducing the temperature and pressure thereof, employing the throttled hydrocarbon to provide condensing duty in the upper portion of the column, passing the resulting exiting vaporized hydrocarbon and the main portion of the liquid hydrocarbon withdrawn from the column in heat exchange relation with the compressed feed mixture for cooling same, compressing the hydrocarbon product to desired pressure, and passing nitrogen withdrawn from heat exchange relation with liquid hydrocarbon, into heat exchange relation with the compressed gas mixture for cooling same.

3,559,418

LIQUEFACTION OF NATURAL GAS CONTAINING NITROGEN BY RECTIFICATION UTILIZING INTERNAL AND EXTERNAL REFRIGERATION

Michael L. Hoffman, Los Angeles, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif., a corporation of Maryland

Filed Aug. 7, 1968, Ser. No. 750,996

Int. Cl. F25j 3/02

U.S. Cl. 62—24

15 Claims

Liquefaction of natural gas containing nitrogen, the remainder consisting essentially of low boiling hydrocarbon such as methane, at low power requirements, by separating the major portion of the nitrogen in such gas during liquefaction, comprising cooling the natural gas to

3,559,420

DELAYED RESTARTING CIRCUIT FOR COMPRESSOR MOTOR

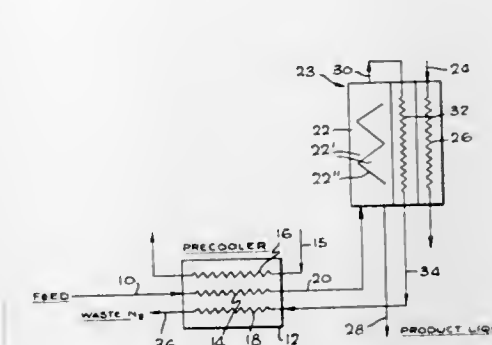
Dennis J. Lipscomb, La Grange, Ind., assignor to Motor Wheel Corporation, Lansing, Mich., a corporation of Ohio

Filed Mar. 5, 1969, Ser. No. 804,514

Int. Cl. F25b 1/00

U.S. Cl. 62—158

5 Claims



umn, for removal of heat from the column throughout its length and effecting a nonadiabatic separation of the natural gas in the column, passing the resulting heated nitrogen into heat exchange relation with the natural gas feed and passing an external refrigerant in heat exchange relation with the natural gas feed, for the above-noted cooling of such natural gas feed to a saturated vapor.

3,559,419

CENTRIFUGAL ABSORPTIVE THERMODYNAMIC APPARATUS AND METHOD

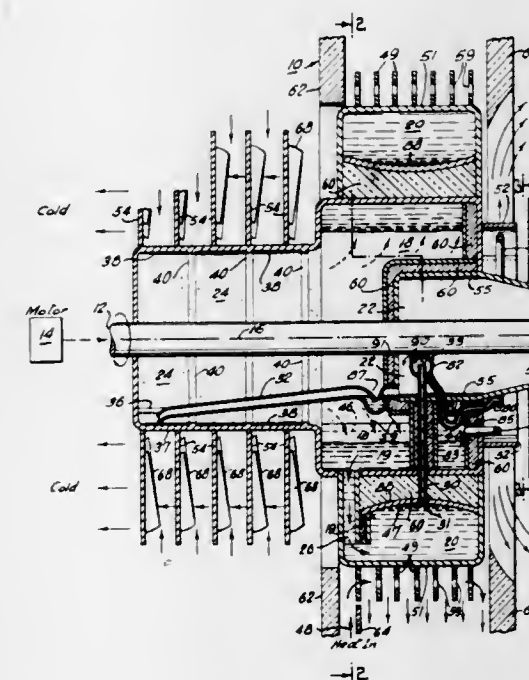
Frederick W. Kantor, 523 W. 112th St., New York, N.Y. 10025

Continuation-in-part of application Ser. No. 608,321, Jan. 10, 1967. This application July 18, 1969, Ser. No. 843,167

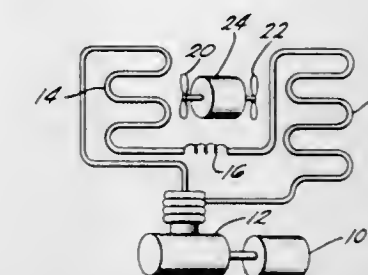
Int. Cl. F25b 15/04, 3/00

U.S. Cl. 62—101

13 Claims



Ammonia and water are rotated in a rotary enclosure. Ammonia gas is driven out of the water. Differential action of the centrifugal force on the liquid and the gas is used to transport the gas and water without use of a mechanical pump. The gas and the water are pumped through the rotor together, with the gas flow aiding in pumping the liquid.



A thermal relay circuit providing delayed restarting of a compressor motor in a refrigeration system each time the power to the motor is interrupted by either a line fault, a thermostat or a manual shut-off switch. The thermal relay is connected in the circuit so that its contacts energize a main relay whose contacts, in turn, energize the motor. The heater of the thermal relay is connected directly across the contacts of the main relay so that when the main relay contacts operate they simultaneously energize the motor and short the resistance heater to de-energize the thermal relay.

3,559,421

REFRIGERATION DEFROST SYSTEM WITH RECEIVER HEAT SOURCE

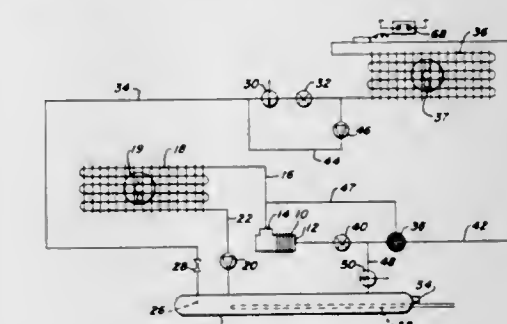
Otto J. Nussbaum, Monroeville, Pa., assignor to Halstead & Mitchell Co., Zelenople, Pa., a corporation of Pennsylvania

Filed Feb. 7, 1969, Ser. No. 797,392

Int. Cl. F25b 41/00

U.S. Cl. 62—196

7 Claims



A compression-type refrigeration system is disclosed which utilizes the conventional suction line of such a system as a defrost conduit at periodic intervals and further includes means to heat the liquid refrigerant in the receiver of the system to maintain the refrigerant at sufficient pressure and temperature to serve as a source of heat during a defrost cycle.

3,559,422

MEANS FOR REGULATING THE TEMPERATURE OF REFRIGERATORS

Walter Holzer, Meersburg (Bodensee), Germany, assignor to Holzer Patent AG, Zug, Switzerland

Original application Oct. 25, 1967, Ser. No. 678,010.

Divided and this application Dec. 9, 1968, Ser. No. 782,134

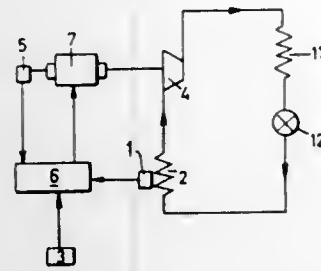
Int. Cl. F25b 41/00

U.S. Cl. 62—209

8 Claims

This invention relates to a system for regulating the temperature of refrigerating equipment and has for one of its objectives frost control. This is achieved because

the cold output is here regulated by an electronic analogue value control according to a variable temperature setting, a continuously measured actual temperature and a measurement value which is an analogue of the amount of cold



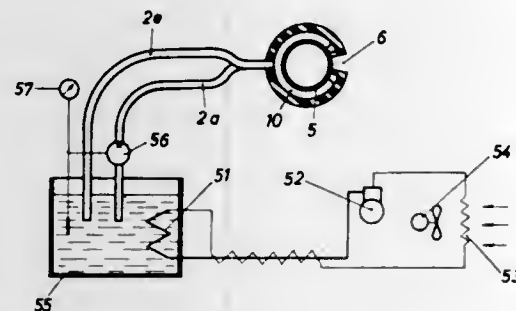
produced. Constant temperature is also maintained when the refrigerator door is opened by automatically shifting the response value of temperature control to a temperature value that is substantially lower than normal operation.

3,559,423 EQUIPMENT FOR WORKING ON LIQUID-FILLED CONDUITS

Werner Scheldler, Gundershausen, Germany
(24 Canerouth Drive, Etobicoke, Ontario, Canada)
Filed Aug. 8, 1969, Ser. No. 848,556
Int. Cl. F25d 3/00

U.S. Cl. 62—293

16 Claims



The apparatus according to the present invention permits working on liquid-filled pipes without having to drain them. It comprises at least one substantially annular member of elastomeric material which is placed about a pipe section and provided with inner sealing lips engaging the pipe section so as to space the inner surface of the annular member from the outer surface of the pipe section and define between them a sealed substantially annular clearance. A refrigerating unit is provided, and a refrigerant cooled by the refrigerating unit is circulated through this annular clearance to thereby freeze the liquid in the pipe section and to form in the latter an ice plug which prevents circulation of liquid through the pipe and enables work on the pipe downstream of the ice plug without requiring draining of the liquid.

3,559,424 ICEMAKING APPARATUS

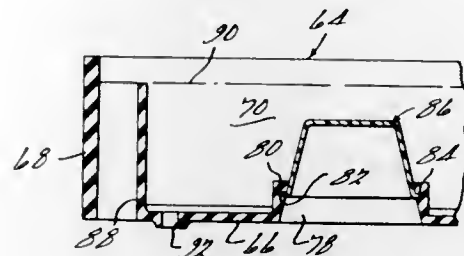
Marcus L. Nelson, Albert Lea, Minn., assignor to King-Seeley Thermos Co., Ann Arbor, Mich., a corporation of Delaware
Original application Sept. 12, 1967, Ser. No. 667,117, now Patent No. 3,465,537, dated Sept. 9, 1969. Divided and this application Apr. 1, 1969, Ser. No. 812,103
Int. Cl. F25c 1/04

U.S. Cl. 62—347

8 Claims

An icemaking apparatus comprising an inverted ice forming mold; a refrigeration system including an evaporator and a condenser comprising a tank containing

thawing water in heat transfer relation with the hot gaseous refrigerant line of the refrigeration system; a thawing water retaining compartment adjacent the mold and adapted to contain water in heat transfer relation with respect to the evaporator; a water reservoir disposed below the form; spraying means for directing water within the reservoir toward the form; a water inlet and a water outlet and fluid circuit means communicating the inlet with the tank and the outlet with the reservoir; a



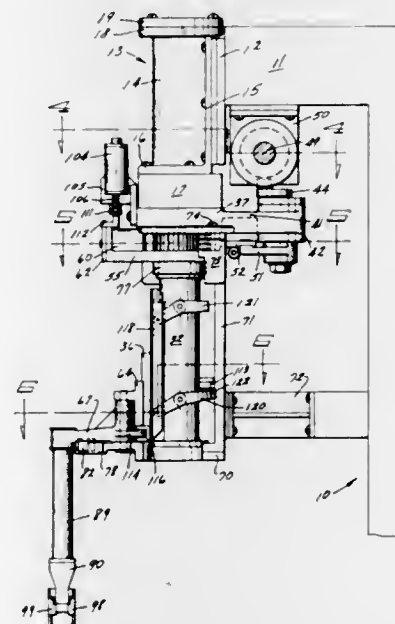
pump for pumping water from the reservoir to the fluid spraying means and a motor for driving the pump; the above system being adapted to use a quantity of water as a cooling medium for the condenser during the freezing cycle, wherein such water is heated a predetermined amount, thereafter using that heated water to release the ice from the ice form, and finally use the same water to make-up the ice during the next successive freezing cycle.

3,559,425 GLASSWARE TAKEOUT APPARATUS

George W. Irwin, Holland, and Urban P. Trudeau, Toledo, Ohio, assignors to Owens-Illinois, Inc., a corporation of Ohio
Filed May 20, 1968, Ser. No. 730,441
Int. Cl. C03b 9/40

U.S. Cl. 65—260

9 Claims



Glassware such as glass containers which are blown or expanded within blow molds are normally oriented in rows on a ware conveyor passing alongside of but spaced from the row of molds. When the ware is produced in tandem, conventionally the orientation of the ware in the molds is at right angles with respect to the direction of movement of the conveyor. A ware takeout apparatus operates to lift the ware from the location of the blow molds by gripping the necks of the ware and moving the

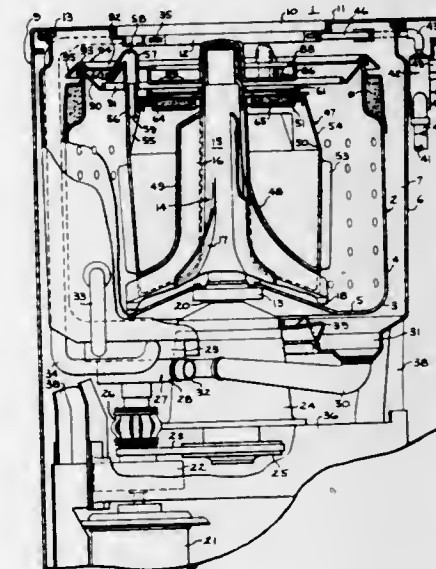
ware bodily through an arc of 90° so that the ware is positioned over a moving conveyor. The ware is then lowered to a certain degree until it is positioned a short distance over the conveyor, at which time the mechanism holding the ware is opened so as to release the ware. Operation of the takeout mechanism is timed with the operation of the forming machine and a fail-safe arrangement is provided so that in the event the take-out apparatus is operating improperly, an operator may, by operating a single control valve, effectuate the movement of the takeout device to a position where it is out of the way of the moving mechanisms of the forming machine.

3,559,426 COVER FOR WASHING MACHINE TUB

Robert E. Condit and Clarence A. Zinninger, Louisville, Ky., assignors to General Electric Company, a corporation of New York
Filed Mar. 19, 1969, Ser. No. 808,558
Int. Cl. D06f 39/08, 31/00

U.S. Cl. 68—4

6 Claims



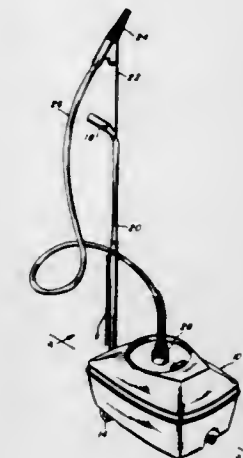
A vertical axis washing machine, adapted to wash two loads of fabrics simultaneously in separate solutions without liquid interchange therebetween, includes an outer tube to receive liquid and fabrics to be washed in that liquid, an inner, substantially imperforate open top tub to receive liquid and fabrics to be washed in that liquid, and liquid inlet means positioned to direct a stream of liquid into registry with the top of the inner tub. A cover structure is provided for substantially closing the top of the inner tub, the cover structure including a cover plate supported from the inner tub, a diaphragm positioned beneath the cover plate and supported therefrom, and a float positioned beneath the diaphragm and supported therefrom. A float shield may be disposed beneath the float to minimize interference to float operation by the fabrics within the inner tub. Liquid is delivered through the cover structure to the inner tub by passing through inlet openings in the cover structure, traveling radially inwardly along the upper surface of the diaphragm, and discharging through an outlet opening in the diaphragm. Disposed between the inlet and outlet openings is a continuous bead depending from the lower surface of the cover plate. When the liquid rises in the inner tub to a predetermined level, a buoyant force is exerted on the float which in turn causes the diaphragm to seat with the bead thereby terminating the delivery of liquid to the inner tub.

3,559,427 CLOTHES STEAMING DEVICE

Norman J. Baker, 4701 N. 68th St., Apt. 142, Scottsdale, Ariz. 85251
Filed Mar. 19, 1969, Ser. No. 808,616
Int. Cl. D06c 1/00

U.S. Cl. 68—222

8 Claims



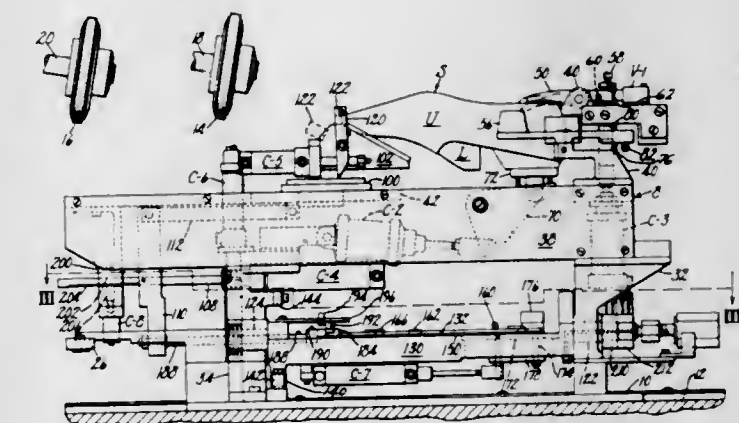
A clothes steaming device comprising a housing having an upstanding member adapted to support clothing thereon; a boiler in said housing having a flexible steam outlet and applicator for applying steam to clothing; a water supply tank in said housing communicating with said boiler and hydrostatic liquid level control means communicating with said water supply tank in said boiler to maintain a low volume low liquid level in said tank for rapid production of steam, and whereby steam may be produced very quickly, as desired.

3,559,428 SHOE BOTTOM ROUGHING MACHINES

Edward S. Babson, Ipswich, Mass., assignor to USM Corporation, Flemington, N.J., a corporation of New Jersey
Filed June 2, 1969, Ser. No. 831,821
Int. Cl. C14b 1/44

U.S. Cl. 69—6.5

18 Claims



A machine for roughing the bottoms of shoes having a pair of roughing tools and a support for a shoe during relative movement between the tools and the support to cause the shoe to pass by the tools and a template for positioning the tools in which the template is automatically adjusted in both lengthwise and widthwise directions to accommodate shoes of different sizes and is automatically reversed by rotation about its longitudinal axis, to accommodate right or left shoes in accordance with the size

and character of the shoe on the support. The shoe support also embodies an abutment for determining the heightwise position of the toe end of each shoe placed thereon and a heel support movable in response to the engagement of the heel end of a shoe therewith for actuating control means to initiate an automatic operating cycle of the machine.

3,559,429

DUAL CONTROL CONVERSION LOCKING MECHANISM

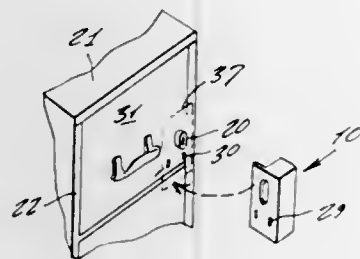
Robert Hermann, P.O. Box 114,
Stronghurst, Ill. 61480

Filed Jan. 31, 1969, Ser. No. 795,606

Int. Cl. E05b 65/46, 67/38

U.S. Cl. 70—85

4 Claims



A locking mechanism for a file cabinet or the like, the device comprising a plurality of individual lock units, each one of which prevents access for gaining reach to a second lock without first opening up a first lock positioned in front of the other.

3,559,430

LOCKING MECHANISM

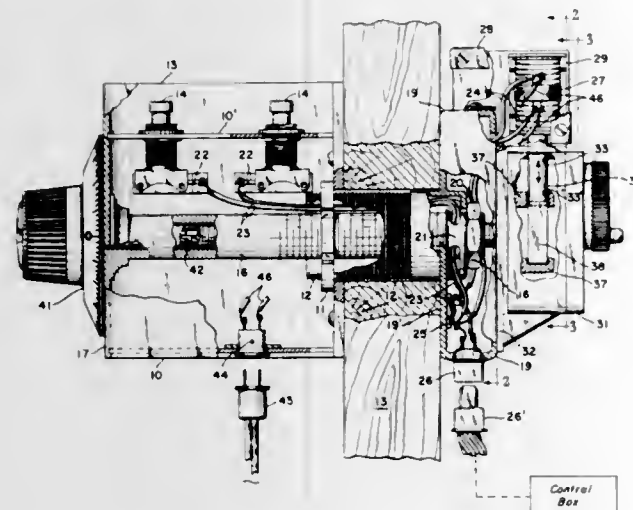
Russell S. Waller, 5508 Beaman Place,
Hillcrest Heights, Md. 20031

Continuation-in-part of application Ser. No. 502,748,
Oct. 22, 1965. This application Aug. 8, 1968, Ser.
No. 756,718

Int. Cl. E05b 47/00

U.S. Cl. 70—277

8 Claims



A security lock construction which includes both a dial operated mechanical combination lock similar to the conventional type having plural, peripherally gated tumbler wheels, a reciprocative bolt, and a dial operated driver wheel for rotating the tumbler wheels and for activating a fence lever to retract and project the bolt, together with a cooperating push button operated electrical combination lock having electrical switches which must be activated in a preselected combination to energize a solenoid and retract its plunger from a normal position locking the bolt

of the mechanical combination lock against retraction, and electrical means cooperating with the moving parts of the dial operated combination lock to prevent operation of the electrical switches when the dial operated lock is in closed position.

3,559,431

APPARATUS FOR STRETCHING CONTINUOUS BANDS

Oskar Noe and Herbert Lux, Mulheim (Ruhr), Germany, assignors to BWG Bergwerk- und Walzwerk-Maschinenbau G.m.b.H., Duisburg, Germany, a corporation of Germany

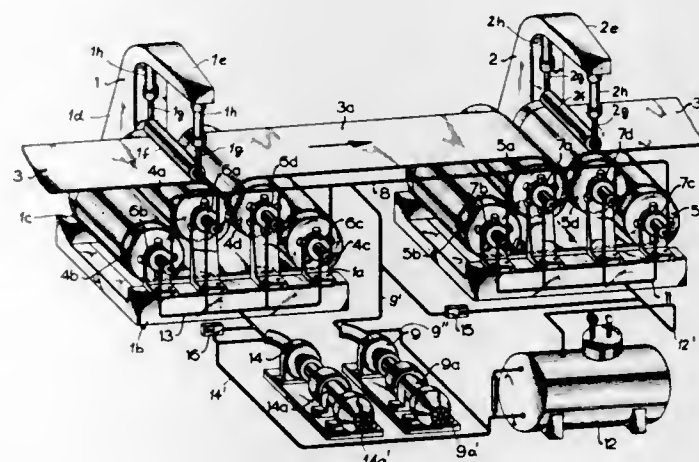
Filed Feb. 17, 1969, Ser. No. 799,635

Claims priority, application Germany, Feb. 15, 1968, P 16 52 615.1

Int. Cl. B21b 37/06

U.S. Cl. 72—8

12 Claims



In a tensioning arrangement for the continuous stretching of metallic bands in which an upstream roller assembly frictionally retards the band as it passes through this roller assembly and a downstream roller assembly passes the band at a higher velocity whereby tension is applied to the band between the assemblies. The upstream roller assembly is connected with at least one torque-controlling hydraulic pump whose high-pressure side is connected to the high-pressure side of a torque-controlling hydraulic motor driving the downstream roller assembly. A pressure-regulating pump supplies hydraulic fluid under pressure in common to the high-pressure sides of pump and motor while a counterpressure pump is provided in the return line from the commonly connected low-pressure sides of torque-controlling pump and motor. When the roller assemblies each include a number of rolls about which the band is passed with as large a contact angle as possible, the rolls of the upstream assembly have hydraulic pumps of progressively increasing torque output whereas the rolls of the downstream assembly traversed in succession by the band have hydraulic motors of correspondingly stepped decreasing torque.

3,559,432

ROLL GAP GAGE CONTROL

Telefore Rastelli, Cheshire, Conn., assignor to Textron, Inc., Providence, R.I., a corporation of Delaware

Filed May 29, 1968, Ser. No. 732,998

Int. Cl. B21b 37/08

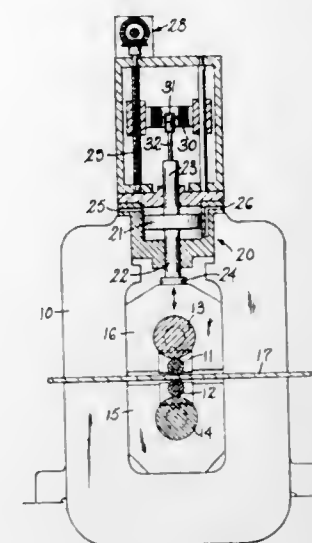
U.S. Cl. 72—19

13 Claims

A mill having a plurality of work rolls, said mill having hydraulic screwdown means and position control means for said hydraulic screwdown means for controlling the hydraulic screwdown means to set the gap between said work rolls. In particular, this invention provides a first means for deriving a first signal indicative of the load

on said work rolls, and second means for combining said first signal with a second signal from said position control

is collected at one electrode where it is ignited. On ignition the gas jets toward the other electrode to form an ionized conductive pathway between the two electrodes and an electrical impulse is conducted by this pathway to give rise to an explosion which may be used for forming a sheet of metal.



3,559,435

LIQUID BRIDGE WIRE

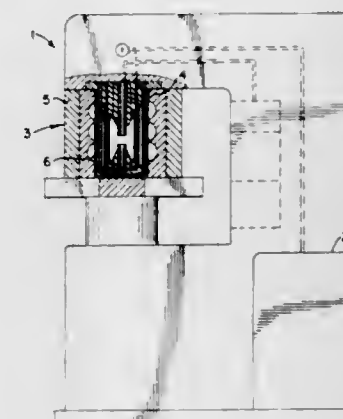
Howard L. Gerber, Park Forest, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed Sept. 25, 1968, Ser. No. 762,448

Int. Cl. B21d 26/14

U.S. Cl. 72—56

12 Claims



means to derive an error signal to effect constant roll gap control by controlling the hydraulic screwdown means.

3,559,433

LEAD BENDING DEVICE

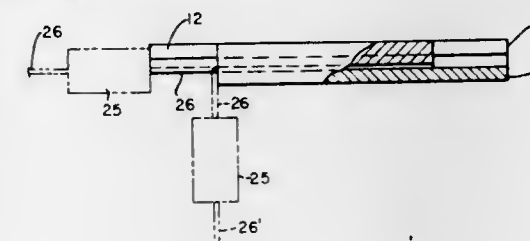
James R. Brown, 5122 Flintridge Drive, Hyattsville, Md. 20784, and William F. Lusk 9917 Dolby Ave., Glenn Dale, Md. 20769

Filed Aug. 10, 1967, Ser. No. 659,733

Int. Cl. B21f 27/14

U.S. Cl. 72—36

5 Claims



An electrohydraulic system having two electrodes spaced in water and a very small conduit through one electrode to direct a thin stream of conductive liquid from that electrode to another electrode so that any discharge across the electrode follows the path provided by the conductive liquid.

3,559,436

PRESS FOR HYDROSTATIC EXTRUSION

Jan Nilsson, Robertsfors, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

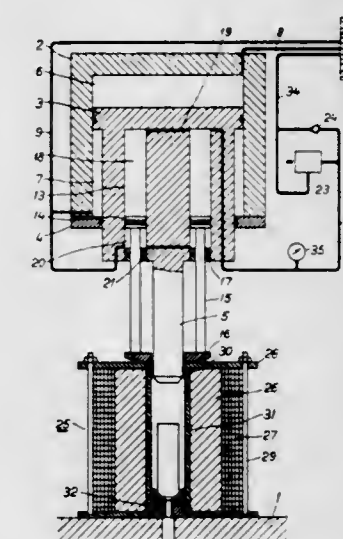
Filed Oct. 28, 1968, Ser. No. 771,196

Claims priority, application Sweden, Nov. 1, 1967, 14,953/67

Int. Cl. B21c 23/08

U.S. Cl. 72—60

8 Claims



CONDUCTIVE EXPLOSIVE GAS TRIGGER FOR ELECTROHYDRAULIC FORMING

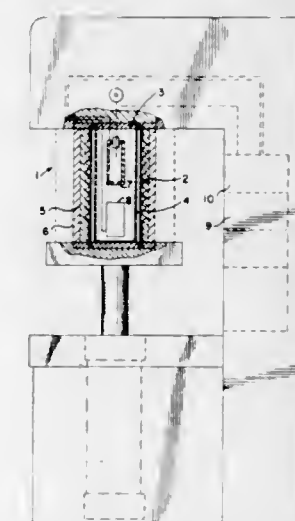
Henry J. Keenan, Hickory Hills, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed Sept. 25, 1968, Ser. No. 762,456

Int. Cl. B21d 26/14

U.S. Cl. 72—56

12 Claims

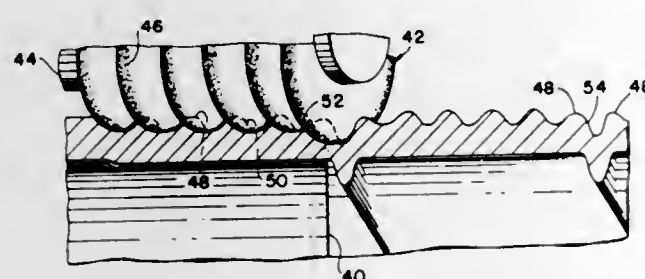


A device for the generation of an ionized conductive gas pathway between two electrodes. A combustible gas

A hydraulic press has a main operating cylinder with an operating piston slidable therein and an extrusion cylinder with a die at one end and an extruding piston rigid with the operating piston entering the other end. The extrusion cylinder has a sheath wound around it, end pieces enclosing the sheath and seals between the end

pieces and the ends of the extrusion cylinder. A ring engaging the upper end piece is pressed downward against it by auxiliary pistons slidable in cylinders formed in the operating piston to compress the seals between the end pieces and the ends of the cylinder.

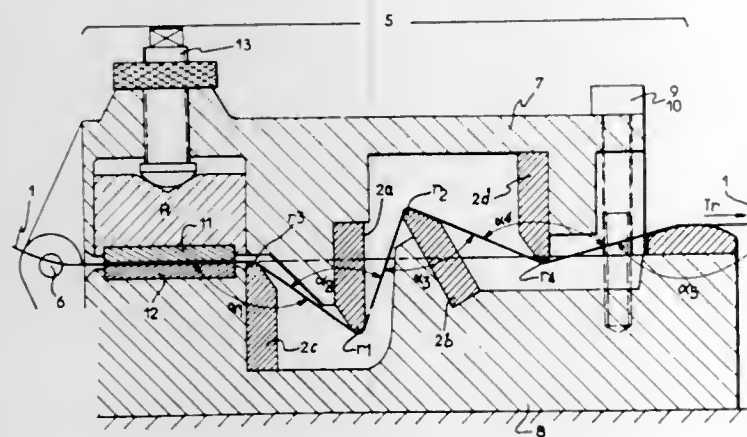
3,559,437
METHOD AND APPARATUS FOR MAKING HEAT TRANSFER TUBING
James G. Withers, Jr., Dearborn, Mich., assignor, by mesne assignments, to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Original application June 26, 1967, Ser. No. 648,662, now Patent No. 3,481,394. Divided and this application Nov. 4, 1968, Ser. No. 773,065
Int. Cl. B21d 13/02
U.S. Cl. 72—96 4 Claims



Method and apparatus for making heat transfer tubing characterized by the use of external roll means operating against an internal mandrel to produce a plurality of external helical grooves and fins or ribs in conjunction with additional roll means operating beyond the end of the internal mandrel to deepen an external groove and to produce an internal helically extending rib.

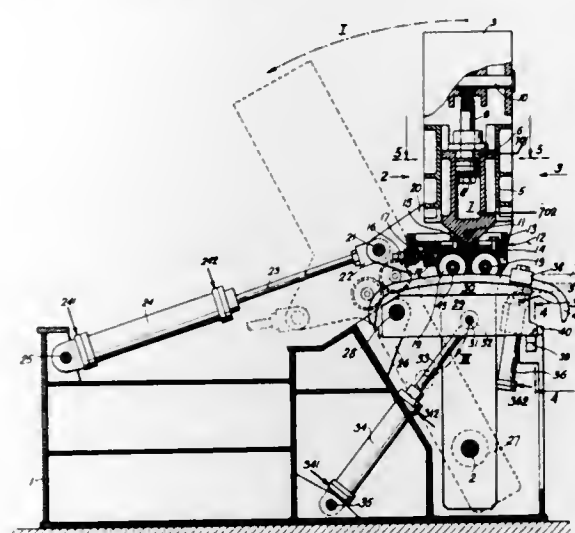
3,559,438
METHOD OF PLANING THIN METALLIC STRIPS AND CORRESPONDING PLANING DEVICE
Georges Rouyer, Paris, and Gaston Fontaine, Chateaufort, France, assignors to Nord-Aviation Societe Nationale de Constructions Aeronautiques, Paris, France, a joint-stock company of France
Filed July 29, 1968, Ser. No. 748,392
Claims priority, application France, July 31, 1967, 116,384
Int. Cl. B21d 1/06
U.S. Cl. 72—160 4 Claims

Method and machine for planing thin metallic strips having more or less large blisters included in adjoining strained zones, characterized in that lateral strains, with a tendency to the widening of the strip, are produced by the angular passage of the strip under longitudinal stress,



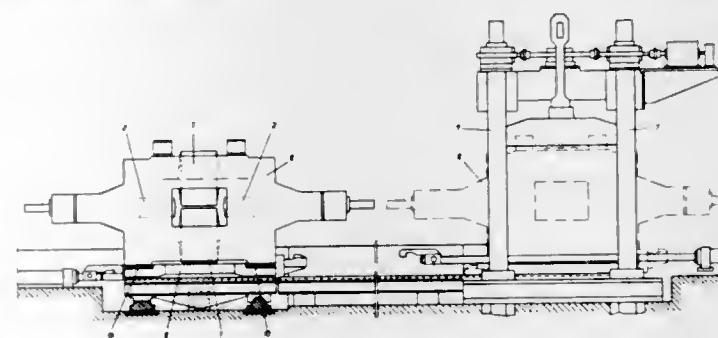
over at least one radiated edge of a planing tool, in order to obtain a resorption of the blisters by recompression of the latter with overstepping of the elastic limit.

3,559,439
ARRANGEMENT FOR SHAPING OF PROFILED CURVED WORKPIECES FROM BLANKS
Miloslav Zák and Milan Sekanina, Brno, Czechoslovakia, assignors to Vyzkumny ustav tvarecich stroju technologie tvareni, Brno, Czechoslovakia
Filed Feb. 5, 1969, Ser. No. 796,785
Claims priority, application Czechoslovakia, Feb. 10, 1968, 1,036/68
Int. Cl. B21d 7/02
U.S. Cl. 72—219 7 Claims



An arrangement for shaping of profiled curved workpieces from blanks to a configuration with adjacent sections with different radii of curvature by pressure rollers acting on said blanks supported by a die. The pressure rollers are arranged on a thrust head supported by an auxiliary frame, arranged pivotally with respect to the main frame of the machine so as to shape in the course of its angular movement parts of the workpiece having larger radii of curvature, while the dies are maintained in a stable position. Parts of the workpiece having smaller radii of curvature are shaped by imparting to the support of said die a rotating movement around an axis substantially coincident with the centres of curvature of said part while the housing of pressure rollers acting on said part remains substantially stable.

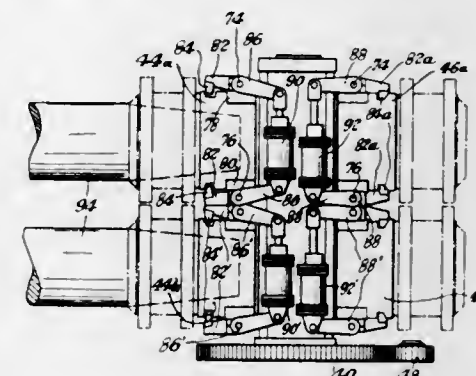
3,559,440
UNIVERSAL ROLLING MILL
Karl G. Illert, Neuss, Germany, and Takamitsu Ando and Itsuro Miida, Kurashiki, Japan, assignors to Siegener Maschinenbau G.m.b.H., a corporation of Germany, and Kawasaki Steel Corporation, Kobe, Japan, a corporation of Japan
Filed July 11, 1968, Ser. No. 744,226
Claims priority, application Germany, July 25, 1967, S 110,990
Int. Cl. B21b 31/10
U.S. Cl. 72—238 5 Claims



A pass line adjustment for the rolls of a universal rolling mill relative to an associated roller table. Adjustment of the mill pass line is accomplished by shims, threaded

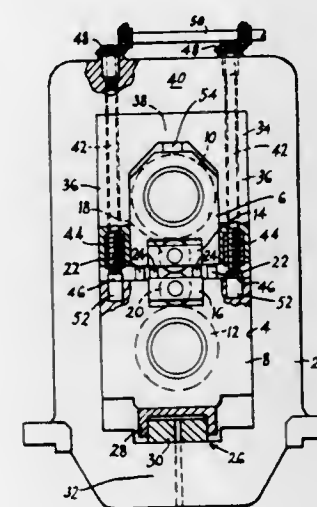
spindles, wedges, or piston cylinder assemblies arranged between a cassette frame carrying both pairs of horizontal and vertical rolls and a roll changing sled slidably received into the mill housing.

3,559,441
ROLL CHANGING DEVICE FOR ROLL LEVELER, STRAIGHTENER AND THE LIKE
Herbert Lemper and William E. Ennis, Pittsburgh, Pa., assignors to Mesta Machine Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 1, 1968, Ser. No. 772,721
Int. Cl. B21b 31/08
U.S. Cl. 72—239 10 Claims



We disclose a roll changing device for a roll straightener and the like, said device comprising a support structure, a plurality of tubular sockets shaped to receive respectively portions of the rolls normally mounted on said straightener, means for mounting said sockets in a predetermined array on said support and in alignment with said straightener, and clamping means mounted on said support for each of said sockets for clamping said rolls respectively therein.

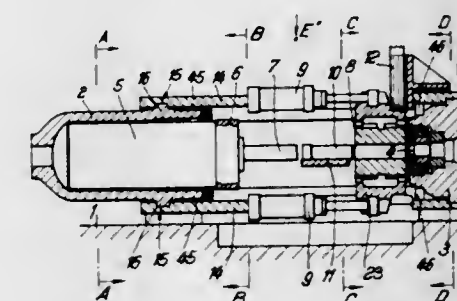
3,559,442
PRESTRESSED ROLLING MILLS
Edwin Simmonds, Ringwood, and Tom Smith, Parkstone, England, assignors to Loewy Robertson Engineering Company Limited, Bournemouth, England, a corporation of Great Britain
Filed Feb. 9, 1968, Ser. No. 704,334
Claims priority, application Great Britain, Feb. 28, 1967, 9,559/67
Int. Cl. B21b 31/24
U.S. Cl. 72—240 4 Claims



This disclosure relates to prestressed rolling mills of the type in which the pass opening between the working rolls of the mill is set by spacing means which are replaceable relative to the bearing chocks of one roll of

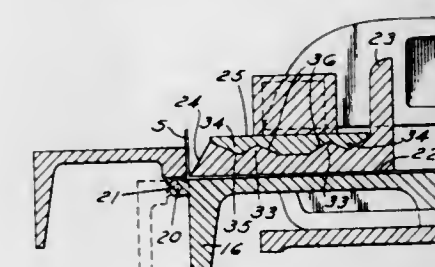
the mill and rest with their ends on the bearing chocks of another roll. The spacing means may operate either on the bearing chocks of the working rolls of the mill or on the bearing chocks of any back-up rolls for the working rolls.

3,559,443
PRESSES, AND PARTICULARLY EXTRUSION PRESSES
Ernst Petsch, Mettmann, Germany, assignor to Maschinenfabrik Sack G.m.b.H., Düsseldorf-Rath, Germany
Filed Feb. 15, 1968, Ser. No. 705,823
Claims priority, application Germany, Feb. 17, 1967, M 72,806
Int. Cl. B21c 23/00
U.S. Cl. 72—253 11 Claims



A press in which the press cylinder and die support beams are tied together by two or more segments extending part way but less than 180° around the axis of the cylinder.

3,559,444
BRAKE FOR BENDING SHEET MATERIAL
Lawrence E. Blazey and Walter G. Marsh, Detroit, Mich., assignors to Tapco Products Company, Inc., Detroit, Mich., a corporation of Michigan
Filed Mar. 4, 1968, Ser. No. 710,326
Int. Cl. B21d 11/04
U.S. Cl. 72—319 14 Claims



The brake for bending sheet material disclosed herein comprises a pair of spaced base rails on which C-shaped members are positioned at longitudinally spaced points. A first member is fixed on the lower arms of the C-shaped members and has a clamping surface. A second member having a bending surface is hinged to the first member. An anvil member is provided over the clamping surface and a pressure member is interposed between the anvil member and the upper arms of the C-shaped members. The pressure member has wedges thereon which function when the pressure member is translated longitudinally to apply pressure to the anvil member. A handle is pivoted to the first member at one end and is operatively connected to the pressure member for shifting the pressure member. Complementary longitudinally extending ribs and valleys are provided between the surfaces of the pressure member and anvil member. An electrical strip heater

is hinged to the C-shaped members and is movable into a position adjacent the hinge line for heating the bending point of material where the material to be bent is made of plastic such as vinyl sheet.

3,559,445

PIERCING TOOL FOR SHEET MATERIAL

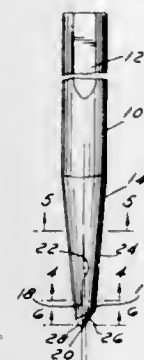
Everett D. Hougén, G-5072 Corunna Road,
Flushing, Mich. 48504

Filed May 6, 1968, Ser. No. 726,856

Int. Cl. B21d 31/02, 37/00, 28/26, 28/34

U.S. Cl. 72-325

10 Claims



A tool for piercing holes in sheet material, such as sheet metal, plastic, etc., having a tapered portion terminating in a point. The tapered portion having at least one blunt tapered edge which extends down to the pointed end of the tool which projects radially from the rotating axis of the tool a greater extent than the remaining surface portion of the tapered portion of the tool.

3,559,446

FORGING MACHINE

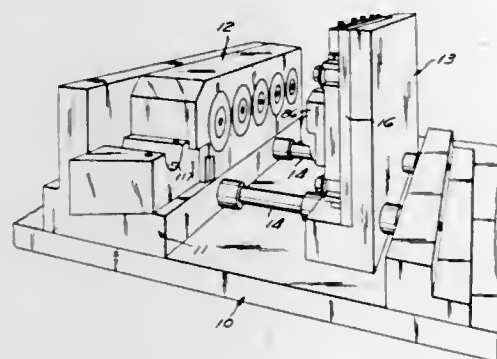
Harry A. Dom and Gene E. Allebach, Tiffin, Ohio, assignors to The National Machinery Company, Tiffin, Ohio, a corporation of Ohio

Filed Mar. 29, 1968, Ser. No. 717,264

Int. Cl. B21d 28/00, 45/00; B21j 9/00, 13/02, 13/04; B21k 1/48

U.S. Cl. 72-337

14 Claims



A five station progressive cold former is disclosed which is arranged to permit relatively quick tool change-over. The die breast, the bolster plate and the shear elements are removably clamped in the machine by hydraulically-operated clamp actuators. A knockout mechanism is provided with a cam drive which includes cam sectors that can be removed and replaced without material disassembly of the cam drive. An adjustable tube nut is threaded into the machine to adjustably determine the rearward position of the knockout mechanism. Power means are provided for the adjustment of the tube nuts.

The separate fixtures are provided to permit installation of tooling and rough adjustment thereof on a die breast and bolster assembly separate from the machine. The machine is arranged so that a tooling change can be accomplished before the machine cools to environmental temperature so that warm-up adjustment requirements are minimized.

3,559,447

INCREMENTAL DIE CONSTRUCTION WITH INTERNAL FLOW PASSAGES FOR LOCALIZED TEMPERATURE CONTROL

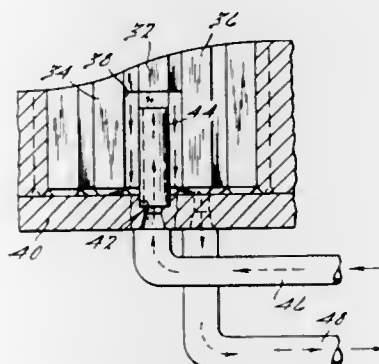
Harold N. Bogart, Farmington, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Sept. 26, 1968, Ser. No. 762,960

Int. Cl. B21d 37/00, 37/16

U.S. Cl. 72-342

4 Claims



A die comprising two complementary die sections, each section comprising a plurality of hexagonal rods situated in registry, the lengths of the rods being predetermined prior to assembly, said rod ends being contiguous and forming increments of a continuous die surface, and a fluid flow passage formed in part by the foreshortening or removal of one or more selected rods, thereby permitting the flow of temperature controlling fluid through selected areas of the die section.

3,559,448

DEVICE FOR ATTACHING METAL FITTINGS TO ELECTRICAL CONDUCTORS OR THE LIKE

Duncan Illingworth and John Icton, Leeds, England, assignors to Cable Covers Limited, Surbiton Surrey, England, a corporation of the United Kingdom

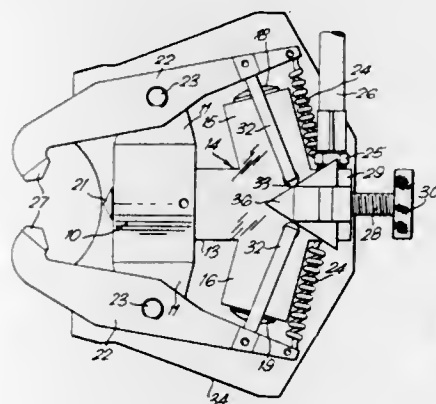
Filed Aug. 12, 1968, Ser. No. 752,008

Claims priority, application Great Britain, Feb. 14, 1968, 7,249/68

Int. Cl. B21d 9/08

U.S. Cl. 72-410

5 Claims



A device for fixing a malleable metal fitting to an electrical conductor or other cable comprises three indenting elements, one on an hydraulic piston and two respectively on pivoted arms which extend in the same general direction as that of the piston. Other hydraulic means

operate the arms so that operation of the piston and the other hydraulic means causes the three indenting elements to close upon and indent the fitting with positive pressure at three spaced points and cause portions of the fitting to engage or to penetrate interstices of the cable.

3,559,449

EXPLOSIVELY ACTUATED RIVET GUN

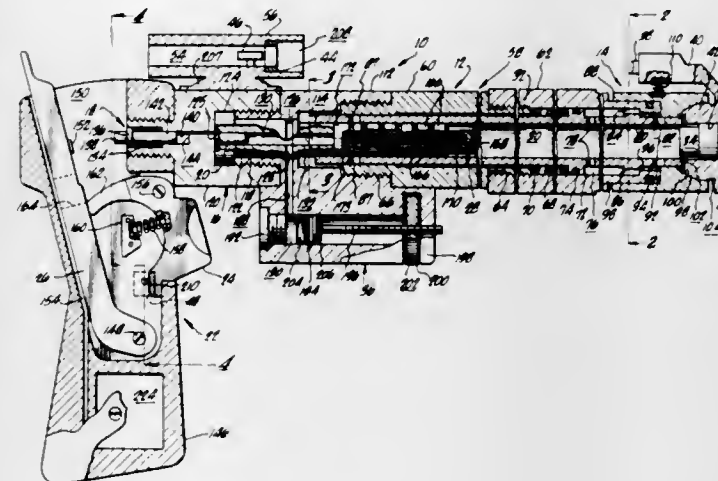
John C. Steinmetz, Pasadena, Calif., assignor to VSI Corporation, Pasadena, Calif., a corporation of Delaware

Filed Nov. 19, 1968, Ser. No. 777,088

Int. Cl. B21j 15/00

U.S. Cl. 72-430

51 Claims



A barrel assembly of an explosively actuated rivet gun includes a barrel housing and an inner, longitudinally displaceable barrel within the housing. A translatable impacting hammer is disposed within the inner barrel for striking a rivet forming punch at the muzzle end of the gun. Porting in the inner barrel provides for its movement in response to gas pressure toward the breech end of the gun and the venting of explosive generated gases. An impacting hammer return port in the inner barrel admits gases ahead of the impacting hammer to force it back to the breech end of the gun. The porting also produces gas biasing of a nose assembly against the sheets being riveted to eliminated the effect of gun recoil. The impacting hammer, through inertia separation, prolongs the transfer of its upsetting impact to a rivet. The forming punch has a frusto-conical recess for upsetting and constricting expansion of a rivet. The nose assembly has a universally rotatable head with a parabolic mirror that is maintained out of alignment with a light source on the breech assembly until the nose assembly is properly aligned, whereupon light reflected from the parabolic mirror energizes a photosensitive element to unlock the gun's trigger. Additional interlocks prevent gun firing until a rivet bucking bar and a forming die are in proper position. An adjustable volume expansion chamber controls explosive pressure on the impacting hammer and, therefore, the upsetting impact transferred through the forming punch to a rivet.

3,559,450

INCREMENTAL DIE CONSTRUCTION HAVING A HOLE PIERCING CAPABILITY

Foster E. Whitacre, Farmington, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Sept. 9, 1968, Ser. No. 758,360

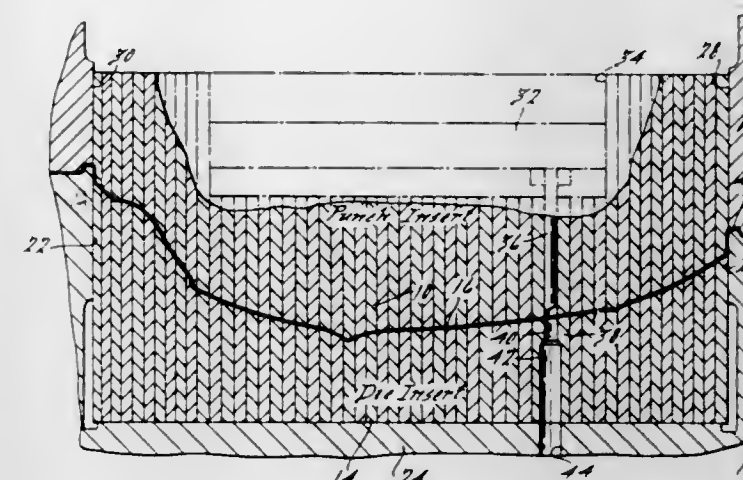
Int. Cl. B21d 37/00

U.S. Cl. 72-464

4 Claims

A die construction for forming sheet metal, the punch section and the complementary die section being formed of integrated hexagonal rods, the rods of the respective die sections being in aligned registry, the ends of the rods

being formed with surfaces having precalibrated surface normals, selected rods being adapted to accommodate a



die punch and a die button in the complementary metal forming die sections.

3,559,451

WEIGHING SCALE SYSTEM FOR A CONVEYOR WITH FOOTAGE COUNTER FOR IMPROVED CALIBRATION

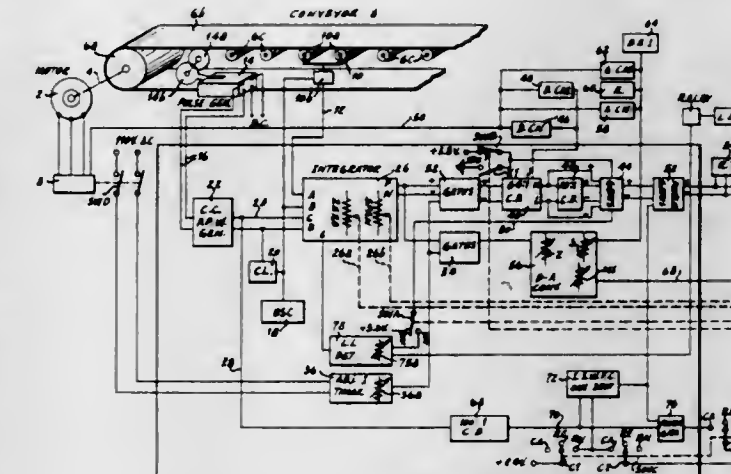
Frank S. Hyer, Duxbury, and Raymond Karosas, Quincy, Mass., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware

Filed Dec. 22, 1969, Ser. No. 886,856

Int. Cl. G01g 11/14

U.S. Cl. 73-1

7 Claims



An integrating system for indicating the total weight of material that has been moved by an endless belt-conveyor over a weighing scale. The system must periodically be re-calibrated for "zero" and "span" due to a number of variables such as nonuniformity of the belt, material sticking to the belt, etc. A predetermining footage counter is manually preset to the total number of feet required for the calibration run. This counter counts downwards and when it counts out, it stops the output to the weight totalizer. The system is first run for a zero calibration and if the reading is off, the zero adjusting device is turned in the proper direction until the reading is close enough on a re-run. The system is then run for a span calibration and if the reading is off, the non-interacting span adjusting device is turned in the proper direction until the reading is close enough on a re-run. In each case, the footage counter precisely controls the amount of conveyor footage that is totaled to avoid laborious manual measurement and computation. Other features such as rate indication, low level detection, closed loop controls and timed interlocking between the integrator output and the conveyor motor control, and the like, are incorporated into the system.

3,559,452

THERMAL ANALYSIS OF MOLTEN STEEL

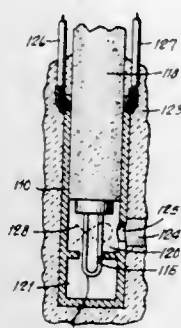
Gottfried W. Perbix, Chagrin Falls, Dale J. Maczka, Independence, Cecil B. Griffith, North Royalton, and Pesi N. Dastur, Brecksville, Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio, a corporation of New Jersey

Filed Sept. 25, 1967, Ser. No. 670,273

Int. Cl. G01n 25/02

U.S. Cl. 73—17

10 Claims



Insertable probes for thermal analysis of molten metal comprise a sampling chamber constituted of chill metal such as steel, enclosing a thermocouple and mounted for insertion into the molten metal, with surrounding material such as heavy cardboard or refractory, to impede destruction of the chamber. Protected conductors for the thermocouple extend out of the furnace to the translating device. The molten metal enters the chamber through an opening at or near the top, the chill metal functioning to freeze the received sample. For special reliability an entrance chamber, also surrounded with chill metal and containing the kill metal, is traversed by the entering sample enroute to the test chamber below.

3,559,453

APPARATUS FOR FEEDING SPECIMENS INTO EVACUATED CHAMBERS

Michael Leslie Aspinall, Bilton, Rugby, and David Hazebly, Grandborough, Rugby, England, assignors to Associated Electrical Industries Limited, London, England, a British company

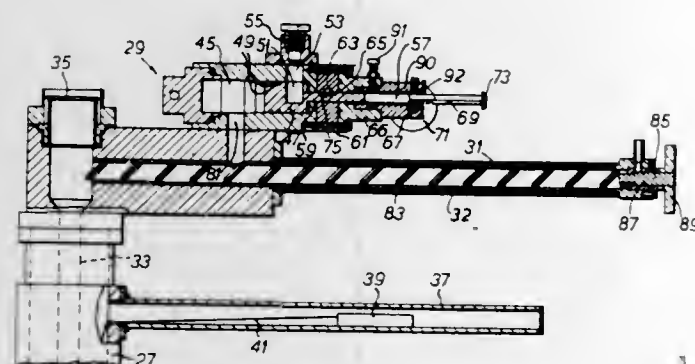
Filed July 17, 1968, Ser. No. 745,609

Claims priority, application Great Britain, Apr. 19, 1967, 17,984/67

Int. Cl. G01n 7/14

U.S. Cl. 73—19

6 Claims



Apparatus for feeding specimens into an evacuated chamber comprises a vacuum lock having a specimen carrier piston movable within a gas-tight cylinder between a first position at which the specimen is inserted in a space in the carrier, a second position at which the carrier space is exposed to a rough vacuum, and a third position at which the carrier space communicates with the high vacuum of the chamber for the discharge of the specimen. In combination with this vacuum lock, such apparatus can include a specimen storage and transfer device in the form of a magazine into which the specimens are deposited from the vacuum lock and which is

rotatable within a hollow compartment communicating with the said evacuated chamber for the transfer and discharge of the specimen.

3,559,454

FEEDING OF LIQUID TO GAS LIQUID CHROMATOGRAPHIC COLUMNS

William David Evans, 14 Village Close, Edwalton Village, Nottingham, Nottinghamshire, England

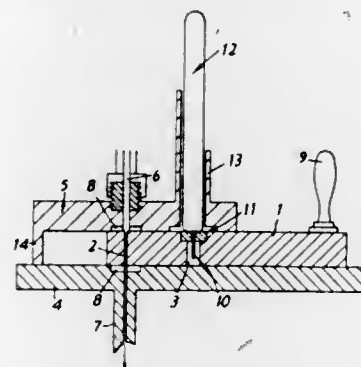
Filed Nov. 26, 1968, Ser. No. 779,187

Claims priority, application Great Britain, Dec. 7, 1967, 55,808/67

Int. Cl. G01n 1/14, 31/08

U.S. Cl. 73—23.1

2 Claims



An injection device for transferring an accurately known quantity of a liquid to a chromatographic column for analysis which comprises a slidable member for carrying a capillary tube between a loading station, at which the tube containing the liquid is introduced into the slidable member, and an injection station at which the tube is in communication with a carrier gas stream which conveys the liquid into the column. The slidable member has two passages therethrough, one carrying the capillary tube and the other to allow carrier gas to flow through the member when the said one passage is at the loading station. A holding means is provided at the loading station to hold the capillary tube temporarily until the slidable member is moved.

3,559,455

CHROMATOGRAPHIC ANALYSIS

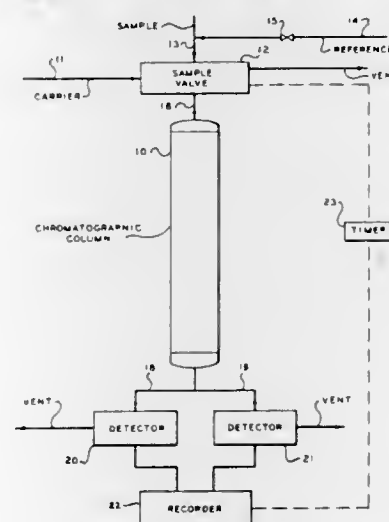
Francis W. Karasek, Waterloo, Ontario, Canada, assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Oct. 30, 1968, Ser. No. 771,785

Int. Cl. G01n 31/06

U.S. Cl. 73—23.1

5 Claims



In order to identify components in the effluent from a chromatographic column, a reference material is introduced into the column with the sample. The column effluent is split and passed to a conventional detector and to a detector which is capable of selectively measuring components of the reference material. The output signals

from the two detectors are compared so that sample components can be identified by their retention times with respect to the reference material.

3,559,456

SENSOR FOR MEASURING HUMIDITY

Franz Lomker, Hofheim, Taunus, Felix Schmieder, Frankfurt am Main, and Martin Rieber, Schonberg, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

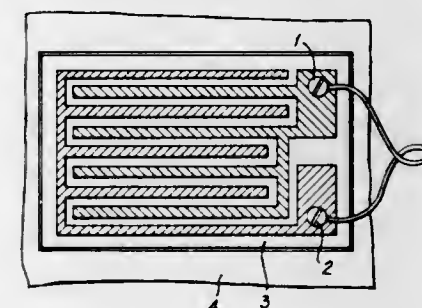
Filed May 1, 1967, Ser. No. 634,851

Claims priority, application Germany, May 3, 1966, F 49,095

Int. Cl. G01n 31/00

U.S. Cl. 73—29

8 Claims



A sensor for measuring the humidity of gases consists of a carrier which is practically non-conductive electrically and on to which a layer is grafted polymerized which consists of an organic polymer the electric conductivity of which is a function of the relative humidity. Electrodes are provided on the carrier before or after grafting by the methods known for preparing printed circuits. The layer of the organic polymer grafted on to the carrier is obtained from polymerizable monomers or prepolymers which contain hydrophilic groups in their molecules. As carrier materials which may have the shape of plates, sheets or fabrics organic polymers, especially polyolefins or linear polyesters can be used as well as inorganic substrates which are susceptible to a grafting reaction. The sensor is suitably arranged as part of a circuit for measuring high ohmic resistors.

3,559,457

HYDROGEN DETECTOR

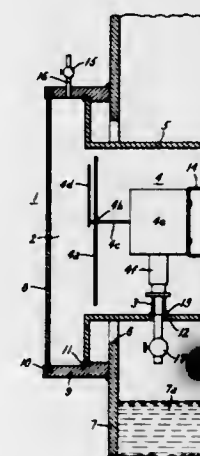
Ralph L. Collins, Rome, Ga., assignor to General Electric Company, a corporation of New York

Filed Nov. 20, 1969, Ser. No. 878,290

Int. Cl. G01n 31/06

U.S. Cl. 73—23

11 Claims



A transformer tank hydrogen detector comprises an instrument housing mounted to form a wall portion of the tank. Disposed inside the housing and communicating with an aperture therein is a tubular detecting element having a surface communicating with the interior of the tank. The tubular detecting element is formed of a palladium alloy which will expand in the presence of hydro-

gen. Indicator means are connected to the tube and display the amount of its axial expansion. Valve means are utilized to introduce a standard gas into the housing for calibration purposes. Alarm means and temperature regulating means may also be utilized.

3,559,458

SAMPLE-SUPPLY DEVICE FOR CHROMATOGRAPHIC ANALYSIS APPARATUS

Jiří Hrdina, Prague, Czechoslovakia, assignor to Československá akademie věd, Prague, Czechoslovakia, a corporation of Czechoslovakia

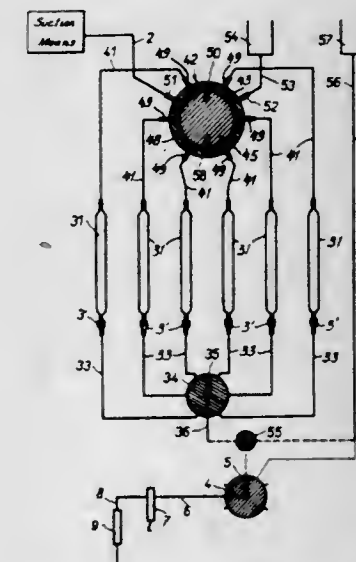
Continuation of application Ser. No. 499,544, Oct. 21, 1965. This application Aug. 29, 1968, Ser. No. 764,010

Claims priority, application Czechoslovakia, Nov. 4, 1964, 6,128/64

Int. Cl. G01n 21/08, 31/06

U.S. Cl. 73—23.1

2 Claims



A device for the supply of a fluidal medium to be analyzed into the column of a chromatographic apparatus wherein the said fluidal medium is by means of a multiway valve alternately supplied with an eluent medium to a capillary sample receptacle from which it is fed into the column alternately with an eluent by means of another multiway valve.

3,559,459

PRESSURE RESISTANCE TESTER

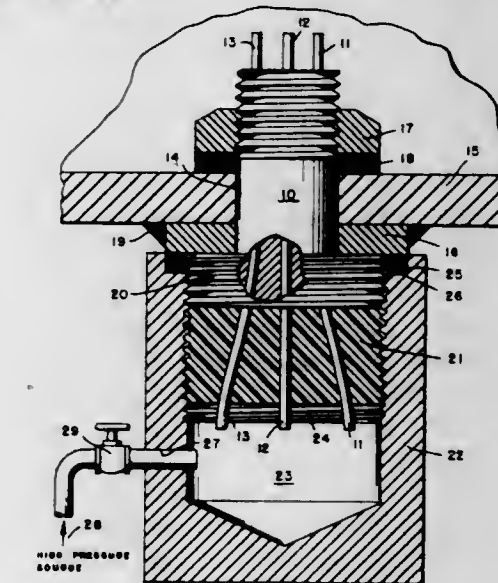
Willis R. Forman, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Dec. 16, 1968, Ser. No. 783,975

Int. Cl. G01m 3/02

U.S. Cl. 73—46

1 Claim



A pressure resistance tester for checking the pressure resistance of pass-through fittings or other closures sub-

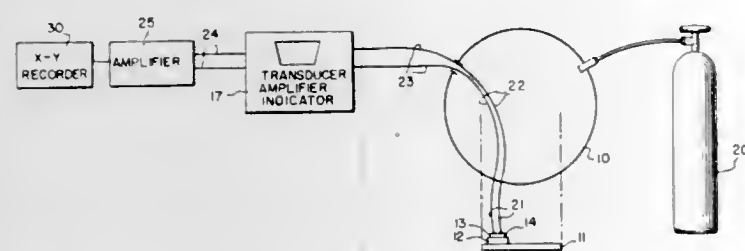
ject to extreme pressures comprising a pressure chamber having internal threads adapted to threadingly engage one end of the pass-through fitting or closure and also adapted to receive a source of pressure which approximates the working pressure to which the pass-through fitting or closure will be subjected in actual practice.

3,559,460 METHOD AND APPARATUS FOR DETECTING GROSS LEAKS

John W. Orner, Woburn, Mass., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Feb. 24, 1969, Ser. No. 801,660
Int. Cl. G01m 3/36

U.S. Cl. 73—49.3

7 Claims



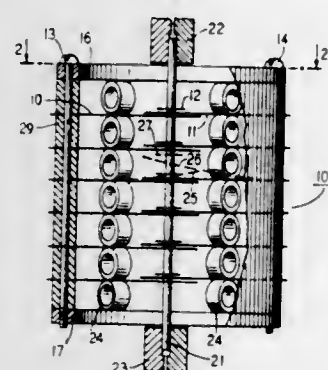
The detection of gross leaks in hermetically sealed devices is accomplished by positioning a displacement transducer on or near a metal surface of the device. The device is placed in a zone wherein the device is subjected to increased gas pressure thereby causing deflection of the surface being sensed by the displacement transducer. If there is a leak in the device, the device will become internally pressurized thereby returning the deflected surface to its original condition. The displacement transducer is employed to sense the deflection of the surface as it occurs.

3,559,461 APPARATUS AND METHOD FOR TENSION-COMPRESSION TESTING OF WIRE

Thomas D. Dudderar, Madison, Alfred Fox, Parsippany, and Gerd F. H. Weissmann, Florham Park, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Sept. 17, 1969, Ser. No. 858,798
Int. Cl. G01n 3/32

U.S. Cl. 73—92

10 Claims



A number of thin strips of metal or flexbars are used to eliminate buckling of a wire and permit compressive stress-strain testing such as encountered in cyclic fatigue testing. The flexbars are essentially beams whose axes of symmetry coincide with radii of a cylinder. The flexbars are mounted around the periphery of the cylinder and overlap at the center. The wire to be tested passes through a hole into each flexbar along the axis of the cylinder. The flexbars are spaced at some distance less than the critical length for buckling for the wire and are adjusted to apply a small lateral force to the wire in various directions in planes normal to the wire axis and along

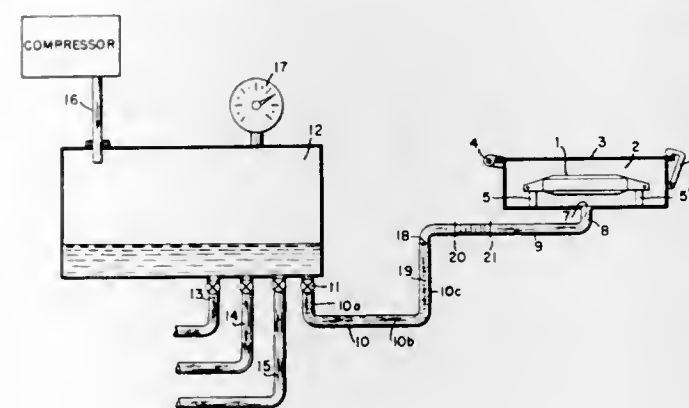
the flexbar axes. Thus, the wire is kept from buckling under axially applied compressive forces. The thin flexbars offer negligible resistance to lateral or axial expansion or contraction of the wire.

3,559,462 APPARATUS FOR CHECKING WATERPROOFNESS, ESPECIALLY THAT OF TIMEPIECE CASES

Jean-Claude Beuchat, 48 Avenue Blanc, Geneva, Switzerland
Continuation-in-part of application Ser. No. 632,990, Apr. 26, 1967. This application Apr. 23, 1969, Ser. No. 818,772
Claims priority, application Switzerland, May 13, 1966, 6,948/66
Int. Cl. G01m 3/02

U.S. Cl. 73—49.3

2 Claims



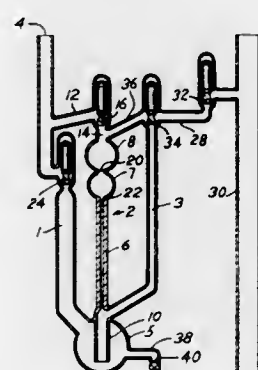
An apparatus for testing the leakage of sealed containers, particularly that of watch cases is described. The case is placed in an airtight enclosure of known volume, which is subjected to a predetermined pressure. A liquid level gauge, in communication with the enclosure indicates the extent of penetration of the pressurized atmosphere surrounding the test sample and consequently, the conditions of leakage.

3,559,463 VISCOMETERS

Theodore Tovrog, Chicago, and Arthur A. Krawetz, Evanston, Ill., assignors to Phoenix Chemical Laboratory Inc., a corporation of Illinois
Filed June 2, 1969, Ser. No. 829,272
Int. Cl. G01n 11/04

U.S. Cl. 73—55

16 Claims



Viscometers for measuring the viscosity of liquids including volatile liquids comprise a pressure inlet tube communicating with a plenum and a measuring bulb and capillary also communicating with the plenum. When determining viscosity, the pressure is equalized between the bulb and the lower end of the capillary. A conduit may be provided to continuously divert a portion of a flowing liquid stream through the bulb and capillary to continuously purge the viscometer and monitor the stream. When the viscosity is to be measured, the diverted

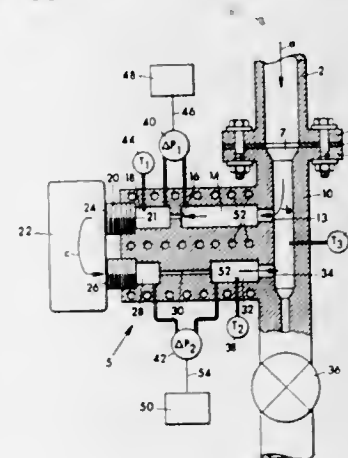
stream is interrupted and the pressure equalized both above the bulb and below the capillary and the viscosity of the purging liquid remaining in the bulb is determined. The liquid level in the plenum may be controlled within a predetermined range such that the capillary communicates with the plenum above the maximum liquid level and the liquid may be discharged from the plenum and returned to the flowing liquid stream.

3,559,464 RHEOMETER FOR CONTINUOUS MONITORING OF A PLASTIC

Charles W. Foust, Berkeley Heights, and Wladimir Philippoff, Cranford, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
Continuation of application Ser. No. 667,496, Sept. 13, 1967. This application Nov. 13, 1969, Ser. No. 871,618
Int. Cl. G01n 11/08

U.S. Cl. 73—55

6 Claims



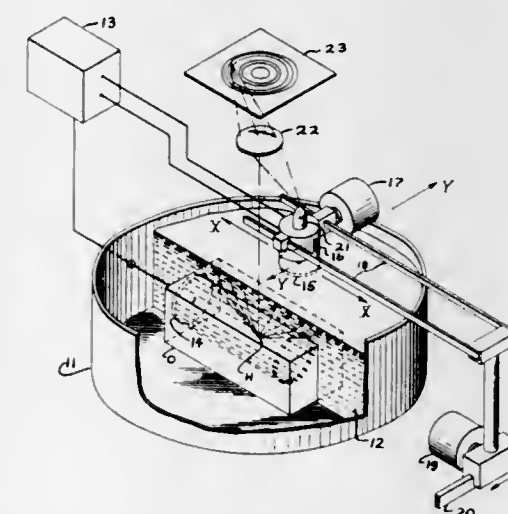
The viscosity and shear modulus of viscoelastic materials are determined by measuring the pressure drop across two capillary tubes in series connection. The second capillary tube is elongated, and both tubes are of uniform diameter throughout their lengths. The material is forced through the tubes by a gear pump at a known constant rate of shear independent of the viscosity of the viscoelastic material being tested.

3,559,465 APPARATUS FOR CONSTRUCTING A HOLOGRAM USING ACOUSTICAL RADIATION

Kendall Preston, Jr., New Haven, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn., a corporation of New York
Filed May 24, 1967, Ser. No. 640,881
Int. Cl. G01n 29/04

U.S. Cl. 73—67.5

9 Claims



A method and apparatus for constructing a hologram using sound waves as the form of radiation energy. A single frequency electrical signal is converted into a

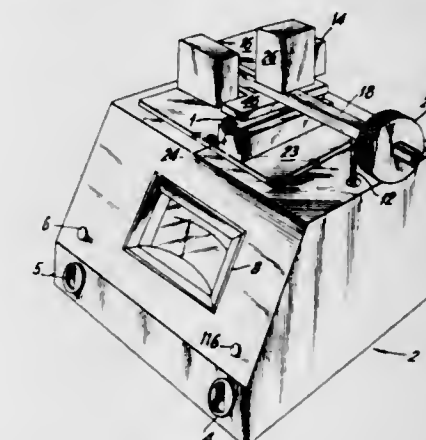
coherent beam of sound waves. The sound waves are directed towards and ensonify (illuminate) the object being holographed. Sound waves scattered by the object are detected in a reference plane and converted at each location in said plane into an electrical signal. The electrical signal for each location is added to the original electrical signal to produce an electrical output signal proportional to amplitude times the difference in phase angle of the two signals for that particular location. This output signal is in turn used to modulate a lamp whose output is imaged onto a transparency at a location in geometrical registration with the location of the detected signal.

3,559,466 DIRECT READOUT DEFLECTION METER

Donald A. Calleson, Durham, N.C., assignor to Liggett & Myers Incorporated, New York, N.Y., a corporation of Delaware
Filed June 7, 1968, Ser. No. 735,435
Int. Cl. G01n 3/42

U.S. Cl. 73—81

13 Claims



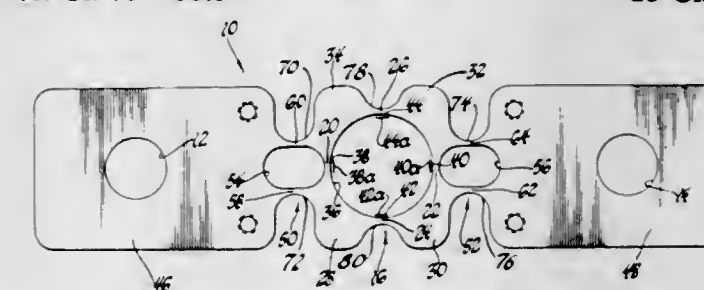
This invention relates to a device for measuring the firmness of a cigarette, cigarette filter rod, or similar test specimen. Basically, the device is a mechanism comprised of an assembly of levers which mount a weight of predetermined mass and an apparatus to accurately measure the firmness of the test specimen. In operation, the weight reacts, through the assembly of levers, to compress the test specimen while the measuring apparatus senses and measures the attendant depression of the test specimen.

3,559,467 STRAIN MEASURING DEVICE

Ismail Macit Gurol and Ralph S. Shoberg, Farmington, Mich., assignors to GSE, Inc., Farmington, Mich., a corporation of Michigan
Filed Oct. 8, 1968, Ser. No. 765,877
Int. Cl. G01l 1/00, 7/16

U.S. Cl. 73—88.5

13 Claims



A strain measuring device including a body having a pair of end sections with a strain amplifying section therebetween. The strain amplifying section has a plurality of flexure points subject to bending in response to linear displacement between the end sections. Surface portions adjacent the flexure points are therefore subjected to bending strain of greater magnitude than the average linear strain.

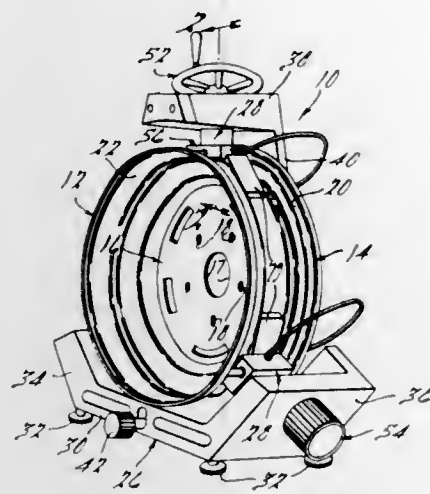
3,559,468

METHOD AND APPARATUS FOR RIM FATIGUE AND TESTING DEVICE

Daniel F. Jansen, Ypsilanti, and Manfred E. Meyer, Ann Arbor, Mich., assignors to Kelsey-Hayes Company, Romulus, Mich., a corporation of Delaware
Filed July 12, 1968, Ser. No. 744,474
Int. Cl. G01n 3/00

U.S. Cl. 73—91

13 Claims



An apparatus for testing wheel rims of the type comprising one or more radially outwardly projecting rim flange portions; the apparatus including a support structure for operatively supporting the wheel rim in a pre-selected test position; a force applying piston member disposed adjacent each rim flange portion; means for supporting the piston for reciprocable movement toward and away from the adjacent rim flange portion; and means for effecting selective actuation of the piston, whereby axially directed forces of predetermined magnitude are selectively applied against the rim flange portion to determine the fatigue characteristics of the wheel rim.

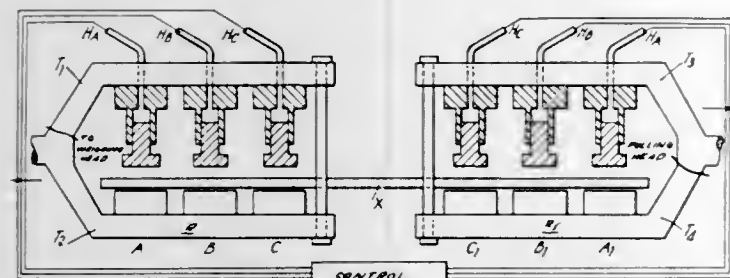
3,559,469

METHOD AND MEANS FOR TENSILE TESTING MATERIALS

Arthur L. Stonebridge, Shipley, and Malcolm Ellison, Batley, England, assignors to BBA Group Limited, Yorkshire, England, a British company
Filed Nov. 1, 1968, Ser. No. 772,625
Claims priority, application Great Britain, Nov. 3, 1967, 50,090/67
Int. Cl. G01n 3/08

U.S. Cl. 73—95

10 Claims



This specification discloses a method of and apparatus for gripping and tensioning a length of material, more particularly tensioning it for the purpose of testing its tensile strength. The material is gripped by inserting each of two of its opposing end portions into at least one array of clamps, each array comprising at least two clamps aligned one behind the other in the direction of the opposing pulling forces, by tightening at least the two outermost clamps onto the material which is then tensioned in successive steps in such a fashion that although the material between each outermost clamp and its adjacent clamp towards the centre portion of the material is pre-tensioned it

is in fact only the portion of material located between the two innermost clamps of the opposing arrays which is subjected to the desired ultimate tension.

3,559,470

YARN DEGRADATION TESTERS

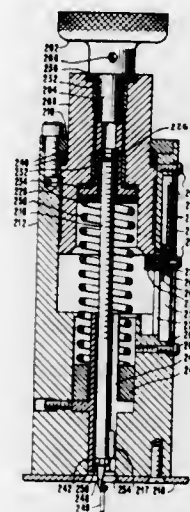
John R. McDowell, Knoxville, Tenn., assignor to Huyck Corporation, Rensselaer, N.Y., a corporation of New York

Filed Sept. 6, 1968, Ser. No. 757,894

Int. Cl. G01n 3/14, 3/20

U.S. Cl. 73—95.5

7 Claims



An apparatus and a method for measuring the tensile strength of the constituent yarns of a fabric material whereby the yarn which is being tested is moved substantially at right angles to the axis thereof by yarn engaging means against a restraining force exerted by a material engaging means which continuously engages one surface of the material being tested, while the force applied to the yarn is being measured.

3,559,471

APPARATUS FOR AND METHOD OF TESTING A SEVERABLE SECTION IN A WALL

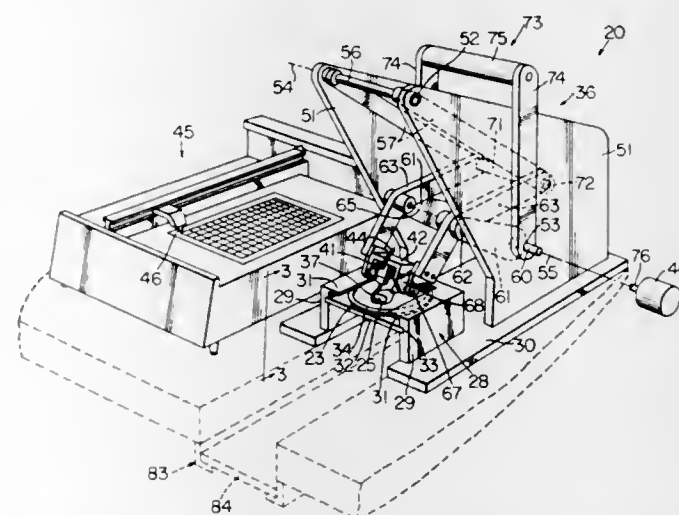
Dennis A. Schaffer, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Filed June 6, 1969, Ser. No. 831,148

Int. Cl. G01n 3/00

U.S. Cl. 73—96

22 Claims



An apparatus for and method of measuring the force required to remove a severable section from its associated wall wherein the force exerted against the section to provide a severing thereof is exerted in an arcuate path substantially identical to the path normally followed in severing the section during ordinary usage.

3,559,472

DEVICE FOR TESTING SHEAR PINS

Byrd T. Thompson, Jr., Decatur, Ala., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed Dec. 30, 1968, Ser. No. 787,918

Int. Cl. G01n 3/24

U.S. Cl. 73—101

2 Claims



A device for testing shear pins comprising a rod having a transverse opening near one end thereof, and a receiving member having a radial slot, a transverse opening, and a longitudinal opening in one end thereof; said longitudinal opening being adapted to receive the rod.

3,559,473

APPARATUS AND METHOD FOR TENSION-COMPRESSION TESTING OF THIN SHEETS OF MATERIAL

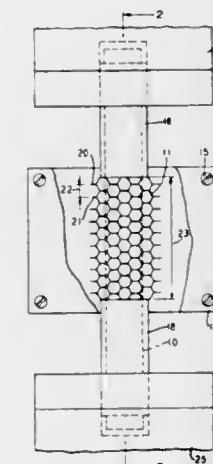
Thomas D. Dudderar, Madison, Phillip J. Lauriello, North Plainfield, and Gerd F. H. Weissmann, Florham Park, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Sept. 29, 1969, Ser. No. 861,754

Int. Cl. G01n 3/04

U.S. Cl. 73—103

8 Claims



The buckling of a thin sheet of material subjected to compressive stresses, such as encountered in cyclic fatigue testing, is eliminated by mounting the sheet between two layers of honeycomb material having anisotropic stiffness properties. The honeycomb material effectively reduces the critical buckling length of the sheet without introducing significant restraints on lateral expansion of the thin sheet or on the strain rates which may be used.

3,559,474

FORCE TRANSDUCER LOAD CELL

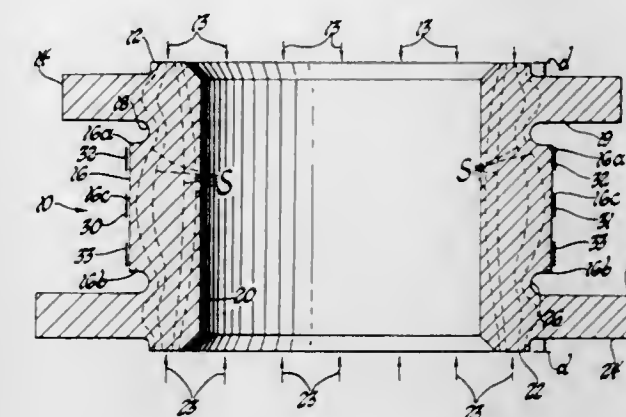
Ismail Macit Gurol and Ralph S. Shoberg, Farmington, Mich., assignors to GSE, Inc., Farmington, Mich., a corporation of Michigan

Filed Oct. 8, 1968, Ser. No. 765,946

Int. Cl. G01l 1/22

U.S. Cl. 73—141

14 Claims



A force transducer load cell comprising a body having a pair of bearing surfaces at its opposite ends for engagement by load applying members to place the body in compression. A pair of outwardly projecting fins are provided on the body, one adjacent each bearing surface, having sufficient strength for restraining the bearing surfaces against transverse strain to substantially eliminate relative sliding movement, and friction resulting therefrom, between the bearing surfaces and the surfaces of the load applying members in contact therewith.

3,559,475

APPARATUS AND METHOD FOR MEASURING THE TACK OF MATERIALS

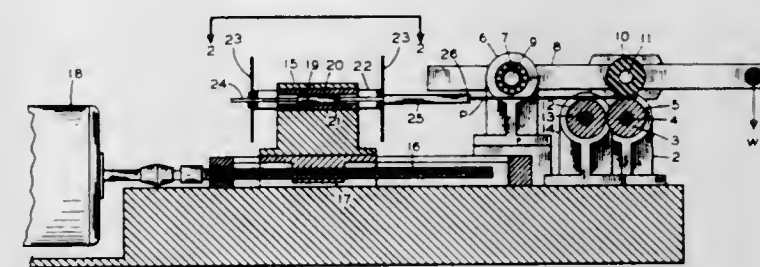
Willis D. Dillon, Ballwin, and Evan W. Pittenger, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed Oct. 17, 1969, Ser. No. 867,207

Int. Cl. G01n 19/04

U.S. Cl. 73—150

6 Claims



A tackiness tester which comprises a support roller and a sensing roller disposed above the support roller. A plate having the material for which it is desired to measure the adhesive properties is passed between the support roller and the sensing roller. The adhesive forces existing between the sensing roller and the plate cause a frictional drag to movement of the plate. The plate is urged between the rollers by means of a movable housing which carries a linear variable differential transformer. The transformer, core, and plate are connected through a pair of spring plates on the housing so that movement of the plate between the rollers creates a reaction to the frictional drag and causes a shifting of the transformer core with respect to the housing and transformer coil to generate an output current proportional to the adhesive properties.

3,559,476

METHOD FOR TESTING A WELL

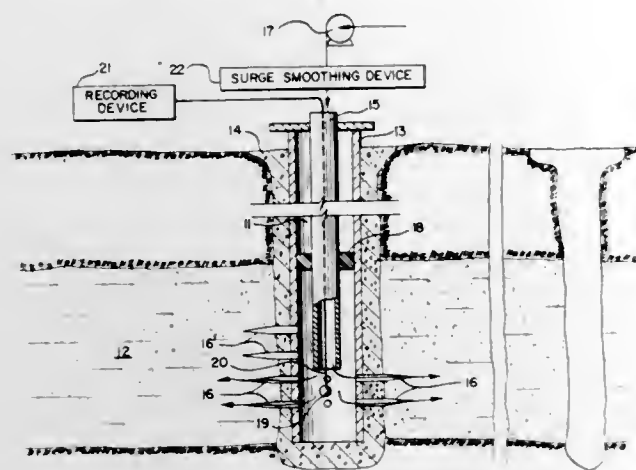
Chiang-hai Kuo and Peter Vanmeurs, Houston, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Apr. 28, 1969, Ser. No. 819,879

Int. Cl. E21b 49/00

U.S. Cl. 73—155

7 Claims



A method for measuring a reservoir property of a porous earth formation adjacent to a well by establishing a pulsating flow of fluid through the well into and out of the earth formation at rates that vary with time in accordance with a predetermined periodic function. The variations with time of the pressure in the well is measured and the phase shift and amplitude of the pressure variations with time relative to the variations with time of the rates of the pulsating flow of fluid is determined.

3,559,477

METHOD OF AND APPARATUS FOR SPRING CALIBRATION

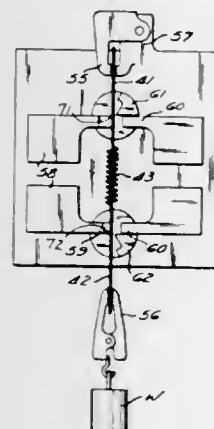
Andrew F. Deming, 12660 Beech St. NE., Alliance, Ohio 44601

Filed Feb. 28, 1969, Ser. No. 803,159

Int. Cl. G01f 1/04

U.S. Cl. 73—161

10 Claims



A spring calibration method and apparatus is disclosed to precisely calibrate a spring prior to its assembly into the end-use device. A calibrated weight is hung to act by gravity on a coil tension spring thus stretching it and stressing it to a condition of static equilibrium to support the weight. Two reference points are marked on the end portions of the spring and vices may be used for this purpose to mark the locations of these first and second reference points and also these vices may be used to bend permanent hooks on the end portions so that the spring may be mounted in the end-use device by these hooks. The vices are a precise gauge distance apart so that when the spring is subsequently stressed to have these hooks again spaced apart this predetermined distance, then it will be known that the spring is developing this predetermined force.

3,559,478

INERTIAL SENSING SYSTEM FOR USE IN NAVIGATION AND GUIDANCE

Arthur S. Iberall, Norberta, Pa., assignor to General Technical Services Inc., a corporation of Ohio

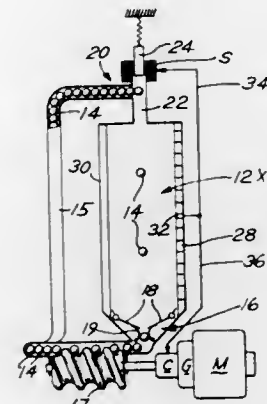
Continuation-in-part of application Ser. No. 451,753,

Apr. 29, 1965. This application Apr. 5, 1967, Ser. No. 628,652

U.S. Cl. 73—178

Int. Cl. C01c 21/16

5 Claims



An inertial guidance system in which a sequence of free bodies (such as balls) are launched through a sensing chamber affixed to a vehicle. Photoelectric detectors are employed for monitoring the motion of each body. Changes in the position, velocity, or acceleration of the sensing chamber are manifested as apparent departures from the "expected" motion of each body. These departures are translated into electrical signals representative of the motion of the vehicle.

3,559,479

FLUID FLOW GAUGING APPARATUS

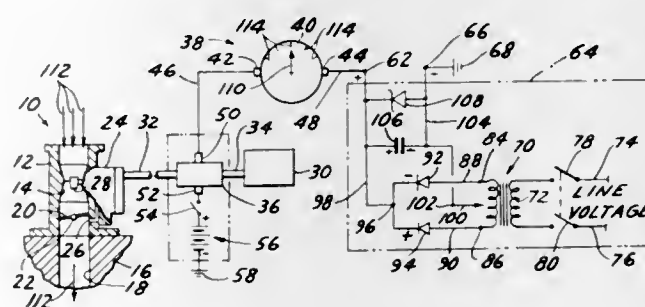
Ralph L. Slitti, Detroit, Mich., assignor to Holley Carburetor Company, Warren, Mich., a corporation of Michigan

Filed Dec. 18, 1967, Ser. No. 691,316

Int. Cl. G01f 7/00

U.S. Cl. 73—196

4 Claims



An ammeter, of sufficient rating and sensitivity, has one of its terminals electrically connected to a first source of variable voltage comprising a fluid transducer which produces a first voltage of a magnitude corresponding to the rate of fluid flow therethrough and a second source of reference voltage which produces a second voltage of a predetermined magnitude indicative of a desired rate of fluid flow is electrically connected to an other terminal of said ammeter. The ammeter being effective, upon being exposed to said first and second voltages of equivalent value, to indicate a matching of the fluid flow rate through the transducer to the desired rate of fluid flow.

3,559,480

MULTIRANGE FLOWMETER WITH AUTOMATIC METER SEQUENCING

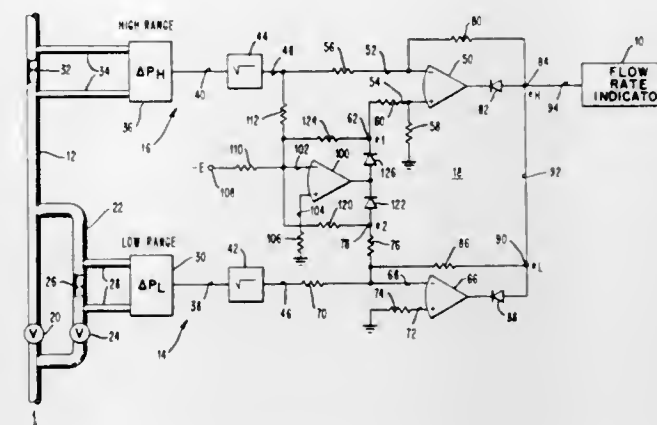
Justus C. Barber, King of Prussia, and Theron W. Jenkins, Jr., Ambler, Pa., assignors to Leeds & Northrup Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Dec. 20, 1968, Ser. No. 785,553

Int. Cl. G01f 7/00

U.S. Cl. 73—197

7 Claims



A measurement of fluid flow rate over a wide range is made by using a low range meter and a high range meter and obtaining the output from the low range meter below a transfer point and from the high range meter above the transfer point. The transfer is made in a bumpless manner by biasing the meter outputs in the overlapping portion of their ranges when the meters produce an output beyond a transfer point. The biasing is such that the characteristics of the two meters cross so that equal outputs appear at one point. By selecting the highest absolute outputs of the meters a transfer of the output from one meter to the other occurs in order to utilize the range most accurate for each of the meters.

3,559,481

DESCENT-APPROACH METHOD AND APPARATUS FOR AIRCRAFT

Carl W. Vietor, 2116 Linda Flora Drive, Los Angeles, Calif. 90024

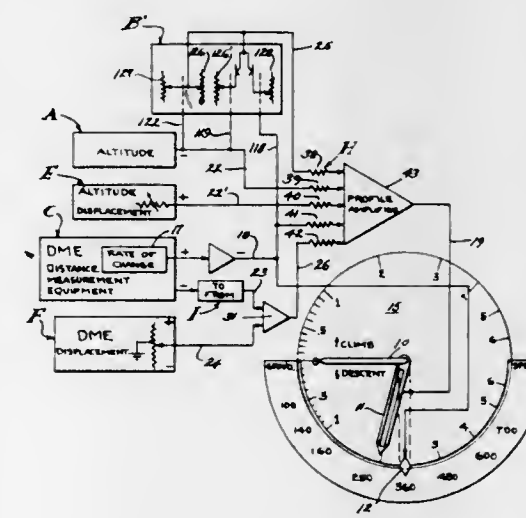
Continuation-in-part of application Ser. No. 650,901,

July 3, 1967. This application Sept. 8, 1969, Ser. No. 856,018

Int. Cl. G01c 23/00

U.S. Cl. 73—178

12 Claims



A method and apparatus that utilizes an altimeter indicator output, a speed indicator or equivalent output and a distance measurement output (to a predetermined point or touchdown) operating an instrument panel indicator or servo control of an aircraft relative to a predetermined

descent-approach slope. The method and apparatus operates, for example, from cruise position and speeds through all flight phases to and including touchdown position and speeds, and is a total energy concept employing to greatest advantage the kinetic as well as potential energy referred to hereinafter as "aircraft capability" and programming the same for discriminate use by the pilot.

3,559,482

FLUID FLOW MEASURING APPARATUS

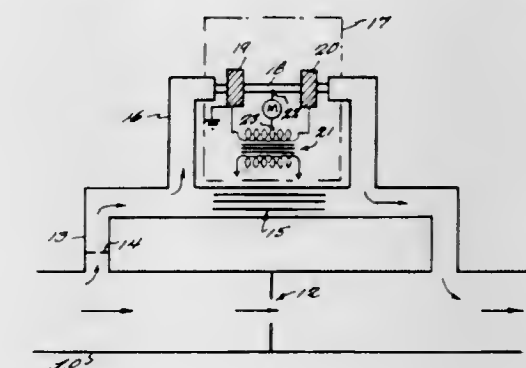
William C. Baker, James M. Benson, and Edmond Easter, Hampton, Va., assignors to Teledyne Incorporated, Los Angeles, Calif., a corporation of California

Filed Nov. 27, 1968, Ser. No. 779,579

Int. Cl. G01p 5/10

U.S. Cl. 73—204

20 Claims



Apparatus for measuring the flow of fluid through a main supply line by the use of a first shunt fluid flow path across a first restrictive element in the main line. The first shunt path includes second and third restrictive elements. A second shunt fluid flow path is connected across the third restrictive element in the first shunt path. The second shunt path includes a conduit at least a portion of which is electrically and thermally conductive, the conductive portion having one or more thermoelectric devices positioned therealong. Heating current is passed through the conductive conduit portion, and the temperature gradient caused by fluid flow through the heated conduit is sensed by the thermoelectric devices to provide an indication of mass flow in the main line substantially independently of pressure and temperature.

3,559,483

FLOW METER

Siegfried Freund, Rheinfelden, Germany, assignor to Endress & Hauser GmbH & Co., Baden, Germany

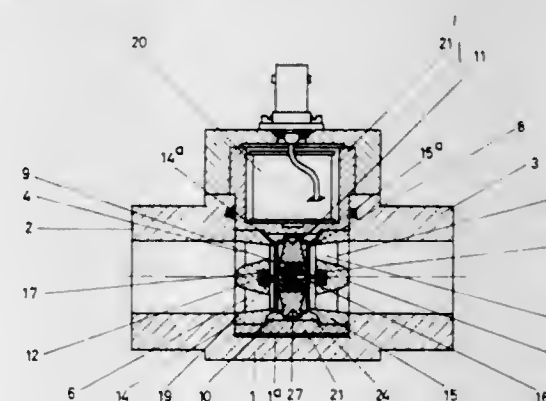
Filed June 10, 1968, Ser. No. 735,917

Claims priority, application Switzerland, June 12, 1967, 8,382/67

Int. Cl. G01f 1/00

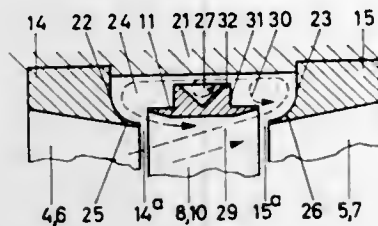
U.S. Cl. 73—231

5 Claims



A flow meter is formed of a tubular member providing a flow passageway which contains a pair of stationary guide members disposed on the opposite sides of a rotor.

Vanes are provided in the guide members for the directing the flow of fluid into and away from the rotor. Disposed about the circumferential periphery of the rotor is an annular chamber arranged to provide an opposing force on the rotor to counterbalance the force exerted on



it in the downstream direction. Further, cavities are provided in the peripheral surface of the rotor which form vortex chambers communicating with the fluid flow through the annular chamber for establishing turbulent flow therein. The turbulent flow compensates for the effects of viscosity on the rotor.

3,559,484

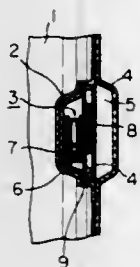
NURSING BOTTLE WITH BIMETAL THERMOMETER

Yasuyoshi Kita, 1-13-4 Hongo Bunkyo-ku, Tokyo, Japan
Filed Apr. 15, 1969, Ser. No. 816,294
Claims priority, application Japan, Apr. 22, 1968, 43/33,385

Int. Cl. G01k 1/14

U.S. Cl. 73-343

1 Claim



A nursing bottle having a bimetal thermometer which is accommodated within a recessed portion provided at a suitable position in the side wall of the bottle proper. The recessed portion is hermetically sealed off so as to prevent the ingress of outside hot or cool water into the bottle interior. The thermometer mounted in the recessed portion serves to indicate the temperature of the liquid (such as milk) contained in the bottle, making it easier to know an exact temperature of the content.

3,559,485

METHOD AND APPARATUS FOR TEMPERATURE MEASUREMENT IN A METALLURGICAL FURNACE

James E. Hovis, Jefferson Township, Allegheny County, and James D. Wilde, Upper St. Clair Township, Allegheny County, Pa., assignors to Bloom Engineering Company, Inc., Pittsburgh, Pa.

Filed Feb. 25, 1969, Ser. No. 802,168

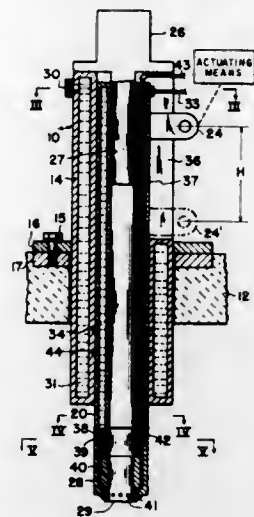
Int. Cl. G01k 13/04; G01j 5/04, 5/06

U.S. Cl. 73-355

10 Claims

A temperature measuring device and a method for taking solid metal temperatures in a metallurgical furnace comprising a telescoping shield mounted in alignment with a radiation pyrometer and which, just prior to a temperature measurement, extends into the furnace to a point adjacent to the slab. The shield can also be extended in

such a manner as to strike the solid metal surface with sufficient impact as to shatter the scale layer on the sur-



3,559,486

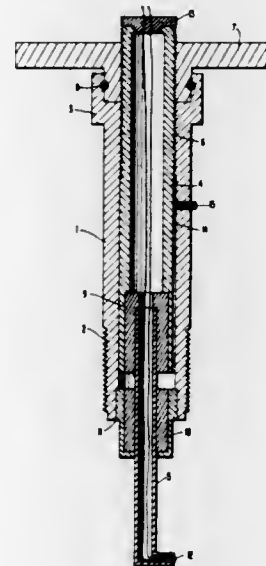
APPARATUS FOR MEASURING TEMPERATURES IN HIGHLY VISCOUS MEDIA

Helmut Gormar, Gelstinger Strasse, Hennef, Germany
Filed June 2, 1969, Ser. No. 829,391
Claims priority, application Germany, June 1, 1968, P 17 73 549.8

Int. Cl. G01k 1/14, 7/02, 13/02

U.S. Cl. 73-359

20 Claims



An apparatus for measuring temperatures in preferably highly viscous media, such as in a thermoplastic synthetic melt. The temperature measuring apparatus determines a radial temperature profile of a fluid flowing through a conduit using only one measuring point, by axial adjustment of a temperature sensor. Advantageously, a thermocouple or a semiconductor resistance thermometer can be used as the temperature measuring device.

3,559,487

INDIAN ARM WRESTLING APPARATUS

Frank Parlato, 487 Kirkman Ave.,

Elmont, N.Y. 11003

Filed Sept. 29, 1969, Ser. No. 863,750

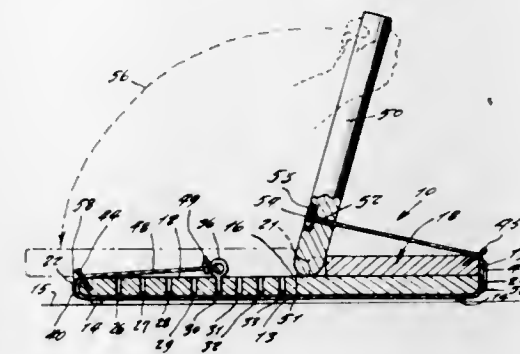
Int. Cl. G01l 5/06

U.S. Cl. 73-380

10 Claims

A strength testing and exercising apparatus for the hand and forearm of a person consisting of a base having legs to elevate the same above a supporting surface. The

base is provided with a row of openings selectively receiving a shank and opposite the innermost opening of the row there is provided an abutment plate having on its forward edge an arcuate recess. A removable upstanding hand held lever in the form of a bar has its lower end rounded to fit in the arcuate recess and engages the upper side of the base encompassed by the recess. A stretchable tension cable is connected at one end to the shank and at its other end to the hand held lever. The



cable passes through suitable guide means at each end of the base and extends along the underside of the base. The degree of force required to swing the hand held lever down towards the upper side of the base is dependent on the selected opening into which the shank is inserted and the angle the lever makes in relation to the base mounting a removable swingable upstanding hand to bring the lever down, the angle being the smallest when the shank is located in the outermost opening which is closest to the forward edge of the base.

3,559,488

DIFFERENTIAL PRESSURE MEASURING APPARATUS

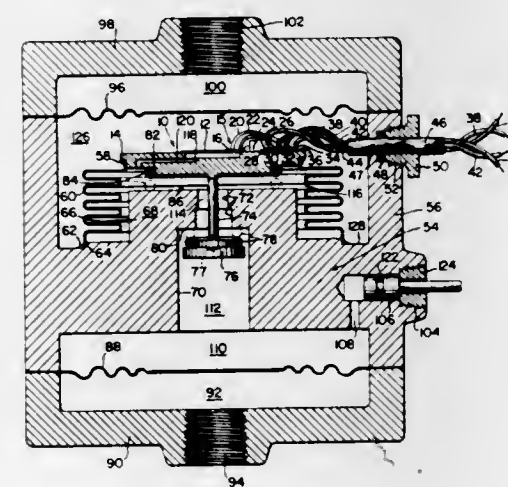
John A. Weaver, Philadelphia, Pa., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Aug. 20, 1969, Ser. No. 851,608

Int. Cl. G01l 9/02

U.S. Cl. 73-398

10 Claims



An extremely sensitive differential pressure to current transducer employing:

- (1) A unitary rigid disc and a thin pressure sensing membrane for the closed end portion of a bellows that has an open end mounted on a stationary wall;
- (2) An overload valve to protect the membrane against rupture by the separate fluid pressures acting on the internal and external surface of the bellows; and wherein

- (3) The overload valve is mounted for movement with the disc and into sealed engagement with one or the other of opposite sides wall surfaces of the stationary wall.

3,559,489

BAR STOCK ZERO ADJUSTMENT WITH STOP

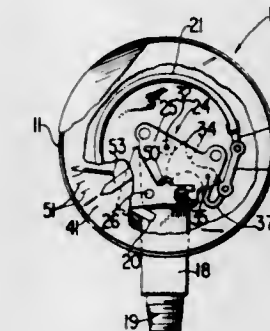
Thomas A. S. Duff, Chalfont, and Ralph D. Waite, Sellersville, Pa., assignors to Amtek, Inc., New York, N.Y., a corporation of Delaware

Filed June 2, 1969, Ser. No. 829,259

Int. Cl. G01l 7/04

U.S. Cl. 73-415

8 Claims



A Bourdon tube pressure gauge has its instrument movement mounted between a bottom and top plate with the latter being pivotally mounted on the socket of the gauge at a point spaced from the pointer axis. The top plate is provided with a slot extending radially from the pivotal connection. A pin is pivotally mounted in a bore in the socket and is provided with an eccentric which moves within the top plate slot so that actuation of the pin externally of the socket will adjust the movement while the free end of the Bourdon tube remains stationary.

3,559,490

PRESSURE GAUGE

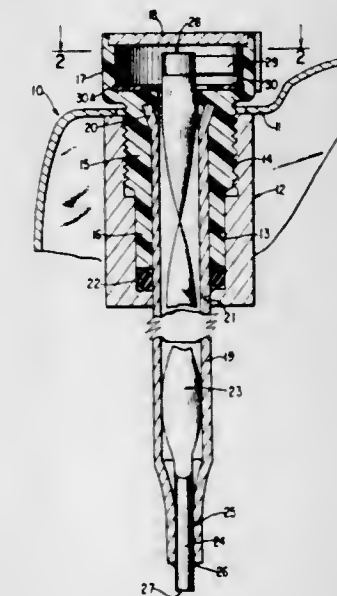
Leonard J. Bohenek, Northampton, Pa., assignor to Ametek, Inc., New York, N.Y., a corporation of Delaware

Filed Apr. 18, 1969, Ser. No. 817,339

Int. Cl. G01l 19/16

U.S. Cl. 73-418

5 Claims



A gauge for measuring pressure within a receptacle having an elongated body for mounting on a receptacle wall and extending inside of the receptacle. A calibrated

twist tube anchored at its inner end to the elongated body carries an indicator at its outer end which turns with the tube in response to pressure changes in the receptacle. Coacting stationary indicia is provided for viewing at the outer end of the body.

3,559,491

GAS SAMPLING PROBE

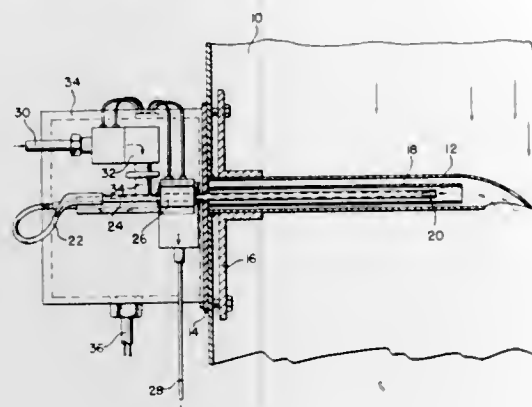
Gerhardt N. Thoen, Kelso, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash., a corporation of Washington

Filed Mar. 10, 1969, Ser. No. 805,499

Int. Cl. G01n 1/24

U.S. Cl. 73—421.5

10 Claims



A gas sampling probe is disclosed for sampling particulate and moisture laden gases. The probe comprises a tubular shielding member having an open end in the gas flow path and a tubular sampling probe mounted concentrically within the shielding member. The sample probe is made of a low heat conductive substance permeable to moisture. Particularly useful are ceramic materials. The probe (1) allows moisture to evaporate through it into the atmosphere, (2) cools the gas sample without degradation thereof, and (3) is corrosion resistant. Particulate matter which deposits in the sampling probe is removed by periodically flushing the tubular probe with compressed air or other fluid. Valve means periodically and selectively connects the flushing fluid to the probe member.

3,559,492

TWO-AXES ANGULAR RATE AND LINEAR ACCELERATION MULTISENSOR

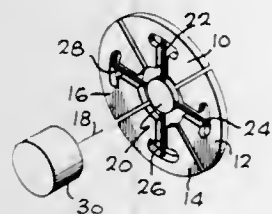
Harold F. Erdley, Pacific Palisades, Calif., assignor to Litton Systems, Inc., Beverly Hills, Calif., a corporation of Maryland

Filed Jan. 30, 1967, Ser. No. 612,401

Int. Cl. G01p 15/02

U.S. Cl. 73—505

19 Claims



A vibratory member, supported by a torsion spring means whose axis of twist is perpendicular to the axis of spin of a supporting shaft, the undamped natural angular frequency of vibration of the vibratory member upon its supporting spring means being set equal to the angular frequency of rotation of the supporting shaft. The vibratory member is adapted to be set into vibration by acceleration or rotation of the instrument.

3,559,493
DIRECTIONAL GYRO TURN ERROR COMPENSATOR

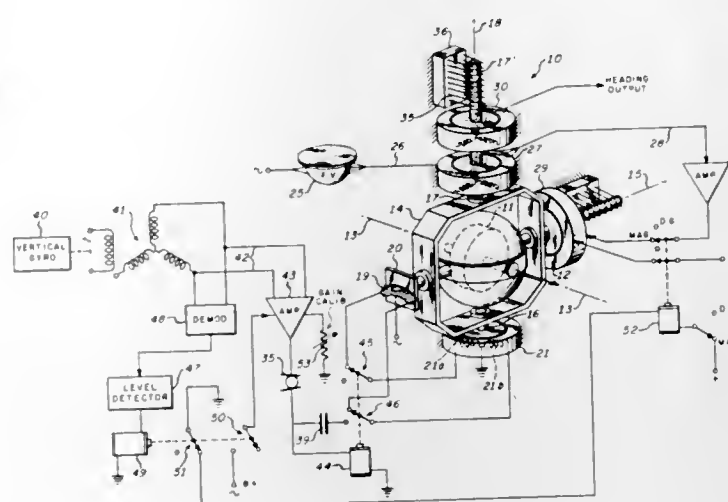
William N. Brooks, Jr., and George R. Miller, Phoenix, Ariz., and Richard K. Radtke, Newbury Park, Calif., assignors to Sperry Rand Corporation, a corporation of Delaware

Filed Oct. 24, 1968, Ser. No. 770,313

Int. Cl. G01c 19/30

U.S. Cl. 74—5.45

5 Claims



A directional gyro for aircraft in which inner gimbal precession due to frictional forces about the d.g. vertical ring support axis produced by slip rings and bearings during a turn are compensated by applying an equal and opposite torque about the vertical axis dependent upon craft bank angle exceeding a predetermined value in either direction whereby to prevent a residual azimuthal error from building up as a result of continuous banked turns in the same direction.

3,559,494

ARRANGEMENT FOR OBTAINING AN ABSOLUTE SEAL IN BEARINGS WHICH INCLUDE ANGULAR OSCILLATING MOVEMENTS

Bjarne Louis Petersen, Ronnvagen, Jarna, Sweden, assignor to Aktiebolaget Scania-Vabis, Sodertalje, Sweden, a corporation of Sweden

Filed Mar. 7, 1969, Ser. No. 805,316

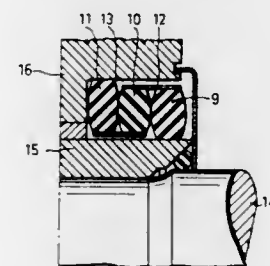
Claims priority, application Sweden, Mar. 11, 1968,

3,175/68

Int. Cl. F16j 15/50

U.S. Cl. 74—18

1 Claim



An arrangement for obtaining an absolute seal between an axle or axle unit and an inner cylindrical surface in a bore disposed in a bearing housing or the like coaxial with the axle, the axle or the like and the cylindrical surface being permitted to perform a limited relative angular oscillating movement. A resilient seal ring made of rubber or similar material which has a low modulus of elasticity is so secured under subjection to radial compression forces between said members that said ring as a result of its pretensioned state is held in

rotationally stationary abutment with respective abutment surfaces in bearing housing and on the axle unit. The seal ring, upon a predetermined limited relative angular movement of either member, will then completely take up said angular movement with a stretch.

3,559,495

GEARLESS MULTIPLE SPINDLE DRIVE

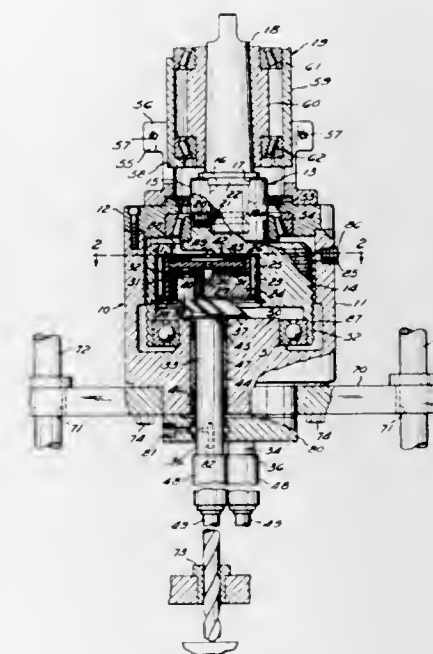
Albert R. Ludwig, Cleveland, Ohio, assignor to Zagar, Inc., a corporation of Ohio

Filed Mar. 12, 1969, Ser. No. 806,400

Int. Cl. F16h 21/12

U.S. Cl. 74—63

8 Claims



A gearless multiple spindle drive which includes a drive crank having a drive shank and a crank body is disclosed. The crank body is provided with an eccentric crank socket which is offset from the center of the drive shank to establish the throw of the drive crank. An oscillator plate is received in the socket for oscillatory rotation relative to the crank body and for non-rotative, circular, translatory motion relative to surrounding space. A plurality of driven cranks are drivingly engaged by the oscillator plate and have the same throw as the drive crank. The driven cranks have shanks which are carried by a housing. The housing is restrained against rotation. Bearings rotatably support the drive crank on the housing.

3,559,496

APPARATUS FOR TRANSFORMING ROTARY MOTION INTO LINEAR DISPLACEMENT AND INCLUDING A SLIP-TYPE COUPLING

Rudolf Betzing, Altendorf-Ulfkotte, Germany, assignor to AG Elsenbutte Prinz Rudolph, Dulmen, Westphalia, Germany, a German corporation

Filed July 26, 1968, Ser. No. 748,058

Claims priority, application Germany, July 26, 1967,

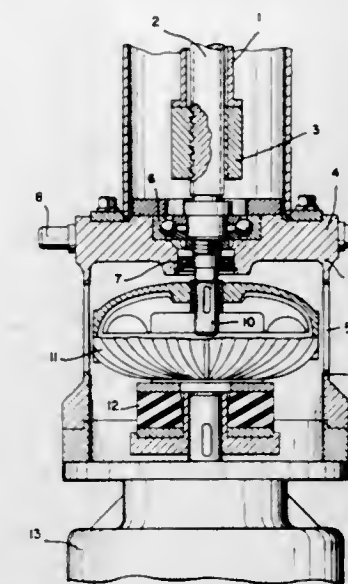
P 15 83 123.9

Int. Cl. F16h 25/20

U.S. Cl. 74—89.15

8 Claims

An apparatus for converting rotary movement from a prime mover such as a gasoline engine or an electric motor, to linear movement for displacing a load wherein a rotary screw member is mounted in a casing and is either an axially shiftable nut or a threaded spindle. The motor casing terminates in a projecting shaft. A tubular casing, with openings in the walls for the throughflow of air, is provided between the screw casing and the motor casing and is flanged to both to produce a housing separated from the screw and motor and receiving a slip-



3,559,497

PAWL AND RATCHET MECHANISM

Emiel-Maria Steenackers, Willebroek, Pieter van den Eynden, Ranst, and Remy Felix Ruelens, Edegem, Belgium, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

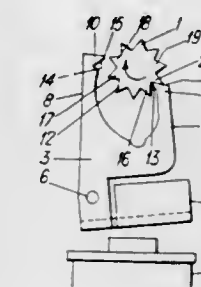
Filed Nov. 1, 1968, Ser. No. 772,708

Claims priority, application Netherlands, Nov. 3, 1967, 6714953

Int. Cl. F16h 31/00

U.S. Cl. 74—143

5 Claims



A stepping mechanism is provided using a rotatable star wheel formed of plastic and a fork-shaped pawl. The arms of the pawl are terminated in two surfaces, one of which has about half the area of a tooth on the star wheel. The relatively small area on the pawl is chosen so that it cannot cause the star wheel to rotate in the backward direction even when it becomes sticky due to the presence of grease on it.

3,559,498

FLOATING PINION MOUNTING FOR REDUCTION GEAR UNITS

John Narsted, Hampstead, Montreal, Quebec, Canada, assignor to Kennedy Van Saun Corporation, Danville, Pa., a corporation of Delaware

Filed Mar. 26, 1969, Ser. No. 810,682

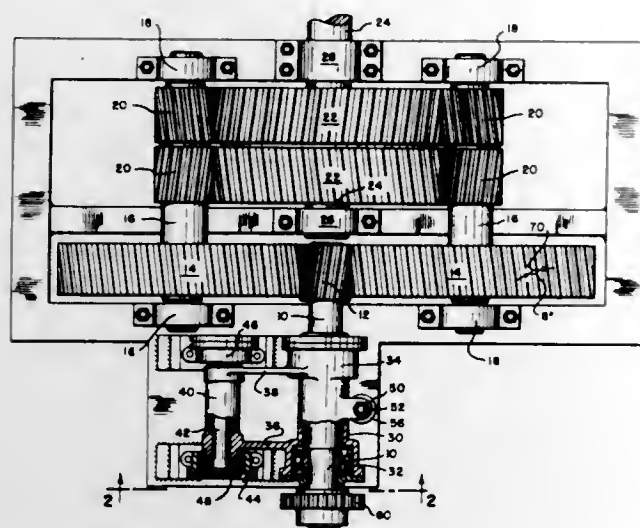
Int. Cl. F16h 57/00

U.S. Cl. 74—410

8 Claims

Mechanism for floating a high speed input shaft carrying a pinion for simultaneously driving a pair of similar gears, comprising a guiding mechanism floating the input

shaft and pinion for small up and down movements, including a radius arm structure having a pair of spaced bearings on the shaft, the radius arm being pivoted



laterally of the shaft on a pivot axis parallel to the shaft, and means for counterbalancing the weight of the shaft and pinion.

3,559,499

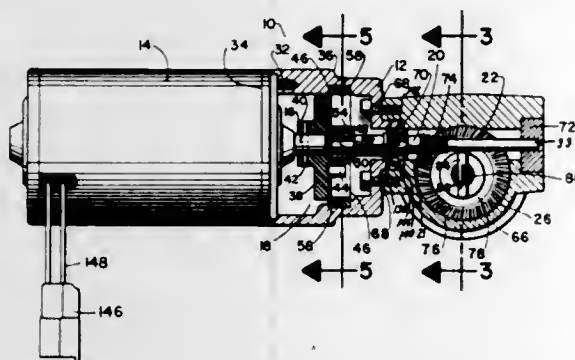
SELF-CONTAINED MECHANICAL ACTUATOR
Anthony G. Profet, Charlotte, N.C., assignor to Duff-Norton Company, Inc., Charlotte, N.C., a corporation of North Carolina

Filed Sept. 15, 1969, Ser. No. 857,911

Int. Cl. F16h 1/18, 57/00

U.S. Cl. 74-424.8

11 Claims



A self-contained mechanical actuator of the jackscrew-type that includes a drive motor secured to a housing with a drive shaft projecting from the motor into the housing for driving a high-efficiency skew-axis, screw-type gear set to which is connected a screw member having a double helix screw thread formed at a high helix angle for high-efficiency manipulation of a load-attached travelling nut member. The gear set includes a pinion shaft carrying a pinion that has worm-like screw teeth, and a gear with teeth formed on a generally radial face for multiple tooth, face-meshing engagement with the pinion teeth. The pinion shaft is coaxially aligned with the drive shaft along an axis compactly disposed proximate the rotational axis of the gear and screw member. A self-locking transmission mechanism drivingly interconnects the drive shaft and the gear set pinion shaft for substantially drag-free transmission of rotation to the gear set and connected screw member while substantially preventing any overriding, reversing or rundown rotation independent of the rotation of the drive shaft by the motor. The pinion shaft and the screw member are

supported in radial ball bearings for rotation and for transmitting axial thrust to the housing. Ends of the pinion shaft and screw member are radially journaled in the housing to form radial thrust transmitting bearing couples in cooperation with the respective radial ball bearings.

3,559,500

BALL SCREW SHAFT

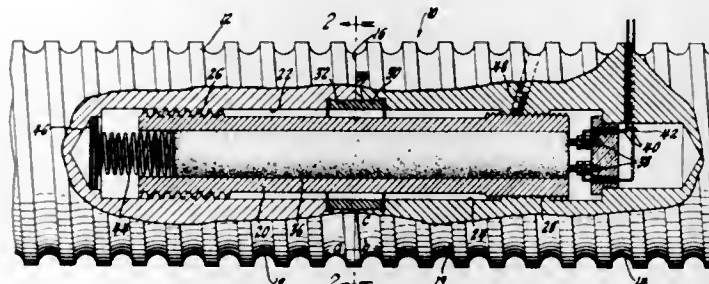
David A. Galonska and Dan R. Rowland, Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Oct. 16, 1969, Ser. No. 867,009

Int. Cl. B23p 11/02; F16h 1/18

U.S. Cl. 74-424.8

3 Claims



A long ball screw shaft unit is fabricated of a plurality of shaft sections in which each of the joints between adjacent sections is compression loaded during assembly through use of a thermal contraction process. The starts of the ball screw groove on adjacent shaft sections are ensured of alignment for groove continuity throughout the unit upon completion of the contraction process through use of internal tension members, each connected between adjacent sections by means of threads on opposite ends of the tension member formed with differing pitch.

3,559,501

SHIFTING BLOCKING MECHANISM FOR THE ENGAGEMENT OF THE REVERSE SPEED

Egon Wieland, Stuttgart-Fieberbach, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Dec. 30, 1968, Ser. No. 787,904

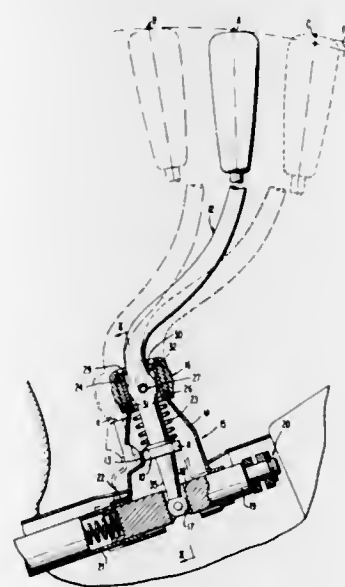
Claims priority, application Germany, Dec. 30, 1967,

P 16 30 407.7

Int. Cl. F16h 57/06; G05g 9/02

U.S. Cl. 74-476

15 Claims



A shift blocking mechanism for blocking the engagement of the reverse speed in a shifting mechanism for motor vehicle change-speed-transmissions, in which a

manual shifting lever is pivotably and axially displaceably supported in a bracket between its two ends and is additionally pivotably connected at its free end with another part of the shifting mechanism; the blocking action is obtained by the cooperation between a collar-like shoulder provided on the manual shifting lever intermediate the two pivotal connections and by a nose-like abutment formed by an indentation in the housing surrounding the manual shifting lever.

3,559,502

PENDULUM DAMPER

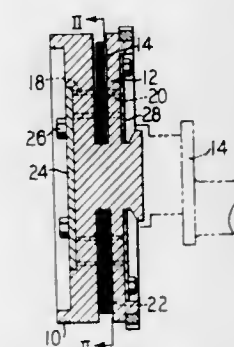
Fred R. Lofthouse, Pekin, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of California

Filed July 24, 1969, Ser. No. 844,328

Int. Cl. F16f 15/10

U.S. Cl. 74-574

4 Claims



A pendulum damper in which the pendulum elements are made of separate modules or plates laminated in numbers required to produce a desired weight and damping effect and so constructed that the roller upon which the pendulums oscillate are readily interchangeable to provide a damper of similar basic design and size which might be tuned for various order of cyclic excitation.

3,559,503

CONNECTING ROD FOR HIGH POWER PISTON ENGINES

Ludwig Elsbett, Industriestrasse 14, Hilpoltstein, near Nuremberg, Germany

Filed Jan. 27, 1969, Ser. No. 794,140

Int. Cl. F16c 7/02

U.S. Cl. 74-579

4 Claims



The connecting rod of I-beam section has two struts across the web and connecting the flanges. The flanges extend in straight lines between the struts and the ends of the rod to form a lightweight rod which is sufficiently rigid.

3,559,504

COUNTER-WEIGHTS FOR A CRANKSHAFT
Herbert Deutschmann, Stuttgart-Bad Cannstatt, Jürgen Wahnschaffe, Stuttgart-Stammheim, and Wolfgang Rudert, Grunbach, Kreis Waiblingen, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

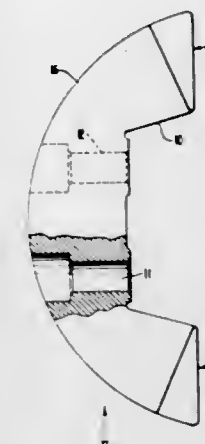
Filed June 14, 1968, Ser. No. 737,233

Claims priority, application Germany, June 15, 1967, P 15 75 426.4

Int. Cl. F16f 15/00

U.S. Cl. 74-603

6 Claims



A counter-weight for crankshafts in which the part of the counter-weight that normally is immersed in the lubricant sump is constructed as a displacement body with low flow resistance to liquid.

3,559,505

QUICK CHANGE VARIATOR

Lawrence Dilger, Cherry Hill, 31 Croham Mount, South Croydon, Surrey, England

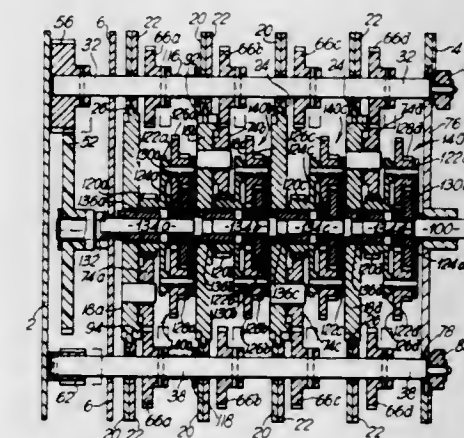
Filed June 25, 1969, Ser. No. 836,330

Claims priority, application Great Britain, June 27, 1968, 30,713/68

Int. Cl. F16h 37/06

U.S. Cl. 74-681

23 Claims



A quick change variator has a ring of spindles carrying gears surrounding and selectively connectable to each stage of a multistage summing assembly comprising a first stage of step down gearing and subsequent summing differential stages each having the same step down ratio, the selective connections from the spindles being made by transfer gears eccentrically carried by selector plates associated with each stage and mutually connected by mechanical counter type stepping mechanisms again having the same step down ratio therebetween. The spindles are equiangularly spaced with respect to each other and to

means operative to lock the transfer gears against rotation, and are one less in number than the step down ratio used between the summing assembly stages, this latter being 4, 5 or 6 and the number of stages being 3, 4, 5 or 6. The drive to the spindles is such that they will drive the transfer gears according to the angular position of the latter, at speeds in successive integral ratios increasing from unity. Means may be provided to prevent jamming between the gears on the spindles and the transfer gears during movement of the selector plates.

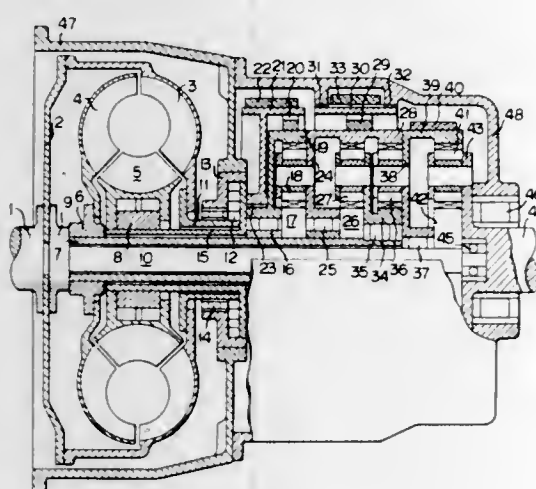
3,559,506

AUTOMATIC TRANSMISSION

Takuzo Tsuruya, 413 Amema, Akita-machi,
Nishi-tama-gun, Tokyo, Japan
Filed Aug. 20, 1968, Ser. No. 754,024
Int. Cl. F16h 47/08, 57/10

U.S. Cl. 74—688

2 Claims



An automatic transmission is provided with a reduction gear mechanism or mechanisms mounted on a turbine shaft of a torque converter so that a large torque can be applied to an internal gear of a planetary gear mechanism therethrough even if the input applied to the torque converter is small in magnitude. The input applied to the sun gear of the planetary gear mechanism is large in magnitude, because the sum of said inputs is constant.

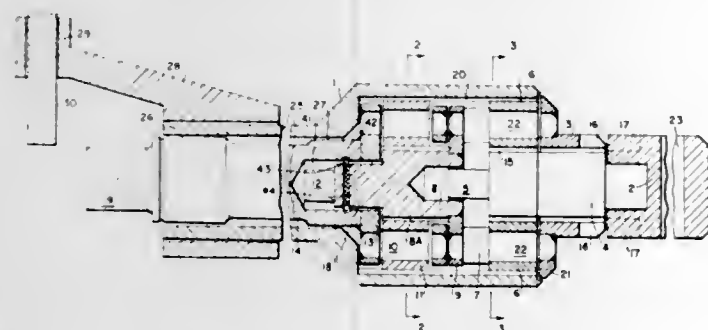
3,559,507

GEAR WRENCH

Paul H. Wagner, 5201 Winderscheiderbol,
Cologne, Germany
Filed Nov. 1, 1968, Ser. No. 772,634
Int. Cl. B25b 13/00; F16h 1/28, 3/52

U.S. Cl. 74—801

9 Claims



A force multiplication wrench is provided in the form of a casing having a longitudinal input shaft at one end and a longitudinal output shaft at the other end. A transmission, such as a planetary gear unit, is disposed in the

housing connecting the two shafts. Tandem planetary gear units may also be used for greater force multiplication. In the case of planetary gears, the inner wall of the housing is adapted as the ring gear.

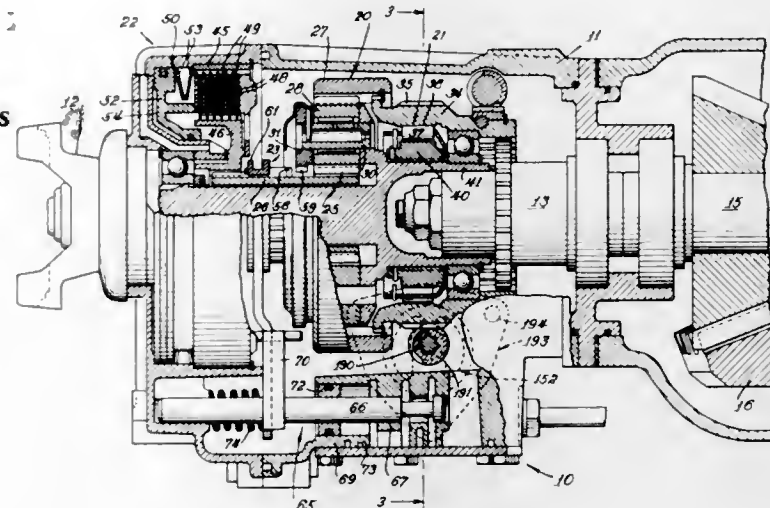
3,559,508

OVERDRIVE TRANSMISSION

Donald W. Kelbel, Muncie, Ind., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Delaware
Filed Jan. 6, 1969, Ser. No. 789,339
Int. Cl. B60k 21/10; F16h 3/44, 5/42

U.S. Cl. 74—864

13 Claims



A self-contained vehicle overdrive transmission for mounting adjacent the differential mechanism including a hydraulic control system providing selective or full automatic change from lockup condition to overdrive and vice versa under full power conditions.

3,559,509

MOVEMENT BRAKING MEANS FOR A DEVICE OPERATING ON WORKPIECES

Hellmut Müller, 731 Esslinger Strasse 91,
Plochingen (Neckar), Germany

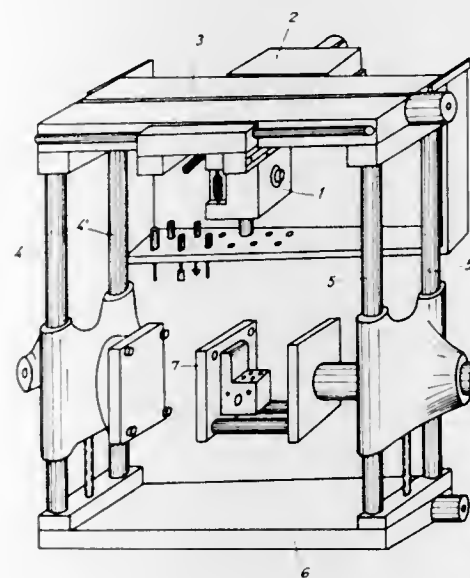
Filed Mar. 18, 1968, Ser. No. 713,909

Claims priority, application Germany, Sept. 15, 1967, M 75,551

Int. Cl. B23b 39/00

U.S. Cl. 77—1

9 Claims



A tool is mounted on a frame for movement with respect to a workpiece cleared by the frame along axes perpendicular to each other. The frame carries thin plates which extend between a cylinder part of the tool carrier

and a clamping member connected to a piston slidable in the cylinder part. Spring means act in one direction on the piston while a pressure fluid acts in the other direction. The clamp part is formed of spring band steel.

Means are provided to cause movement of the piston to clamp the band steel part when the tool reaches its desired working position.

3,559,510

NUMERICALLY CONTROLLED MACHINE TOOL WITH MANUAL MEANS FOR FINE ADJUSTMENT

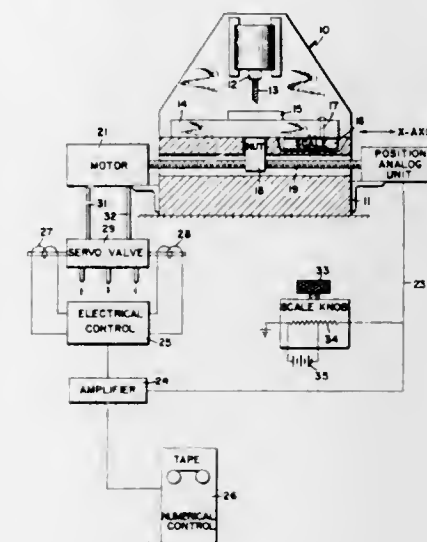
Alfred T. Blackburn, West Boylston, Mass., assignor to The Heald Machine Company, Worcester, Mass., a corporation of Massachusetts

Filed Sept. 20, 1968, Ser. No. 761,078

Int. Cl. B23b 39/06

U.S. Cl. 77—5

3 Claims



The invention relates to a machine tool having numerically-controlled positioning of the workpiece relative to the spindle and a manual means for use on occasion to obtain a more precise positioning than can be obtained by the numerically-controlled positioning system.

3,559,511

DRILL COOLANT METHOD AND APPARATUS

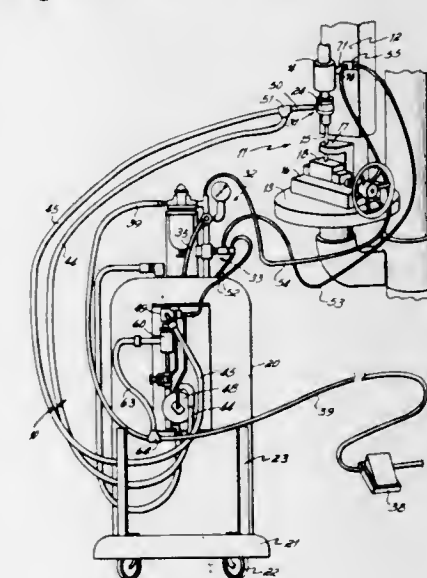
John P. Schaefer, Edwardsburg, and Robert J. Green, Niles, Mich., assignors to The Wheelabrator Corporation, Mishawaka, Ind., a corporation of Delaware

Filed June 3, 1969, Ser. No. 829,975

Int. Cl. B23b 35/00, 51/06

U.S. Cl. 77—5

18 Claims



A method and apparatus for supplying coolant to an oil hole or oil tube drill or cutting tool. The method

3,559,512

SERIES VIBRATION DAMPER

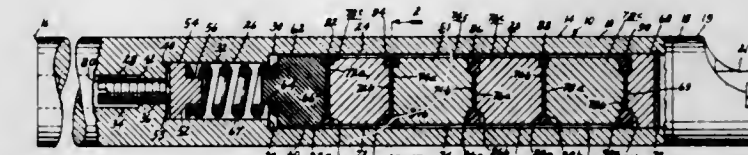
Trilok C. Aggarwal, Cincinnati, Ohio, assignor to The Cincinnati Milling Machine Co., Cincinnati, Ohio, a corporation of Ohio

Filed June 27, 1969, Ser. No. 837,191

Int. Cl. B23b 29/03

U.S. Cl. 77—58

11 Claims



A series vibration damper unit for a variable natural frequency machine tool member wherein a series or several tandem sets of individual dampers, each comprising a damping mass effectively supported by two viscoelastic absorber elements, are arranged so that there is effective damping of said member over the usable frequency range of said variable natural frequency member.

3,559,513

HOLE SAW

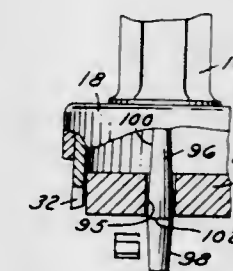
Everett D. Hougen, G-5072 Corunna Road,
Flushing, Mich. 48504

Filed May 6, 1968, Ser. No. 726,855

Int. Cl. B23b 51/04; B23d 61/00

U.S. Cl. 77—69

15 Claims



A hole saw in the form of an arbor having a cup member secured to one end thereof and a circular saw blade press fitted into the cup so that the blade flares outwardly in the direction of its cutting edge. The hole saw also includes a center pilot or drill member which may be a conventional drill, a piercing tool or a tapered pilot member. The teeth on the blade are ground so that the cutting edges are high around the outer periphery and low around the inner periphery of the blade. Selected teeth around less than half of the circumference of the blade are set radially inwardly a slight extent.

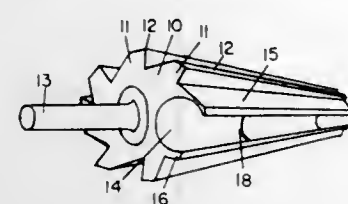
3,559,514

**REAMERS FOR ELECTRICAL LINE CONDUITS,
AND THE LIKE**Russell Brownfield, 6126 S. Langley Ave.,
Chicago, Ill. 60637

Filed June 17, 1968, Ser. No. 737,634

Int. Cl. B23d 7/12

U.S. Cl. 77—73



A reamer for reaming the ends of pipes, conduits, and the like which carry electrical conductors, to remove burrs, slivers, and the like from the pipe ends, without need of removing the conductors from the pipe or injury to such conductors during reaming; the reamer being provided with a central passage extending from the groove to the rear end of the reamer, so that the electrical lines may be laid down into such groove and passage preparatory to the reaming operation, being accommodated within the groove and passage during the reaming operation, and so that the electrical lines may be removed from the groove and passage after conclusion of the reaming operation.

3,559,515

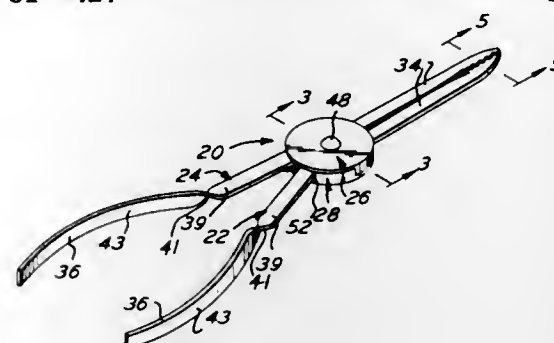
SELF GRIPPING NEEDLE-NOSE PLIERSmith Kyser, Ionia County, Mich., assignor to Aircraft
Specialties, Inc., Lapeer, Mich., a corporation of
Delaware

Filed Dec. 20, 1967, Ser. No. 692,092

Int. Cl. B25b 7/06

2 Claims U.S. Cl. 81—427

1 Claim



A pair of pliers which is formed with a pair of complementary members. Each of the members has a jaw portion, a handle portion and an intermediate arcuate portion which is integral therewith. An arcuate spring is provided between the arcuate portions of the members and is embraced thereby. The spring and complementary members are confined so that movement of the spring and the complementary members is in the same plane with respect to each other. The spring urges the jaws together so that the jaws are spaced only by urging the handles together.

3,559,516

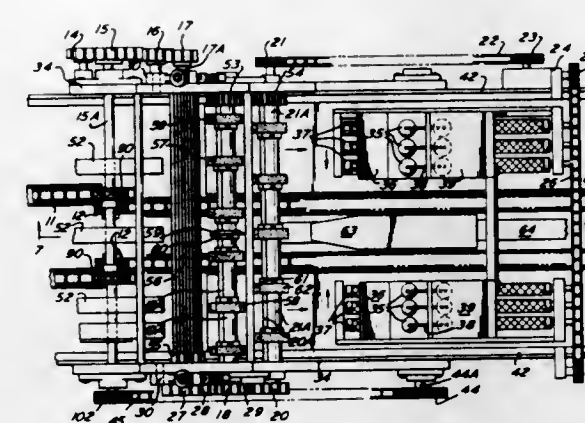
TRIMMER AND STACKEREdward J. Freeman, Springfield, Pa., assignor to Gaeco, Inc.,
North Wales, Pa., a corporation of Pennsylvania

Filed Nov. 5, 1968, Ser. No. 773,563

Int. Cl. B26d 7/06

U.S. Cl. 83—91

13 Claims



There is provided a book trimmer for continuously trimming and separating individual signatures in multiple signature printing, stacking the separated signatures, and trimming the stacked signatures to provide finished edges therefore.

3,559,517

**FINISHING MACHINE FOR USE IN THE PRODUCTION
OF BATTERY PLATE GRIDS**Dexter William Smith, and Alan Williams, Shirley, England,
assignors to Joseph Lucas (Industries) Limited, Bir-
mingham, England

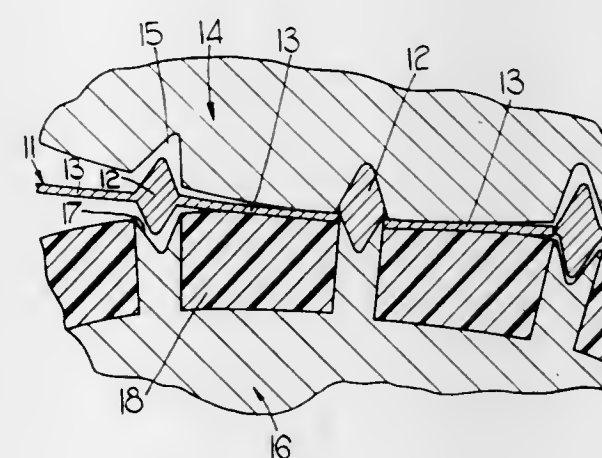
Filed Jan. 22, 1969, Ser. No. 792,914

Claims priority, application Great Britain, Jan. 22, 1968,
3,217/68

Int. Cl. B26d 7/06

U.S. Cl. 83—117

1 Claim



A finishing machine for use in the production of battery plate grids comprises a pair of rollers between which the grid is passed. One of the rollers contains an impression of the grid which conforms substantially with the face of the grid being presented to that roller, and the other roller contains projections which correspond with the interstices of the grid. The parts of said one roller which correspond to the interstices of the grid are constituted by resilient inserts so that in use as the grid is passed between the rollers the frame and the members of the mesh network of the grid will be received in the impressions of the grid in said one roller and the spaces between the projections of said other roller. The projections of said other roller will enter the interstices of the grid and in so doing will sever fillets of material closing the interstices from the frame and mesh network of the grid.

3,559,518

CUTTING DIE APPARATUS

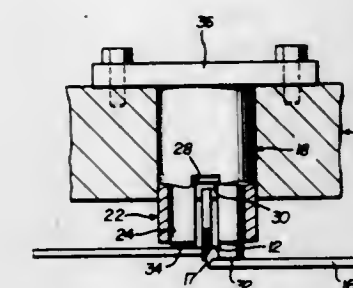
Frank S. Domka, 26841 Kean, Inkster, Mich. 48141

Filed May 7, 1969, Ser. No. 822,356

Int. Cl. B26f 1/14; B26d 7/18

U.S. Cl. 83—124

3 Claims



Cutting die apparatus incorporating a series of individual stripper-ejector devices spaced along a steel rule-cutting die. These devices are operative both to strip the cut material from the die and eject the cutout portion.

3,559,519

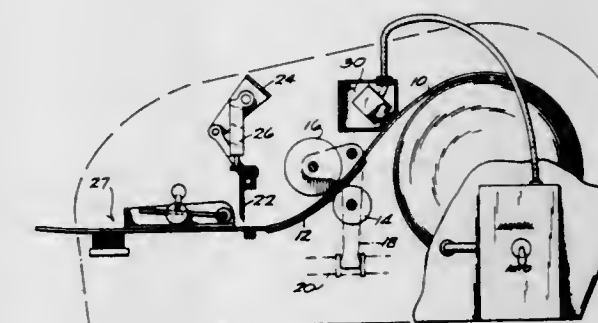
**AUTOMATIC DISPENSERS OF PRINTED GUMMED
TAPE**Walter A. Westphal, Mequon, and George N. Baum, Milwau-
kee, Wis., assignors to Rexford Paper Company, Indi-
anapolis, Ind., a corporation of Indiana, by mesne assign-
ments

Filed Sept. 6, 1968, Ser. No. 757,934

Int. Cl. B26d 5/22, 5/32

U.S. Cl. 83—210

1 Claim



An automatic dispenser of printed gummed tape which includes a signal on the tape out of the area containing printed indicia. This signal motivates a control device which in turn stops the feeding of the tape and energizes a cutting device to cut the tape between each area of repetitious printed indicia with accurate indexing. No reliance is placed on measuring the length of section to be cut off by the rotation of tape feeding rolls.

3,559,520

**SAWING AND OTHER LIKE CUTTING MACHINES FOR
OPERATING ON MOVING BAR OR OTHER STOCK**John G. Postins, Wednesbury, and Stanley R. Protty, Jubilee
Estate, Cannock, England, assignors to Midland Industries
Limited, Stafford, England, a British company

Filed Nov. 8, 1968, Ser. No. 774,275

Int. Cl. B23d 25/16

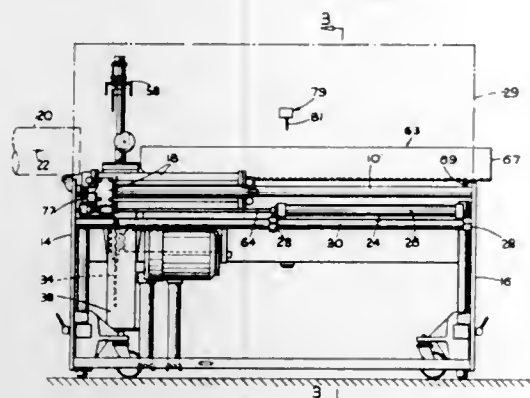
U.S. Cl. 83—292

10 Claims

A flying saw machine having a control means for causing a main fluid pressure operated piston and cylinder device to advance substantially in unison with a carriage clamped to

and having a cutting tool to cut through the advancing bar stock and be withdrawn therefrom whereupon the clamps

arrangement adapted to cooperate with correspondingly shaped recess means formed in the support surface of said base portion. The recess means are designed to receive said



release the carriage from the bar stock and said device returns the carriage and cutting tool to a starting position.

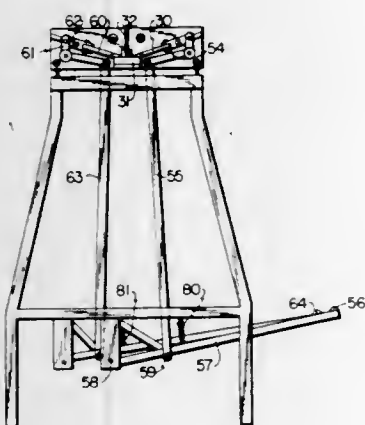
3,559,521

EXPANSION JOINT CUTTER

Elisha S. Kubala, R.R. 4, Box 218, Edmond, Okla.
Filed Feb. 19, 1969, Ser. No. 800,910
Int. Cl. B26d 3/14

U.S. Cl. 83-440

9 Claims



protruding means and thereby properly to position said die unit with respect to said ram along a first axis of alignment. Said alignment means further include additional means to attain proper positioning along a second axis of alignment.

3,559,523

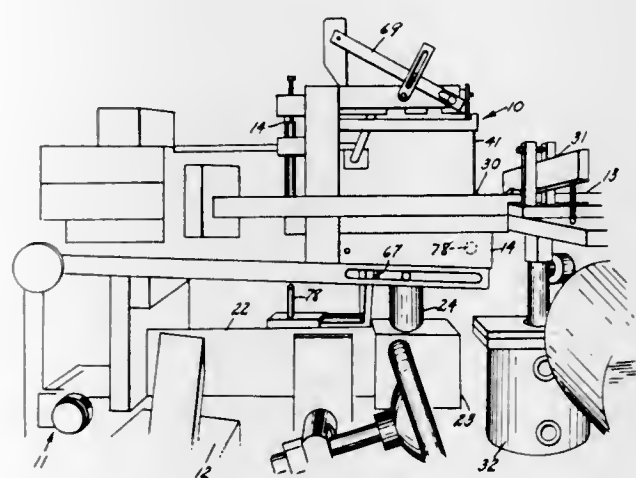
RECIPROCATING BLADE SAW HAVING BLADE-TENSIONING MEANS RESPONSIVE TO DIRECTION OF MOVEMENT

Paul Karlan, New York, N.Y. (620 Ogden Ave., Mamaroneck, N.Y. 10543)

Filed May 26, 1969, Ser. No. 827,805
Int. Cl. B26d 5/08

U.S. Cl. 83-647

5 Claims



A reciprocating flexible blade-type saw in which the blade is carried by a C-shaped frame. Means is provided for varying the tension placed upon the blade, so that the blade is under greater tension during a cutting stroke than a return or idle stroke.

3,559,524

DEVICE FOR CUTTING LAMINATED MATERIAL

Hendrik Glastra, Enschede, Netherlands, assignor to N. V. Maatschappij voor Industriële Research en Ontwikkeling, Enschede, Netherlands

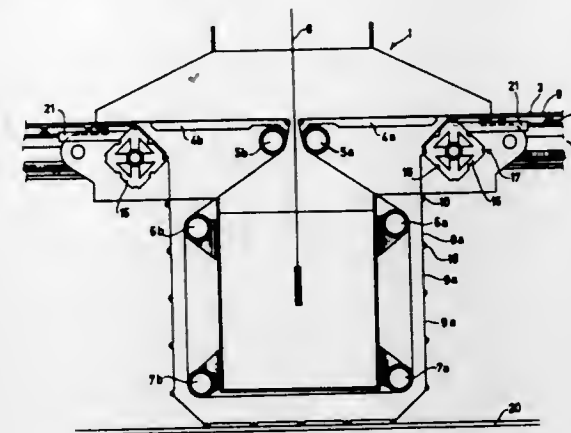
Filed Apr. 30, 1969, Ser. No. 820,505

Claims priority, application Netherlands, May 10, 1968,
6806654

Int. Cl. B26d 7/00

U.S. Cl. 83-648

4 Claims



A device for cutting plate material, comprising a supporting face for the material constituted by a flexible belt guided about rollers which are supported by a carriage movable along a frame, together with a transverse slit, and the cutter, the flexible belt being supported by an articulated supporting table, which is constructed from a plurality of juxtaposed oblong plates the long sides of which are hingedly interconnected, while their ends bear on supporting members provided on the two longitudinal edges of the frame and movable into and out of the plane of the articulated supporting table, under the action of cams provided on the carriage.

3,559,525

STAR WHEEL MUSIC BOX

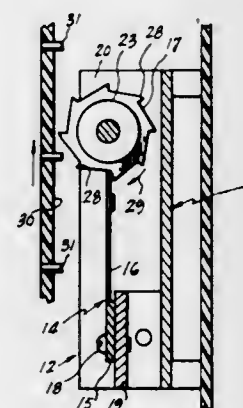
Harry Fishbein, 3725 Henry Hudson Parkway, New York, N.Y.

Continuation-in-part of application Ser. No. 697,421, Jan. 12, 1968. This application Oct. 8, 1969, Ser. No. 868,971

Int. Cl. G10f 1/06

U.S. Cl. 84-98

4 Claims



In a music box comprising a comb with fingers to vibrate at different audible frequencies when struck at their free ends by striking wheels each individually associated with a respective finger and having peripheral teeth to strike the respective finger when the wheel is angularly displaced independently of the other wheels about an axis of rotation which is directed laterally to the fingers adjacent their free ends, and a replaceable actuating member releasably mounted for movement of a surface thereof, from which projections extend tangentially past the striking wheels so that the projections selectively engage teeth of the wheels to angularly dis-

883 O.G.-4

place the latter in a selected sequence and thereby cause striking of the fingers in such sequence for playing a melody to which the replaceable actuating member corresponds; spacing means independent of the striking wheels are provided between the wheels to isolate the rotational motion of each wheel from the adjacent wheels. These spacing means may be washers of a low friction synthetic plastic or projections formed integral with the base portion of the music box and extending upwardly therefrom.

3,559,526

MUSICAL INSTRUMENTS, ESPECIALLY OF THE PERCUSSION TYPE

Andre Raffali, 188, Avenue de Verdun, 36, Chateauroux, France

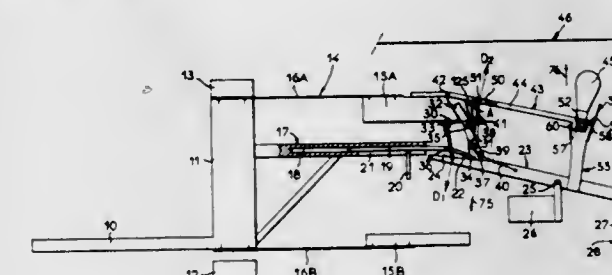
Filed Sept. 20, 1968, Ser. No. 761,099

Claims priority, application France, Sept. 25, 1967,
122,069/67

Int. Cl. G10c 3/16

U.S. Cl. 84-434

18 Claims



In application of the invention to a keyboard musical instrument such as a piano, the key is guided by a deformable parallelogram linkage, so that during its actuated displacement, the key remains parallel to its original orientation; between each key and the associated hammer is interposed a transmission which, when the key is depressed, gives the hammer an accelerated movement with respect to the movement of depression of the said key; the release of the transmission for the free return of the hammer after striking, is effected after the full depression of the key during the sole inertia movement of the hammer towards the wire; the effect of the soft pedal is obtained by continuous modification of the active length of an intermediate lever of the transmission.

3,559,527

ARMORED COMBAT VEHICLE

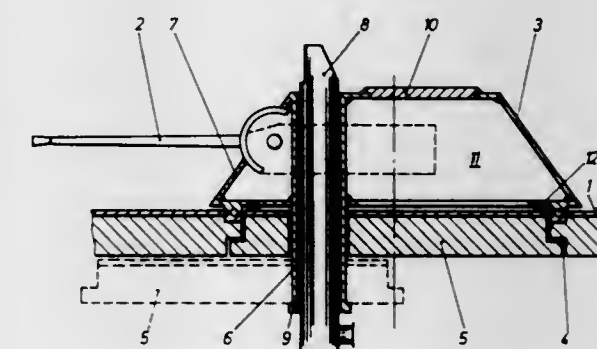
Hans-Georg Schallehn, Kassel, Germany, assignor to Rhein-stahl Henschel A. G., Kassel, Germany, a corporation of Germany.

Filed Nov. 15, 1967, Ser. No. 683,320

Claims priority, application Germany, Dec. 9, 1966, R44761
Int. Cl. F41h 5/22

U.S. Cl. 89-36

9 Claims



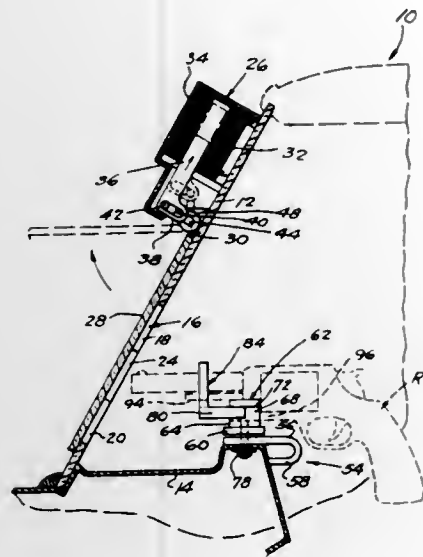
A combat vehicle comprises an armored hull protected against nuclear radiation, an armored turret mounted on the hull, an opening connecting the turret and the hull, and vertically movable, pivotal, closing means, protected against nuclear radiation, for closing the opening.

3,559,528

WEAPONS SYSTEM FOR MOTOR VEHICLES
Zed Cunningham, 4104 Green Court, Cleveland, Ohio
Filed Oct. 27, 1969, Ser. No. 869,809
Int. Cl. F41f 23/10

U.S. Cl. 89-40

2 Claims



A weapon system for a motor vehicle in which a gun rest is pivotally mounted on the vehicle dash panel. The windshield of the vehicle has an opening therein, and a cover plate for the opening is movably mounted to provide a selective closure for the opening.

3,559,529

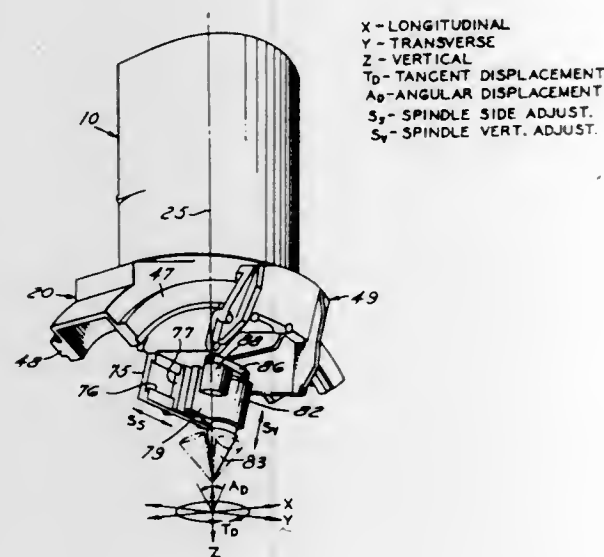
TWO-AXIS MACHINING HEAD FOR USE ON A THREE-AXIS MACHINE TO PROVIDE A CUTTING TOOL WITH A FIVE-AXIS MOVEMENT

Thomas D. Vertin, 37540 Lake Shore Road, Mount Clemens, Mich. 48043

Filed Nov. 12, 1968, Ser. No. 774,881
Int. Cl. B23c 1/16

U.S. Cl. 90-13

5 Claims



A two-axis machining head with tangent displacement and angular displacement for use on a three-axis machine to provide a five-axis controlled machine with seven movements of a cutting tool comprising, longitudinal, transverse, vertical, tangent displacement, angular displacement, spindle side adjustment, and spindle vertical adjustment movements.

3,559,530

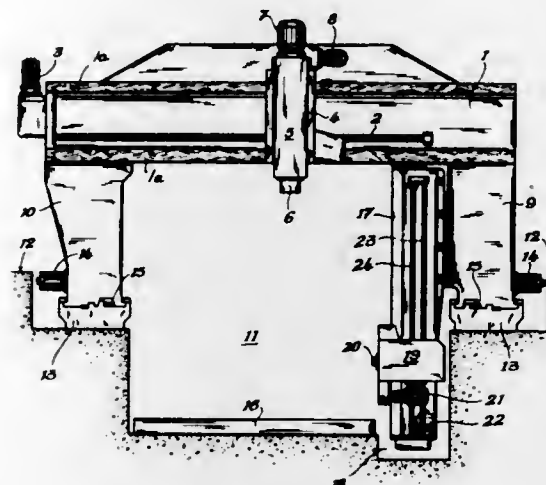
PORTAL MILLING MACHINE

Hans O. Wagner, Dusseldorf-Lohausen, and Gert Traugott, Buderich, Germany, assignors to Schiess Aktiengesellschaft, Dusseldorf, Germany

Filed Nov. 22, 1968, Ser. No. 778,230
Claims priority, application Germany, Nov. 25, 1967,
P1,627,119
Int. Cl. B23c 1/10

U.S. Cl. 90-14

2 Claims



A portal milling machine for machining work pieces of considerable height and length, in which the transverse beam carrying carriage means movable in the longitudinal direction of said beam and transverse thereto is displaceable on supporting means arranged on opposite sides of and at a higher level than a chucking plate at the bottom of a longitudinal pit below said beam while at least one vertical arm connected to said beam extends downwardly into said pit and has displaceably mounted thereon an additional carriage with a substantially horizontal axially displaceable spindle.

3,559,531

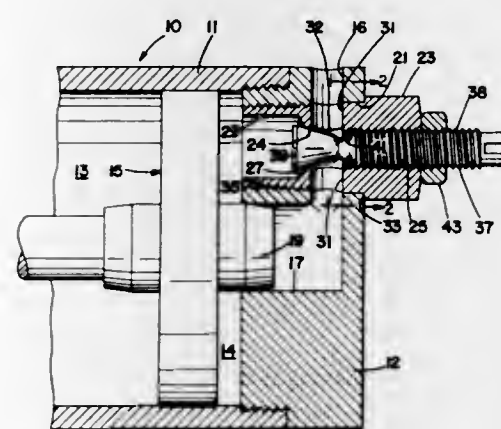
SPEED CONTROL VALVE FOR A FLUID MOTOR

Kurt W. Leibfritz, Norridge, and Lester W. Malinowski, Mt. Prospect, Ill., assignors to Parker-Hannifin Corporation, Cleveland, Ohio, a corporation of Ohio

Filed July 15, 1968, Ser. No. 744,803
Int. Cl. F15b 15/22; F16k 25/00, 51/00

U.S. Cl. 91-26

1 Claim



A speed control valve for a fluid motor of the piston and cylinder type in which the valve seat engageable by the head of the valve member is inwardly facing whereby the valve member cannot be removed from the valve in an outwardly direction.

3,559,532

TRAVEL SERVOMOTOR

Stanley I. MacDuff and Maxwell L. Cripe, 401 N. Bendix Drive, South Bend, Ind. 46620

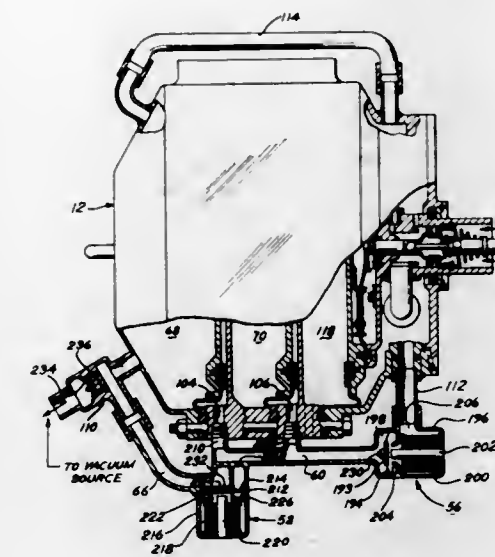
Filed Oct. 23, 1968, Ser. No. 769,789
Int. Cl. F15b 7/08, 13/04, 13/14

U.S. Cl. 91-33

6 Claims

U.S. Cl. 91-363

2 Claims



A servomotor for a power brake system which includes a pressure responsive wall in a chamber separated by a partition from the working chamber of the servomotor.

3,559,533

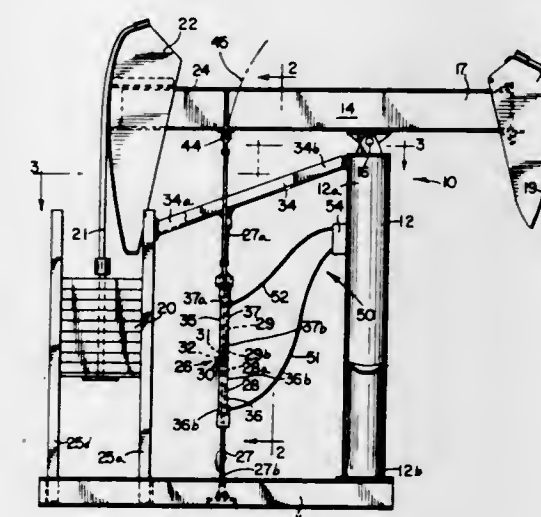
PUMPING APPARATUS

Gunter Maasshoff, Glenview, Ill., assignor to Hawk Oil Field Equipment Corp., Evanston, Ill., a corporation of Illinois

Filed Mar. 28, 1969, Ser. No. 811,400
Int. Cl. F01b 13/04

U.S. Cl. 91-196

14 Claims



An improved hydraulic operating mechanism for rocking a beam of a pumping apparatus to reciprocate a well pump disposed in a well pipe and connected to the beam. The operating mechanism includes first and second generally stationary piston rods with first and second stationary pistons thereon, first and second cylinder sections positioned respectively for reciprocating movement relative to the first and second pistons, and means for delivering fluid under pressure to the cylinder sections to drive the cylinder sections relative to the generally stationary piston rods to reciprocate the well pump in such a way that the principal forces placed on the piston rods are tension forces.

3,559,534

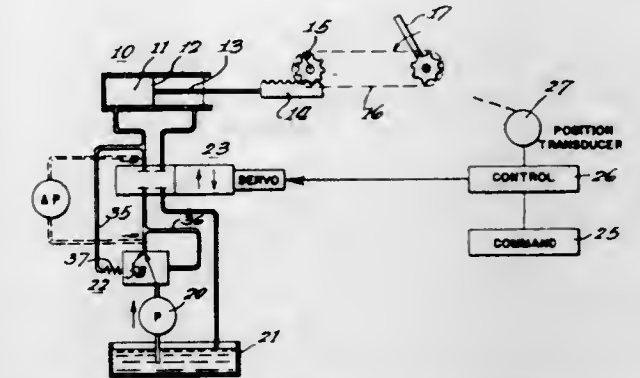
HYDRAULIC ACTUATOR CONTROL CIRCUIT

Harrison Munro, Aurora, Ill., assignor to Pines Engineering Co., Inc., a corporation of California

Filed Apr. 23, 1968, Ser. No. 723,464
Int. Cl. F15b 9/03, 9/09

U.S. Cl. 91-363

2 Claims



A hydraulic servo drive system with a regulator valve connected in series with a servovalve, and which maintains a constant pressure drop across the servovalve and a uniform drive velocity in the system.

3,559,535

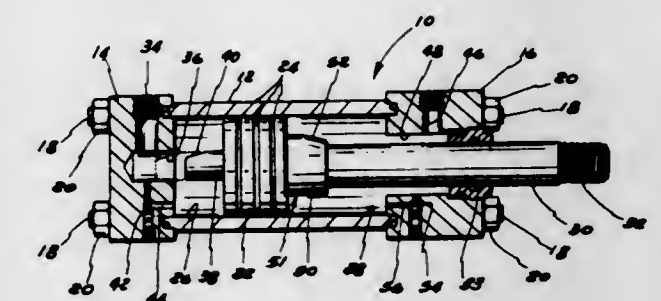
HYDRAULIC CYLINDER WITH CUSHIONED STROKE

Patrick W. Conolly, 11712 Appleton, Detroit, Mich. 48239

Filed Jan. 21, 1969, Ser. No. 792,584
Int. Cl. F15b 15/22

U.S. Cl. 91-396

6 Claims



A piston and cylinder hydraulic actuator having a cushioning valve carried by the piston which is received into the fluid discharge port as the piston approaches the end of its stroke. The valve is formed with a flat which progressively restricts fluid discharge to gradually decelerate the piston's velocity.

3,559,536

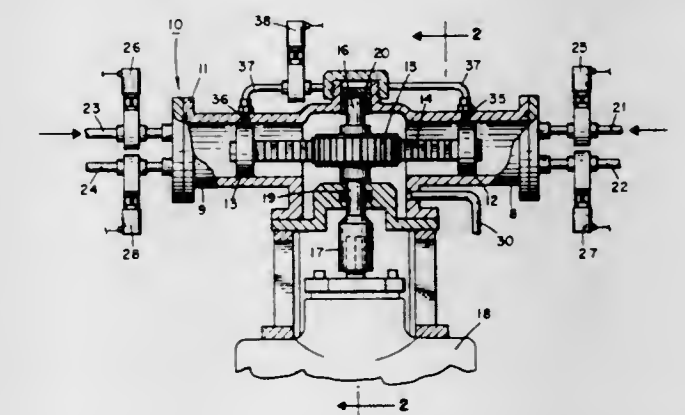
MULTIPOSITION SHAFT ACTUATOR

John P. Mason, Los Angeles County, Calif., assignor to Esso Production Research Company

Filed Sept. 11, 1968, Ser. No. 759,035
Int. Cl. F15b 11/08, 20/00

U.S. Cl. 91-409

4 Claims



A fluid powered multiposition shaft actuator controlled by pilot valves. The actuator moves automatically to a chosen

position upon failure of control power to power-operated pilot valves. A housing containing a shaft forms two fluid-powered cylinders at each end thereof. A piston is arranged in each cylinder. These pistons are mechanically linked to each other and to the shaft for positioning the shaft. When the shaft is rotatable, the linear force of the pistons is converted to rotary force for rotating and positioning the shaft.

3,559,537

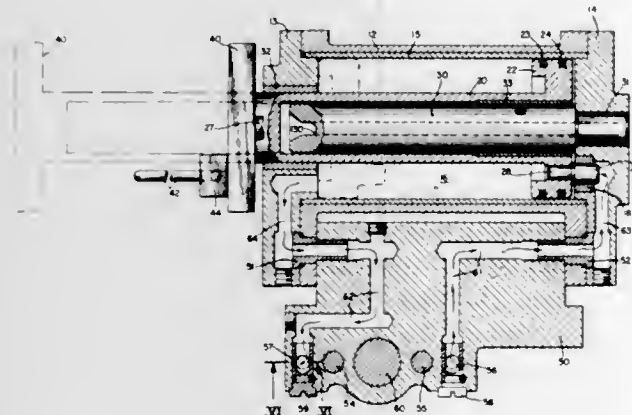
PUSH OUT FOR GLASSWARE FORMING MACHINERY
Alphonse W. Faure, Philadelphia, Pa., assignor to C.S.S. Machine & Tool Co., Inc., Philadelphia, Pa., a corporation of Pennsylvania

Continuation-in-part of application Ser. No. 703,609, Feb. 7, 1968, now abandoned. This application June 17, 1968, Ser. No. 744,263

Int. Cl. F15b 11/08; F01b 31/00

U.S. Cl. 91-462

4 Claims



A fluid motor assembly is characterized by a reciprocating tubular piston, and a cylinder or housing which is stationary so far as the reciprocating action is concerned. Supported in the rear end plate of the cylinder housing and disposed on the longitudinal center axis of the cylinder is a post which enters the bore of the tubular piston, and provides support for the piston. Two annular bearings are provided, one of which is in the forward end wall of the cylinder housing. The other bearing is between the interior surface of the piston, at the rear end, and the center post. The fluid motor is controlled by a reversible mounting plate and valve assembly which includes a pair of reversible valves and the necessary air ducts. The mounting plate and valve assembly is pivotal through 180° to change the positions of the pair of reversing valves to accommodate the fluid motor to either a right hand or left hand unit. Adjustment means are provided for adjusting the length of the piston stroke.

3,559,538

ACTUATOR

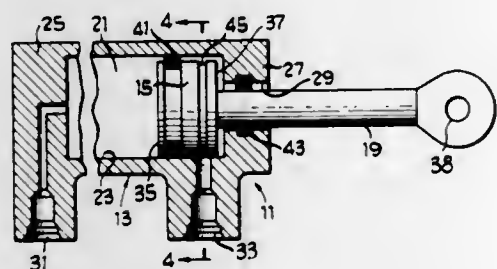
Robert E. Holder, Van Nuys, Calif., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Delaware

Filed Dec. 23, 1968, Ser. No. 785,881

Int. Cl. F01b 11/02

U.S. Cl. 92-85

13 Claims



A fluid operated piston-type actuator having a movable piston in an operating cylinder including means for deceleration of the piston upon reaching the limit of its stroke. The piston and operating cylinder cooperate to define a contracting deceleration chamber and a restricted orifice flow passage communicating between the deceleration chamber and the fluid discharge conduit. As the piston reaches the terminal portion of its stroke, the passage limits the rate of fluid discharge from the deceleration chamber to control the deceleration of the actuator. The deceleration means is arranged to insure consistent application of the established deceleration properties.

tion of the piston upon reaching the limit of its stroke. The piston and operating cylinder cooperate to define a contracting deceleration chamber and a restricted orifice flow passage communicating between the deceleration chamber and the fluid discharge conduit. As the piston reaches the terminal portion of its stroke, the passage limits the rate of fluid discharge from the deceleration chamber to control the deceleration of the actuator. The deceleration means is arranged to insure consistent application of the established deceleration properties.

3,559,539

FLUID ACTUATOR CONSTRUCTION

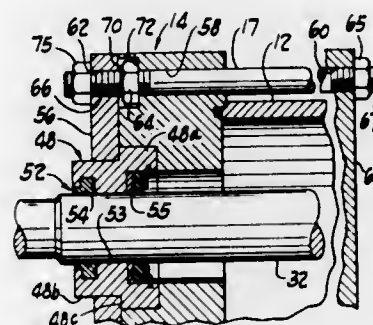
Joseph Nagy, Independence, Ohio, assignor to The S-P Manufacturing Corporation, Solon, Ohio

Filed Sept. 22, 1969, Ser. No. 859,967

Int. Cl. F01b 29/00

U.S. Cl. 92-128

3 Claims



A fluid actuator with improved end plate and tie rod construction to facilitate external removal of a rod bearing and rod seal cartridge. The cartridge is received in an external cavity in one end plate and is retained by a cover plate. The plates are secured by separate sets of nuts threaded on common tie rods that extend in nonthreaded engagement through aligned throughbores in the end plate and cover plate. The nuts that retain the end plate are recessed in counterbores in the end plate.

3,559,540

HYDRAULIC ACTUATOR

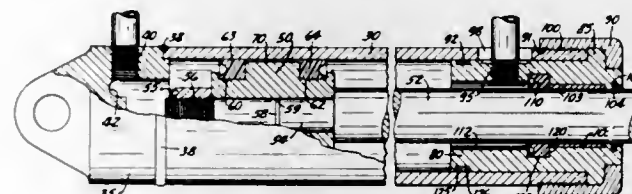
Arnold C. Sheldon, 1187 Raymond Ave., St. Paul, Minn. 55108

Filed Aug. 6, 1968, Ser. No. 750,704

Int. Cl. F16j 15/18

U.S. Cl. 92-163

7 Claims



A hydraulic actuator of the lineal type which comprises a cylinder and piston with an output shaft journaled in a head mounted in one end of the cylinder. The invention is directed to the mounting of a bearing relative to a dynamic seal and wiper seal in the head or shaft guide closing the end of the cylinder and the location of the same relative to journaled surfaces on the piston together with an adjustable mounting of the head within the cylinder.

3,559,541

CONCRETE JOINT LOAD TRANSFER DEVICE

David Watstein, 10034 Renfrew Road, Silver Spring, Md. 20901

Filed July 8, 1969, Ser. No. 839,819

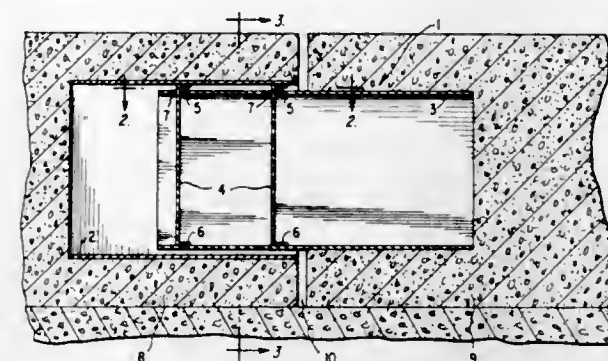
Int. Cl. E01c 11/10

U.S. Cl. 94-8

16 Claims

Disclosed herein is a concrete joint load transfer device including a first rectangular member, a second rectangular

member telescopically positioned within the first member and at least one suspension element connected to opposite



walls of said first and second members respectively, with the first and second members set in concrete slabs separated by an expansion joint.

3,559,542

QUICK RELEASE AND LOCKING MECHANISM FOR A CAMERA LENS MOUNTING

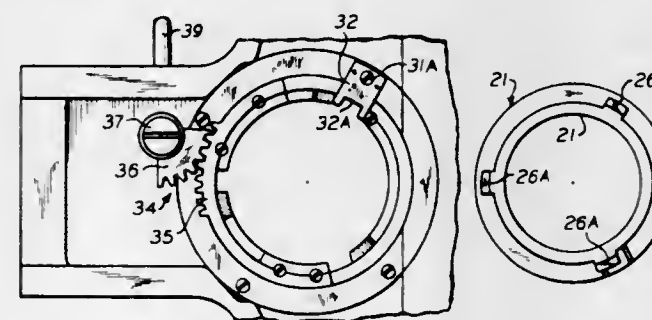
Hubert R. Clapp, Cresskill, N.J., assignor to Camera Service Center Inc., New York, N.Y., a corporation of New York

Filed Feb. 3, 1969, Ser. No. 796,134

Int. Cl. G03b 3/00

U.S. Cl. 95-44

12 Claims



This disclosure is directed to a camera construction having a movable or interchangeable lens mounting provided with a quick lens release and locking mechanism. Essentially the release and locking mechanism includes a pair of coaxially disposed members for receiving the lens mounting which are coupled together for limited axial displacement to effect the locking and unlocking of the lens mounting by effecting limited relative rotation therebetween, with means for prohibiting the rotation of the lens mounting during the actuation of the locking and unlocking movement.

3,559,543

APPARATUS FOR APPLYING A FLUID SUBSTANCE TO A SURFACE

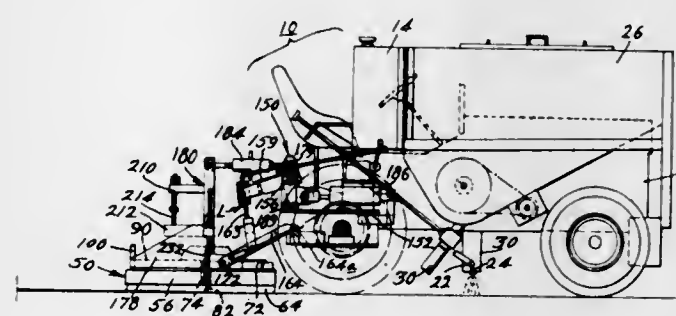
Richard Schwoebel, Jr., 169 Township Line Road, Chester, Pa. 19013

Filed Feb. 27, 1969, Ser. No. 802,867

Int. Cl. E01c 19/12

U.S. Cl. 94-44

8 Claims



A spreader assembly adapted to be attached to a prime actuator for movement over a surface to uniformly spread a

viscous material comprising an outer frame member of generally U-shaped configuration consisting of a center section and left and right-hand wing sections pivotally connected to opposite terminal ends of the center section, said frame member including a first main support member and a first strip made of a flexible material depending from the first main support member to provide a flexible edge in contact with the surface, a wiping bar generally parallel to the center section and spaced therefrom consisting of a second main support member and a second strip made of a flexible material depending from the support member and a center divider extending generally perpendicular to the center section and mounted for angular adjusting movement relative thereto.

3,559,544

QUICK CROWN CHANGE FOR SCREEDS AND THE LIKE

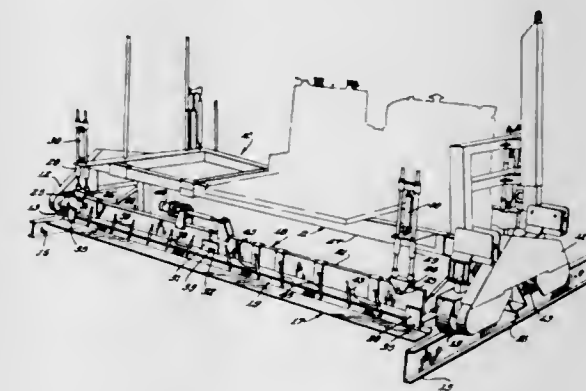
Harold E. Miller, Milwaukee, Wis., assignor to Curbmaster of America, Inc., Cedar Falls, Iowa, a corporation of Iowa

Filed Mar. 3, 1969, Ser. No. 803,568

Int. Cl. E01c 19/22

U.S. Cl. 94-45

10 Claims



Crown control for screeds and the like in which a continuous screed bar is suspended from a beam in the form of two aligned beam sections spaced apart at their adjacent ends. The beam sections are pivoted to the screed bar at their outer ends by brackets depending from the outer ends of the beam sections, and pivotally connected to the outer ends of the screed bar for movement about axes extending transversely of the bar. Spaced links are pivotally connected between each beam section and the screed bar and extend angularly downwardly and outwardly from the respective beam sections. A guiding connection is provided between the beam sections, and guides the beam sections for angular movement about their axes of connection to opposite ends of the screed bar. A power jack is spaced above the beam and extends across the adjacent ends of the beam sections, and is connected thereto at its opposite ends. As the jack is extended, the beam sections will pivot upwardly about their axes of connection to the screed bar. This will draw the screed bar upwardly from its opposite ends through the connecting links and will draw the screed bar into a parabolic crown. Retractable movement of the power jack will align the beam sections and move the screed bar into a flat position.

3,559,545

EARTH TAMPER

Fred Joseph Caron, Citrus Heights, Calif., assignor to Caron Compactor Co., West Sacramento, Calif., a corporation of California

Filed July 24, 1969, Ser. No. 844,465

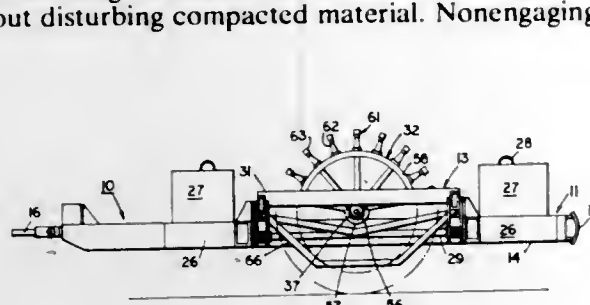
Int. Cl. E01c 19/24

U.S. Cl. 94-50

10 Claims

Earth tamper with a main frame having spaced, reinforced cross members with two trunnions extending normal to the cross members and parallel to a central tongue. A perimeter subframe carrying two tamper wheels is pivotally mounted on each trunnion permitting subframe oscillations when compacting uneven grades. The subframes shift axially between the cross members and along the trunnions when travel direction is reversed placing in engagement alternate sets of force transfer members on main and subframe minimizing

bending moments upon tamper wheel axles. Four, independently rotatable tamper wheels of spaced, open ring, spoked construction with sheepfoot elements projecting outwardly from the ring facilitate short radius turning of the unit without disturbing compacted material. Nonengaging cleaner



bars are set on the subframe between adjacent wheel rings. A second form of earth tamper includes only one perimeter subframe mounted upon a trunnion with main frame. Two, independently rotatable tamper wheels with cleaners are mounted on the subframe.

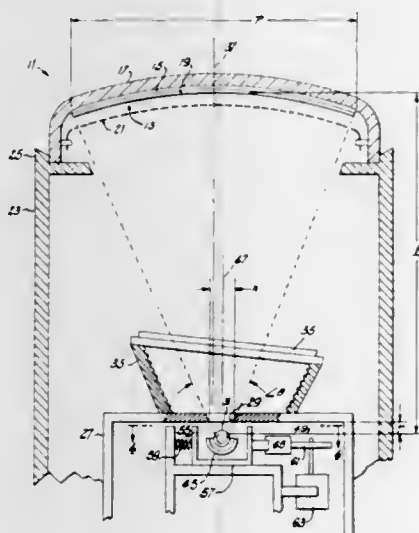
3,559,546

CATHODE RAY TUBE SCREEN EXPOSURE
Lefler H. McKee, Clifton Springs, N.Y., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Nov. 1, 1967, Ser. No. 679,869

Int. Cl. G03c 7/00

U.S. Cl. 95-1

5 Claims



A method and optical system for light forming a cathode ray tube patterned screen utilizing unattenuated radiant energy of the light source. A photosensitive phosphor containing coating disposed on the screen panel is exposed, through an adjacently positioned mask, by radiant energy of substantially constant intensity from a substantially unattenuated direct light source oriented within an apertured light enclosure. Since the utilized area of the light source is smaller than the discrete aperture area, the light source is moved in a predetermined manner relative to the aperture to effect a simulated light source area equaling the aperture area.

3,559,547

PHOTOGRAPHIC SHUTTER WITH RECIPROCATING SHUTTER BLADE DRIVING MEMBER AND ELECTRONIC TIMING DEVICE

Waldemar T. Rentschler, Calmbach, Germany, assignor to Prontor-Werk G.m.b.H., Calmbach, Germany
Filed Nov. 1, 1968, Ser. No. 772,571

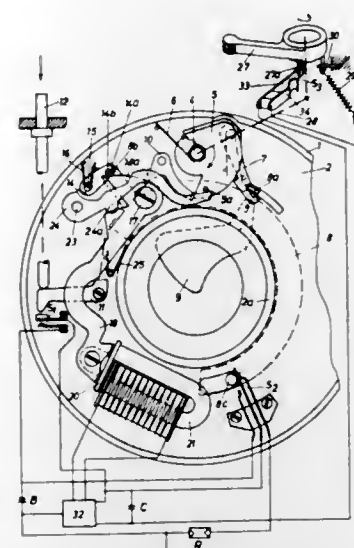
Int. Cl. G03b 7/08

U.S. Cl. 95-10

3 Claims

A photographic shutter having a driving member which when moved from a normal position opens and then closes the shutter by means of a reciprocating actuating member, an electronic timing device controls an armature lever biased by a return spring with the aid of a photoelectric resistor in dependence upon the ambient light. The armature lever

cooperates with a pawl blocking the actuating member in the open position of the blades for the duration of the timing. A switch is connected in the circuit of the electronic timing



device and closes a contact when the cocking mechanism of the camera is actuated, the contact short circuiting the photoelectric resistor.

3,559,548

TIME-DELAY MEANS FOR RECHARGEABLE STROBOSCOPIC FLASH ATTACHMENT

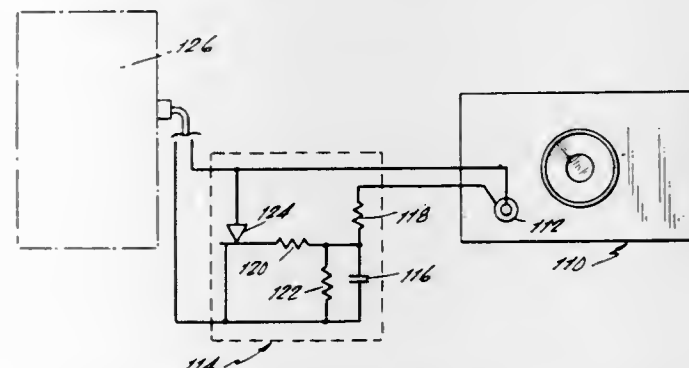
Martin S. Ackerman, East Hills, N.Y., assignor to Perfect Film & Chemical Corporation, Manhasset, N.Y., a corporation of Delaware

Continuation-in-part of application Ser. No. 643,088, June 2, 1967, now Patent No. 3,364,829. This application June 19, 1967, Ser. No. 647,147

Int. Cl. G03b 9/70

U.S. Cl. 95-11.5

1 Claim



A rechargeable stroboscopic flash attachment adapted to be connected to a flashcube-receiving receptacle of a camera for actuating the shutter control mechanism. Contact members are also secured to the housing for engaging the electric contacts in the receptacle. An electronic time-delay for the circuit stroboscopic flashlamp effectively delays actuation of the flash unit so as to synchronize the flash unit with the timing induced by the shutter control mechanism. The time-delay circuit consists of a first resistor and capacitor connected in series, a second resistor shunted across the capacitor, and a third resistor connected between one terminal of the capacitor and a silicon control rectifier whereby a time delay in the operation of the flash unit is produced.

3,559,549

RECHARGEABLE FLASH ATTACHMENT

Martin S. Ackerman, East Hills, N.Y., assignor to Perfect Film & Chemical Corporation, Manhasset, N.Y., a corporation of Delaware

Continuation-in-part of application Ser. No. 643,088, June 2, 1967, now Patent No. 3,364,829. This application Jan. 22, 1968, Ser. No. 699,622

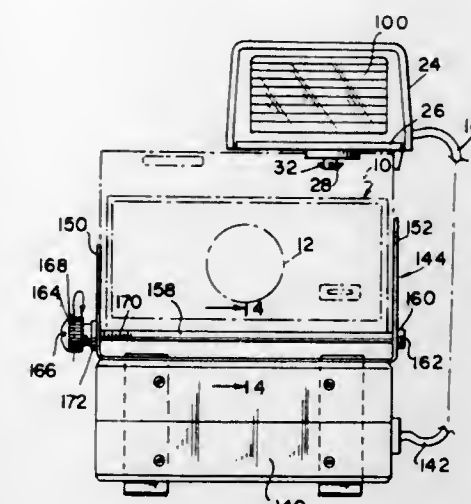
Int. Cl. G03b 9/70

U.S. Cl. 95-11.5

6 Claims

A rechargeable stroboscopic flash attachment on a camera which includes a fitting rotatably mounted in a housing and

adapted to be disposed in a flash-cube-receiving receptacle of a camera for actuating the shutter control mechanism. Contact members are also secured to the housing for engaging the electric contacts in the receptacle. Electronic time-delay elements are mounted in the housing as is a stroboscopic



electronic lamp. The time-delay elements effectively delay actuation of the flash unit so as to synchronize the flash unit with the timing induced by the shutter control mechanism. The power pack for the flash attachment is suspended from the camera by clips secured to and depending from a bracket clampingly engaging the camera.

3,559,550

APPARATUS FOR TAKING PHOTOGRAPHS OF CAVITIES IN BODIES

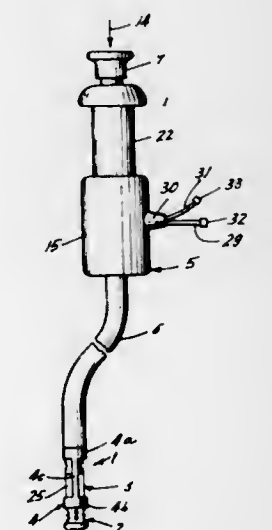
Frank G. Back, Glen Cove, N.Y., assignor to Diversified Medical Corporation, Scarsdale, N.Y., by mesne assignments

Filed Apr. 1, 1968, Ser. No. 717,827

Int. Cl. G03b 9/70

U.S. Cl. 95-11.5

5 Claims



A camera for photographing of cavities in bodies comprises a flash tube which produces light in the cavity of a body in synchronism with the operation of a shutter which normally covers the diaphragm of a chamber for photographic film. The switch which completes the circuit of the flash tube comprises a contact which is mounted on the shutter release and engages a second contact when the shutter is in fully open position. The circuit of the flash tube includes a capacitor which is connected in the secondary circuit of a transformer and discharges across the electrodes of the flash tube when the switch is closed in response to opening of the shutter. The primary circuit of the transformer contains a variable resistor which is adjustable as a function of the type or speed of film that is being used in the chamber.

3,559,551

EXPOSURE METER FOR A SINGLE LENS REFLEX CAMERA HAVING INTERCHANGEABLE LENSES

Shigeo Ono, Yokohama-shi, Japan, assignor to Nippon Kogaku K. K., Tokyo, Japan, a corporation of Japan
Filed Apr. 2, 1968, Ser. No. 718,162

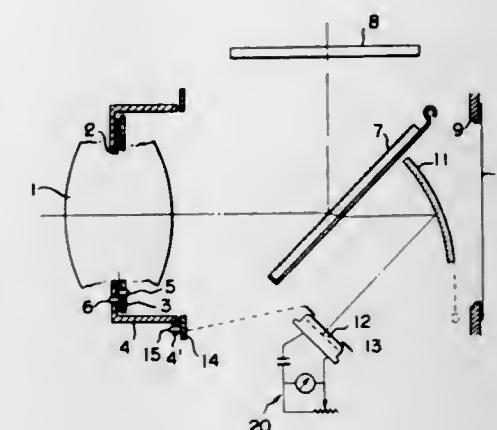
Claims priority, application Japan, Apr. 20, 1967,

42/24797;42/24798

Int. Cl. G03b 19/12

U.S. Cl. 95-42

7 Claims



An exposure meter is provided for a single lens reflex camera having interchangeable lenses in which photometric measurements are made through the camera lenses. A relay optical system is provided between the objective secured to the camera body and the photosensitive surface of the photocell, an adjustable stop being provided in the relay optical system. The adjustable stop is coupled to the stop adjusting mechanism of the particular objective mounted on the camera to provide for the exposure meter a suitable sensitivity relative to the aperture ratio of the objective without varying the area to be measured.

ERRATUM

For Class 95-44 see:
Patent No. 3,559,542

3,559,552

CAMERA CARRIAGE

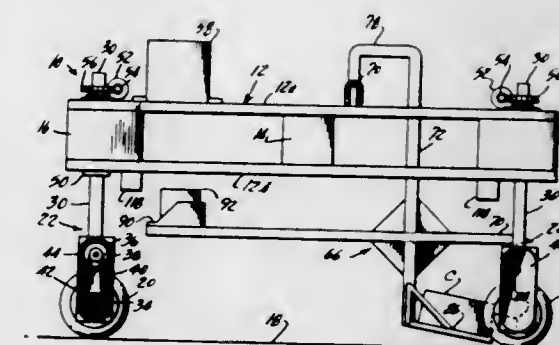
Meyer Weitzel, 1616 Jessamine Ave., Orlando, Fla. 32806

Filed Mar. 10, 1969, Ser. No. 805,770

Int. Cl. G03b 17/56

U.S. Cl. 95-86

6 Claims



A television camera carriage comprising a horizontal platform supported by four dirigible wheels on struts which may be selectively raised to provide a clear view for a camera pivotally supported beneath the platform, counterweight means being operative by movement of the camera to shift the center of gravity of the carriage so as to be stable irrespective of which of several struts is raised.

3,559,553

AUTOMATIC FORWARDING MECHANISM FOR PHOTOGRAPHIC MATERIALS

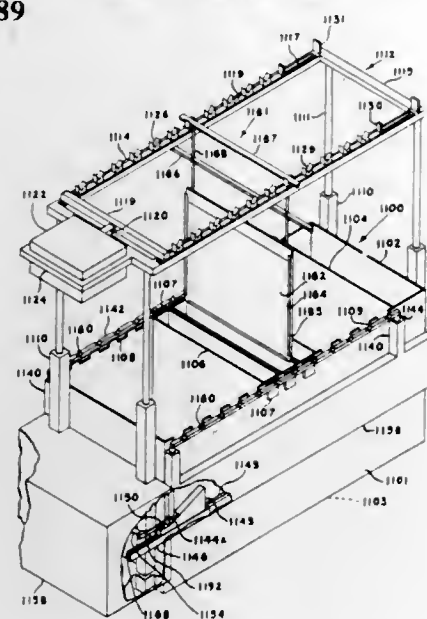
Werner W. Buechner, 4407 Gladding Court, Midland, Mich. 48640

Continuation-in-part of Ser. No. 342,029, Feb. 3, 1964, Ser. No. 342,459, Feb. 4, 1964, and Ser. No. 350,612, Mar. 9, 1964. This application Oct. 23, 1967, Ser. No. 684,582

Int. Cl. G03d 3/08

U.S. Cl. 95—89

13 Claims



A device for automatic forwarding of photographic material from one treating station to the next. The forwarding device includes a base frame, a forwarding bar member movably supported in the base frame, lifting elements for raising and lowering the base frame, and a first actuating mechanism for horizontally reciprocating the forwarding bar member in the base frame. The forwarding bar member has seating elements thereon for supporting a film carrier when the base frame is in the raised position and for subsequently transferring the carrier to an adjacent processing tank. The device has separate seating elements for supporting the film carrier when the base frame is in its lowered position. In another embodiment, the forwarding device has a second actuating mechanism for reciprocating the forwarding bar member in a direction perpendicular to the direction of movement of the first actuating mechanism.

3,559,554

CHIP FILM PROCESSOR

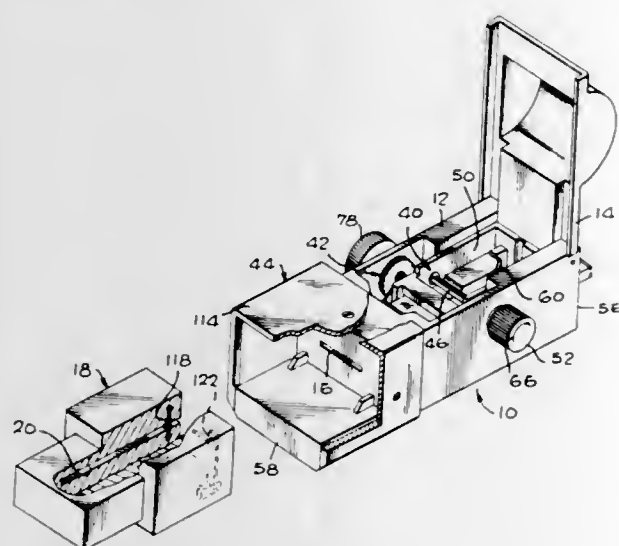
Gunter Schmidt, Marina Del Rey, Calif., assignor to Production, Inc., Los Angeles, Calif., a corporation of California

Filed May 27, 1968, Ser. No. 732,186

Int. Cl. G03d 3/08

U.S. Cl. 95—89

6 Claims



Apparatus for processing packaged dental film chips without a darkroom comprising a daylight loader for stripping the coverings from a film chip and inserting the

chip into a light-tight magazine, and a developer for receiving the magazine and moving the film chip therefrom through the processing solutions. The daylight loader comprises a hub that engages a tab on the film chip package to peel off an outer layer, and an assembly that holds another protective layer of the package away from the film chip while a roller moves the chip toward a slot that leads to the magazine. The developer comprises a pair of plates having grooves that confine the film to movement successively into the tanks, and motor driven belts with fingers that push the chip along the grooves.

3,559,555

IMAGE MONITORING AND CONTROL SYSTEM

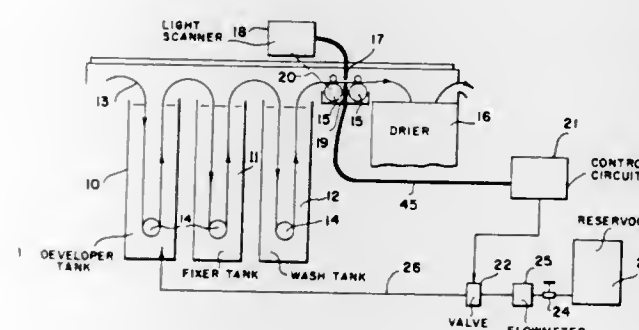
John N. Street, Alexandria, Va., assignor to Logetronics Inc., Springfield, Va.

Filed June 4, 1968, Ser. No. 734,297

Int. Cl. G03d 3/00, 3/06

U.S. Cl. 95—89

14 Claims



A system is provided for automatically controlling chemical replenishment in a chemical-containing automatic film processor. As sheets of varying density image bearing material are transported through the processor, the varying density images in each of said sheets are optically monitored throughout substantially the entire width and length of each sheet. Information is stored relating to the aggregate image density in the monitored sheets; and a preselected quantity of replenishment chemical is supplied to the processor when the aggregate image density reaches a predetermined value.

3,559,556

DENTAL X-RAY FILM PROCESSOR AND PROCESSING CASSETTE

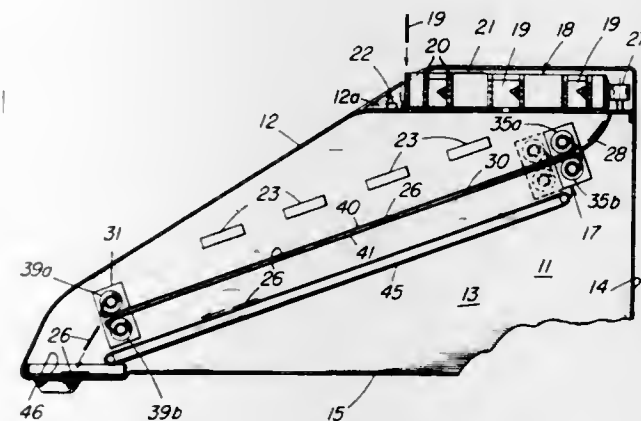
Joseph V. McCarthy, Needham, Mass., John R. Manhardt, Nashua, N.H., and Robert W. Willis, Bedford, Mass., assignors to Itek Corporation, Lexington, Mass., a corporation of Delaware

Filed July 29, 1968, Ser. No. 748,442

Int. Cl. G03d 9/00

U.S. Cl. 95—89

19 Claims



A dental X-ray film processor for automatically processing one or more X-ray film segments. The processor is adapted to sequentially strip the film, process the film through a

monobath processing cassette and deliver the developed film in one automatic operation. The processing cassette includes a plurality of coating webs impregnated with the monobath processing solution which is adapted to develop the X-ray film on surface contact. The cassette consists of first and second mounting members which contain the supply rolls and takeup rolls of the coating webs and are moved in a linear direction toward and away from one another during operation of the processor.

3,559,557

MODULAR TRANSPORT DEVICE FOR PROCESSING A WORK PIECE

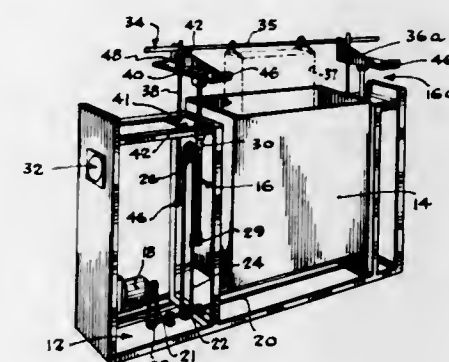
Albert L. Schwartz, 4741 Keeney, Skokie, Ill., and Joseph G. Smajo, 1249 Ardmore St., Chicago, Ill.

Filed Oct. 17, 1966, Ser. No. 590,455

Int. Cl. G03d 3/10

U.S. Cl. 95—89

12 Claims



A photographic processor having removable modular devices for transporting the film through the processor. The modular device includes a pair of spaced cam members for supporting a work holder-carrying photographic film, lifting rods for each of the cam members, and releasable stop elements for each of the cam members. The releasable stop elements maintain the work holder in a first position on the cam member when the member is in the lowered position and release the work holder in response to raising of the cam member to permit it to move along the cam member to a transfer position in which the holder overlaps and is subsequently transferred to the first position on the cam members of the modular device contained in an adjacent processing tank. The modular device also has a control mechanism for selectively controlling the time periods which transpire between raising and lowering of the cam members.

3,559,558

ROTARY PROCESSING APPARATUS FOR PHOTOLITHOGRAPHIC PLATES

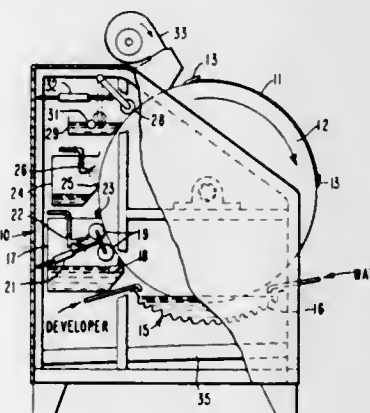
James S. Hamlin, Cherry Hill, N.J., and Walter G. Neuman, Southampton, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Aug. 29, 1968, Ser. No. 756,245

Int. Cl. G03d 3/08

U.S. Cl. 95—93

8 Claims



An automatic rotary-processing apparatus for photolithographic plates having a magnetic drum on which the plate is

3,559,559

FLUIDIC PRESSURIZATION CONTROL SYSTEM FOR CHAMBERS

Owen D. Furlong, East Coker, Somerset, and Cyril Thomas Priscott, Yeovil, Somerset, England, assignors to Westland Aircraft Limited, Yeovil, Somerset, England

Filed Jan. 17, 1969, Ser. No. 792,058

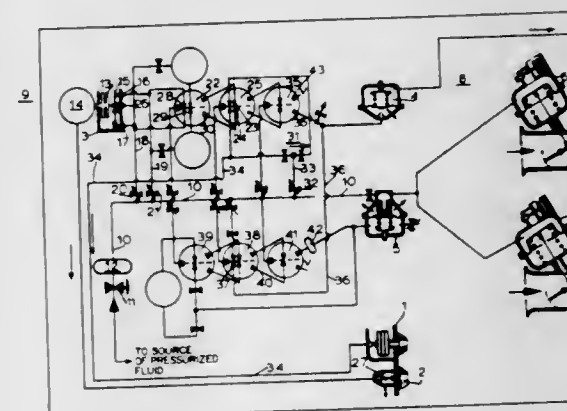
Claims priority, application Great Britain, Jan. 25, 1968,

3849/68

Int. Cl. B64d 13/04

U.S. Cl. 98—1.5

15 Claims



A fluidic pressure control system includes a capsule which is externally sensitive to direct environmental changes within a space such as an airplane cabin and internally sensitive to preselectively controlled environmental changes, a mass balanced beam pivotable responsive to expansion and contraction of the capsule, and a pair of fluid-actuated valves controlled by movement of the beam. The valves are connected to first and second control nozzles of a fluid amplifier and the output of the valves is used in controlling the pressure within the environmental space.

3,559,560

CEILING BOXES FOR DISTRIBUTING AIR

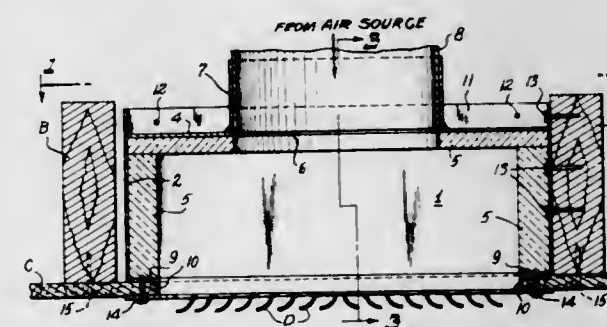
William R. Trahan, Houston, Tex., assignor to Texfan, Inc., Houston, Tex., a corporation of Texas

Filed Nov. 7, 1968, Ser. No. 774,077

Int. Cl. F24f 7/00

U.S. Cl. 48—40

3 Claims



The invention is directed to ceiling boxes used to distribute air down through the ceiling of a room from a suitable furnace or cooler. The improved box is of rectangular form and is so constructed that it may be installed between the ceiling joists in a position with its length extending either parallel with or transversely of said joists, as desired. To achieve this

the box is adapted to be supported on one joist only, and is secured to this joist by means of fastening devices passing through either an end wall or a sidewall of the box. The open lower side of the box is covered by a suitable grille through which the air is discharged.

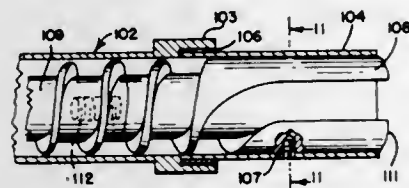
3,559,561

AUGER OUTLET EXTENSION

John A. Page, Minneapolis, Minn., and Robert C. Dechaine, Minneapolis, Minn., assignors to General Mills, Inc., a corporation of Delaware
Original application July 7, 1964, Ser. No. 380,890, now Patent No. 3,498,793, dated Mar. 3, 1970. Divided and this application Aug. 18, 1969, Ser. No. 850,777
Int. Cl. A47j 36/14

U.S. Cl. 99—234

2 Claims



An outlet extension is disclosed for an auger. The extension includes a forming core and a surrounding sleeve which are rigidly interconnected to the core of the auger. The forming core has a forming path defined in the surface thereof. The forming path is parallel to the axis of rotation of the forming core for the major portion of the length thereof and curved at the auger end thereof to form a continuation of the helix of the auger.

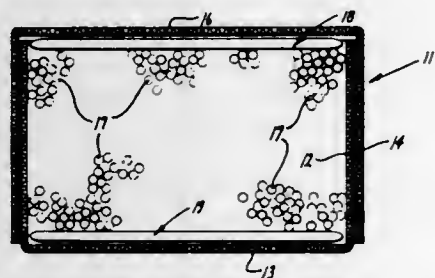
3,559,562

SULFUR DIOXIDE-RELEASING DEVICE

Herbert E. Carlson, Fort Bragg, N.C., and Rodrick E. Black, Willits, Calif., assignors to Boise Cascade Corporation, Boise, Idaho, a corporation of Delaware
Filed June 6, 1969, Ser. No. 831,181
Int. Cl. A23b 7/00

U.S. Cl. 99—239

15 Claims



A device for preserving fresh fruit by releasing sulfur dioxide into a sealed container of the fruit. The device comprises a layer of solid coating material and a particulate compound forming a substantially uniform dispersion throughout the layer. The compound is characterized by the release of sulfur dioxide on contact with water vapor. One device is formed of a dispersion of sodium bisulfite in a layer of white scale paraffin wax containing a viscosity-increasing agent.

3,559,563

BOTTLING APPARATUS AND METHOD

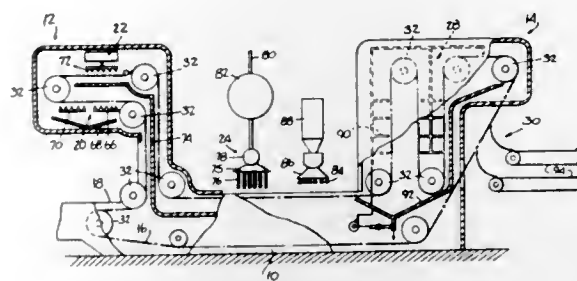
Mortimer W. Brenner, Scarsdale, and Albert R. Erda, Armonk, N.Y., assignors to Glass Container Manufacturers Institute, Inc., New York, N.Y., a corporation of Ohio
Filed May 15, 1968, Ser. No. 729,319
Int. Cl. B67c 7/00; B65b 55/06, 63/08

U.S. Cl. 99—275

18 Claims

A bottling apparatus is disclosed wherein bottles disposed in rows of bottle-receiving pockets in an intermittently driven conveyor are passed through cleaning, charging, filling, sealing and warming or pasteurizing stations, wherein a predeter-

mined number of rows of pockets are held stationary in each station during the processing thereof. The apparatus is capa-



ble of processing bottles at a high rate of speed with a minimum of labor, breakage and floor space.

3,559,564

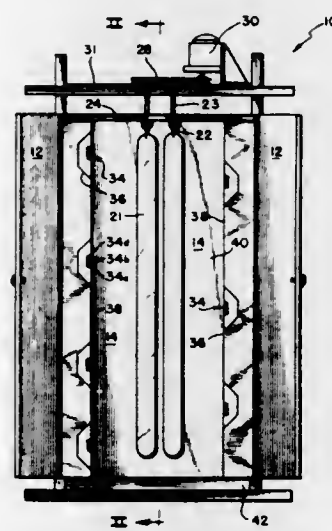
METHODS AND APPARATUS FOR COOKING MEAT PRODUCTS

William J. Turner, Oak Lawn, Wayne E. Henry, Downers Grove, and Gary W. Hubb, Western Springs, Ill., assignors to The Griffith Laboratories, Inc., Chicago, Ill., a corporation of Illinois
Continuation-in-part of application Ser. No. 701,442, Jan. 29, 1968, now abandoned. This application Oct. 7, 1969, Ser. No. 864,463

Int. Cl. A47j 27/62; F27d 11/00

U.S. Cl. 99—332

10 Claims



Methods and apparatus for cooking meat products confined in casings which utilize the application of controlled intense infrared radiation. In the cooking process an intense infrared radiation source heating the product is impelled by rapidly turning the source on and off in a cyclic manner. This enables a commercially good product to be obtained in significantly less time than is normally required in the prior art.

3,559,565

BARBECUE GRILL

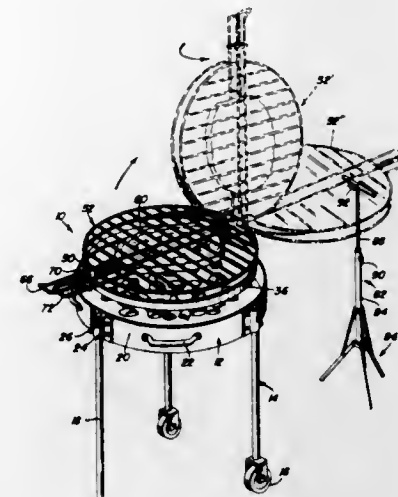
Clarence A. Getz, Hot Springs, Mont. (P.O. Box 316, Davenport, Wash. 99122)
Substitute for application Ser. No. 341,944, Feb. 3, 1964, now abandoned. This application Dec. 24, 1968, Ser. No. 810,879
U.S. Cl. 99—340

11 Claims

A fuel receptacle rotatably mounts a frame about a vertical axis which in turn removably supports a food holding grill assembly or rotisserie through which food may be controllably exposed to heat and smoke evolved from the receptacle. The grill assembly may be angularly displaced to a withdrawn

position and to invert the food when positioned over the receptacle. The rotisserie rotates the food over the recepta-

ture having a pair of squeezing discs, each rotatably mounted on a shaft slightly inclined with respect to each other, said discs being disposed opposite to each other to define an annular groove of a V-shaped cross section between their confronting inner conical surfaces. The apparatus is provided



cle below a hood that may be mounted on the rotisserie frame.

3,559,566

METHOD FOR DEHYDRATING GREEN CROP

John Axel Aspegren, Stockholm, Jan Anders Askling, Tullinge, and Lars Ingvar Larsson, Tullinge, Sweden, assignors to Alfa-Laval AB, Tumba, Sweden, a corporation of Sweden

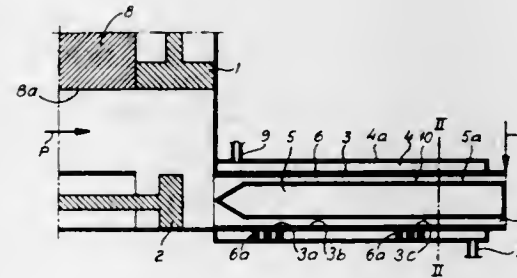
Filed Nov. 14, 1967, Ser. No. 682,801

Claims priority, application Sweden, Nov. 18, 1966, 15807/1966

Int. Cl. B30b 15/34

U.S. Cl. 100—38

9 Claims



The green crop is compressed and, during the compressing operation, is heated to a temperature of at least about the boiling point of water at the prevailing gas pressure; and the moisture emitted from the crop as a result is allowed to escape. Preferably, the green crop is held compressed during part of the time when steam is leaving it due to the heating, whereby a self-sustained or coherent end product is obtained.

3,559,567

CONTINUOUS SQUEEZING APPARATUS OF A ROTARY DISC TYPE

Ryutaro Yoritomi, 17-12, Koishikawa-5-chome, Bunkyo-ku, Tokyo, Japan

Filed June 24, 1969, Ser. No. 835,937

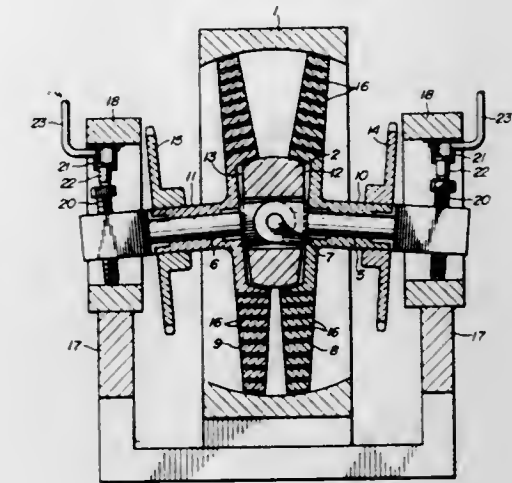
Claims priority, application Japan, July 6, 1968, 43/46901

Int. Cl. B30b 3/04

U.S. Cl. 100—158

3 Claims

An apparatus for continuously squeezing liquid out of liquid containing material at a predetermined squeezing pres-



sure having a pair of squeezing discs, each rotatably mounted on a shaft slightly inclined with respect to each other, said discs being disposed opposite to each other to define an annular groove of a V-shaped cross section between their confronting inner conical surfaces. The apparatus is provided

3,559,568

METHOD OF CONTROLLING PATTERN REPEAT LENGTH

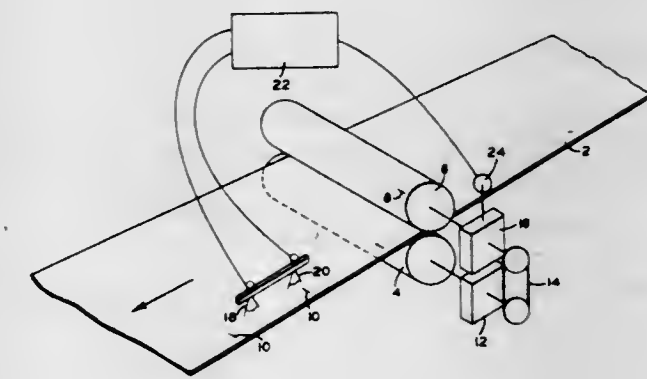
Edward W. Stanley, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania

Filed Jan. 14, 1969, Ser. No. 791,087

Int. Cl. B44c 1/24; B41f 13/10; G01n 21/30

U.S. Cl. 101—32

1 Claim



The method of controlling the repeat length of a pattern to be embossed on sheet flooring. The embossed material is provided with register marks which appear once for each pattern length. Photocells scan the register marks on the embossed product and sense any deviation from a predetermined spacing. The information sensed by the photocells is transmitted to a computer which operates a DC correction motor to adjust the drive of the embossing roll to return the spacing of the register marks to the predetermined spacing.

3,559,569

DAMPING UNIT FOR AN OFFSET PRINTING MACHINE
 Josef Jurny, Sebranice, Czechoslovakia, assignor to Adamovske strojirny, narodni podnik, Adamov, Czechoslovakia

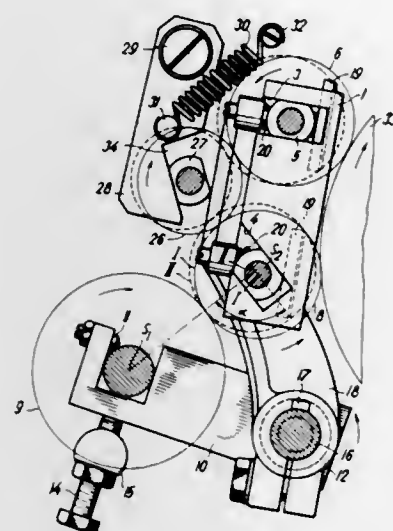
Filed Feb. 24, 1969, Ser. No. 801,500

Claims priority, application Czechoslovakia, Feb. 23, 1968, 1389-68

Int. Cl. B41f 7/40

U.S. Cl. 101-148

6 Claims



In a damping unit having two applicator rollers connected by a transfer roller and a distributor roller engaging only one of the applicator rollers, the bearings of the applicator rollers are guided between an inoperative and an operative position relative to the plate cylinder in converging slots of a guide bracket. The bearing of the applicator roller in direct contact with the distributor roller moves in a slot which is perpendicular to a plane through the axes of the distributor roller and of the directly engaged applicator roller when the latter is at the midpoint of its path between the operative and inoperative positions, thereby making the contact pressures between the two rollers precisely equal in the two positions.

3,559,570

METHOD OF PREPARING AND USING A GRAVURE PRINTING PLATE

Robert W. Martel, Webster, Joseph Mammino, Penfield, and John W. Weigl, West Webster, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York

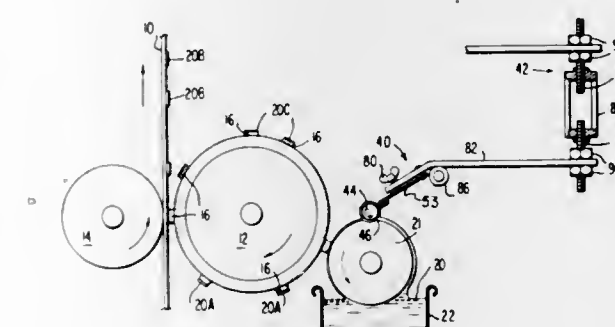
Filed July 20, 1966, Ser. No. 566,654

Int. Cl. B41m 1/10; G03g 13/10, 13/14

U.S. Cl. 101-170

14 Claims

A method of producing a reusable gravure printing plate and copies from same is disclosed which allows the use of aqueous developers in connection with a gravure plate molded out of or coated with hydrophobic composition. It has been found that when electrostatic charges are placed on the surface of a charge carrier having hydrophobic properties aqueous liquids formerly incapable of wetting the surface now are retained by reason of the presence of the electrostatic charge pattern. This discovery is employed in conjunction with the gravure imaging process of the present invention. For example, a gravure dispensing member is coated with a layer of hydrophobic photoconductive composition. The resulting photoconductive gravure member is electrostatically charged in the dark selectively exposed and developed using an aqueous base developer employing well-known xerographic techniques. The developed surface of the plate may then be contacted to a copy sheet to produce a reproduction of the original.



A printing apparatus and method wherein ink is conveyed to a printing roll via a metering roll, covered with a resilient surface, which is doctored by a flexible doctor having a moving doctor edge.

3,559,571

IMAGE TRANSFER MECHANISM

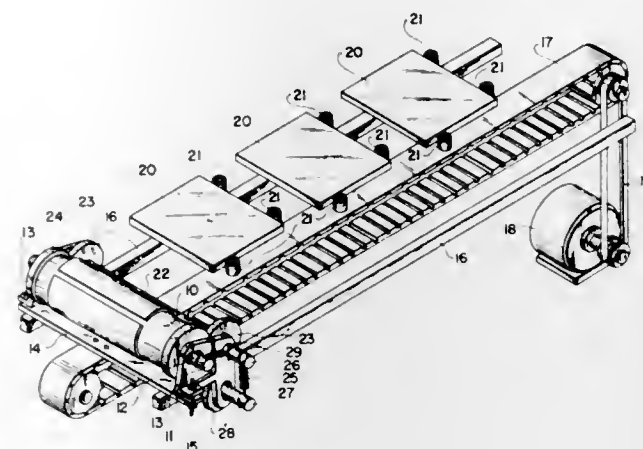
George W. Scherer and John S. Pollock, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed July 1, 1968, Ser. No. 741,448

Int. Cl. B41f 3/42

U.S. Cl. 101-186

5 Claims



In one embodiment, a transfer roller is provided, which is driven through idler wheels which are adjustable to selectively vary the frictional force between the idler wheels and the rails upon which they ride. Also, the spacing between the transfer roller and the photoconductive chips is adjustable independently of the frictional force between the idler wheels and rails. In another embodiment, one of the rails is segmented, with the chips providing the remaining portion of the one rail. These rails may be adjusted to vary the frictional force and the spacing of the transfer roller from the chips. Shims may be provided as needed on the photoconductive chips in the rail area.

3,559,572

METHOD OF INKING A PRINTING ROLL USING A METERING ROLL AND REVOLVING DOCTOR ROD
 Kenneth Lewis Hackley, Oxford, Ohio, assignor to U. S. Plywood-Champion Papers, Inc., Hamilton, Ohio, a corporation of New York

Filed May 14, 1969, Ser. No. 824,495

Int. Cl. B41f 31/06; B41f 27/14

U.S. Cl. 101-350

6 Claims

3,559,573

INK FOUNTAIN ASSEMBLY AND BLADE ADJUSTING MEANS THEREFOR

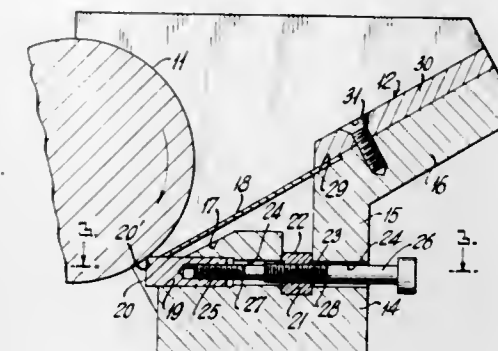
George E. Hantscho, Eastchester, N.Y., assignor to George Hantscho Company, Inc., Mount Vernon, N.Y., a corporation of New York

Filed Aug. 12, 1968, Ser. No. 751,924

Int. Cl. B41f 31/06, 31/04

U.S. Cl. 101-365

4 Claims



An ink fountain assembly embodying a plurality of independently adjustable elements forming part of the blade assembly for controlling the supply of ink to the ink roller.

3,559,574

CLAMP FOR SECURING AN INK TUBE TO A PRINTING PRESS INK PUMP

Albert George Ronald Gates, Tottenham, England, assignor to Gestetner Limited, London, England, a British company

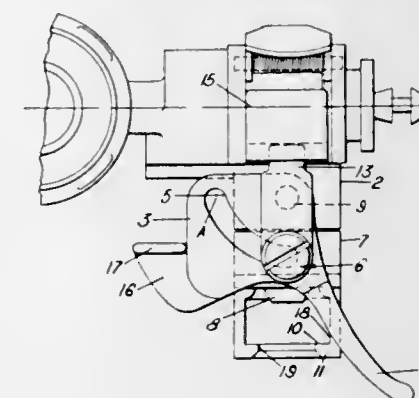
Filed Feb. 20, 1969, Ser. No. 801,006

Claims priority, application Great Britain, Feb. 22, 1968, 8764/68

Int. Cl. B41f 31/08

U.S. Cl. 101-366

13 Claims



A device for clamping an ink reservoir to a duplicator ink pump, including a slidable jaw to pull the reservoir nozzle against an ink conduit and a feeler movable across a mouth of the jaw to detect the presence of a partly inserted nozzle and either to push the nozzle home or to prevent further sliding of the jaw.

3,559,575

CLAMP INCLUDING ADJUSTABLE ABUTMENT MEANS FOR ATTACHING A FLEXIBLE PLATE TO A PRINTING CYLINDER

Francis V. Magrath and Thomas George Selman, London, England, assignors to Gestetner Limited, London, England, a British company

Filed June 6, 1968, Ser. No. 734,958

Claims priority, application Great Britain, June 21, 1967, 33,733

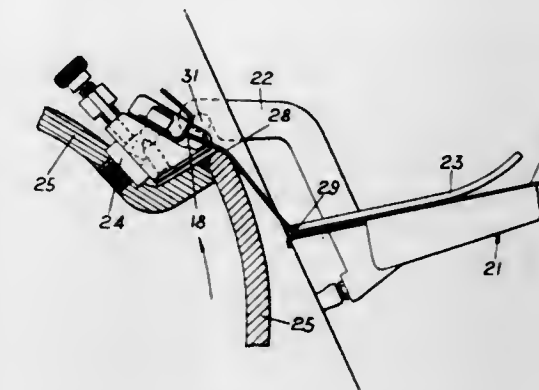
Int. Cl. B41f 27/06

U.S. Cl. 101-415.1

9 Claims

The invention provides a plate clamp for a printing cylinder in which the clamp includes an array of hooks adjustably spaced from an abutment surface so that a trailing printing plate having suitable holes near one edge may be

mounted in the clamp. A further abutment surface is provided to cooperate with a plate loading tray in order that a plate being loaded from the tray strikes the further surface



and is held in a position in which rotation of the cylinder causes the hooks to engage the holes of the plate and effect automatic clamping of the plate.

3,559,576

PLANOGRAPHIC REVERSED PRINTING

Marcel Nicolas Vranccken, Hove; Louis Maria De Haes, Edegem, and Daniel Alois Claeys, Mortsel, Belgium, assignors to Gevaert-Agfa, N.V., Mortsel, Belgium, a Belgian company

No Drawing. Filed Oct. 24, 1967, Ser. No. 677,752

Claims priority, application Great Britain, Oct. 24, 1966, 47,632/66

Int. Cl. B41m 1/08

U.S. Cl. 101-450

5 Claims

A process for producing planographic prints wherein the printing plate is prepared from a heat-sensitive recording material formed of a support, an interlayer of a water-permeable hydrophilic colloid and an external water-permeable layer of at least one hydrophobic substance which melts on heating and in such molten condition is absorbed into the hydrophilic colloid interlayer by exposing such recording material to a pattern of heat to bring about differential absorption of the hydrophobic substance in the heated regions of the layer thereof to thereby expose portions of the hydrophilic layer in a pattern corresponding to the heat pattern. The planographic plate thus produced is inked with a generally hydrophilic printing ink selectively adhering to the hydrophilic portions, and the ink is transferred to a copy material to produce the desired print. Preferably, the hydrophobic substance is miscible or compatible in its molten state with the hydrophilic colloid of the interlayer. A particularly useful printing ink consists of a colored hydrophilic continuous phase in which is dispersed a lipophilic phase of coloration distinct from that of the hydrophilic phase.

3,559,577

LITHOGRAPHIC PLATE

Burt K. Sagawa, Minneapolis, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Mo., a corporation of Delaware

No Drawing. Filed Nov. 8, 1968, Ser. No. 774,513

Int. Cl. B41n 1/00, 3/00

U.S. Cl. 101-460

6 Claims

A paper lithographic plate which can be imaged in an automatic-copying machine.

3,559,578

LITHOGRAPHIC DUPLICATING METHOD AND LITHOPLATE MASTER THEREFOR

Theodore A. Haas, Maplewood, and Collin H. Alexander, Falcon Heights, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Filed Sept. 19, 1968, Ser. No. 773,358

Int. Cl. B41m 5/00; B41n 3/00

U.S. Cl. 101-467

12 Claims

A high quality long run lithographic-printing plate is produced by applying an alpha-naphthol first reactant at

image areas to a lithoplate master containing an ionic iodide coreactant, most particularly a quaternary ammonium iodide coreactant, and heating the plate.

3,559,579

PLANOGRAPHIC PRINTING PLATES HAVING COATINGS CONTAINING INSOLUBLE XANTHATES
Glenn H. Perkins, Mexico, Maine, assignor to Ethyl Corporation, a corporation of Virginia
No Drawing. Continuation-in-part of Ser. No. 491,869, Sept. 30, 1965. This application Dec. 4, 1968, Ser. No. 781,235
Int. Cl. B41n 1/00, 3/00

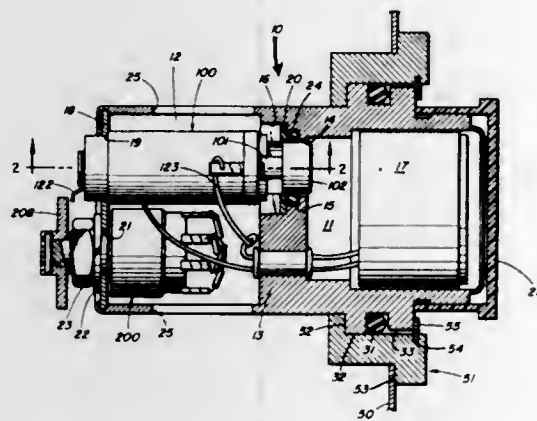
U.S. Cl. 101—462 10 Claims
Printing plates comprising a base having a planographic coating thereon of a water-insoluble polyvalent metal xanthate of a hydroxy-containing polymer containing a pigment.

3,559,580
FLOODER ASSEMBLY

Robert J. Lyon, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of Navy
Continuation-in-part of application Ser. No. 339,308, Jan. 21, 1964, now Patent No. 3,205,321. This application July 27, 1965, Ser. No. 475,631
Int. Cl. F42b 22/22

U.S. Cl. 102—13

1 Claim



A water activated battery initiated electrolytic timing device for controlling the delay period prior to flooding of a mine incorporating the flooding assembly. The electrolytic timer incorporates a valve actuation device for establishing fluid communication between a body of water external thereto and the interiormost chamber of the floodor assembly.

3,559,581

METHOD OF MANUFACTURE OF THIN-WALLED PLASTIC SHELL CASINGS

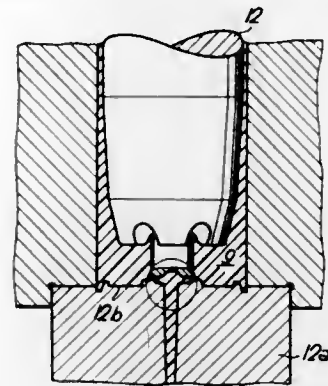
Roman Kriz, Vlasim, Josef Hrdina, Rimovice, and Josef Svejda, Vlasim, Czechoslovakia, assignors to Blanicke strojirny narodni podnik, Vlasim, Czechoslovakia, a firm
Continuation-in-part of application Ser. No. 592,586, Nov. 7, 1966, now abandoned. This application Dec. 5, 1968, Ser. No. 781,551
Int. Cl. F42b 9/30

U.S. Cl. 102—43

2 Claims

A method for manufacturing plastic shell casings having relatively thin-walled tubular bodies. The tubular bodies of the shell casings manufactured in accordance with the method of this invention have cylindrical walls and a bottom which is integral with said cylindrical walls. The outer bottom edge of the shell casing has a rim member which extends downwardly therefrom. Cumulative liquid polymer plastic

distribution means are mounted at the bottom of a mold having a shape corresponding to that of the finished plastic shell



casing and inject liquid polymer plastic material into the mold by means of the slit injection molding technique.

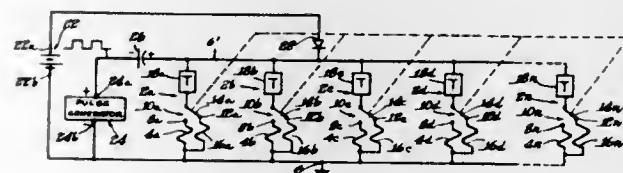
3,559,582

SQUIB CONTROL CIRCUIT

Bohuslav A. Hrzek, Troy, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich., a corporation of Delaware
Filed Dec. 27, 1968, Ser. No. 787,477
Int. Cl. F42c 11/00, 11/06, 15/06

U.S. Cl. 102—70.2

8 Claims



A number of branch circuits is provided each containing a low resistance squib element connected across a pair of voltage input points each of which branch circuits includes a self-resetting, solid state, threshold level responsive switch device which is in a normally high resistance condition and is triggered to a low resistance condition when a voltage applied thereacross exceeds a given threshold voltage value, which low resistance condition persists until the current flowing therethrough drops below a given holding current level. Each squib element will then heat and blow to trigger a given operation and open the branch circuit involved when the current persists therethrough for a given minimum duration. Means for providing a source of voltage pulses is connected across the input points which pulses preferably exceed the threshold voltage values of all of the threshold level responsive switch devices in the branch circuits. The voltage responsive characteristics of the switch devices vary somewhat so only one of the switch devices is triggered into its low resistance condition for each pulse to effect a flow of current for said duration to blow the associated squib element.

3,559,583

OVERHEAD RAILWAY

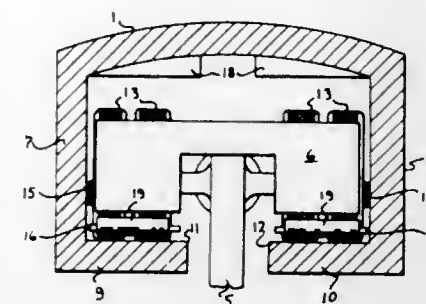
Lucien Felix Chadenson, Paris, France, assignor to Safège Transport, Paris, France, a company of France
Filed Apr. 8, 1968, Ser. No. 719,370
Claims priority, application France, Apr. 10, 1967, 102,110
Int. Cl. B61b 3/00; B60v 1/00

U.S. Cl. 104—89

5 Claims

An overhead railway system wherein a car body is suspended from a plurality of bogie trucks traveling in a boxlike beam having a longitudinally extending slot in its lower face. The trucks are supported and propelled by a plurality of pneumatic tired wheels in running engagement with horizontal tracks defined by the upper surfaces of the flanges adjacent to the slot. High-speed operation is improved by reducing the tire load while maintaining adequate tire ad-

herence for propulsion and braking. This is achieved by means of air cushion members supported by the trucks and arranged so that their lower faces are substantially parallel to



the horizontal tracks. Alternatively the lifting force may be provided by magnetic members secured to the trucks and acting against either the horizontal track or the upper surface of the boxlike beam.

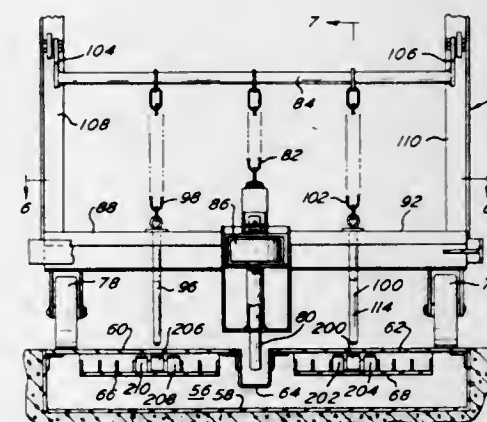
3,559,584

TOW TRUCK SWITCHING SYSTEM

Robert R. Frantz, Easton, Pa., and Sanford G. Franklin, Millford, N.J., assignors to SI Handling Systems, Inc., Easton, Pa., a corporation of Pennsylvania
Filed June 10, 1968, Ser. No. 735,680
Int. Cl. B61j 3/00

U.S. Cl. 104—88

12 Claims



Preset adjustable members on a vehicle electromagnetically control an electrical circuit to control switching movement of a vehicle whereby no part of the vehicle makes physical contact with the switch-controlled mechanism except for contact between a tow pin on the vehicle and a diverter.

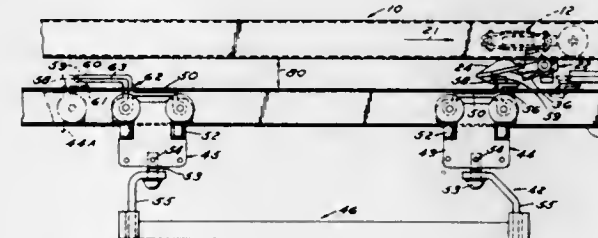
3,559,585

POWER AND FREE CONVEYOR

George D. Lempio, Detroit, Mich., assignor to Jervis B. Webb Company, a corporation of Michigan
Filed Mar. 28, 1969, Ser. No. 811,469
Int. Cl. B65g 17/42

U.S. Cl. 104—172

18 Claims



A conveyor of the power and free type having a power track for a propelling member spaced above a carrier sup-

porting track. Each carrier is provided at the front end with a rigid main driving dog and at the rear end with a rigid combination releasing cam and auxiliary driving dog. Forwarding motion is imparted to a carrier by a pusher unit on the propelling member, the pusher unit including an auxiliary driving face and a movable pusher member having main driving and holdback faces. At a normal spacing between the power and carrier tracks, the main driving and holdback faces on the pusher member are engageable with the main driving dog of a carrier and the pusher member is movable to a nondriving position in response to engagement with a stop or with the auxiliary driving dog of a preceding carrier. At a reduced track spacing, the pusher member is movable to a position of positive driving engagement with the main carrier driving dog, or alternately, the auxiliary driving face of the pusher unit is engageable with the auxiliary driving dog of a carrier.

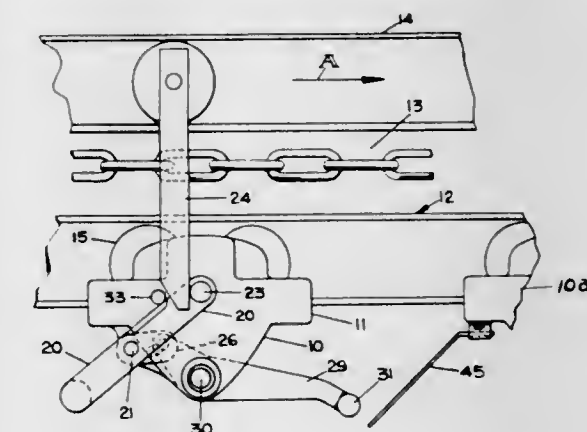
3,559,586

RETRACTING PUSH-ROD ASSEMBLY FOR CONVEYORS

Richard D. Follrath, Birmingham, Mich., assignor to Rapistan, Incorporated, Grand Rapids, Mich., a corporation of Michigan
Filed Nov. 29, 1968, Ser. No. 779,706
Int. Cl. B65g 17/42

U.S. Cl. 104—172

4 Claims



A linkage to effect the automatic release of the trolleys of a power and free conveyor from the continuously moving propelling member in which the arm which connects the trolley to the propelling member is hinged to a sensing lever which is pivotally shifted upon contact with an obstruction ahead of the trolley such as a preceding trolley stalled on the track. The hinge provides a connection which locks the arm in erected propelling member engaging position and positively holds the arm in retracted position, out of engagement with the propelling member, when the sensing lever is pivotally shifted by contact with an obstruction.

3,559,587

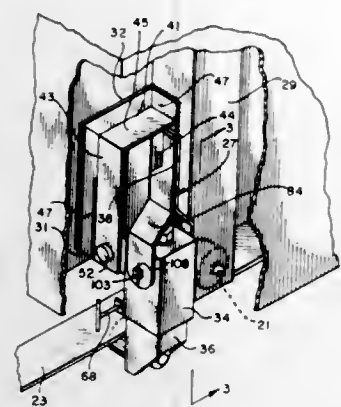
SPRING LOADER TRACTION INCREASING APPARATUS
Cordis W. Jones, Salina, Kans., assignor to Hastings Dynamold Corporation, Hastings, Nebr., a corporation of Nebraska
Filed Mar. 25, 1968, Ser. No. 715,738
Int. Cl. B61c 11/00, 15/00; F01c 23/06

U.S. Cl. 105—73

5 Claims

This invention relates to a device for placing reaction load on heavy duty equipment to maintain the required traction, and, more particularly, to a spring loader apparatus connectable between a support base and a machine device to provide the downward counterbalancing force needed in cutting- and grinding-type operations. Still, more specifically, this invention relates to a spring loader apparatus connectable to a heavy duty machine including an attachment frame connected to a machine; a main housing connected to the attachment frame having a roller member engageable with an anchored support base; a spring member mounted within the main housing to bias the roller member upwardly against the

support base; and a cam assembly engageable with the spring member to achieve a load on the spring member in order to



bias the heavy duty machine downwardly usable, for example, in grinding and/or cutting operations on a concrete slab or the like.

3,559,588

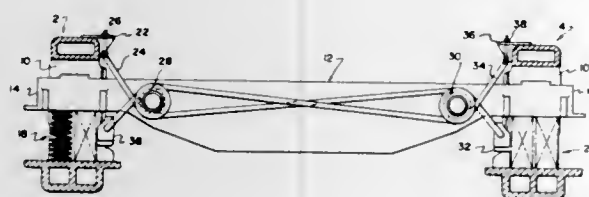
RAILWAY BOGIE WITH SNUBBED BOLSTER

Robert W. Luebke, Baltimore, Md., assignor to General Standard Company, Chicago, Ill., a corporation of Illinois
Filed Dec. 15, 1967, Ser. No. 690,986

Int. Cl. B61f 5/06, 5/12, 5/44

U.S. Cl. 105-197

11 Claims



An apparatus and method designed to prevent the excessive roll of freight cars caused by uneven tracks, track curves and uneven roadbeds. The apparatus and method discussed herein are designed to produce a predetermined biasing tension on the bolster member between the side frame of a freight car truck in a manner such that most of the rolling motion of the car body, which is supported on the truck, is converted from essentially a roll motion to a substantially vertically directed controlled motion. While the method is designed to convert freight car roll motion to essentially vertical motion, the apparatus used to carry out the method may be varied. The preferred system utilizes at least one cable secured to one of the side frames of a freight car truck and which extends therefrom into contact with biasing devices secured to the bolster portion of the truck and which is finally connected to the opposite side frame. Acceptable results can be produced utilizing a plural rod, link pin assembly, an electromagnetic biasing arrangement, or a hydraulic biasing arrangement.

3,559,589

BOLSTER-DAMPENED FREIGHT CAR TRUCK

Ray C. Williams, Chicago, Ill., assignor to Standard Car Truck Company, Chicago, Ill., a corporation of New Jersey
Filed Sept. 6, 1968, Ser. No. 757,845

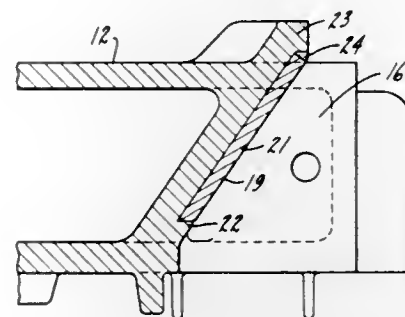
Int. Cl. B61f 5/06, 5/12

U.S. Cl. 105-197

3 Claims

In a railroad car windowed side frame and bolster combination, a removable inclined antifriction bearing pad on the bolster is in contact with the inclined face of a spring-biased, stabilizing wedge, so that the frictional resistance to upward movement of the wedge is minimal to permit the spring to cause maximum lateral pressure of the wedge, against a verti-

cal friction surface on the side frame, to increase the stabilizing effect of the wedge. The plate is dovetailed into the



bolster at its lower edge and is locked in place by a weld between the plate and a ledge projecting from the bolster at its upper edge.

3,559,590

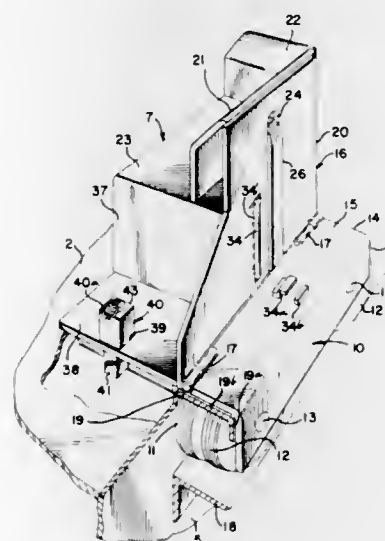
CONTAINER VEHICLE AND ADJUSTABLE BRACKET MEANS THEREFOR

Jack E. Gutridge, Dyer, Ind., assignor to Pullman Incorporated, Chicago, Ill., a corporation of Delaware
Filed Nov. 6, 1968, Ser. No. 773,934

Int. Cl. B61d 45/00

U.S. Cl. 105-366

7 Claims



In a container carrying flat deck railroad car, a plurality of container supporting adjustable brackets, each bracket comprising a roller carriage means moved along and retained by the side portion of the flat deck car, the carriage means pivotally carrying an upright container-supporting member provided with a container corner seat and lock means insertable in a set of longitudinally spaced apertures for securing the bracket support member to the deck and having container indexing and tying means for attaching the container corner to the support member, said support member being foldable into a recess on the deck to lie flush with the deck or tilted outwardly and supported by a stilt for movement thereof longitudinally of the deck by the roller carriage.

3,559,591

LADING FILLER

Henry D. Breen, Chicago, and Russell M. Loomis, Palos Heights, Ill., assignors to Unarco Industries, a corporation of Illinois

Filed Sept. 10, 1968, Ser. No. 758,747

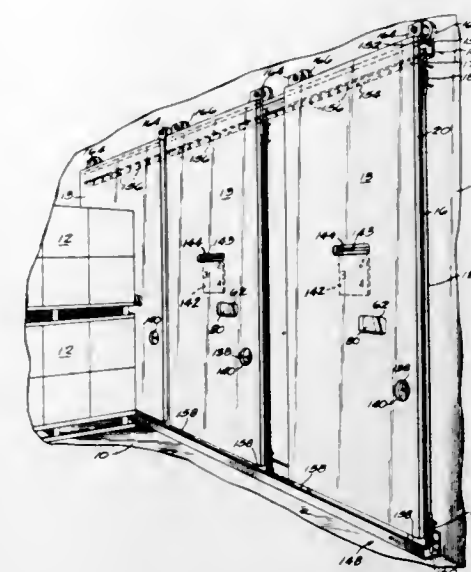
Int. Cl. B60p 7/14; B61d 45/00

U.S. Cl. 105-369

13 Claims

A lading filler having a frame which is either stationarily mounted on a wall of a railway car or the like or is moveable along a sidewall on elongated tracks. A panel is adjustably mounted on the frame by two sets of moveable crossed arms and each set is connected by a pair of moveable tie bars. A locking arrangement is provided for locking the panel in one

of its adjusted positions which includes a member which is moveable by and in the same direction as ends of the crossed



arms. Further latching means are provided for locking the panel to the frame and for preventing movement along the sidewall.

3,559,592

EXTENSIBLE TYPEWRITER STAND

Jose Closa, Tarrasa, Spain, assignor to Aurora Corporation, Miami, Fla.

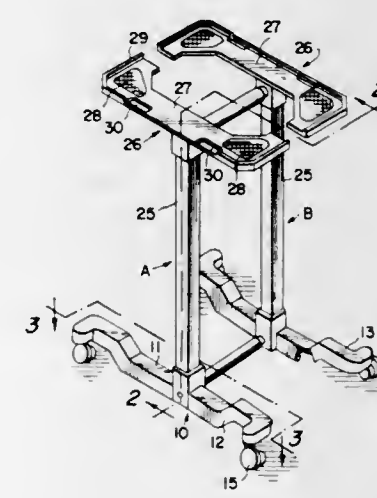
Filed Jan. 13, 1969, Ser. No. 790,741

Claims priority, application Spain, Feb. 7, 1968, 136,363

Int. Cl. A47b 1/08

U.S. Cl. 108-102

9 Claims



This specification discloses an extensible stand designed primarily for the support of typewriters. The stand comprises two complementary assemblies adjustable horizontally relative to one another. Each assembly comprises a vertical standard, a base or pedestal at the lower end of the standard, a table at the upper end of the standard, and two horizontal tubular supports. One of these supports extends laterally from the upright just below the table and the other extends laterally from the midpoint of the pedestal. The tubular supports of one assembly are telescopically received in those of the other assembly and mechanism is provided for locking these supports in an adjusted position.

The present invention relates to extensible stands intended for the support of typewriters and is concerned primarily with a stand that is mobile, has a high degree of stability, is readily adjustable to accommodate a typewriter of a particular size, and is easily locked in an extended position.

3,559,593

SECURITY CONTAINER

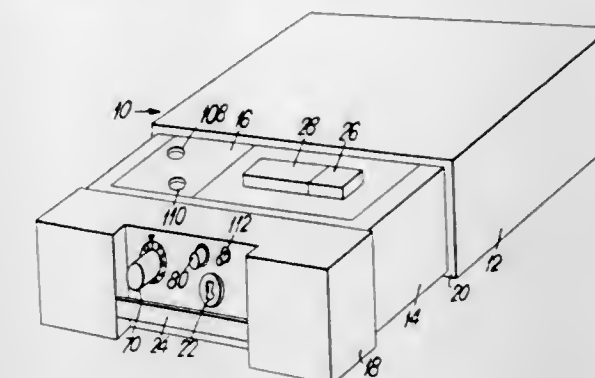
Edward A. Munton, Thorpe Bay, Essex, and Alan Birt Acres, Leigh-on-Sea Essex, England, assignors to Vigil Security Limited, Sussex, England, a British company
Filed July 15, 1969, Ser. No. 841,878

Claims priority, application Great Britain, July 18, 1968, 34283/68

Int. Cl. E05g 3/00

U.S. Cl. 109-25

10 Claims



A portable security container adapted to contain valuable articles and comprising a lock which when opened permits access to the interior of the container, a security circuit comprising a plurality of gating circuits, means adapted to apply a voltage from a voltage source within the container to each gating circuit to render it conductive, a further circuit which can take more than one state and which is arranged to change state if the voltage is not applied to the gating circuits in a predetermined sequence, and if the lock is opened before a predetermined number of gating circuits have been rendered conductive, means adapted to destroy or characteristically mark the contents of the container upon said change of state of the further circuit, and voltage-sensing means to cause the further circuit to change state if the said voltage falls below a predetermined value.

3,559,594

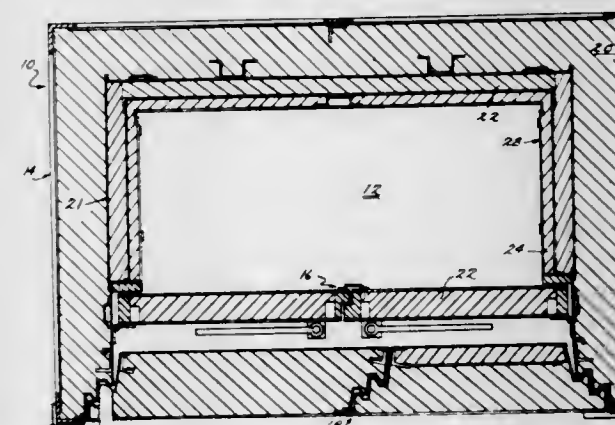
FIRE RESISTANT SAFE

Walter N. Miller, Cannelton, Ind., assignor to Schwab Safe Co., Inc., Lafayette, Ind., a corporation of Indiana
Filed July 14, 1969, Ser. No. 841,284

Int. Cl. E04b 2/02

U.S. Cl. 109-84

8 Claims



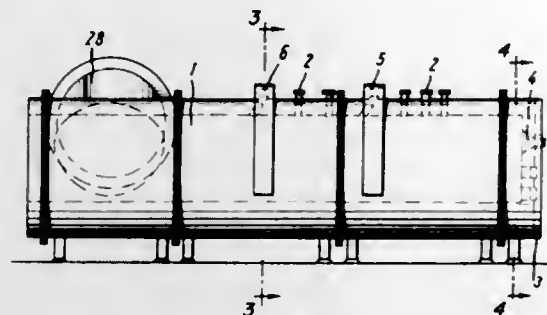
A fire resistant safe, particularly for the storage of EDP records such as magnetic tapes, discs, microfilm and the like, wherein an inner storage area or repository is surrounded by at least three layers of heat resistant material, an outer layer of concrete, a middle layer of insulation such as urethane foam separated from the concrete by a polyethylene moisture shield and an inner layer comprised, at least in part, of Sodium Acetate Trihydrate which is a material with a heat fusion of 100 B.t.u. per lb., a melting point in the range of 136-144° F. and a density of approximately 90 lbs. per cubic foot. Such a safe has been shown to maintain the temperature of its inner repository below 150° F. and the relative humidity of the repository below 85 percent for 4 hours when subjected to an external temperature of 2000° F.

3,559,595 INCINERATION SYSTEM FOR BURNABLE LIQUIDS OR SLUDGES

Hermann Appelhans, Kassel, and Wolfgang Schumann, Hannover-Munden, Germany, assignors to Polyma Maschinenbau, Dr. Appelhans G.m.b.H., Frankfurt, Germany
Filed Nov. 25, 1968, Ser. No. 778,401
Int. Cl. F23g 5/00

U.S. Cl. 110-7

4 Claims



In an incineration system with an incineration muffle for burnable liquids or sludges of different heating value, different ignition temperature and/or different viscosity and which possibly contain nonburnable substances, an improved means to feed the material to be incinerated from the roof of the muffle characterized by a plurality of feed tubes depending through the roof with air feed devices being arranged closely adjacent thereto.

3,559,596 METHOD AND APPARATUS FOR INCINERATING SLUDGE

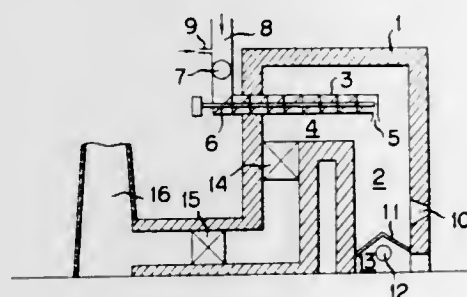
Kazuo Ishii and Mutsuo Koizumi, Tokyo, Japan, assignors to Kurita Water Industries Ltd, Osaka-shi, Japan, a corporation of Japan

Filed Mar. 18, 1969, Ser. No. 808,140
Claims priority, application Japan, Mar. 23, 1968, 43/18,808

Int. Cl. F23g 5/04

U.S. Cl. 110-7

10 Claims



A method of incinerating sludge which comprises the steps of subjecting watery organic sludge to pressure and heating concurrently and then jetting the thus treated sludge into a combustion chamber so as to evaporate most of the water contained in the sludge instantaneously with said jetting and incinerating the resultant solid matters within the combustion chamber, said chamber being provided with a packed layer of refractories designed to catch said solid matters, and an apparatus pertaining thereto.

3,559,597 INCINERATOR

Bernhard Heiny, Wolfsburg, Germany, assignor to Volkswagenwerk A. G., Wolfsburg, Germany, a corporation of Germany

Filed Jan. 29, 1969, Ser. No. 795,126

Claims priority, application Germany, Jan. 30, 1968, Feb. 16, 1968, 1,601,294; 1,601,295

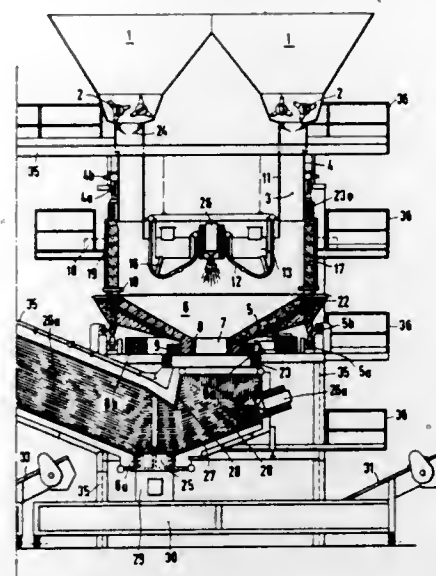
Int. Cl. F23g 5/12

U.S. Cl. 110-10

26 Claims

Incinerator furnace is gravity fed and includes a secondary combustion chamber beneath the primary chamber. The fire

pot of the latter and the outer wall of the furnace stack are rotated. Auxiliary burners in the second chamber ensure



complete burning of the refuse. An exhaustor draws the combustion gases through a boiler, and through a preheater for combustion air, and keeps the furnace at a negative pressure.

3,559,598 REFUSE BURNER

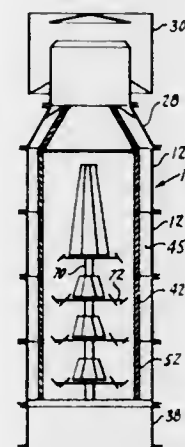
Elson R. McClure, 1427 Carroll Lane P. O. Box 68, Paradise, Calif. 95969

Filed Mar. 21, 1969, Ser. No. 809,264

Int. Cl. F23g 7/00

U.S. Cl. 110-18

8 Claims



A vertical casing is provided therewithin with an annular vertical structure provided with openings therethrough for the free flow of air and products of combustion into the space within the casing to facilitate combustion of refuse within the inner wall and a vertically elongated grate structure is provided centrally of the device to facilitate the free flow of air and rapid combustion of the waste material burning operation.

3,559,599 MACHINE FOR PLANTING AND SEALING FURROW WITH TRANSPARENT MATERIAL

Alfred D. Hoadley, Napoleon, Ohio, assignor to Campbell Soup Company, Camden, N.J., a corporation of New Jersey

Filed Dec. 6, 1968, Ser. No. 781,911

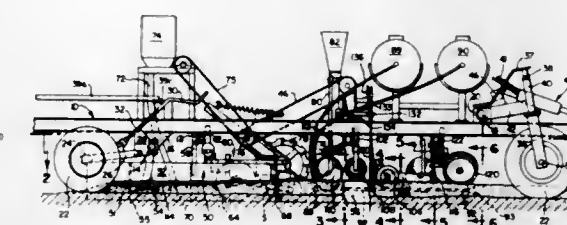
Int. Cl. A01g 13/02; A01c 7/18

U.S. Cl. 111-1

12 Claims

A field-cultivating machine which while moving across a field forms a selectively shaped furrow in the soil, prepares the soil for planting, plants seeds or seedlings in the furrow, and then forms a closed chamber by sealing a strip of plastic film over the top of the furrow and into the soil along both sides which by limiting temperature range in the furrow,

promotes seed germination and accelerates plant growth. The machine is drawn by a tractor and includes a plow and furrow-shaping structure which support the sides of the furrow while planting and sealing are completed. The soil is prepared by devices which introduce fertilizer, water, insecticide and herbicide into the furrow and then the seeds or seedlings are planted in the bottom of the furrow. A strip of



translucent plastic film is continuously laid and supported over the furrow by at least one surface while the edges of the film are pressed into preformed grooves extending along the sides of the furrow. Soil discs place soil on the film edges while they are held in the grooves and packing wheels press the soil firmly against the film sealing the edges. Shaped slits are mechanically made in the film at intervals over the furrow to allow ingress of water and a limited exchange of air.

3,559,600 QUILTING APPARATUS

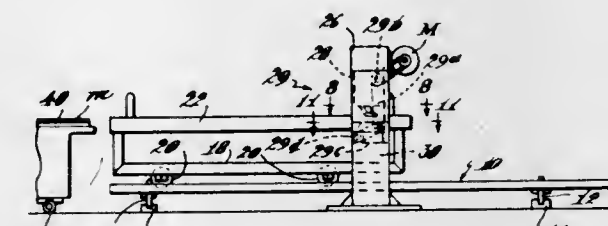
Frederick E. Kalning, Quincy, and Howard E. Redman, Weymouth, Mass., assignors to Mathewson Corporation, Quincy, Mass., a corporation of MA

Filed Jan. 21, 1970, Ser. No. 004,680

Int. Cl. D05b 11/00, 35/00

U.S. Cl. 112-118

18 Claims



A quilting machine in which there is a frame for supporting a length of material to be quilted for movement transversely and longitudinally of a plurality of transversely disposed sewing heads, conveyor means operable by engagement with the opposite longitudinal edges of the material to move it onto the frame for quilting and off of the frame after quilting, jaws gripping the opposite ends of the material and applying longitudinal tension thereto, underside supports for supporting the material intermediate the opposite edges while moving it onto the frame for clamping, thread cutters for cutting the needle and bobbin threads as the quilted material leaves the machine and mechanism for maintaining a constant speed ratio between the drive shafts of the needle bars and the bobbins throughout vertical movement of the needle bars relative to the bobbins.

3,559,601 SKIP STITCH MECHANISM FOR HOUSEHOLD SEWING MACHINES

Edward J. Tullman, Union, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey

Filed Aug. 7, 1969, Ser. No. 848,175

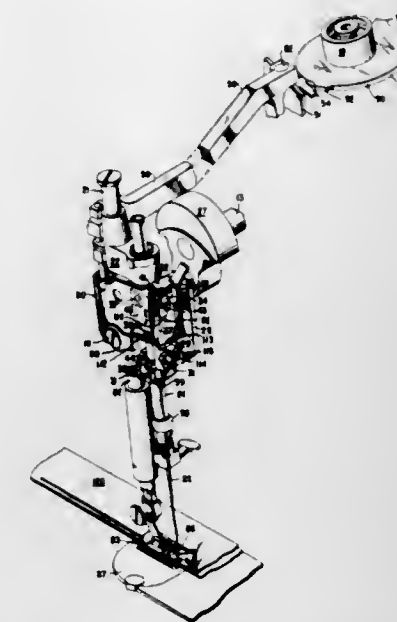
Int. Cl. D05b 3/02

U.S. Cl. 112-158

5 Claims

A needle bar reciprocation interrupting mechanism is disclosed for sewing machines by which the formation of stitches may be intentionally skipped so that extremely long stitches as for basting may be formed, or by which isolated stitch groups may be sewn. In the mechanism disclosed the stitches will be skipped each time the zigzag mechanism jogs

the needle bar beyond a range of positions in which it can cooperate with the stitch-forming mechanism to form a stitch. In this manner the complete range of zigzag stitch capabilities of the sewing machine will remain available and the skip stitch mechanism does not require any more than



setting of the conventional zigzag control means to render it selectively effective. Also disclosed is a safety cam means by which the needle bar when jogged to an abnormal position will automatically be deflected back into the range of positions capable of forming a stitch in the event that the needle bar interrupting means should accidentally malfunction.

3,559,602 LOCKING DEVICE FOR SKIP STITCH MECHANISMS

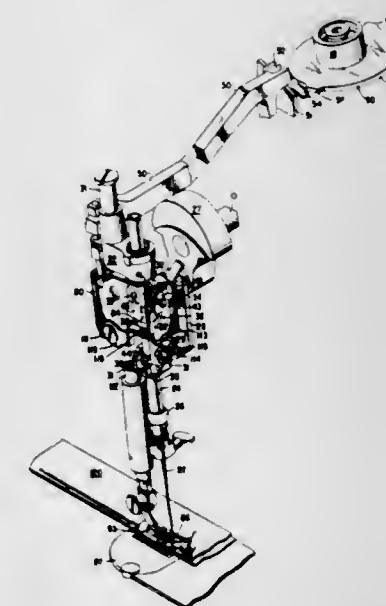
Stephen J. Illes, Summit, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey

Filed Aug. 7, 1969, Ser. No. 848,177

Int. Cl. D05b 3/02

U.S. Cl. 112-158

3 Claims



A skipstitch mechanism for household sewing machines is disclosed in which a clutch device is provided for interrupting the needle bar reciprocation so that stitches may be skipped to form extremely long stitches as for basting or the like. The skipstitching is effected by the operation of the zigzag-stitching mechanism of the sewing machine in one position of adjustment of the zigzag control means. A locking device is disclosed for holding the zigzag control means in position to effect skipstitching while the needle bar reciprocation is interrupted by the skipstitch means.

3,559,603

THREAD CUTTING MECHANISM

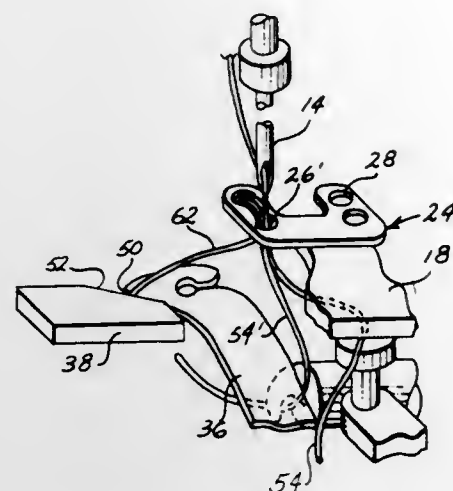
Gilbert A. Littell, Versailles, Ky., assignor to Textron Inc., a corporation of Delaware

Filed May 27, 1969, Ser. No. 828,173

Int. Cl. D05b 65/00

U.S. Cl. 112—252

9 Claims



A thread-cutting mechanism for a sewing machine having a finger member movable after the first cyclical stroke of the needle for removing and retaining the beginning end of the thread located underneath the garment from the reciprocal path of movement of said needle. After the last cyclical stroke of the needle, the finger member returns to its rest position and in so doing severs the thread retained by a looper member underneath the garment, whereby both the beginning and trailing ends of the thread are concealed from view.

3,559,604

METHOD OF FORMING SWAGED CONTACTS USING PROGRESSIVE DIE

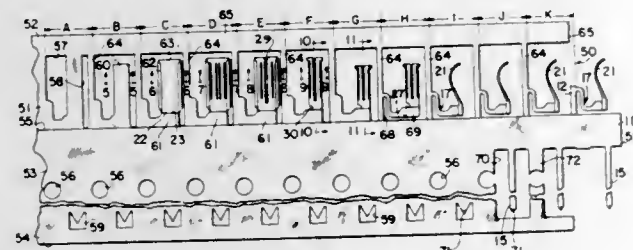
Herbert E. Ruehleman, Huntington Valley, and Peter Slobodzin, Philadelphia, Pa., assignors to Elco Corporation, Willow Grove, Pa., a corporation of Delaware

Original application Apr. 13, 1967, Ser. No. 630,612, now abandoned. Divided and this application Aug. 15, 1968, Ser. No. 770,461

Int. Cl. B21d 53/26

U.S. Cl. 113—119

3 Claims



The nose section of a printed circuit board connector stamped from a strip of metal has two different thicknesses achieved by progressively piercing a U-shaped hole in the strip to form a cantilevered lug oriented normal to the grain direction, and then swaging the lug to increase its width and reduce its thickness. The U-shaped hole provides clearance for the two dimensional growth of the lug resulting from the swaging operation without affecting the remainder of the strip which is then progressively pierced to form a cantilevered car oriented in a direction parallel to the grain with the swaged lug supported on the free end of the car. The cantilevered car is then progressively bent along the line perpendicular to the grain to turn the lug so that it defines a surface perpendicular to the car thus establishing the wiping finger of the contact.

3,559,605

LUG TYPE CLOSURE CAP AND METHOD OF FORMING IT

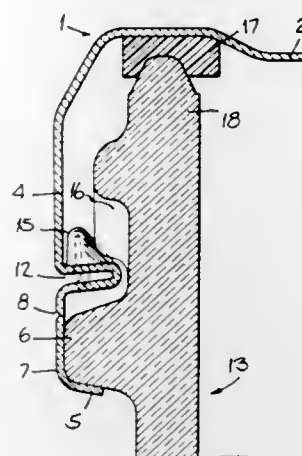
Daniel D. Acton, Lancaster, Ohio, assignor to Anchor Hocking Corporation, a corporation of Delaware

Original application Sept. 1, 1967, Ser. No. 664,982, now Patent No. 3,469,727. Divided and this application May 22, 1969, Ser. No. 842,759

Int. Cl. B21d 51/00

U.S. Cl. 113—121

2 Claims



A closure cap having an inwardly rolled bead around its skirt in a zone spaced from the lower edge of the skirt, which bead is flattened against the skirt to give a substantially smooth outer skirt surface and has spaced lugs thereon which are hidden inside the skirt. The lower portion of the skirt may be crimped about a bead on the container to be sealed, creating a barrier against contamination and insect infestation between the container finish and closure skirt, and may be used as a tear strip for unsealing the package by forming a score line in the skirt below the lug forming portion. The method of forming the hidden lugs comprises rolling the bead inwardly from the skirt, flattening the bead and holding spaced portions while folding the intermediate portions against the side of the skirt.

3,559,606

SUBMERSIBLE BARGE ROLL CONTROL SYSTEM

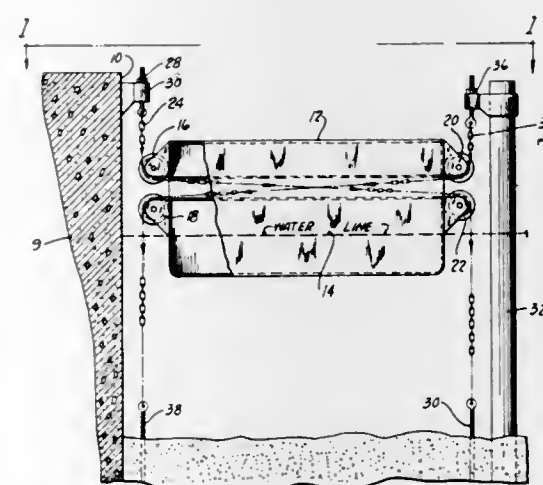
Charles E. Gregory, Anchorville, Mich., assignor to Jered Industries, Inc., Troy, Mich., a corporation of Michigan

Filed Apr. 9, 1969, Ser. No. 814,672

Int. Cl. B63c 1/08

U.S. Cl. 114—44

6 Claims



A dry dock comprising a submersible barge located between a pier and piling, sheaves carried by the sides of the barge, and chains trained over the sheaves and extending across the barge in crisscross fashion whereby the barge is maintained in a stable condition regardless of the location of the centers of gravity of the barge and a ship or boat carried by the barge with respect to the center of buoyancy of the barge.

3,559,607

MULTIPLE RETRIEVAL SYSTEM FOR OBJECTS IN SUBMARINE ENVIRONMENT

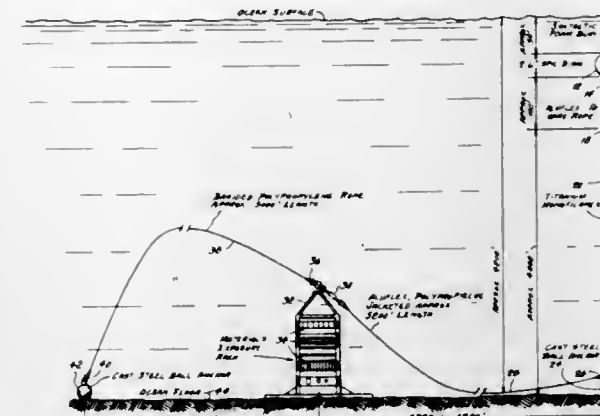
Aleksander B. Macander, Jersey City, N.J., and Clarence K. Chatten, Jackson Heights, N.J., assignors to The United States of America as represented by the Secretary of the Navy

Filed Jan. 28, 1969, Ser. No. 794,508

Int. Cl. B63c 7/02

U.S. Cl. 114—51

6 Claims



A multiple retrieval system for objects placed on the sea floor for extended periods of time comprising holding means and three retrieval means. The first retrieval means is a vertical line system, the line being fabricated of titanium monofilament fastened to a cast-steel ball anchor at the lower end and a syntactic-foam globular buoy at the upper end which is some 50 feet below the ocean surface. The second retrieval system comprises a 5200-foot length (approximately) of polypropylene-jacketed, aluflex line extending from said cast-steel ball anchor to a frame for holding the submerged object. The third retrieval system comprises a 5,000-foot length (approximately) of polypropylene, self-buoyant rope extending from the frame to another cast-steel ball anchor.

3,559,608

AIR-CUSHION VEHICLES

Edward Gunston Tattersall, Hythe, Southampton, England, assignor to Hovermarine Limited, London, Great Britain, a corporation of the United Kingdom

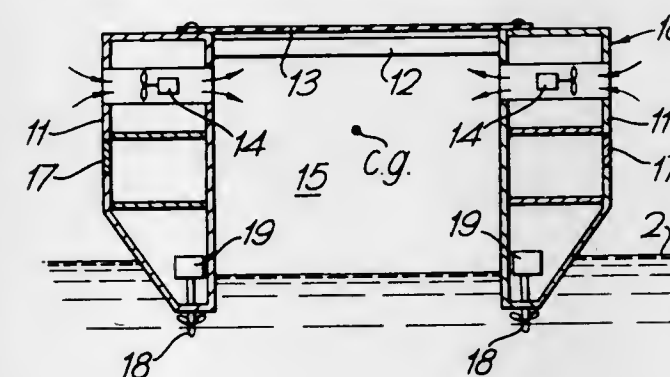
Continuation-in-part of application Ser. No. 620,713, Mar. 6, 1967, now abandoned. This application Mar. 26, 1969, Ser. No. 810,769

Claims priority, application Great Britain, Mar. 14, 1966, 11,102/66

Int. Cl. B63b 1/38

U.S. Cl. 114—67

23 Claims



An air-cushion vehicle in which the body comprises a laterally-spaced pair of body structures which contain the payload of the vehicle and which are rigidly interconnected and provide therebetween a substantially unobstructed cavity for the air-cushion, the cavity being enclosed by a membrane canopy sealingly connected to the body structures.

3,559,609

BALLAST

Charles H. Sydow, Jr., and Orien W. Van Dyke, Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware

No Drawing. Filed Dec. 27, 1968, Ser. No. 787,584

Int. Cl. B63b 43/06

U.S. Cl. 114—125

10 Claims

Water borne vessels are ballasted using a substantially liquid free composition containing a weighting agent such as barite or a weighting agent coated with a hydrophobic agent such as stearic acid. The composition can contain at least one clay to adjust the bulk density to a predetermined value and at least one desiccant.

3,559,610

ANTIROLL FACILITIES

Albert Viollet, Bagneux, and Edmond Voillaume and Francois Bouilhol, Paris, France, assignors to Association Des Ouvriers En Instruments de Precision, Paris, France, a French body corporate

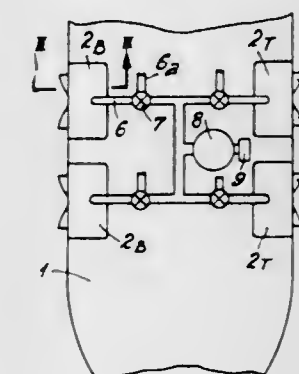
Filed Dec. 30, 1968, Ser. No. 787,871

Claims priority, application France, Dec. 29, 1967, 134,315

Int. Cl. B63b 43/06

U.S. Cl. 114—125

13 Claims



A weighted rod and a coaxing contact carrier frictionally entrainable by a mounting on a rolling craft generate timing signals in positions of maximum lateral excursions of craft with reference to a longitudinal axis, the rod being pivotally mounted aboard the craft on a shaft parallel to that axis so as substantially to maintain a vertical reference position whereby two sets of contacts on these relatively movable members are alternately closed during respective half-cycle of the rolling motion. The timing signals control the operation of an antiroll system, specifically two stabilizer tanks on opposite sides of the craft which are alternately filled with and drained of water and which are supplemented by a further pair of tanks whose relative water volume is altered to balance deviations of the mean attitude of the craft from an upright position as likewise determined from these timing signals.

3,559,611

AMPHIBIOUS VEHICLE

Walton W. Cushman, Webb City, Mo., assignor to Martin Tucker, as trustee, New York, N.Y.

Filed Mar. 14, 1968, Ser. No. 713,160

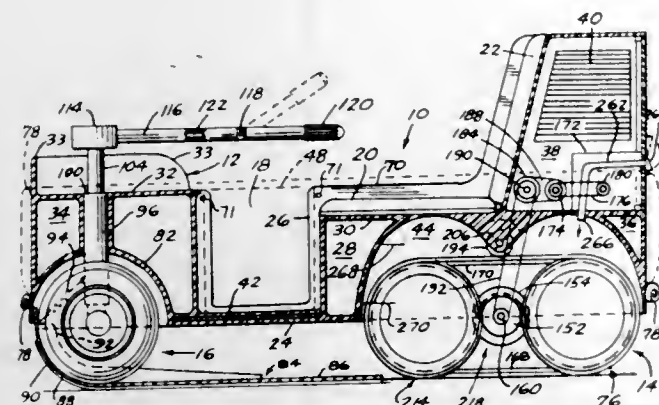
Int. Cl. B63f 3/00

U.S. Cl. 115—1

16 Claims

A lightweight, high-performance amphibious vehicle with both off-road and highway operational capability, the vehicle

including a body with variable flotation means for operation over water, front steerable suspension and running gear



means with reset steering and rear circumferentially loaded and snubbed hubless wheel suspension and locomotion means.

3,559,612

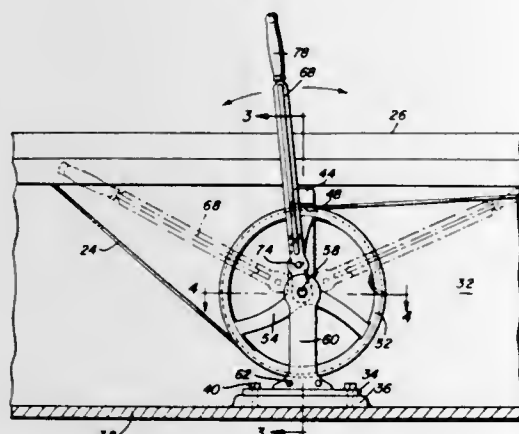
STICK STEERING KIT FOR BOATS

Jacob E. Patterson, P.O. Box 796, Minden, La. 71055
Filed Aug. 26, 1968, Ser. No. 755,120

Int. Cl. B63h 21/26

U.S. Cl. 115-18

4 Claims



A remote steering assembly for a boat incorporating a pivotally supported steering stick rigid in relation to a grooved wheel to which a steering cable is connected and entrained in such a manner to steerable control the boat from a point adjacent the bow and one side of the boat. The structure of the wheel and its associated structure is such that the cable will be retained in the groove thereby eliminating the possibility of disengagement of the cable. The stick steering enables a person adjacent the bow of the boat to control the direction of the boat and the stick may be oriented in a stored or inoperative position below the top edge of the gunwale of the boat so that a person occupying the front seat thereof may fish off the side of the boat without interference from the steering stick.

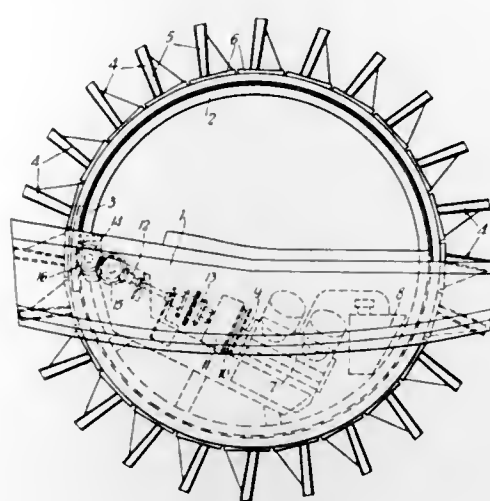
3,559,613
PADDLE BOATS
Frederick C. Ashford, 7 Egerton Gardens, London, S.W.3, England

Filed Feb. 7, 1969, Ser. No. 797,629

Int. Cl. B63h 3/00

U.S. Cl. 115-63

4 Claims



A paddle boat having a hull and a series of paddle blades mounted on a paddle carrier track centrally disposed fore-and-aft of the hull, the paddle blades being driven around the track.

3,559,614

SPRING OPERATED FIRE ALARM

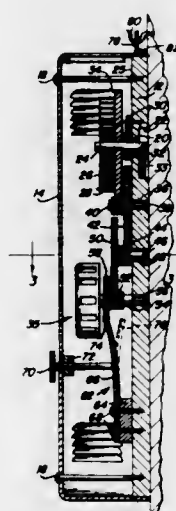
Hal E. Cushman, P.O. Box 25, Ronald, Wash., and Robert W. Bell, Jr., Roslyn, Wash.

Filed Mar. 12, 1969, Ser. No. 806,410

Int. Cl. G08b 17/00

U.S. Cl. 116-102

3 Claims



A siren transducer is mounted in a louvered enclosure. A spiral spring energizes the transducer through a step-up gear train when a thermally responsive gear brake is moved to a release position which occurs when a predetermined temperature is exceeded.

3,559,615

TEMPERATURE SIGNALING DEVICE

George G. Kliever, Fresno, Calif., assignor to Dun-Rite Manufacturing Corp., Fresno, Calif., a corporation of California

Filed Apr. 23, 1969, Ser. No. 818,540

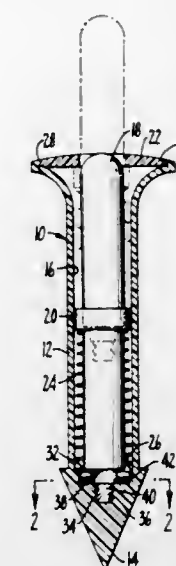
Int. Cl. G01k 1/02

U.S. Cl. 116-114.5

8 Claims

A torsion-loaded indicating member encased within a tubular housing is released from a first orientation for rotational movement to a second orientation upon the attainment

of a predetermined temperature. A fusible element is confined between the indicating member and the housing to



restrain the member from movement until the element fuses at the predetermined temperature.

3,559,616

ILLUMINATED INSTRUMENT POINTER

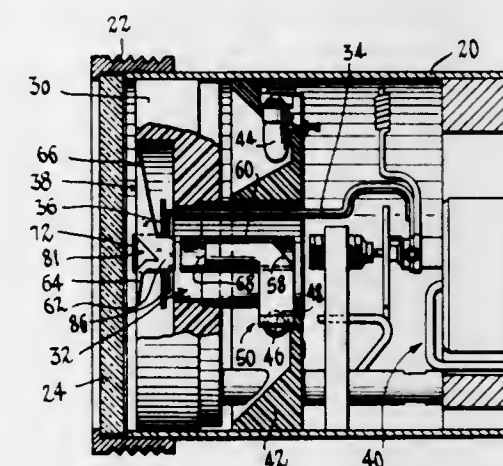
Donald E. Protzmann, Litchfield, Conn., assignor to Lewis Engineering Company, Naugatuck, Conn., a corporation of Connecticut

Filed Nov. 12, 1969, Ser. No. 875,749

Int. Cl. G09f 9/00

U.S. Cl. 116-129

7 Claims



A pointer of light-conducting plastic comprising a shank portion from which there extends in opposite directions respectively a tail portion and a head portion aligned with the tail portion. The shank portion has prism surfaces by which light directed into it is redirected along the head and tail portions to illuminated aligned portions thereof. A translucent shield is disposed between the head and tail portions and covers the prism surfaces to be lighted by some of the light directed against the surfaces, whereby there is presented to view an uninterrupted, relatively great effective illuminated pointer length. In another embodiment of the invention the shield is opaque, whereby the viewer sees an interrupted pointer illumination.

3,559,617

APPARATUS FOR THE FEEDING AND COATING OF CIGARETTE LABELS

Ariosto Seragnoli, Via delle Rose 50, Bologna, Italy

Filed Apr. 15, 1968, Ser. No. 721,527

Claims priority, application Italy, Apr. 20, 1967, 1620A/67

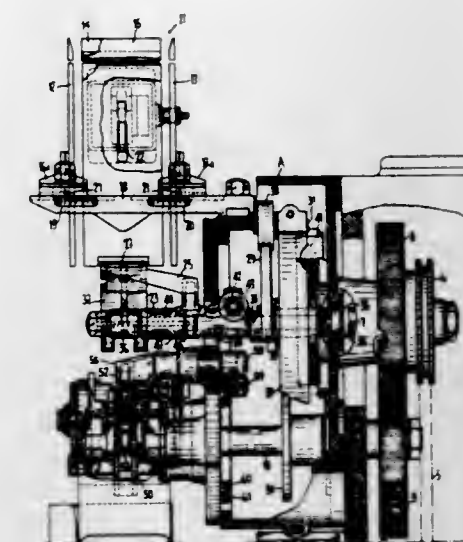
Int. Cl. B05c 11/00

U.S. Cl. 118-6

6 Claims

An apparatus is disclosed for successively affixing labels to packages. The labels are successively fed between an adhe-

sive applying roller and a pressure roller. A coating roller is immersed within a reservoir of adhesive and means are provided to rotationally drive the coating roller to coat the periphery of the adhesive applying roller with adhesive. The pressure roller and the coating roller are each mounted for



movement away from the adhesive applying roller in response to a command signal representative of a condition wherein the particular package to which a label is to be affixed is missing. Means are also provided for temporarily stopping the feeding of labels in response to the command signal.

3,559,618

APPARATUS FOR COATING GLASS FILAMENTS

Robert Basier, Sandemont, France, assignor to Houilleres Du Bassin Du Nord & Du-De-Calais, Douai, France, a French public establishment

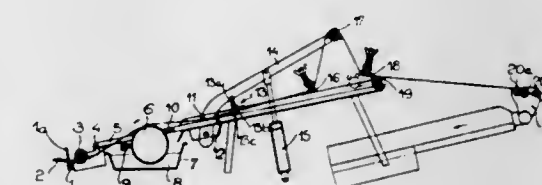
Filed Mar. 17, 1969, Ser. No. 807,685

Claims priority, application France, Mar. 29, 1968, 146,476

Int. Cl. B05c 11/04

U.S. Cl. 118-33

10 Claims



Apparatus for coating glass filaments with a liquid cross-linkable resin, which comprises a freely rotatable roller coater, guide means located upstream of the roller whereby the length of the arc of contact of the filaments with the roller surface may be varied, a combined wiper and recombiner for the coated filaments located downstream of the roller, and tensioning means for tensioning the filaments passing through the apparatus.

3,559,619

APPARATUS FOR APPLYING ADHESIVE ON STRIP MATERIAL

Carl W. Johnson, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware

Filed Feb. 3, 1969, Ser. No. 795,824

Int. Cl. B05c 11/02

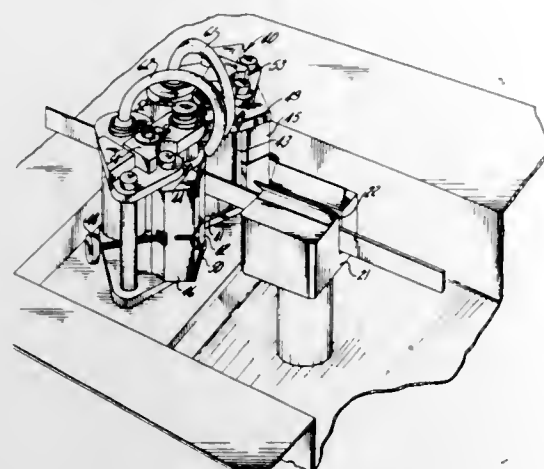
U.S. Cl. 118-104

7 Claims

A gluing unit for applying liquid adhesive to thin-walled paper tape is disclosed. The unit includes a slotted glue head for applying the adhesive to both sides of the tape and a pair of counterrotating rolls for wiping excess adhesive from the surfaces of the tape. The unit also includes a heat exchanger

for heating the glue to make it less viscous and means for flushing the surfaces of the wiping rolls with freshly heated

eliminates the usual causes of valve failure is also a feature of the system disclosed. By utilizing feed troughs as the



adhesive to carry away the excess adhesive and any foreign matter wiped from the tape.

3,559,620

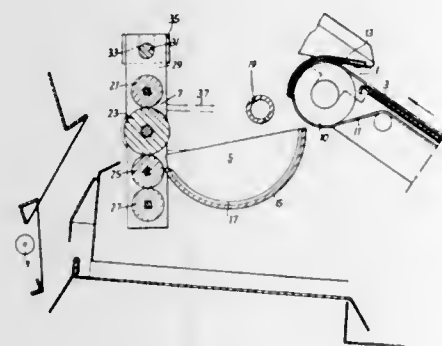
CONVEYANCE OF ELECTRICALLY CHARGED SHEETS
Martin R. P. Seib, 10, Lodge Drive, The Ryde, Hatfield, Hertfordshire, England

Filed Aug. 16, 1968, Ser. No. 753,297

Int. Cl. B05b 5/02

U.S. Cl. 118—637

3 Claims



An electrophotographic apparatus wherein charged sheets are conveyed from a liquid developer to a dryer by a pair of rollers of insulating material, suitably polyurethane. Each of these insular rollers is engaged by a stainless steel roller which is maintained at a predetermined electrical potential and thereby reduces the amount of electrical charge, picked up by the associated insulating roller, which is returned to a subsequent part of the sheet. The stainless steel rollers may be maintained at a high potential of the same polarity of the toner particles used in the developer, in which case there is a reduction in the number of particles, picked up by the insulating rollers, which is returned to the sheet.

3,559,621

WATERING SYSTEM FOR FOWL

Charles H. Willauer, Jr., Quakertown, Pa.; Doris D. Willauer, executrix of said Charles H. Willauer, Jr., deceased

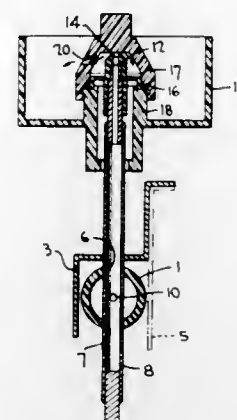
Filed Jan. 10, 1968, Ser. No. 696,893

Int. Cl. A01k 07/00

U.S. Cl. 119—81

8 Claims

The invention disclosed is an improved low cost system for watering fowl which maintains without overflow a supply of water at one or more drinking stations, with means for stopping the supply of water at each station individually. A new and simplified supply valve at each station which



framework for the system, the invention requires no duplicating supporting structure.

3,559,622

WIRE STRIPING APPARATUS

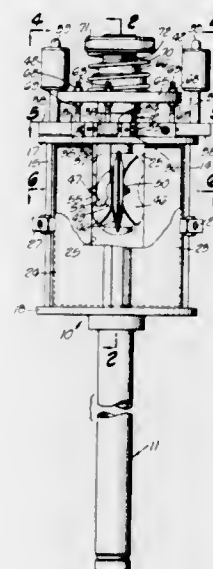
Kenneth Rake, 4250 Madison Ave., Culver City, Calif. 90230

Filed Mar. 17, 1969, Ser. No. 807,651

Int. Cl. B05c 1/04

U.S. Cl. 118—222

21 Claims



A head assembly for striping wire with identification coding as the striping head rotates about the axis of a wire moving vertically through the head assembly. Three striping discs are held pressed against the wire by individual counterbalance means and by common adjustable resilient means. The mechanism includes simple, unique, easily-manipulated means for making several precise adjustments of each disc independently of the other discs.

ERRATUM

For Class 119—81 see:
Patent No. 3,559,621

3,559,623

LANCE FOR BLOWING OXYGEN INTO A KALDO FURNACE

Georges Decamps, Paris, France, assignor to Societe Anonyme dite: Societe Lorraine De Laminage Continu, Paris, France, a society of France

Filed Jan. 21, 1969, Ser. No. 792,416

Claims priority, application France, Jan. 25, 1968, 137,485

Int. Cl. F22b 37/00

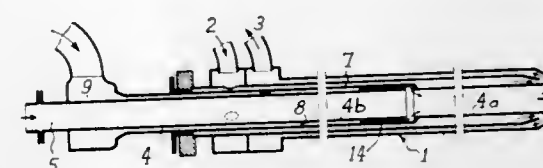
U.S. Cl. 122—6.5

6 Claims

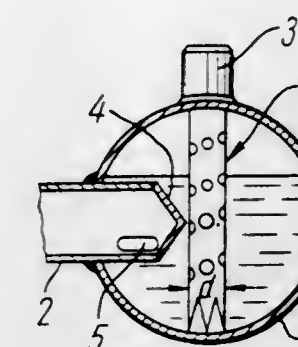
A lance for blowing oxygen into a Kaldo furnace for refining iron into steel which comprises a main oxygen duct, aux-

iliary oxygen duct means and a cooling circuit. The auxiliary duct means and a cooling circuit. The auxiliary duct means debouch substantially tangentially into the main oxygen duct

upper end of each tube extends into and in communication with a respective discharge pipe and the lower end is open.



at a point spaced from the outlet orifice of the lance by a distance which is at least four times the mean diameter of the portion of the main duct between the outlet orifice and the auxiliary oxygen duct means.



Preferably, the lower ends of the tubes are provided with teeth whose tips rest on the inner wall of the header.

3,559,624

STEAM GENERATING UNIT

Ramsey Sheikh, Westboro, Mass., assignor to Riley Stoker Corporation, Worcester, Mass., a corporation of Massachusetts

Filed Apr. 26, 1968, Ser. No. 729,491

Int. Cl. F22b 21/02

U.S. Cl. 122—235

17 Claims

3,559,626

APPARATUS AND PROCESS FOR ACCUMULATING AND CONCENTRATING HEAT ENERGY

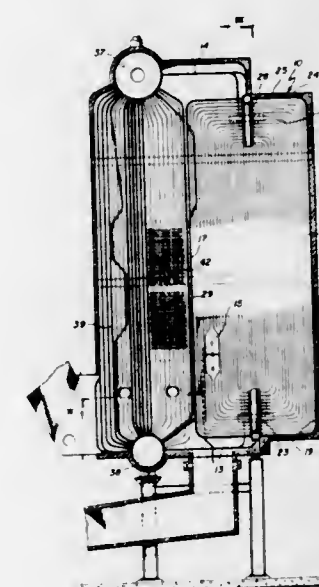
Douglas R. Paxton, 426 31st St., Newport Beach, Calif. 92660

Filed Jan. 3, 1969, Ser. No. 788,800

Int. Cl. F22d 7/00

U.S. Cl. 122—406

20 Claims



This invention relates to a steam generating unit and, more particularly, to apparatus for generating steam in which the heat from the products of combustion is used very efficiently in a compact, prefabricated construction arrangement.

3,559,625

DEVICE FOR DISPENSING A GAS-LIQUID MIXTURE

Ivan Ivanovich Koshelev, Novye Cheremushki, Kvartal 30, Korp. 49, Kv. 52, and Viktor Romanovich Egunov, ul. Pryanishnikova, 88, kv. 9, Moscow, U.S.S.R.

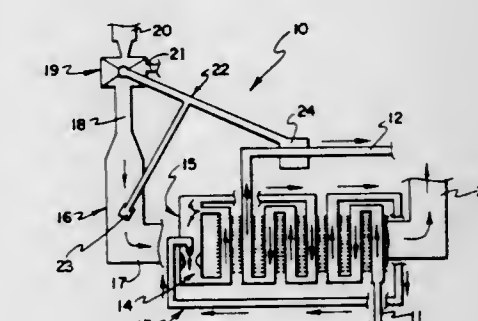
Filed Sept. 6, 1968, Ser. No. 757,811

Int. Cl. F22d 7/00

U.S. Cl. 122—406

4 Claims

A device is provided for dispensing a gas-liquid mixture which comprises a horizontal header with a plurality of inlet pipe connections for a gas-liquid mixture, the header having open discharge pipes connected thereto at the top thereof and containing vertical tubes within the header and provided with holes extending over the entire length of the tubes. The



A tortuous working fluid flow path and a high heat energy gaseous compound flow path are aligned in semicontraflow relationship so that the working fluid and gaseous compound interact and become progressively heated and cooled respectively at controlled rates. Working fluid sequentially enters a bank of tubes near the gaseous compound downstream end and flows to a second bank that directly encounters the most intensely hot portion of the flowing gaseous compound. Working fluid departing the second bank is separated into a portion above a given temperature and another portion below a given temperature that is continuously cycled through a recirculating jet pump and the second bank until its temperature also rises above the given temperature. The working fluid portion above the given temperature, which may be the critical temperature of the working fluid, for example, is further heated in a final bank of tubes and eventually discharged in a high quality state to an ultimate use location.

3,559,627

HEAT EXCHANGER

Albert H. Rawdon, Jr., Shrewsbury, Mass., assignor to Riley Stoker Corporation, Worcester, Mass., a corporation of Massachusetts

Filed Dec. 5, 1968, Ser. No. 781,454

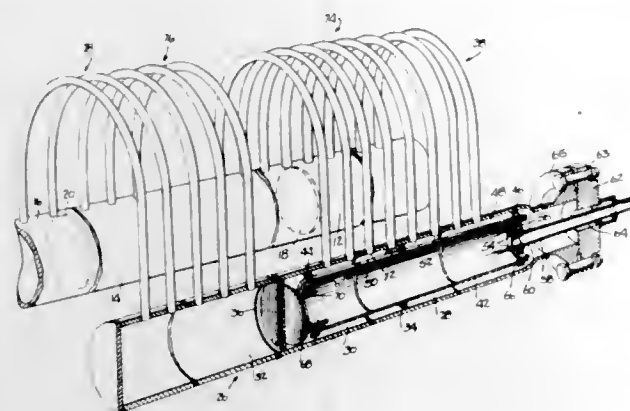
Int. Cl. F22g 5/12

U.S. Cl. 122—487

15 Claims

Method and apparatus for controlling the temperature of steam in a superheater wherein steam is passed back and forth between two headers while being superheated, and spray water is mixed with the heated steam in a spray

chamber mounted within one of the headers to evaporate the steam causing the mixed temperature to drop so that more



heat may be absorbed in subsequent steam passes without increasing the final steam temperature.

3,559,628

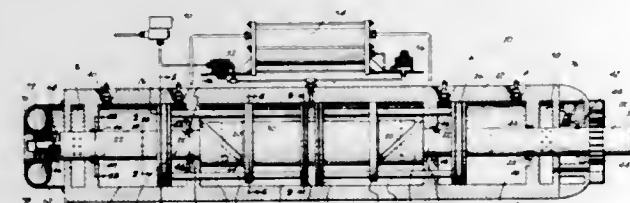
INTERNAL COMBUSTION ENGINE

Luther Evan Boldery, Milton, Ky., assignor to Triangle Research, Inc., Madison, Ind., a corporation of Indiana, by direct & mesne assignments

Filed Aug. 5, 1969, Ser. No. 847,626
Int. Cl. F02b 75/16, 33/06

U.S. Cl. 123—61

11 Claims



An internal combustion engine generally comprising an elongated engine housing provided with a combustion chamber at each end thereof separated by a fuel induction and compression chamber therebetween, a power shaft centrally mounted for rotation in the engine housing and extending the length thereof through the chambers, and opposed slidable piston means mounted around the power shaft for slidable movement therealong.

3,559,629

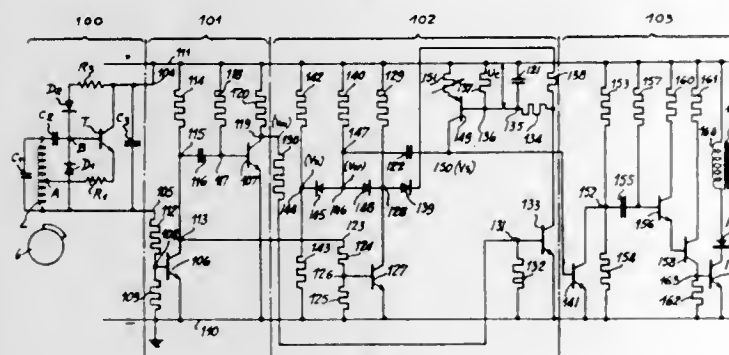
STATIC LEAD CORRECTION DEVICE FOR THE IGNITION OF AN INTERNAL COMBUSTION ENGINE

Henri Joseph Sauvignat, Paris, France, assignor to Compagnie Des Compteurs, Paris, France, a company of France

Filed Jan. 24, 1969, Ser. No. 793,708
Claims priority, application France, Jan. 25, 1968, Nov. 21, 1968, 137,342; 174,676
Int. Cl. F02p 3/02

U.S. Cl. 123—148

8 Claims



The static correction device for advancing ignition controlled by an electromechanical or electronic detector incor-

porates a circuit for forming a signal received during the passage of a nonactive part of the cam and issuing a signal which partially charges a first condenser and discharges it during a time equal to the difference between the passage time of the nonactive part of the cam, and the charging time, a second charging condenser partially charging during a time inversely proportional to the speed during the passage of the nonactive part of the cam and completely discharging after that with a current proportional to the voltage at the terminals of the first condenser. The end of the discharge of the second condenser trips a temporization which is a function of the speed and interrupts the primary current of the ignition coil, by the intermediary of an amplifier circuit, so as to produce an induced current in the secondary of the ignition coil.

3,559,630

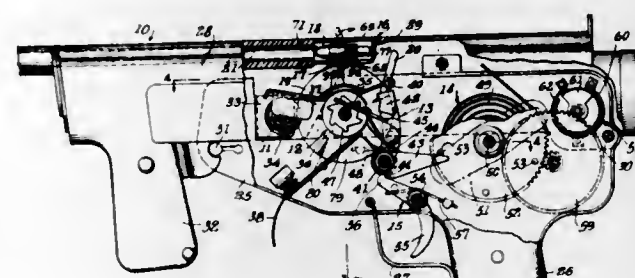
GUN MECHANISM COMBINING CAP AND PROJECTILE OPERATING MEANS

Kenneth W. Frye, 2117 Lemon St., Alhambra, Calif. 91803

Filed Aug. 19, 1968, Ser. No. 753,580
Int. Cl. F41b 7/08

U.S. Cl. 124—2

2 Claims



An automatic toy gun for firing caps in rolls or strips and provided with means for automatically and intermittently feeding a belt provided with dummy cartridges and to propel one such cartridge from the gun as each percussion cap is exploded.

3,559,631

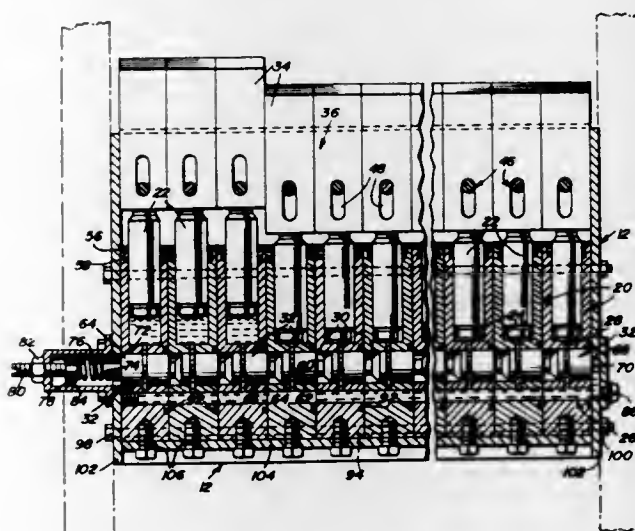
HYDRAULIC MASONRY CUTTING MACHINE

Elmer F. Mangis, Frankfort, Ind., assignor to E & R Manufacturing Co. Inc., a corporation of Indiana

Filed July 12, 1968, Ser. No. 744,505
Int. Cl. B28d 1/32

U.S. Cl. 125—23

9 Claims



A cutting head including a plurality of individual aligned stone splitting knives piston controlled through a common closed reservoir for enabling an accommodation of the knives to surface irregularities through a pressure equalizing flow of fluid between the knife pistons. Upon a firm seating of all of the knives, the continued introduction of pressure

thereto effects, through a series of sliding valves associated with the knife pistons, a locking of each of the knives in its set position until a cutting of the stone is achieved.

3,559,632

PROCESS AND DEVICE FOR CLEAVING LAMINATED MATERIALS

Bernard Viemon, 47 Place A. Gentric, 49 Trelaze, France

Filed Feb. 23, 1968, Ser. No. 707,552

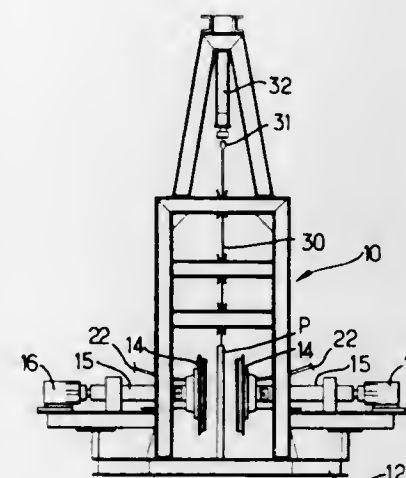
Claims priority, application France, Mar. 29, 1967,

P.V.100,568

Int. Cl. B28d 1/32

U.S. Cl. 125—24

10 Claims



Slates are split from a plate by uniformly gripping, as by suction, the opposite sides of the plate and then moving the gripping elements apart along a common axis at right angles to a plane of cleavage determined by a trigger cut made in an edge of the plate thereby to break the internal cohesive forces of the plane along said plane.

3,559,633

PORTABLE CAMP STOVE

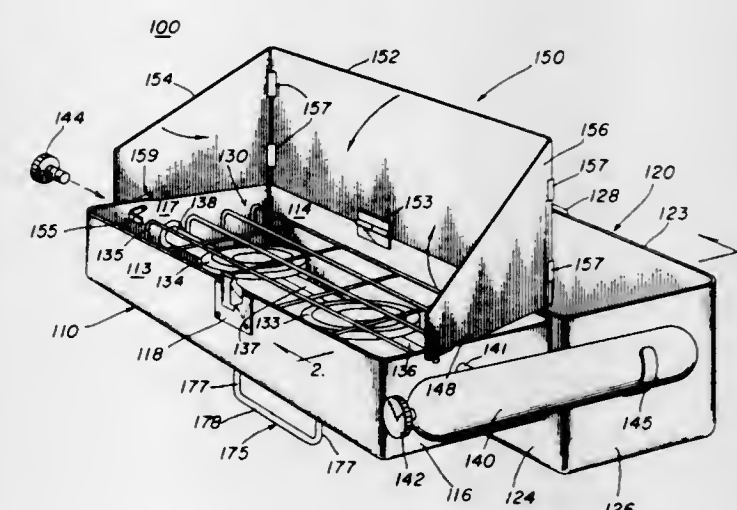
Jerome J. Born, Lincolnwood, and Harry Roehm, Glenview, Ill., assignors to Simonsen Metal Products Corporation, Chicago, Ill., a corporation of Illinois

Filed Mar. 27, 1969, Ser. No. 810,950

Int. Cl. F24c 3/14

U.S. Cl. 126—38

16 Claims



There is disclosed a portable camp stove comprising a plurality of detachably connected singlepiece open-top housing modules of varying depths, at least one of which contains a burner assembly and grate, a foldable windscreen hingedly attached to and latchable in a folded position overlying the one housing, a fuel tank releasably pivotally connected to the burner assembly, means for pivotally supporting the tank on the housings externally thereof, the housings being latchable together in a closed position, and at least the shallower hous-

ing having a foldable handle for carrying the stove or supporting the shallow housing in its open position.

3,559,634

THERAPEUTIC BATHTUB

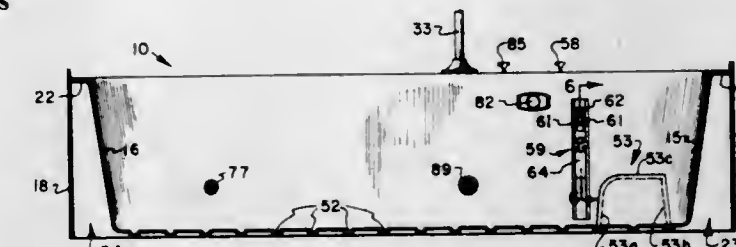
Estelvin Lillywhite, 2523 East 3150 South, Salt Lake City, Utah

Filed Feb. 19, 1969, Ser. No. 800,453

Int. Cl. A61h 9/00

U.S. Cl. 128—66

10 Claims



A bathtub made sufficiently long for a user to fully recline therein. A nonskid bottom is provided and a combination step and headrest is adjustably positioned along the length of the bottom. An adjustable overflow insures that the water level of the tub will be safely maintained and a hydromassage unit is provided as an aid in hydraulic therapy. An assist and exercise bar is mounted above the tub and the controls for operating the hydromassage unit and for filling and emptying the tub are conveniently positioned at the side of the tub. Removable side panels are provided to facilitate access to all of the controls and mechanical components most apt to be in need of repair.

3,559,635

INTEGRAL FAN-HEAT EXCHANGER

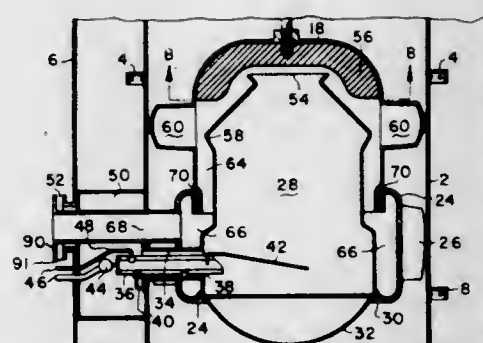
Harry C. Lohman and Irvin Cooley, La Crosse, Wis., assignors to The Trane Company, La Crosse, Wis., a corporation of Wisconsin

Filed Mar. 5, 1969, Ser. No. 804,402

Int. Cl. F24h 3/06

U.S. Cl. 126—110

6 Claims



An axial flow fan having a set of rotating blades and a set of stationary blades is combined with a combustion chamber, utilizing the rotating portion of the fan and the stationary blade portion of the fan as heat exchangers. The functions of air movement and air heating are thereby combined into one simple apparatus.

3,559,636

OVEN EXHAUST DEFLECTOR

James S. Marino, 98 Oxford St., Arlington, Mass. 02174

Filed Feb. 20, 1969, Ser. No. 800,898

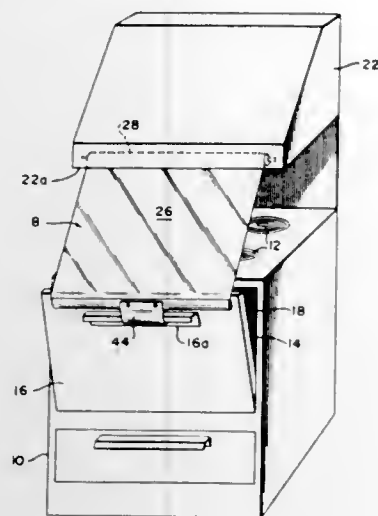
Int. Cl. F23j 1/100

U.S. Cl. 126—299

2 Claims

An oven exhaust deflector deflects smoke, gases and fumes issuing from an oven when the oven door is left ajar during broiling to an exhaust hood above the oven. The deflector includes a sheet of flexible, heat-resistant material wound up on a spring-loaded roll affixed inside the front edge of the

hood. During broiling, the sheet is unrolled and attached to the handle on the open oven door so that smoke and gases issuing from the oven are guided upwardly into the exhaust



hood by the unrolled sheet. When the oven is not being so used, the deflecting sheet is wound up on the roll inside the hood.

3,559,637

TESTING DEVICE AND GAME

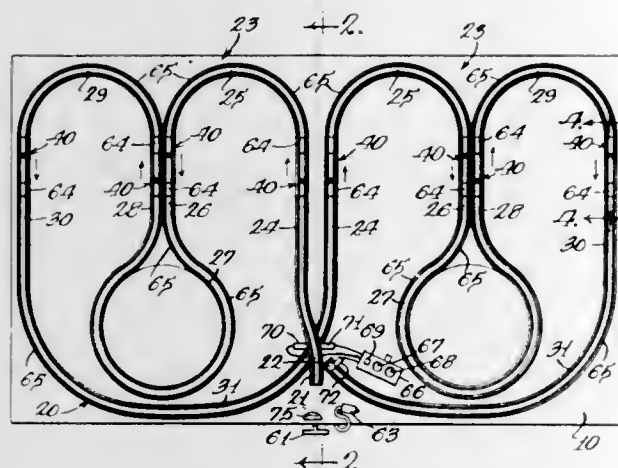
Robert V. Fyans, P.O. Box 237, Fox Lake, Ill. 60020

Filed Aug. 30, 1968, Ser. No. 756,485

Int. Cl. A61b 5/16; A63b 67/00; A63f 9/14

U.S. Cl. 128-2

8 Claims



Device for testing the effects of hand-eye dominances to aid in analysis of and provide physical therapy for reading and/or psychological problems consequent upon mixed or conflicting dominances, and also playable as a game, comprising an inclined track having a centrally located upper starting point and a pair of substantially identical loop portions to opposite sides of said starting point, a missile such as a ball to be placed on said starting point for gravitational movement downwardly over said track, impelling means on each of said loop portions movable to alter the speed of the missile and means adjacent said starting point for manually actuating said impelling means.

3,559,638

RESPIRATION METER HAVING SEVERAL MODES OF OPERATION

James A. Potter, 12 Greenhouse Blvd., West Hartford, Conn.

Filed Sept. 19, 1967, Ser. No. 668,917

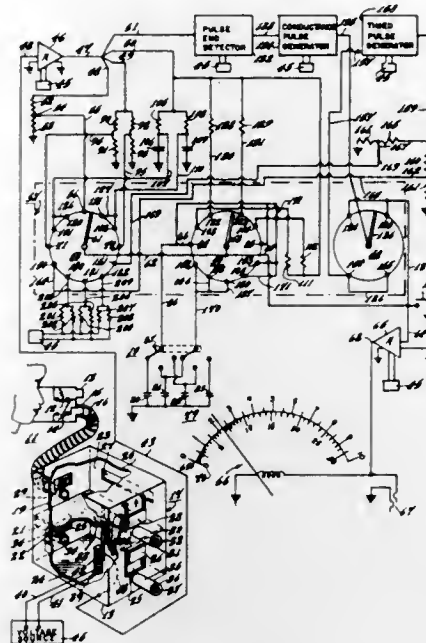
Int. Cl. A61b 5/08

U.S. Cl. 128-2.08

9 Claims

A respiration meter has the following modes of operation: instantaneous air flowrate; minute volume; cumulative volume; tidal volume; and breathing frequency. A selector switch directs an electrical signal indicative of instantaneous

air flow along any of the plurality of electrical paths providing such modes of operation. A patient's breath is exhaled



through a chamber in which it creates a pressure attributable to a restricted orifice, which pressure actuates an elastic diaphragm and an arm of a transducer producing such electrical signal.

3,559,639

SPIROMETER MONITORING DEVICE

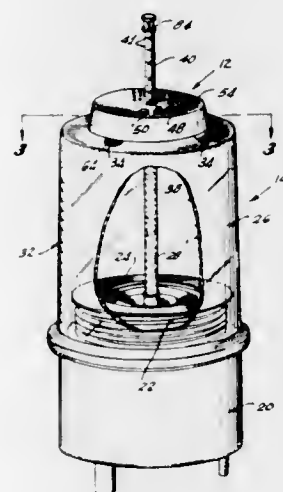
Wilfred Nagus and Steven A. Bell, Santa Monica, Calif., assignors to Puritan-Bennett Corporation, Kansas City, Mo., a corporation of Missouri

Filed Aug. 5, 1968, Ser. No. 750,258

Int. Cl. A61b 5/08, 7/00

U.S. Cl. 128-2.08

15 Claims



A monitoring device for attachment to a spirometer with an expansible-contractable bellows to provide an alarm signal when indicated respiration ceases for a predetermined time period or when the tidal volume goes below a certain minimum for the same predetermined time period. An electronic audible-alarm signal generator is maintained in an inactive condition by a resettable time delay network. A magnet movable with the bellows actuates a reed switch in the monitor to generate a reset signal to reset the time delay network. If the time delay network is not reset within the predetermined time period by appropriate movement of the bellows and magnet, the alarm signal generator is activated. An auxiliary, inhibit network is provided for deactivating the monitor for a longer predetermined time period when initially turned on after which the monitor automatically resumes its monitoring function. The auxiliary inhibit network and time delay network may be selectively overridden by a manually operated override circuit.

ERRATUM

For Class 128-66 see:
Patent No. 3,559,634

3,559,640

DOUBLE ARM-SLING JACKET

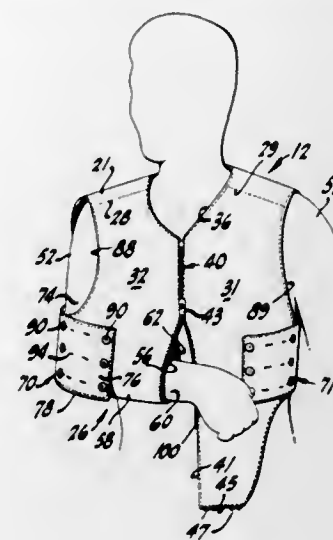
Orval D. Beckett, Rte. 1, Box 1719, Placerville, Calif. 95667

Filed Oct. 16, 1968, Ser. No. 768,138

Int. Cl. A61f 5/40; A41d 3/02

U.S. Cl. 128-94

1 Claim



A piece of washable fabric material is formed into a jacket-like garment which is roughly X-shaped in developed condition, the center portion of the device forming a combined back panel and shoulder yoke. A pair of diverging wing panels depends from the shoulder yoke to form a pair of front panels when worn by the user, each of the wing panels including cooperating fasteners to shape the wing panels into forearm supporting pouches. A pair of flaps extending laterally from the back panel is flexed around the adjacent elbow and upper arm portion of the wearer and selectively secured to the front panel to afford a snug fit for the elbow and upper arm. A central zipper selectively joins together the facing front edges of the wing panels and can be used to enclose completely the wearer's forearms.

3,559,641

INTRAUTERINE DEVICE

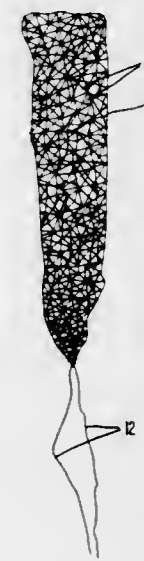
Coy L. Lay, Lakeland, Fla., assignor to Inutcodes, Inc., Jacksonville, Fla., a corporation of Florida

Filed Sept. 30, 1968, Ser. No. 763,649

Int. Cl. A61f 5/46

U.S. Cl. 128-130

7 Claims



An intrauterine contraceptive appliance formed of a section of fine mesh made of materials which are inert and im-

mune to chemical and physical changes in the human body. The mesh section has resiliency and is retained in the uterine cavity by friction.

3,559,642

PROTECTIVE SUIT

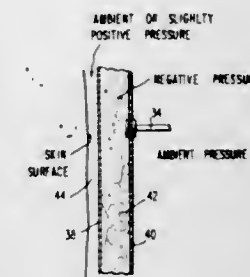
Charles D. Cupp, Lancaster, N.Y., assignor to "Automatic" Sprinkler Corporation of America, Cleveland, Ohio

Filed Mar. 1, 1968, Ser. No. 709,727

Int. Cl. A41d 13/00; A62b 7/00

U.S. Cl. 128-142.5

9 Claims



A life supporting protective suit having inner and outer walls and an intervening layer of porous material forming an isolation chamber between the walls. The isolation chamber is connected to an exhaust system discharging externally of the ambient atmosphere.

3,559,643

CATHETER PLACEMENT UNIT

Karl A. Pannier, Jr. and James L. Sorenson, Salt Lake City, Utah, assignors to Levoy's, Inc., Salt Lake City, Utah, a corporation of Utah

Filed June 12, 1968, Ser. No. 736,423

Int. Cl. A61m 5/00

U.S. Cl. 128-214.4

5 Claims



A catheter placement unit for the sterile insertion of a catheter into a body lumen through an incised opening in the lumen wall for parenteral infusion and other purposes, the unit having no cannulated needle, and embodying a longitudinally slit sheath with a catheter therein and an advancer connected to one end of the catheter and initially in axial alignment with said sheath to close an end thereof, the other end of said sheath being initially capped.

3,559,644

LIQUID INFUSION APPARATUS

Paul E. Stoff, Menlo Park, and Robert F. Shaw, 350 Darnassus, San Francisco, Calif. 94117; said Stoff assignor by mesne assignments to said Shaw

Filed Dec. 14, 1967, Ser. No. 690,440

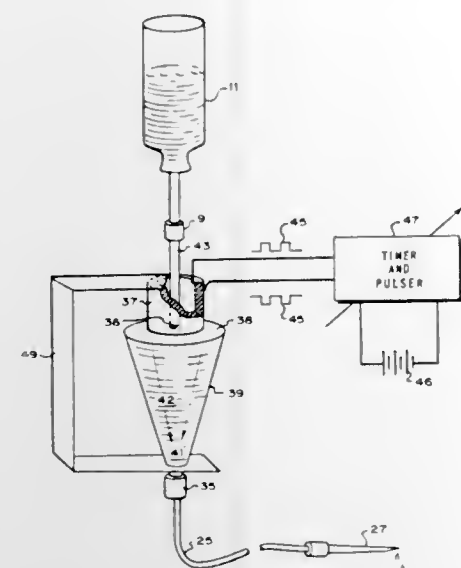
Int. Cl. A61m 5/00

U.S. Cl. 128-214

4 Claims

Liquid infusion apparatus provides reliable administration of liquids and blood transfusions into the body (intravenous, intraarterial or subcutaneous) at a preset and regulated rate in a convenient, inexpensive and completely safe manner.

The apparatus includes liquid pumping and valving mechanisms and gas relief means which prevent both the back flow of liquid into the liquid reservoir and the injection of air into the blood stream of the patient.



Another method is by molding a hollow tampon in which the hollow body is closed and tapers inwardly at one end thereof.

3,559,645

CONTROLLABLE UNDERWATER DRAINAGE APPARATUS

Robert E. Bidwell, Wantagh, Long Island, N.Y., Sidney Mishkin, Roslyn, Long Island, N.Y., Leonard D. Kurtz, Woodmere, and Edward J. Hallstein, Smithtown, N.Y.; said Bidwell and said Mishkin assignors to Deknatel, Inc., Queens Village, Long Island, N.Y.

Filed June 5, 1968, Ser. No. 734,645

Int. Cl. A61m 1/00

3,559,645
DISPOSABLE SYRINGE
Kathryn C. Schaller, 20301 Lorne St., Canoga Park, Calif. 91306

Filed July 1, 1968, Ser. No. 741,426

Int. Cl. A61m 5/18

U.S. Cl. 128-216

6 Claims U.S. Cl. 128-276

38 Claims



A syringe contains a premeasured amount of medication in a hermetically sealed syringe which has a stiletto inserted in the needle and retained in the cap of the syringe, thereby being removed from the needle as the cap is removed.

3,559,646
TAMPON

Joseph Mullan, 217 Northway, Baltimore, Md. 21218
Filed Aug. 16, 1968, Ser. No. 763,046

Int. Cl. A61f 13/20

U.S. Cl. 128-270

8 Claims

A device in the nature of a tampon, particularly suited for vaginal and rectal use, having a body of compressible spongy adsorptive and/or absorbent material, the body being hollow, closed at one end and tapered inwardly toward the closed end. The compressible body is held in radially compressed condition in a telescoping tubular applicator or inserting device. One method of making the device comprises the

3,559,648

DISPOSABLE DIAPER

Stanley I. Mason, Jr., Weston, Conn., assignor to American Can Company, New York, N.Y., a corporation of New Jersey

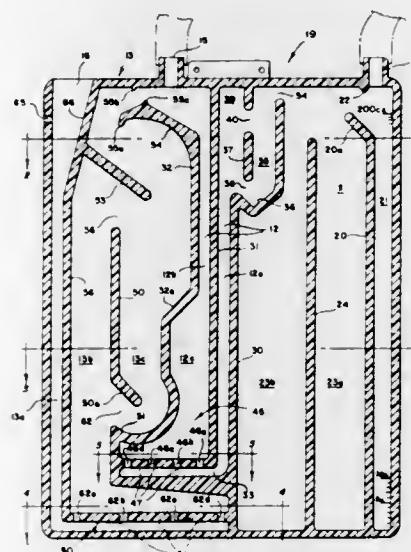
Filed Mar. 7, 1969, Ser. No. 805,297

Int. Cl. A61f 13/16

U.S. Cl. 128-287

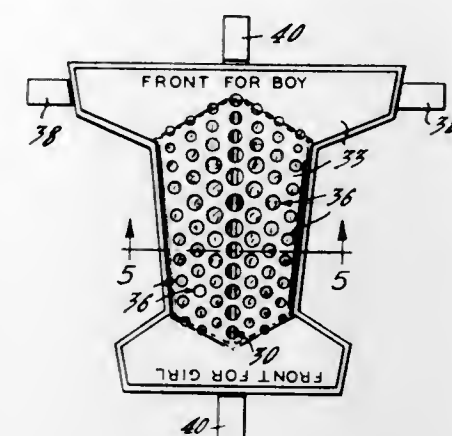
8 Claims

A contoured disposable diaper having a greater concentration of absorbent cellulose fiber material toward one end



An underwater drainage apparatus of the type having integrally formed therein a trap chamber and an underwater seal chamber and also a pressure regulating manometer chamber. A baffle arrangement is provided for preventing loss of liquid from the underwater seal chamber and/or the pressure regulator chamber; and a fluid flow meter is provided for measuring air flow through the underwater seal chamber and/or through the pressure regulator chamber. A special pediatric compartment is formed in the trap chamber.

and thereby adapted for maximum absorptive capacity in use on both male and female infants by end for end reversal of the diaper for strategic location of the more absorptive area as dictated by the sex of the infant. The liner is preferably



3,559,651

BODY-WORN ALL DISPOSABLE URINAL

David H. Moss, 6800 Indian Creek Drive, Miami Beach, Fla.

Filed Oct. 14, 1968, Ser. No. 767,129

Int. Cl. A61f 5/44

U.S. Cl. 128-295

1 Claim

apertured for more efficient moisture reduction of semisolid waste materials and a central channel in the absorbent pad promotes even distribution of liquid waste for absorption throughout the pad area.

3,559,649

SANITARY NAPKIN

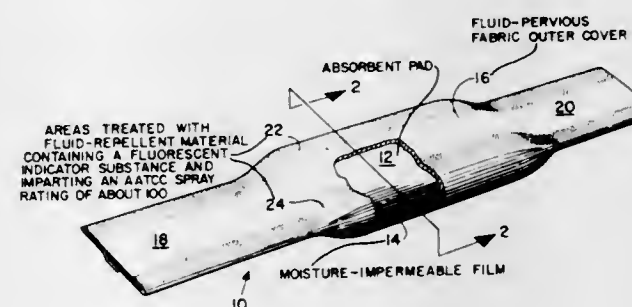
Martin Grad, Cincinnati, and Darrel D. Kokx, Greenhills, Ohio, assignors to The Procter & Gamble Co., Cincinnati, Ohio, a corporation of Ohio

Filed Dec. 20, 1967, Ser. No. 692,003

Int. Cl. A61f 13/16

U.S. Cl. 128-290

1 Claim



A sanitary napkin comprising an absorbent pad enwrapped by a fluid pervious outer cover treated with a fluid-repellent material along areas overlying the side edges and side marginal portions of the top face of the pad, the treated areas being permeable to air. The fluid-repellent treatment material contains a fluorescent indicator substance and imparts an AATCC spray rating of about 100 to the treated areas.

3,559,650

FLUSHABLE MOISTURE-RETAINING SANITARY PAD

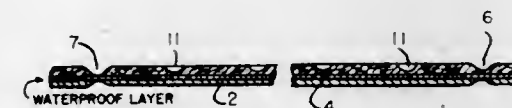
Phyllis M. Larson, 1412 Julie Ave., McLean, Va. 22101

Filed Dec. 19, 1967, Ser. No. 691,769

Int. Cl. A61f 13/16

U.S. Cl. 128-290

3 Claims



A body-worn and all disposable urinal having a collar for receiving a male organ, a plurality of telescopically mounted bags having open ends secured to the collar, the outer bag having a sealed chamber for containing urine and the inner bag having an opening for urine to be discharged to the outer bag, the collar having a pair of opposed openings for receiving a length of pliable material that encircles the person's waist and fastens the collar in position on the person's body.

3,559,652

METHOD OF ADHESIVELY REPAIRING BODY TISSUE WITH ALKOXYALKYL 2-CYANOACRYLATE

Elden H. Banitt and Robert A. Nelson, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Filed Aug. 5, 1968, Ser. No. 749,996

Int. Cl. A61b 17/04

U.S. Cl. 128-334

15 Claims

The invention relates to a method for surgically adhering living tissues and effecting hemostasis therein by means of a rapidly polymerizing composition which comprises alkoxyalkyl 2-cyanoacrylates.

3,559,653

BRASSIERE SIDE CONSTRUCTION

Edward Jannicelli, Jr., Ramsey, N.J., assignor to International Playtex Corporation, Dover, Del., a corporation of Delaware

Filed Sept. 21, 1967, Ser. No. 669,469

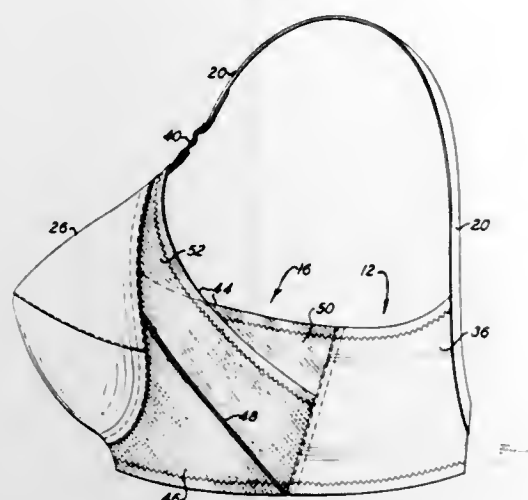
Int. Cl. A41c 3/00

U.S. Cl. 128-498

12 Claims

Brassiere having novel overlapping side constructions that, inter alia, (1) firmly hold and compress the pectoral muscles

and the adipose tissues associated therewith without discomfort to the wearer during use, (2) prevent unsightly bulging



of such muscles and tissues, and (3) provide a smooth contour or profile of the body in the underarm region.

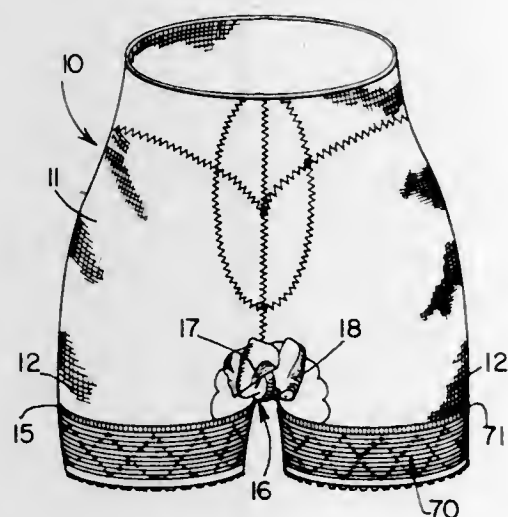
3,559,654

COMBINATION GIRDLE AND STOCKINGS

Henry Pope, Jr., Lakewood, Ill., assignor to Bear Brand Hosiery Co., Chicago, Ill., a corporation of Illinois
Filed Aug. 28, 1968, Ser. No. 756,000
Int. Cl. A41c 1/00

U.S. Cl. 128—519

7 Claims



A ladies undergarment and stockings, the undergarment including stomach and buttocks surrounding portions and having downwardly directed leg portions with bottom extremities, each of the bottom extremities carrying a nonslip fabric band thereon for supporting the thigh engaging portion of an associated ladies stocking. Each of the nonslip fabric bands comprises a longitudinally elastic textile material having a layer of frictional material laminated thereto and exposed on the inside surface of the band. Each of the stockings has a thigh engaging portion formed of a high-stretch yarn. The stockings are positionable so that the thigh engaging portions thereof are disposed under the nonslip fabric bands of the undergarment, whereby the frictional material exposed on the inside surfaces of the bands of the undergarment engage the thigh engaging portions of the stockings so as to detachably secure the stockings to the undergarment.

3,559,655
OXIDIZED CELLULOSE SUBSTITUTE SMOKING MATERIAL AND METHOD OF MAKING SAME

Theodore S. Briskin and Geoffrey R. Ward, Beverly Hills, Calif., assignors to Sutton Research Corporation, Los Angeles, Calif., a corporation of Delaware
Continuation-in-part of application Ser. No. 595,622, Nov. 21, 1966, now Patent No. 3,447,539. This application Feb. 25, 1969, Ser. No. 802,229
Int. Cl. A24d 01/18; A24b 15/00

U.S. Cl. 131—2

8 Claims

A process for the manufacture of a smoking product in which cellulose is oxidized and in which the oxidized cellulosic material is formulated to contain a mineralizing agent in the form of a strontium or barium oxalate, lactate, glycolate, diglycolate or pivalate in an amount within the range of 5—40 percent by weight of the smoking product and which may have further added thereto a minor amount of oxalic acid.

3,559,656

TOBACCO PRODUCT

Robert A. Heckman, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C., a corporation of New Jersey

Filed Apr. 28, 1969, Ser. No. 819,951

Int. Cl. A24b 15/00

U.S. Cl. 131—17

10 Claims

Flavoring of tobacco products by incorporating therewith a small amount of a chemical compound selected from 1-oxa-8-oxo-2,6,10,10-tetramethyl-spiro[4,5]-6-decene and 4-(1-hydroxy-4-keto-2,6,6-trimethyl-2-cyclohexen-1-yl)-butan-2-ol.

3,559,657

FALSE EYELASHES AND METHOD OF MAKING THE SAME

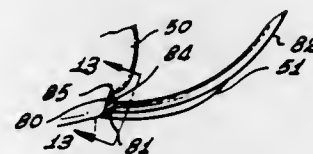
Robert Gordon Bau, 3271 Laurel Canyon Blvd., North Hollywood, Calif. 91604

Filed Apr. 13, 1965, Ser. No. 447,727

Int. Cl. A41g 3/00

U.S. Cl. 132—5

1 Claim



A molded plastic false eyelash having a base strip releasably attached to an eyelid, and a plurality of elongated generally parallel strands of plastic material simulating natural eyelashes and each integrally joined to one side of the base strip. The base strip having a cross section in the shape of a truncated rectangle with projections assisting in holding the strip in place.

3,559,658

HAIR CURLING SYSTEM

Leonard J. Genest and Arnold I. Klayman, Marina Del Rey, Calif., assignors to Marina Research, Inc.

Filed July 3, 1967, Ser. No. 650,808

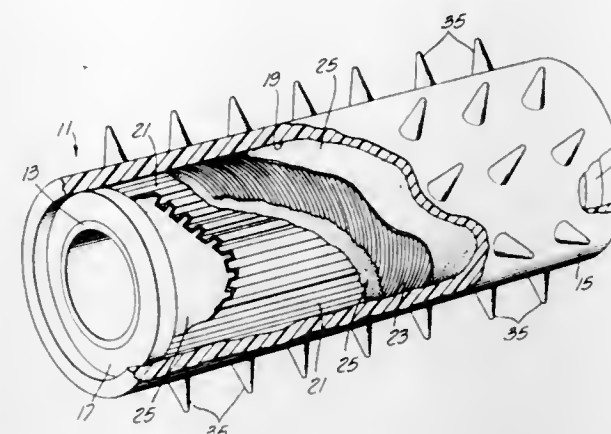
Int. Cl. A45d 2/12

U.S. Cl. 132—33

1 Claim

A system for heating a hair curler by an electrical device is provided by the present disclosure. The curler is a double-walled roller container filled with a heat-absorbing material and a thermal-conducting material, and the heating device utilizes the principle of resistance heating to rapidly heat the heat-absorbing material until it melts. A temperature sensor automatically turns off the heating device when the curler is sufficiently heated. The curler retains the heat for a relatively

long time because of the heat of fusion involved in the transition of state from liquid to solid. The shaping and setting of



the hair is accomplished largely as a result of the heat applied during the reshaping of the hair.

3,559,659

VEHICLE CLEANING APPARATUS

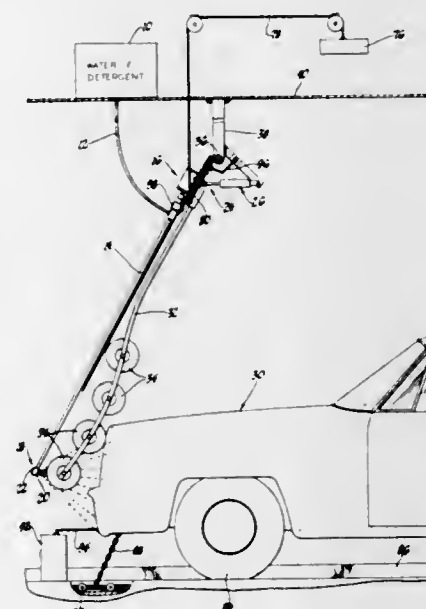
Harry K. Gougoulas, 1875 Philomine, Lincoln Park, Mich.

Filed July 31, 1968, Ser. No. 749,125

Int. Cl. B60s 3/04

U.S. Cl. 134—45

34 Claims



Vehicle cleaning apparatus including a selectively operable nozzle adapted to provide a high-pressure stream of cleaning fluid to a vehicle's outer surface and a motor for oscillating said nozzle in a longitudinal direction with respect to the vehicle. The nozzle apparatus takes several forms including a nozzle pivotally supported overhead but movable rectilinearly with respect to the longitudinal axis of the vehicle. In another form a plurality of nozzles are pivotally supported overhead of a vehicle, the support being movable rectilinearly with respect to the longitudinal axis of the vehicle so as to provide a high-pressure cleaning fluid spray to all portions of the top of the vehicle.

3,559,660

PIPE INSULATION AND METHOD OF MAKING SAME

Carl L. Rollins, Tulsa, Okla., assignor to Warren Petroleum Corporation, Tulsa, Okla., a corporation of Delaware

Filed Aug. 28, 1968, Ser. No. 755,893

Int. Cl. F16l 59/12

U.S. Cl. 138—149

3 Claims

A method and apparatus for insulating pipes in which annular spacers are secured to the pipe along its length. Sheet

883 O.G.—5

metal covers encircling the pipe are secured to the spacers and supported by the spacers at the distance required for insulation of the desired thickness. Liquids capable of reacting



rapidly to form a solid foam of excellent insulating characteristics are injected into the annular space between the pipe and the sheet metal cover to fill that space with the foam insulation material.

3,559,661

FOLDABLE WIND-RESISTANT UMBRELLA

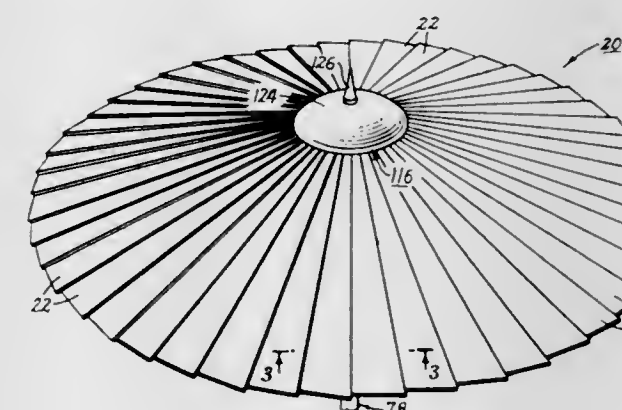
John D. O'Rear, Bee Tree Farm RFD-1, Woodstock, Vt.; Edward A. Hanselman, Hodsick Falls, and Kenneth O. Gifford, Eagle Bridge, N.Y.; said Hanselman and said Gifford assignors to said O'Rear

Filed Sept. 29, 1969, Ser. No. 861,811

Int. Cl. A45b 19/00

U.S. Cl. 135—20

11 Claims



A foldable wind-resistant umbrella having a top formed from a plurality of separate vanes which can lift to dissipate wind forces. The vanes are mounted over a collapsible frame which permits the umbrella to be folded. The umbrella may be rotatably supported on a pole to enhance its wind dissipating characteristics and may also be provided with interchangeable decorative caps to permit its use in varied decorative schemes.

3,559,662

METHOD AND VALVE APPARATUS FOR METERING THE FLOW OF LIQUID METAL

Robert A. Iezzi, Kent, Ohio, and Laszlo V. Sandor, Cleveland Heights, Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio, a corporation of New Jersey

Filed Nov. 25, 1968, Ser. No. 778,609

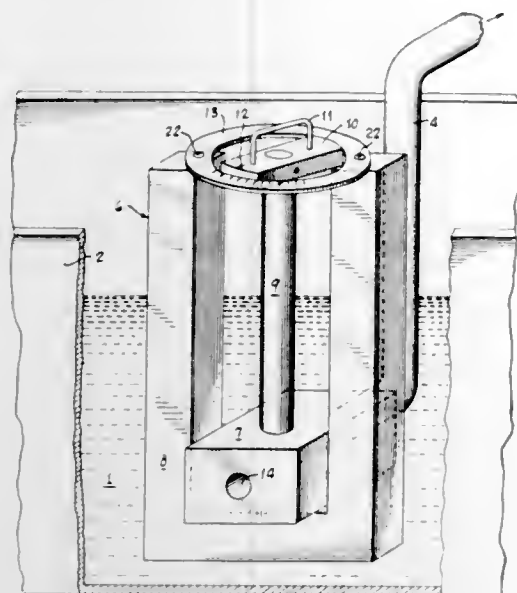
Int. Cl. F27d 3/14; F16k 5/04

U.S. Cl. 137—1

10 Claims

A method and means for metering the flow of liquid zinc between a reservoir and a vacuum chamber in a vapor deposition process, comprising a valve body and operator structure composed of graphite which is immersed in the liquid zinc in the reservoir so that the body of zinc acts as an

atmosphere-to-vacuum seal, and as a result of the nonwetting of graphite by zinc at the operating temperatures of the



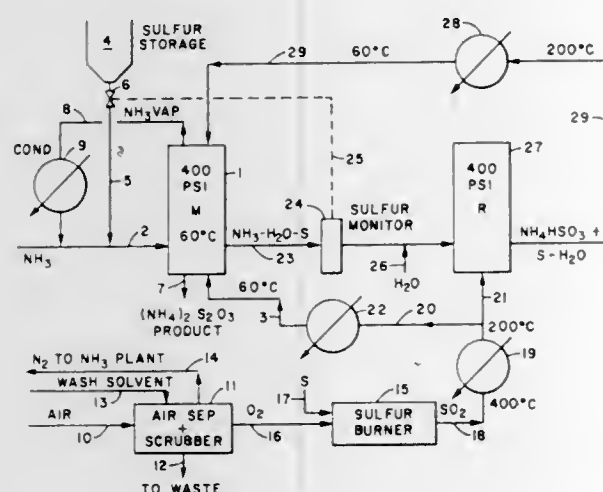
deposition process a liquid-to-liquid seal is also achieved within the valve structure.

3,559,663 METHOD FOR CONTROLLING SULFUR CONCENTRATION IN AMMONIA

Richard L. Every, Ponca City, Okla., and Paul F. Cox, Richardson, Tex., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Original application Oct. 12, 1966, Ser. No. 586,189. Divided and this application Nov. 25, 1969, Ser. No. 879,670
Int. Cl. C01b 17/64

U.S. Cl. 137-5

3 Claims



It is disclosed that the conductivity of a sulfur in ammonia solution is a measure of the sulfur concentration and that sulfur in ammonia solution of predetermined concentration can be continuously prepared by monitoring the conductivity of such solution and controlling at least one feed stream responsive to such monitoring.

3,559,664 PROCESS OF REDUCING FRICTION LOSS IN FLOWING HYDROCARBON LIQUIDS

Errol V. Seymour, Houston, Tex., and DeLoss E. Winkler, Orinda, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Sept. 28, 1967, Ser. No. 671,221
Int. Cl. F17d 1/16

U.S. Cl. 137-13

3 Claims

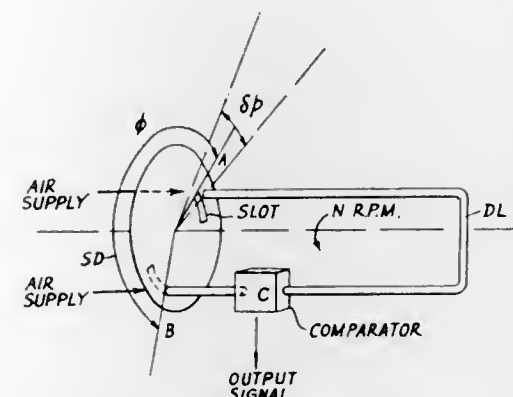
A method of reducing friction during flow of hydrocarbon liquids through conduits by addition to the liquids of a small amount of a copolymer of ethylenepropylene.

This invention relates to a method of decreasing friction loss in flowing hydrocarbon liquids through conduits, generally over great distances but also over short distances such as in well fracturing processes. More particularly, the invention is directed to the addition of a novel class of ethylenepropylene copolymers to hydrocarbon liquids such as crude oil and fractions thereof, so as to reduce its friction loss due to flow through pipelines over great distances and short distances.

3,559,665
CONTROL SYSTEMS
John Christopher Hammond Davis and Guy Edward Davies, Taplow, England, assignors to British Telecommunications Research Limited, Taplow, England, a British company
Filed Nov. 12, 1968, Ser. No. 775,066
Int. Cl. F16k 17/36

U.S. Cl. 137-39

9 Claims

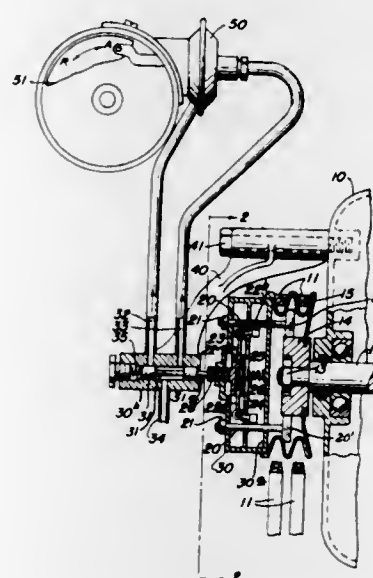


A control system for exercising a control in dependence upon the function $\frac{N}{\sqrt{T}}$ where N is a rotational speed and T is a fluid temperature in which first and second pulses are produced whose timing is dependent on the rotational speed. The first pulse is transmitted through a delay line containing fluid at the temperature T and compared in a comparator with the second pulses. The output from the comparator is used as a feedback signal to bring the two pulses into coincidence.

3,559,666
GOVERNOR MOUNTED IN A GENERATOR
Brooks Walker, and Frank W. Kertell, 1280 Columbus Ave., San Francisco, Calif. 94133
Continuation of application Ser. No. 648,085, June 22, 1967, now abandoned. This application Aug. 18, 1969, Ser. No. 853,589
Int. Cl. G05d 13/10

U.S. Cl. 137-53

10 Claims



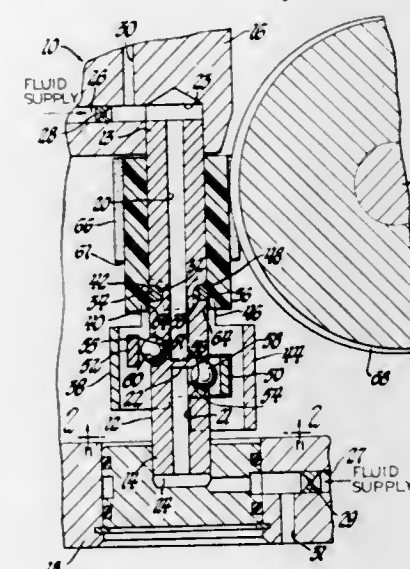
This invention involves a governor mounted in the pulley of an automotive generator by a very simple adapter to make

use of the bearings of the generator to support the governor. The governor has the characteristic of retracting a friction resistant plunger such as Teflon at all speeds below a selected speed to be used to operate a valve to control a suction operated motor to actuate fuel shut off above said selected speed at closed throttle or to actuate a suction operated spark advance mechanism or other engine functions requiring a speed sensor.

3,559,667
GOVERNOR
Erkki A. Koivunen, Livonia, Mich., assignor to General Motors Corporation, a corporation of Delaware
Filed Dec. 11, 1968, Ser. No. 782,943
Int. Cl. G05d 13/10

U.S. Cl. 137-54

14 Claims



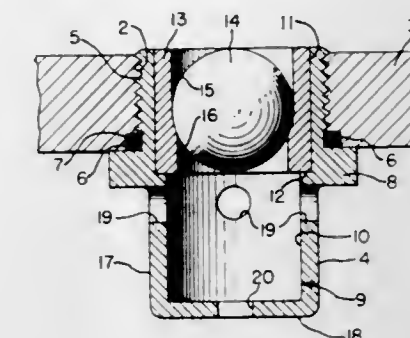
A governor control valve wherein governor outlet pressure is regulated by exhausting fluid from an exhaust port in response to changes in centrifugal force based on vehicular speed changes. The device includes a shaft having a restricted main line pressure inlet, a governor pressure outlet and an exhaust port formed therein and an axial passage therebetween. A cylindrical pin mounted on the shaft supports both a concentric drive gear and one or more weight members suspended from the pin and transmits the torque from the drive gear to the shaft. One embodiment provides two separate governors in one assembly, one with a slow rising pressure curve, the other with a fast rising pressure curve. Another embodiment thereof provides a two-stage governor pressure vs. speed relationship. The first embodiment of the valve assembly consists of dual inlet, outlet and exhaust ports and passages, with a relief valve for each exhaust port, and two weights having different sizes and shapes suspended from two pins for respectively variably controlling the fluid exhaust through the exhaust ports past the relief valves, in response to centrifugal force. The second embodiment of the valve assembly consists of a single inlet and governor pressure outlet arrangement wherein fluid exhaust is controlled by one ball relief valve which is actuated by two different weight members suspended from one pin, the lighter weight member being in direct contact with the valve while the heavier weight member influences the lighter member through a spring until the heavier member contacts a stop.

3,559,668
SAFETY VALVE
Richard L. Crossman, Tallmadge, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
Filed Mar. 4, 1969, Ser. No. 804,167
Int. Cl. F16k 17/38

U.S. Cl. 137-73

5 Claims

A safety valve for use on a tire or other pressure chamber to release internal pressure in the event of excessive pressure or temperature within the chamber. The present embodiments show a cylindrical hollow housing threaded into a

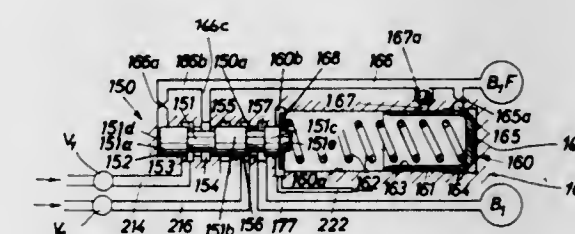


a certain predetermined safe maximum, the eutectic sleeve will either melt and release the pressure retaining ball or disc, or due to the softness of the sleeve, will permit the ball or disc to be forced outwardly from the sleeve when the internal pressure reaches a certain predetermined maximum.

3,559,669
HYDRAULIC CONTROL SYSTEM FOR BRAKES,
CLUTCHES AND THE LIKE
Hansjorg Dach, Friedrichshafen, Germany, assignor to Zahnradfabrik Friedrichshafen Aktiengesellschaft, Friedrichshafen, Germany, a corporation of Germany
Filed Dec. 20, 1968, Ser. No. 785,687
Claims priority, application Germany, Dec. 22, 1967, 1,655,948
Int. Cl. F16h 57/19; G05g 9/12

U.S. Cl. 137-102

7 Claims



A pair of hydraulic loads in the form of clutches and/or brakes are controlled by a common valve having separate inlet ports for high-pressure fluid and associated outlet ports respectively connected to these loads, each inlet port communicating with its associated outlet port in an initial position of a slider which, in response to pressure buildup in the first outlet port, shifts into an alternate position in which the fluid supply to the first load is reduced and the supply to the second load is substantially cutoff, this shift occurring against a biasing force of a spring bearing upon a piston which is displaceable by hydraulic fluid from the first outlet port, delivered through a constricted passage, to augment the biasing force so as to reestablish the initial position after a further pressure rise at the first load, thereby admitting fluid to both loads at substantially the pressure prevailing at the two inlet ports.

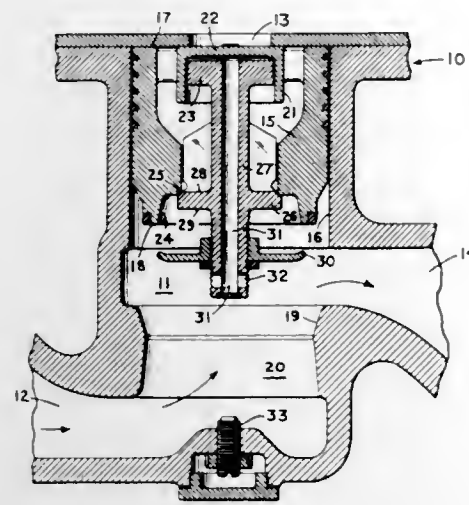
3,559,670
FLUID FLOW RATE ACTUATED CHANGE OVER VALVE
Shmariahu Yedidiah, West Orange, N.J., assignor to Gamon-Calmet Industries, Inc., Newark, N.J., a corporation of Delaware
Filed Jan. 14, 1969, Ser. No. 791,015
Int. Cl. G05d 7/01

U.S. Cl. 137-110

16 Claims

A fluid flow rate actuated change over valve having one in-

let, two outlets and a valve mechanism sensitive to the rate of fluid flow through the valve such that the discharge flow is



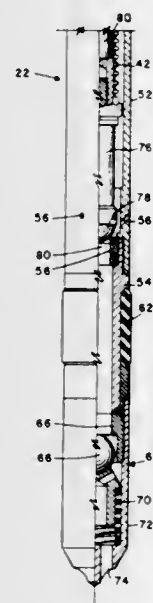
directed into a low flow rate line or a high flow rate line dependent upon the rate of fluid flow.

3,559,671 GAS LIFT VALVE

Bobby L. Douglas, Ennis, Tex., assignor to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware
Filed Aug. 26, 1968, Ser. No. 755,364
Int. Cl. F04f 1/08

U.S. Cl. 137-155

6 Claims



A gas lift valve that is connected in a tubing string and disposed in a cased well bore. The gas lift valve provides communication between the casing and tubing whereby gas in the annular space therebetween can be injected into the tubing to aid in producing oil from the well. The gas lift valve includes a valve member that is responsive to pressure within the tubing for movement between open and closed positions to control the flow of gas into the tubing.

3,559,672 DIFFERENTIAL PRESSURE GAS LIFT VALVE

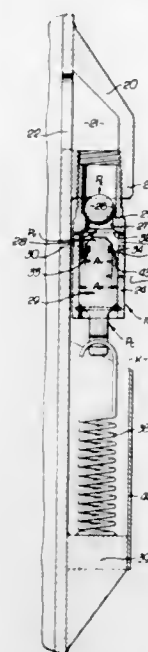
David V. Chenoweth, Houston, Tex., assignor to Baker Oil Tools, Inc., Commerce, Calif., a corporation of California
Filed Oct. 3, 1968, Ser. No. 764,738
Int. Cl. F04f 1/08

U.S. Cl. 137-155

9 Claims

A subsurface well gas lift valve for incorporation in a tubing string disposed in a well bore and having a gas inlet choke or orifice for gas supplied through the well casing and an outlet into the tubing string, a piston valve being shiftable between open and closed positions to control gas flow

between the inlet and outlet, the piston valve having a greater effective area subject to gas pressure on the downstream side of the inlet choke when in open position than its area subject to the tubing pressure when in closed



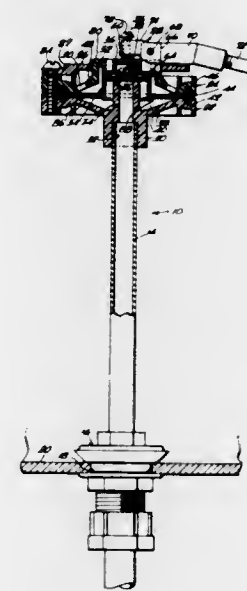
position, permitting the choke to be of a greatly increased area, while maintaining a small difference between the pressure differential at which valve opening occurs and the pressure differential at which valve closing occurs.

3,559,673 ANTI-SYPHON BALLCOCK VALVE ASSEMBLY

Milton Perlman, 1745 W. 33rd Place, Hialeah, Fla. 33012
Filed May 28, 1969, Ser. No. 828,491
Int. Cl. E03c 1/00; F16k 45/00

U.S. Cl. 137-218

8 Claims



A plastic antisiphon, ballcock valve assembly in which an axial water pressure inlet includes an upper valve seat engageable by a shutoff washer operated by a plunger and float-ball operated lever which includes an adjusting screw to control the water level in a flush tank or the like, and in which a peripherally sealed diaphragm includes a free inner edge surrounding the valve seat and is urged into sealing relationship with respect to air-introducing apertures when the sealing washer is unseated and water is directed in a circuitous path to an outlet conduit including branch ducts respectively connected to a hush pipe and flush tank stand pipe, and in which an adjustable screw is interposed at the branch ducts to divide the water flow through the hush pipe and stand pipe conduits to balance and substantially diminish sounds emitted as water is discharged therefrom; and in which substantially all of the working components of the antisiphon ballcock valve assembly are immediately adjacent to the upper portion of a flush tank providing ready access for

maintenance, replacement and repair and in which an extremely high "critical level" is provided whereby danger of syphoning is obviated and substantially eliminated, and the flush tank can be maintained at a minimum height.

3,559,674 MOUNTING PLATE FOR HYDRAULIC INSTALLATIONS AND METHOD OF MAKING SAME

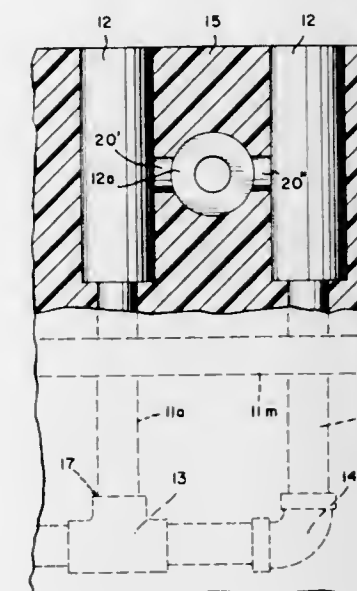
Fritz Ostwald, Buchschlag, and Gerhard Nonn, Hofheim Taunds, Germany, assignors to Alfred Teves GmbH, Frankfurt am Main, Germany, a corporation of Germany
Filed Sept. 25, 1968, Ser. No. 762,406

Claims priority, application Germany, Oct. 2, 1967, T34929/67

Int. Cl. F16l 39/00

U.S. Cl. 137-375

9 Claims



A mounting plate for hydraulic installations, such as hydraulic reservoirs, pumps, motors, control valves and servomechanisms, wherein a network of fittings and ducts is initially formed by soldering tubular conduits to cast or forged fittings (adapted to be threadedly connected to the hydraulic devices). The network is thereafter cast in a synthetic resin, usually a polyester, such that the fittings are flush with the surface of the resin and the latter fills the interstices between the fittings and the ducts to cushion the latter and resiliently damp vibration and noise.

3,559,675 FLUID FLOW PASSAGE AND VALVE ASSEMBLY FOR BALL COCKS

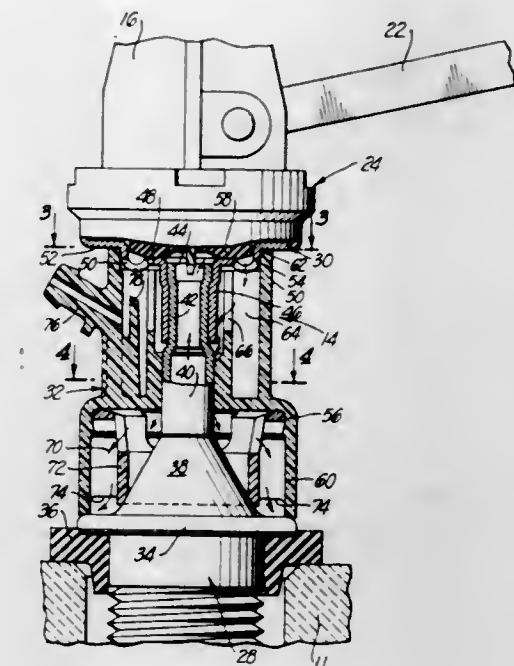
Adolf Schoepe, 1620 N. Raymond Ave., Fullerton, Calif. 92631, and Fredric E. Schmuck, 535 Century Drive, Anaheim, Calif.

Filed Mar. 20, 1969, Ser. No. 808,853
Int. Cl. F16r 31/14

U.S. Cl. 137-436

3 Claims

A water inlet member is secured extending upwardly into a water tank and is telescoped by a water outlet member with a valve assembly secured to the inlet member and overlying an upper edge of the outlet member providing valve control communication between the inlet member and interiorly of the outlet member. During assembly, a valve housing member is pressed onto the inlet member and simultaneously tightly engages a thin, continuously circular upper edge of the outlet member sealing therebetween. The outlet member includes an angularly upwardly extending refill hose connection spaced downwardly from the outlet member upper edge and above main water outlet openings, a series of spaced fin-



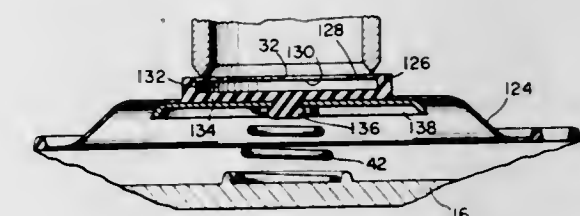
float controlling the valve operation and a refill hose extends from the refill hose connection upwardly into a refill tube.

3,559,676 ANTI-HUNTING DIAPHRAGM VALVES

Lauren D. Haskins, Long Beach, Calif., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Original application Dec. 19, 1966, Ser. No. 602,853, now Patent No. 3,468,511, dated Sept. 23, 1969. Divided and this application July 9, 1969, Ser. No. 840,235
Int. Cl. F16k 7/17

U.S. Cl. 137-489

3 Claims



A diaphragm-type valve member for a pressure regulator movable relative to a fixed valve seat for regulating the pressure of a fluid flow therethrough in order to maintain delivery of the fluid flow at a constant pressure. A central portion of the valve member is integrally formed with the diaphragm to define an internal cavity under its seating contact portion to stabilize the movement of the diaphragm valve element and eliminate hunting or oscillation thereof at low pressure ranges.

3,559,677 OVERLOAD CONTROL VALVE

John M. Barosko, Kenosha, Wis., assignor, to Tenneco Inc., Houston, Tex., a corporation of Delaware, by mesne assignments

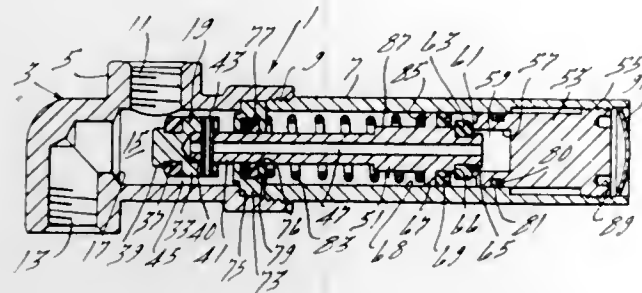
Filed May 28, 1969, Ser. No. 828,470
Int. Cl. F16k 31/143

U.S. Cl. 137-505.13

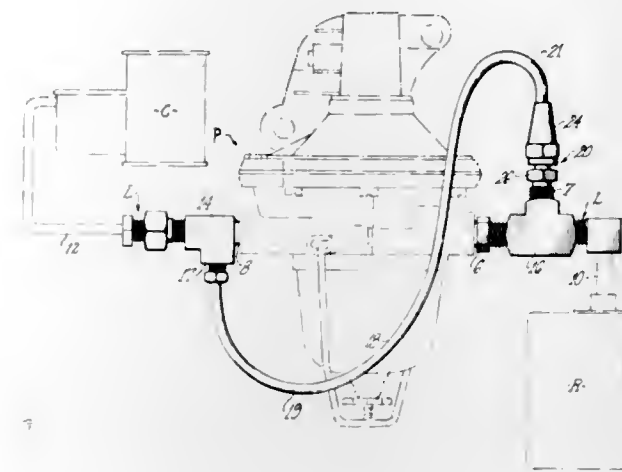
10 Claims

A valve for controlling the maximum pressure of gas in a

system has a control chamber which senses pressure in the system through an aperture that extends lengthwise of a

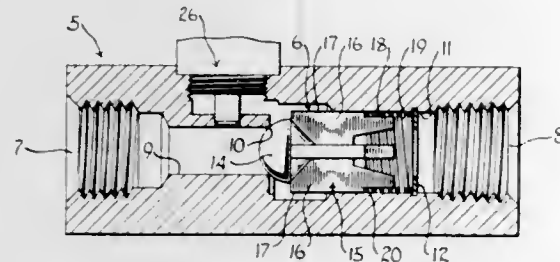


3,559,680
FUEL PRESSURE RELIEF ASSEMBLY
Neil C. Norton, Los Angeles County, Calif. (P.O. Box 104, Gardena, Calif. 90247)
Continuation-in-part of application Ser. No. 616,594, Feb. 16, 1967, now abandoned. This application May 3, 1968, Ser. No. 726,308
Int. Cl. F04b 23/00
U.S. Cl. 137—563 5 Claims



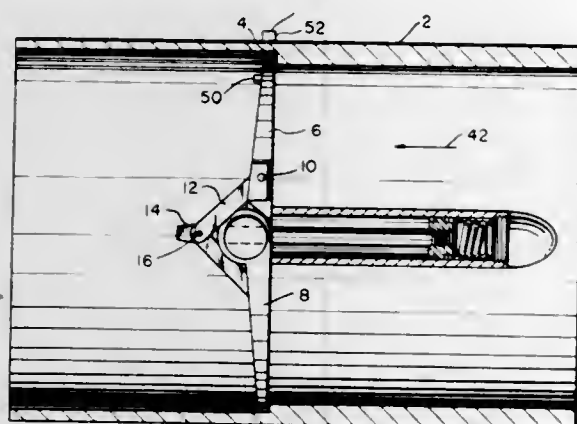
spring-pressed valve-piston which is moved to cutoff position by excess pressure.

3,559,678
CHECK VALVE
Verne P. Donner, Palatine, Ill., assignor to Deltrol Corporation, Bellwood, Ill., a corporation of Illinois
Filed Jan. 21, 1969, Ser. No. 792,638
Int. Cl. F16k 15/04
U.S. Cl. 137—535 1 Claim



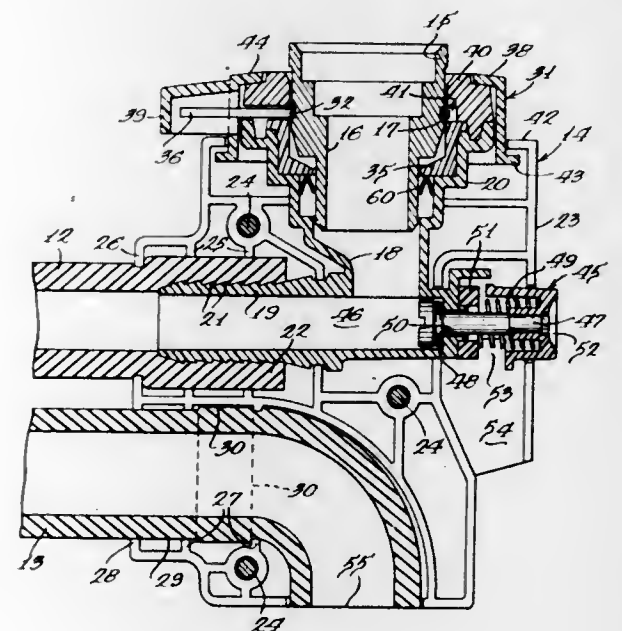
A check valve having an elongated body accurately guided for lengthwise back and forth motion in a valve chamber by substantially thin longitudinal vanes joined to one another at a narrow zone along the axis of the body. The body can have a coaxial hemispherical seat engaging protuberance integrally joined to the forward edges of the vanes, or alternatively, the forward edges of the vanes can be formed with a hemispherical concavity to receive a seat engaging sphere.

3,559,679
HINGE VALVE
Johannes R. Smirra, Starnberg, Germany, assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Nov. 26, 1968, Ser. No. 779,140
Int. Cl. F16k 31/163, 1/16
U.S. Cl. 137—554 3 Claims



A hinge valve is described which controls fluid flow by means of movable flap sections which are actuated by fluid pressure on associated linkage so as to move from a closed position to an opened position—or vice versa.

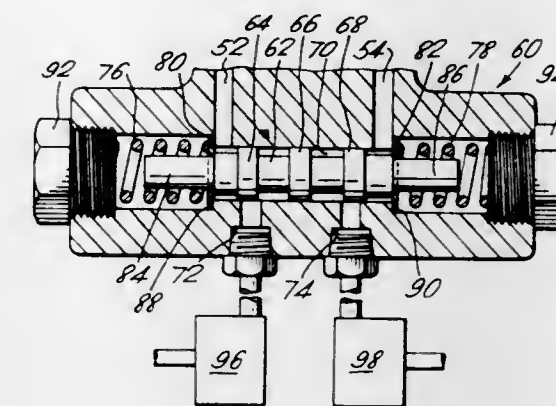
3,559,681
FILLING AND DRAIN COUPLER
Wilbur W. Jarvis, St. Joseph, Mich., and Roland E. Nicholson, Hartford, Mich., assignors to Whirlpool Corporation, a corporation of Delaware
Filed June 11, 1969, Ser. No. 832,240
Int. Cl. F16l 39/00
U.S. Cl. 137—594 7 Claims



An improved filling and drain coupler for supplying water to and draining water from an appliance and the like in

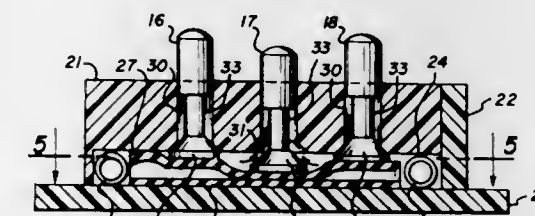
which the outer casing parts of the coupler serve the dual function of providing a pleasing appearance and also locking the internal operating parts in their proper position so that the entire device is compact, economical and highly reliable.

3,559,682
POWER CLUTCH-OPERATED RATIO-CHANGING MECHANISM FOR HYDRO-MECHANICAL TRANSMISSION SYSTEM
George Sherman Morley, Goderich, Ontario, Canada, assignor to The Dominion Road Machinery Co., Limited, Goderich, Ontario, Canada
Filed Oct. 25, 1968, Ser. No. 770,610
Int. Cl. F16k 11/10; F15b 11/08
U.S. Cl. 137—596.15 4 Claims



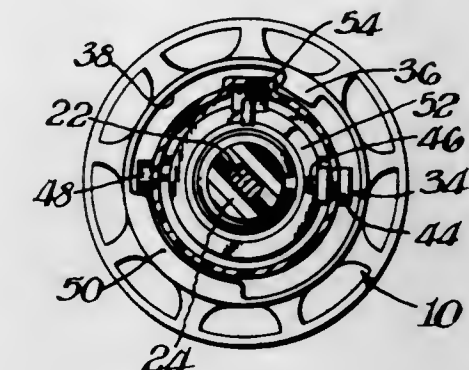
A hydraulic switching mechanism is formed of two cooperating valves, the first being a rotary type which directs fluid under pressure to a second valve of the sliding spool type which has springs at both ends to hold the spool in the neutral position. The rotary-type is formed of a body having a pair of diverging passages connecting through a chamber with an inlet port; a rotary valve member, having a passage therethrough connecting with the inlet port, is located in the chamber and is actuated by a reversible shaft to select the movement of fluid through the valve member into one or other of the diverging passages, these in turn being connected to a respective end of the spool valve thereby moving the spool out of neutral against a respective spring. The spool has a pair of ports which are connected to individual clutches, the actuation of which depends on the selected direction of flow in the switching mechanism.

3,559,683
FLUID CONTROL DEVICE
John Maguire, Littleton, Colo., assignor to Samsonite Corporation, Denver, Colo., a corporation of Colorado
Filed June 12, 1969, Ser. No. 832,620
Int. Cl. F16k 17/04
U.S. Cl. 137—612.1 6 Claims



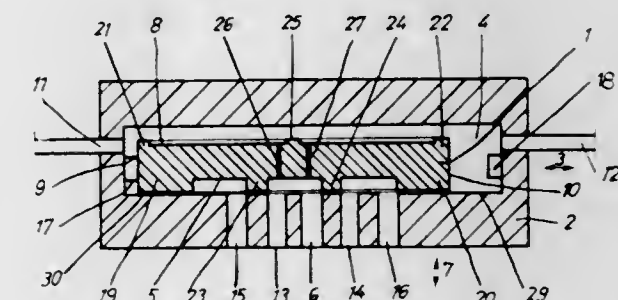
The fluid control device has a closed passage formed by a groove in a block and closed by a base and an end plate, with bores extending downwardly through the block to the channel. An inlet tube and a normal outlet tube is sealed in a port leading to the inlet and outlet ends, respectively, of the passage. A valve is held upwardly against a valve seat of each bore by a resilient tube which avoids the use of normal springs and extends within the passage, being sealed to a neck at the outlet. Control buttons are slidably received in the bores and connected to stems for depressing the respective valves and flatten the tube, which terminates the flow of the normal outlet, the water than flowing around the tube

3,559,684
ROTATABLE AND RECIPROCAL MIXING VALVE AND ADJUSTMENT LIMIT STOP
Charles J. Rudewick, III, Newark, Del., assignor to Speakman Company, Wilmington, Del., a corporation of Delaware
Filed Oct. 24, 1968, Ser. No. 770,302
Int. Cl. F16k 11/00
U.S. Cl. 137—625.17 11 Claims



Valve arrangement comprises valve casing with mixing valve therein and valve stem extending outwardly therefrom. Tubular collar fixed to casing surrounds valve stem, and rotatable and reciprocal valve operator is connected to stem for rotating and reciprocating mixing valve relative to casing. Improvement comprises spaced apart fixed stop and readily accessible adjustable stop on tubular collar. Projection on valve operator is positioned between stops and constructed and arranged to engage stops to limit rotation of valve operator. Pin is connected to tubular collar and abutment on valve operator engages pin when operator is moved inwardly toward mixing valve to prevent inward movement of operator at all rotary positions thereof except when projection on operator is near fixed stop on tubular collar.

3,559,685
MULTI-WAY-VALVE
Jan Richard Peter deFries, Allenmoosstrasse 124, Zurich, Switzerland
Filed June 19, 1969, Ser. No. 834,850
Claims priority, application Germany, June 20, 1968, P1,750,933
Int. Cl. F16k 11/07
U.S. Cl. 137—625.6 21 Claims



A multiway valve for connecting outlets leading to either end of a hydraulic cylinder, and at the same time connecting the other outlet to a return passage, includes a casing having a control member movable with clearance therein. This control member when shifting from one position to another is lifted up by the pressure of the fluid being controlled, then shifted to a different position, and then restored to sealing position by the application of pressure on its upper side.

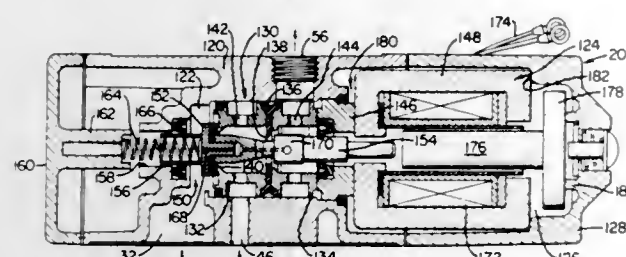
3,559,686

FOUR-WAY TWO-POSITION CONTROL VALVE

Robert K. Hoffman, Littleton, Colo., assignor to C.A. Norgren Co., Littleton, Colo., a corporation of Colorado
Filed May 27, 1968, Ser. No. 732,406
Int. Cl. F16k 11/07

U.S. Cl. 137-625.64

16 Claims



System includes primary valve to control air flow to and from ends of servo motor cylinder. Shaft slides axially in bore of valve and has four poppet heads fixed on shaft at appropriate positions. Bore contains two assemblies of two valve seats each, slidable in bore and engaging stops to limit travel. At each extreme of shaft movement one head pushes a seat against its stop and another head pushes a seat away from its stop. Differential air pressure holds second seat against its head. Arrangement eliminates need for extreme accuracy in spacing heads and seats. System also includes pilot valve to control air to and from piston in primary valve which moves poppets. Solenoid armature impact is reduced by spring, air pressure, and seal friction.

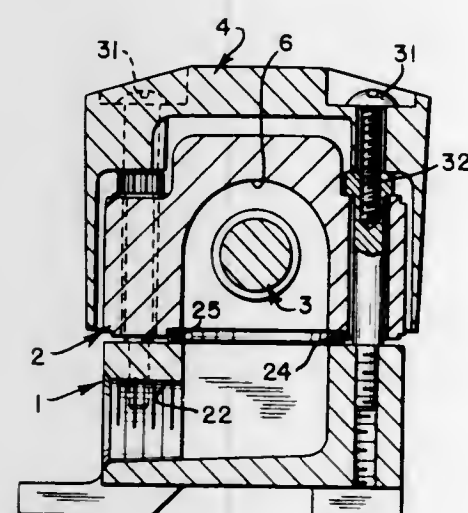
3,559,687

FLUID VALVE CONSTRUCTION

Wilfred Aslan, Mahwah, N.J., assignor to Alkon Products Corporation, Wayne, N.J., a corporation of New York
Filed Apr. 1, 1968, Ser. No. 717,829
Int. Cl. F16k 11/07

U.S. Cl. 137-625.69

14 Claims



A fluid valve assembly having a valve body and valving mechanism movably mounted therein, a valve base supporting the valve body and clamping mechanism for attaching the valve body to the valve base in non-compressive relationship therewith.

3,559,688

FLUID PRESSURE REGULATING VALVE

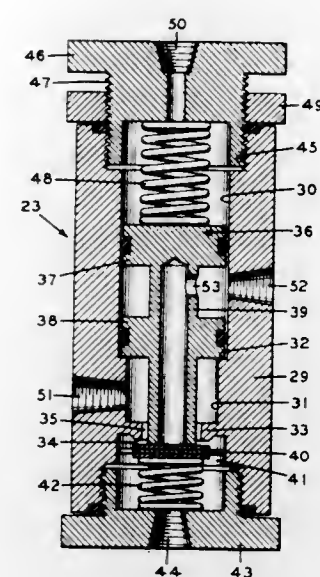
Alvin M. Fischer and Harry J. Warmkessel, Allentown, Pa., assignors to Mack Trucks, Inc., Allentown, Pa., a corporation of Delaware
Original application June 4, 1965, Ser. No. 461,394, now Pat. No. 3,442,502, dated May 2, 1969. This application May 5, 1969, Ser. No. 821,812
Int. Cl. F16k 11/10

U.S. Cl. 137-627.5

3 Claims

A fluid pressure regulating valve having a control port, an inlet port, an outlet port and an exhaust port, an inlet valve

disposed between the inlet and outlet ports, and a reciprocable piston having a hollow stem extending toward and adapted to engage and open the inlet valve in one position and to disengage the inlet valve to close the same in another



position, the piston having an exhaust passage extending from the hollow stem to a location adjacent the exhaust port which is closed when the hollow stem engages the inlet valve and which is opened when the stem disengages the inlet valve.

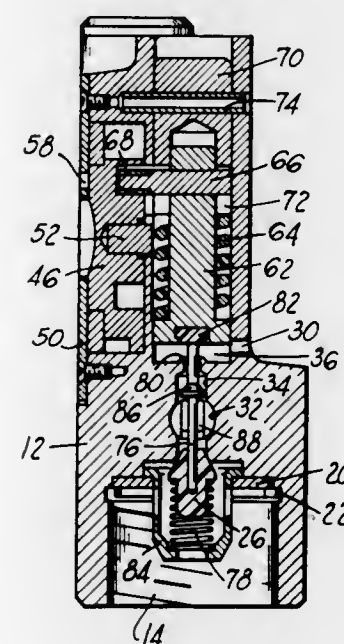
3,559,689

20 MAN RAFT CO₂ INFLATION VALVE

Jack Dunbar, Davenport, Iowa, and Donald K. Schlueter, Northridge, Calif., assignors to The Bendix Corporation, a corporation of Delaware
Filed July 14, 1969, Ser. No. 841,490
Int. Cl. F16k 11/10

U.S. Cl. 137-627.5

10 Claims



The following relates to a fluid pressure distributing mechanism for inflating a life raft which permits automatic venting of the raft inflation chambers when the raft is in a noninflated state and includes a failsafe actuator arrangement for preventing inadvertent actuation of the mechanism. Automatic venting is provided through means of a tilt-type poppet valve, and failsafe actuation is provided through a cam controlled valve arrangement wherein the cam has an initial nonactuating range of rotation and a subsequent actuating range of rotation.

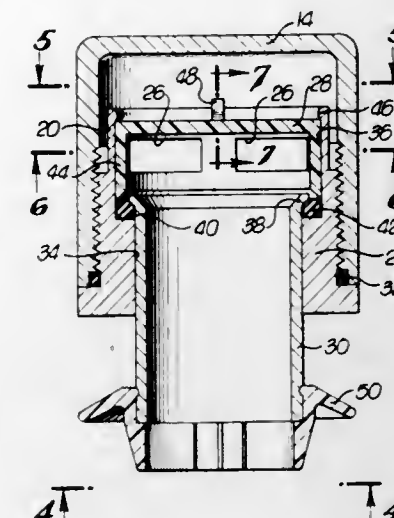
3,559,690

DIVERTER VALVE

Patsy B. Palmer, Granada Hills, Calif., assignor to Price-Pfister Brass Mfg. Co., Pacoima, Calif., a corporation of California
Filed May 8, 1969, Ser. No. 822,884
Int. Cl. F16k 15/8

U.S. Cl. 137-801

9 Claims



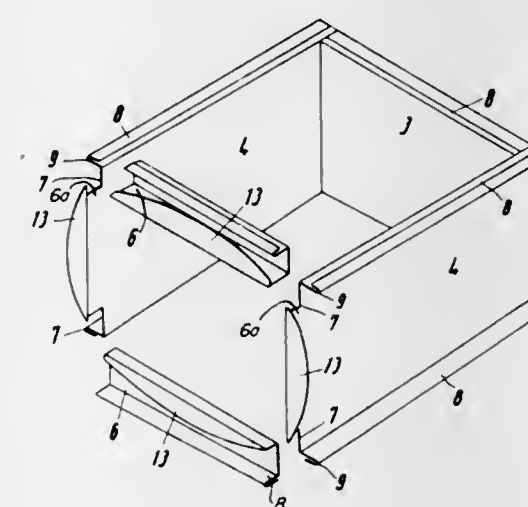
The new diverter valve utilizes a loose fitting O-ring surrounding a cylinder fitted into the mouth of a spout. A flange on the cylinder expands the O-ring to provide a seal when the cylinder is in its lower position. When the cylinder is raised, a caged lid closes the cylinder. A skirt formed on the lid moves downwardly and acts as a packing gland to constrict the O-ring thus to perfect a seal. When hydraulic pressure is reduced, the pressure on the O-ring is relieved whereby the cylinder is free to fall away under the influence of gravity.

3,559,691

CASING FOR THE RECEPTION OF AIR FILTERS
Gerhard Max Neumann, Berlin-Dahlem, Germany, assignor to Delbag Luftfilter G.m.b.H., Berlin-Halensee, Germany
Filed Dec. 11, 1967, Ser. No. 689,545
Claims priority, application Germany, July 21, 1967, D 53,659
Int. Cl. F16s 45/00

U.S. Cl. 138-92

9 Claims



Casings for air filters for use in nuclear plant should have the minimum of weld joints to ensure gas-tightness. The invention provides a form of construction requiring only about a quarter of the welding normally required, and furthermore allows lighter gauge metal to be used, by forming three sides of the open ended casing from a single sheet of metal, which is bent and flanged to the required shape, the remaining flanges being welded onto the bent integral part.

3,559,692

FLEXIBLE TUBES

Jean Mantelet, Paris, France, assignor to Moulinex S. A., Bagnolet, France
Filed Apr. 11, 1968, Ser. No. 720,680
Claims priority, application France, Apr. 20, 1967, 103,453
Int. Cl. F16l 11/06

U.S. Cl. 138-121

5 Claims



A flexible tube having a wall of wavy section each wave having successive folds opening inwardly and outwardly, the crest of at least one of the folds of each wave having a narrowly concave outline.

3,559,693

WINDABLE FLEXIBLE SHAFT CAPABLE OF WITHSTANDING HIGH TRACTIVE FORCES AND TORSIONAL STRESSES

Remi Reynard, Montesson, France, assignor to Institut Francais Du Petrole Des Carburants Et Lubrifiants, Malmison, France
Filed Apr. 30, 1968, Ser. No. 725,426
Claims priority, application France, May 5, 1967, 105,469
Int. Cl. F16l 11/08, 11/14, 11/08, 11/14

U.S. Cl. 138-133

12 Claims



This flexible shaft includes a flexible core surrounded with at least one armoring constituted of at least two layers of helically wound metallic wires or cables. This shaft is characterized in that each armoring layer is provided with an anchoring layer wherein it is embedded, this anchoring layer being constituted of an elastomeric or thermoplastic material which has been subjected to a thermal treatment, in combination with a thin hooping and separating layer which is welded onto the bent integral part.

covers the armoring layer and is constituted of a material which can withstand the thermal treatment without flowing, this material preferably retracting under the conditions of this thermal treatment.

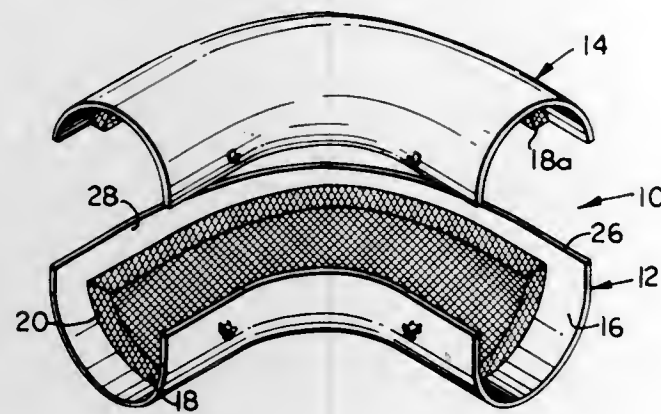
3,559,694

REMOVABLE INSULATED FITTING FOR PIPE JOINTS
Fred J. Volberg, Lafayette, Calif., assignor to Associated Insulation of California, Richmond, Va., a corporation of California

Filed Apr. 14, 1969, Ser. No. 815,877
Int. Cl. F16I 59/16

U.S. Cl. 138-147

8 Claims



A removable insulation unit for surrounding pipe joints, particularly at fittings such as elbows, T's and the like comprises a pair of relatively thin outer shells which are connectable by fastener means to form a cylindrical cover. An insulation liner surrounded by a perforated member is secured within each shell member by hook members that extend inwardly from its inner wall.

ERRATUM

For Class 138-149 see:
Patent No. 3,559,660

3,559,695

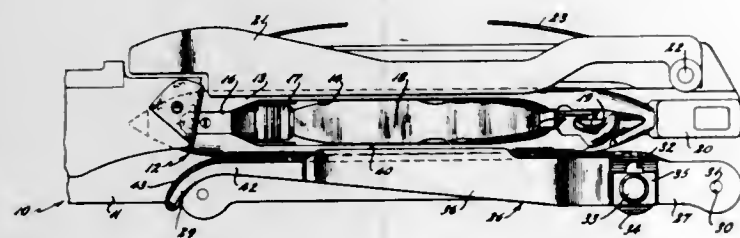
LOOM RIGHT-HAND BOX FRONT

William J. Kelly, Rte. 3, Box 468, Rockingham, N.C. 28379

Filed Jan. 21, 1969, Ser. No. 792,558
Int. Cl. D03d 49/52

U.S. Cl. 139-183

2 Claims



A box front for a loom adapted to guide and position or box a shuttle so that the filling thread may be severed and the bobbin removed without damage to the shuttle or impairing the quality of the cloth being woven.

3,559,696

SHUTTLE CHECKING DEVICE

Coy L. Huffman, Jr., 107 Brookside Way, Greenville, S.C., and James Earl Huffman, 10 Broadmoore Drive, Greenville, S.C.

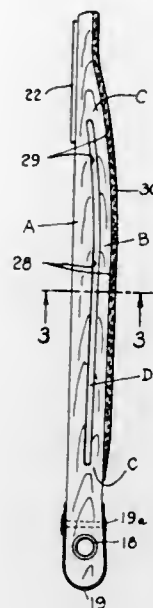
Filed Oct. 20, 1969, Ser. No. 867,658
Int. Cl. D03d 49/54

U.S. Cl. 139-185

2 Claims

A shuttle binder has a thin flat member and an elongated element constructed from a single unitary wooden blank, said

blank having been compressed and densified by the application of heat and pressure along opposite sides thereof across



said flat member so that said flat member is capable of dissipating heat and withstanding flexing and impact from the shuttle during weaving.

3,559,697

EDGE STRUCTURE FOR AIRCRAFT ARRESTING TAPES
Denis Whalen, Cleckheaton, England, assignor to BBA Group Limited, Cleckheaton, Yorkshire, England

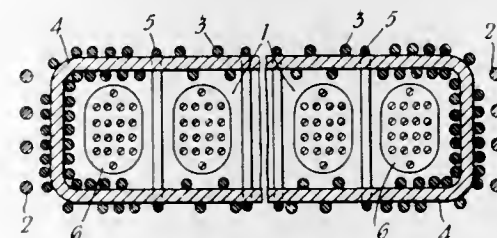
Filed Mar. 3, 1969, Ser. No. 803,823

Claims priority, application Great Britain, Mar. 5, 1968,
10,575/68

Int. Cl. D03d 5/00

U.S. Cl. 139-408

3 Claims



An arrestor tape for use in aircraft arresting means comprising a woven body portion having secured thereto, along the edge portions thereof, abrasion resistant longitudinally extending threads.

3,559,698

CABLE SPLICER TOOL

Van Z. Smith, Mineral Wells, Tex., assignor to All Products Company, Mineral Wells, Tex.

Filed July 22, 1968, Ser. No. 746,510

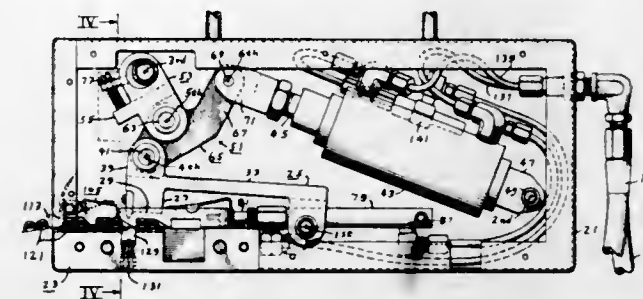
Int. Cl. B21f 15/00

U.S. Cl. 140-105

7 Claims

A cable splicer tool particularly adapted for splicing the conductor pairs of telephone trunk cables. A fluid operated power cylinder and piston rod work a toggle linkage mechanism to actuate a pivoted hammer which coacts with a feed table on which connectors to be crimped are moved. The feed table includes an anvil portion, with the anvil mounted for limited resilient movement. A cutter blade is mounted on the hammer to cooperate with the anvil portion

to sever taped connectors on the hammer crimping stroke. A fluid operated feed cylinder and piston rod reciprocate a connector feed pawl, with the feed cylinder and above-mentioned power cylinder connected to a common fluid supply source such that the feed pawl moves in its return stroke



direction when the power piston rod is extended on its crimping stroke. Damping means are provided to slow down the movement of the feed pawl during the feed stroke of the feed cylinder piston rod. A feed retainer pawl holds the connector next to be crimped against rearward movement as the feed pawl moves on its return stroke.

3,559,699

METHOD AND APPARATUS FOR WINDING OF STATOR FOR ELECTRIC MACHINES

Hans Droell, Bergen-Enkheim, Germany, assignor to Balzer & Droll KG, Rosenhelle, Germany

Filed Aug. 7, 1968, Ser. No. 750,930

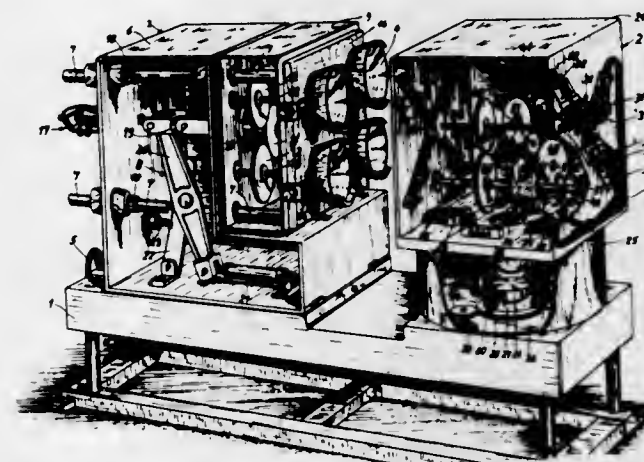
1,613,021

Claims priority, application Germany, Aug. 9, 1967,

Int. Cl. B21f 3/00

U.S. Cl. 140-92.1

19 Claims



An arrangement for winding coils for stators including a winding drum driving mechanism and a template carrier mechanism, the latter including a multisided rotatable housing having a set of templates on each lateral surface. The templates of each set are movable radially outwardly for alignment with corresponding winding funnels and radially inwardly for simultaneous removal of all coils; and the housing is rotatable to position successive sets of templates for receiving coils while already wound coils are being removed.

3,559,700

METHOD AND APPARATUS FOR FILLING CONTAINERS WITH MULTIPLE SEPARATE STREAMS OF VISCOUS MATERIAL

Leonard A. Erickson, Columbus, Ohio, assignor to Big Drum, Inc., Columbus, Ohio, a corporation of Ohio

Filed Jan. 21, 1969, Ser. No. 792,659

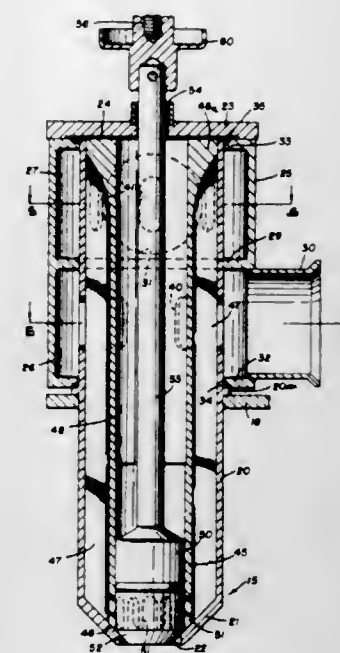
Int. Cl. B65b 1/06

U.S. Cl. 141-9

9 Claims

Process and apparatus for filling a transparent container with multiple viscous materials, such as edible substances, supplied as separate independent streams and kept independently and completely separate from each other until they enter the container and in which the materials will assume a

predetermined pattern. The apparatus includes a nozzle which can be moved vertically or axially relative to the con-



tainer and an associated valve which can quickly start and cut off the flow of all the separate streams simultaneously.

3,559,701

AEROSOL STORAGE CONTAINER AND REFILLABLE DOSING SPRAYER

Adam Wittersheim, Nieder-Ramstadt, and Albert Kolb, Darmstadt-Eberstadt, Germany, assignors to Goldwell GmbH, Darmstadt-Eberstadt, Germany, a corporation of Germany

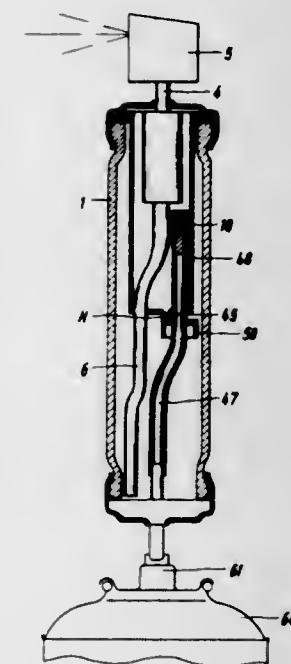
Filed Apr. 18, 1969, Ser. No. 817,446

Claims priority, application Germany, Apr. 27, 1968,
P1,750,400

Int. Cl. B65b 31/00

U.S. Cl. 141-20

3 Claims



Refillable sprayer apparatus employs a filling valve and an air-release valve which are directly or indirectly mechanically linked to provide sufficient filling of the sprayer while at the same time preventing overfilling and a resulting loss of excess liquid.

3,559,702

CONTAINER FILLING MACHINE

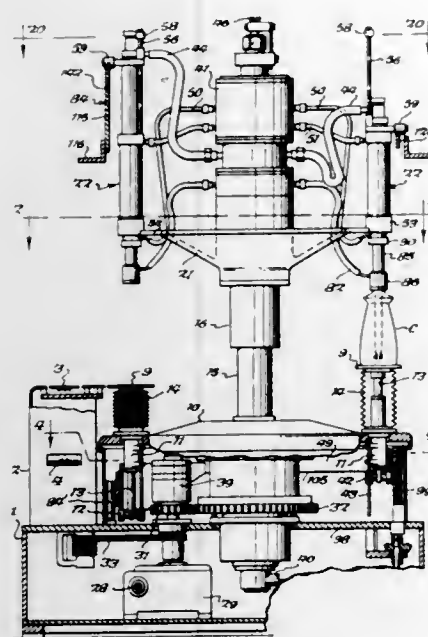
James H. Riesenber, Amherst, N.Y., assignor to Consolidated Packaging Machinery Corporation, Buffalo, N.Y.

Filed Jan. 24, 1968, Ser. No. 700,129

Int. Cl. B65b 3/36

U.S. Cl. 141-128

10 Claims



A filling head having a stem movable into and out of a submerged filling position relative to a container supporting tray is mounted for movement with the tray through a path and the stem is moved into and out of filling position as the tray and head are moved through the path. The filling position of the stem is controlled by a cam having relatively movable sections one of which determines the spacing between the tray and the stem when the latter is in its fully submerged filling position. The cam also includes relatively movable sections for selectively varying the point along the path at which filling through the stem is cut off.

3,559,703

FLUID SAMPLE INJECTOR FOR GAS CHROMATOGRAPH

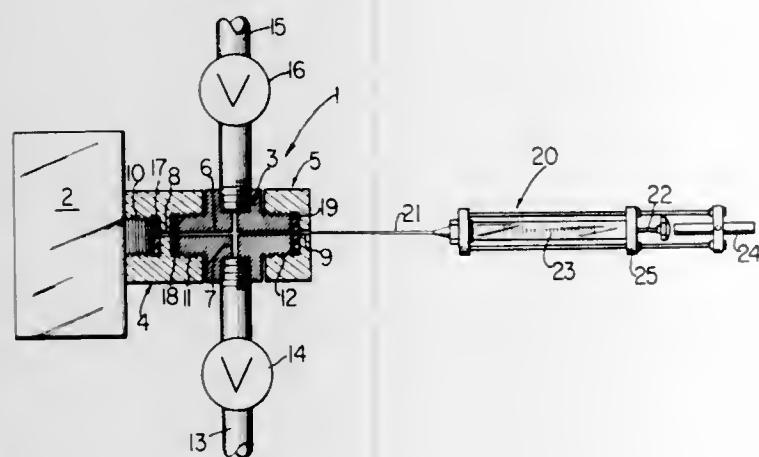
Robert V. Maul, Tulsa, and Everett L. Swalley, Bardsall, Okla., assignors to Cities Service Oil Company, Tulsa, Okla., a corporation of Delaware

Filed May 29, 1969, Ser. No. 828,864

Int. Cl. B56b 1/04

U.S. Cl. 141-329

10 Claims



A fluid sample to be analyzed is delivered to a fluid analyzing instrument, e.g. a gas chromatography column, by delivery through conduit means to a passageway inside a housing removably secured to the fluid analyzing instrument. Interconnecting with this passageway is a second passageway extending from the outer end of the housing to the end thereof secured to the instrument. This second passageway is aligned with the point at which the fluid may be injected into

the fluid analyzing instrument. A syringe-type device having a needle adapted to fit in this second passageway and having a sufficient length to extend therethrough into the fluid analyzing instrument is provided. In order to prevent the venting of the fluids delivered to the interconnecting passageways, thereby affecting the composition of the fluid to be analyzed, sealing means, such as a rubber pad, is provided and positioned across the second passageway extending to the outermost end thereof. The needle may be inserted into the passageway by penetrating the sealing means, which has a self-sealing character so as to form a tight seal about the needle passing therethrough. In order to prevent the uncontrolled flow of fluids to the gas analyzing instrument, sealing means are also provided between the housing and the instrument and are positioned across the passageway extending therebetween. The needle, containing the desired quantity of the fluid to be analyzed, may be passed through the sealing means into the gas injection point of the instrument. The housing is conveniently formed in three parts, an intermediate cell having the interconnecting passageways extending therethrough, an inner end cap removably secured to this cell and the instrument and having a passageway extending therethrough in alignment with the end to end passageway in the cell, and an outer end cap removably secured to said cell and also having a passageway extending therethrough in alignment with the end-to-end passageway extending through the cell. The sealing means across the passageway extending from end to end of this three-part housing are positioned between the outer end cap and the cell, between the cell and the inner end cap, and between the inner end cap and the fluid analyzing instrument. Thus, a fluid sample delivered to the passageways in this fluid injector device may be passed therefrom into the analyzing instrument by means of the needle portion of the syringe-type device without any change in composition, so that the results of the fluid analyzing operation will accurately reflect the composition of the gas being analyzed.

3,559,704

JIG FOR GUIDING A ROUTER

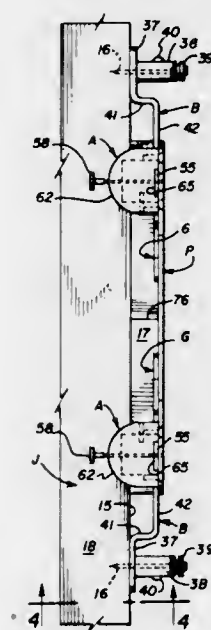
William H. Thompson, 4149 Eliot St., Denver, Colo. 80211

Filed May 1, 1969, Ser. No. 820,939

Int. Cl. B27 5/12

U.S. Cl. 144-144.5

9 Claims



The jig is attached to a door jamb by pins mounted on longitudinal adjustable end brackets which are adjustable inwardly on the underside of and into an aperture in a plate which is engaged by the base of the router. The end brackets are also provided with spacers which extend to the surface of the door jamb. The side of the plate aperture is closed by a side plate which also extends to the door jamb. A corner guide having a notch, which fits against a corner of the end bracket, together with the inner ends of the end brackets, guides the router in forming a shallow groove for a strike plate, after a well for the catch box has been formed by the

router, adjusted to cut to a greater depth. A removable template having an aperture for guiding the router in cutting the well rests against the inwardly extending ends of the end brackets and the corner guides, and is provided with a strip which engages the underside of the main plate. A pair of abutments, adjustable on the underside of the main plate, determine the spacing of the jig from the side of the door jamb. The end brackets and corner guides may also be adjusted to guide the router in cutting a different size or shape of groove, while an alternative template is used in guiding the router to cut a different size of well.

3,559,705

CHIPPER KNIFE AND KNIFE MOUNTING FOR DRUM TYPE WOOD CHIPPER

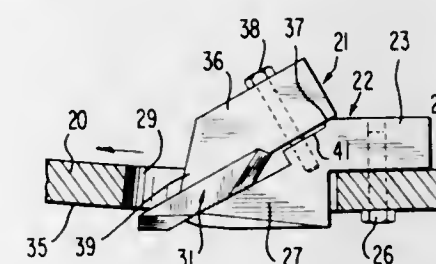
Frank Louis Salzmann, Jr., 1713 Lomb Ave. W., P.O. Box 3885, Birmingham, Ala.

Filed Sept. 11, 1968, Ser. No. 758,972

Int. Cl. B27 11/02; B27g 13/04

U.S. Cl. 144-162

5 Claims



A simplified and secure mounting for a reversible symmetrical knife for a drum type wood chipper. The knife produces a controlled size chip as required by the paper industry.

3,559,706

APPARATUS FOR DISUNITING MEAT AND BONES AND CARRIAGE SUPPORT THEREFOR

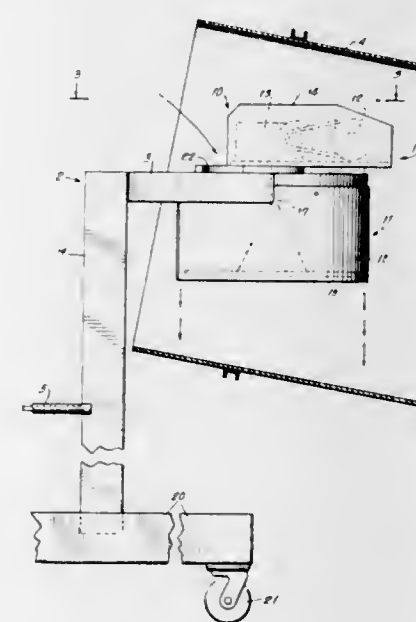
Lucas Jones Conrad and Cyrus Alfred Alldred, Jr., Winston-Salem, N.C., assignors to R. J. Reynolds Tobacco Co., Winston-Salem, N.C., a corporation of New Jersey

Filed Sept. 13, 1968, Ser. No. 759,709

Int. Cl. B02b 7/04; A01f 31/00

U.S. Cl. 146-76

8 Claims



A food processing apparatus for disuniting soft edible material from harder inedible portions in appropriate foodstuffs comprising a horizontal rotating disc with a ribbed surface which cooperates with a series of tines arranged in radially extending curves above the surface in a pinwheel formation to disunit the component food parts which are introduced from above. The disc drive means is supported above the disuniting section and the entire apparatus is can-

tilevered on a support carriage permitting ready accessibility, adjustment and dismantling of the various members for operating and cleaning.

3,559,707

METHOD AND MEANS FOR SKINNING MEAT

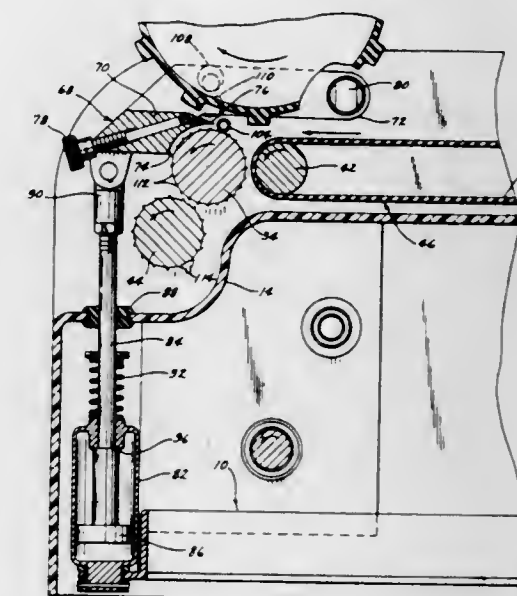
Ray T. Townsend, Des Moines, Iowa, assignor to Townsend Engineering Company, Des Moines, Iowa, a corporation of Iowa

Continuation-in-part of application Ser. No. 616,692, Feb. 16, 1967, now abandoned. This application Feb. 20, 1968, Ser. No. 706,941

Int. Cl. A22c 17/12

U.S. Cl. 146-130

5 Claims



A meat skinning machine of the type having a skin gripping roll and a concave shoe cooperating with a skinning blade and the gripping roll to pull the skin through the machine and part the skin from a piece of meat. A stripper roll is mounted adjacent the gripper roll to strip the skin from the gripper roll after the skin has been removed from the meat. The shoe and skinning blade are held concentrically with the gripping roll by air piston means. The air piston means are controlled by a photoelectric cell means which functions to instantaneously move the shoe and blade to the skinning position as soon as the meat approaches the close proximity of the blade. The instantaneous initial bite of the blade into the meat is enhanced and accelerated by pivoting the shoe above and forwardly of the point of engagement of the blade with the oncoming meat to be skinned. The method involves the holding of the shoe adjacent the gripping roll concentrically with sufficient force to grip the removed skin but with insufficient force to prevent puncture of the skin by the gripping roll. The method further holds the skin uniformly against the gripper roll, and then strips the skin from the gripper roll by a remotely located stripper roll to insure that a uniform thickness of skin is removed.

3,559,708

IMPACT-RESISTANT CONTAINER AND METHOD OF MAKING SAME

Richard L. Cook, Flagstaff, Ariz., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Filed Nov. 13, 1968, Ser. No. 775,365

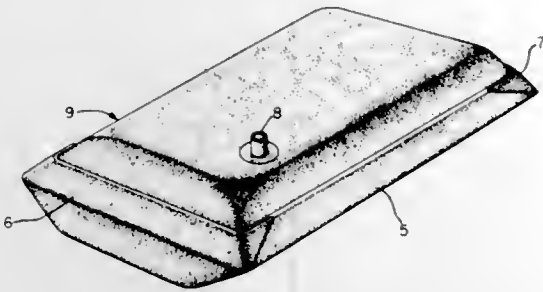
Int. Cl. B65d 37/00, 31/10

U.S. Cl. 150-1

9 Claims

An impact-resistant container having a flexible walled, rupture resistant, fluid impervious body portion in which one or more pleats are formed. The pleats are secured in a folded position by use of an adhesive or by sewing or interweaving the pleated portion with threads or fibers of sufficient strength to hold the pleats in a folded position during normal use of the container as a vehicle fuel tank or for carrying other liquid substances. Upon being subjected to high impact loads, the folded pleats unfold to increase the volume of the

container and while unfolding, absorb the energy of impact upon the container to prevent its bursting. This invention is particularly useful in preventing rupture of fuel tanks in airplane or automotive vehicles and greatly reduces the likelihood of fires which result from such ruptured fuel tanks, air droppable containers and any tank or container where

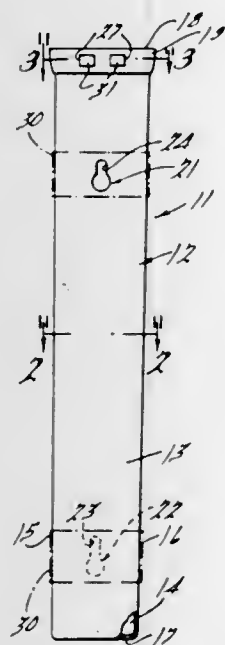


high impact loads will be applied. When used as a fuel tank, the container of this invention may be mounted in a vehicle in a breakaway type retainer shell which holds the tank in a folded position during normal use but upon impact, will open up to permit the fuel tank to expand and unfold to absorb the energy of impact.

3,559,709 GOLF BAG

Paul F. Seibold, 26665 York Road, Huntington Woods, Mich.
Filed Apr. 4, 1969, Ser. No. 813,568
Int. Cl. A63b 55/00
U.S. Cl. 150—1.5

7 Claims



The golf bag for a plurality of clubs is of elongated rectangular form having a closed bottom and an open top which is reinforced to provide added strength thereat. A keyhole slot is provided in one side of the bag spaced a short distance from the top open end and a keyhold slot is provided in the opposite side of the bag spaced from the lower closed end thereof. With this arrangement the bag can be supported from either side of a cart to avoid having right and left-hand bags when two bags are carried.

3,559,710

TIRE OF SEPARABLE TREAD RING TYPE

Josephat R. Deslauriers, Renfrew, Ontario, Canada, assignor to William Joseph Larocque, Field, Ontario, Canada, a part interest

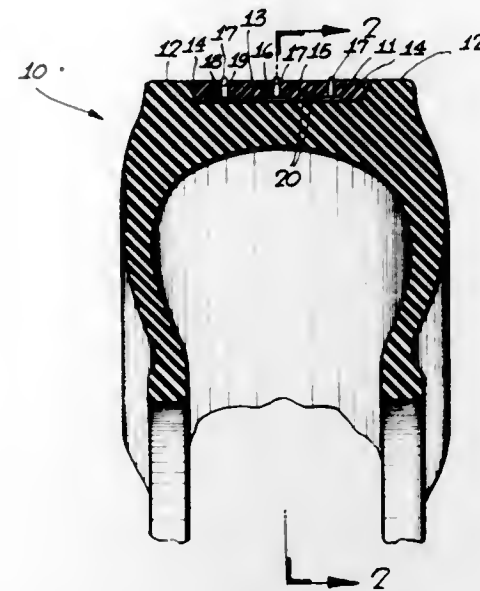
Filed July 26, 1968, Ser. No. 747,905
Int. Cl. B60c 11/02, 11/16

U.S. Cl. 152—176

5 Claims

A pneumatic tire of the separable tread ring type has a groove in its tread portion with an endless rubber belt

removably seated in the groove. A plurality of metal studs are embedded in the belt, each stud being of one-piece form and having a flat base and a calk projecting from the surface



of the belt. The base and a substantial portion of the calk of each stud are embedded in the belt, which has reinforcement cords overlying the bases of all the studs.

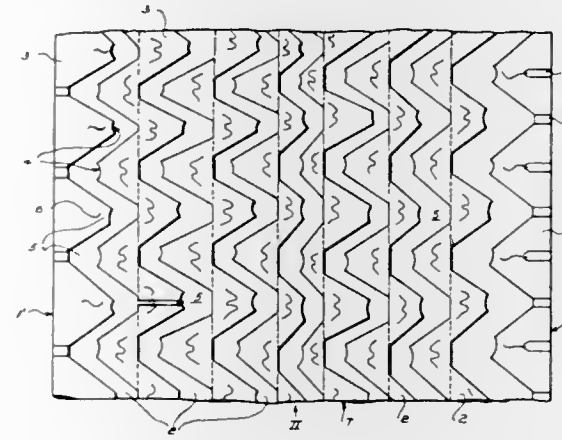
3,559,711 TREAD STRIP

Wilhelm Schelkmann, Witten(Ruhr), Germany, assignor to Vakuum Vulk Holdings Ltd, Nassau, Bahamas, a corporation of Bahama by mesne assignment to
Filed Aug. 22, 1968, Ser. No. 754,565
Claims priority, application Germany, Sept. 5, 1967, Sch 43313

Int. Cl. B60c 11/12

U.S. Cl. 152—209

7 Claims



A tread strip for recapping of tires comprises an elongated strip member having a first face which is adapted to be affixed to the circumferential surface of a tire, and a second face. The second face is provided therein with a plurality of transversely adjacent longitudinally extending undulating grooves each of which has a plurality of portions at which it changes its direction of undulation. The grooves are wider in the region of these portions than intermediate such portions.

3,559,712 GIANT PNEUMATIC TIRE

Henri Verdier, Beauregard-L'Eveque, France, assignor to Compagnie Generale Des Etablissements Michelin raison sociale Michelin & Cie, Clermont-Ferran (Puy-de-Dome), France

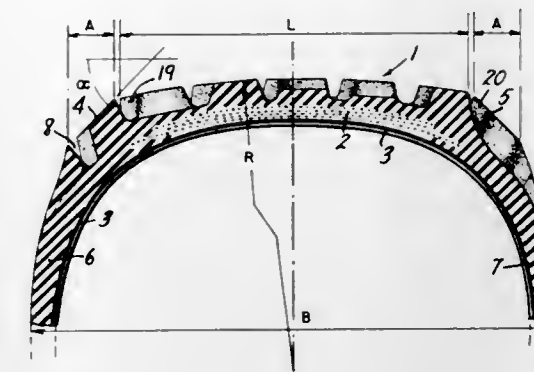
Filed Mar. 26, 1969, Ser. No. 810,676
Claims priority, application France, Mar. 28, 1968, 146,050
Int. Cl. B60c 11/08, 13/00, 9/22

U.S. Cl. 152—209

8 Claims

A pneumatic tire is adapted for public works machines by dividing the tread into a center part and two lateral parts.

The width of the center part is 50 percent to 80 percent of the width of the tire, and the width of each lateral part is 5 percent to 20 percent of the width of the tire. The outer sur-



face of each lateral part forms an angle of 30° to 50° with the tire axis, and deep circumferential grooves separate each lateral part from the center part and from the adjacent sidewall.

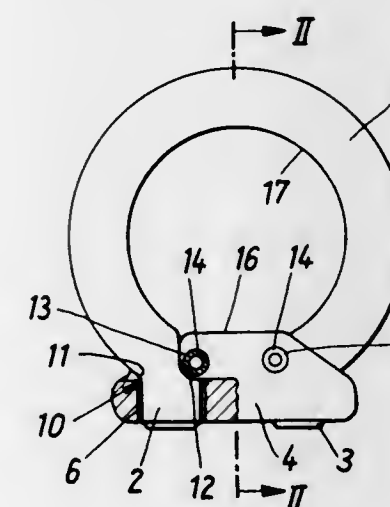
3,559,713

CLOSURE MEMBER FOR ANTI-SKID TIRE CHAINS
Anton Mueller, Unterkochen, and Guenter Witzel, Aalen, Wurttemberg, Germany, assignors to Eisen- und Drahtwerk Erlau Aktiengesellschaft, Aalen, Wurttemberg, Germany
Filed July 8, 1968, Ser. No. 743,083
Claims priority, application Germany, July 8, 1967, P1605672

Int. Cl. B60c 27/00

U.S. Cl. 152—243

13 Claims



A link with two sections releaseable from each other for antiskid tire chains. A first section is a nearly annular portion open radially with the free ends thereof extending in the same direction and forming approximately parallel stable cross section legs offset to extend toward each other at radially outer locations defining therebetween a passage for introducing link members into and withdrawing link members from the annular portion. A second section forms a closing member and has two receiving openings respectively detachably receiving the legs for closing and opening the passage. The legs are provided with shoulder means at radially inner location. The pin means releaseably extend transversely through the closing member at protected inner location and engage at least one of the shoulder means for detachably securing the closing member to the first section.

3,559,714

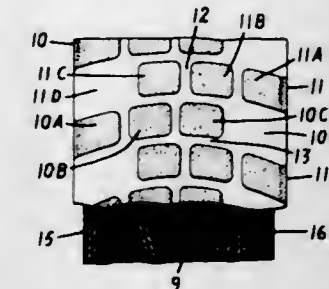
TIRE COVERS

Henri Verdier, Puy-de-Dome, France, assignor to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand, Puy-de-Dome, France
Filed July 29, 1968, Ser. No. 748,472
Claims priority, application France, July 27, 1967, May 16, 1968, 116,031; 152,128

Int. Cl. B60c 9/10

U.S. Cl. 152—361

4 Claims



A tire having bold tread moldings and crown plies underneath the moldings is provided with at least one additional ply at each edge of the crown plies. The additional plies are formed of cords which are extensible, which contract in heat, and which extend in the tire in a substantially longitudinal direction.

3,559,715

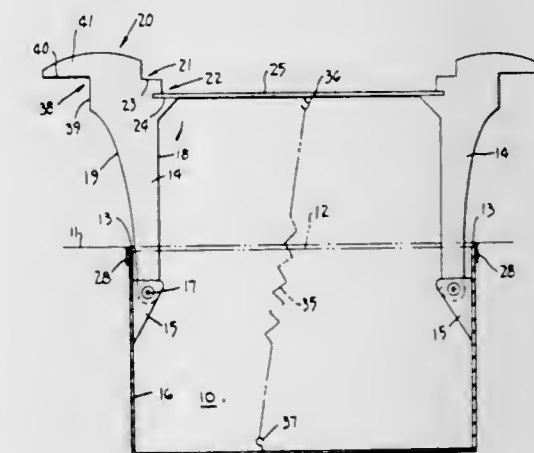
TRUCK TIRE INFLATING DEVICE

Alfred Beattie Leslie, P.O. Box 8, Lowbanks, Ontario, Canada
Filed Aug. 1, 1969, Ser. No. 846,676
Claims priority, application Canada, May 15, 1969, 51,637

Int. Cl. B60c 25/00

U.S. Cl. 157—1

7 Claims



A safety device for preventing locking escapement during tire inflation comprising two or more elongated jaw members which are pivotally secured in a housing mounted in a rim supporting surface such as a concrete floor. The jaw members hinge out of the housing and are held in engagement against a wheel rim, positioned over the housing, by a spreader bar which is held between its ends against the jaw members. The jaws are adapted to overlap the locking to prevent escapement thereof and further hold the rim rigidly on the supporting surface.

3,559,716

TEMPERATURE-ACTUATED OVERHEAD DOOR

Arthur F. Loucks, R.D. No. 2, Mount Pleasant, Pa. 15666
Filed Aug. 15, 1969, Ser. No. 850,443

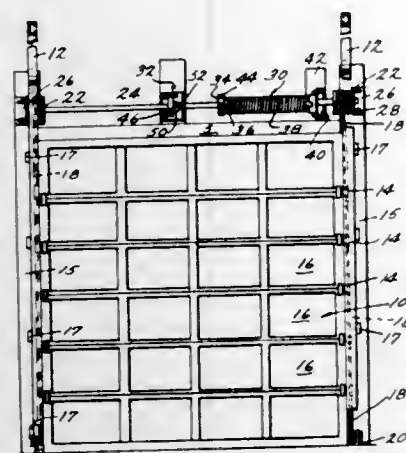
Int. Cl. E05f 15/20

U.S. Cl. 160—9

5 Claims

A sliding overhead door is normally maintained in its up position by means of at least two helical torsion springs ar-

ranged to apply torque to a rotatable shaft which in turn applies a lifting force to cables secured to the door. One of the torsion springs applies torque to the shaft through a heat-fusion



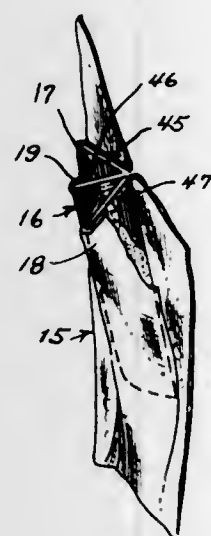
ble connection whereby that torque is released upon fusion of the connection as the result of fire, to allow the door to close against the action of the remaining spring.

3,559,717

PINCH PLEATED CURTAIN HEADING STIFFENERS
Milton Kalder, 1065 Lorraine Drive, Franklin Square, N.Y.
Filed Apr. 21, 1969, Ser. No. 817,898
Int. Cl. A47h 13/14

U.S. Cl. 160—348

2 Claims



A curtain heading of pinch-pleated assemblies of butterfly configurations is stiffened by plastic hinged wing stiffeners adapted to be inserted into the open ends of the pinch-pleated assemblies to hold the shape of the pleats and removable therefrom when the curtain is to be washed or dry cleaned. These stiffeners being made of two wings to accommodate the two outside pleats or with a central wing to accommodate the partial inner pleat of the assembly. These same stiffeners when provided with adhesive can be used as a backing on which to form the pleats and heat pressed to adhere the curtain material to the stiffeners so that the stiffeners become a permanent part of the curtain.

3,559,718

METHOD AND APPARATUS FOR CENTRIFUGAL CASTING OF MOLTEN METAL

Jay R. Hitchings, Downingtown, Pa., assignor to Foote Mineral Company, Exton, Pa., a corporation of Pennsylvania

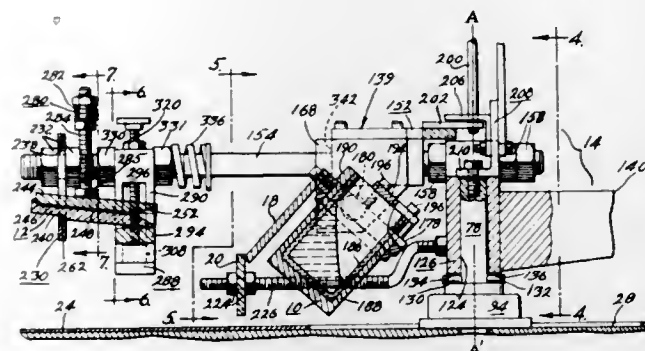
Filed Sept. 6, 1968, Ser. No. 758,018
Int. Cl. B22d 13/06, 13/10

U.S. Cl. 164—144

7 Claims

Apparatus and method especially suitable for casting low-density, high-surface tension, molten materials of high chemical activity into thin sheets. A crucible containing the molten

material and having a top opening is mounted on a carriage which is in turn slidably mounted on one arm of a centrifuge. A mold for receiving the molten material is also mounted on the centrifuge arm, radially outward of the crucible. The carriage is initially held at a radially inward position as the centrifuge is started up, and then released to slide rapidly outward against a stop arrangement which arrests its outward motion abruptly. During its radially-outward motion the



crucible is tilted outwardly to a substantially horizontal position so that, when its outward motion is abruptly arrested, the crucible opening confronts the fill opening in the mold. The molten metal is thereby thrown out of the crucible through the top opening thereof into the mold-fill opening with a high velocity sufficient to cause injection of the molten material into the mold despite small lateral dimensions of the mold cavity. The mold may be of metal and operated relatively cool.

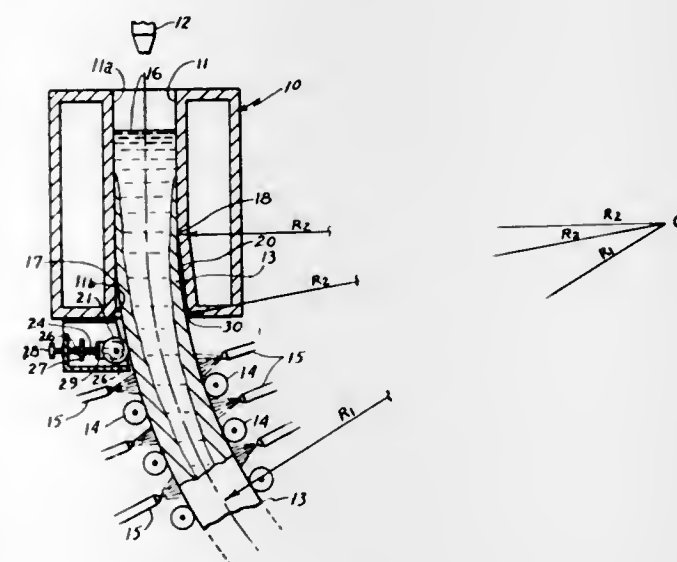
3,559,719

CONTINUOUS CASTING MOLD
Irving Rossi, Morristown, N.J., assignor to Concast Incorporated, New York, N.Y.

Filed Jan. 25, 1968, Ser. No. 700,509
Int. Cl. B22d 11/12

U.S. Cl. 164—273

6 Claims



An open ended continuous-casting mold, from which the strand cast therein is conducted away from it along a curved path, has a generally straight mold cavity. The lower portion of the side of the cavity toward the center of curvature of the path is slanted outward, the upper and lower ends of the slanted portion being on a curve having approximately the same degree of curvature as the path, and a spring-loaded roll at the exit end of the mold is adapted to press the strand laterally toward the slanted portion.

3,559,720

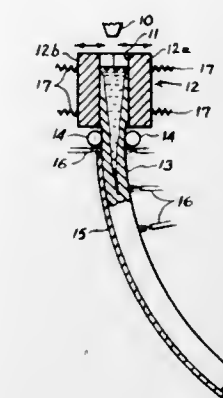
CONTINUOUS CASTING APPARATUS HAVING A TWO PART SEPARABLE MOLD

Eric T. Vogel, Elmhurst, N.Y., and Herbert Fastert, Wyckoff, N.J., assignors to Concast Incorporated

Filed May 10, 1968, Ser. No. 728,217
Int. Cl. B22d 11/00

U.S. Cl. 164—273

9 Claims



A mold assembly for a continuous casting mold, which has an open ended mold cavity therethrough, is in two parts that are separable at a plane extending axially through the cavity. The parts are held together, under pressure, by springs, or hydraulic or pneumatic means, and they are separated by toggle levers, which are operable to overcome the pressure normally holding the parts together. Guide rolls adjacent the exit end of the mold cavity, for guiding a strand out of the mold, hold the emerging strand in fixed axial relation to the center line of the mold cavity. The mold assembly is constructed and arranged for both parts of the mold to move back from opposite sides of a strand in the mold, when the mold parts are separated at the end of a casting run, and thereby assure complete release of the strand from the mold.

3,559,721

APPARATUS FOR PRESSURE CASTING BY DIRECT FLUID PRESSURE

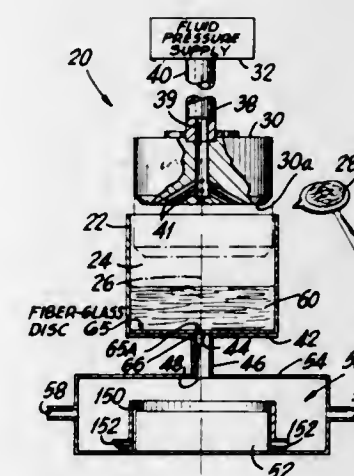
Vincent J. Forras, 14-14 Utopia Parkway, Beechhurst, Queens, N.Y.

Continuation of application Ser. No. 373,213, June 8, 1964, now abandoned. This application June 14, 1968, Ser. No. 739,903

Int. Cl. B22d 17/06

U.S. Cl. 164—304

1 Claim



For casting a linear strip fill in a longitudinal slot, such as in a stack of aligned peripherally slotted laminations, to form cast metal bars, the stack is disposed in a chamber space of a close fitting main enclosure whose confining wall inner surface is congruent with the virtual desired external contour of the bars to be cast in the slot, so no further shaping or machining of the bar is necessary. The main enclosure is open at its front end as a vent to establish a high pressure

gradient for the molten metal set into the other end at high pressure. The molten metal is held in an auxiliary chamber by a frangible disc and high pressure on the molten metal fractures the disc and forces the molten metal into the main chamber at high pressure that makes the location of the vent important in this case, and useful in aiding the movement of the molten metal into the slots to be filled. One guide in front of the body to be filled helps to guide the high-pressure metal. A second guide behind the body directs excess metal away from the body in individual pin type bars for subsequent easy removal.

3,559,722

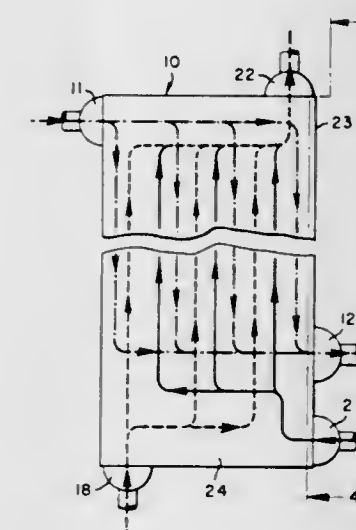
METHOD AND APPARATUS FOR TWO-PHASE HEAT EXCHANGE FLUID DISTRIBUTION IN PLATE-TYPE HEAT EXCHANGERS

James J. Schauls and Franklin D. Duncan, La Crosse, Wis., assignors to The Trane Company, La Crosse, Wis., a corporation of Wisconsin.

Filed Sept. 16, 1969, Ser. No. 858,373
Int. Cl. F28f 3/00

U.S. Cl. 165—1

32 Claims



Method and apparatus for heat exchanging a gaseous fluid and a liquid fluid with a third heat exchange fluid by a plate-type heat exchanger in a manner permitting variations of the gaseous mass flow rate relative to the liquid mass flow rate without relative maldistribution of the two fluid phases within the heat exchanger passages. Between the plates within the heat exchanger core, the gaseous and liquid fluids are separately distributed across the width of the heat exchanger. Only after the gaseous and liquid fluids have been thus uniformly distributed within the passages are they combined and passed in heat exchange relation with the third heat exchange fluid. The problems associated with relative maldistribution of the two fluid phases which normally accompany conventional arrangements for distributing a two-phase fluid across the width of a plate-type heat exchanger are thus avoided. Four embodiments of the invention are described and shown.

3,559,723

SEPARATING SUBLIMATION PRODUCTS FROM GASES

Walter Mann, Lampertheim, Joachim Wagner, Ludwigshafen, and Werner Jaeger, Mannheim, Germany, assignors to Badische Anilin- und Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine) Rheinland-Pfalz, Germany

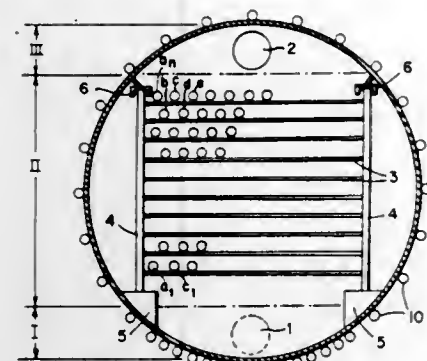
Filed Oct. 31, 1968, Ser. No. 772,212
Claims priority, application Germany, Nov. 3, 1967,
P1,619,841
Int. Cl. F25b 13/00

U.S. Cl. 165—2

2 Claims

Separating sublimation products from gases in nested tube separators having heat exchange in the interior of the separator as well as from the outer wall, the outer wall being kept,

during the sublimation and melting out of the sublimation product, substantially constantly at a temperature which is somewhat above the melting point of the sublimation



product; in the corresponding apparatus, the heat exchange system for the interior and that for the exterior of the separator are separate from each other.

3,559,724

COMFORT CONDITIONING SYSTEM

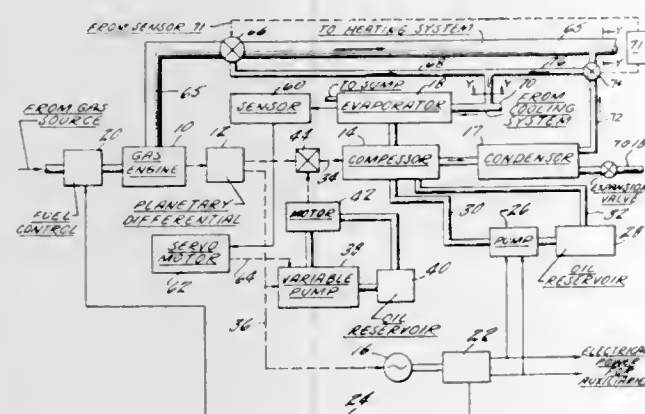
William H. Wilkinson, Columbus, Ohio, assignor to American Gas Association, Inc., New York, N.Y., a corporation of New York

Filed Nov. 21, 1968, Ser. No. 777,731

Int. Cl. F25b 13/00

U.S. Cl. 165-2

24 Claims



The heating and cooling of building structures is accomplished by driving an air conditioning system compressor with an internal combustion engine. In the heating mode, engine waste heat and condenser rejected thermal energy are used to supply heat to the structure and the total thermal energy rejected by the condenser is increased by feedback of energy from the condenser to the evaporator to create an artificial cooling load. Heating is, accordingly, accomplished without reversal of the refrigerant system. In addition, the present invention is self-sustaining as long as fuel is supplied to the engine by virtue of inclusion of a generator which is driven by the engine; means for adjusting the engine shaft power split between the generator and compressor in response to evaporator conditions being included.

3,559,725

FOIL SEAL FOR ROTATING HEAT EXCHANGERS OF GAS TURBINE ENGINES

Carlo A. Fucinari, Dearborn Heights; Michael A. Pulick, Livonia, Mich.; John J. Trudeau, Avon, N.C., and James K. Vallance, Dearborn Heights, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Oct. 10, 1969, Ser. No. 865,330

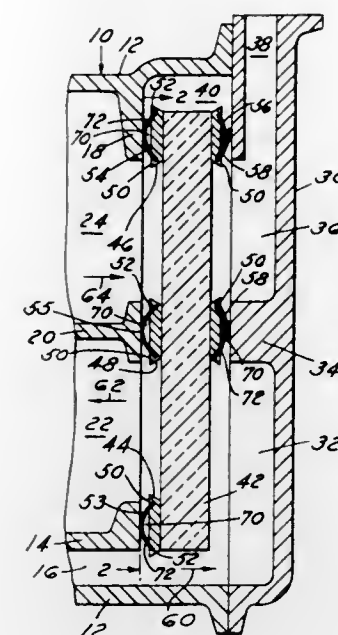
Int. Cl. F28d 19/04

U.S. Cl. 165-7

7 Claims

A flexible metal foil has its longitudinal edges inserted into slots cut into a shoe rubbing on a rotating regenerator core.

The intermediate portion of the foil bows outwardly away from the shoe and bears against the engine housing. Gas pressure is admitted to the space between the foil and the



shoe to maintain the foil in contact with the housing and the walls of the slots. The seal readily absorbs thermally induced dimensional changes between the core, shoe, foil and housing.

3,559,726

TEMPERATURE MONITOR

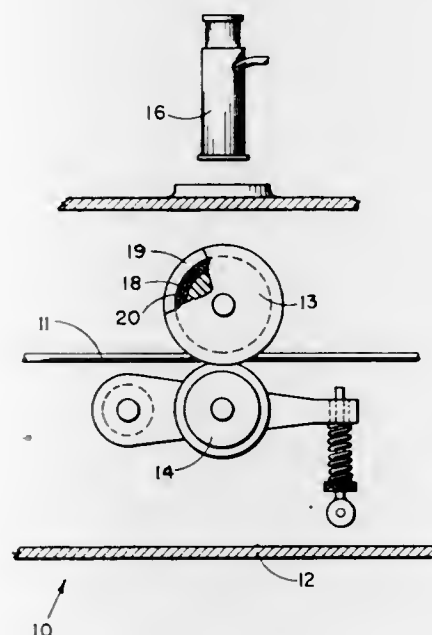
George N. Menasoff, Hastings-On-Hudson, N.Y., assignor to Anaconda Wire and Cable Company, a corporation of Delaware

Filed July 24, 1968, Ser. No. 747,250

Int. Cl. F28f 13/00

U.S. Cl. 165-11

7 Claims



The temperature of an advancing wire that, because of its low emissivity, could not be measured accurately by a radiation pyrometer is measured indirectly by sensing the radiation from a high emissivity sheave which is heated by the wire conductively.

3,559,727

ACCUMULATOR-RESERVOIR IN A COOLING SYSTEM

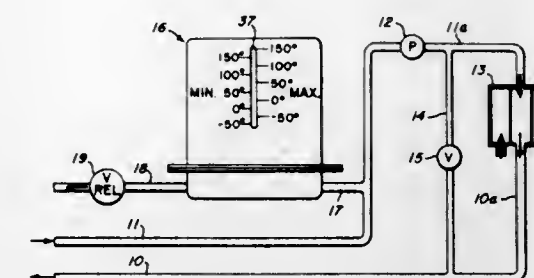
David T. Hill and Pritam S. Bathla, Dayton, Ohio, assignors to United Aircraft Products, Inc., Dayton, Ohio, a corporation of Ohio

Filed Dec. 20, 1968, Ser. No. 785,587

Int. Cl. F25b 45/00

U.S. Cl. 165-11

9 Claims



An accumulator-reservoir device, used in a system circulating a liquid coolant, in which a biased pressure applying member moves to reflect changing temperature induced density of the coolant. A window and an appropriately placed temperature scale traversed by the pressure applying member provide means for visually indicating the amount of expansion volume actually in use and for simultaneously comparing such amount with an amount proper for the existing ambient temperature.

3,559,728

ELECTRONIC EQUIPMENT RACK TEMPERATURE CONTROL

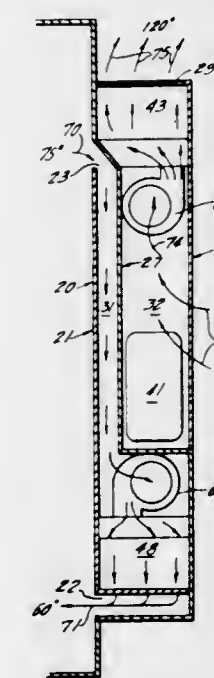
Roger T. Lyman, Princeton, and William G. Stewart, Pennington, N.J., assignors to Kooltronic Fan Company, Princeton, N.J., a company of New Jersey

Filed Nov. 29, 1968, Ser. No. 779,886

Int. Cl. F24h 9/04

U.S. Cl. 165-55

11 Claims



A self-contained cooling or heat exchange unit whose depth is quite small to permit external mounting of the unit to the wall of an enclosure for cabinets and the like as a door for the enclosure or as a separator positioned within a narrow clearance between cabinets.

3,559,729

THERMODYNAMIC CIRCULATORY SYSTEM APPARATUS

Reinhart Radebold, Berlin, Germany, assignor to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Germany

Filed Nov. 27, 1968, Ser. No. 779,587

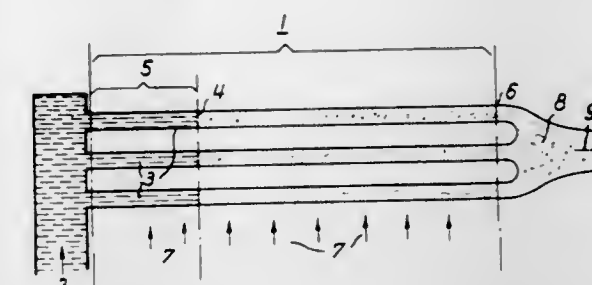
Claims priority, application Germany, Nov. 27, 1967,

1,601,002.9

Int. Cl. F28d 15/00; H02b 45/00

U.S. Cl. 165-107

6 Claims



Thermodynamic circulatory system with a heat exchanger of high heat flux density which receives a liquid metal stream and delivers a substantially homogeneous, two-phase metallic stream. The heat exchanger includes a plurality of parallel tubes for receiving the liquid metal stream; each tube having a constant cross section and a constriction located at a point beyond the inlet end of said tube which corresponds to no less than the length of the tube through which the liquid stream must flow in order to be preheated to at least its initial boiling temperature. The liquid stream is converted into a low vapor quality, two-phase stream as it passes through such constriction.

3,559,730

TUBULAR HEAT EXCHANGER

Rene Pierre Denjean, Pavillon-sous-Bois, France, assignor to Societe Tunzini Ameliorair, Paris, France

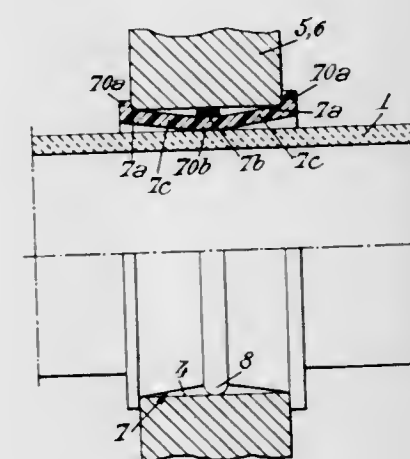
Filed Mar. 6, 1969, Ser. No. 804,753

Claims priority, application France, Mar. 8, 1968, 143,111

Int. Cl. F28b 9/04

U.S. Cl. 165-178

10 Claims



A tubular heat exchanger includes a plurality of heat exchange tubes mounted between two tube support plates having apertures to accommodate the ends of these tubes. A sealing sleeve is interposed between the end of each tube and the associated aperture, this sealing sleeve having at least one and preferably two external sealing zones adapted to seal against the edges of the aperture and at least one external sealing zone adapted to seal against the tube.

3,559,731

PUMP-OFF CONTROLLER

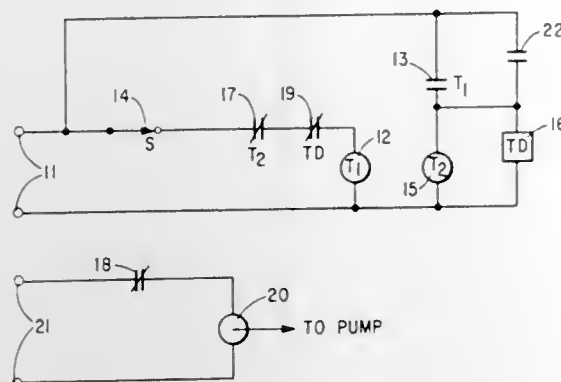
Jerry I. Stafford, Levelland, Tex., assignor to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware

Filed Aug. 28, 1969, Ser. No. 853,900

Int. Cl. F04b 49/02, 49/06; F04d 15/02

U.S. Cl. 166—53

2 Claims



To obtain optimum production from a producing oil well in which the pump rate exceeds flow rate of liquid into the well, it is necessary to determine the most effective producing cycle of the well. During the "on" cycle the well must be pumped enough to obtain the maximum amount of well fluid. During the "off" cycle the fluid permeating through the formation rocks refills the well bore. The controller disclosed here is designed to stop the pump, preventing rod wear and expending excessive mechanical energy, when the fluid has been pumped from the well. The well pump is restarted only after a predetermined "off" time. It is a short-cycle controller of minimum cost, simple in operation, and easy to maintain. Wide flexibility in timing permits adjustment of the off and on cycles for best results.

3,559,732

HYDRAULIC LATCH STINGER

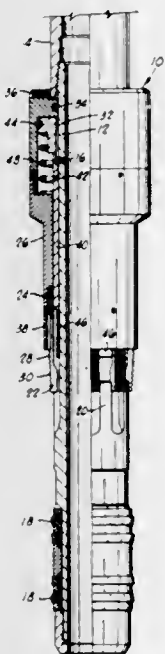
Andrew J. Tucker, Mesquite, Tex., assignor to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware

Filed Apr. 1, 1969, Ser. No. 811,824

Int. Cl. F21b 33/12, 23/00

U.S. Cl. 166—114

13 Claims



Disclosed herein is a releasable latching device for connecting a tubing string or conduit to a packer or other apparatus that is located in a well bore or the like. The latching device includes an elongated hollow body that has an upper end connected with the conduit and a lower end insertable into the apparatus that is located in the well bore. An annular

or cylindrical member encircles the body and has a plurality of latching portions on the lower end thereof that are movable radially outwardly with respect to the body. A sleeve encircles the body between the cylinder member and body and includes a lower portion that is engageable with the latch portions to hold the latch portions in latching engagement with the apparatus. The sleeve is retained in engagement with the latch portions by hydraulic pressure within the conduit and within the cylinder. Movement of the sleeve out of engagement with the latch portion permits the latch portion to be moved inwardly and out of the recess in the apparatus whereby the tubing string can be disconnected from the apparatus.

3,559,733

WELL PACKERS

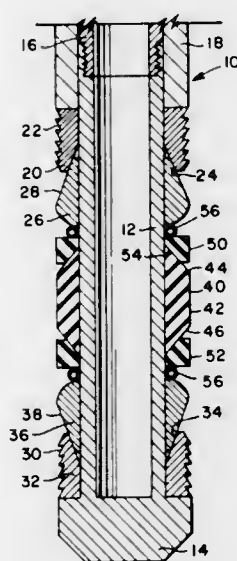
Marion D. Kilgore, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware

Filed May 1, 1969, Ser. No. 820,982

Int. Cl. E21b 33/129

U.S. Cl. 166—134

6 Claims



A packing element support for well packers to prevent movement of the packing element between the anchoring means of the packer and the well bore, the support comprising an annular body with a gap therein and a curved member carried by said body bridging said gap. A well packer carrying at least one packing element support of this invention.

3,559,734

DIFFERENTIAL FILL COLLAR

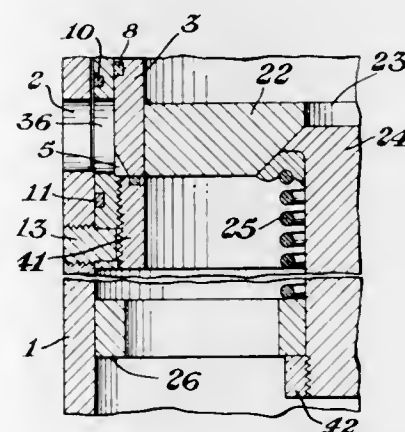
Charles A. Pitts, Tulsa, Okla., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Sept. 19, 1968, Ser. No. 760,830

Int. Cl. F16k 13/04; E21b 41/00

U.S. Cl. 166—224

2 Claims



This invention relates to a well casing collar into which is built a sliding collar type valve which is opened by fluid pres-

sure on the exterior when such pressure exceeds that on the interior by a predetermined amount. The valve, which is spring loaded, closes when the exterior pressure no longer exceeds the interior pressure.

3,559,735

METHOD OF RECOVERING OIL USING PELLETTED CARBON BLACK CONTAINING SURFACTANT

Myron L. Corrin, Fort Collins, Colo., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 688,651, Dec. 7, 1967, now abandoned. This application July 28, 1969, Ser. No. 845,543

Int. Cl. E21b 43/22

U.S. Cl. 166—275

7 Claims

Flocculent carbon black is pelleted with one or more liquid surfactants and the resulting pellets are transported to the well site, disintegrated, mixed with water to form a stable dispersion, and a slug of the resulting dispersion is injected through a well into an oil stratum and driven toward an offset well to produce oil therein.

3,559,736

WELL COMPLETION METHOD

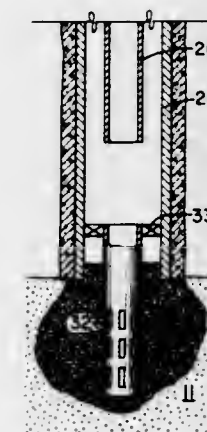
Caurino C. Bombardieri, Calgary, Alberta, Canada, assignor to Esso Production Research Company, a corporation of Delaware

Filed Sept. 12, 1969, Ser. No. 857,460

Int. Cl. E21b 43/04

U.S. Cl. 166—276

17 Claims



A method of completing wells in unconsolidated formations by forming a temporary consolidated zone in the formation. The consolidated zone provides a relatively rigid framework which facilitates drilling operations and location of production equipment. With the production equipment located, the consolidated zone is returned to its original unconsolidated condition.

3,559,737

UNDERGROUND FLUID STORAGE IN PERMEABLE FORMATIONS

James F. Ralstin, and Jack H. Heathman, 672 Union Center Building, Wichita, Kans.

Filed May 6, 1968, Ser. No. 726,720

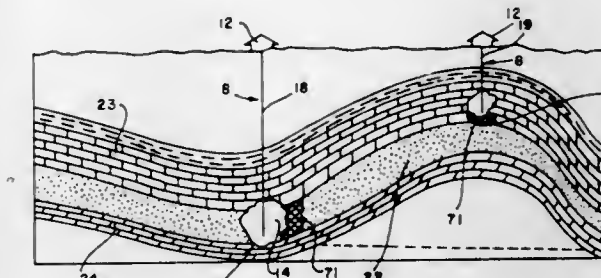
Int. Cl. E21b 33/138, 43/26

U.S. Cl. 166—281

10 Claims

Fractures in caprocks of fluid storage reservoirs can be sealed and flow barriers can be established at desired regions of porous rocks by locally freezing the formation water to form an impervious cryogenic structure and/or by forming gas hydrates by contacting hydrate forming gases with forma-

tion water subjected to heat removal therefrom and agitation, for the purpose of stored fluid leakage control, increasing



storage volume of limited reservoirs, and formation of storage conditions in homoclines and monoclines.

3,559,738

TECHNIQUE FOR STEAM INJECTION

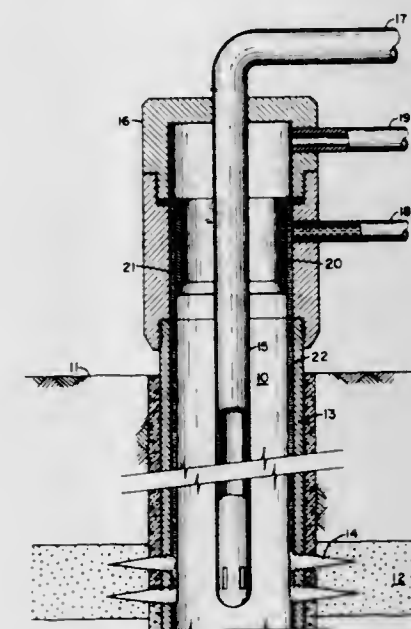
Arthur G. Spillette, Houston, Tex., assignor to Esso Production Research Company, a corporation of Delaware

Filed Mar. 3, 1969, Ser. No. 803,865

Int. Cl. E21b 43/24

U.S. Cl. 166—303

8 Claims



This invention relates to a method for thermally insulating a well used in a thermal process for oil recovery. The well is insulated by a falling film of liquid which is introduced at the well head in the annular space between the casing and the tubing. The film coats the internal surface of the casing to reduce the transfer of heat from the tubing string to the casing string and to conduct heat to an oil-bearing formation.

3,559,739

METHOD AND APPARATUS FOR PROVIDING CONTINUOUS FOAM CIRCULATION IN WELLS

Stanley O. Hutchison, Bakersfield, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

Filed June 20, 1969, Ser. No. 835,268

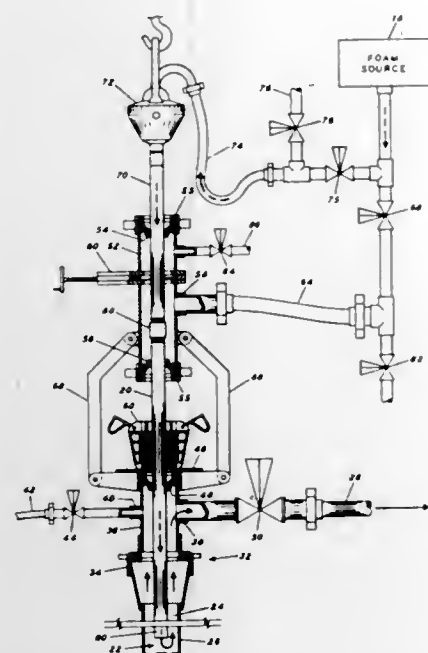
Int. Cl. E21b 33/02, 21/00

U.S. Cl. 166—311

6 Claims

A method and apparatus is disclosed for maintaining continuous circulation of foam in a well through a segmented tubing string while the tubing string is being made up or broken up. A chamber having a foam entry port is formed around the tubing string above the wellhead. A valve is provided above the foam entry port to close off the upper portion of the chamber when the tubing string is broken and the upper portion thereof raised above such valve. When it is desired to add or remove a tubing section from the tubing string, the tubing string is held by slips with its open end in

the lower portion of the chamber. The upper tubing section is lifted in the chamber to above the valve. The valve is closed and foam is circulated in the chamber through the



foam entry port to provide for continuous foam circulation while another section of tubing is added or removed from the tubing string.

3,559,740

METHOD AND APPARATUS FOR USE WITH HYDRAULIC PUMP IN MULTIPLE COMPLETION WELL BORE

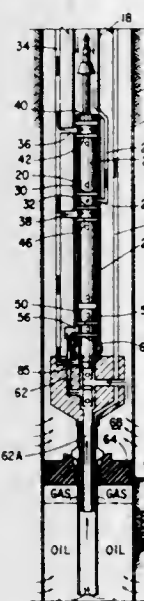
Wilburt T. Scaggs, Fort Worth, Tex., assignor to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware

Filed Apr. 11, 1969, Ser. No. 815,475

Int. Cl. E21b 43/14; F04b 47/10

U.S. Cl. 166—313

3 Claims



A pump system for removing oil from a well bore which has two vertically spaced-apart production zones. A packer is set in the well between these two zones. Three different selector heads are attachable to the lower end of the pump. A first head is for directing the commingled flow from the two zones to the intake of a single downhole pump. A second selector head is attached when it is desired to produce from the upper zone only and a third head is attached when it is desired to produce from the lower zone only. Each head contains removable chokes for controlling the production from

each zone. The entire pump, including its selector head, is pumped in and out by hydraulic fluid.

3,559,741

FOAM GENERATING APPARATUS

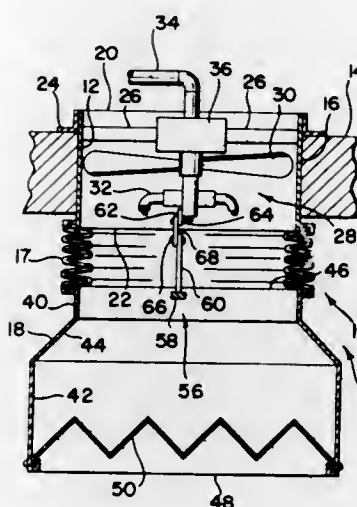
Murray N. Levy, Hatfield, Pa., assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich., a corporation of Delaware, by mesne assignments

Filed Aug. 8, 1968, Ser. No. 751,133

Int. Cl. A62c 35/00

U.S. Cl. 169—15

4 Claims



A foam generating apparatus of the type including an air duct forming unit having a foam producing net connected across the free passage area adjacent a first end, an airflow producing means adjacent a second end, and means for introducing a foam solution onto the net. The apparatus is provided with the improvement wherein at least a portion of the air duct forming unit is collapsible and, condition responsive means are provided for maintaining the duct forming unit in the collapsed condition until the occurrence of a predetermined condition.

3,559,742

EDGER DEVICE

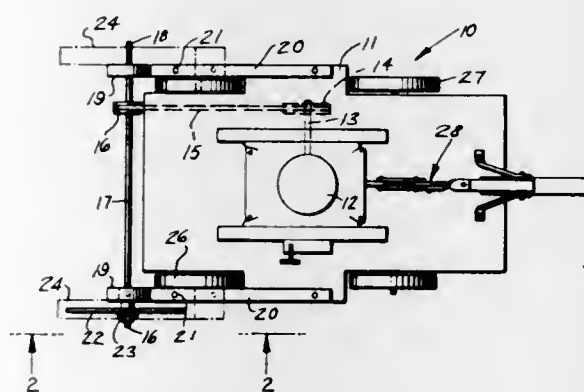
Joe B. Rogillio, Sr., 2211 Oxford, Houston, Tex. 77008

Filed July 8, 1968, Ser. No. 743,229

Int. Cl. A01b 9/00

U.S. Cl. 172—15

3 Claims



A device for edging lawns, yards, sidewalks, and driveways having a belt driven shaft which is mounted in variance, the shaft receiving threadably at each end an edger blade. The edger blade is secured to the shaft by a threaded nut. A fender is also carried upon the platform of the edger for safety reasons.

3,559,743

HANDLE HEIGHT ADJUSTMENT FOR CULTIVATORS

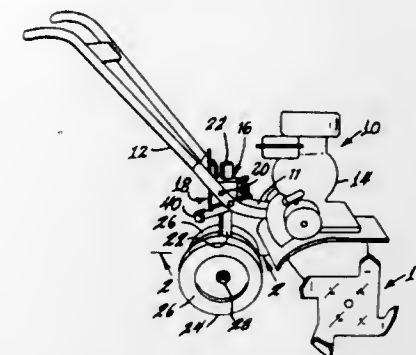
Paul F. Hastings, 5509 N. Market St., Spokane, Wash. 99207

Filed Jan. 8, 1968, Ser. No. 696,351

Int. Cl. A01b 33/00

U.S. Cl. 172—43

2 Claims



A handle height adjustment for attachment to a garden cultivator having a frame, a tiller and a motor driving said tiller, both mounted on said frame and a handle disposed above said frame, said Handle Height Adjustment comprising a pair of wheels mounted on an axle having an upright attached thereto, together with a support mounted on the cultivator frame and having guide means supporting said upright for vertical sliding movement. A cam is mounted on a shaft pivoted to the support. This shaft has attached to it a spring arm and a spring acting between said arm and said case urges the cam into engagement with the upright to hold the cam in an adjusted position. A foot operated release arm fixed to the shaft serves to hold the spring in cam releasing position to permit adjustment of the upright to vary the height of the handle above the ground and safety locking means retains the cam in engaged positions relative to the upright.

3,559,744

HITCH FOR ROTARY CULTIVATOR

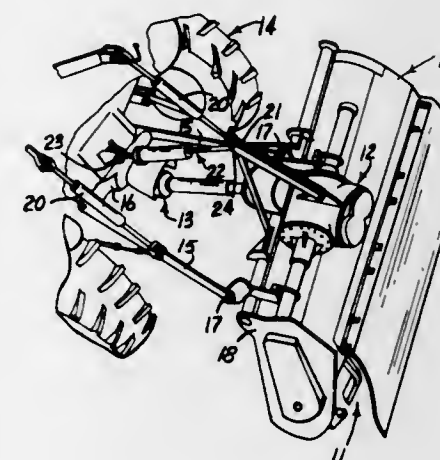
James D. Olinger, 4912 N. Sipple, Spokane, Wash. 99206

Filed July 12, 1968, Ser. No. 744,443

Int. Cl. A01b 33/02, 61/00, 59/043

U.S. Cl. 172—47

4 Claims



A hitch improvement for a rotary cultivator of the type including a rotatable blade assembly powered by a supporting tractor so as to rotate the lower portion of the blade assembly in a rearward direction during forward movement of the tractor. The present improvement provides an extensible linkage which permits the cultivator frame to swing forwardly upon engagement of an obstruction by the rotating blade. The hitch is biased by a spring which normally retains the hitch assembly and cultivator in the required conventional configuration.

3,559,745

MULTIPLE BOTTOM PLOW

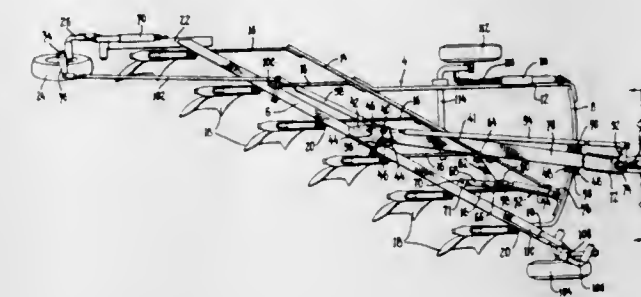
Howard G. Thompson, Livonia, and Ole J. Thorsrud, Dearborn Heights, Mich., assignors to Massey-Ferguson, Inc., Detroit, Mich.

Filed Aug. 31, 1967, Ser. No. 664,681

Int. Cl. A01b 69/08, 59/02

U.S. Cl. 172—285

5 Claims



A multiple bottom plow including a frame having a hitch member which is pivotally connected to the frame so that the position of the plow relative to the tractor can be laterally shifted. A hydraulic ram is interconnected between the frame and hitch member for adjusting the position of the hitch member.

3,559,746

IMPLEMENT TRANSPORT CARRIER

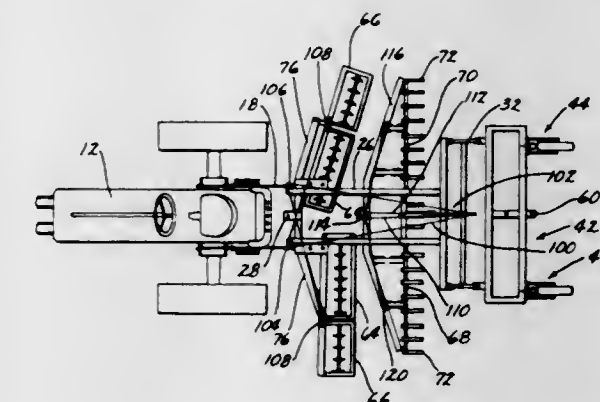
Chester F. Couser, Zearing, Iowa

Filed Apr. 16, 1968, Ser. No. 721,812

Int. Cl. A01b 63/22, 63/106

U.S. Cl. 172—386

5 Claims



A device for carrying a plurality of ground working implements in tandem and in series. The device is secured at its forward end to the parallel lift arms of a tractor and to a caster wheel at its rear end through a parallelogram structure which has a hydraulic cylinder connected to it for raising and lowering the rear end relative to the caster wheel. A cable arrangement is provided for pivoting upwardly the wing units on the implements as the implements are raised above the ground. A versatile hinge arrangement is provided for connecting the wing units to the center implement units and the hinge devices have other uses in connecting the implements to the tractor prime mover.

3,559,747

DEEP TILLAGE PLOW

Ted L. Cline, P.O. Box 38, Rush Springs, Okla. 73082

Filed May 15, 1968, Ser. No. 729,358

Int. Cl. A01b 63/16

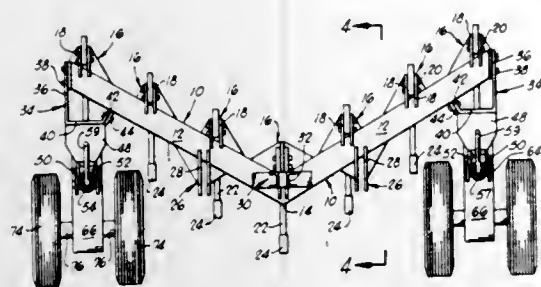
U.S. Cl. 172—421

5 Claims

A plow which includes a V-shaped frame, a plurality of blade supporting brackets secured to the frame and spaced from each other therealong, an arcuate, forward sweep toothed blade secured to each of said brackets, and a pair of gauge wheel assemblies secured to the opposite ends of the

frame. The gauge wheel assemblies are detachably mounted on the frame, and each includes a screw jack adjusting

conventional bulldozer and particularly, a support and adjusting means for such a bit which is simple and compact.



mechanism for raising and lowering the gauge wheels relative to the frame.

3,559,748

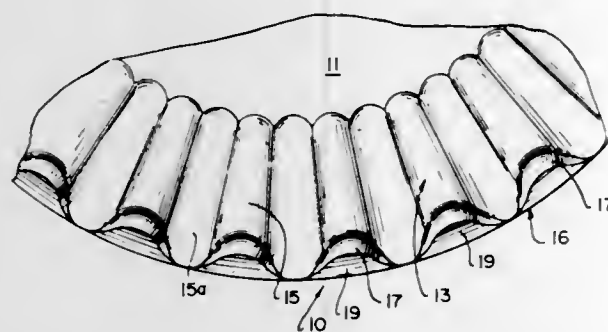
FLUTED COULTER DISC BLADE

Lee E. Shelton, Chicago, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Delaware
Filed July 18, 1968, Ser. No. 745,765

Int. Cl. A01b 23/06

U.S. Cl. 172-604

2 Claims



A fluted coultter disc blade having a fluted peripheral portion with a diminished thickness peripheral portion outwardly of the flutes to provide a substantially circular and straight cutting edge.

3,559,749

ADJUSTABLE STINGER BIT FOR BULLDOZER BLADE

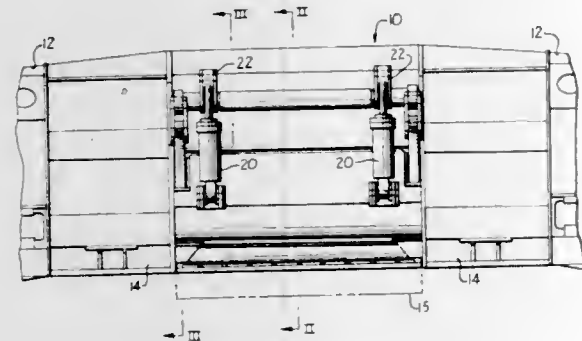
Max D. Fryrear, and Eugene M. Wilson, Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California

Continuation of application Ser. No. 708,566, Feb. 27, 1968, now abandoned. This application Jan. 26, 1970, Ser. No. 6,051

Int. Cl. E02f 3/76; A01b 65/06

U.S. Cl. 172-802

6 Claims



A stinger bit on a bulldozer blade which is retractable to a point where its cutting edge aligns with the cutting edges of bits on opposite sides of the stinger bit so that the bits combine to provide what is in effect a straight cutting edge on a

3,559,750 SUPPORTING MEANS FOR A MOBILE PERCUSSIVE ROCK DRILL FOR CARRYING OUT CYLINDRICAL CUTS

Vladimir Mares, Pribram, Czechoslovakia, assignor to Ceskoslovensky uranovy prumysl, generalni reditelstvi, Pribram, Czechoslovakia

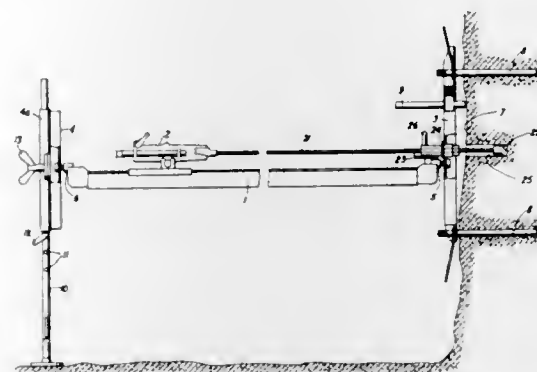
Filed June 13, 1969, Ser. No. 832,923

Claims priority, application Czechoslovakia, June 19, 1968, PV4509/68

Int. Cl. E21c 11/00

U.S. Cl. 173-33

2 Claims



A percussive type rock drill is in the course of carrying out substantially horizontal holes for a cylindrical cut in the rock face supported by a support, which is suspended by means of suspension heads on both extremities of said support in cut-outs of guiding grooves of a stable pattern fixed on the rock face and of an adjustable pattern mounted on a mounting pillar. Holes for the drill bit of the rock drill are provided above each cutout of said guiding grooves.

3,559,751

PERCUSSION DEVICE

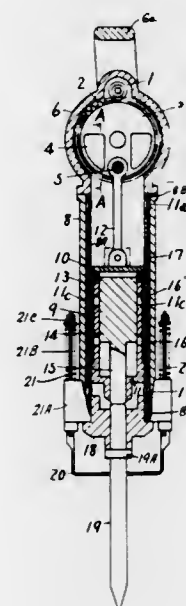
Sakuji Yamada, 1-5, 3-chome, Kitagasaki, Ikutaku, Kobe, Japan

Filed Jan. 16, 1969, Ser. No. 791,741

Int. Cl. B25d 11/12

U.S. Cl. 173-116

3 Claims



A lightweight percussion device operating from a motor driven crank which reciprocates a hollow inner cylinder closed at both ends and slidably mounted in an outer cylinder with a piston having a rod extending through one end of the inner cylinder and slidably mounted in the inner cylinder; a set of ports are provided adjacent each end of the inner cylinder and spaced from the adjacent end of the inner

cylinder and one set of ports spaced from the other ports a distance in the order of the throw of the crank with the ports communicating with the atmosphere so that rotation of the crank causes reciprocation of the inner cylinder and the confined gas between the end of the piston and the adjacent end of the inner movable cylinder causes the piston to reciprocate while the piston is cushioned at each end of its movements and the rod projecting from the piston serves to produce a hammering action on a gad or other tool.

3,559,752

IMPACT TOOL

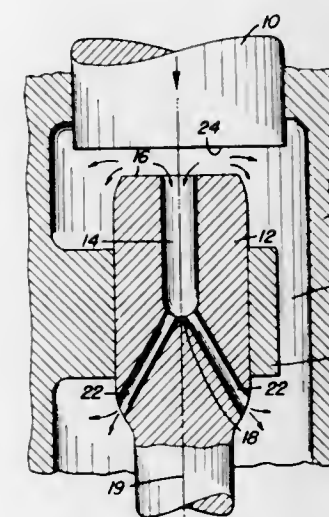
Donald N. Sullivan, Lakewood, Colo., and Gregory A. Farrell, New York, N.Y., assignors to General Dynamics Corporation, a corporation of Delaware

Filed Mar. 4, 1969, Ser. No. 804,168

Int. Cl. E21c 2/04; B25d 17/02

U.S. Cl. 173-128

8 Claims



An improved anvil for an impact tool is described which is especially suitable for use in a percussive tool which utilizes a hammer and anvil, both of which are surrounded by an oil bath. The anvil has a blind center hole which is vented in such a fashion so as to reduce cavitation damage at the contacting surfaces of the hammer and anvil.

3,559,753

PERCUSSION TOOL

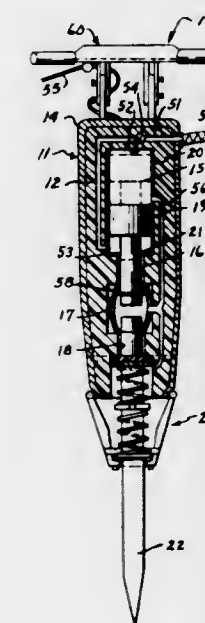
Ilmar Meri, 63 Brainard Ave., Port Monmouth, and Richard J. Dorsey, 140 Ocean Ave., East Keansburg, N.J.

Filed May 21, 1969, Ser. No. 826,344

Int. Cl. B25d 9/04, 17/24

U.S. Cl. 173-137

5 Claims



A percussion tool such as an air hammer having a spring-supported mounting for the operating chisel in which said

chisel is adjustably affixed to the center of said spring to permit a setting for an ideal cyclic rhythm of tool operation and in which the tool has sound deadening or absorption components throughout the tool to provide a minimum of noise during operation.

3,559,754

REMOVABLE GUIDE BASE

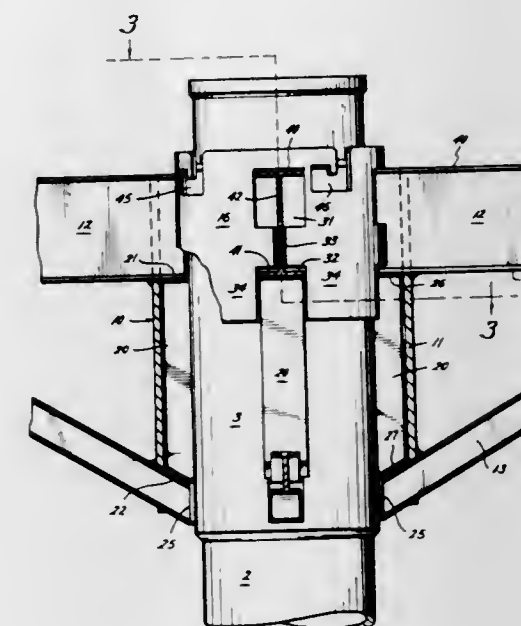
Charles D. Morrill, Bellaire, Tex., assignor to Rockwell Manufacturing Company, Houston, Tex., a corporation of Pennsylvania

Filed July 10, 1968, Ser. No. 743,699

Int. Cl. E21b 7/12, 7/00

U.S. Cl. 175-7

19 Claims



A removable guide base for an underwater wellhead comprising a hub member having a vertical passage therethrough telescopically positionable around a wellhead. Structural support members project radially outward and slightly inward of the hub member. An upper set of the inner projections provides a downwardly facing support surface engageable with support ribs on the wellhead. A lower set of the inner projections provides an upwardly facing surface engageable with the wellhead support ribs to prevent longitudinal movement of the guide base relative to the wellhead. The lower set of inner projections is slidable between the wellhead support ribs and rotatable thereunder to the position of engagement as the hub member is lowered around the wellhead and rotated. A latch sleeve is nonrotatingly mounted within the hub member for longitudinal movement between adjacent wellhead ribs to prevent disengagement of the lower set of inner projections. Methods for using the guide base are also disclosed.

3,559,755

VEHICLE ANTITHEFT DEVICE

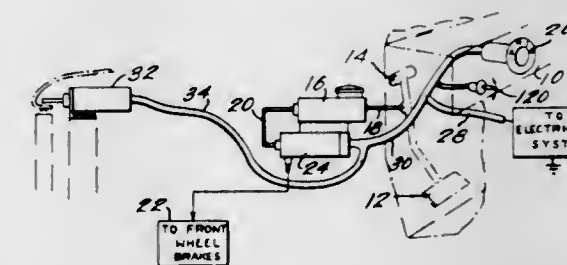
Raymond B. Pond, 195 Springfield Ave., Greenfield Park, Quebec, Canada

Filed Aug. 22, 1968, Ser. No. 754,548

Int. Cl. B60r 25/00

U.S. Cl. 180-114

13 Claims



An antitheft device for automobiles which includes a control valve interrupting the conduit from the master cylinder

to a set of wheel brakes. The control valve includes inlet and outlet ports from the master cylinder communicating with a bore, a sliding solenoid-controlled plunger in the bore, a valve head connected to the plunger adapted to allow pressure flow to the brakes, but to prevent pressure flow back to the master cylinder when the control valve is in a locked position.

3,559,756

WRONG WAY TRAFFIC CONTROL SYSTEM

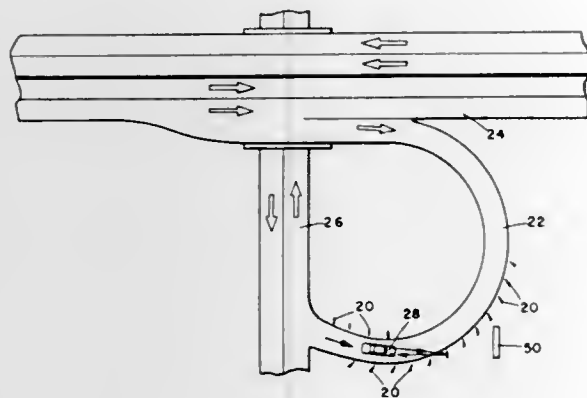
Noel M. Torres, 1853 Ridgewood Drive, San Diego, Calif. 92139

Filed Mar. 10, 1969, Ser. No. 805,637

Int. Cl. B60t 7/12; G01s 9/02; B60k 77/08

U.S. Cl. 180-98

6 Claims



The system is adaptable to vehicles having radiant energy proximity detecting or automatic spacing apparatus. A series of fixed radiant energy reflectors is placed along the side of a one-way traffic lane to reflect signals back to a wrong way vehicle and warn or stop the vehicle. A simple addition to the basic proximity detecting apparatus locks the brakes until the vehicle is reversed.

3,559,757

AUTOMOBILE THEFT PREVENTION DEVICE

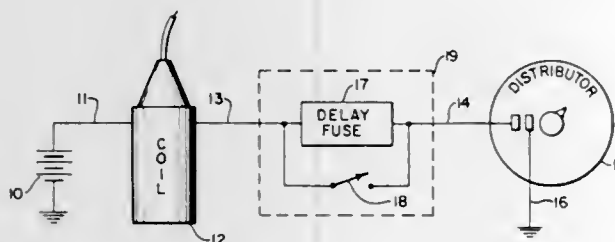
Hans R. Weiss, Niles, and Joseph G. Baran, Northbrook, Ill., assignors to Taroda Industries, Inc., Chicago, Ill., a corporation of Illinois

Filed Jan. 29, 1968, Ser. No. 701,332

Int. Cl. B60r 25/00

U.S. Cl. 180-114

5 Claims



In the primary circuit, which includes the coil and distributor points of an internal combustion engine, there is inserted a delayed action fuse in parallel with a manually operable switch. The fuse is of a capacity to blow with delay under the current normally present in the primary circuit. When the switch is open, the vehicle will operate for a delayed period before the fuse blows and disables the engine. With the switch closed, the engine may be operated whether or not the fuse is blown.

**3,559,758
FLUID CUSHION CONFINING DEVICE**

Jean Henri Bertin, Neuilly-sur-Seine, France, assignor to Bertin & Cie, Plaisir, France, a company of France

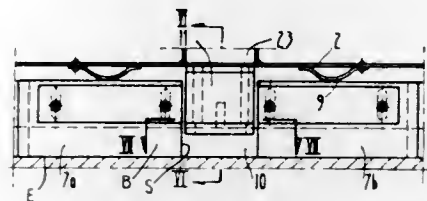
Filed June 27, 1968, Ser. No. 740,653

Claims priority, application France, Aug. 22, 1967, 118,640

Int. Cl. B60n 1/04

U.S. Cl. 180-116

10 Claims



A device, applied to a ground effect vehicle, for confining a fluid cushion, the device comprising a sidewall for bounding the cushion round its periphery, the free end of the sidewall bearing in a substantially sealingtight manner on a bearing surface such as the ground, outlet means of adjustable cross section being provided for the fluid from the cushion.

3,559,759

AIR CUSHION VEHICLES HAVING INCREASED ROLL STIFFNESS

William Barrie Hart, Burwell, England, assignor to Hovercraft Development Limited, London, England, a British company

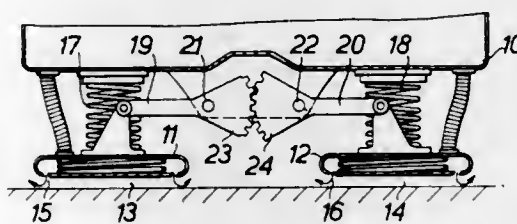
Filed Nov. 18, 1968, Ser. No. 776,587

Claims priority, application Great Britain, Dec. 20, 1967, 57,798

Int. Cl. B60v 1/02, 1/00

U.S. Cl. 180-118

10 Claims



The invention relates to an air cushion vehicle in which the cushions on opposite sides of the vehicle are so interconnected that if the vehicle rolls to one side then the air cushion on the other side is automatically lifted up to produce a righting moment to correct the roll.

3,559,760

VEHICLE MUFFLER AND PARTICLE SEPARATOR

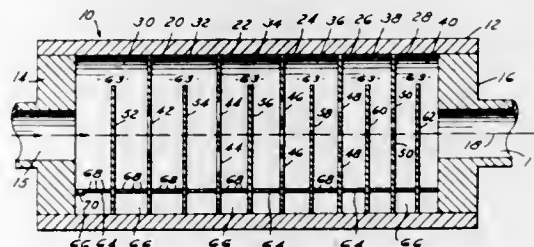
Jack S. Ninomiya, Rockwood, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Mar. 3, 1970, Ser. No. 016,162

Int. Cl. F01n 1/08, 3/02

U.S. Cl. 181-36

9 Claims



Engine exhaust gases enter a series of chambers through succeeding partitions containing orifices of decreasing size

but increasing numbers. A baffle is located in each chamber downstream of its inlet orifices to change the flow direction of the exhaust gases in such a manner that particulate matter carried by the exhaust gases drops to the bottom of the chamber. The bottom of each chamber contains a false floor having openings therein and the particulate matter drops through the openings into storage compartments.

3,559,761

COMBINED STEP AND STOOL

Norvin J. Wehner, Kansas City, Mo., assignor to Cramer Industries, Inc., Kansas City, Kans., a corporation of Missouri

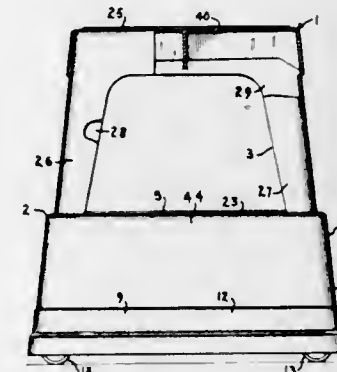
Filed July 1, 1969, Ser. No. 838,232

Claims priority, application Germany, June 19, 1968, 1,767,795

Int. Cl. E06c 1/397

U.S. Cl. 182-15

6 Claims



This invention is directed particularly to a combined step and stool wherein the stool member is removably attached to the step member, whereby the stool can be removed from the step member and used independently thereof.

3,559,762

SAFETY LADDER FOR WATER USE

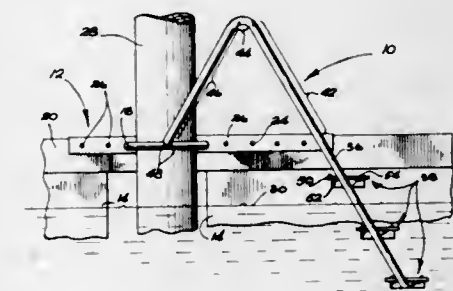
Kenneth L. Thompson, Huntington Beach, Canada, assignor to Ye Dock Master, Inc., a corporation of California

Filed Sept. 26, 1969, Ser. No. 861,328

Int. Cl. E06c 1/39

U.S. Cl. 182-93

10 Claims



A safety ladder for use in water in combination with a pile extending above the surface of the water and a floating structure. The floating structure includes means for encircling the pile to be thereby limited in lateral movement. At least one of the side rails is secured to the floating structure and at least one of the side rails is secured to the pile encircling means.

3,559,763

LADDER STRUCTURE

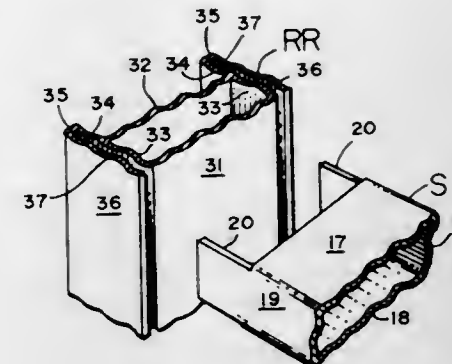
Melvin J. Stern, Miami, Fla., assignor to Lawnlite Company, Miami, Fla., a corporation of Florida

Filed Oct. 27, 1969, Ser. No. 869,486

Int. Cl. E06c 7/08

U.S. Cl. 182-215

4 Claims



A ladder structure having a pair of parallel hollow rails, the hollow rails having slotted portions, a plurality of hollow steps having a rectangular cross section with tabs formed at the ends thereof received by the slotted portions and fastened to the sidewalls of the hollow rails.

3,559,764

SELECTIVE FILTER, REGULATOR AND LUBRICATOR COMPONENT ARRANGEMENT FOR AIR LINES

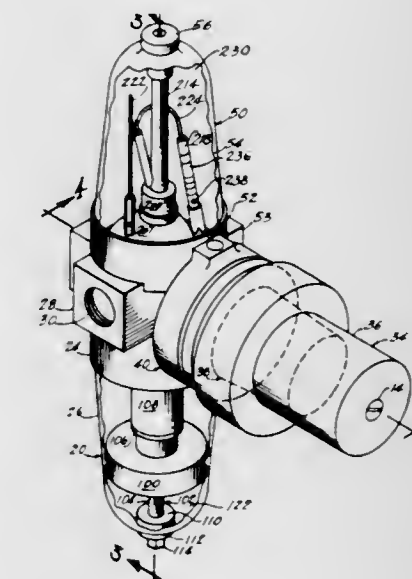
Harry L. Wheeler, Jr., Fulton, Ga. (c/o DK Pneumatics Inc., 1090 Jefferson St. NW, P. O. Box 2427, Atlanta, Georgia, 30318)

Filed June 5, 1968, Ser. No. 734,664

Int. Cl. F16n 7/34

U.S. Cl. 184-55

22 Claims



The air filter, the air regulator and the air lubricator, one or more of which are used in compressed air lines, such as those driving power tools, each having its own housing which may be selectively connected to one or more of the other housings to provide either a vertical or horizontal arrangement with respect to the air line axis with or without the use of fitting connections. The filter includes the metallic head containing inlet and outlet ports, a plastic chamber or bowl and a foraminous device therein to remove entrained impurities from the air and a collector to separate water from the air stream. The regulator includes a metallic casting with a valve means of controlling air flow responding to the diaphragm. The lubricator includes the metallic head containing inlet and outlet ports, a plastic chamber or bowl defining a reservoir and means to discharge oil vapor into the outlet port at a prescribed rate. By selective fitting of the housings together, communication is established through the

inlets and outlets already provided therein and means is provided for securing the selected filter, or regulator or lubricator together. The respective housings interlock and nest together in different relationships to fit into existing spaces or to save space.

In the lubricator arrangement, the volume of the lubricator bowl, which may be plastic, metal or other suitable material, is used as oil reservoir and means is provided to inject a spray of oil into the air stream as it passes through the housing. When the individual respective filter and regulator or the filter lubricator and regulator housings are in intimate, combined pressure-tight relationship with the bowls for lubricator and filter, the entire assembly becomes a combined housing.

3,559,765

LUBRICATION METER VALVE

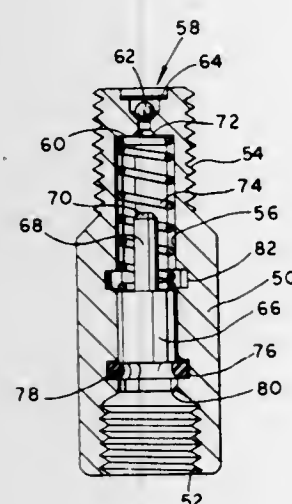
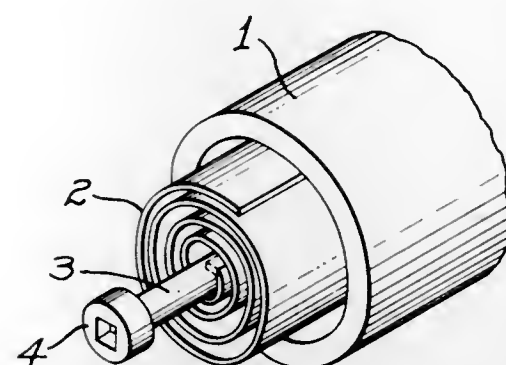
Roy B. Smith, Washington Court House, Ohio, assignor to Transportation Specialists, Inc., Columbus, Ohio, a corporation of Ohio

Filed Mar. 21, 1968, Ser. No. 714,895

Int. Cl. F16n 27/00

U.S. Cl. 184-7

2 Claims recovery to a member engageable with the inner end of said spring means.



A meter valve is described comprising a cylindrical body with a central bore drilled from one end having a cooperating sealingly slidable spring-biased piston therein and having a ball check valve permitting one-way communication between the bore and the end of the body opposite the open or inlet end. The bore has a circular groove in it. The piston is slidable to alternatively block communication (1) between the groove and the inlet end of the bore, and (2) between the groove and the ball check valve. Movement of the piston away from the ball check valve creates a substantial vacuum which is used to boil lubricant out of the groove and eventually force it out through the check valve.

3,559,766

HEAT RECOVERABLE ARTICLE WITH MECHANICAL INSERT

William Rosse Heslop, Atherton, Calif., assignor to Raychem Corporation, Menlo Park, Calif., a corporation of California

Continuation-in-part of application Ser. No. 591,836, Nov. 3, 1966, now abandoned. This application Oct. 30, 1968, Ser. No. 790,892

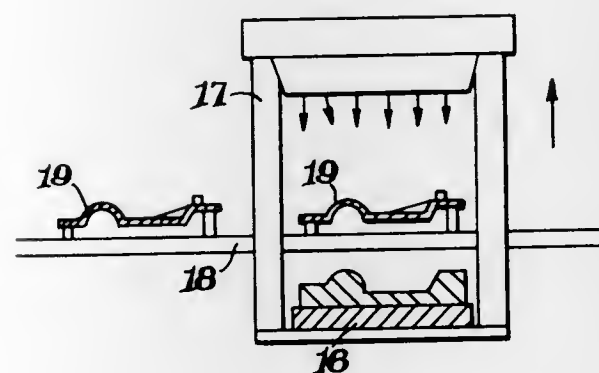
Int. Cl. F03g 1/00

U.S. Cl. 185-39

4 Claims

Heat recoverable articles adapted to operate upon an object in which a heat recoverable sleeve is disposed about spiral spring means inserted in and substantially coaxial with

said sleeve, recovery of the sleeve causing contraction of the spring means and transmission of the force exerted by

3,559,767
DEVICE FOR POSITIONING OF PARTS ON A WORK STATION

Rene Gervais, Santeny, France, assignor to Welding Research, Inc., Chicago, Ill., a corporation of Illinois

Filed Apr. 10, 1969, Ser. No. 814,956

Claims priority, application France, May 20, 1968, P.V.

152530

Int. Cl. B66b 9/00

U.S. Cl. 187-1

4 Claims

A device for raising and lowering a work piece from conveyor to work station which consists of a planetary gear system with crank arrangement which describes an epicycloidal path and in which the crank drives a push rod and second crank and rod system to lift the platen holding the work pieces so that the speed of the platen is reduced at the critical points in its motion where the parts are picked up and returned to the conveyor and where they are placed in the working position.

3,559,768

EMERGENCY ELEVATOR EVACUATION OF TALL BUILDINGS

Henry P. Cox, 8 Banner Apts., 1425 SW. Clay St., Portland, Oreg. 97207

Filed Dec. 22, 1969, Ser. No. 887,134

Int. Cl. B66b 11/04

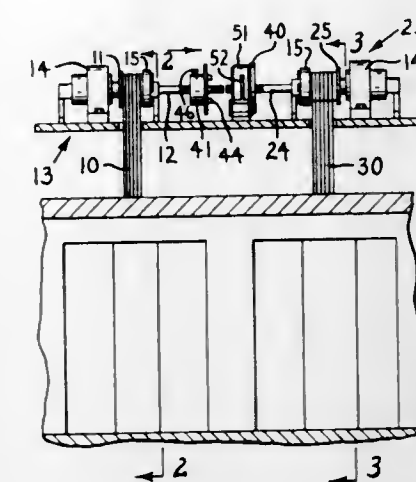
U.S. Cl. 187-20

5 Claims

Means are provided for connecting together the hoist rope traction sheaves of two elevators in the event of power failure. The hoist ropes for one elevator pass around guide sheaves to reverse their normal direction of wrap on the traction sheave so that the two elevators travel in opposite directions when their traction sheaves are connected together. Thus, each descent of a loaded car will pull up an

empty car whereby a building may be evacuated by the gravity operation of two elevators without electrical power. The

a desired position on the axle to form the cylinder housing in which one or more cylinders may be located. When the



two elevators are normally operable independently of each other.

3,559,769

SATELLITE WALL STRUCTURE PARTICULARLY FOR SUPPORTING SOLAR CELL

Erich Arbeitlang, Ottobrunn, Germany, assignor to Bolkow Gesellschaft mit beschränkter Haftung, Ottobrunn, Munich, Germany

Filed Aug. 22, 1968, Ser. No. 754,699

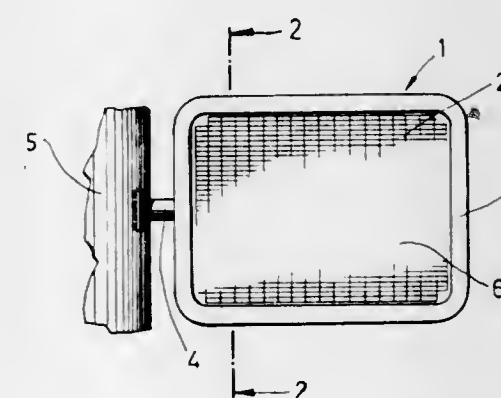
Claims priority, application Germany, Aug. 25, 1967,

P1,531,555

Int. Cl. F16f 7/10

U.S. Cl. 188-1

10 Claims



A vibration damped structure having a double wall construction, particularly for use as a solar cell supporting surface for satellites comprises two wall layers which are clamped into a clamping frame with different initial stress. The wall layers are interconnected by an intermediate filler material imbedded between the walls.

3,559,770

DRUM BRAKE INCLUDING AXLE AND ACTUATING CYLINDER DETAIL

Carl E. Bricker, Cuyahoga Falls, and Kenneth P. Hillegass, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

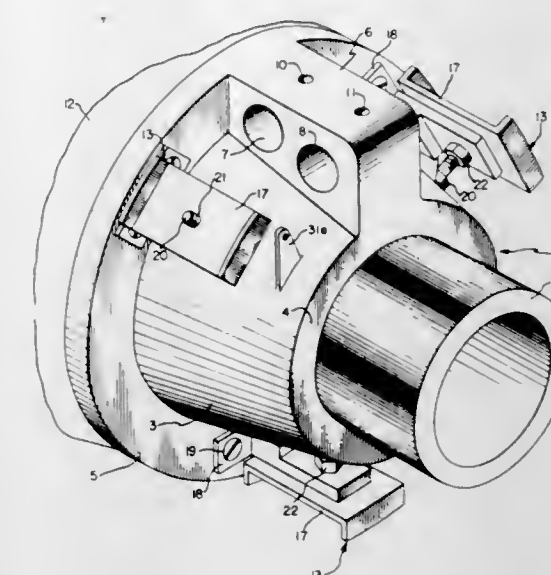
Filed Feb. 10, 1969, Ser. No. 797,803

Int. Cl. B60t 1/06

U.S. Cl. 188-152.82

6 Claims

A brake having a rotary drum and a stationary axle with an integral cylinder housing. A thickened portion is provided at



brakes are applied, the torque from the rotating drum is transmitted through the integral cylinder housing to the axle.

3,559,771

BRAKE MOTOR

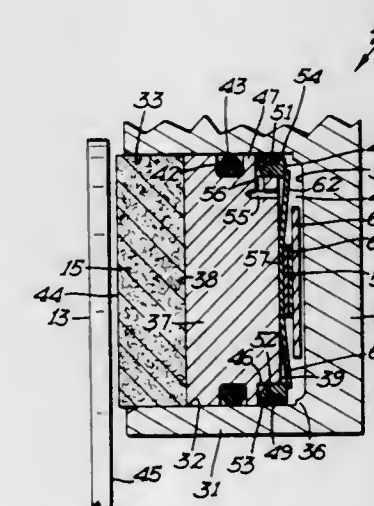
Robert L. Crane, Hopkins, Minn., assignor to Tol-O-Matic, Inc., Minneapolis, Minn., a corporation of Minnesota

Filed July 2, 1968, Ser. No. 741,928

Int. Cl. F16d 55/18, 65/54

U.S. Cl. 188-71.8

9 Claims



The improved brake motor of the present invention is actuated by fluid under pressure so as to force a brake puck into contact with an adjacent surface of a relatively moving disc to brake or reduce the speed of the disc. The brake motor includes a piston which is positioned for reciprocal movement within a cylinder formed in the motor housing, which carries the brake puck and which is moved in response to pressure of the fluid in a pressure chamber defined within the cylinder. The motor also includes a drag ring secured within the cylinder by a resilient member which is tightly wedged between the periphery of the drag ring and the cylinder. A leaf spring and limit plate assembly are carried by the piston and cooperate with the drag ring and the piston whereby the brake puck is positively moved away from and out of contact with the disc when the brake motor is not being actuated and whereby automatic compensation for wear on the brake puck is accomplished after a predetermined amount of wear has occurred.

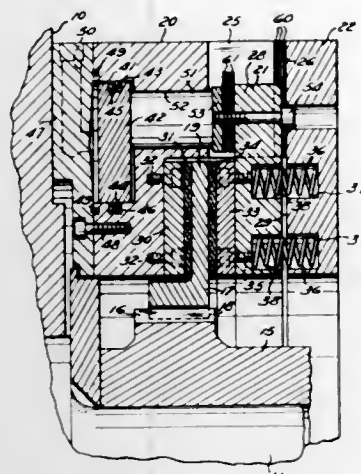
3,559,772

SPRING APPLIED, FLUID PRESSURE RELEASED BRAKE

Walter J. Grombka, Tiffin, Ohio, assignor to The National Machinery Company, Tiffin, Ohio, a corporation of Ohio
Filed Sept. 24, 1968, Ser. No. 762,096
Int. Cl. F16d 65/24, 55/16

U.S. Cl. 188—170

26 Claims



A disc brake for heavy machinery such as metal working presses and the like which includes a rotatable disc mounted on a projecting shaft for rotation with the shaft and for axial movement relative to the shaft. A stationary brake ring is mounted on the frame of the machine and has a face adjacent to one side of the disc. The other side of the disc faces an axially movable brake ring which is locked to the stationary brake ring to prevent relative rotation therebetween. A cover plate is fixed to the stationary brake ring. Springs are provided between the cover plate and the axially movable brake ring to bias the brake against the disc to thereby apply braking pressure to the shaft and fluid motor means are provided to overcome the bias of the springs to thereby release the brake. Shims are provided between the cover plate and the stationary brake ring so that, as the braking surfaces wear, the initial spring tension may be reestablished by removing one or more shims.

3,559,773

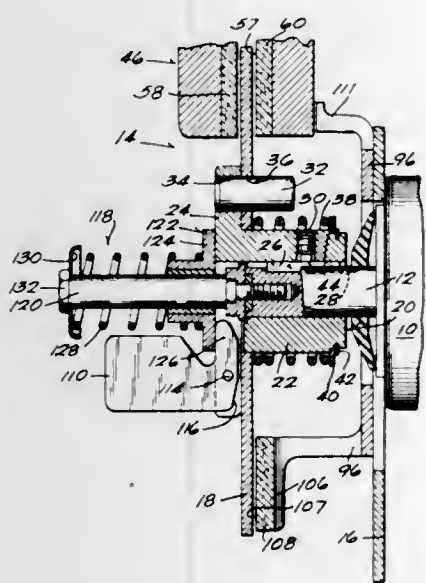
BRAKE AND AUTOMATIC SPEED LIMITER ARRANGEMENT

Thomas H. Hock, Milwaukee, Wis., assignor to AMF Incorporated, Jersey City, N.J., a corporation of New Jersey, by mesne assignments

Filed Oct. 18, 1967, Ser. No. 676,251
Int. Cl. B60t 7/12, 13/08

U.S. Cl. 188—187

9 Claims



This disclosure relates to a combination brake and speed limiting mechanism wherein a manually operated brake operates on a rotatable brake disc to produce selective brak-

ing action. The disc is connected to a source to be braked so that braking action is transmitted to the source. An additional brake friction pad, that is in addition to the friction pads of the manual brake assembly, is supported adjacent the brake disc and is normally disengaged from the brake disc so that it does not interfere with manual braking action. A centrifugally responsive actuator is also connected to the source to be braked and responds to the speed of the source to effect, at a preselected speed, engagement between the brake disc and the additional friction pad and a friction pad of the manual brake assembly to retard speed.

3,559,774

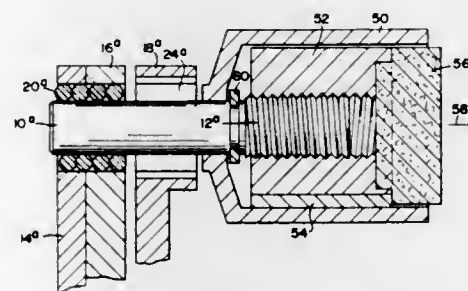
AUTOMATIC WEAR COMPENSATOR FOR A SCREW-TYPE BRAKE

Carl E. Bricker, Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Filed Nov. 8, 1968, Ser. No. 774,438
Int. Cl. F16d 65/56

U.S. Cl. 188—196

8 Claims



An automatic friction lining compensator adaptable to a screw-type brake applied either mechanically or by springs. Essentially, a shaft having a screw on one end threadably received in the piston causes movement of the piston upon rotation of the shaft. Rotation is imparted to the shaft by an arm operating through a one-way clutch. The arm is returned to its initial position after actuation of the brake. A second arm is connected to the shaft through a one-way clutch operating in the reverse direction to that associated with the first arm. The shaft is returned towards its initial position by movement of the second arm. However, movement of the second arm greater than a predetermined distance causes release of the one-way clutch associated with the second arm, thereby limiting the return of the shaft to its initial angular position. In this way, compensation for the wear of a friction material actuated by the piston is accomplished.

3,559,775

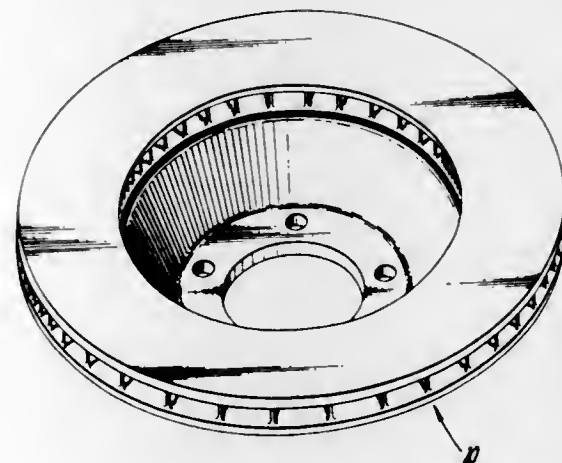
HYPEREUTECTIC GRAY IRON BRAKE MEMBER COMPOSITION

Edwin J. Miller, Mount Clemens, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Apr. 1, 1968, Ser. No. 717,669
Int. Cl. F16d 69/02

U.S. Cl. 188—251

6 Claims



In a preferred form of the invention a disc brake rotor is disclosed which is formed of a hypereutectic gray iron com-

position having a relatively high capacity for damping mechanical vibrations, excellent wear resistance and high thermal conductivity. The composition is a pearlitic gray iron having a carbon equivalent of at least 4.5. Carbon is present in combined form in pearlite and as ASTM Type-A flake graphite.

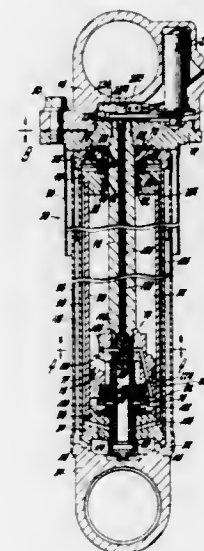
3,559,776

SHOCK LOCKOUT AND PISTON SYSTEM

Harold E. Schultze, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 17, 1969, Ser. No. 833,956
Int. Cl. F16f 9/10

U.S. Cl. 188—88

6 Claims



In preferred form, a direct acting hydraulic shock absorber including a reciprocal piston which has a valve element normally maintained in a closed position by a spring and movable to an open position to regulate fluid flow between rebound and compression chambers in response to a predetermined pressure in the chambers. The valve element has a small diameter end and a larger diameter end integrally joined by a variable diameter intermediate portion. During normal shock absorber operation fluid pressure within the rebound chamber and the compression chamber acts against the intermediate portion and the small diameter end respectively of the valve element to move it to an open position against the force of the spring. A pilot valve in the piston is selectively rotated by reversible drive means between a normal and a lockout position. In the lockout position, fluid pressure in the rebound chamber and the compression chamber is transmitted by the pilot valve against the larger diameter end of the valve element. This pressure force counterbalances the aforementioned pressure forces on the small diameter end and the intermediate portion of the valve element to hold the valve in a closed position and consequently to prevent subsequent extension or contraction of the shock absorber.

3,559,777

LUGGAGE BAG

Keith L. Gardner, 143 N. Thompson, Jackson, Mich. 49202
Filed Feb. 10, 1969, Ser. No. 798,084
Int. Cl. A45c 3/00; B65d 85/18

U.S. Cl. 190—43

6 Claims

An elongated luggage bag adapted to be transported and stored depending from support means at its upper end, the bag having an outer bag portion which, in horizontal section, is of narrow rectangular form, there being an inner bag portion dividing the outer bag portion into front and rear hanger

compartments accessible through the front and rear broad sides of the outer bag portion, the inner bag portion being ac-



cessible through one of the narrow sides of the outer bag portion.

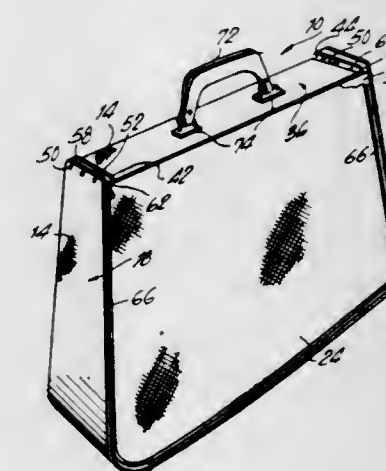
3,559,778

LUGGAGE CONSTRUCTION WITH EXTERIOR U-FRAME

Anthony N. D'Elia, Riverdale, and Edward M. Stolarz, Yorktown Heights, N.Y., assignors to Reliable Luggage, Inc., West Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 8, 1969, Ser. No. 789,681
Int. Cl. A45c 13/04

U.S. Cl. 190—49

7 Claims



This invention relates to an article of luggage comprising a U-shaped frame means for forming the entire bottom and the entire sides of the article of luggage and a top frame member secured to the frame means. A pair of fabric panels are secured to the frame means and frame member for forming the front and back of said article of luggage and slide fastener closure means are disposed along the peripheral edge of one of said fabric panels for providing an access opening for the article of luggage.

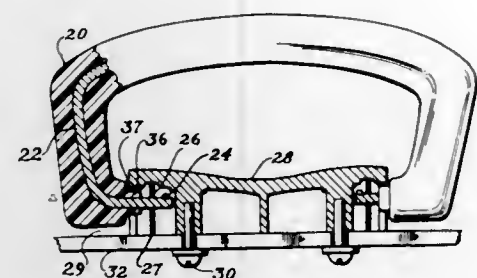
3,559,779

KEYED LUGGAGE MEMBERS

Leon Laitin, 43 White Drive N, Cedarhurst, and Alton K. Allen, 11 Flower Lane, Great Neck, N.Y. 11024
Filed Nov. 29, 1968, Ser. No. 780,023
Int. Cl. A45c 13/26

U.S. Cl. 190—58

6 Claims



A nonmetallic, wire-reinforced luggage handle is attached to a mounting member by means of keys on both ends of the handle wire, which mate with keyways in the mounting member.

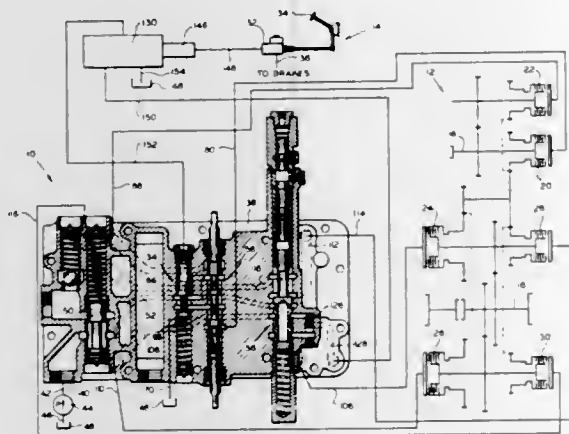
3,559,780

TRANSMISSION SYSTEM NEUTRALIZED BY BRAKE

William C. Erdman, Jackson, Mich., assignor to Clark Equipment Company, a corporation of Delaware
Filed Feb. 7, 1969, Ser. No. 797,565
Int. Cl. F16h 57/10

U.S. Cl. 192—4

4 Claims



A transmission control system for interrupting power flow through a transmission when the vehicle brakes are applied and the transmission is conditioned for operation in a given speed ratio and direction including a declutch valve responsive to pressurized fluid for interrupting the supply of pressurized fluid to the direction control clutches. Pressurized fluid for engaging the first speed ratio clutch also is directed to the declutch valve via a normally closed valve which opens in response to brake actuation to cause the declutch valve to shift and interrupt the supply of pressurized fluid to the direction control clutches.

3,559,781

SPRING CLUTCH-BRAKE WITH ADJUSTABLE STOP COLLAR

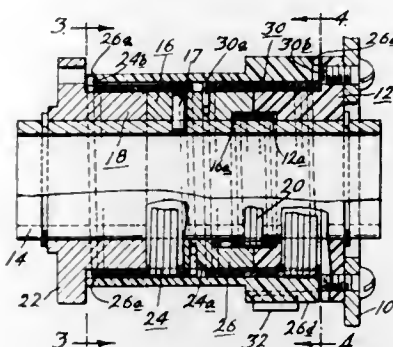
Thomas T. Brunelle, Glassboro, N.J., assignor to Precision Specialties, Inc., Pitman, N.J., a corporation of Missouri
Filed Dec. 6, 1968, Ser. No. 781,762
Int. Cl. F16d 67/02

U.S. Cl. 192—12

6 Claims

A stop collar for a clutch brake employs different numbers of slots at opposite edges to receive the end tangs of clutch and brake springs, respectively. Each of the springs is fixed to an output hub at its opposite end. The clutch spring tends to wrap down on an input hub, which it surrounds, in which position the brake spring is out of contact with a frame hub, which it surrounds. Relative rotation between the collar and

the output hub will release the clutch spring and engage the brake spring. Slot arrangements with different numbers of



slots on opposite ends allow accommodation of springs no matter what the angular spacing between their end tangs.

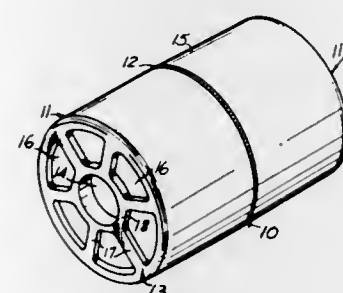
3,559,782

CONVEYOR ROLLER AND METHOD OF MANUFACTURING SAME

Hubert G. Lesley, deceased, late of Clayton, Ga. by Kathryn W. Lesley, executrix, Clayton, Ga.
Filed Apr. 22, 1968, Ser. No. 729,484
Int. Cl. B65g 13/00

U.S. Cl. 193—37

9 Claims



This invention relates to a conveyor roller for use in a logistic loading system for cargo aircraft and comprises two opposed extruded aluminum cup-shaped shells that are welded together along a common seam to provide a load bearing surface, each end having a central aperture for receiving therein an antifriction bearing member and a plurality of access apertures defined between said central aperture and said load bearing surface.

This invention further includes the method of manufacturing the conveyor roller designed for use in cargo aircraft, which method includes the steps of extruding cup-shaped shell members, punching apertures in the closed end of said shell members; welding two of said shell members together to form said roller; and anodizing the interior and exterior surfaces of said roller.

3,559,783

CLUTCH CONTROLS FOR TRACTOR VEHICLES

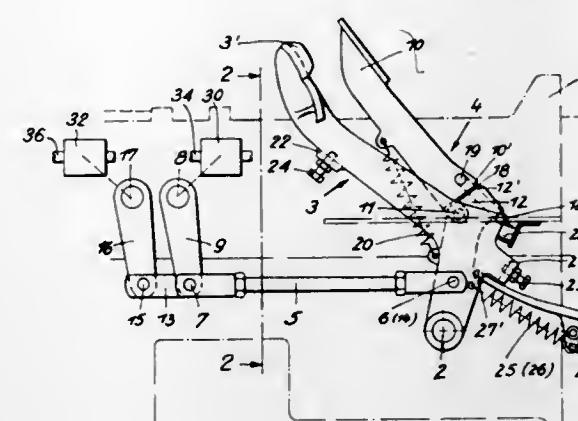
Herbert Haberzettl, Ebersbergstrasse 36, 8011 Hohenlinden, Germany, and Jean N. Logothetopoulos, Habsburgerstrasse 5, 8 Munich, 13, Germany
Filed May 15, 1969, Ser. No. 825,013
Claims priority, application Germany, May 15, 1968, 1,755,481
Int. Cl. G05g 13/00

U.S. Cl. 192—48.7

7 Claims

Provided for separate clutches in dual power drives in tractor or the like vehicles are separate foot pedals for actuating the respective clutches, with the pedals having followers of which each follower projects into the swing path of the other

pedal, and the followers being arranged so that on depression of either pedal through successive stages its associated clutch the friction fluid to continuously flow from one to the other side of the disc and through it. A temperature responsive ele-



is disengaged and the other pedal is taken along by the follower arrangement to disconnect the other clutch.

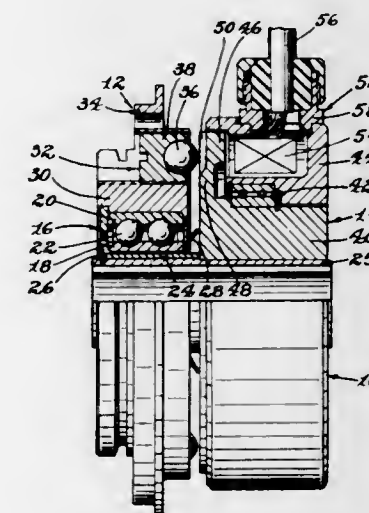
3,559,784

ELECTRIC OVERLOAD CLUTCH

Donald L. Miller, Horseheads, N.Y., assignor to The Bendix Corporation, a corporation of Delaware
Filed July 22, 1968, Ser. No. 746,523
Int. Cl. F16d 43/20, 27/10

U.S. Cl. 192—56

5 Claims



An electromagnetic clutch having an overtorque triggered release which allows reengagement of the torque transmitting members without reducing clutch speed. When overload occurs, the initial slippage of the torque transmitting members cams them apart, reversing the spring-electromagnetic force balance to force the axially movable torque transmitting member away from the axially stationary torque transmitting member. Electrical switching means, sensitive to torque and speed, are also provided to change the state of current flow in the electromagnetic clutch.

3,559,785

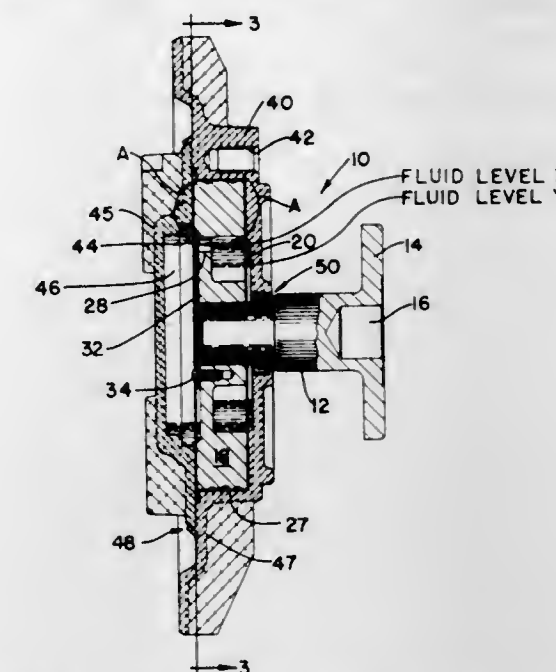
VARIABLE FLUID COUPLING

Thomas J. Weir, Indianapolis, Ind., assignor to Wallace-Murray Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 28, 1969, Ser. No. 803,157
Int. Cl. F16d 31/06, 31/08

U.S. Cl. 192—58

6 Claims

A temperature responsive fluid coupling. The driven member is a housing adapted to carry a cooling fan for an internal combustion engine. The driving member is a disc having a storage chamber for friction fluid opening on one side of it. Grooves on the sides and periphery of the disc cause



ment acting as a valve varies the quantity of fluid passing between a drive chamber and storage area.

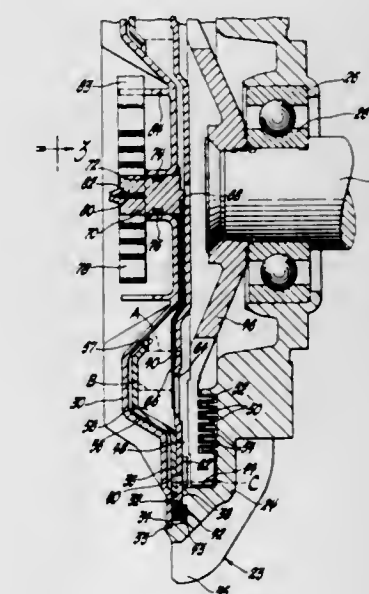
3,559,786

VISCOUS FLUID CLUTCH WITH COOLING PASSAGE MEANS

Paul J. Long, Jr., Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 30, 1969, Ser. No. 820,578
Int. Cl. F16d 35/00

U.S. Cl. 192—58

12 Claims



A viscous fluid clutch including relatively rotatable first and second drive members having a fluid shear space therebetween and which are cooperable with a fluid medium in the shear space to provide a shear-type fluid drive therebetween, an annular reservoir for at times storing the fluid medium, a temperature-responsive valve for regulating the flow of the fluid medium from the annular reservoir to the fluid shear space, and a baffle wall cooperating with a front wall of one of the drive members to form a narrow annular cooling passage for the fluid medium and further cooperating with an intermediate wall to form the annular reservoir.

3,559,787

VERTICAL GUIDING DEVICES FOR CONTAINERS IN SHIPS

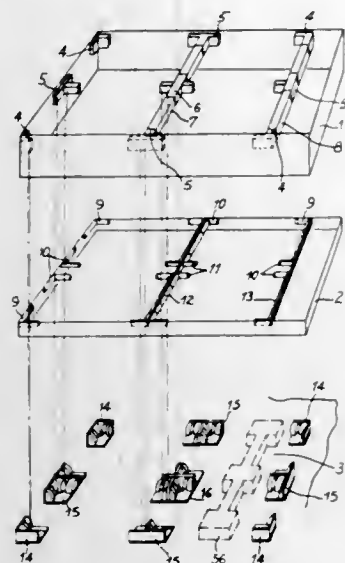
Rene Charles Caillet, 26 rue de la Republique, 78 Saint-Germain-en-Laye, France

Filed Aug. 8, 1968, Ser. No. 751,098

Claims priority, application France, Aug. 10, 1967, 117506
Int. Cl. B63b 25/00

U.S. Cl. 193-33

8 Claims



Detachable means for guiding standard containers as they are vertically lowered into or hoisted out from the cargo space of a ship, comprising vertical guide means in the form of ropes or chains adapted to be wound up from the upper deck, bearing or anchoring devices disposed at the corners of the cargo space and adapted to be removed by hoisting when these detachable means are not required.

ERRATUM

For Class 193-37 see:
Patent No. 3,559,782

3,559,788

SWITCHING ARRANGEMENT AND METHOD EMPLOYING COIN CONTROLLED MOTION TRANSDUCER

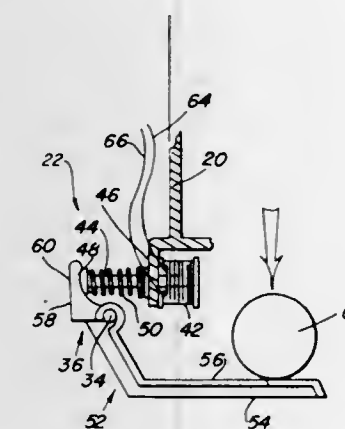
Herman G. Jensen, and Leon R. Britton, Chicago, Ill., assignors to The Seeburg Corporation of Delaware, Chicago, Ill., a corporation of Delaware

Filed Mar. 17, 1969, Ser. No. 807,823

Int. Cl. G07f 1/00

U.S. Cl. 194-1

23 Claims



A switching effect is achieved by utilizing a transducer to convert motion of an inanimate object into an electrical signal. Transduction is achieved by having the moving object produce a cyclical flux change in a coil to generate an electrical pulse representative of the desired switching function.

3,559,789

COIN-HANDLING DEVICE

Willard A. Hastie, Aylmer East, Quebec, and Austin Hastie, Ottawa, Ontario, Canada, assignors to Coin Verifiers Company Limited, Ottawa, Ontario, Canada, a company of Ontario

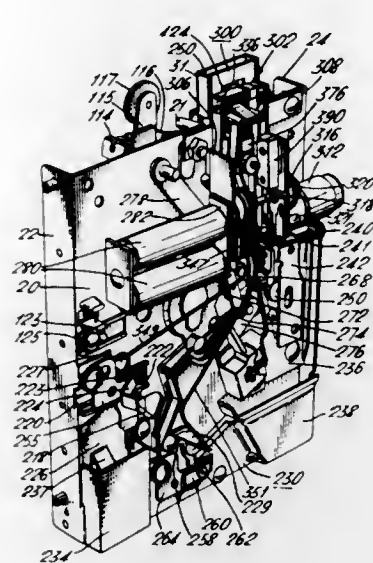
Filed Oct. 4, 1968, Ser. No. 765,145

Claims priority, application Canada, Oct. 4, 1967, 001,673

Int. Cl. G07f 3/02

U.S. Cl. 194-97

41 Claims



Coin-Handling devices are provided to distinguish genuine coins from spurious coins or slugs. The device includes first means to distinguish between coins and/or slugs formed from a ferromagnetic material from coins and/or slugs formed from a paramagnetic material. Preferably, the first means includes a magnet adapted to be moved into, and out of, face-to-face contact with the coin and/or slug. The device also includes either alone or in conjunction with the first means, second means which distinguishes coins and/or slugs having a smooth peripheral rim from coins and/or slugs having a serrated peripheral rim. Preferably, the second means includes a pair of pivotally mounted hangers having means such as a sharpened edge for engaging the peripheral rim of the coin and/or slug.

3,559,790

COIN REJECTOR MECHANISMS

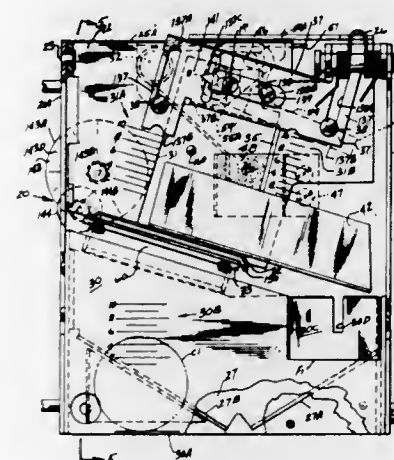
Harry Greenwald, Whitestone, and Paul Frankenberg, Brooklyn, N.Y., assignors to Greenwald Industries, Inc., Belleville, N.J., a corporation of Delaware, by mesne assignment

Filed Apr. 18, 1968, Ser. No. 722,301

Int. Cl. G07f 3/02

U.S. Cl. 194-99

12 Claims



The disclosure is directed to improvements in a coin rejector of the type disclosed in U.S. Letters Pat. No. 3,289,802 and more specifically to a coin rejector mechanism which

can be accurately and quickly set or adjusted to operate in a positive manner with respect to any size coin and/or coin denomination so that only coins of predetermined materials, thickness and diameter will be accepted thereby, and all other coins rejected; and which rejector is also provided with means for prohibiting an unscrupulous individual from retrieving a coin which has been accepted by the rejector mechanism.

3,559,791

TYPE HEAD ARRANGEMENT

Hermann Waldenburger, Wolkersdorf, Germany, assignor to Triumph Werke Nuremberg A.G., Nuremberg, Germany, by mesne assignments

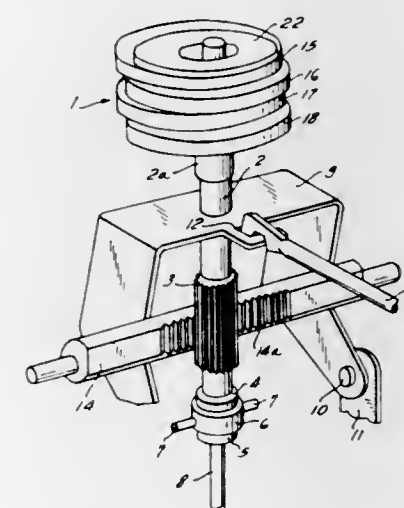
Filed July 19, 1968, Ser. No. 746,212

Claims priority, application Germany, July 19, 1967, G50672

Int. Cl. B41j 1/32

U.S. Cl. 197-55

16 Claims



A rotary and axially shiftable type head is composed of a stack of type discs provided with circumferential rows of type faces. A selected type disc having a type face corresponding to a selected character is shifted to an advanced position, while the type discs adjacent thereto are held in a retracted position. When the entire type head is moved toward the platen to a printing position, the type faces of the retracted type discs are at a safe distance from the printing area of the platen so that the rows of type faces can be more closely spaced than in the prior art.

3,559,792

DIGITAL DISPLAY AND CONTROL DEVICE FOR THE SETTING, JUSTIFICATION, AND CONTROL OF LINES OF PRINT

Hans Guldenpfennig, Berlin, Germany, assignor to H. Berthold Messinglinienfabrik Und Schriftgieesserei A. G., Berlin, Germany

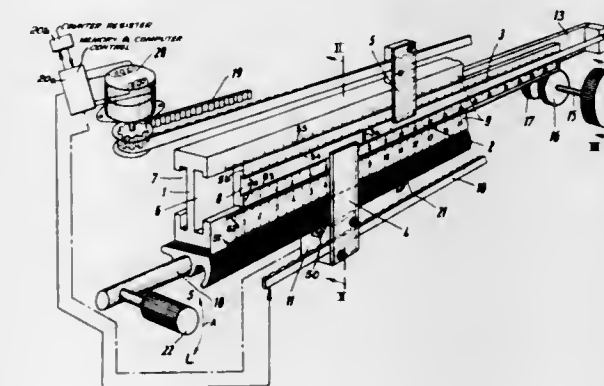
Filed May 20, 1968, Ser. No. 730,221

Claims priority, application Germany, July 21, 1967, 1,597

Int. Cl. B41j 29/42, 19/58, 21/04

U.S. Cl. 197-84

6 Claims



The present invention provides a digital display and control device for the setting, justification, and control of lines of

print. The display and control device consists of a guide rail having in the front and rear each a longitudinally extending guide channel mounted on the frame of the composing machine; the device also includes a slide, adapted to slide in the front guide channel, determining the start of the line and having a guide channel therein, a tongue, indicating the line end adapted to slide in the said guide channel in the slide and connected to a rack slidably mounted in the rear guide channel of the rail, a tabulating device mounted directly under the guide rail, a length indicator, movable along the front side of the rail and overlying the bottom half thereof; the length indicator is mounted on a photoelectric device engaging the tabulating mechanism and controlled thereby, while a justification indicator overlies the top half of the guide rail and is adapted to move along the same.

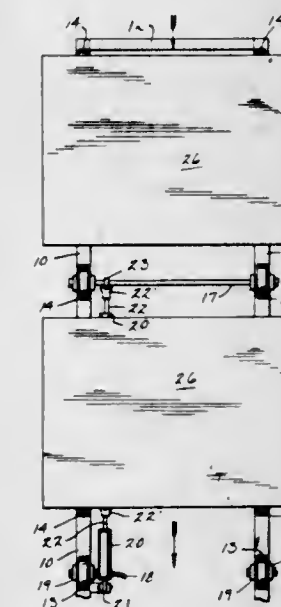
3,559,793

CONTINUOUS CONVEYOR SYSTEMSAnthony T. C. Lange, 3810 N 169th St., Brookfield, Wis.
Filed Oct. 11, 1968, Ser. No. 766,791

Int. Cl. B23q 5/22; B65g 13/02

U.S. Cl. 198-19

14 Claims



A continuous conveyor apparatus including a plurality of flat work-holding pallets movably supported on rollers projecting above spaced, parallel tracks, there being adjustable pneumatic pistons adapted to rotatably drive spaced drive rollers to engage the underside of said work-holding pallets and convey the same along said line of rollers, said apparatus including work stations adjacent the conveyor line and associated pallet-transferring means permitting the temporary sidetracking of selected pallets, and said apparatus including novel corner-turning means for automatically transferring pallets onto a transverse conveyor line.

3,559,794

METHOD AND APPARATUS FOR HANDLING ELONGATED WORKPIECES THROUGH A PROCESS AREA

William M. McConnell, Pittsburgh; William H. Bradley, Ben Avon; Howard E. Chappell, Butler; George P. Whitfield, Greentree, and Raymond L. Carey, Pittsburgh, Pa., assignors to Taylor-Wilson Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Apr. 23, 1968, Ser. No. 723,411

Int. Cl. B23q 7/00

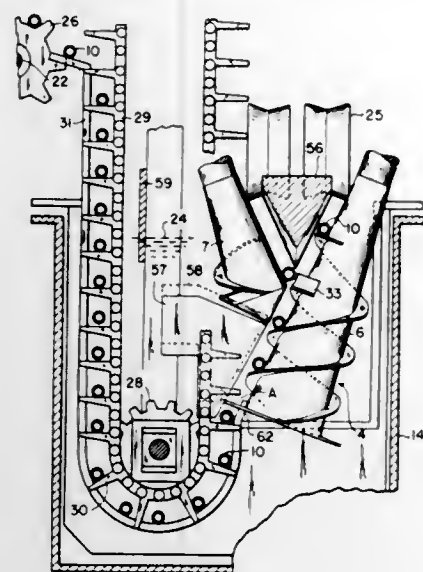
U.S. Cl. 198-19

21 Claims

An automatic processing line having a conveyor system continuously feeding workpieces to chain sinks which

lower the workpiece into a process area at a slope and raise the workpiece from the process area at a slope and a screw

bridge is press-fit into a slot in a nonmetallic lug. The link and lug are then pivotally secured to a chain by pins and a



apparatus which removes the workpiece from the chain sinker in the process area and conveys it to a continuous dragout conveyor for removal.

3,559,795

DEVICE FOR EFFECTING THE CHARGING OF NONCOHESIVE LOOSE MATERIAL

Achille Talenti, No. 105, Via Dario Nicodemi, Rome, Italy

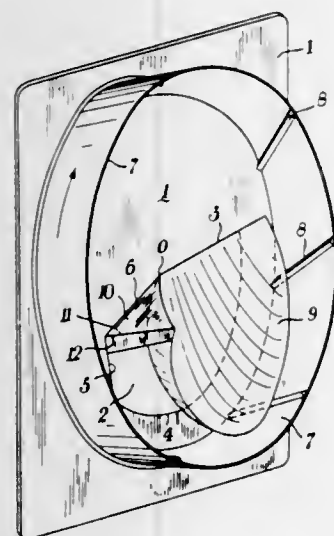
Filed June 14, 1968, Ser. No. 737,218

Claims priority, application Italy, July 29, 1967, 38,519/A67

Int. Cl. B65g 33/20

U.S. Cl. 198-43

3 Claims



A device for charging materials in stationary or rotating receptacles or tanks including a vertical panel provided with a charging aperture and applied to a wall of the receptacle, a short cylindrical surface rotatable about a horizontal axis mounted on the panel and surrounding the charging aperture, and a shell-like contoured concave surface fixed to the panel in front of the charging aperture and extending towards the receptacle.

3,559,796

ATTACHMENT FOR LINK CHAINS

Charles F. Marks, Indianapolis, Ind.; Richard F. Werking, Arlington Heights, Ill., and Baird E. Resner, Indianapolis, Ind., assignors to AMSTED Industries Incorporated, Chicago, Ill., a corporation of Delaware

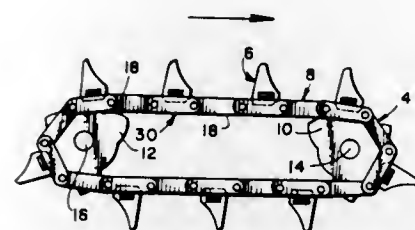
Filed July 31, 1968, Ser. No. 749,060

Int. Cl. B65g 19/22

U.S. Cl. 198-173

2 Claims

A mounting link plate for a link chain has a laterally projecting bridge secured to one of its longitudinal edges. The



pin link plate in a known manner so that the lug is located between the spaced connected link plates and projects away from the chain.

3,559,797

MANURE TRANSPORT SYSTEM

Claude Brunois, Laugny-Les-Aubentons, Aisne, France

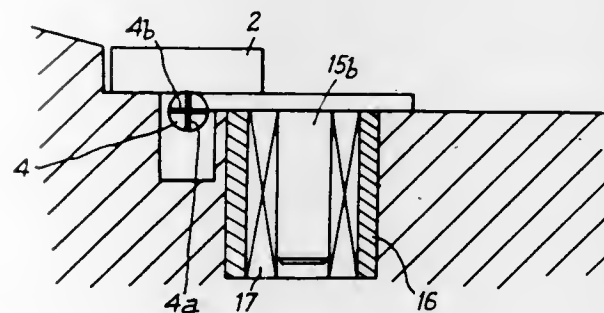
Filed Aug. 1, 1968, Ser. No. 749,510

Claims priority, application France, Jan. 26, 1968, 137,500

Int. Cl. B65g 19/04

U.S. Cl. 198-173

2 Claims



The instant device comprises a manure conveyor of the chain and pusher type wherein the chain rides in a depression of the trough. A rotary guide pulley is used at the turning area wherein the pulley edge lies between the pusher and the conveyor chain.

3,559,798

GLASS CASE

Gerald D. Jacobsen, 1887 Holton Road, Muskegon, Mich.

Filed Sept. 5, 1968, Ser. No. 757,599

Int. Cl. A45c 11/04

U.S. Cl. 206-5

3 Claims



A glass case fabricated from a sheet of flexible and stretchable closed cellular elastomeric material having a stretchably resilient fabriclike outer skin bonded to one side thereof. The sheet of material is folded over upon itself to form a rectangular enclosure. The abutting edges of the material are secured together by gluing or stitching along the end and side of the case, one of the ends being left open to permit insertion and removal of the glasses into and from the case. The volume and density of the closed cellular elastomeric material are such that the case will float in water for an extended period of time despite the presence of a pair of glasses therein.

3,559,799

DISPLAY PACKAGE

Elmer L. Kramer; Donald K. Smith, Cincinnati, Ohio, and

Stephen Edelen, Augusta, Mich., assignors to Brown Com-

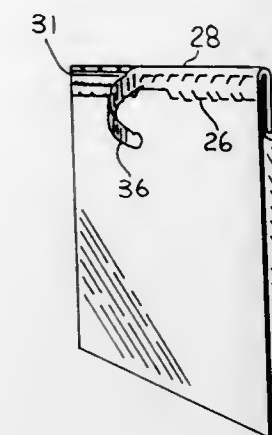
pany, New York, N.Y., a corporation of Delaware

Filed June 12, 1969, Ser. No. 832,624

Int. Cl. B65d 73/00, 75/00

U.S. Cl. 206-45.34

5 Claims



An improved package is provided comprising a semirigid container, a film closure for the container adapted to be vacuum sealed to the container opening, and a relatively stiff paperboard backing member adhesively secured to the film. The backing member includes a tear strip, the removal of which also served to permit removal of the film from the container and thereby provide access to the container's contents. Once the strip is removed the container may be reclosed by the relatively stiff backing member.

3,559,800

PACKAGING MATERIAL

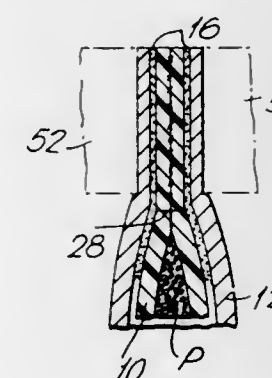
John Parkman Butler, Appleton, Wis., and Harry Meekma, Peekskill, N.Y., assignors to American Can Company, New York, N.Y., a corporation of New Jersey.

Filed Aug. 13, 1968, Ser. No. 752,264

Int. Cl. B65d 77/38, 85/00

U.S. Cl. 206-46

6 Claims



A multiply pouch is described wherein the plies are bonded substantially only in the marginal areas and having a line of weakness in the inner ply lying within the ply-bonded area at the pouch mouth but outside the area which is heat sealed to close the mouth of the pouch.

3,559,801

ONE-PIECE REEL ARM AND AN END FRAME FOR PILE FABRIC REEL

Theodore P. Kessler, Rancocas, N.J., assignor to Timron Inc., Moorestown, N.J., a corporation of New Jersey

Filed July 31, 1968, Ser. No. 750,428

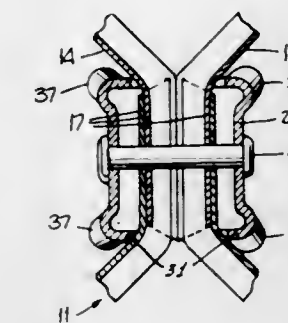
Int. Cl. B65d 85/04

U.S. Cl. 206-51

27 Claims

The reel is formed of one-piece reel arms which are initially flat and which are subsequently bent into triangular

configurations. A pair of bent reel arms are secured together at the ends by a clamping means which also forms a socket



for receiving the spacer bar. The hooks are integral with the reel arm and require no manipulation.

3,559,802

CASTER ASSEMBLY

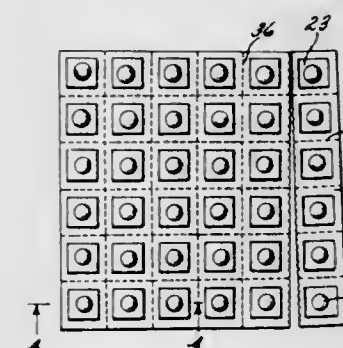
William Eidus, 254 N. Main St., Spring Valley, N.Y. 10977

Filed May 9, 1969, Ser. No. 823,395

Int. Cl. B60b 33/00

U.S. Cl. 206-56

10 Claims



A caster for supporting a fixture comprises a block having a socket in which a ball is retained. The ball is adapted to roll in the socket while supporting the weight of the fixture. A common web joins a plurality of like casters in spaced relationship, whereby the plurality of casters may be utilized as a unit in a fixture or the casters may be separated from the web and used singly or in subunits.

3,559,803

PACKAGE FOR NEEDLES, HABERDASHERY OR THE LIKE SMALL ARTICLES

Karl-Heinz Deneke, Auf dem Rott, Gressenich near Aachen, Germany

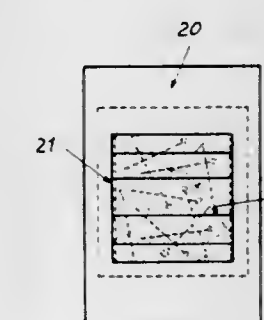
Filed Feb. 18, 1969, Ser. No. 800,137

Claims priority, application Germany, Feb. 23, 1968, Sept. 21, 1968, P1611973.6-27;MR3009

Int. Cl. B65d 85/24

U.S. Cl. 206-66

14 Claims



A package for needles formed of a carrier comprising front and rear portions connected along an edge fold line with

apertures and having a shiny metal coating on the interior of one of the shell-like portions and with the shell-like apertures and having a shiny metal coating on the interior of one of the shell-like portions and with the shell-like portions being in the form of a plurality of reflecting surfaces angled with respect to each other to provide optimum light reflecting characteristics.

3,559,804 FIBER CLEANER

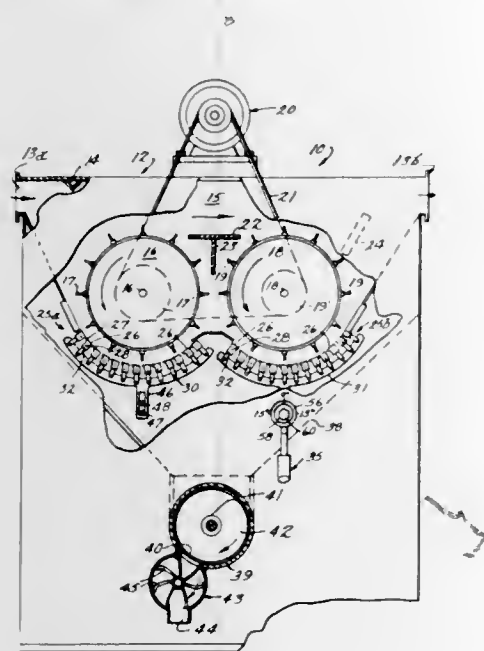
Kenneth G. Lytton, Gastonia, N.C., assignor to Fiber Controls Corporation, Gastonia, N.C., a corporation of North Carolina

Filed Oct. 22, 1968, Ser. No. 769,521

Int. Cl. B07b 9/00

U.S. Cl. 209—3

10 Claims



A fiber cleaning machine adapted to be placed in a pneumatic fiber carrying conduit leading to equipment for processing cotton or other fibers. Except for inlet and outlet openings in opposite ends of the machine casing for receiving the fibers to be cleaned and for passing the cleaned fibers from the machine, respectively, the casing is airtight. Between the inlet and outlet openings is a straight channel establishing a path for the air to pass through the machine. Along that path, the air channel has a cross-sectional area at least twice as large as the inlet or outlet opening, thereby decreasing the air velocity in the channel to one-fourth the incoming and outgoing velocities. This establishes a substantially dead air space below the air channel, which is mostly open on its lower side. Below the air channel are two beater-type cleaning cylinders rotatably mounted through the casing of the machine in the dead air space to allow their cleaning operation to be accomplished without being disturbed by the overhead, slowed airflow through the machine. Arcuate grids made up of parallel bars are placed below the lower surfaces of each of the cleaning cylinders. The grid bars constituting each of the grids are simultaneously rotatable to increase or decrease the distance between each of the bars and correspondingly change the upward rake angle of pointed edges extending laterally from the tops of each of the grid bars. Below the cleaning cylinders and grids is an air tight trash removal area.

3,559,805

STONE AND ROCK REMOVING DEVICE

Richard Nelson Cragg, Cohocton, N.Y.; Patricia A. Cragg, Administratrix of said and William E. Cragg, Administrator deceased

Filed July 2, 1968, Ser. No. 742,042

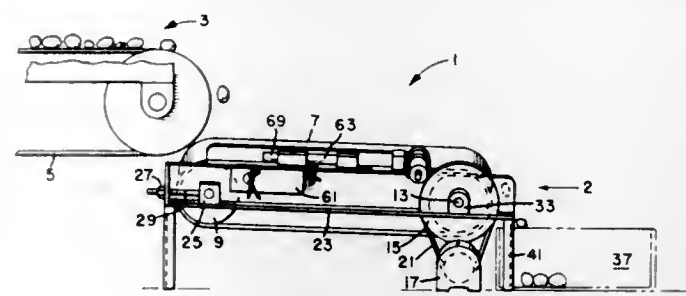
Int. Cl. B07c 5/34

U.S. Cl. 209—73

19 Claims

A device for removing stones and rocks intermixed with harvested potatoes comprising a conveyor for receiving and conveying same one by one in contiguous relationship with a

sensor transmitting mechanical vibrations whereof those vibrations caused by a stone or rock exceed a predetermined level and whereby such discrete vibrations are converted by a crystal pickup to signal voltages and in conjunction with cir-



cuit means therefor energize a solenoid operatively connected to a valve to effect communication from a pneumatic source to an air cylinder to reciprocate a plunger ram to eject such stone or rock.

3,559,806

CARTON EJECTOR

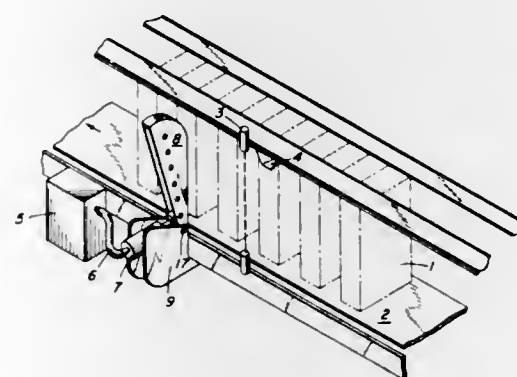
Lyndon Gene Bevins, Houston, Tex., assignor to General Foods Corporation, White Plains, N.Y., a corporation of Delaware

Filed Apr. 21, 1969, Ser. No. 818,003

Int. Cl. B07c 9/00

U.S. Cl. 209—74

6 Claims



An improved carton ejector device has been discovered which is capable of ejecting a carton in about 20 to 50 milliseconds without damaging the carton surface of interrupting the regular carton travel. The kicker-arm is designed such that it rotates around a pivoted end and applies a horizontal force against a vertical face of the carton while it rotates. The kicker-arm is moved by a cylinder piston.

3,559,807

SEWAGE TREATING APPARATUS AND METHOD

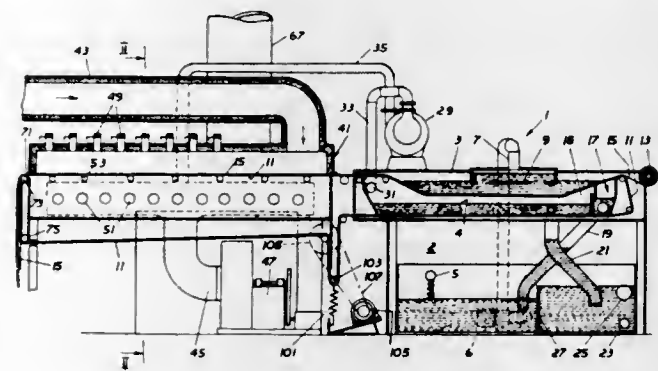
Bertram B. Reilly, 17 Briar Cliff Road, Pittsburgh, Pa. 15202

Filed June 26, 1969, Ser. No. 836,738

Int. Cl. B01d 25/34, 33/36

U.S. Cl. 210—68

10 Claims



A method and apparatus for separating and drying sewage sludge by filtering an aqueous slurry of sludge through a filter

medium on a travelling foraminous conveyor to deposit a layer of sludge on the filter medium and passing the conveyor and filter medium with a sludge deposit through a drying chamber where the sludge is dried by downdraft flow of hot gases and the filter medium and sludge deposit subsequently removed from the conveyor and the conveyor returned for application of fresh filter medium and recycle. Preferably the filter medium and sludge are removed from the conveyor by passage through a furnace where they are burned and the resulting hot combustion gases fed to the drying chamber.

3,559,808

LOAD INDICATOR FOR CENTRIFUGAL SEPARATOR

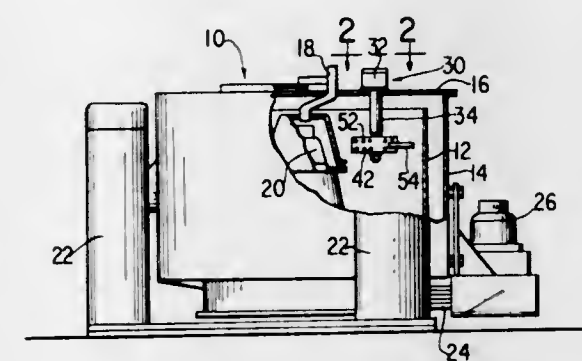
Frank O'Connor, Moline, and John W. Sherlock, East Moline, Ill., assignors to Ametek, Inc., New York, N.Y., a corporation of Delaware

Filed Sept. 27, 1968, Ser. No. 763,270

Int. Cl. B01d 35/00

U.S. Cl. 210—86

11 Claims



A load indicator for centrifugal separators which comprises a rotatable shaft extending into the basket of a separator and provided with an adjustable feeler for rotation with the shaft to stop feeding when the layer of solids or the layer of liquid around the wall of the basket reaches a predetermined thickness. A cam and overcenter spring mechanism at the upper end of the shaft provides for holding the feeler in either a set or triggered position, and a hydraulic cylinder provides for resetting the feeler.

3,559,809

FILTER BACKWASH MEANS

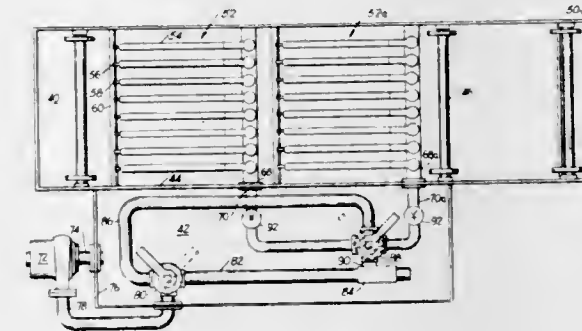
Stephen Barrett Barmore, Southington, Conn., assignor to AMF Incorporated, a corporation of New Jersey

Filed Feb. 7, 1969, Ser. No. 797,428

Int. Cl. B01d 35/22

U.S. Cl. 210—333

12 Claims



A Filtering System which is capable of handling large quantities of coolants and the System includes a reservoir for filtrates as, for example, from metal-working machines. The filtrate is returned to such machines by a pump which draws some of it from the reservoir, passes it through an eductor and then returns it to the reservoir. In operation, suction is applied to the outlet side of the filters to cause flow through them. In addition, valve means are provided so that the pump discharge can be used to clean the filters.

3,559,810

FABRIC INCLUDING A FILLER OF GREATER AREA THAN THE FABRIC

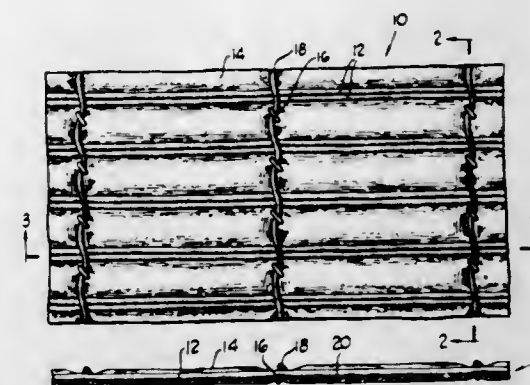
Charles A. Lee, and Warren E. Furbeck, Knoxville, Tenn., assignors to Appleton Wire Works Corporation, Appleton, Wis., a corporation of Wisconsin, by mesne assignments

Filed Apr. 29, 1966, Ser. No. 546,460

Int. Cl. B01d 39/08; D05c 17/00

U.S. Cl. 210—493

9 Claims



A sewn fabric is formed by sewing nonwoven filler to a plurality of rack filament using cross filaments transversely of the rack filaments to sew the filler to the rack filaments. The filler is in the form of a stabilized sheet of filler filaments and in the finished fabric is undulated in at least one direction to give it a substantially greater surface area than the projected area of the fabric itself, thus making the fabric puckered.

3,559,811

MULTIPLE HYDROCYCLONE SYSTEM

Bengt Ingmar Dahlberg, Tumba, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden, a corporation of Sweden

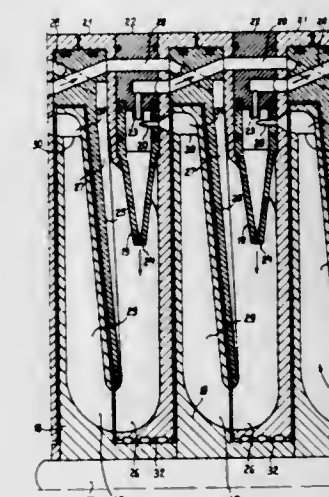
Filed Nov. 14, 1969, Ser. No. 876,803

Claims priority, application Sweden, Nov. 15, 1968, 15514/68

Int. Cl. B04c 5/28

U.S. Cl. 210—512

3 Claims



A centrifugal pump has a housing containing a plurality of pump rotors spaced along a common rotation axis and also containing layers of cyclones in the spaces between adjacent rotors, the cyclones of each layer being disposed radially in a circle or ring concentric to the rotation axis and with their narrow ends directed toward this axis and provided with an outlet, each cyclone having an inlet at its wide end portion. The cyclones of one layer have their inlets connected to the pressure side of a pump rotor and have their outlets connected to the suction side of a pump rotor, whereby the cyclone layers are connected in series so as to effect progressive concentration of a sludge contained in a suspension.

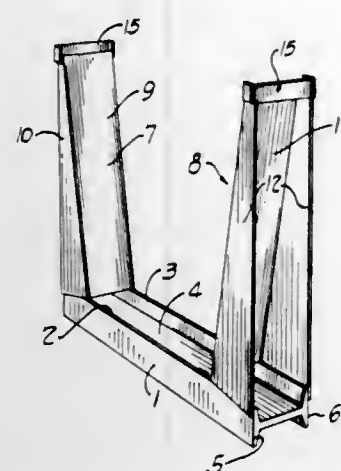
3,559,812

STORAGE RACK CONSTRUCTION

Theodore L. Wolf, Eastlake; Louis Radakovich, Chesterland, and Frank B. Robb, Timberlake, Ohio, assignors to Jos. Dyson & Sons, Inc., Eastlake, Ohio, a corporation of Ohio
 Filed Feb. 12, 1969, Ser. No. 798,725
 Int. Cl. A47f 7/00

U.S. Cl. 211-60

8 Claims



The disclosure hereof comprises a rack unit which is availed of in a plurality thereof and adapted to be stacked one above the other or superimposed so as to provide for a storage of pipe bars or other elongated members when the racks are used in pairs and superimposed in pairs a basic feature being directed toward added strength and simplicity of construction. By formation of the rack units of the disclosure, the same are intended to be superimposed one upon the other and when pairs of superimposed racks are used, the strength and weight distribution is such that vastly greater loads are supportable with an increased safety factor and facility of manufacture not heretofore available.

3,559,813

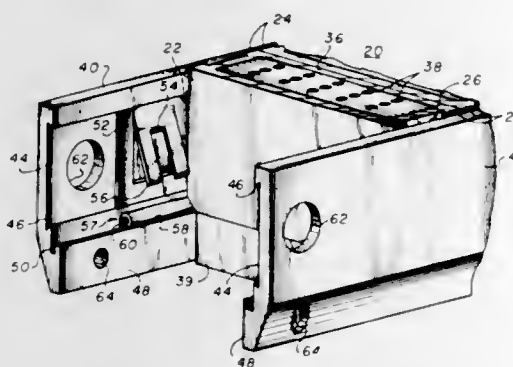
MODULE MOUNTING SYSTEM

Charles William Sosinski, Linden, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J., a corporation of New Jersey

Filed Aug. 2, 1968, Ser. No. 749,883
 Int. Cl. A47f 5/00, 5/08

U.S. Cl. 211-89

19 Claims



A modular mounting system for mounting feed-through modules. A feed-through module is one in which components, or conductors, may be introduced to the module from both its front and back surfaces. The module mounting system comprises first and second side rails held together and supported by means of end blocks to which the first and second side rails are assembled. Provision is made for mounting holes in both the end blocks and side rails to permit fastening devices to be passed therethrough to mount the assembly to a mounting surface. Placed within the side rails are flexure means which engage in locking relationship steps on the module walls thus retaining the module within the mounting system. The flexure members side rails and end blocks may take on a number of different configurations in accordance with the module configuration, and the manner of mounting.

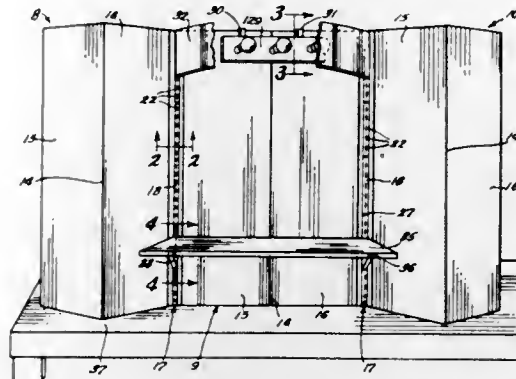
3,559,814

FOLDING TABLE-TOP DISPLAY

John G. Downing, Cincinnati, Ohio (c/o Dawning Displays, 300 Genessee St.)
 Filed Feb. 3, 1969, Ser. No. 796,098
 Int. Cl. A47f 5/10

U.S. Cl. 211-135

2 Claims



A portable display comprising a series of blanks made of laminated sheet material, each blank being divided centrally by a body weakening crease line into two panels foldable on themselves, and adjacent blanks being connected by hinge means which support substantially all of the weight of shelving when the display is in setup condition.

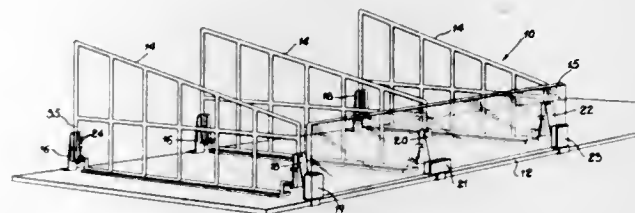
3,559,815

STORE COUNTER PARTITION AND CLIP THEREFOR
 Charles P. Huddleston, Tenafly, N.J., assignor to Selfsel Equipment Corporation, Hackensack, N.J., a corporation of New Jersey

Filed July 1, 1969, Ser. No. 838,098
 Int. Cl. A47f 5/00

U.S. Cl. 211-184

9 Claims



A store counter partition for dividing a countertop into a plurality of bins having a pair of tabs extending inwardly in the longitudinal direction on each end of the partition. The tabs are offset from each other vertically and are spaced to preclude lateral movement of the tines of a resilient, removable clip which grips the end of the partition and is provided with a recess at its lower extremity to engage the countertop.

3,559,816

METHOD FOR POSITIONING THE WHEELED CARRIAGE OF A CRANE OR THE LIKE CARGO HANDLING MACHINE

Kiyotaka Hirata, 15, 5, 2-chome Hanazono-cho, Takamatsu, Kagawa, Japan

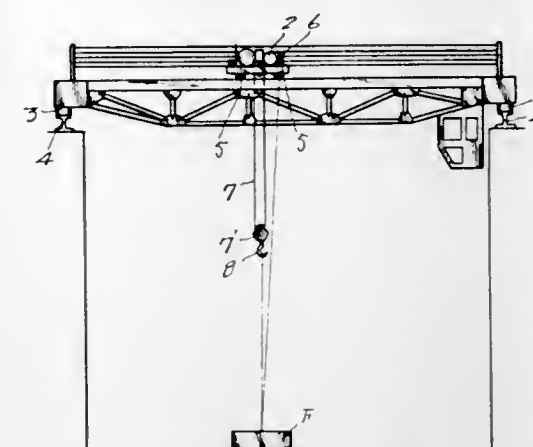
Filed Sept. 26, 1968, Ser. No. 762,732
 Claims priority, application Japan, Sept. 30, 1967, 42/83,327
 Int. Cl. B66c 17/00; F21v 29/00

U.S. Cl. 212-21

4 Claims

A method for positioning the wheeled carriage of a crane or the like cargo-handling machine in which a spotlight device is mounted on said carriage and the carriage is positioned so that the focus of a ray of light from said spotlight device may be positioned right below the carriage. A mechanism for positioning the wheeled carriage of a crane or the like cargo-handling machine comprising a spotlight device mounted on said carriage and supporting an electric

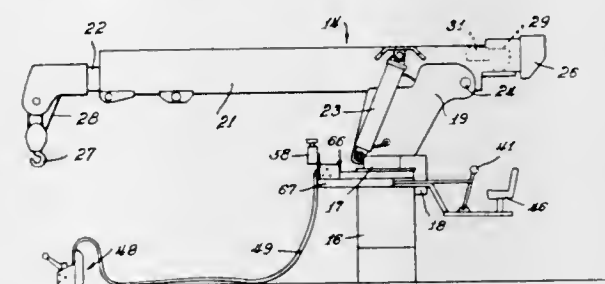
lamp having bases at the ends therein, said spotlight device being provided with cooling air passages which are effective

3,559,817
REMOTE CONTROL SYSTEM FOR HYDRAULIC CRANES

Wilburn Kelly Brown, Morton Grove, Ill., assignor to Circle Tool & Mfg. Co., Des Plaines, Ill., a corporation of Illinois
 Filed Dec. 1, 1967, Ser. No. 687,374
 Int. Cl. B66c 23/54

U.S. Cl. 212-35

4 Claims



A hydraulic crane, especially when used for loading ships or for other uses where a fixed crane operator could not see the load being picked up or deposited, is controlled with finesse by an operator connected to the control center by a light hydraulic cable. The operator carries a chest unit with the necessary levers, each operating a piston in a master cylinder. The master cylinder is connected through slim lines in the cable to a slave cylinder of identical nature except that its piston-coupled lever is not a handle but operates a main hydraulic control valve at the crane control center. Thus the operator's hand movement, however gradual, is exactly reflected by movement of the spool of the control valve. The ports on opposite sides of the piston of the master cylinder are connected to the two ports on the opposite sides of the slave cylinder to form, in effect, a closed circuit. A reservoir for each such circuit has a screwed-in piston to maintain a static pressure substantially eliminating hydraulic backlash. It may be used in initially filling the lines to exclusion of all air.

3,559,818

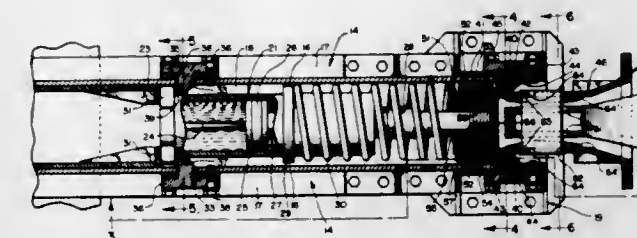
HYDRAULIC DRAFT GEAR

William H. Knippel, Palo Park, Ill., and Marvin Stark, Michigan City, Ind., assignors to Pullman, Incorporated, Chicago, Ill., a corporation of Delaware
 Filed Feb. 14, 1969, Ser. No. 799,176
 Int. Cl. B61g 9/02, 9/12

U.S. Cl. 213-8

10 Claims

A hydraulic cushioning device and draft gear is disposed in cushion pockets at opposite ends of a center sill. The cushioning device comprises a hydraulic cylinder with a piston assembly slidable lengthwise therein. The cylinder is anchored within the center sill by removable stops which extend through the center sill. The piston assembly includes a



which contain springs adapted to return the piston assembly to a neutral position during draft impacts. The yoke housing includes a coupler shank which is movable within the yoke housing to transmit buff impacts directly to the connecting element of the piston rod.

3,559,819

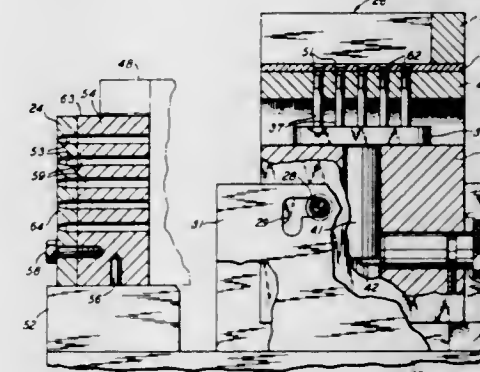
METHOD AND APPARATUS FOR ORIENTING ARTICLES WITH TAPERED ENDS

Donald M. Large, Temple, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed May 7, 1969, Ser. No. 822,489
 Int. Cl. B65g 69/00

U.S. Cl. 214-1

14 Claims



Small studs having tapered first end portions and opposed flat end surfaces are vertically oriented with the tapered portions up. This is accomplished by shaker loading the pins into bores formed in a plate bottomed with movable pins having grooved end surfaces. The studs are then elevated by the pins to free them of the bores and eliminate the lateral support provided by the bores. The tapered portions of the studs are unstably supported on the pins and the flat surfaces of the studs are stably supported on the pins so that when the pins are moved to lift the studs free of the bores the studs with the flat surfaces down are retained on the pins and those with the tapered portions down fall from the pins.

3,559,820

SYSTEM FOR AUTOMATING BLAST FURNACE SCALE CAR

William A. Munson, Williamsville, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

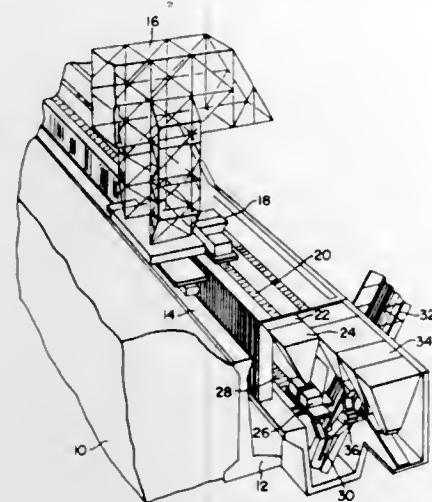
Filed May 7, 1969, Ser. No. 822,491
 Int. Cl. B65g 3/20, 67/06

U.S. Cl. 214-41

13 Claims

Described is a system for automating scale cars of the type used to receive materials from storage hoppers, weigh those materials, and charge them into blast furnace skip cars. The system is characterized in having means for comparing electrical signals indicative of the actual position of the scale car, and the actual weight of materials charged into the scale car, with signals proportional to the desired car position and desired weight of materials to be charged. In this manner, the

comparing means is effective to automatically stop the scale car at the correct bin position, open the discharge chute of the bin above the scale car until the desired weight is reached, and then move the scale car to a position beneath



another bin or to a discharge position, all of this being determined by indicia on a punch card, computer program or the like which produces the aforesaid signals proportional to desired car position and weight.

3,559,821

DRILL PIPE HANDLING APPARATUS

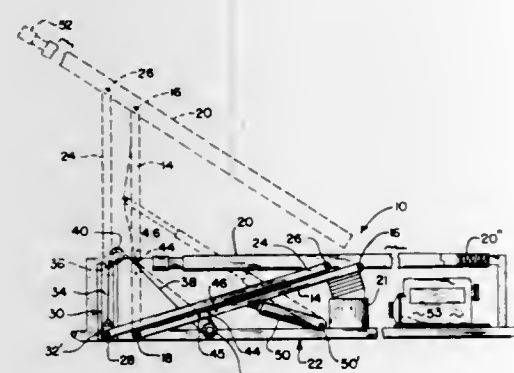
Ralph Edward James, Odessa, Tex. (604 N. 10th St., Broken Arrow, Okla. 74012)

Filed June 19, 1969, Ser. No. 834,769

Int. Cl. E21b 19/14

U.S. Cl. 214—1p

9 Claims



Apparatus for handling tubular goods, including drill pipe, which are transferred between pipe racks located near ground level to an inclined position overlying the substructure of a drilling rig where the pipe is picked up and lowered into a borehole, or alternatively, for handling tubular goods which are removed from the borehole and returned to the pipe racks. The apparatus includes a pipe receiving trough which is elevated from a lower substantially horizontal position to an elevated substantially inclined position by means of spaced-apart powered and slave booms. The pivotal action of the powered boom causes the slave boom to be extended upwardly as it pivots toward the vertical position.

3,559,822

CONTAINER TRANSLOADING INSTALLATION

Uwe Lichtenford, and Klaus Walkhoff, Essen, Germany, assignors to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Germany

Filed Feb. 20, 1969, Ser. No. 800,967

Claims priority, application Germany, Feb. 22, 1968, 1,556,636

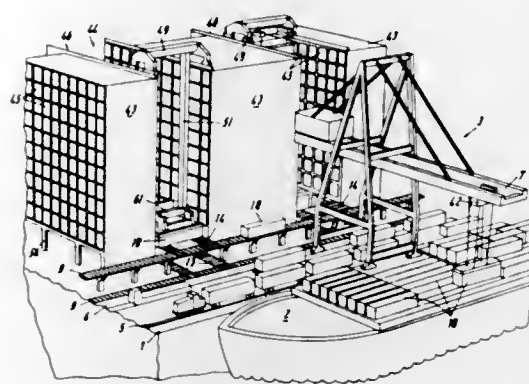
Int. Cl. B65g 63/00

U.S. Cl. 214—14

11 Claims

One system provides container storage space over which a travelling crane moves a spreader on a vertically guided boom. The containers can be quickly raised and lowered by

remote control and a track of the travelling crane extends both over the storage space and over railway tracks and vehicle roads with respect to container transport dock area. Further system provision is made having silo storage compartments extending parallel to transport roller conveyors. An aisle remains between two silos and extending at a right angle relative to the transport roller conveyors. Two superimposed feeding and withdrawing roller conveyors extend into the aisle where a crane installation supported by the silos permits container movement substantially parallel to the transport roller conveyors between the feeding and



withdrawing roller conveyors on the one hand and the compartments on the other hand. A carriage of the crane installation carries a spreader guided by two vertical beams of a frame which by means of an upper traverse with intervening rollers and rails rests upon two silos, and by means of a lower traverse with intervening rollers and rails laterally engages the silos. Traffic lanes extend through the silos below the compartments and automated control of container transloading occurs according to date storage and distribution for container placement according to metacentric and load stabilization requirements.

3,559,823

RAM FEED FOR INCINERATORS

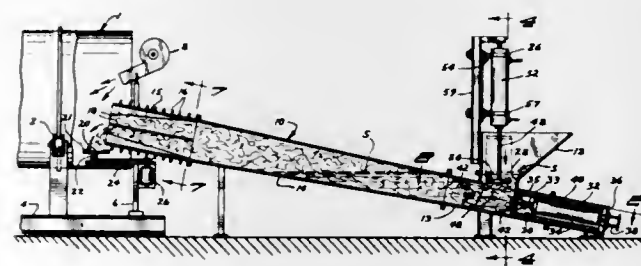
Albert Ostrin, 4516 Highway 7, Minneapolis, Minn. 55416

Filed Mar. 14, 1969, Ser. No. 807,294

Int. Cl. F23k 3/00

U.S. Cl. 214—23

6 Claims



Hydraulic ram apparatus for conveying a mixture of liquid and solid scrap material from a supply hopper through a conduit to an incinerator wherein a shearing head on a feed ram cooperates with a shearing edge on the outlet of the supply hopper to cut up large pieces of solid scrap material as the feed ram reciprocates longitudinally within the supply conduit past the supply hopper outlet. A vertically reciprocal packing piston forces the scrap material out of the supply hopper into the supply conduit in synchronization with the reciprocal movement of the feed ram; and scrap material is tightly compacted by the feed ram within straight, tubular, compacting sections at the inlet and discharge ends of the expanding supply conduit to seal the supply conduit against the rearward movement of combustible gases between the incinerator and supply hopper.

3,559,824

STOCKING HOPPER FOR A TRACTOR

Gabriel Joseph Benac, and Rene Louis Bernard Benac, Berdoues, Gers, France

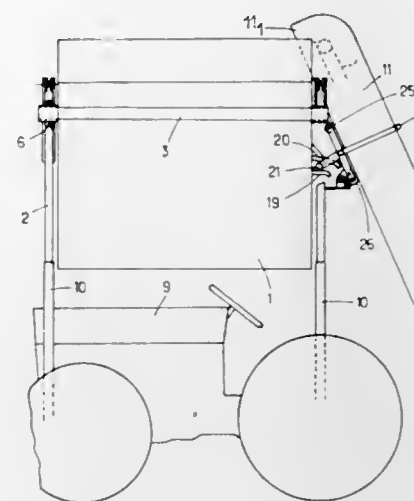
Filed Nov. 29, 1968, Ser. No. 780,048

Claims priority, application France, Mar. 4, 1968, 142,305

Int. Cl. B65g 67/22; B60p 1/04

U.S. Cl. 214—42

1 Claim U.S. Cl. 214—85



The invention relates to a stocking hopper, in particular for a tractor, including a chassis support bearing the hopper, said hopper being allowed to revolve on the chassis along an axis located close to one of the side edges of the hopper and close to the loading door of the hopper, which allows the tilting of the hopper at a sufficiently high level, though the hopper is not at a high level in loading position.

3,559,825

REFUSE BODY LOADING MECHANISM

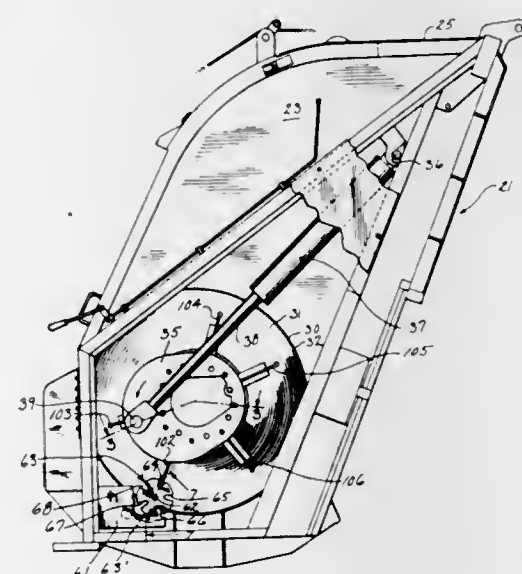
Arnold F. Meyer, Pewaukee; John E. Wieschel, Hartland, and Leslie F. Hansen, Greendale, Wis., assignors to The Heil Co., Milwaukee, Wis., a corporation of Wisconsin

Filed Dec. 31, 1968, Ser. No. 788,196

Int. Cl. B65f 3/00

U.S. Cl. 214—83.3

7 Claims



The loading mechanism includes a packer blade having a serrated lower edge and having pivotal connections at the lower portions of its sides with hydraulic ram driven discs mounted for rotation in opposite sidewalls of the body. The upper end of the packer blade is pivotally suspended from the forward portions of pivoted brackets, the rear portions of said brackets being pivoted to the sidewalls of the body for oscillating movement and being powered by hydraulic rams during certain parts of the cycle. The packer plate has a curved cross-sectional shape to coact with the lower edge of a stationary baffle in preventing spillover of material. There is a star wheel control for the hydraulic rams.

3,559,826

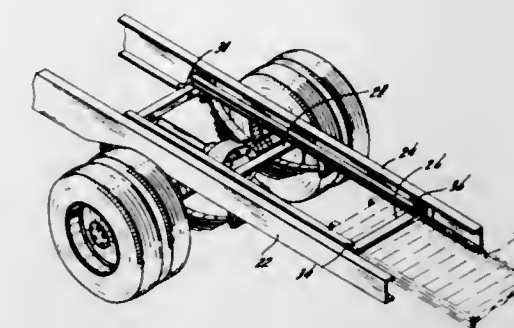
AUTOMOTIVE CHASSIS

John C. Abromavage, Tempe, and Henry S. Shattles, Phoenix, Ariz., assignors to Arcoa, Incorporated, Phoenix, Ariz., a corporation of Oregon

Filed June 27, 1969, Ser. No. 837,246

Int. Cl. B65g 69/28

8 Claims



An automotive chassis of the type including a pair of longitudinally extending channels and a plurality of transverse cross members intersecting said channels, the transverse members being of a reduced cross section so as to define a longitudinally extending storage space intermediate the tops of the transverse cross members and the tops of the pair of channels, particularly such a construction used to support a longitudinally extending ramp slidable from the rear end of the chassis to facilitate loading of the truck.

3,559,827

AUTOMOTIVE TOWING UNIT

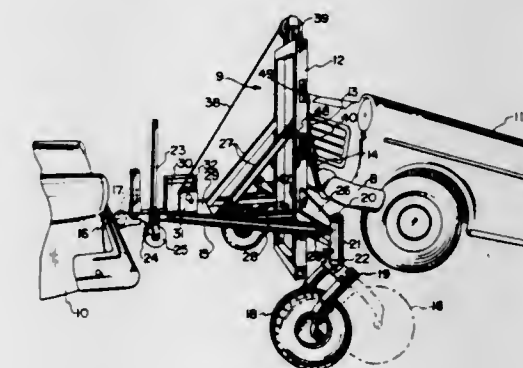
Francis E. Schier, 715 S. First St., Oregon, Ill. 61061

Filed June 4, 1969, Ser. No. 830,243

Int. Cl. B60p 3/12

U.S. Cl. 214—86

14 Claims



This towing unit is a self-contained independent unit having its own battery and reversible electric motor operated hoist controlled by the operator with a two-battery switch block connected with the battery and motor through a long enough flexible cable to enable the operator to stand as close to or far from the work as he prefers or considers best. The tow frame, which is carried on two caster wheels that are spaced farther apart than the front wheels of a car and are detachable lockable in a fixed parallel relationship for steering is connectable to a tow car or truck with a conventional trailer hitch, and when uncoupled has its front end supported on a wheeled trailer jack. The frame has a upright generally rectangular frame or rack on its rear end onto which the end of a car to be towed is hoisted by pulley and cable means connected with a cable windlass driven in either direction by the electric motor through reduction gearing, the hoisted car being attached by chains to the rack at a selected elevation to transfer the weight to the chains and use the latter for towing. The caster wheels are carried in spring forks to cushion the load in transit.

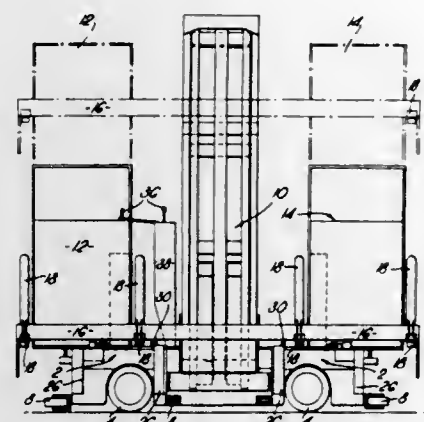
3,559,828

METHOD OF REMOVING STACK FROM A WAREHOUSE WITH A LIFT TRUCK

John Gordon Roper Tyndall, Wycombe; Julius Kingsley Campbell Lawrence, Crowle, and Ronald Stephen Daya, Surrey, England, assignors to Miles Druce & Company Limited, High Wycombe, England, a British company
Original application Feb. 7, 1967, Ser. No. 666,159, now Patent No. 3,495,725, dated Feb. 17, 1970. Divided and this application Sept. 30, 1969, Ser. No. 871,059
Int. Cl. B65g 1/06

U.S. Cl. 214-152

1 Claim



A method of removing desired items of stock from a warehouse utilizing a forklift truck having a mast and having a framework movable up and down the mast, with the forks extending laterally out from the framework, also having an operator's platform carried by the framework on the same side of the mast as the forks, and the forks being movable vertically relative to the operator's platform, and the forks, platforms and the mast of the truck being movable across the width of the truck, and the truck having stock holding means extending out from its side.

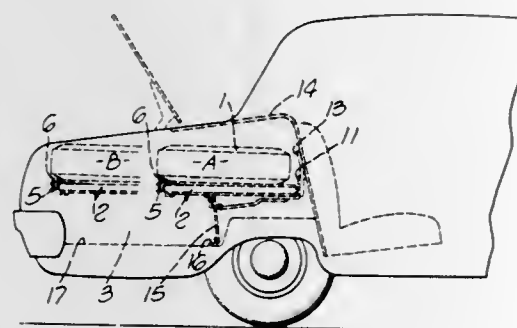
3,559,829

SPARE TIRE HOLDER

John Wallace Shamel, 4642 Fornan, North Hollywood, Calif.
Filed Jan. 10, 1969, Ser. No. 790,396
Int. Cl. B62d 43/04

U.S. Cl. 214-454

3 Claims



A spare tire holder which places the tire above the cargo space in the trunk of a vehicle wherein the tire rests and is affixed to a slidable tray so that when it is necessary to retrieve the spare tire the tray may be released and pulled rearwardly over any cargo in the trunk to a convenient position for removal of the spare tire.

3,559,830

COLLECTION UNITS

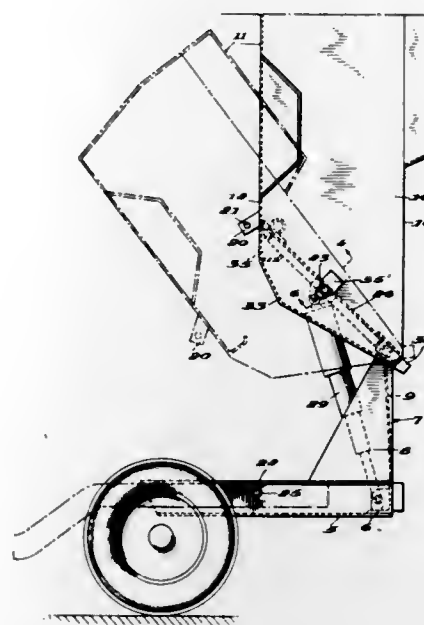
Charles R. Toppins, Knoxville, Tenn., assignor to Dempster Brothers, Inc., Knoxville, Tenn., a corporation of Tennessee
Filed Jan. 3, 1969, Ser. No. 788,852
Int. Cl. B60p 1/28

U.S. Cl. 214-508

10 Claims

A residential collection and compaction unit mounted on a vehicle to be mobile and comprising a receptacle into which

refuse can be dumped as collected from house-to-house or other points of accumulation and to be moved to a collection vehicle, such as a packer body. The receptacle of the collec-



tion unit is provided with means for compacting the refuse therein and utilizes the same power device both for compacting and for dumping the body. The body may be provided, if desired, with a sump for collecting liquids.

3,559,831

GOODS VEHICLES

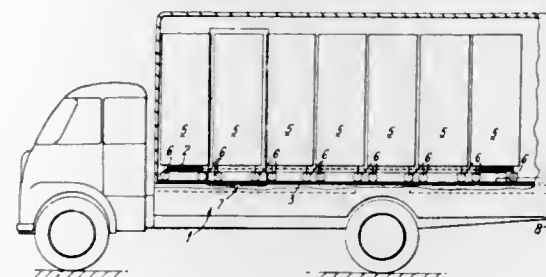
William A. Weston, Lanarkshire, Dunalastair, Crawford, Scotland

Filed Apr. 29, 1968, Ser. No. 725,064

Claims priority, application Great Britain, Apr. 27, 1967, May 26, 1967, Nov. 3, 1967, Mar. 27, 1968, 19,366/67;24,498/67;50,061/67;14,831/68
Int. Cl. B60p 1/44

U.S. Cl. 214-518

17 Claims



A van has on its load carrying platform an endless conveyor extending fore-and-aft, and wheeled containers connected to the conveyor and running on the platform. The conveyor is mounted on the platform so that it can be moved bodily rearwardly during loading and unloading, and can be moved forwardly when it is not being operated, and the containers overhang the conveyor, so that substantially the whole cargo space is utilized.

3,559,832

CONTAINER PROVIDED WITH A SAFETY HERMETIC SEAL CAP

Vincenzo Balducci, Via Foggia 18, Andria, Bari, Italy
Filed Jan. 17, 1969, Ser. No. 792,018

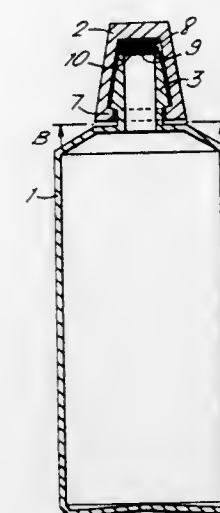
Claims priority, application Italy, Jan. 18, 1968, 34,260/68
Int. Cl. A61j 1/00; B65d 55/02

U.S. Cl. 215-9

2 Claims

A safety closure for a container, which also provides a hermetic seal, is formed by a cap which fits downwardly over the neck portion of the container. The neck has a horizontally arranged annular groove formed at its lower end and at least one vertical groove extends downwardly on the outer surface

of the neck to the horizontal groove. The cap member is provided with a spring and sealing means on its inner surface and it also contains a tooth or projection which fits into the vertical groove of the neck as the cap is placed on the container and passes downwardly to the horizontal groove where



it is rotated into a spaced position from the vertical groove and fits within a notch for locking the cap onto the neck of the container. In the locked position the spring and sealing means within the cap are biased against the opening in the upper end of the neck for providing the hermetic seal.

3,559,833

CONTAINER FINISH CAPABLE OF ACCOMMODATING A VARIETY OF DIFFERENT CLOSURES

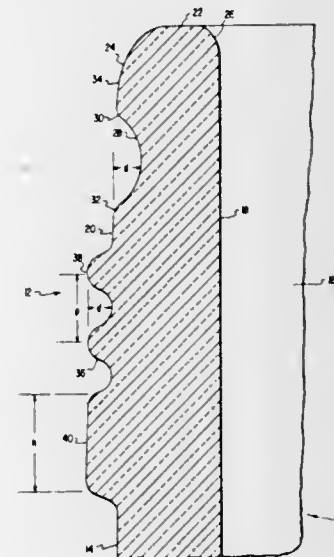
Arthur H. Alonso, Island Park, N.Y., assignor to PepsiCo, Inc., New York, N.Y., a corporation of Delaware

Filed Nov. 29, 1968, Ser. No. 779,689

Int. Cl. B65d 1/02

U.S. Cl. 215-31

7 Claims



A novel finish for a container, advantageously a bottle, which is capable of accommodating a crown closure or of accommodating a roll-on closure or of accommodating a threaded resealer cap.

3,559,834

CLOSURE FOR AGING STILL WINE IN BOTTLE

Walter S. Taylor, Bully Hill R.D. 2, Hammondsport, N.Y.
Continuation-in-part of application Ser. No. 709,990, Mar. 4, 1968, now abandoned. This application June 18, 1969, Ser. No. 834,480

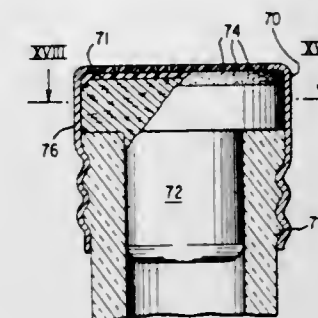
Int. Cl. C12g 1/00; C12h 1/00; B65d 39/00

U.S. Cl. 215-48

14 Claims

A closure for a bottle containing still wine, comprising a plastic cap having a central opening which exposes the upper

portion of a cork rigidly secured to the cap; the cork permitting the still wine in the bottle to breathe sufficiently for aging of the particular wine. The configuration of the opening functions as a guide for a corkscrew. The cap has an inner ring which is resiliently expansible for snugly receiving the cork which is also secured to the cap by adhesive means, an outer ring in the cap secured concentrically to the inner ring for bearing against the lip of the wine bottle. The inner ring may be provided with dimples or flanges to augment the securing relationship of the cap to the cork. The central opening may be large enough to receive and guide the cork-



screw as a whole, or one or several smaller openings may be provided to receive and guide the spiral-shaped shaft of the corkscrew.

A cap threaded on the neck of the bottle, the cap having a cork secured to its underside and being provided on its top with an opening or plurality of openings so that the cork can breathe, the cork being in a state of compression and of a thickness adapted for aging the particular wine in the bottle. An optional plastic insert between the cap and cork retards the diffusion of atmospheric gases into and out of the wine bottle.

3,559,835

INSULATED STORAGE TANK WITH INSULATION RESTRAINED AGAINST SETTLING BECAUSE OF METAL CONTRACTION

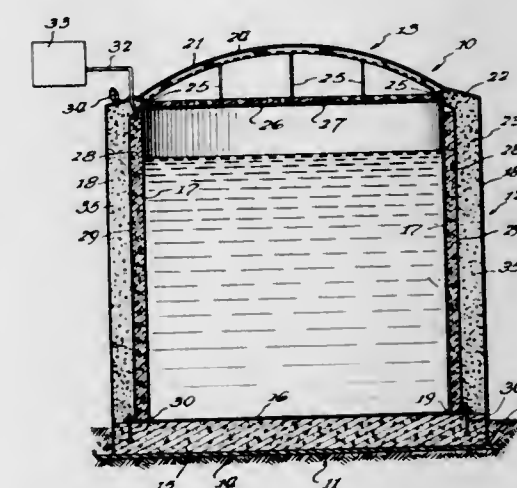
Kenneth Wilson Lange, Hinsdale, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill., a corporation of Illinois

Filed July 17, 1968, Ser. No. 745,501

Int. Cl. B65d 7/22

U.S. Cl. 220-10

11 Claims



Disclosed is an improved insulated tank having a part thereof which is double walled. The double-walled portion, which may be cylindrical, spherical or some other shape, contains free-flowing insulating material and a resilient insulating blanket which has been compressed by active pressure substantially above the lateral passive pressure caused by the free-flowing, usually granular, insulation. When the inner wall of the tank contracts during low-temperature use, such as in the storage of a cryogenic liquid, the blanket expands sufficiently far and with enough pressure to occupy the increased insulating space without settling of the free-flowing insulation.

3,559,836

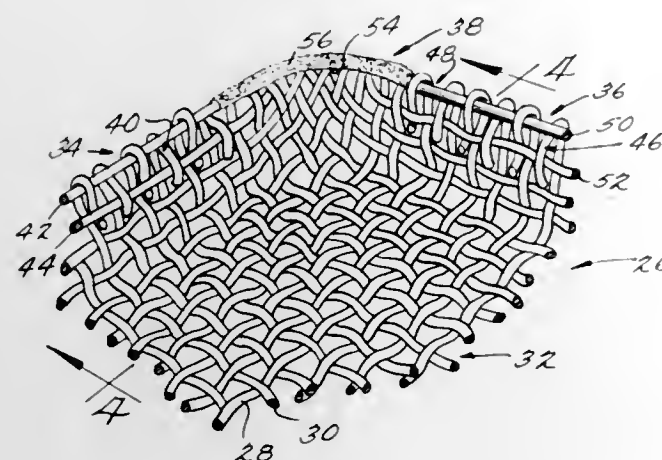
WIRE CLOTH TRAY

Harold E. Pink, and Ronald G. Daringer, Cambridge, Md., assignors to Cambridge Wire Cloth Company, Cambridge, Md., a corporation of Maryland
Continuation of application Ser. No. 705,163, Feb. 13, 1968, now abandoned. This application Sept. 17, 1969, Ser. No. 863,670

Int. Cl. B65d 7/20; F27b 21/04

U.S. Cl. 220-19

24 Claims



A wire cloth tray in which the interwoven longitudinal and transverse wires are gathered at each corner to form a rounded corner, the sidewalls and endwalls being bent over at their upper extents to define their top edges and each rounded corner being severed across its upper extent and the severed edges being welded throughout its length to connect all of the severed wires of each corner. The invention also relates to a reinforcing bar which extends parallel and adjacent to the sidewalls, extends through each corner, and has a short portion at each end lying parallel to the endwalls.

3,559,837

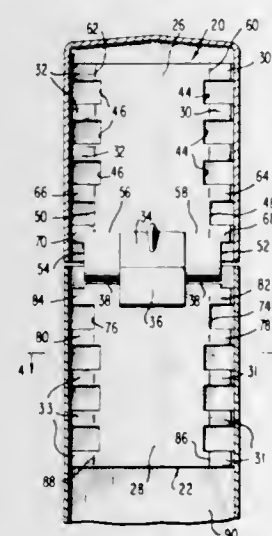
HINGE STRUCTURE FOR CIGARETTE LIGHTERS

Frederick J. Ransom, Atlanta, and James R. Daniel, Stockbridge, Ga., assignors to Scripto, Inc., Atlanta, Ga.
Filed Jan. 22, 1969, Ser. No. 793,001

Int. Cl. B65d 43/16; E05d 5/02

U.S. Cl. 220-32

2 Claims



The hinge leaves of the hinge structure joining the cover and body of a decorative case for cigarette lighters are provided with tongues or barbs which bite into the sidewalls of the case and anchor the hinge in place. In this way, fastening techniques which mar or otherwise detract from the appearance of the case are avoided.

3,559,838

MANWAY REMOVAL APPARATUS

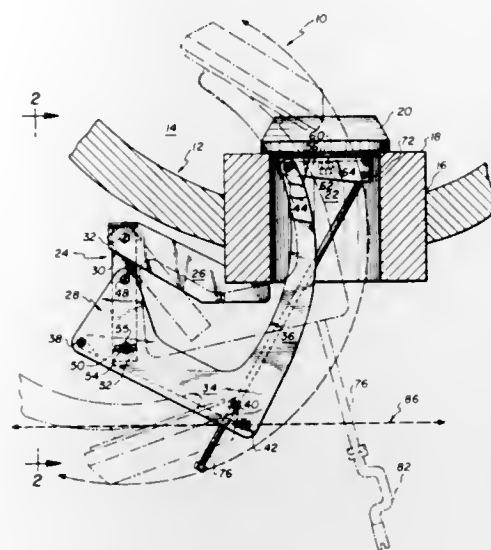
William James Bow, Morristown, N.J., assignor to Foster Wheeler Corporation, Livingston, N.J., a corporation of New York

Filed Aug. 15, 1968, Ser. No. 752,942

Int. Cl. B65d 43/18

U.S. Cl. 220-34

6 Claims



A manway closure removal apparatus for use with an enclosed housing having an elliptical manway opening which is smaller in area than an elliptical manway closure which is mounted in the housing. The apparatus includes a linkage which is operatively connected to the manway closure for movement of the manway closure into a position within the cylinder which is spaced apart from the manway opening, and after rotating the closure substantially 90 degrees, it is possible to pivot the manway closure through the manway opening into an exterior position with respect to the housing.

3,559,839

PRESSURE COOKER WITH HEAT ACTIVATED SAFETY LOCK

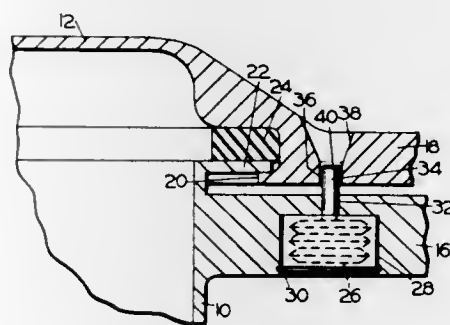
Raymond Joseph Seethaler, 2044 N. Willis Blvd., Portland, Oreg. 97217

Filed Jan. 24, 1969, Ser. No. 793,858

Int. Cl. B65d 41/06

U.S. Cl. 220-40

7 Claims



A safety lock wherein the handles of a pressure cooker of the type having a turn off lid are locked together as long as the temperature of the pressure cooker is above a selected minimum to prevent premature opening of the cooker. One of the handles has a heat expandable element provided with a lock pin capable of engaging a latch opening in the other handle under raised temperatures for locking the handles against rotation. The lock pin has a colored end portion by means of which the position of the lock pin is easily visible.

3,559,840

VENTING CLOSURE FOR LIQUID CONTAINERS

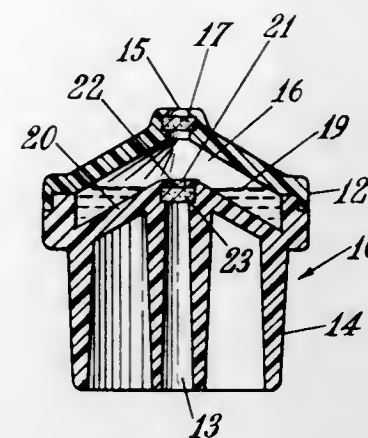
Richard M. Wilson, Fairview Park; Helmut K. Amthor, Rocky River, and Godfrey H. Klun, Parma, Ohio, assignors to Union Carbide Corporation, New York, N.Y., a corporation of New York

Filed Dec. 27, 1968, Ser. No. 787,362

Int. Cl. B65d 51/16

U.S. Cl. 220-44

7 Claims



A venting closure for a liquid container, e.g. a battery vent plug, which is sensitive to tilting of the container such that the vent closes off whenever the container tilts and opens when the same resumes its original position. The closure consists of a chamber containing a partial filling of mercury. The chamber has an upwardly sloping bottom surface having a small opening in the upper portion thereof communicating with a vent passage. The top of the chamber also has a vent opening for permitting gases to escape from the chamber. Each opening is small enough to prevent the liquid mercury from flowing through it but large enough to vent gases therethrough. In operation, when the container tilts, the mercury flows over and closes off the openings thereby preventing fluid from leaking from the container. When the container resumes its original position the mercury flows away from the openings thereby permitting the vents to again open.

3,559,841

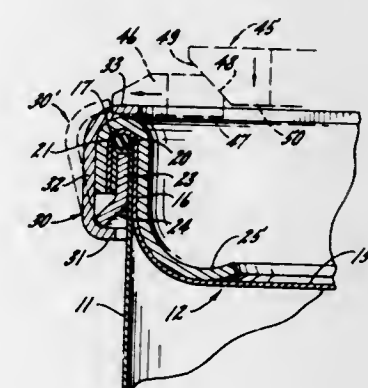
RECONDITIONABLE CONTAINER

Frederick E. Ullman, Winnetka, Ill., assignor to Inland Steel Company, Chicago, Ill., a corporation of Delaware
Original application June 28, 1966, Ser. No. 649,714, now Patent No. 3,505,722. Divided and this application July 24, 1969, Ser. No. 871,061

Int. Cl. B65d 53/00; A47j 27/08, 36/10

U.S. Cl. 220-46

17 Claims



An improved multitrip metallic shipping container which permits of repetitive use of the metallic container components while at the same time permitting unimpeded access into the interior of the container and into the normally inaccessible chime portions thereof for cleaning, dedenting and related container reconditioning purposes.

3,559,842

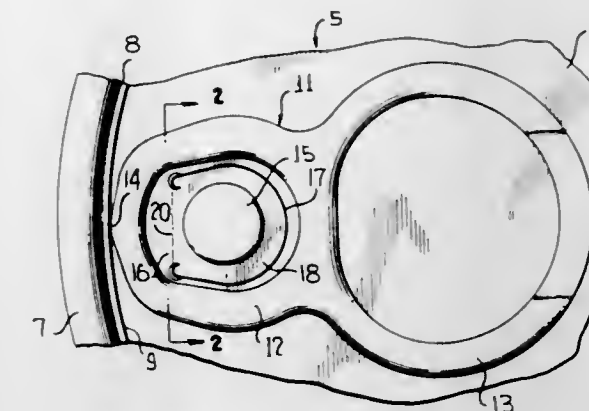
PULL TAB WITH HINGED CONNECTING PORTION
Charles E. Rich, Palos Heights, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed Jan. 10, 1969, Ser. No. 790,266

Int. Cl. B65d 17/24

U.S. Cl. 220-54

9 Claims



This disclosure relates to a pull tab of the type having a forward body portion and a rear gripping portion wherein the body portion has an integral connecting part formed therein by a generally C-shaped lance. The invention particularly relates in the reforming of the body portion immediately adjacent opposite ends of the C-shaped lance so as to both reinforce the body portion against tearing and to define a positive hinge line.

3,559,843

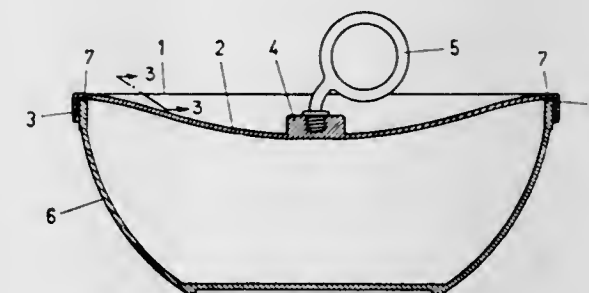
CLOSURE FOR CONTAINERS

Egon Kern, Graz, Austria, assignor to Dart Industries, Inc., Los Angeles, Calif., a corporation of Delaware
Filed July 26, 1968, Ser. No. 747,998

Int. Cl. B65d 43/10

U.S. Cl. 220-60

6 Claims



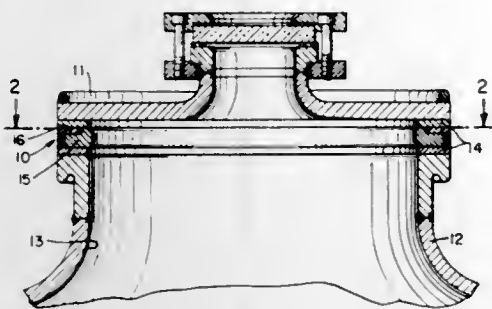
A container and a closure therefore adapted to form a moisture-tight seal and wherein the closure has a skirt that expands or contracts from the normal position to contact the sidewalls of the container as the top of the closure is flexed from one to another of two stable convex configurations.

3,559,844

MANHOLE PROTECTION RING

Seymour Schlosberg, East Brunswick, N.J., assignor to R. Gelb & Sons, Inc., a corporation of New Jersey
 Filed June 13, 1969, Ser. No. 832,915
 Int. Cl. B65d 25/14, 25/34, 7/42
 U.S. Cl. 220-63

8 Claims



A protection ring for a manhole of a glass-lined vessel includes an annular body member and a replaceable impact member releasably secured in a lateral surface recess of the body member.

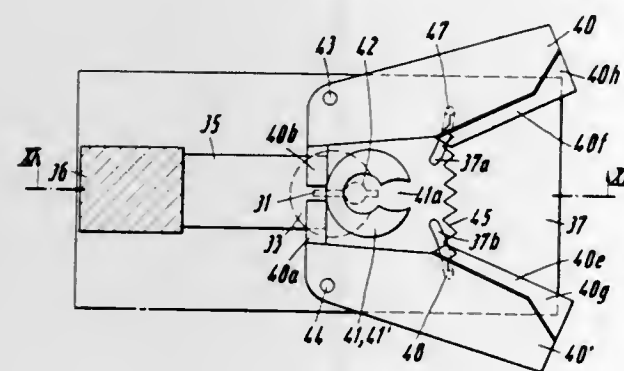
3,559,845

DISPENSING DEVICE FOR SLOTTED, APERTURED WASHERS

Richard Klein, Berkheim, and Hugo Weber, Muenchingen, Germany, assignors to Hugo Benzing KG, Muenchingen, Germany, a company of Germany
 Filed Dec. 12, 1968, Ser. No. 783,251
 Claims priority, application Germany, Dec. 20, 1968, P 16 03 737.9
 Int. Cl. B65g 59/00

U.S. Cl. 221-274

12 Claims



A device for dispensing individual slotted washers has a storage rail adapted to hold an upright stack of washers. A free end of the rail is spacedly adjacent the top face of a stationary base. Individual washers are withdrawn from the gap between the storage rail and the top face by gripping tongs which are guided toward the last washer of the stack through a channel upwardly offset from the top face of the base to permit the jaws of the tongs to slip over the top of a washer lying on the top face for engagement with the aperture in the last washers. Means are provided for shifting the last washer and the remainder of the stack transversely to each other in response to the movement of the tongs through the channel so as to expose the aperture in the last washer for engagement with the tongs.

3,559,846

FEEDING APPARATUS FOR PULVERULENT OR GRANULAR MATERIAL

Niels Erik Hastrup, Copenhagen-Valby, Denmark, assignor to F. L. Smidth & Co., New York, N.Y., a corporation of Delaware

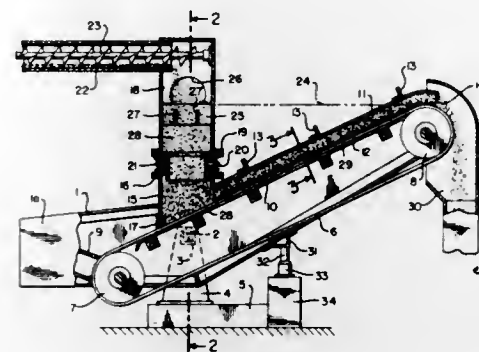
Filed Mar. 26, 1969, Ser. No. 810,546

Claims priority, application Great Britain, Apr. 8, 1968, 16,859

Int. Cl. B67d 5/08

U.S. Cl. 222-55

6 Claims



Apparatus for feeding pulverulent or granular material, especially such material which is of a fluidized nature, wherein the material is discharged from the feeding apparatus at approximately a constant rate, as is important in the feeding of cement raw material or raw meal to a rotary kiln in the manufacture of cement.

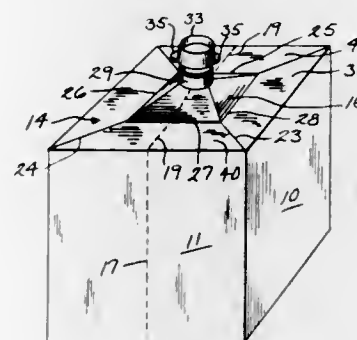
3,559,847

COLLAPSIBLE SANITARY CONTAINER WITH RETRACTABLE SPOUT

Eugene E. Goodrich, 819 S. Western Ave., Park Ridge, Ill.
 Filed Mar. 20, 1968, Ser. No. 714,607
 Int. Cl. B65d 37/00

U.S. Cl. 222-107

3 Claims



A liquid container of flexible plastic material having a top with a central tentlike section having an apex from which a spout projects, said tentlike section being movable from an outwardly projecting condition to an inverted depressed condition to retract the spout, opposite sides of the container having oppositely disposed, upright fold lines connected by fold lines across the top and bottom, and the top and bottom also having intersecting fold lines to provide for collapse when empty, with the collapsed top and bottom having aligned peaks projecting toward one another, the outer portion of the spout being protected by a removable cap.

3,559,848

METERED QUANTITY DISPENSER GUNS AND MIXER COMBINATION

Ronald E. Standlick, 4506 Sudbury, Warren, Mich. 48093
 Filed Feb. 19, 1969, Ser. No. 800,433

Int. Cl. B67d 5/52

U.S. Cl. 222-135

8 Claims

An air operated material dispensing gun for emitting metered quantities wherein a piston is advanced and retracted in

3,559,850

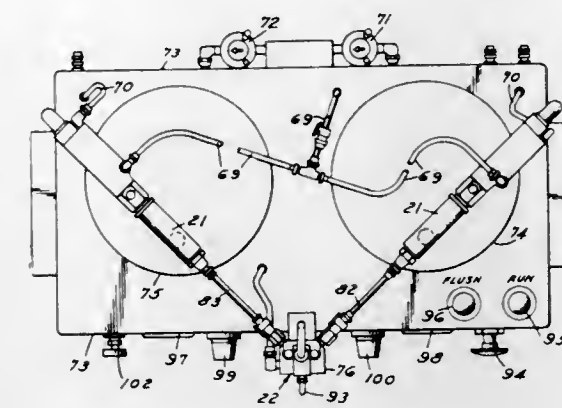
METHOD OF AND DEVICE FOR HEATING PRODUCT DISPENSED FROM AEROSOL CONTAINER

Stanley M. Barkin, Somerville, and Alan Dillarstone, Highland Park, N.J., assignors to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware
 Continuation of application Ser. No. 686,420, Nov. 29, 1967, now abandoned. This application May 7, 1969, Ser. No. 822,747

Int. Cl. B67d 5/62

U.S. Cl. 222-146

4 Claims



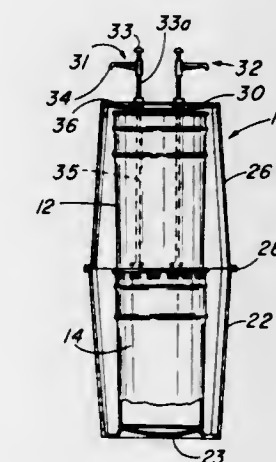
mospheric vent defining a neutral zone between the housings preventing air leaking to the material chamber and material from leaking to the air chamber. Two or more guns feed metered quantities of different materials to a driven mixer which blends the materials into a homogenized mixture and emits a metered amount of the mixture to use. The guns have an adjustable stop for limiting piston travel to adjust the metered quantity emitted by each gun and the cumulative quantity emitted by the mixer.

3,559,849

HAND-CLEANING-COMPOUND DISPENSING STATION
 Selwyn Ancel, River Forest, Ill., assignor to Chemtrust Industries Corporation, Maywood, Ill., a corporation of Delaware
 Filed Oct. 31, 1968, Ser. No. 772,144
 Int. Cl. B65d 47/34

U.S. Cl. 222-143

10 Claims



A hand-cleaning compound dispensing station including a plurality of containers of liquid hand-cleaning compound arranged on a floor surface stacked one on top of the other with the uppermost container being uncovered. An outer housing is placed about the stack of containers which housing has a top wall which overlies the uppermost container. One or more dispensing pumps are mounted on the top wall to dispense hand-cleaning compound from the uppermost container. A recess is formed on the top wall to provide a trough to receive drippings of liquid hand-cleaning compound from the pumps. The outer housing is preferably formed of two similarly sized lower and upper halved sections each of which have tapered walls so that the housing portions may be placed one into the other.

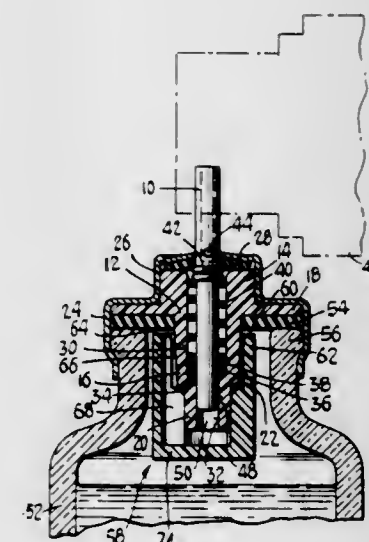
3,559,851

FULLY-EMPTYING VALVE ASSEMBLAGE
 Wolf Steiman, Fairfield, Conn., assignor to Valve Corporation of America, Bridgeport, Conn., a corporation of Delaware
 Filed May 27, 1969, Ser. No. 828,122

Int. Cl. B65d 83/14

U.S. Cl. 222-402.2

5 Claims



An aerosol valve assembly comprising a tubular valve housing for disposition within a container, said housing having an end inlet opening and carrying a collector cup the rim and adjoining portions of which are slightly spaced from the

valve housing and sealing gasket thereon. The said spacing constitutes a collecting area into which the last amount of liquid product can collect, to be dispensed through the valve housing when the container is in inverted position.

3,559,852

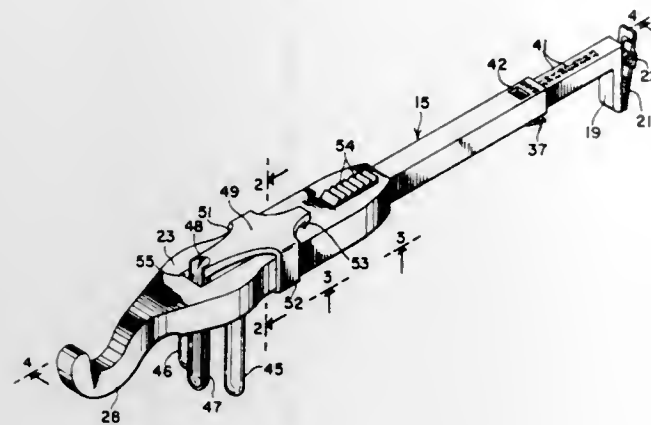
TROUSER MEASURER AND HANGER

Edward C. Green, 36 W. 35th St., New York, N.Y. 10001
Filed June 19, 1969, Ser. No. 834,845

Int. Cl. A47j 51/14

U.S. Cl. 223-96

10 Claims



A trouser measurer and hanger that will display the waist size of the trouser secured thereto. Telescoping parts of the hanger are spring biased relative to each other so that the front portion of the trousers can be folded inwardly over two depending fingers carried by the main body and the trousers clamped by their waist portion to the hanger. The hangers are provided with projections to support the trousers on wall or rod supports at different elevations depending upon the length of the trousers. A trouser cuff table adjustable to different elevations receives the trouser cuff so that the length of the trouser will be measured from their different elevations of their wall supports.

3,559,853

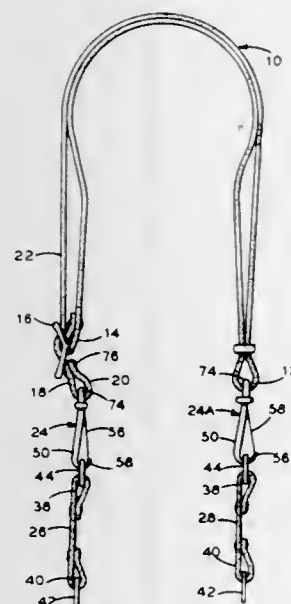
CAMERA STRAP WITH FREE-FLOATING LOOPS AT BOTH ENDS

Robert H. Strassman, 147 11 34th Ave., Flushing, N.Y. 11354
Filed Apr. 14, 1969, Ser. No. 815,813

Int. Cl. A45f 5/00

U.S. Cl. 224-5

4 Claims



A camera shoulder strap provided at each end with a loop having attached thereto a snap clip provided with a fully rotatable head, to permit free and easy complete rotary self-positioning of the clip as attached respectively to two

separate side brackets of a camera, to permit an immediate fast positioning of a camera from supported position on the shoulder, to operating position in front of the body, without restraint due to usual twisting of the shoulder strap.

3,559,854

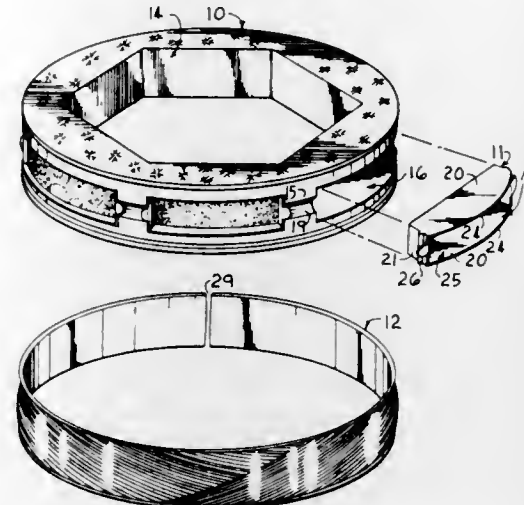
MAKEUP BRACELET

Olga H. Loveland, 5 Glen Erroll Road N.W., Atlanta, Ga.
Filed Oct. 3, 1968, Ser. No. 764,864

Int. Cl. A44c 5/00; A45d 33/18

U.S. Cl. 224-28

5 Claims



A makeup bracelet in which cosmetics are carried for use by the wearer. The bracelet comprises generally an annulus having a central passage therethrough through which the wearer inserts her arm, a groove extending around the periphery of the annulus and a plurality of radially spaced recesses formed in the annulus. A plurality of cosmetic cartridges are received in the recesses around the periphery of the annulus and are provided with projections for locking the cartridges in place in the recesses. Lips are provided on the cartridges for removing the cartridges from the recesses. A secondary groove extends between each of the recesses for receipt of the lips of the cartridges therein and a cover ring fits within the peripheral groove around the annulus to cover the cartridges in the recesses.

3,559,855

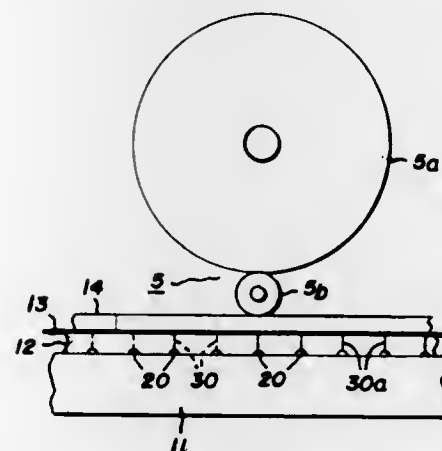
SHIMLESS SCRIBING

Jack R. Barnett, Baldwinsville; Robert W. Brown, Liverpool, and Francis C. Gantley, Fulton, N.Y., assignors to General Electric Company, a corporation of New York
Filed Feb. 19, 1969, Ser. No. 800,535

Int. Cl. B26f 3/00

U.S. Cl. 225-2

7 Claims



This invention relates to a method of subdividing a semiconductor wafer. Marks are scribed on a selected surface of the wafer along predetermined scribe passages thereby producing fracture loci under the marks. The wafer

is then placed on a pad of resilient material. One surface is then covered with a thin sheet of flexible material capable of direct adhesion to the wafer that acts as a temporary pellet carrier. Next a compressive load is induced along the scribe marks by moving a compressive member in engagement with the covered surface of the wafer thereby fracturing the wafer into individual pellets such that they are individually adhered to the flexible sheet in essentially the same position they occupied in the parent wafer prior to the fracturing of the wafer.

3,559,856

APPARATUS FOR DISPENSING HANDLES

Vagn Fehr-Christensen, Copenhagen, Denmark, assignor to Nordisk Plaster Industri A/S., Copenhagen, Denmark, a corporation of Denmark

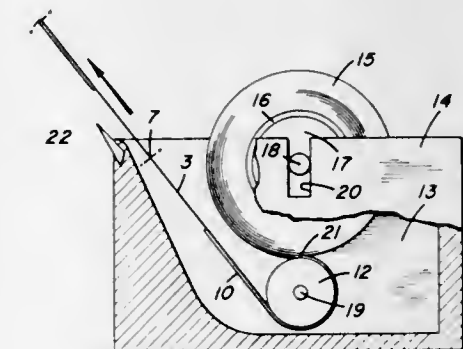
Filed June 13, 1968, Ser. No. 736,678

Claims priority, application Denmark, July 11, 1967, 3561

Int. Cl. B26f 3/02

U.S. Cl. 225-10

1 Claim



An apparatus for dispensing from a reel substantially uniform lengths of a continuous series of articles, such as carrying handles consisting of a flexible self-adhesive strip the central part of which, on the adhesive side, is covered by a flexible material leaving uncovered adhesive ends. The apparatus comprises a frame, a freely rotatable reel carrying the articles and mounted in the frame, a freely rotatable roller mounted in the frame with its axis of rotation parallel to that of the reel and upon which the reel rests and rotates therewith, and a cutting means fixedly mounted in the frame spaced from the roller and parallel thereto. The strip is unwound from the reel, passed round the roller and over the cutting means. As the strip is unwound there will be periods of high resistance, as the adhesive is pulled from the reel, and low resistance, as the covered portion is unwound. The dimensions of the apparatus and strip are such that when high resistance is encountered this indicates that the predetermined length has been unwound.

3,559,857

TEAR STRIP FOR ROLLED SHEET MATERIAL

William J. Van Dyck, Marinette, Wis., assignor to Badger Paper Mills, Inc., Peshtigo, Wis., a corporation of Wisconsin

Filed Oct. 25, 1968, Ser. No. 770,583

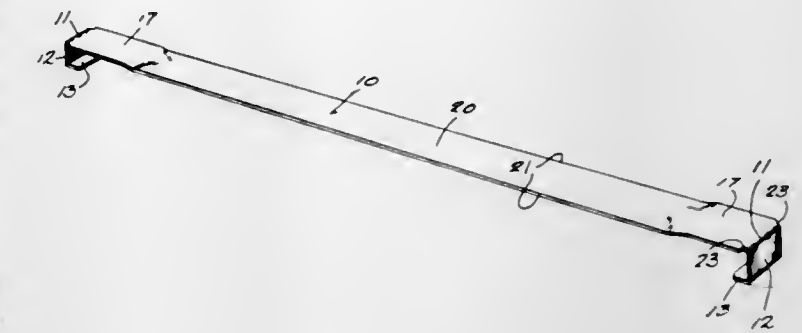
Int. Cl. B26f 3/02

U.S. Cl. 225-56

3 Claims

This disclosure relates to a tear strip for rolled sheet

material in which the cutting strip has its ends bent to fit around the edges of the roll, said strip having a greater curva-



ture than the roll to concentrate finger pressure along the strip edges while cutting.

3,559,858

APPARATUS FOR SEPARATING ADJACENT ADHERENT ROLLS

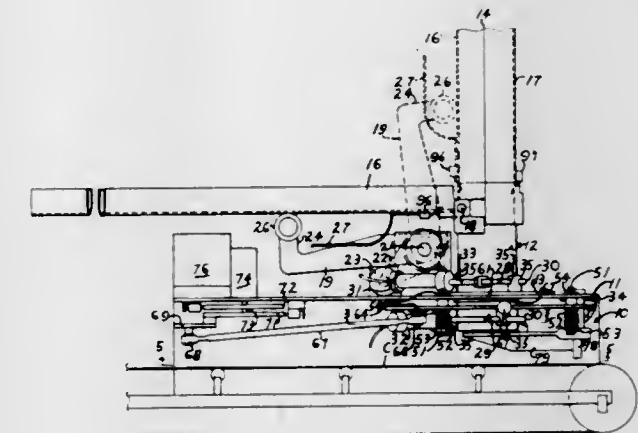
Belmont D. Osteen, Birmingham, Ala., assignor to American Design, Inc., Birmingham, Ala., a corporation of Alabama, a part interest

Filed Feb. 12, 1968, Ser. No. 704,767

Int. Cl. B26f 3/00

U.S. Cl. 225-102

10 Claims



Apparatus for separating adjacent, adherent rolls of paper-like material from each other. Separate clamping units movable selectively to clamped and unclamped position surround each roll. One of the clamping units is movable both angularly and away from the other clamping unit simultaneously while the clamping units are in clamped position.

3,559,859

WEB GUIDE USING FLUID AMPLIFIER

Colin Shaw McArthur, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C., a corporation of New Jersey

Filed Oct. 29, 1968, Ser. No. 771,495

Int. Cl. B65h 25/18, 25/08

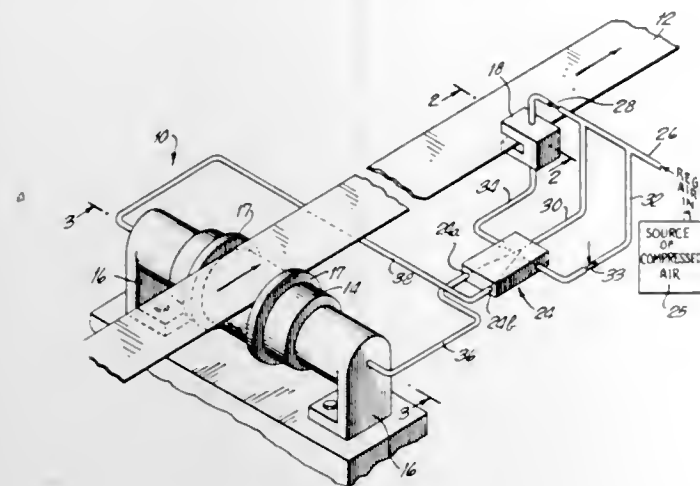
U.S. Cl. 226-19

3 Claims

A web shifting device, for accurately and instantaneously correcting deviations in the lateral position of a longitudinally travelling web from a normal position, including a sensing device having opposed fluid flow apertures, defining one or a plurality of fluid flow paths which are normally partially restricted by the edge of the moving web, a proportional fluid amplifier controlled by the pressures developed

by variations of fluid flow in the apertures caused by the displacement of the edge of the web, and motor means con-

trolled by a bifurcated support in a magnetic tape cartridge for precise orientation of the pressure member. For aligning the tape there is disclosed a spoollike guide member at the



trolled by the amplifier and driving a laterally movable web guide to maintain the web in its normal position.

3,559,860

TEXTILE YARN HANDLING DEVICES

Malcolm John East, and Brian Beddoe, Pontypool, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

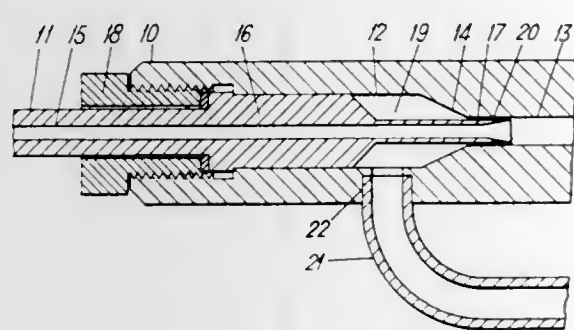
Filed June 24, 1968, Ser. No. 739,552

Claims priority, application Great Britain, Dec. 18, 1967, 57368/67

Int. Cl. B65h 51/16

U.S. Cl. 226-97

7 Claims



A yarn handling device comprising in combination a driving air inlet tube having a first portion surrounding an entrained air and yarn inlet tube and an air and yarn outlet portion arranged to receive both driving and entrained air, said outlet portion having a cross-sectional area of similar dimensions to that of said driving air inlet tube where they abut, and said driving air inlet tube being so arranged that the driving air is accelerated along it, thereby entraining air along the said entrained air and yarn inlet tube, wherein said driving air enters said outlet portion in a direction substantially parallel to the general direction of flow of entrained air.

3,559,861

PRESSURE MEMBER AND GUIDE FOR MAGNETIC TAPE

Austin A. Knox, Stamford, Conn. (Topstone Road, Ridgefield, Conn. 06877)

Filed June 15, 1967, Ser. No. 646,276

Int. Cl. G11b 15/28

U.S. Cl. 226-168

10 Claims

This disclosure comprises a pressure member for urging magnetic recording tape against the capstan in the tape transport. The pressure member is of a height less than the width of the tape and accordingly, the pressure member engages only the back side of the tape. One embodiment of the pressure member does not rotate and to accommodate tape splices has a plurality of base screws over its face for the threading of tape splices. The pressure member can be posi-

tioned by a bifurcated support in a magnetic tape cartridge for precise orientation of the pressure member. For aligning the tape there is disclosed a spoollike guide member at the forward edge of the tape cartridge, the spool being vertically movable as it engages a rigid guide member on the machine to position the spool and the tape with respect to the transducer head.

3,559,862

DRAG WIPE

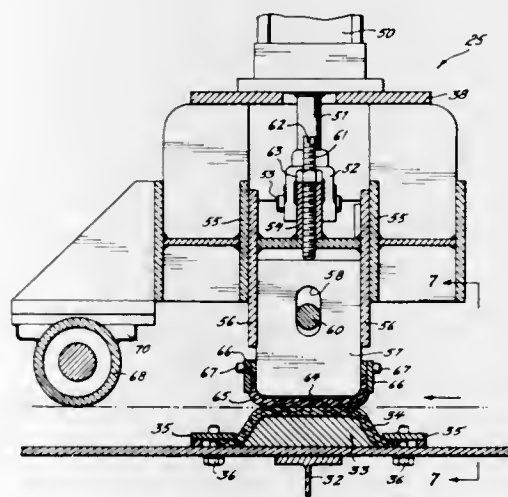
Richard Jablin, Blue Bell, Pa., and Robert G. Leister, Ambler, Pa., assignors to Alan Wood Steel Company, Conshohocken, Pa., a corporation of Pennsylvania

Filed Feb. 20, 1969, Ser. No. 801,004

Int. Cl. B65h 23/08

U.S. Cl. 226-195

5 Claims



A drag wipe which selectively varies the overall pressure applied on all the slit strips or mulds and also the pressure on individual mulds, with provision for receiving a loop from some of the mulds in a looping pit. The drag wipe can open for insertion of the mulds.

3,559,863

APPARATUS FOR THE PRODUCTION ASSEMBLY OF ARTICLES OF FURNITURE OR THE LIKE

Arthur Sack, 240-37 De Pew Ave., Douglaston, N.Y., and Stephen A. D'Alessio, 209-02 43rd. Ave., Bayside, N.Y.

Filed Apr. 3, 1969, Ser. No. 812,985

Int. Cl. B25c 7/00

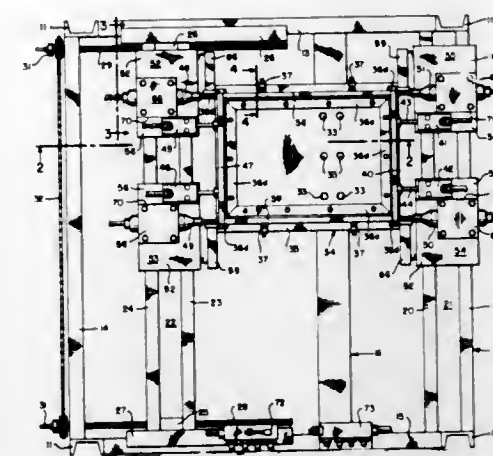
U.S. Cl. 227-152

6 Claims

The invention is directed to a novel production machine for articles of furniture or the like (e.g., boxes, display assemblies, packaging or other assembly of parts), utilizing automatic fastening equipment, such as staple guns. The invention is particularly characterized by the provision of simplified, universally adjustable facilities for the mounting and

manipulating of the staple guns, during an assembly operation, enabling the assembly to be completed rapidly and ex-

the container has vertical end walls and a bottom portion having an interior surface conforming to the general contour of the top surface of the bacon draft.



peditiously. Resetting of the machine for various configurations of assembly articles is greatly facilitated with the equipment of the invention.

3,559,864

WELDING WIRE OR WELDING ROD

Lars Hilding Hillert, Goteborg, Sweden, assignor to Elektriska Svetsningsaktiebolaget, Goteborg, Sweden, a corporation of Sweden

Original application Sept. 7, 1965, Ser. No. 485,594, now Patent No. 3,452,419, dated July 1, 1969. Divided and this application Mar. 25, 1968, Ser. No. 715,924

Int. Cl. B23k 3/06, 35/14

U.S. Cl. 228-56

2 Claims



A welding wire or welding rod comprising a metallic sheath composed of grains or granules of inorganic welding materials embedded in and bonded by a solidified matrix consisting of an inorganic anhydrous compound selected from the group comprising chromium oxides and boric oxide.

3,559,865

BACON CONTAINER

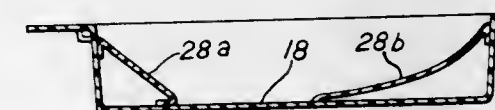
John C. Field, Park Forest, Ill., assignor to Armour and Company, Chicago, Ill., a corporation of Delaware

Filed Sept. 1, 1967, Ser. No. 665,036

Int. Cl. B65d 1/00; B65b 25/06

U.S. Cl. 229-2.5

1 Claim



A container for a draft of sliced, shingled bacon having a curved top surface and a relatively flat underside, wherein

3,559,866

SLOTTED TRIANGLE PACKAGING MATERIAL

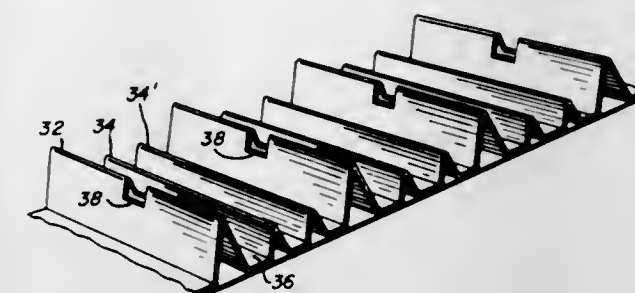
James D. Olson, Sr., 3304 Oakcliff Drive, Doraville, Ga.

Filed Sept. 19, 1968, Ser. No. 760,856

Int. Cl. B65d 85/48

U.S. Cl. 229-14

4 Claims



A carton liner fabricated from a paperboard strip deformed so that triangular projections of two different sizes extend inwardly from the interior wall of a carton. The larger triangular sections include slots formed centrally within each apex edge for accommodating a platelike article having its edges disposed within the aligned slots. The smaller triangular projections provide lateral support for the article retained within the slots.

3,559,867

MULTI-PLY CONTAINER

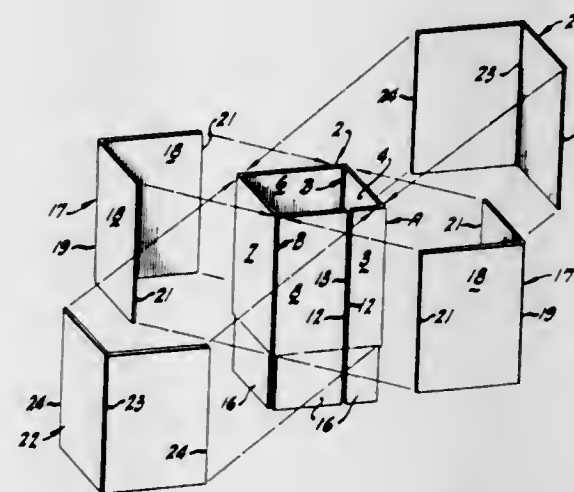
Billy J. Muskopf, Houston, and Arthur T. Edwards, III, Dallas, Tex., assignors to Crown Zellerbach Corporation, San Francisco, Calif., a corporation of Nevada

Filed Mar. 28, 1969, Ser. No. 811,553

Int. Cl. B65d 25/14, 5/56

U.S. Cl. 229-14

15 Claims



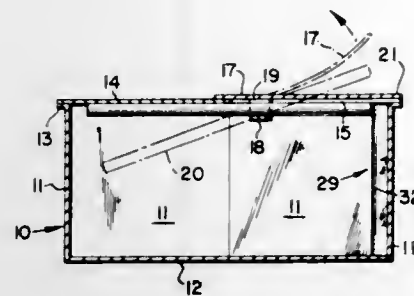
A multi-ply container desirably of paperboard panels laminated together, has a corner construction comprising facing unattached end edges of a ply covered by an integral hinge connection between wall panels of another ply thereby eliminating a so-called manufacturer's joint. The corner construction and plurality of laminated plies provide bulge resistance rendering the container particularly advantageous for the packaging of flowable products such as synthetic rubber blocks.

3,559,868

COMBINATION BEVERAGE CONTAINER AND DRINKING STRAW

Henry M. Chang, Bronx, N.Y., assignor to First Dynamics, Inc., New York, N.Y., a corporation of New York
 Filed June 2, 1969, Ser. No. 829,425
 Int. Cl. B65d 17/00, 17/06, 47/00, 83/00
 U.S. Cl. 229-7

11 Claims



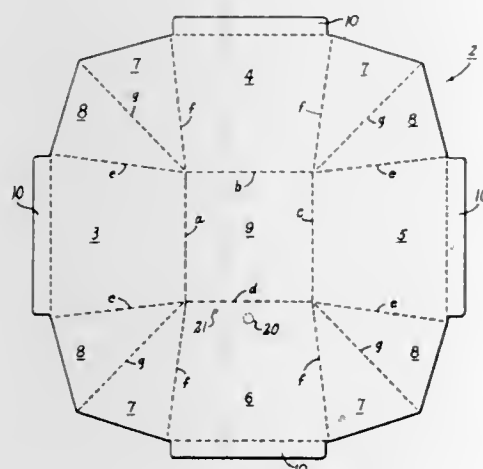
A sealed beverage container has a drinking straw supported in a loop depending from a partly or wholly severable portion of the container cover. In one form such portion is a patchlike tear strip covering a slot in the cover, the slot being wider than the straw and preferably extending from the corner of the cover part way along a diagonal. In another form such portion is coplanar with and integral with the cover, the latter being provided with two niches in the circumferential edge thereof preferably spaced equidistant from a corner thereof, the tip of the corner between the niches being adapted to be grasped to tear the portion upward out of the plane of the cover. In both forms the straw is simultaneously tilted upward for extraction from the loop. Additional provision is made for standing the extracted straw upright in the corresponding corner of the container.

3,559,869

BEVERAGE COOLER

John J. Reynolds, Bloomfield, N.J. (c/o Reynolds Electric Co., 608 Broadway, Newark, NJ 07104)
 Filed Nov. 29, 1968, Ser. No. 779,980
 Int. Cl. B65d 5/22, 5/24; B67d 5/62
 U.S. Cl. 229-31

1 Claim



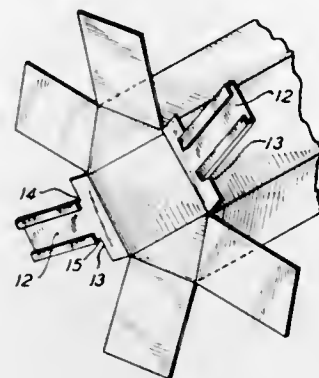
The application discloses a seamless, corrugated paper container having a top opening larger than its base and therefore capable of being nested with like containers. There is disposed therein a keg, bottle or the like of beverage desirably maintained in a cool state. The container may be coated with a moisture proof plastic and a coolant, such as ice, is disposed between the keg and the inner wall structure of the container. The latter is provided with a breakable aperture portion to receive a spigot assembly which communicates with the interior of the keg. The container also has a weakened area to receive, if desired, a drain hose, such area being below the expected water level of the container when the ice is substantially melted. Alternatively, the container is usable as an ice bucket in which case the weakened portions are not broken through.

3,559,870

HEXAGONAL CONTAINER HAVING A HANDLE FORMED FROM OVERLAPPING END FLAPS

Philip A. Petruzzelli, White Plains, N.Y., assignor to Litton Business Systems, Inc., Orange, N.J., a corporation of New York
 Filed Jan. 13, 1969, Ser. No. 790,805
 Int. Cl. B65d 5/02, 5/03, 5/46
 U.S. Cl. 229-37

3 Claims



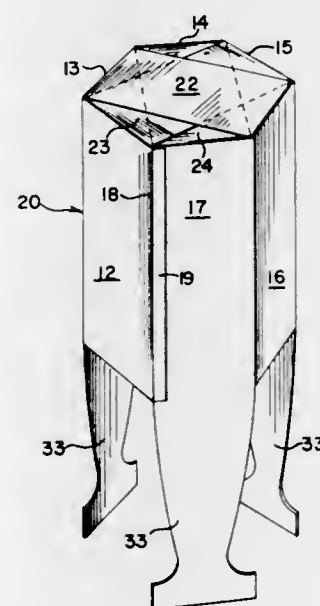
A hexagonal one piece container for shipping rolls of light sensitive photocopy paper. The entire container is constructed from one integral sheet of material with the end walls formed by overlapping extensions of the sidewalls. Two of these overlapping extensions may be interlocked and slightly bowed to form a handle.

3,559,871

MODULAR DISPOSABLE FOLDABLE CONTAINER

James N. Vaughn, 1015 River Drive, Hammond, Ind. 46324
 Filed Sept. 19, 1968, Ser. No. 760,939
 Int. Cl. B65d 5/08
 U.S. Cl. 229-39

3 Claims



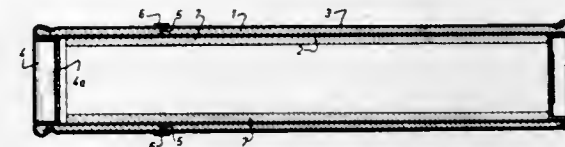
A hexagonal or octagonal container made from an integral blank including six or eight panels forming the sides of the container and a glue flap at one end of the blank to overlie the opposite end panel to be fastened thereto to hold the container assembled. End closure panels are foldably connected to and extend from half of the panels. The end closure panels include fastening flaps attachable to the opposite side panel of the container. Extending from the side panels located between the end closure flaps and rigid therewith there may be supporting legs.

3,559,872

PACKING CONTAINERS

Pierre Jean Riboud, Levallois-Perret, France, assignor to Societe Anonyme Lincrusta, Paris, France
 Filed Mar. 13, 1969, Ser. No. 806,877
 Claims priority, application France, Aug. 14, 1968, 3547
 Int. Cl. B65d 3/22
 U.S. Cl. 229-51

10 Claims



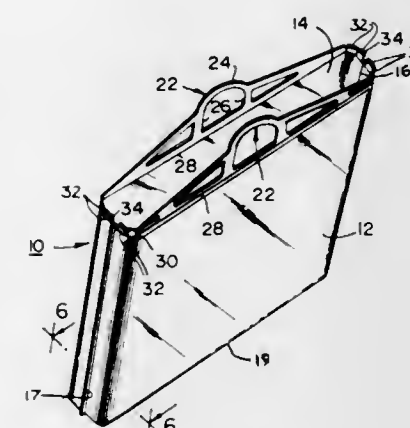
A cardboard container comprising a first tube lined internally and externally with hot-sealed aluminum-polyethylene, polyethylene-paper or the like, and a second tube inside the lined tube, the first tube being closed by crimped end caps and externally circumferentially partially incised, the incision being closed off by an adhesive tape.

3,559,873

BAG WITH TOTE HANDLE

Robert L. Hart, Manhasset Hills, N.Y., assignor to W.R. Grace & Co., a corporation of Connecticut, by mesne assignments
 Filed Sept. 9, 1969, Ser. No. 856,306
 Int. Cl. B65d 33/08
 U.S. Cl. 229-54

11 Claims



A plastic tote handle supports a gusset bottom bag and includes two bails, each of which is molded in one-piece with a horizontal bag-supporting bar. The bars are heat sealed along their lengths to the full widths of the inner surfaces of front and back plastic film bag-forming panels adjacent the upper edges thereof. The bars include integral vertical "living hinges" near their opposite ends so that the end portions thereof may be readily bent to positions roughly perpendicular to the bars. Thereby, as the bag is filled, the marginal side edges of the front and back bag panels will move apart at their upper portions and will bend to conform to the perpendicular positions of said strip portions, thus forming well-defined square sidewalls for the bag.

3,559,874

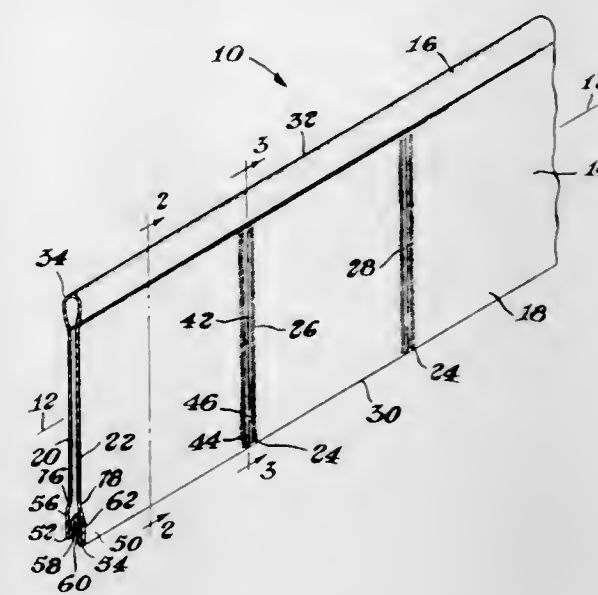
SERIES BAG CONSTRUCTION

Oliver R. Titchenal, Berea, Ohio, assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
 Filed May 8, 1968, Ser. No. 727,464
 Int. Cl. B65d 27/10
 U.S. Cl. 229-59

23 Claims

A bag construction embodied in a chain of connected bag elements and an efficient method for filling the same. In novel feeding and mounting concepts, the chain of bag elements is preferably fed to the filling apparatus from a folded pile, and is initially received by a mandrel which mounts the same in a curtain-and-rod-like fashion by means of a loop or

tunnel located along the top end of each bag. In the chain, the bag elements are substantially separated from one another such that their complete separation after filling can be easily achieved, as for example, by a gentle pulling action. In specific bag constructions, loading or filling through gus-



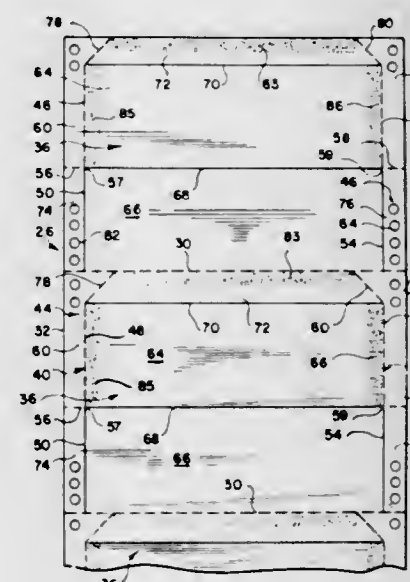
seted sections of the bag elements is made possible through novel gusset designs and filling methods, and scrap minimized, for example, by thinning strategic portions of the bag elements which later are customarily trimmed therefrom following sealing operations.

3,559,875

CONTINUOUS ENVELOPE FORM

Paul O. Wilson, Severna Park, Md. (3132 Frederick Ave., Baltimore Md. 21229)
 Original application Aug. 9, 1968, Ser. No. 751,467. Divided and this application Nov. 6, 1969, Ser. No. 871,089
 Int. Cl. B65d 27/10
 U.S. Cl. 229-69

5 Claims



A continuous forms press converts a roll of envelope paper into a continuous envelope form having a plurality of transverse perforated lines dividing the form into envelope blanks, a plurality of transverse score lines defining fold lines on the envelope blanks, longitudinal perforated lines and score lines defining side trim zones and side flaps, lines of sprocket holes along the side margins of the form, and adhesive coatings on a seal flap and adjacent side margins of a top sheet of each blank. The press folds the continuous form into a zigzag folded stack suitable for feeding into a computer printout device or automatic typewriter where the forms are automatically addressed from addresses contained in a tape or punch card memory. The continuous form is again folded.

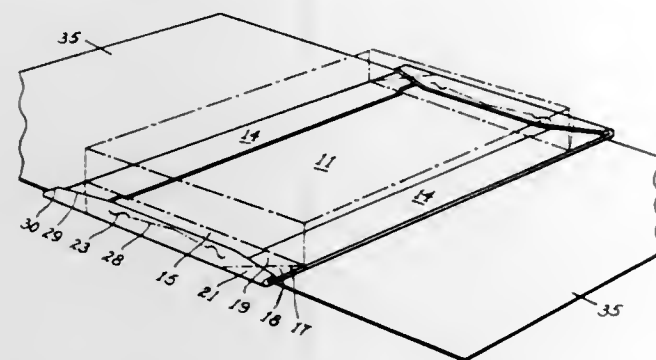
into a zigzag stack and fed into a continuous forms envelope converter which includes means for separating the continuous form into separate envelope blanks, means for trimming the side trim zones from the blanks, means for folding over the side flaps, means for folding over a top sheet of each blank over a bottom sheet thereof along a transverse fold line, and means for activating the adhesive coatings adjacent the side margins of the top sheet and securing the side flaps thereto for completing the envelopes.

3,559,876

COMBINATION BOX AND WRAPPER
Sidney Conescu, 188 B. 147th St., Neponsit, N.Y.
Filed Oct. 31, 1968, Ser. No. 772,311
Int. Cl. B65d 65/10

U.S. Cl. 229-87

2 Claims



An improved top load folding box construction combined with attached sheet of wrapping paper of the proper size and in the desired position to overwrap said box, said box having strengthened and durable corners in its setup position with reinforced front laps.

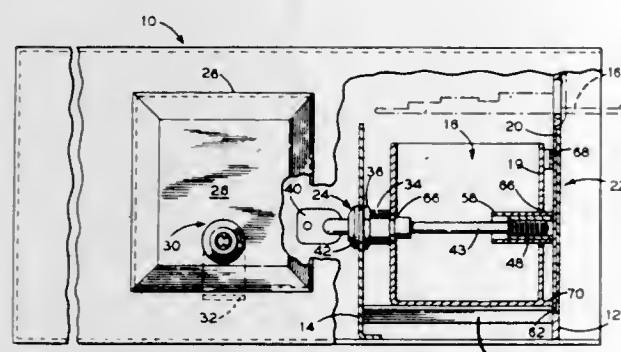
3,559,877

INTERNAL COLLECTION SYSTEM FOR A COIN OPERATED SYSTEM
Harry Greenwald, Whitestone, and Salvatore Iglio, Richmond Hill, N.Y., assignors to Greenwald Industries Inc., Belleville, N.J., a corporation of Delaware, by mesne assignments

Filed May 8, 1968, Ser. No. 727,573
Int. Cl. G07f 1/00

U.S. Cl. 232-15

3 Claims



A coin collection system having internal locking means for preventing unauthorized access to the coin box of a coin operated device.

3,559,878

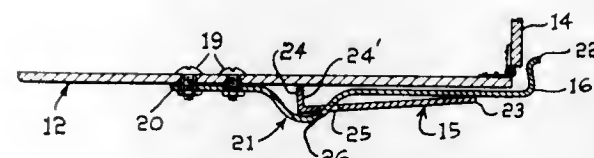
MAIL BOX SIGNAL
George Roeder, Box 3931, Odessa, Tex. 79760
Filed July 14, 1969, Ser. No. 841,316
Int. Cl. A47g 29/12

U.S. Cl. 232-35

7 Claims

A mail box signal device attached to a rural mail box which includes a resilient latch means which retains a flag in

a retracted or extended position. The resilient latch means is actuated by the mail box closure means so as to cause the



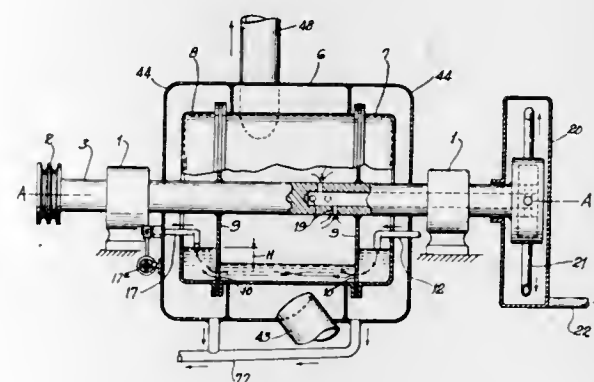
position of the flag to signify when the mail box has been opened by the postman.

3,559,879

MEANS FOR THE TREATMENT OF LIQUID TO EFFECT COOLING, WARMING, VAPORIZATION, SEPARATION, PURIFICATION AND THE LIKE
Emile Bechard, Paris, France, assignor to Rene G. LeVaux, a part interest to
Original application Apr. 1, 1964, Ser. No. 356,434, now Patent No. 3,396,088, dated Aug. 6, 1968. Divided and this application July 5, 1968, Ser. No. 810,393
Int. Cl. B04b 15/02

U.S. Cl. 233-11

7 Claims



A device for the treatment of liquids comprising a drum mounted for rotational movement at a rate sufficient to generate centrifugal force greater than that of gravity, whereby the liquid adheres as layer on the outer periphery of the drum and means communicating the outer peripheral portion of the drum with an outlet whereby the layer of liquid on the peripheral surface of the drum separates in response to gravity during rotational movement of the drum with the heavier and colder liquid adjacent the outer peripheral surface, with the lighter and warmer liquid at the interior surface of the liquid layer to enable separation or fractionation thereof.

3,559,880

APPARATUS FOR BLOOD PLASMA SEPARATION
Ryoichi Naito, and Osamu Yamaji, Osaka, Japan, assignors to The Green Cross Corporation, Osaka, Japan, a corporation of Japan

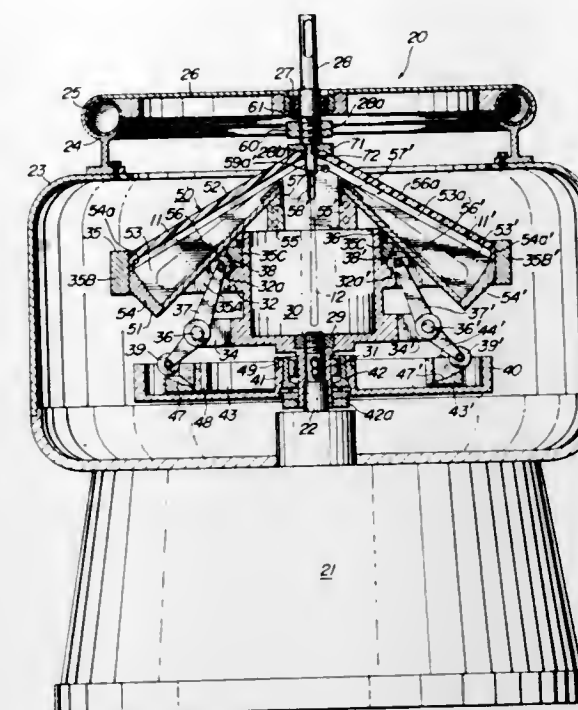
Filed Feb. 3, 1969, Ser. No. 795,934
Claims priority, application Japan, Oct. 3, 1968, 43/86264
Int. Cl. B04b 1/00, 9/14

U.S. Cl. 233-26

1 Claim

An apparatus for centrifugally separating blood plasma from red blood cells, said apparatus being adapted for use with a blood bag set composed of a pair of mother bags and a daughter bag communicating therewith, said apparatus comprising a blood bag receiving box of generally inverted V-shape cross section having a pair of bottom plates hinged for upward movements, rotary drum, flywheel of larger inertia than that of the drum and a mechanism operable, after completion of blood plasma separation within said mother bags and after switching off of the power source of the apparatus, to upwardly urge the bottom plates of the blood bag

box against the cover thereof by virtue of the difference in inertial rotation between the drum and the flywheel to



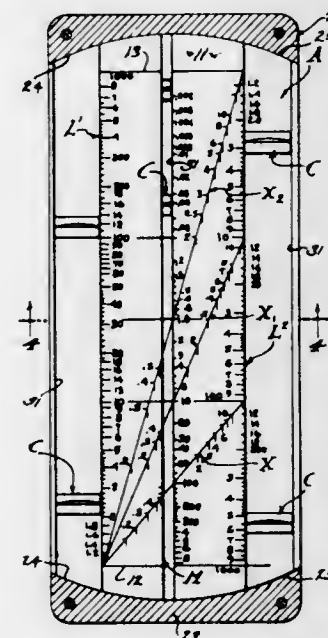
thereby automatically squeeze the separated fluid of blood plasma out of the mother bags into the daughter bag.

3,559,881

NOMOGRAM COMPUTER
Richard L. Maison, 6624 Forum St., San Diego, Calif. 92111
Filed Sept. 13, 1968, Ser. No. 759,620
Int. Cl. G06c 3/00

U.S. Cl. 235-61

19 Claims

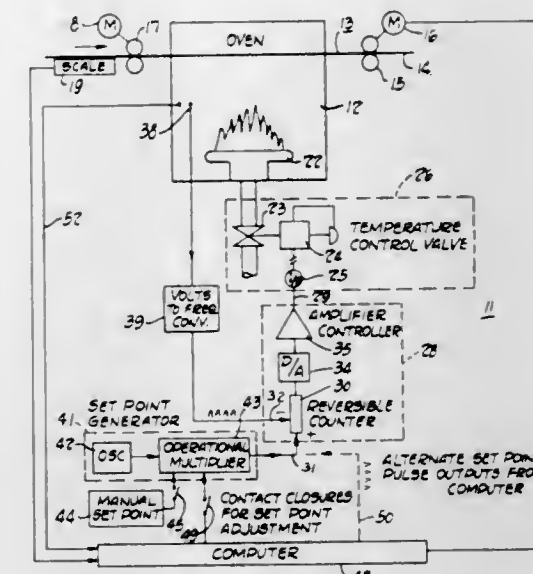


An instrument for solving mathematical problems and involves nomograms that enable the manipulation of a straight line to read off the value of a dependent variable when the value of an independent variable is given, thereby computing by means of graphic representation systematic solutions to said problems capable of numerical calculation. With this invention there are immovable scales and it is the calculating line that is moved by manipulation to intersect the said scales at read-off points where memory indicators are positioned for reference, there being a plurality of calculating lines and a multiplicity of memory indicators operable at each and/or both sides of the instrument, which is accordingly capable of the basic mathematics of addition, subtraction, multiplication and division, and also other functions such as subjection of variables to roots, exponents and reciprocals.

3,559,882

PROCESS DIGITAL CONTROL
Howard E. Jordan, Euclid, Ohio, assignor to Reliance Electric Company, a corporation of Delaware
Filed Mar. 20, 1969, Ser. No. 808,787
Int. Cl. G06f 15/46; G06s 7/66
U.S. Cl. 236-15

15 Claims



thereby automatically squeeze the separated fluid of blood plasma out of the mother bags into the daughter bag.

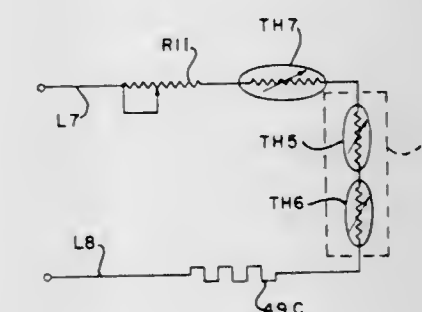
An oven is a load in a process and the control acts through a partly digital and partly analogue loop with a digital controller to control the temperature of the oven. The digital controller has a comparator with two inputs, one in the partly digital/analogue loop and the other from a set point generator which is used to change the set point and hence the temperature of the oven. This set point generator is controlled either manually or by a digital computer having a temperature-sensing feedback from the oven.

3,559,883

TEMPERATURE CONTROL
Francis P. Buiting, Plainville, and Joseph W. Waseleski, Jr., Mansfield, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Original application May 24, 1967, Ser. No. 641,027, now Patent No. 3,474,963, dated Oct. 28, 1969. Divided and this application Mar. 3, 1969, Ser. No. 803,861
Int. Cl. G05d 23/24

U.S. Cl. 236-68

6 Claims



The apparatus disclosed herein proportionally controls a gas-burning heating system to maintain a zone to which heat is supplied at a predetermined temperature level. The flow of gas is varied by a valve the setting of which is adjusted by means of an electrically energized, thermal expansion actuator. A thermistor is provided for sensing the temperature in the controlled zone and the actuator is energized according to a predetermined function of the resistance of the thermistor thereby to maintain the temperature in the zone at the predetermined level.

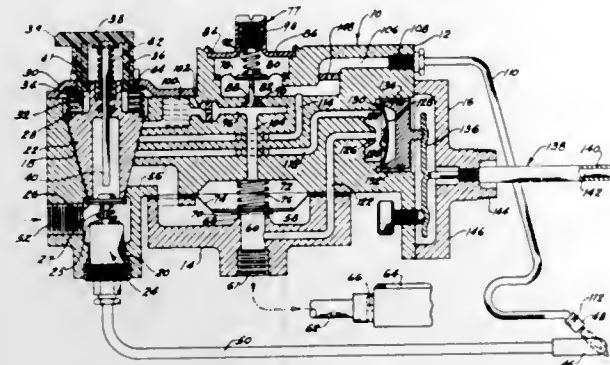
3,559,884 GAS VALVE

Charles C. Visos, and John J. Love, St. Louis, Mo., assignors to Emerson Electric Co., St. Louis, Mo., a corporation of Missouri

Filed Feb. 19, 1969, Ser. No. 800,596
Int. Cl. F23n 5/04

U.S. Cl. 236-80

6 Claims



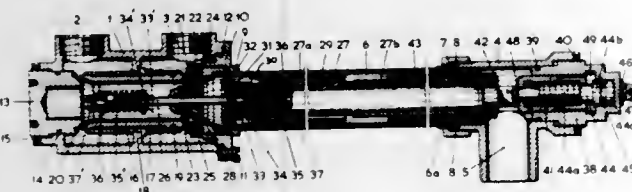
A manifold gas valve having a biased closed fluid-pressure-operated main valve, in which unregulated supply line pressure is applied to both sides of the valve operator, and in which a single pressure regulator operates to maintain a predetermined bleedoff rate from one side of the valve operator and to maintain a predetermined flow to a pilot burner under conditions of varying supply line pressure.

**3,559,885
THERMOSTATIC REGULATING DEVICE WITH A SYNTHETIC THERMOPLASTIC EXPANSION ELEMENT**
Willem Antonius Boekelman, Sr., and Willem Antonius Boekelman, Jr., Venlo, Netherlands, assignors to N. V. Metaalwarenfabriek "Venlo", Venlo, Netherlands
Filed Mar. 26, 1968, Ser. No. 716,153
Claims priority, application Netherlands, Mar. 31, 1967, 67.04634

Int. Cl. G05d 23/02

U.S. Cl. 236-93

8 Claims



A thermostatic regulating device utilizes an expansion element of thermoplastic synthetic material with a thermal coefficient of expansion of at least 1×10^{-4} mm/C. such as polypropylene or polyethylene in an elongated shape with a thickness over at least a part of its length of not more than 2 mm. The expansion element may be used in a combination hot and cold fluid tap with one end of the element connected to a valve member and the other end adjustably connected to the housing.

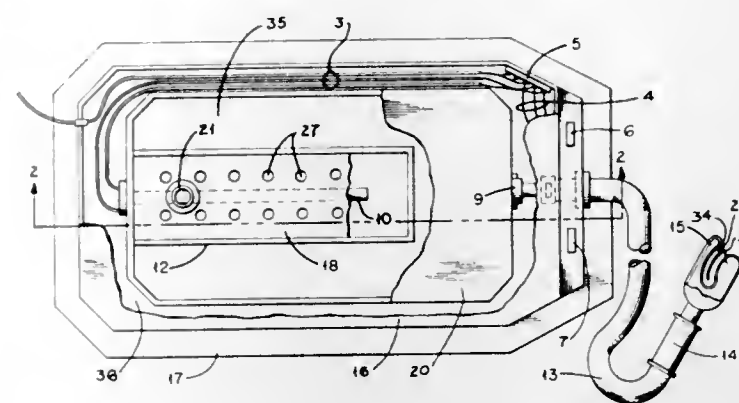
**3,559,886
PORTABLE STEAM GENERATING UNIT**
Mary Lee Howard, P.O. Box 661, Poughkeepsie, N.Y. 12601
Filed Oct. 29, 1968, Ser. No. 771,402
Int. Cl. B05b 1/24

U.S. Cl. 239-136

10 Claims

A unit with no moving parts adapted to generate steam in response to an electric heating element, wherein the water

chamber is separated from a steam chamber which, in turn, is separated from the atmosphere by a further protective

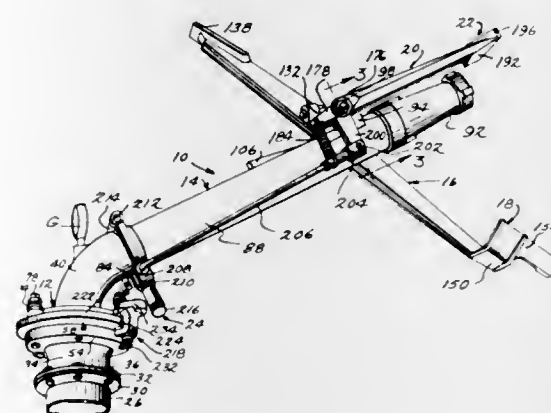


chamber. Means are provided for the selective use of a plurality of steam-emitting heads in order to permit utilization of the device for diverse operations.

**3,559,887
SPRINKLER HEAD**
Larry P. Meyer, East Peoria, Ill., assignor to L. R. Nelson Mfg. Co., Inc., Peoria, Ill., a corporation of Illinois
Filed May 8, 1969, Ser. No. 823,026
Int. Cl. B05b 3/08

U.S. Cl. 239-233

15 Claims



A high capacity agricultural irrigation sprinkler head of the type which is rotated in step by step fashion by an oscillating arm having a reactant element provided with fixed surfaces for effecting both the oscillating movement of the impulse arm and the incremental rotational movements of the head, the surfaces of the reactant element automatically compensating for changes in water pressure and nozzle outlet size through a wide range to produce a generally constant oscillatory arm speed and a generally constant intermittent rotational speed by varying the reactant area in response to variation in the energy of the stream engaged thereby. The sprinkler head also includes a reversing arm having a reactant element which is moved into and out of the stream by an overriding cam mechanism, the reactant element being normally biased out of the stream and retained in the stream when initially moved therein by the cam mechanism solely by the action of the stream thereon against its normal bias, thus preventing accidental start up during the reversing cycle and severe shock or damage due to override at the normally operable beginning and end of the reversing cycle.

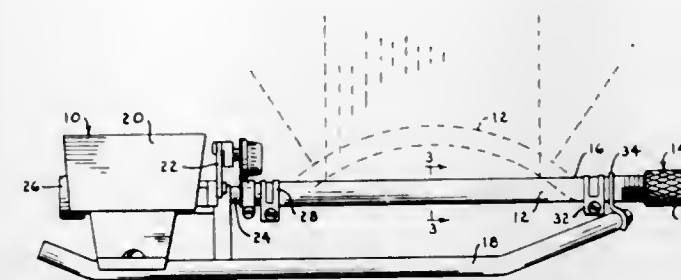
**3,559,888
LAWN SPRINKLER WITH FLEXIBLE NOZZLE**
Louis F. Miklos, 6151 Delaware St., Gary, Lake County, Ind.
Filed Nov. 18, 1968, Ser. No. 776,523
Int. Cl. B05b 3/16

U.S. Cl. 239-242

3 Claims

An improvement in a lawn sprinkler which conventionally employs a horizontally disposed, fixedly arched or bowed

tube, having orifices therein, which oscillates to and fro to distribute the water in a fixed fan shape, comprising the replacement of the fixedly arched or bowed tube with a

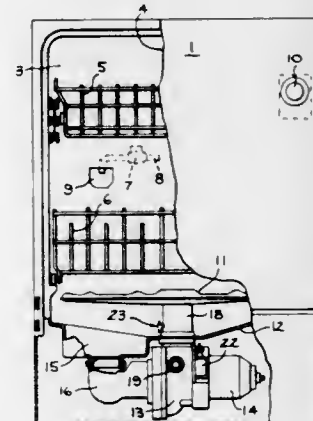


manually flexible, elastomeric tube, having orifices therein, so that the curvature of the arch or bow thereof may be manually changed in situ to provide sprays of select dimension.

**3,559,889
DISHWASHER WITH IMPROVED MEANS FOR REDUCING LIQUID CARRYOVER**
Lauren W. Guth, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed May 7, 1969, Ser. No. 822,418
Int. Cl. B05b 3/06

U.S. Cl. 239-251

9 Claims



A dishwasher is provided with improved means for reducing the amount of wash or rinse water carried over from one cleaning operation to the next. A valve positioned in the conduit leading to the spray means of the dishwasher opens after each cleaning operation while the wash or rinse water is being emptied to the drain. The opening of the valve allows the spray means and the supply conduit to empty so that very little water is trapped in them for mixing with the fresh water introduced for the next cleaning operation. The illustrated valve comprises a resilient member which is held over an opening in the conduit wall by the water pressure during each cleaning operation but which drops away from the opening and permits drainage therethrough when the water pressure in the conduit is relieved.

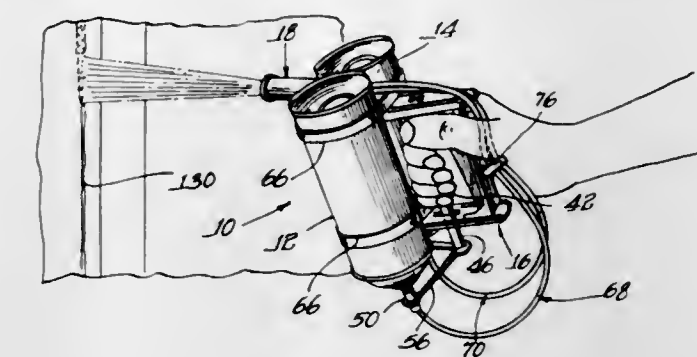
**3,559,890
FOAM DISPENSER**
William R. Brooks, 365 Alexander, Elmhurst, and Irving C. Heinzl, 1565 Webster Lane, Des Plaines, Ill. 60010
Filed Sept. 3, 1968, Ser. No. 756,787
Int. Cl. B05b 1/100

U.S. Cl. 239-304

9 Claims

Dispenser apparatus for multicomponent products comprises a pair of containers each having its own dispensing valve. A bracket is arranged to hold the containers in fixed

position and includes a manual trigger. Links are provided for connecting the trigger with the valves for actuation of the

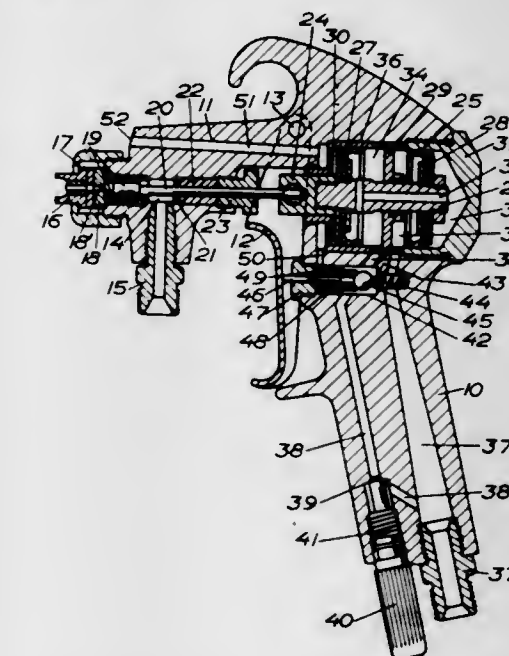


valves in unison; and the dispenser apparatus additionally includes a remote dispensing nozzle unit and tubing connecting each of the dispensing valves with the latter unit.

**3,559,891
SPRAY GUN**
Kurt Herman Liedberg, and Lars Gunnar Torbjorn Christensson, Skara, Sweden, assignors to Atlas Copco Aktiebolag, Nacka, Sweden, a corporation of Sweden
Filed Apr. 15, 1969, Ser. No. 816,191
Claims priority, application Sweden, Apr. 19, 1968, 5,321/68
Int. Cl. B05b 7/00

U.S. Cl. 239-443

9 Claims



In a spray gun with pressure fluid actuated servo motor for moving the coating material valve and with servopiston means in the servo motor to be pressurized for movement against or relieved for displacement by unidirectional force bias under the control of a control valve, a setting valve provides, when open, arresting of the servopiston means by pressure fluid in a position corresponding to closed position of the coating material valve irrespective of the position of the control valve. Such safety setting may be used for blowing live pressure fluid via the control valve to a blowing opening for blowing the workpiece clean preparatory to spraying.

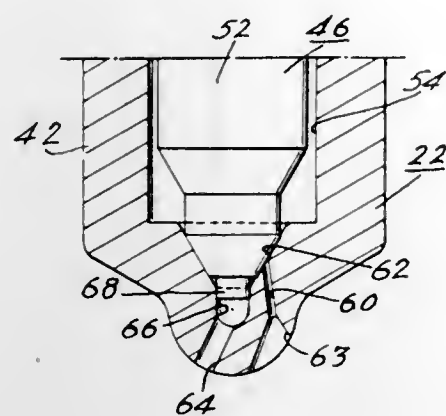
**3,559,892
FUEL INJECTION NOZZLE WITH AUXILIARY SPRAY ORIFICE**
Frank De Luca, Thompsonville, Conn., assignor to Ambac Industries, Inc., Springfield, Mass., a corporation of New York
Filed June 18, 1968, Ser. No. 737,888
Int. Cl. B05b 1/30

U.S. Cl. 239-533

1 Claim

A fuel injection nozzle assembly comprising an elongated holder, a nozzle assembly having an axial bore mounted at

one axial end of the holder, a valve mounted in said axial bore in the nozzle, said nozzle including an elongated shank having a conical valve seat at its lower terminal end and a sac hole below the seat, said valve including a tip end in the closed position engaging the valve seat, said tip end including



a conical portion and a pintle adapted to engage in said sac hole in the nozzle, means defining a main fuel discharge orifice on the nozzle communicating at its inner end with the sac hole, means defining an auxiliary orifice of smaller cross section than said main orifice communicating at its inner end with said conical valve seat.

3,559,893

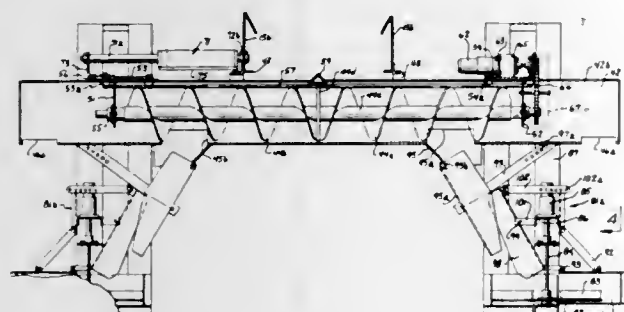
MATERIAL DISTRIBUTING APPARATUS

Victor H. Gruben, Rochelle, Ill., assignor to Swenson Spreader & Mfg. Co., Lindenwood, Ill., a corporation of Illinois

Filed May 21, 1969, Ser. No. 826,621
Int. Cl. A01c 17/00

U.S. Cl. 239—664

13 Claims



A material-distributing apparatus for use on a vehicle having a material supply hopper, which material-distributing apparatus includes a cross conveyor having an intermediate inlet communicating with the supply hopper and first and second oppositely directed conveyor sections which are shiftable relative to the supply hopper, from a position feeding material from the inlet to relatively opposite sides of the vehicle, to shifted positions in which material is fed to only one or the other side of the vehicle. Spreaders are provided at each side of the vehicle for spreading material fed thereto by the cross conveyor and the spreaders are maintained in a fixed position while the conveyor is shifted.

3,559,894

MATERIAL-SPREADING APPARATUS WITH INTERCHANGEABLE MATERIAL CONVEYOR ASSEMBLIES

Gregory J. Murray, and Frederick K. Tarrant, Sr., Saratoga Springs, N.Y., assignors to Tarrant Manufacturing Company, a corporation of New York

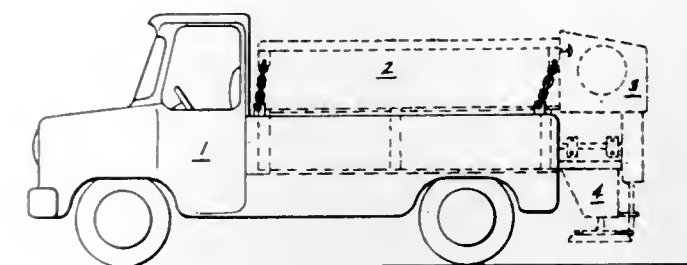
Filed Nov. 18, 1968, Ser. No. 776,321
Int. Cl. A01c 19/00

U.S. Cl. 239—672

11 Claims

A material-spreading apparatus has a hopper consisting of a V-shaped upper section and a rectangular lower section having an opening at the bottom of its rear wall with guides in the bottom section so that a desired type of a plurality of

material-conveying assemblies may be slid into or removed from the bottom section. A discharge chute at the end of a material-conveying assembly includes a spinner mechanism



and a plurality of internal deflectors to permit use with different types of conveyor assemblies. A palletized power unit for driving both the conveyor assembly and the spinner is attached to the rear wall of the hopper and is removable to facilitate maintenance.

3,559,895

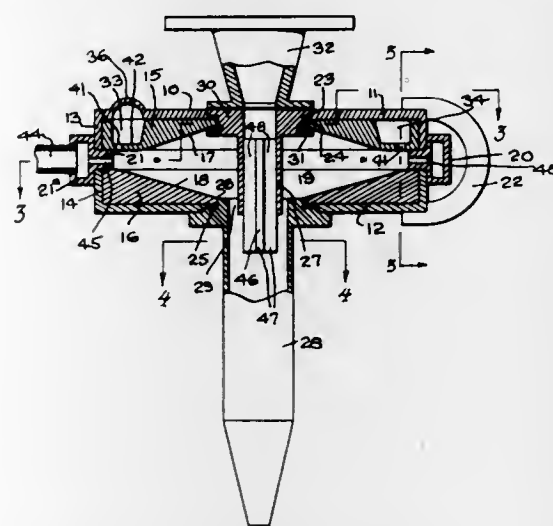
APPARATUS FOR AND METHOD OF COMMUNUTING SOLID MATERIALS

Edwin F. Fay, West Centennial Drive, Marlton, N.J. 08053
Filed Feb. 20, 1968, Ser. No. 706,880

Int. Cl. B02c 19/06

U.S. Cl. 241—5

10 Claims



A fluid energy mill for pulverizing to finely comminuted state dry solid material the particles of which are injected into a grinding chamber for entrainment in a high velocity vortex of a gaseous grinding fluid established in said chamber. The particles to be pulverized and the primary grinding fluid are conjointly introduced into the grinding chamber in the form of feed jets of the material and grinding jets of the fluid relatively so arranged as to locate each feed jet in such close downstream proximity and so oriented with respect to an associated grinding stream that each pair of the associated jets serves as an individual grinding unit to insure the desired reduction in size of the particles serviced by said unit before they are permitted to be discharged from the mill. The discharge outlet of the mill, which may be provided with one or more of the above-mentioned grinding units or of any conventional form, is internally fitted with a spider having exposed directional vanes for minimizing pressure drop at the intake end of the outlet and correspondingly increasing the vortical velocity of and the available energy in the gaseous energy fluid stream present in the grinding chamber of the mill.

3,559,896

MATERIAL CHIPPING MACHINE

Eiichi Sugiyama, 3, 2-chome, Shintomi-cho, Shizuoka, Japan
Filed Oct. 19, 1967, Ser. No. 676,415

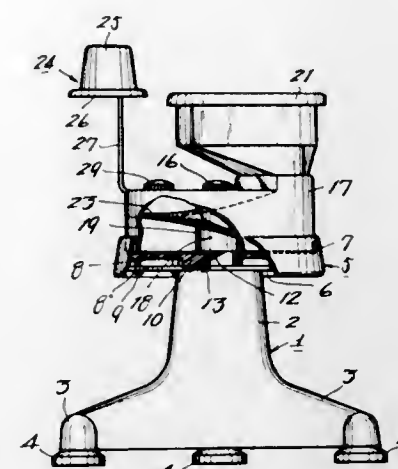
Int. Cl. B02c 19/20

U.S. Cl. 241—95

12 Claims

A material chipping machine suitably employed for chipping ice blocks comprising base support means; material

supporting and chipping means fixedly mounted on said base support means; a rotary drum member rotationally received in said material supporting and chipping means for rotational movement relative to said material supporting and chipping



means; an arcuate material guiding and holddown conduit integrally formed with said drum member for rotational movement together with the latter; a hopper removably received in said drum member; and a handle connected to said arcuate material guiding and holddown conduit.

3,559,897

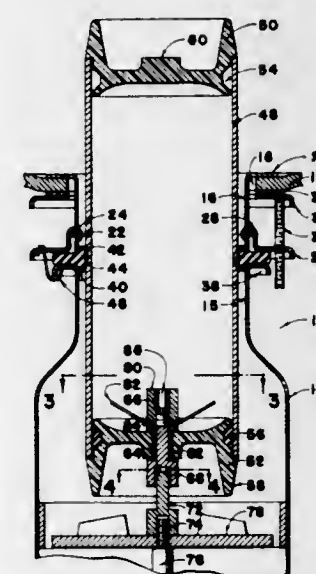
BLENDER MIXER ATTACHMENTS FOR USE WITH HOUSEHOLD GARBAGE DISPOSER UNITS

Ben W. Carr, 274 Hillsmere Drive, Annapolis, Md. 21403
Filed Mar. 12, 1969, Ser. No. 815,242

Int. Cl. B01f 7/16

U.S. Cl. 241—101

11 Claims



A blender mixer attachment adapted to be drivingly connected through a sink drain opening to the rotor of a household garbage disposal unit, including novel support means for the blender container to resist lateral and vertical movement when the blender is in its position of use.

3,559,898

WOOD-CHIPPING MACHINE

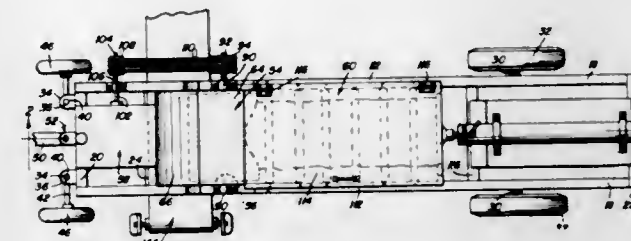
Joseph P. Rinke, Bellwood, Nebr. 68624
Filed Oct. 8, 1968, Ser. No. 765,752

Int. Cl. B27 11/02

U.S. Cl. 241—101

5 Claims

A mobile device into which portions of a tree may be inserted to be rendered down into wood chips to be used for



knife edges attached thereto which renders the tree portion advancing thereon into chips.

3,559,899

TOROIDAL COIL-WINDING MACHINE FOR DEFLECTION YOKE COILS FOR TELEVISION PICTURE TUBES AND THE LIKE

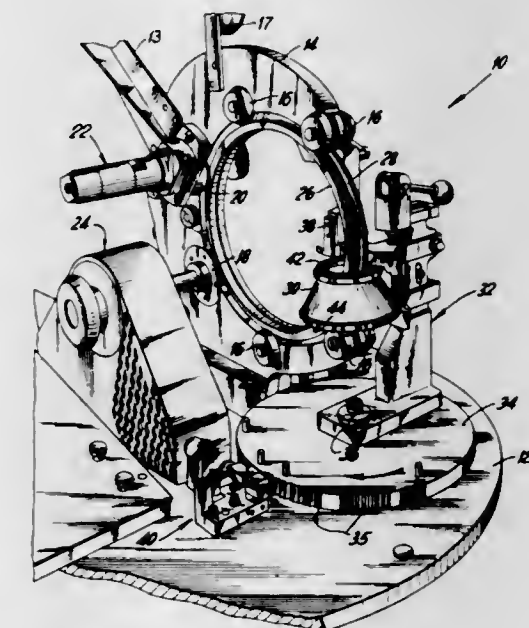
Rudolf Fahrback, Branchville, N.J., assignor to Universal Manufacturing Company Inc., Irvington, N.J., a corporation of New Jersey

Filed Feb. 24, 1969, Ser. No. 801,255

Int. Cl. H01f 41/08

U.S. Cl. 242—4

5 Claims



A machine for winding toroidal coils useful for yokes of television picture tubes having an air motor for loading the magazine and for winding the coil under uniform tension. An indexing mechanism comprising an index plate under control of a double-throw pawl effects precisely located winding turns on the inner face of the toroidal yoke core facing the outer surface of the television picture tube. The index plate of the indexing means is arranged for a plurality of different winding configurations and in combination with the double-throw pawl winding assures accurate and precise winding without damage to the teeth of the index plate.

3,559,900

FIBER-ALIGNING DEVICE

Yuho Harada, and Kenzo Hiramatsu, Omiya-shi, Japan, assignors to Fujii Photo Optical Co. Ltd., Omiya-shi, Japan

Filed Mar. 4, 1969, Ser. No. 804,174

Claims priority, application Japan, Mar. 6, 1968, 43/14,430

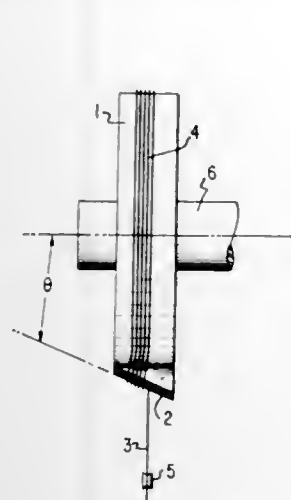
Int. Cl. B65h 54/02, 75/18

U.S. Cl. 242—18

6 Claims

An alignment device used during the winding of optical fibers on a takeup drum, a portion of the periphery of the

takeup drum is arranged to form an inclined plane or surface having a plurality of bobbin-receiving means and which cage which angles inwardly towards the axis of rotation of the is indexed so as to carry a bobbin from one position or sta-



drum. The inclined surface provides arrangement of the individual fiber windings into aligned engagement with adjacent fibers arranged on the periphery of the drum.

3,559,901

SEMI-AUTOMATIC BOBBIN CHANGER

Max Schnetzer, and Helmut Ritter, Wattwil, Switzerland, assignors to Heberlein Patent Corporation, New York, N.Y., a corporation of New York

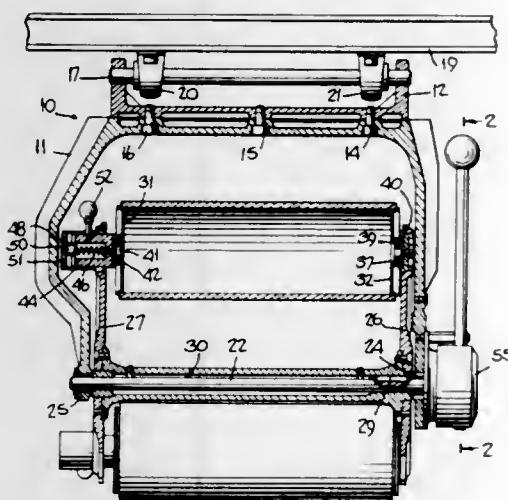
Filed May 14, 1968, Ser. No. 728,966

Claims priority, application Switzerland, Aug. 11, 1967, 11,368/67

Int. Cl. B65h 54/02

U.S. Cl. 242-18

11 Claims



Bobbin changer mechanism having a bobbin holder which frictionally engages a plurality of bobbins and having a bobbin-switching mechanism which provides dampening and sliding coupling between the bobbin changer and its support.

3,559,902

CONTINUOUS WINDING OF YARNS

James Brock, Pontypool, England, assignor to Imperial Chemical Industries Limited

Filed Aug. 23, 1968, Ser. No. 754,779

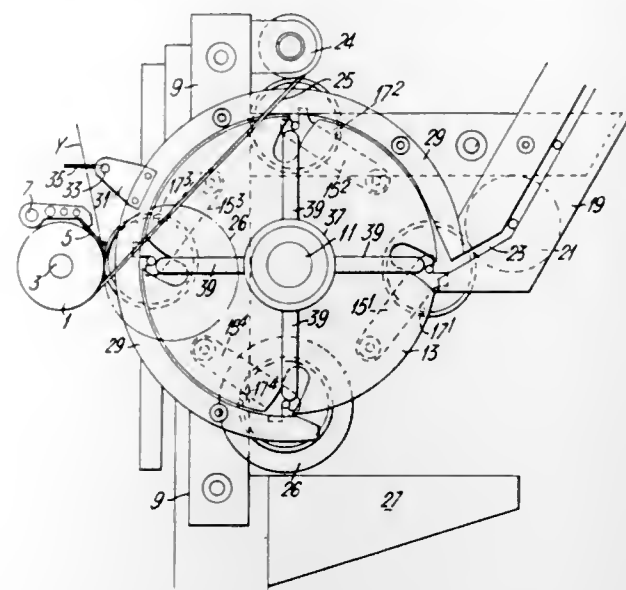
Claims priority, application Great Britain, Sept. 5, 1967, 40,456/67

Int. Cl. B65h 54/42, 67/04

U.S. Cl. 242-18

5 Claims

Apparatus for automatically supplying empty bobbins to a windup position and for carrying a woundup bobbin to a discharge position. The apparatus comprises a rotatable cage



3,559,903

HIGH SPEED WINDING MACHINE

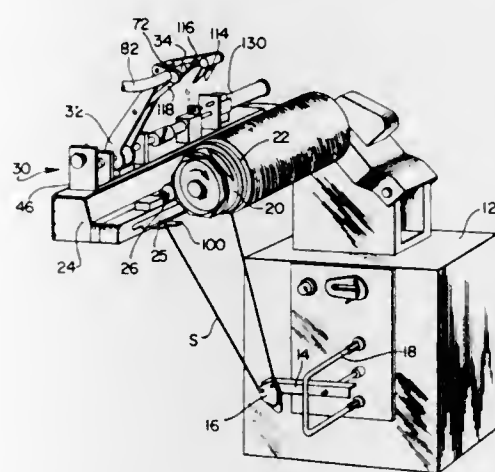
Richard B. Mc Dermott, and Hans H. Richter, Warwick, R.I., assignors to Leesona Corporation, Warwick, R.I., a corporation of Massachusetts

Filed Apr. 16, 1969, Ser. No. 816,514

Int. Cl. B65h 54/02

U.S. Cl. 242-18

12 Claims



High speed winding mechanism incorporating yarn engaging means operable to engage automatically the yarn to be wound on the mechanism, and including structure for delivering the yarn to the yarn engaging means from a locus remote from the winding mechanism. Control means are also included for regulating the movement of the yarn onto the winding zone of the winding mechanism after seizure of the yarn by the yarn engaging means. The mechanism may also include further control means for forming a transfer tail on the package of yarn to be wound.

3,559,904

DEVICE FOR REMOVING THE STARTING END OF A COIL-WOUND TEXTILE YARN FROM THE BORE OF A CORE ON WHICH THE COIL IS WOUND

Hans Raasch, Rheydt, Germany, assignor to Walter Reiners, Moenchengladbach, Germany

Filed Mar. 14, 1969, Ser. No. 807,366

Claims priority, application Germany, Mar. 16, 1968, 1,710,133

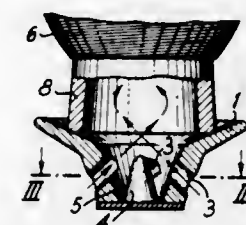
Int. Cl. B65h 54/22

U.S. Cl. 242-35.6

7 Claims

Device for removing the starting end of a coil-wound textile yarn from the bore of a core on which the coil is wound

includes suction tube means having an opening alignable with the bore of a coil core at one end of the core, a funnel-shaped member having a downwardly tapering end portion and an outwardly flaring end, the outwardly flaring end being



3,559,907

MECHANISMS FOR REELING WIRE, TAPE AND THE LIKE

Roland William Gordon Somervell, Beaconsfield, England, assignor to S. Davall & Sons Limited, Middlesex, England, a British Company

Filed Mar. 18, 1968, Ser. No. 718,302

Claims priority, application Great Britain, Apr. 28, 1967, 19690/67

Int. Cl. G11b 15/32; B65h 25/32, 54/78

U.S. Cl. 242-54.1

13 Claims

formed with an opening alignable with the bore of the coil core at the other end of the core, and means for producing a whirling air current located in the downwardly tapering end portion of the funnel-shaped member.

3,559,905

METHOD AND APPARATUS FOR RUNNING AND PULLING A CONTINUOUS METAL MEMBER INTO AND OUT OF A WELL

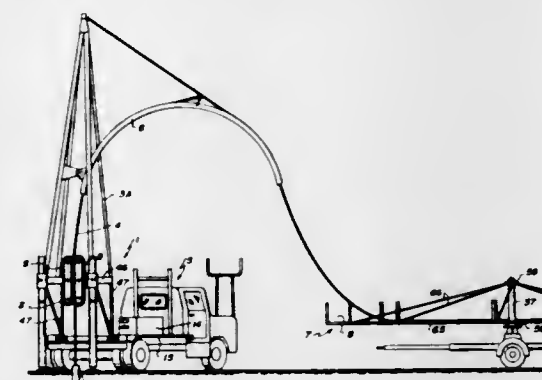
Alexander Palynchuk, Edmonton, Alberta, Canada, assignor to Corod Manufacturing, Ltd., Edmonton, Alberta, Canada, a corporation of Province of Alberta

Filed Jan. 9, 1968, Ser. No. 697,287

Int. Cl. B65h 75/00

U.S. Cl. 242-54

5 Claims



Apparatus is provided which pulls a metal member, such as a sucker rod string, from a well and coils it onto a circular frame which is of sufficient size whereby the member will not be permanently deformed. For example, a pair of opposed, driven, endless tracks, provided with gripping pads, grip the member between the pads and pull it out of the well. The member is fed to and reeled onto a rotatable, horizontal, circular channel for storage. The channel can be collapsed into a compact form for transportation.

The steps of the method are: pulling the member from the well; coiling and storing it without permanently deforming it; and running it back into the well.

3,559,906

CABLE CORE TAKEUP APPARATUS

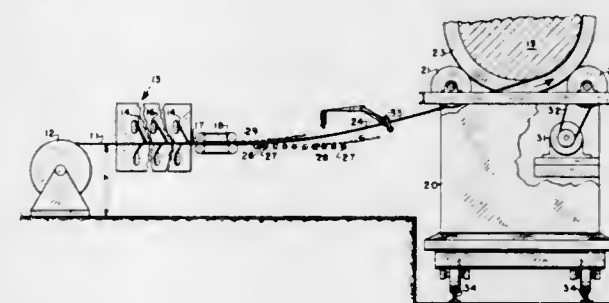
Frederic B. Krafft, Hastings-On-Hudson, N.Y., and George N. Menasoff, Fort Lauderdale, Fla., assignors to Anaconda Wire and Cable Company, a corporation of Delaware

Filed Nov. 27, 1968, Ser. No. 779,449

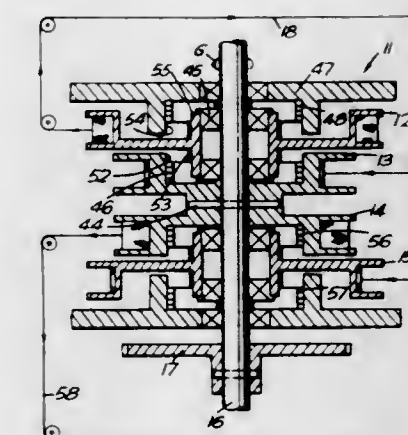
Int. Cl. B65h 75/00

U.S. Cl. 242-54

4 Claims



Apparatus for reeling heavy cable cores at a taping machine has the reel elevated so that the core is taken up



A magnetic wire recording device with two sets of coaxial reels. One reel in each set is positively driven while the other is driven via a slippable clutch so arranged as to maintain constant tension in the wire. One set of reels winds while the other set rewinds, and the drive is automatically reversed by a switch which operates when an unwinding reel becomes empty.

3,559,908

ENDLESS TAPE CARTRIDGE

Hanjiro Esashi, Miyagi-ken, Japan, assignor to Sony Corporation, Tokyo, Japan, a corporation of Japan

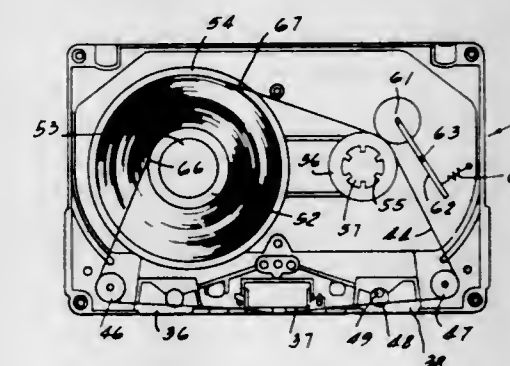
Filed Dec. 18, 1967, Ser. No. 691,324

Claims priority, application Japan, Dec. 30, 1966, 42/209

Int. Cl. B65h 17/48

U.S. Cl. 242-55.19

9 Claims



An endless tape cartridge for magnetic recording and reproducing, including first and second hubs rotatably mounted in a cartridge, and an endless tape wound on the first hub. The second hub may be selectively driven to move the endless tape forward fast. The tape is driven with a normal capstan and pinch roller during normal use but the second hub is utilized to move the endless tape forward when the tape is to be moved to a new position in a fast manner. In one modification a pinch roller engages the tape and presses it against the second hub and in a second modification the frictional engagement of the tape with the second hub moves it forward.

3,559,909

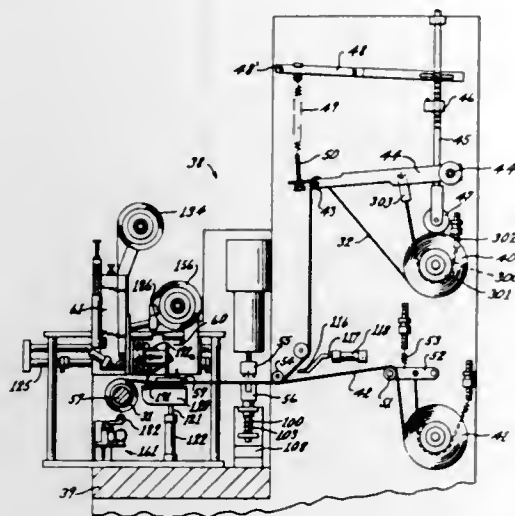
STRIP CONDUCTOR COIL MAKING APPARATUS OR THE LIKE

Benton A. Whiteman, Richmond, and Robert B. Lightner, Henrico County, Va., assignors to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Original application Oct. 18, 1965, Ser. No. 497,069, now Patent No. 3,412,450. Divided and this application June 24, 1968, Ser. No. 753,331

Int. Cl. B65h 39/16, 25/28

U.S. Cl. 242—56.1

9 Claims



This disclosure relates to an apparatus for winding a strip of conductive material into a plurality of strip conductor coils at a predetermined location in the apparatus while securing two leads in side-by-side relation to the strip of conductive material in advance of the coil making location so that the strip can be separated between the two leads in order that one of the leads can form the outer lead on the coil being wound at the predetermined location and the other lead will form the inner lead on a subsequent coil that will be wound by the apparatus, the apparatus having a movable carriage carrying a pair of movable taping heads so that one of the taping heads can attach a length of tape to one end of the strip of conductive material and tape the same to a core on which the strip will be subsequently drawn and wound into coil form and the other taping head being utilized to secure the outer end of the strip of conductive material onto the coil being formed therefrom.

3,559,910

PLASTIC PIPE HANGER

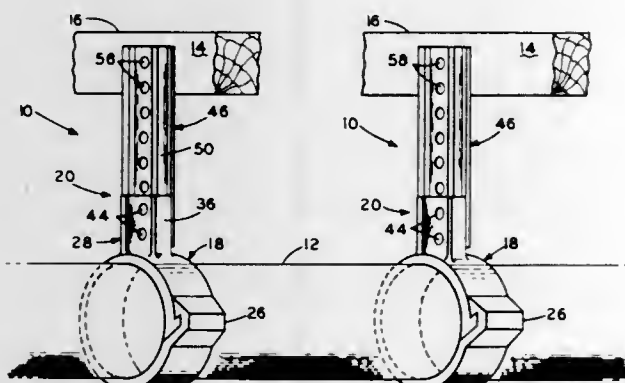
Billy W. Babb, Campbell, Calif., assignor to Robert R. Walker, Jr., San Jose, Calif.

Filed Dec. 16, 1968, Ser. No. 783,977

Int. Cl. F16l 3/14, 9/12

U.S. Cl. 248—59

5 Claims



A hanger for a pipe constructed of a collar formed with an interstice and being bendable between a pipe-engaging position and a pipe-releasing position. The collar is provided with interlocking members for releasably securing the collar in pipe-engaging position and means are provided for suspending the collar from a supporting structure.

3,559,911

FORWARD-REVERSE RUN AUTOMATIC STOP DEVICE FOR FILM REWIND DEVICE OF MINIATURE MOVIE CAMERA

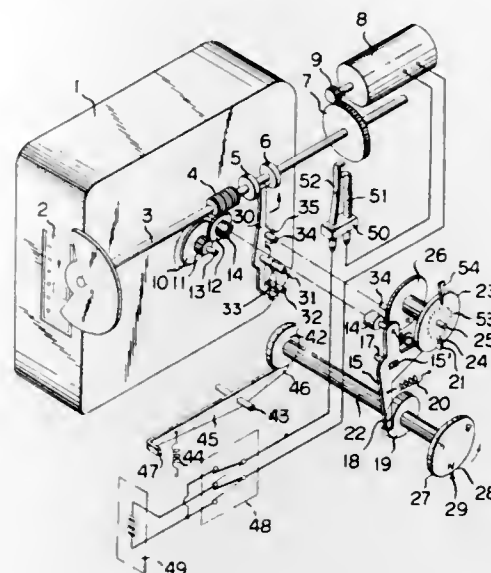
Yoshihisa Katsuyama, Yokohama-shi, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan, a corporation of Japan
Filed Feb. 19, 1969, Ser. No. 800,613

Claims priority, application Japan, Feb. 23, 1968, 43-11128

Int. Cl. G03b 1/06

U.S. Cl. 242—71.5

2 Claims



The present invention presents a device for enabling the film rewinding in a miniature movie camera using a film cartridge having no feed spool operable from outside the camera. According to this invention, when the film in forward run is stopped midway by freeing the release operation of the shutter button before the forward run automatic stopping device works and reverse operation is made successively, these operations can be performed without any trouble. An accident caused by erroneous operation is prevented and at the same time, the amount of film loosely stored in the film cartridge can be measured.

3,559,912

METHOD AND APPARATUS FOR MOUNTING A NEGATIVE

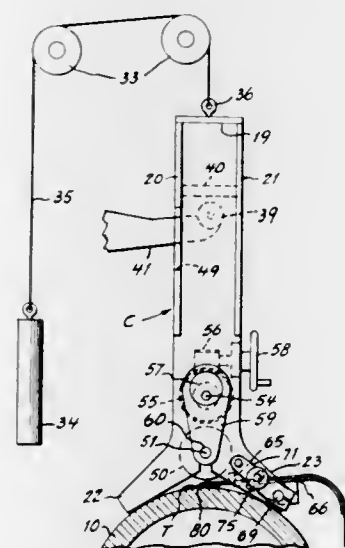
Vernon J. Herzing, and Ingvar L. Tolf, Battle Creek, Mich., assignors to General Foods Corporation, White Plains, N.Y., a corporation of Delaware

Filed Aug. 2, 1968, Ser. No. 749,811

Int. Cl. B65h 75/28

U.S. Cl. 242—74

15 Claims



A negative is correctly aligned relatively to a roll or cylinder on which it is to be mounted, by utilizing a cradle so

constructed that when it rests on the roll, it is inherently aligned with its longitudinal axis parallel to the axis of rotation of the roll. By first properly relating the negative to the cradle, and then applying the cradle to a roll, the negative is effectively aligned relatively to the roll and may be wrapped about the roll.

3,559,913

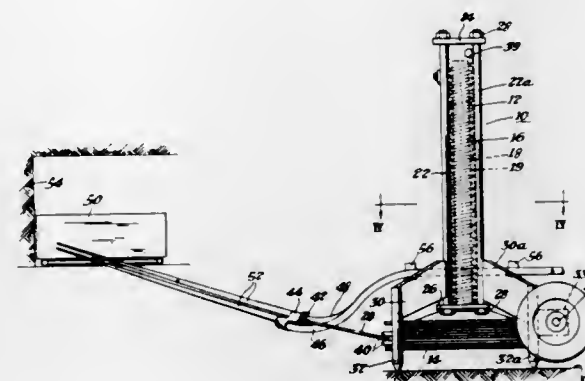
LEADS TENDER

Michael Hajduk, R.D. 1, Fayette City, Pa. 15438
Filed Aug. 12, 1968, Ser. No. 751,842

Int. Cl. B65h 17/46

U.S. Cl. 242—86.5

11 Claims



The leads tender comprises a rotatably and biasingly mounted drum and a support having a number of legs. Each of the legs terminates in anchor means extended outwardly of the drum. A line is wound upon the drum and includes means for attachment to external leads of an independently movable apparatus.

3,559,914

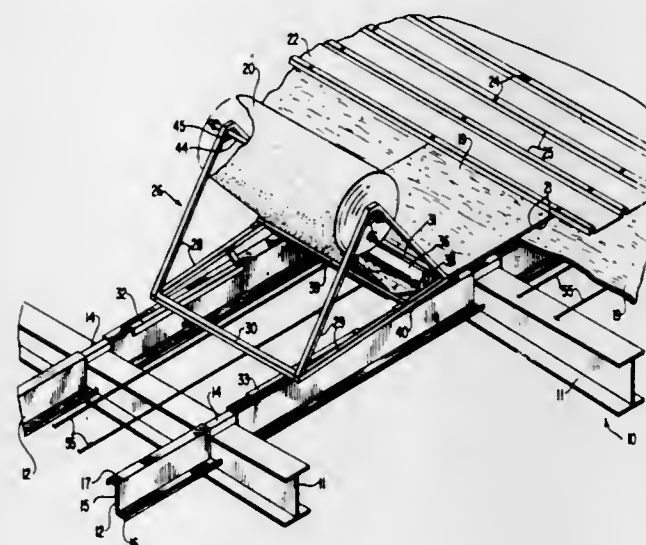
APPARATUS FOR LAYING ROLL ROOFING

Robert J. Alderman, Rte. 4, Lawrenceville, Ga. 30245
Filed Sept. 2, 1969, Ser. No. 854,511

Int. Cl. B65h 17/46

U.S. Cl. 242—86.52

9 Claims



A roof structure is fabricated by supporting a reel of insulating material above adjacent pairs of roof purlins with the width of the material spanning the space between the purlins, moving the reel along the length of the purlins and simultaneously unreeling the insulating material from the reel as the reel is moved along the purlins, and connecting the insulating material at its edges to the purlins. A reel support frame is supported by adjacent ones of the purlins and is movable along the lengths of the purlins. The reel of insulating material is unreel as the support frame is pushed along the purlins, and workmen follow the support frame and connect hard roofing material to the purlins to complete the roof structure.

883 O.G.—7

3,559,915

BOBBIN FOR A TEXTILE MACHINE

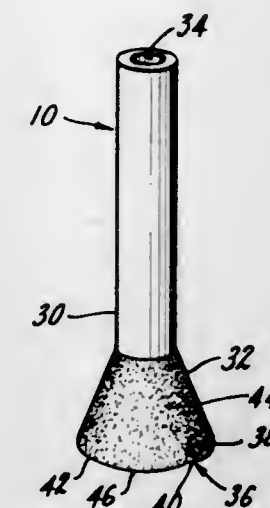
Charles C. Bell, Warwick, and Kurt W. Niederer, Saunderton, R.I., assignors to Leesona Corporation, Warwick, R.I., a corporation of Massachusetts

Filed May 13, 1968, Ser. No. 728,637

Int. Cl. B65h 75/18; D01h 9/08

U.S. Cl. 242—118.3

11 Claims



A yarn receiver such as a bobbin adapted to have yarn wound thereon to form a package, the receiver including a yarn receiving portion and yarn engaging means associated therewith for engaging the yarn to commence its winding on the receiver.

3,559,916

THREAD TENSIONER

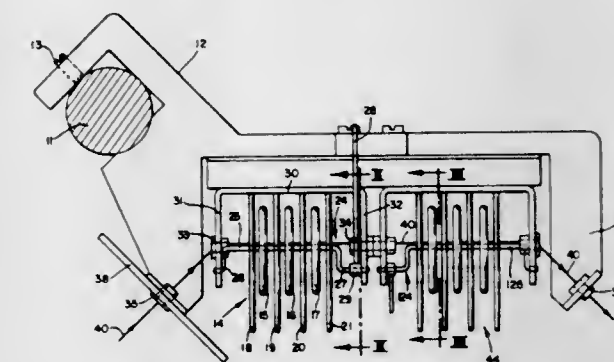
Max Hilscher, 21 Bottingerstrasse, 7901 Tömmingen, Germany

Filed Aug. 9, 1968, Ser. No. 751,476

Int. Cl. B65h 59/12

U.S. Cl. 242—154

6 Claims



A device consists of a plurality of rings which are constrained by separator means in vertical spaces permitting limited lateral movement as well as up and down movement, and a rod which passes through the rings. In alternate embodiments the rod is movable to a plurality of positions to control the contact of the rings with a thread passing therethrough.

3,559,917

WOUND PACKAGE

John Kay Pringle Mackie, Belfast, Northern Ireland, assignor to James Mackie & Sons Limited, Albert Foundry, Belfast, Northern Ireland, a British company

Original application Sept. 5, 1967, Ser. No. 665,615, now Patent No. 3,449,901. Divided and this application Dec. 13, 1968, Ser. No. 795,765

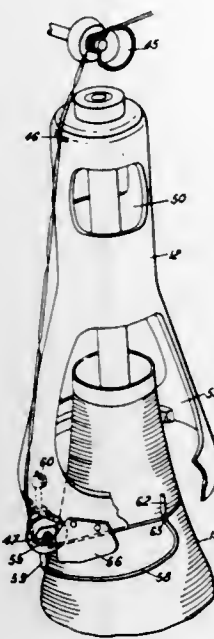
Int. Cl. B65h 55/00

U.S. Cl. 242—159

6 Claims

Synthetic plastic tape drawn from a controlled speed supply source is wound on a nonrotary support by means of

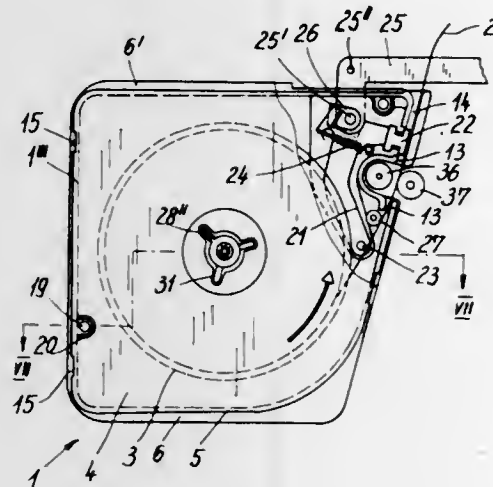
mechanism comprising a winding guide for the tape which is driven round the axis of the support, while a relative axial traversing motion takes place between the guide and the support, so as to apply one turn of twist for each revolution of



the guide. The tape is fed to the winding guide in a generally axial direction from a letoff guide and at a tension such that the twist is applied in a controlled manner represented by localized folds to give a package from which the tape can be unwound overend in a twist-free condition.

3,559,918 FILM PROJECTOR

Carl Braun, 8500 Nurnenberg, Germany (c/o Carl Braun Camera-Werk, Muggenhofer Strasse 122, Germany)
Filed Sept. 26, 1968, Ser. No. 762,837
Claims priority, application Germany, Oct. 3, 1967, 1,597,122; May 15, 1968, 1,772,436
Int. Cl. G03b 1/04; G11b 15/32, 23/04
U.S. Cl. 242-198 11 Claims



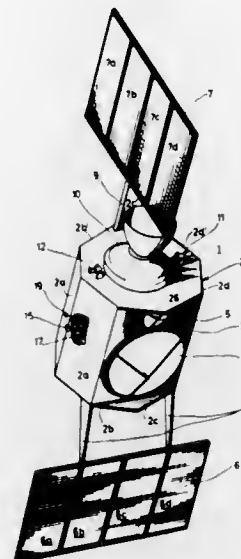
A boxlike film cartridge for use in projectors and having a tangentially arranged film exit opening. The cartridge is arranged to be carried on a pivoting door of the projector housing and carries a film clamping means which is arranged to clamp the film when the motor is automatically switched off by the end of the film passing through the picture gate at the end of rewind, in advance of cessation of rotation of the motor, so as to prevent the film being withdrawn entirely into the cartridge.

3,559,919 ACTIVE COMMUNICATION SATELLITE

Hans Eckhard Sass, Munich, Germany, assignor to Bolkow Gesellschaft mit beschränkter Haftung, Ottobrunn, Munich, Germany
Filed June 5, 1968, Ser. No. 734,596
Claims priority, application Germany, June 22, 1967, 1,506,648
Int. Cl. B64g 1/00

U.S. Cl. 244-1

11 Claims



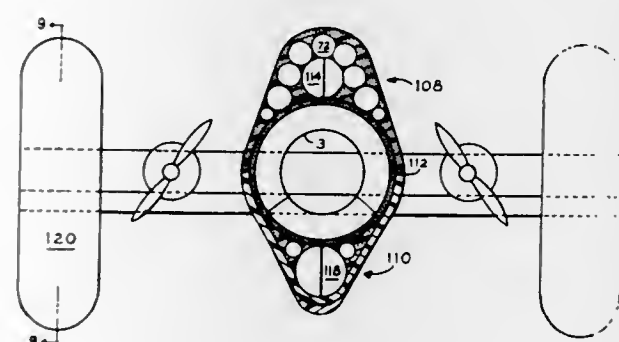
An active communications satellite which is stabilized as to attitude and to orbit includes at least one directional antenna rigidly mounted on a body portion. The antenna part of the generated surface of the body of the satellite in the operating condition is oriented toward earth. The other parts of the surface of the body are penetrated by control engines and their connecting parts which serve to control the attitude and orbit stabilization of the satellite. Some of the control engines are enclosed in the operative condition of the satellite by at least two unfoldable solar battery areas which are mounted on pivot arm members to permit them to be swung outwardly when the satellite is in space. A fly wheel is carried by the body for the attitude stabilization of the satellite and it rotates about the axis of symmetry parallel to the antenna plane. The satellite is advantageously constructed such that the apogee motor, the fly wheel, the electronic equipment and the fuel tanks are disposed so that they will be rotationally symmetric to the axis of symmetry of the satellite.

3,559,920 CRASHPROOF LIGHT-WEIGHT VEHICLE

Alvin Edward Moore, 916 Beach Blvd., Waveland, Miss.
Filed Aug. 22, 1967, Ser. No. 662,401
Int. Cl. B64b 1/20

U.S. Cl. 244-5

65 Claims

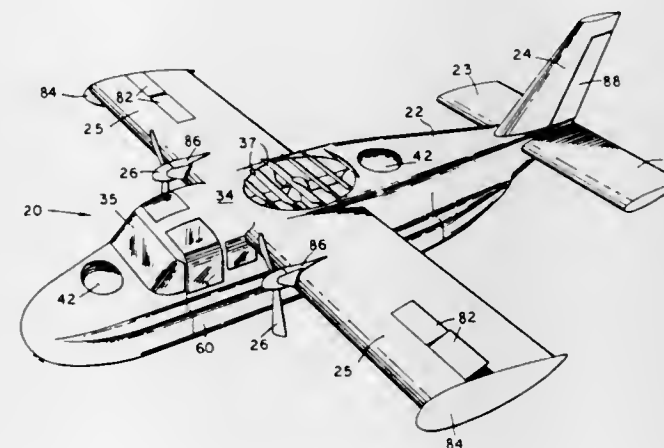


A lightweight, wreckproof, flying boat, airship, or other vehicle adapted to traverse water or land, comprising: a strong, barrel-curved cabin; and around it a shock-taking shield of foam plastic containing numerous lift-providing balloons. Preferably the vehicle is slightly heavier than air and also has other lift-providing means - for example fluidfoil

means (a short wing and hydrofoil). It has means for landing on water, ice or other solid surface. The barrel-curved cabin wall may be made of solid wood or inflated stavelike elements, or laminated plywood, or wire mesh that is coated and impregnated with plastic. The vehicle, which also comprises a stern structure having shock-absorbing plastic and balloons, is generally shaped in airship fashion, or else as a large flying wing.

3,559,921 STANDING TAKE-OFF AND LANDING VEHICLE (A GEM/STOL VEHICLE)

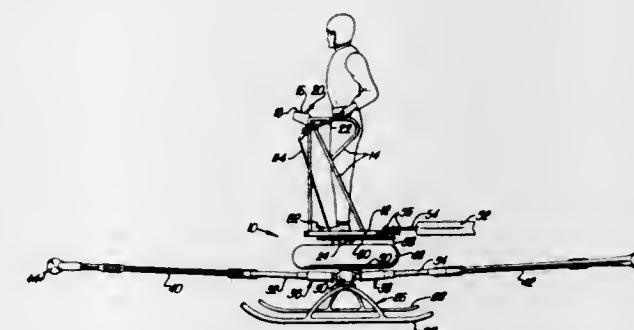
Eugene L. Timperman, 5565 Fox Road, Cincinnati, Ohio
Continuation of application Ser. No. 629,581, Apr. 10, 1967, now abandoned. This application Apr. 24, 1969, Ser. No. 825,105
Int. Cl. B64c 1/04; B60v 3/08
U.S. Cl. 244-12 15 Claims



An aerodynamic vehicle having a peripheral jet ground effects machine system incorporated within the fuselage of the vehicle by which it can take off and land from a standing position either on land or on sea. An impeller or axial flow fan provides for generation of power required to assist the vehicle into a stable aerodynamic hovering condition after which conventional or other known power sources propel the vehicle through flight.

3,559,922 FLYING PLATFORM CONSTRUCTION

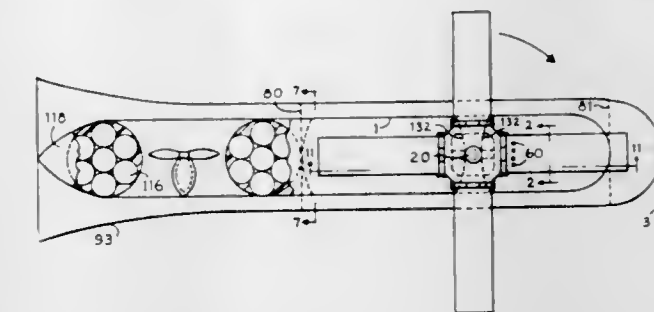
Eugene M. Gluhareff, 18518 S. Broadway, Gardena, Calif.
Substitute for application Ser. No. 802,333, Mar. 27, 1959.
This application Nov. 1, 1967, Ser. No. 718,641
Int. Cl. B64c 27/18
U.S. Cl. 244-17.17 13 Claims



A flying platform type of helicopter. A generally vertical, nonrotating main shaft has the platform affixed to its upper end and a landing gear attached to its lower end. A rotor member is rotatably mounted on the fixed shaft and is driven by one or more jet engines mounted thereon. A circular rotating fuel tank is mounted on the fixed shaft generally coaxially thereof.

3,559,923 CRASH-RESISTANT HELICOPTER

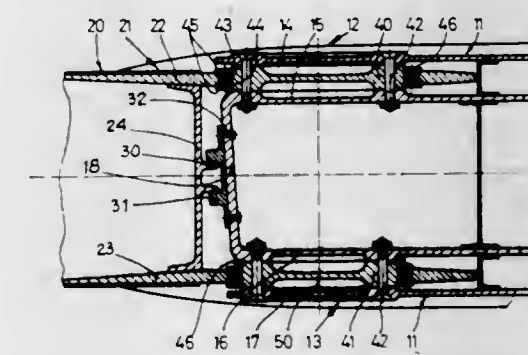
Alvin Edward Moore, 916 Beach Blvd., Waveland, Miss.
Filed May 6, 1969, Ser. No. 822,199
Int. Cl. B64c 11/24, 1/00
U.S. Cl. 244-17.11 39 Claims



A strong, slightly heavier than air helicopter or like vehicle having: hinged, resilient lifting-propeller blades comprising gas-inflated tubes; a substantially rigid cabin comprising gas-containing tubes and a strong skin means; a landing cushion of easily deformable material which maintains its outer shape in flight; a steering propeller supported in a doughnut-shaped tube that is housed in a strong, streamlined skin; and balloon means at the top of the craft for lightening its weight and stabilizing it against pitching and rolling. The cabin's main, load-carrying part is cylindrical, or optionally oblong or barrel-shaped; and optionally its tubular members are in stavelike elements having strong, planar sides that are epoxy-glued together.

3,559,924 MOUNTING ASSEMBLY FOR AN ADJUSTABLE SWEEPBACK AIRCRAFT WING

Hans Joehner, Munich, Germany, assignor to Entwicklungsring Sud GmbH, Munich, Germany
Filed July 1, 1968, Ser. No. 743,913
Claims priority, application Germany, July 5, 1967, E34,317; E34,318
Int. Cl. B64c 3/40 14 Claims



A pivotable mounting apparatus to facilitate the wing adjustment of a sweptback wing aircraft. Secured to the fuselage of the aircraft and projecting outwardly therefrom is a pair of parallel support arms. Each arm is bifurcated and defines two parallel disposed prongs. The base of the wing adjacent the aircraft is provided with a pair of stub members. Each member is slidably positionable between one pair of the support arm prongs. The mating surfaces between the support arm and the wing stubs are provided with suitable bearings so as to permit relative motion between the wing and the fuselage. Spanning the outermost ends of the innermost support arm prongs is a reinforcing web. Similarly, the stubs projecting from the base of the wing are also spanned by a reinforcing web. Secured to the support arm web and the wing stub reinforcing web is a bearing means which serves to absorb the axial thrust created by the wing during flight.

3,559,925

UNDERCARRIAGES

Francis Joseph Costigan, Henlow, and Charles William May, St. Albans, England, assignors to Hawker Siddeley Dynamics Limited, Hatfield, Hertfordshire, England, a British Company

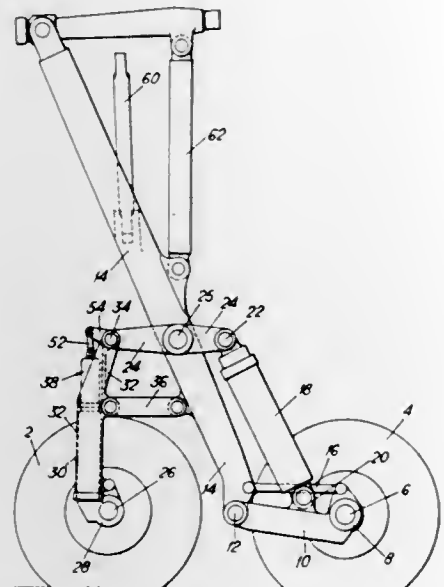
Filed Aug. 20, 1968, Ser. No. 754,000

Claims priority, application Great Britain, Aug. 24, 1967, 39,028/67

Int. Cl. B64c 25/50, 25/58

U.S. Cl. 244—50

7 Claims



In main undercarriage gear for an aircraft, in which the wheels are in two pairs in tandem, one pair being forward of the lower end of the main undercarriage strut and the other pair being rearward, a configuration is provided to enable either one, or both, pairs of wheels to castor when the aircraft is taxiing so as to avoid tyre scrub. The pair of wheels which is to castor is mounted in trailing configuration on the subsidiary leg which is itself carried on the main strut by means of a parallel linkage so that it can rise and fall with respect to the main strut. The wheel pair castors about the vertical axis of this subsidiary leg.

3,559,926

VTOL AIRCRAFT

Werner Fruehauf, Ailingen, and Heinz Guenter, Friedrichshafen, Germany, assignors to Dornier G.m.b.H., Friedrichshafen, Badensee, Germany, a corporation of Germany

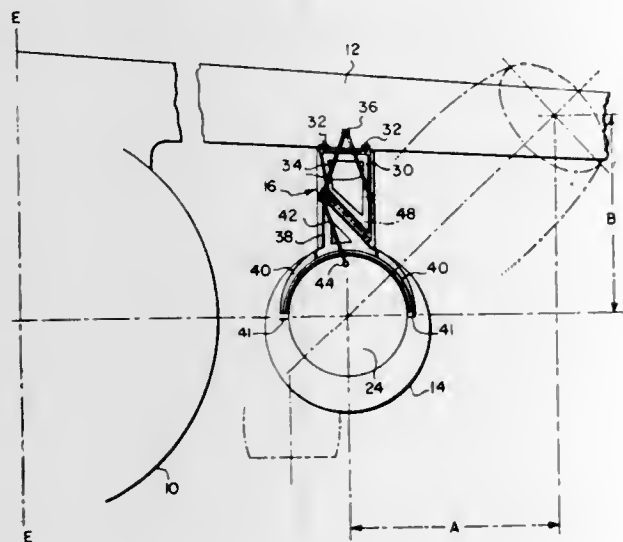
Filed May 9, 1969, Ser. No. 823,269

Claims priority, application Germany, June 1, 1968, P 17 56 532.1

Int. Cl. B64d 29/00

U.S. Cl. 244—56

23 Claims



A VTOL aircraft has at least one engine supported on each side of the longitudinal central axis of the aircraft, each of

these engines being supported for pivotal movement about an axis extending obliquely downwardly and away from the fuselage so that the engine means pivots from a normal operating position to a takeoff and landing position wherein the air intake of the engine means is disposed a greater distance from the longitudinal central plane of the aircraft and at a greater vertical elevation. Jet discharge means on each of the engine means includes movable parts which move so that in the takeoff and landing position of the engines the jet discharge is directed downwardly in a substantially vertical direction.

3,559,927

HELICOPTER RAPID SECURING DEVICE

Asbjorn Baekken, Dartmouth, Nova Scotia, Canada, assignor to Fairey Canada Ltd., Dartmouth, Nova Scotia, Canada, a corporation of Canada

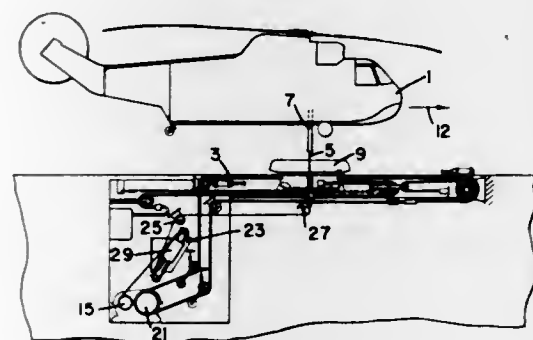
Filed Mar. 11, 1969, Ser. No. 806,212

Claims priority, application Canada, Aug. 21, 1968, 28,072

Int. Cl. B64f 1/12

U.S. Cl. 244—115

13 Claims



An improved probe for mounting on the underside of a helicopter, to be used when landing on the deck of a ship. The ship would be provided with a trap device which grasps the probe and holds it and the helicopter immediately touches down. The improved probe is telescopic and has a compression spring at its upper end biasing it downwardly. Below the spring is provided a latch which locks to the probe a haul-down cable extending from the helicopter to the ship.

3,559,928

AVIATION WINDSHIELD PROTECTIVE DEVICE

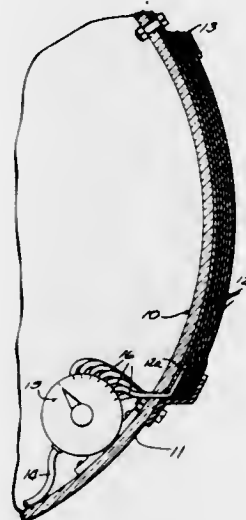
Elroy Dohmeyer, 11242 N. Cedarburg Road, Mequon, Wis.

Filed July 22, 1969, Ser. No. 843,512

Int. Cl. B64c 1/14

U.S. Cl. 244—121

2 Claims



A plurality of sheet transparencies covering a portion of an airplane windshield and means for successively divesting each sheet element beginning with the outermost.

3,559,929

ORDNANCE ACTUATION CONTROLS WITHIN THE RANGE OF VISION OF A PILOT LOOKING FORWARD FROM A COCKPIT

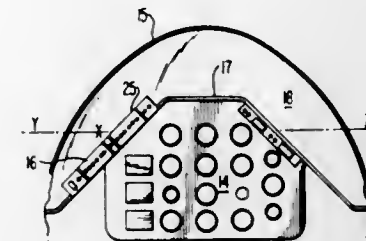
David B. Lindsay, Jr., Box 1719, Sarasota, Fla. 33578

Filed June 10, 1969, Ser. No. 831,962

Int. Cl. B64d 47/00

U.S. Cl. 244—129

10 Claims



There is described a modified cockpit arrangement by which a pilot of a tactical bombing or fighter aircraft sees both his visual aiming point along the fuselage and ordnance firing switches contiguous to, and immediately subjacent to, his line of sight, wherein any operation of the several controls is peripherally seen for identification since it is within a few degrees of the line of sight corresponding to maximum visual acuity. Operation of master switching and subordinate switching is guided by feel, by providing guide means for his fingers within this line of vision as additional assurance as to which switches are being controlled by his several fingers at any instant.

3,559,930

DISTRIBUTION OF PARTICULATE MATERIAL

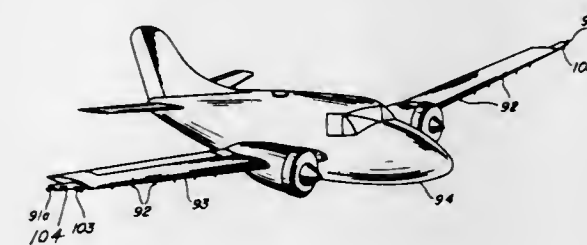
Archibald B. Sellards, 6928 E. Coronado Road, Scottsdale, Ariz. 85257

Filed Dec. 9, 1968, Ser. No. 786,812

Int. Cl. B64d 1/16

U.S. Cl. 244—136

2 Claims



An improved particulate material handling and application system for use in combination with an aircraft including a material hopper carried by the fuselage, ducts for distributing the material extending longitudinally of the airfoils and positive displacement transfer mechanism for delivering the particulate material from the hopper to the distribution duct system. Means are provided for removing remnant or excess particulate material from the outboard ends of the distribution ducts.

3,559,931

STABILITY DEVICE FOR PARACHUTES

Russell A. Pohl, Sioux Falls, S. Dak., assignor to Raven Industries, Inc., S. Dak., a corporation of South Dakota

Filed July 23, 1968, Ser. No. 746,806

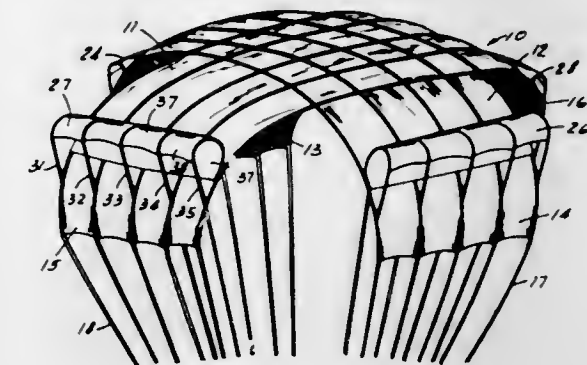
Int. Cl. B64d 17/14

U.S. Cl. 244—145

13 Claims

An improved parachute which has a burble fence attached to the outer portion of the canopy in order to cause separation of the air flowing over the outer surface of the canopy at

the same location at all times. This eliminates oscillations which are caused with conventional parachutes due to the



nonuniform separation of the smooth flow of air over the canopy.

3,559,932

INTEGRATED PARACHUTE HARNESS FOR SUPPORTING A RESERVE PARACHUTE SYSTEM

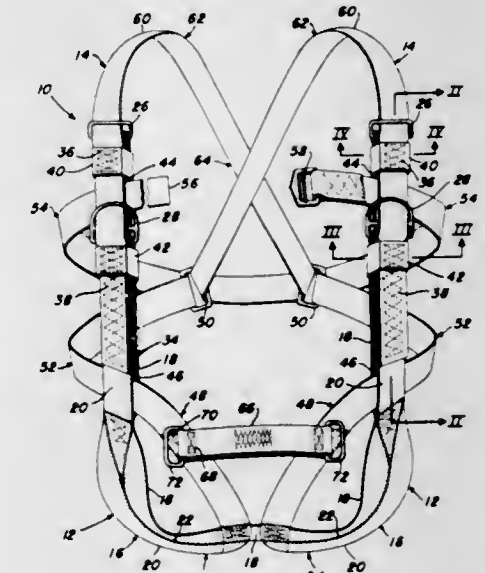
Mathais N. Ternes, El Centro, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Feb. 20, 1969, Ser. No. 801,056

Int. Cl. B64d 17/30

U.S. Cl. 244—151

6 Claims



A parachute harness which has an integral arrangement of webbing straps including a quick releasable means to support the wearer to a main parachute pack and also including quickly detachable means to secure a reserve parachute pack.

ERRATUM

For Class 248—59 see:
Patent No. 3,559,910

3,559,933

CONDUIT MOUNTING DEVICE

Edward J. Castellani, South Plainfield, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J., a corporation of New Jersey

Filed Feb. 28, 1969, Ser. No. 803,275

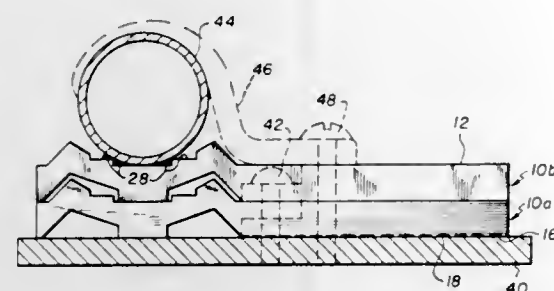
Int. Cl. F16l 3/10

U.S. Cl. 248—74

8 Claims

The invention is directed to a conduit mounting device for mounting a conduit upon a mounting surface. The conduit mounting device consists of a base portion terminating in a nest portion. The upper surface of the nest portion is formed in order to accept conduits of varying diameters while the

lower surface of the nest portion is undercut so that a plurality of similar conduit mounting devices may be stacked one atop the other. A keyhole slot is provided within the base portion to permit premounting of the conduit mounting device upon a mounting surface prior to installation of the conduit thereto. A further slot is provided for accepting the fastening device of a pipe strap in any one of a plurality of



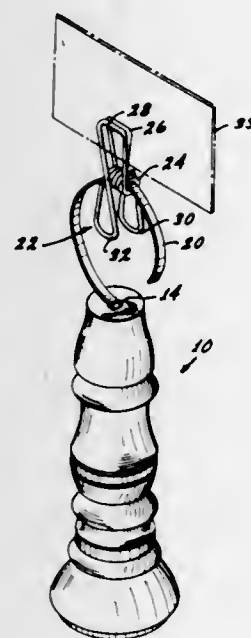
positions along the length of the slot. A scale is provided on the base member adjacent the slot to facilitate the positioning of a pipe strap fastening device to accommodate varying diameters of conduit. An adhesive backing may be provided on the base portion to permit mounting of the device upon a mounting surface without the necessity for additional fastening devices.

3,559,934 UNIVERSAL HOLDER

Venita R. Jensen, 9110 Rayford Drive, Los Angeles, Calif.
Filed Feb. 5, 1969, Ser. No. 796,810
Int. Cl. G09f 19/00

U.S. Cl. 248-121

6 Claims



This invention relates to holders and more particularly to those adapted to be used as card or menu holders. It comprises essentially a stand with a ring affixed thereon, and a swivel clip slidably engaged with said ring and movable universally about said ring for retaining cards, menus and the like in any desired position. This device is an ideal holder for memos and notes.

3,559,935 HOLDER FOR ART OBJECT

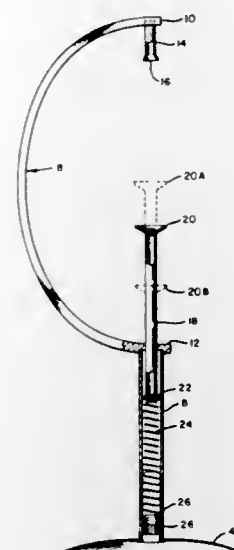
Joan P. Gardner, 2637 Buchanan St., San Francisco, Calif.
Filed May 7, 1969, Ser. No. 822,464
Int. Cl. A47f 5/00

U.S. Cl. 248-125

1 Claim

A holder for an art object is provided including a stand with an arcuate member on the top thereof with a cupped holder downwardly extending from the top of the arcuate member and an adjustable bottom holder extending upwardly

from the stand. The bottom holder is spring mounted and tension on the spring can be adjusted by means of an adjust-



ing stud so that objects of various sizes and weights can be easily supported.

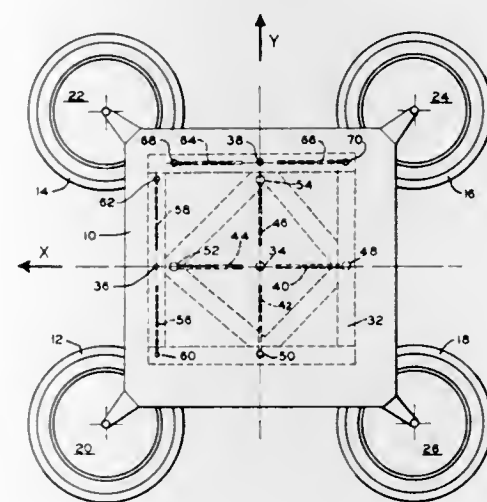
3,559,936 MOTION SIMULATOR

Andre J. Guyon, Binghamton, N.Y., assignor to Singer-General Precision, Inc., Binghamton, N.Y., a corporation of Delaware

Filed Nov. 26, 1968, Ser. No. 779,032
Int. Cl. G09b 9/08

U.S. Cl. 248-179

4 Claims



A motion simulator having mechanical actuators for moving a platform, or the like, in a controlled manner within specified limits and including fluid means arranged to exert a buoyant force opposing the gravity vector of the platform and equipment mounted thereon. In the disclosed embodiment, the buoyant means comprise a plurality of floats immersed in a liquid and connected to the motion platform by means of rigid links connected at opposite ends by means of suitable joints to the floats and platform.

3,559,937 OPTICAL TRACKING MOUNT

T.O. Paine, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of; Roy Broussard, and Josef M. Beehm, Huntsville, Ala.

Filed Sept. 26, 1968, Ser. No. 762,956
Int. Cl. F16c 17/16

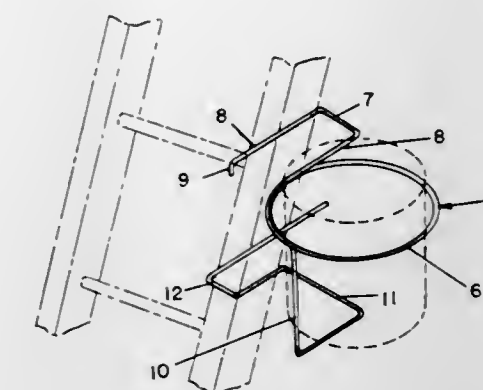
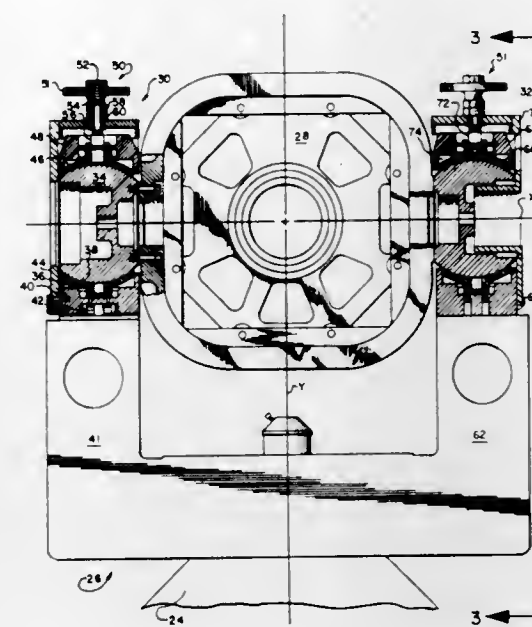
U.S. Cl. 248-183

4 Claims

A tracking mount for a laser telescope having a rotatable base, a yoke mounted on the base and a bracket mounted for rotation in the yoke. The bracket mounts the telescope and is supported in the yoke by two spherical air bearings. Each air

bearing includes a spherical journal attached to the mounting bracket and upper and lower spherical bearing members in which the journal rotates. The bearing members of one air

having a loop portion to receive the can, two hook members extending outwardly from the loop portion in vertically



spaced relationship and being of a configuration as to permit the holder to be mounted on either side of a ladder.

3,559,940 QUICK DETACHABLE AND REPLACEABLE GUNSIGHT MOUNT

George R. Kruzell, 4301 Hotchkiss, Bay City, Mich. 48706
Filed Oct. 16, 1968, Ser. No. 767,963
Int. Cl. F41g 1/38

U.S. Cl. 248-216

3 Claims

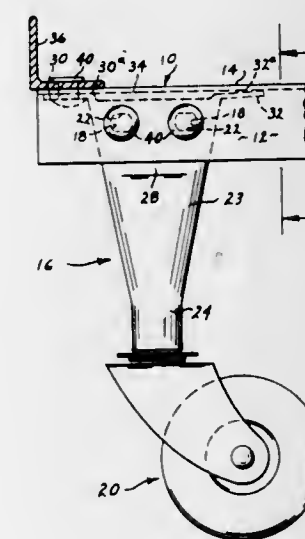
3,559,938 LEG FOR SUPPORTING A FURNITURE FRAMEWORK

Allan E. Harris, Winnetka, Ill., assignor to Harris-Hub Company, Inc., a corporation of Illinois

Filed Feb. 10, 1969, Ser. No. 797,934
Int. Cl. F16m 11/16

U.S. Cl. 248-188

5 Claims



A formed metal support leg for attachment to a bed or furniture frame, with the leg having a flat side surface adjacent the upper end thereof and a pair of oppositely disposed, outwardly extending tabs at the uppermost end of the leg. When the leg is secured to the furniture frame structure, the flat side surface seats against a side surface of the supporting frame and the outwardly extending tabs abut an underside of the furniture support frame.

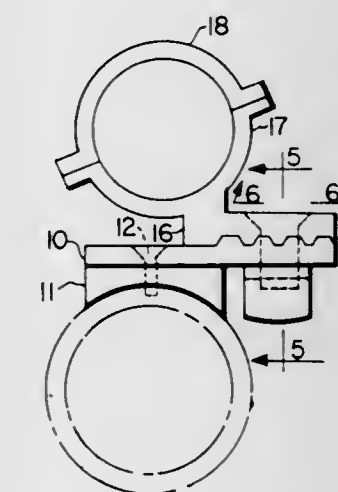
3,559,939 COMBINATION SUPPORT AND HOLDER FOR PAINT CAN

Salvador Luna, 7114 Wheeler, Detroit, Mich. 48210
Filed Apr. 5, 1968, Ser. No. 719,030
Int. Cl. E06c 7/14

U.S. Cl. 248-210

3 Claims

A paint can holder formed from a single piece of stiff wire



A telescopic gunsight mount capable of being quickly detachable from and replaceable on a gun by means of the wedging action between inclined grooves on a threadless bolt and similar inclined surfaces on a locking bar.

3,559,941 MOUNTING DEVICE

James W. Holzman, Grosse Ile, Mich., assignor to Dana Corporation, Toledo, Ohio, a corporation of Virginia

Filed Sept. 26, 1968, Ser. No. 762,848
Int. Cl. B65d 63/08

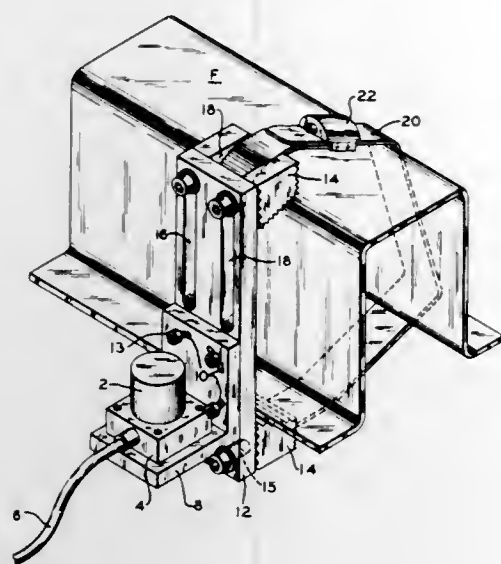
U.S. Cl. 248-228

3 Claims

A mounting assembly for securing a measuring device requiring a specific orientation to a variety of structures. The device includes a pair of adjustable, spaced mounting blocks, secured to a base plate, which are adapted to conform to a variety of supporting shapes. Serrations on the hardened steel mounting blocks provide secure placement when the as-

sembly is clamped to the supporting structure. The combination of an angled bracket including appropriately placed ar-

tainer. Also included in the mechanism is a detent which is arranged to project through an opening in a portion of the



uate slots provide even greater versatility in orienting the device.

3,559,942

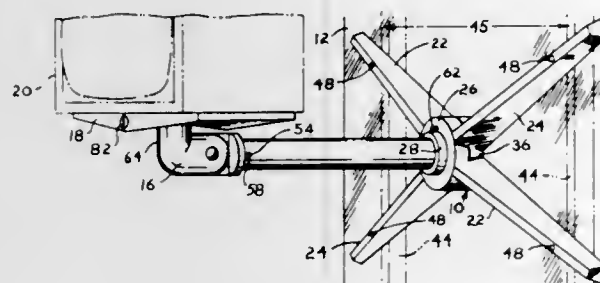
ARTICLE MOUNTING MEANS

Joseph A. Lucasey, 2950 Northwood Drive, Alameda, Calif.
Filed Feb. 29, 1968, Ser. No. 709,342

Int. Cl. A47g 29/00

U.S. Cl. 248-278

5 Claims



A mounting member for securing an article to a horizontal or vertical support surface. The mounting member has a pair of adjustable legs so as to provide rapid easy attachment to wall studs behind a vertical wall, and to provide the most advantageous horizontal base on a horizontal platform such as a floor.

3,559,943

CONTAINER LATCH MECHANISM

Evan Hammond, Michigan City, and Michael Lapaich, Rolling Prairie, Ind., assignors to Clark Equipment Company, a corporation of Delaware

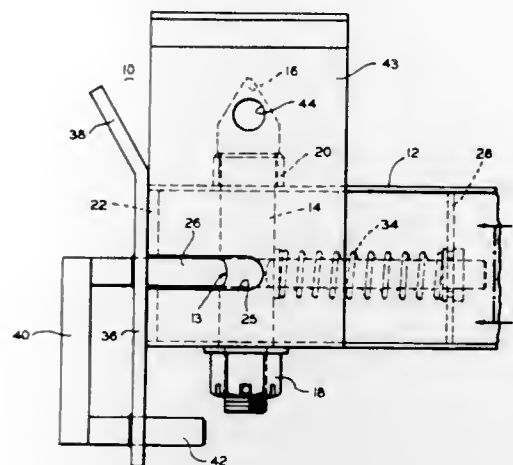
Filed Oct. 28, 1968, Ser. No. 770,994

Int. Cl. B65d 19/38; B61d 45/00

U.S. Cl. 248-361

11 Claims

A latch mechanism for latching either of two types of containers to a supporting structure. Movement of the mechanism between the unlatched position and the latched position latches to the supporting structure whichever type of container has been placed thereon. The mechanism includes a vertically disposed pivotal member which carries a latch head portion at one end thereof for latching one type of con-



supporting structure and into a mating opening in another type of container to latch it in position.

3,559,944

MEANS FOR CONSTRUCTING A HOLLOWED WALL CONCRETE STRUCTURE

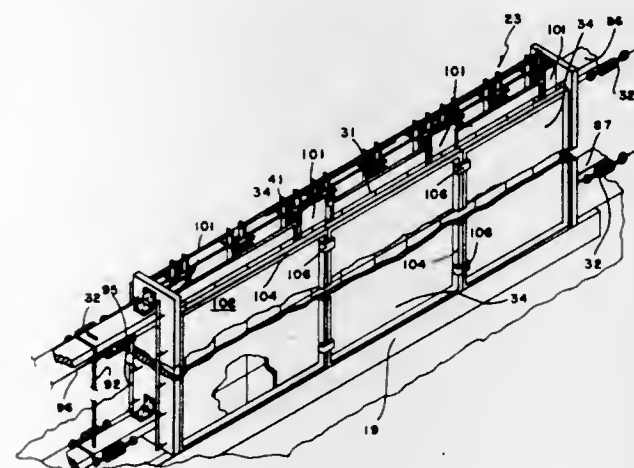
Victor J. Clough, 1647 S. Madison, Wichita, Kans. 67211

Filed July 12, 1967, Ser. No. 652,842

Int. Cl. E04g 11/18

U.S. Cl. 249-36

9 Claims



This disclosure relates to a method and means for the construction of a prestressed hollow concrete wall used for the rapid and economical construction of an entire house or the like. More particularly, this disclosure relates to the use of collapsible form means to construct by the method of this disclosure a hollow wall structure with inner support columns insulated from adjacent parallel outer walls to prevent temperature transfer therebetween. Still, more specifically, this disclosure relates to a means and method of constructing an entire section of a hollow cored wall requiring little time and expanse to produce a structure that is fireproof, insect and rodent proof, and can be readily produced with a variety of decorative wall designs. Additionally, this disclosure relates to the use of collapsible form means operable to present an upright structure that can be sprayed with a fluid construction material to form a wall structure thereon whereby, upon solidification of the material, the form means can be readily removed.

3,559,945

DIAPHRAGM OPERATED FLUID LOGIC VALVES

Ronald W. Coiner, Irwin, and Donald Brown, Monroeville, Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania

Filed Apr. 28, 1969, Ser. No. 819,785

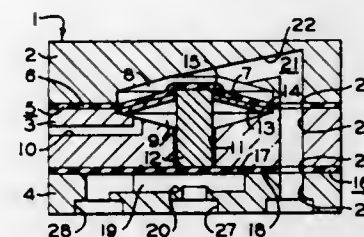
Int. Cl. F16k 11/10, 31/385

U.S. Cl. 251-61.2

10 Claims

A diaphragm-operated logic valve, in which, a Belleville-

type spring biases a valve operator in a first axial direction, and a first diaphragm, when subjected to a control pressure, overcomes the spring bias whereupon the valve operator is moved by way of snap action of the spring in the opposite axial direction. A second diaphragm, captured at its outer periphery between a pair of housing sections to form a seal, includes a central portion, one side of which is engaged by



the valve operator and sealingly overlies the bore in which the valve operator is disposed for movement, and the other side of which overlies a valve seat in a cavity to serve as a valve which engages the valve seat when the valve operator is moved by the control pressure on the first diaphragm. In a modification, the other side of the second diaphragm may carry an auxiliary operator which controls operation of a third diaphragm as a valve.

3,559,946

BOND FOR METAL TO METAL JOINTS

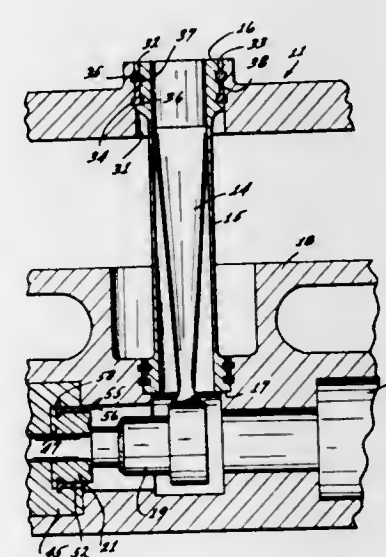
David W. Baxter, Jr., Sylmar, Calif., assignor to Bell Aerospace Corporation, a corporation of Delaware

Filed Nov. 19, 1968, Ser. No. 776,928

Int. Cl. F16k 31/06; B21k 25/00

U.S. Cl. 251-129

3 Claims



Disclosed is an electromagnetically operated force motor which positions a valve member with respect to a valve seat to open and close a valve, thereby controlling the flow of fluid through a chamber which is sealed with respect to the force motor. Various portions of the force motor are maintained in position by a mechanical bond which provides a fluidtight seal.

3,559,947

GATE VALVE

Edward F. Sette, Oakland, Calif., assignor to Sette Products Co., Oakland, Calif., a corporation of California

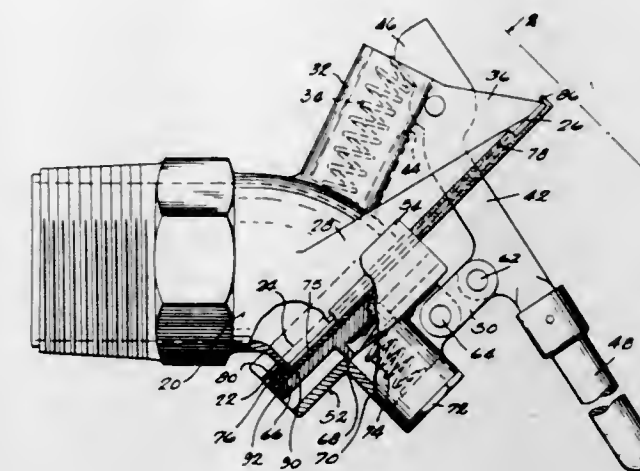
Filed Aug. 1, 1968, Ser. No. 749,455

Int. Cl. F16k 3/04

U.S. Cl. 251-147

4 Claims

A ported body with an extension providing a way has a separately fabricated nylon facing mounted on the way. A slide having a flange interlocking it with the way is reciprocable along the way and carries a metal valve member with a facing complementary to that of the valve body and adapted,



reciprocated by a link connected with a handle which is urged by a spring on the body toward a position in which the valve is closed.

3,559,948

GATE VALVE CONSTRUCTION

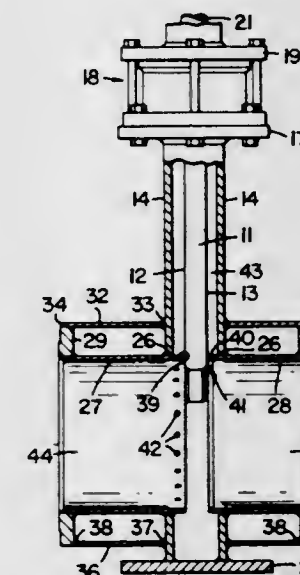
Marvin H. Grove, Houston, Tex., assignor to M & J Valve Company, Houston, Tex., a corporation of Texas

Filed Sept. 19, 1968, Ser. No. 760,832

Int. Cl. F16k 3/16

U.S. Cl. 251-174

2 Claims



A gate valve suitable for applications where the pressure on one side of the valve is negligible or relatively low, while the pressure on the other side of the valve may be substantially higher. A resilient seal is provided between the end of the wall of the body and the gate on one side of the valve, namely that side which may have a substantial pressure applied. On the other side of the body, the body space is ported to the corresponding flow passage of the valve, whereby leakage from the higher pressure side cannot apply to the body.

3,559,949

GATE VALVE

Ernest Muller, Sydney, 2066, Australia (220 Burnsbay Road Lane Cove W.)

Filed Feb. 16, 1967, Ser. No. 616,562

Int. Cl. F16k 25/00

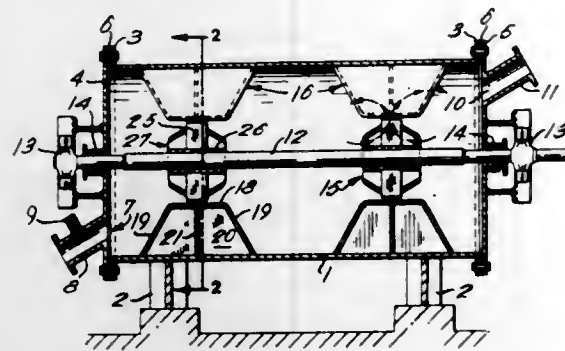
U.S. Cl. 251-203

1 Claim

The specification discloses a construction similar to stan-

stationary agitating elements extending in a circular row about, and attached to, the inner wall of the casing, and a

nicating with the bottom of the mixing vessel. Means are provided for transferring liquid from the mixing vessel to a set-



plurality of spaced-apart, radially extending blades mounted on an axial, rotatable shaft within the casing.

3,559,958

CONTINUOUS MACHINES FOR THE INSTANTANEOUS PRODUCTION OF WHIPPED CREAM

Poerio Carpigiani, Bologna, Italy, assignor to APAW S.A., Fribourg, Switzerland, a joint stock company incorporated of Switzerland

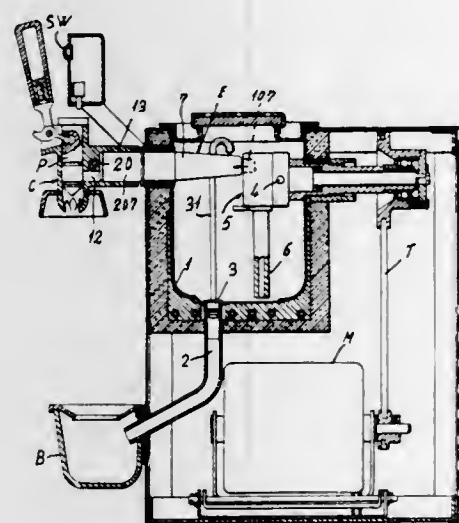
Filed Nov. 20, 1968, Ser. No. 777,434

Claims priority, application Italy, Nov. 20, 1967, July 8, 1968, 7442A/67; 7152A/68

Int. Cl. B01f 7/04

U.S. Cl. 259-10

8 Claims



Liquid cream and air are drawn from and pumped under a strong pressure by a gear pump as a rough mixture through an open ended emulsifying homogenizer where the mixture is subjected to subsequent squeezings, fractionings, and expansions until said mixture, at the outlet of the homogenizer, has become soft and fluffy, like a conventional whipped cream.

3,559,959

IMPELLER AND MIXER-SETTLER APPARATUS

Walter M. Davis, Beverly, Mass., and Edwin A. Matzner, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

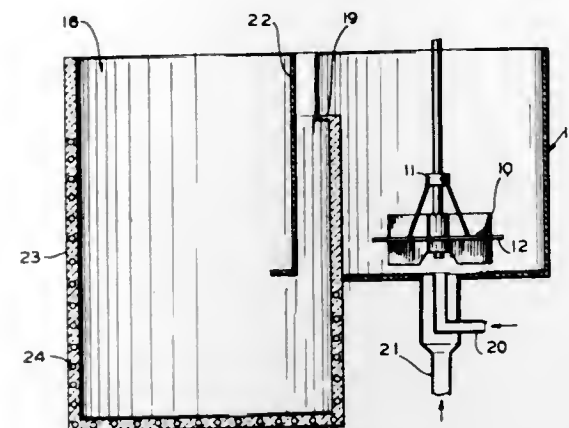
Filed Aug. 13, 1968, Ser. No. 752,231

Int. Cl. B01f 7/16

U.S. Cl. 259-23

4 Claims

A variable ratio impeller apparatus in which vanes extend through perforations in a baffle which is movable to vary the proportion of the vanes extending on either side of the baffle permits adjusting the ratio of mixing action to pumping action produced by the impeller. In a mixer-settler liquid-liquid contact apparatus, the impeller apparatus is substantially vertically positioned in a mixing vessel with the vanes extending over and spaced not more than 0.05 times the diameter of their sweep from proximately located plural inlets commu-



ting vessel provided with a baffle to minimize turbulence produced by the liquid transfer.

3,559,960

MIXER

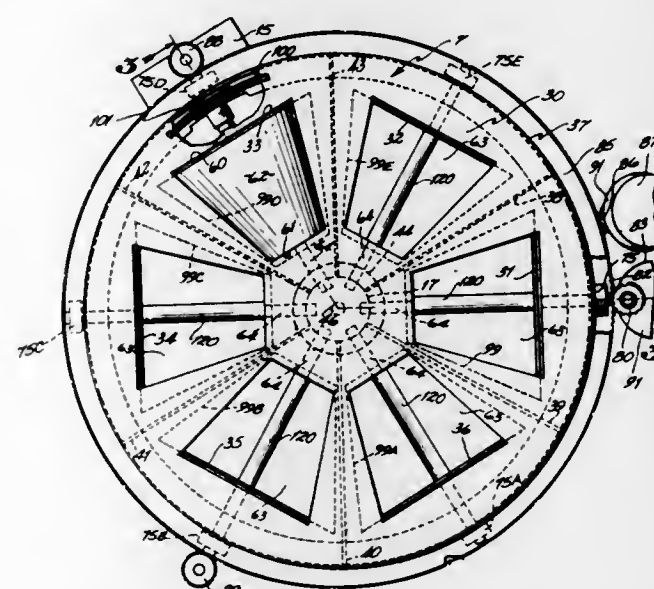
Stanley C. Elder, and Albert C. Reckman, Cincinnati, Ohio, assignors to A. R. Industries, Inc., Cincinnati, Ohio, a corporation of Ohio

Filed Mar. 26, 1969, Ser. No. 810,535

Int. Cl. B01f 9/00

U.S. Cl. 259-58

14 Claims



A batch mixer for continuously mixing multiple batches of discrete material. The mixer comprises multiple mixing chambers which continuously move in an orbital path of movement and while so moving, are filled with material, the material is mixed, and the chambers dumped. Mixing is effected by rotation of a blade mounted within each of the chambers.

This invention is an improvement upon the apparatus disclosed and claimed in U.S. Pat. No. 3,319,941, issued May 16, 1967, and assigned to the assignee of this application.

3,559,961

APPARATUS AND METHOD FOR THE PRODUCTION OF DENTAL MIXTURES POOR IN POROSITY

Gunnar Bergendal, Bergslagsvagen 268, Bromma, near Stockholm, Sweden

Filed Aug. 16, 1968, Ser. No. 753,178

Claims priority, application Sweden, Aug. 28, 1967, 11947/67

Int. Cl. B01f 11/00

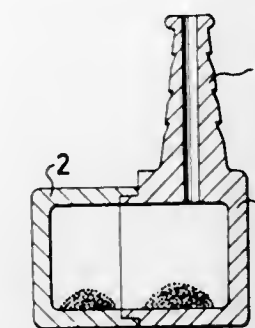
U.S. Cl. 259-72

4 Claims

Apparatus and method for production of dental mixtures poor in porosity from a pulverous material and a material in

a liquid state. The two materials are inserted in a chamber which is evacuated by means of a vacuum pump so that the pulverous material is substantially removed from air. The mixing is then performed under vacuum by shaking the

relay valve for automatically terminating the flow of fuel to the air and fuel-mixing chamber in response to vehicle deceleration. The relay valve is physically separated from the mixing chamber and operates to quickly cut off the supply of fuel when there is a temporary lack of demand for the fuel in order to minimize air pollution and smog effects. Fuel droplets trapped in corrugations on the mixing chamber wall are blasted by an inducted air stream to atomize the fuel.



3,559,964

DEVICE FOR MECHANICAL GASIFICATION OF LIQUIDS

Guenther Sell, Kelsterbach, and Joerg Lohmann, Eschborn, Germany, assignors to Friedrich Uhde GmbH, Dortmund, Germany, a German company

Filed Jan. 2, 1969, Ser. No. 788,477

Claims priority, application Germany, Jan. 4, 1968, 1,632,423

Int. Cl. B01f 3/04

U.S. Cl. 261-91

3 Claims

chamber or by inserting a spatula in an airtight manner through the wall of the chamber. The vacuum pump is thereafter disengaged from the chamber and the mixture is ready for use.

3,559,962

STIRRING DEVICE

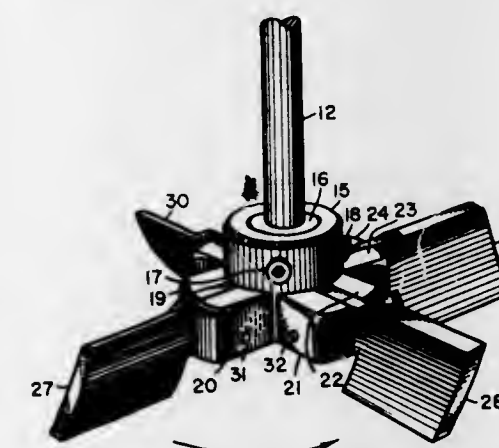
Bruno E. Enssle, Lander, Wyo., and Jerry P. Malec, Omaha, Nebr., assignors to Binks Research & Development Corporation, Boulder, Colo.

Filed June 10, 1968, Ser. No. 735,822

Int. Cl. B01f 7/18

U.S. Cl. 259-111

1 Claim



A device for stirring liquid contained in a bung-type drum, the stirring action being generated by a shaft-mounted rotor having vanes retractable into a configuration permitting insertion of the rotor through the bung with the shaft.

3,559,963

ATOMIZATION AND FUEL CUTOFF CARBURETOR

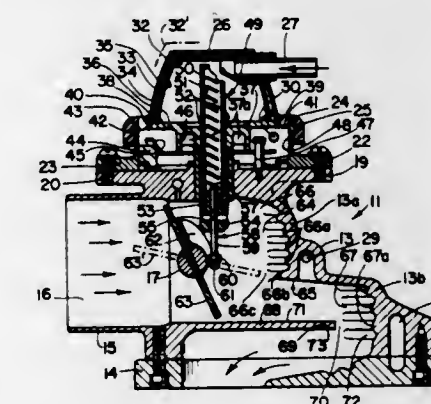
Oscar R. Cedarholm, 4 Cedar Lane, Eureka, Calif. 95501

Filed Dec. 3, 1968, Ser. No. 780,860

Int. Cl. F02m 7/22

U.S. Cl. 261-50

13 Claims



A vehicle carburetor includes a mixing chamber for finely atomizing fuel charges and a pressure responsive pneumatic

A device for the gasification of liquids comprising a radially effective rotatable conveyor disposed on the liquid surface and an axially operating rotatable conveyor within the inlet mouth of the radially effective conveyor, the conveyors being separate from each other and independently driven so that one may be driven at a different rate of speed than the other. The radial conveyor is formed in part with hollow walls which are in connection with the gas phase through apertures in one face wall. In the rotor channel are disposed baffled openings through which gas may be sucked into the liquid.

3,559,965

APPARATUS FOR HEATING SYNTHETIC FILAMENTS

Kinyu Ishida, and Yasuhiro Okamura, Ehime-ken, Japan, assignors to Teijin Limited, Osaka, Japan

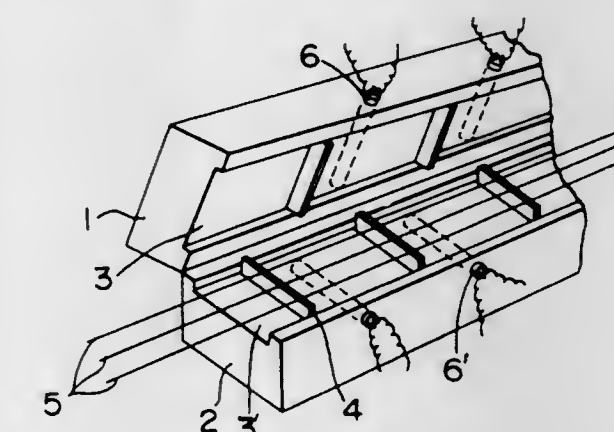
Filed July 18, 1969, Ser. No. 843,004

Claims priority, application Japan, July 23, 1968, 43/51966

Int. Cl. F27b 9/28

U.S. Cl. 263-3

5 Claims



An apparatus for heating a great number of synthetic filaments or a tow uniformly and with good thermal efficiency in

a slit-type heater while having them run in and out of the slit by disposing a plurality of buffer plates in the slit to obstruct outside air flowing into the slit with the running filaments, and thereby prevent a drop of air temperature in the slit, and make possible a substantially constant air temperature transversely of the slit.

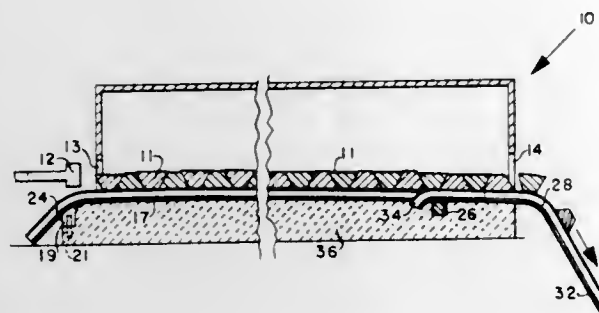
3,559,966

SKID SUPPORT

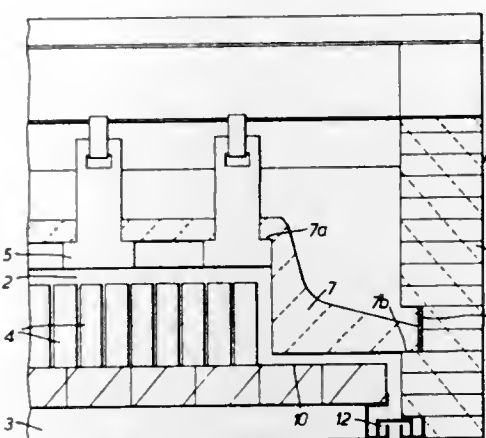
Richard L. Croiter, Yonkers, N.Y., assignor to Anaconda Wire and Cable Company, a corporation of Delaware
Filed Feb. 7, 1969, Ser. No. 797,479
Int. Cl. F27b 9/14

U.S. Cl. 263-6

6 Claims



face of an unladen part of the ceramic ware trolley of the kiln.

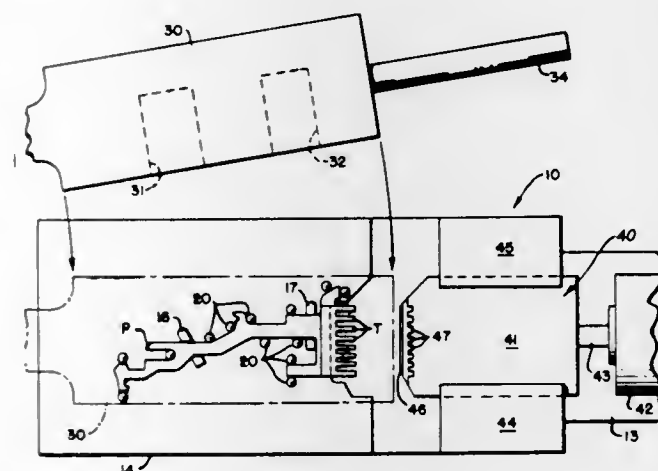


3,559,969 QUENCHING AND STRAIGHTENING DEVICE FOR HEAT TREATING MACHINE

Thomas G. Eannarino, Park Ridge, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware
Filed May 14, 1968, Ser. No. 728,992
Int. Cl. C21d 1/10

U.S. Cl. 266-5

7 Claims



A quenching and straightening mechanism for parts having rows of tined projections includes a blade having a thickness equal to the distance between the rows of tines and teeth, mounted on the blade, and having widths equal to the distance between the tines in a row. An air cylinder drives the blade between the rows of tines and the teeth between the tines as the parts are quenched.

3,559,970 APPARATUS FOR CONTROLLING THE GAS PRESSURE FROM A CONVERTER

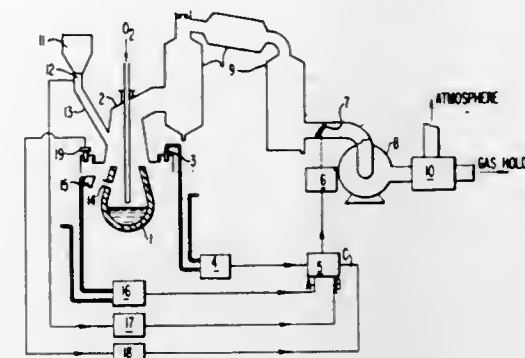
Ichizo Hamabe; Motoaki Hirao, Kobe-shi, and Gunji Kagamiuchi, Akashi-shi, Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Ikuta-Ku, Kobe, Japan
Filed May 3, 1968, Ser. No. 726,502
Claims priority, application Japan, Dec. 22, 1967, 42/82267
Int. Cl. F27d 19/00

U.S. Cl. 266-15

6 Claims

A system for controlling the pressure of the gas generated from a converter in noncombustion state and collected in a hood with atmospheric air being excluded from the hood including cooling and dust removing means for the gas before

the gas is stored. The pressure of the gas within the hood is detected as one signal factor, said detected signal factor being applied to an adjusting instrument so as to actuate a mechanism in said system for controlling the pressure of the gas by opening and closing a damper located in a duct lead-



ing from the hood. The system further includes a mechanism for delaying the time the damper in said duct is opened or closed by applying a signal factor other than said signal factor derived from the pressure of the gas in said hood to said adjusting instrument.

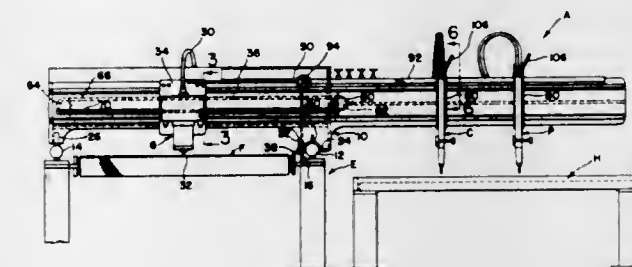
3,559,971

CONTOUR CUTTING DEVICE

Lawrence J. Rogers, Maple Heights, Ohio, assignor to Air Products and Chemicals, Inc., Allentown, Pa., a corporation of Delaware, by mesne assignment
Filed Mar. 19, 1968, Ser. No. 714,178
Int. Cl. B23k 7/10

U.S. Cl. 266-23

10 Claims



There is provided a contour cutting device wherein a torch follows a path traced by a photosensitive head over a preselected pattern. This device includes a three point guide assembly for movement of the torch in one direction and a tension adjusting arrangement for a chain for movement of the torch in a second direction.

3,559,972

FURNACE APPARATUS

Melvin J. Greaves, Cleveland, and Tage Werner, Rocky River, Ohio, assignors to Arthur G. McKee & Company, Cleveland, Ohio, a corporation of Delaware
Original application Jan. 17, 1966, Ser. No. 520,945, now Patent No. 3,431,691, dated Mar. 11, 1969. Divided and this application Aug. 29, 1968, Ser. No. 778,883
Int. Cl. C31b 7/03

U.S. Cl. 266-25

25 Claims

Shaft furnace apparatus comprising an upstanding furnace shell, and a supporting structure comprising a frame surrounding and spaced from the shell including generally horizontally disposed frame members joined end to end and being of substantial depth and having sides facing the shell, spaced legs supporting the frame, and a plurality of connector means fixed to such sides of the frame members and to the shell to support the shell from the frame, and means connected to the members forming the frame to resist tilting of



the frame members about generally horizontal axes during expansion of the shell on heating of the furnace. Preferably, at least 25 percent of the weight of the furnace above the

bosh portion is at all times supported by the supporting structure. If desired, the hearth portion of the furnace may be suspended below the frame and be essentially unsupported from below.

3,559,973

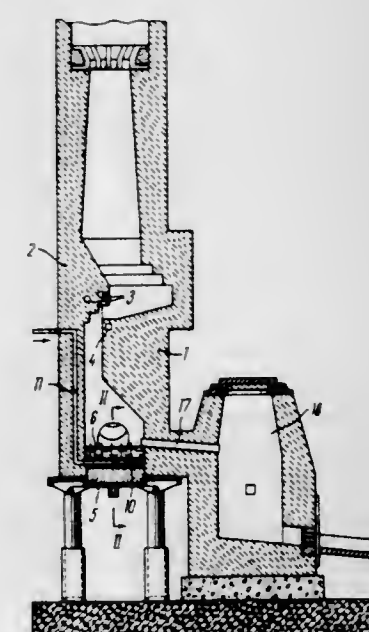
GAS CUPOLA FURNACE

Vladimir Alexandrovich Grachev, ul. Uritskogo, 74, kv.9; Anatoly Alexeevich Cherny, ul. Tsiolkovskogo, 41, kv.32, Penza; Lev Mikhailovich Marienbakh, Bolshaya Cherkizovskaya, 5, Korp. 1, Kv.73, Moscow, and Ivan Lukich Kur-batsky, ul. Volodarskogo, 74, Kv.4, Penza, U.S.S.R.
Filed Feb. 1, 1967, Ser. No. 613,166

Claims priority, application U.S.S.R., Feb. 1, 1966, Feb. 1, 1966, June 27, 1966, June 27, 1966, 1,052,704; 1,052,599; 1,088,888; 1,087,642
Int. Cl. F27b 1/04; F27d 7/02

U.S. Cl. 266-27

4 Claims



A gas cupola furnace comprises a shaft, having at the bottom thereof, a hearth in which molten metal is superheated

3,559,968

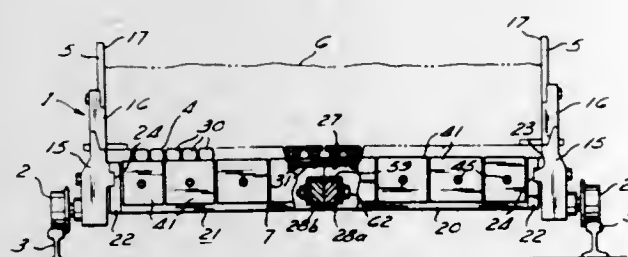
TUNNEL KILNS

Gregor Buschermohle, Ibbenburen, Germany, assignor to Keller Ofenbau GmbH, Laggenbeck Westfalen, Germany, a joint stock company
Filed July 15, 1969, Ser. No. 841,699
Claims priority, application Germany, Sept. 5, 1968, 1,758,940
Int. Cl. F27b 9/00

U.S. Cl. 263-28

4 Claims

A tunnel kiln includes a suspended roof which is spaced at each longitudinal edge from the sidewalls, the intermediate



Traveling grate apparatus adapted to be subjected to severe and fluctuating elevated temperatures has supporting frame including metal supporting members, which members are substantially covered by metal shields secured to such supporting members with minimal contact areas, in order to provide heat insulating metal-to-air interfaces between the frame members and the shield to prolong the useful life of the frame.

by introduction of a combusted gaseous fuel into a tunnel which leads to the hearth, the molten metal having various reagents added thereto by means of channels which lead to the molten metal which channels may be disposed in the walls of the shaft or the walls of the hearth.

3,559,974

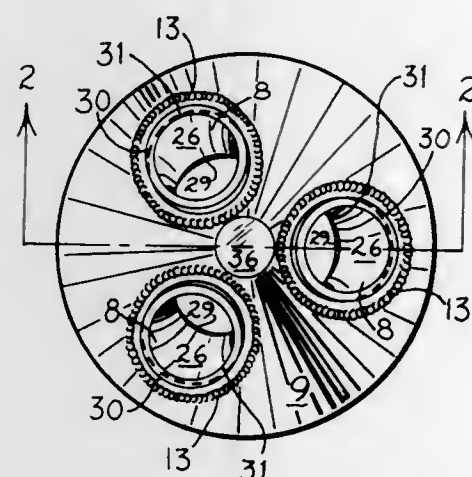
OXYGEN LANCES HAVING A HIGH RESISTANCE TO DETERIORATION AND MULTIPIECE NOZZLE HEADS THEREFOR

Walter V. Berry, Pittsburgh, Pa., assignor to Berry Metal Company, Wilmington, Del., a corporation of Delaware, by mesne assignments

Continuation-in-part of application Ser. No. 445,100, Apr. 2, 1965, now Patent No. 3,430,939. This application Mar. 3, 1969, Ser. No. 803,696
Int. Cl. C21c 13/02

U.S. Cl. 266—34

12 Claims



Oxygen lances having a high resistance to deterioration comprising a shank and a multipiece nozzle connected thereto wherein the multipiece nozzle includes a worked metal, e.g. copper, base portion, worked metal, e.g. copper, oxygen conduits and a cast metal, e.g. copper, body portion including oxygen conduit means connected to said worked metal, e.g. copper, oxygen conduits. The terminology "worked" means forged or pressed or formed or extruded or swaged. The so-worked copper utilized herein is free from oxygen, hydrogen, sulfur and any elements considered to be "tramp" elements with respect to copper, which elements by themselves, or in combination, could form precipitates that would migrate to the grain boundaries to lower the physical properties or cause grain separation.

3,559,975

GAS-COLLECTING HOOD FOR STEEL-MAKING CONVERTER

Karl-Friedrich Baumann, Hesel; Hans Hoff, Essen-Bredene, and Kurt Braumüller, Graz, Austria, assignors to Gottfried Bischoff, Bau Kompl. Gasreinigungs- und Wasserrückklangen KG, Essen, Germany, a corporation of Germany and Waagner-Biro AG, Vienna, Austria, a corporation of Austria

Filed Dec. 2, 1968, Ser. No. 780,456

Claims priority, application Germany, Dec. 2, 1967, 1,583,222

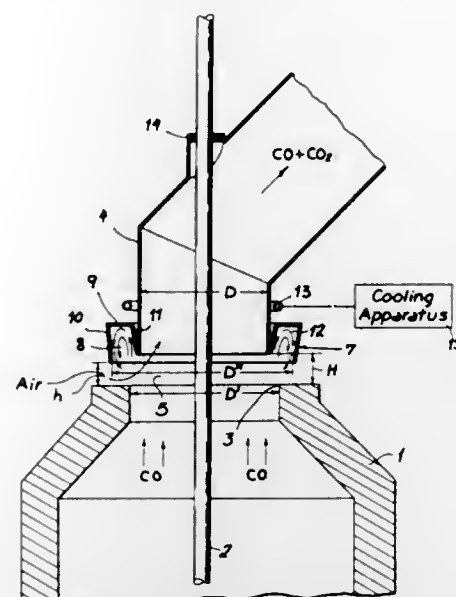
Int. Cl. C21c 5/42

U.S. Cl. 266—35

9 Claims

A gas-collecting hood is arranged over the circular outlet or mouth of a top-blown steel-making converter. This hood comprises a cylindrical tube or duct with a smaller diameter than the mouth coaxial therewith. The tube is fitted with an outer trough which opens downwardly and sustains a crown vortex feeding back into the main stream. This trough has an

outer wall or apron whose diameter is greater than that of the mouth and whose lower periphery is positioned below the



bottom end of the tube, while being spaced above the converter.

3,559,976

VARIABLE STIFFNESS SUSPENSION SYSTEM

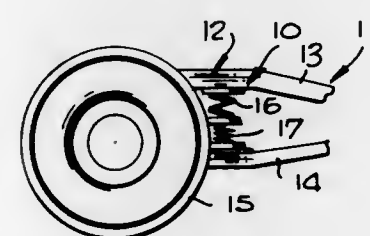
Joseph Jerz, Jr., 131 Wylerhorn St., Crestline, Calif. 92325

Filed Oct. 17, 1968, Ser. No. 768,249

Int. Cl. F16f 1/12

U.S. Cl. 267—61

17 Claims



A vehicle suspension system including two springs connected in series, with one of the springs being stiffer than the other, and with the springs being so related that under normal load conditions the softer of the two springs is effective to provide a very gently cushioned ride, while upon the imposition of heavier load forces, the vehicle is supported more stiffly and primarily by the stronger spring. The conversion between these two conditions may be effected automatically, by engagement under heavy load conditions of a pair of stop shoulders acting to limit compression of the light spring. Similarly, upon excessive extension of the springs, an additional set of stop shoulders may automatically become effective to limit the amount of extension of the softer spring and cause the stiffer spring to resist further extension. A shock absorber may be utilized in conjunction with the springs, and may itself carry or include one or more of the stop shoulders.

3,559,977

PADDING SUPPORT FOR UPHOLSTERED FURNITURE

Robert O. Isaacs, Joplin, Mo., assignor to Flex-O-Lators, Inc., Carthage, Mo., a corporation of Missouri

Filed Dec. 13, 1968, Ser. No. 783,574

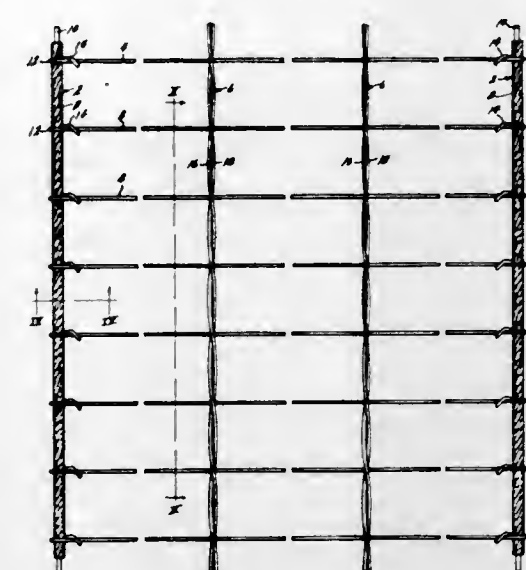
Int. Cl. F16f 3/00

U.S. Cl. 267—90

12 Claims

A padding support for upholstered furniture comprising a resilient fabric consisting of a series of parallel, spaced-apart, resilient cross wires extending between and connected at their ends to a pair of parallel side strands extending at right

angles thereto, and a series of parallel, spaced-apart pairs of resilient wires extending parallel to and intermediate said sleeve vulcanized into the rubber part as well as a metal disc vulcanized into the rubber part within the area of the collar



side strands, the wires of each pair being twisted together to connect them both to each other and to said cross wires.

3,559,978

FLAT SPRING ARRANGEMENT FOR USE ON A SPRING WIRE MESH

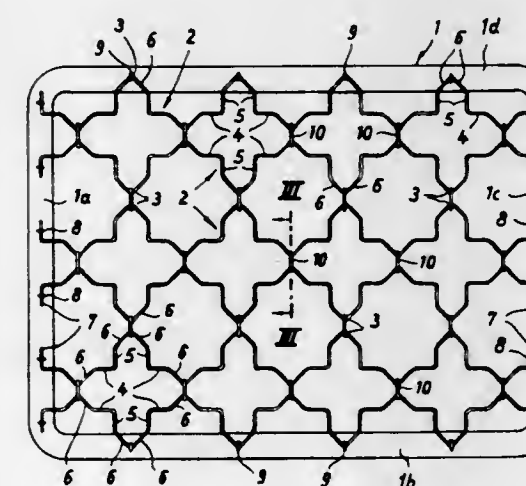
Otto P. Molt, Hubersbronn, Wurttemberg, Germany

Filed Apr. 1, 1969, Ser. No. 812,110

Int. Cl. A47c 23/16

U.S. Cl. 267—144

6 Claims



A flat spring for use in spring wire mesh for chairs and beds. The spring wire is bent in substantially zigzag form with the sections of the wire which lie between the apex portions bent further outwardly thereby enabling improved longitudinal and transverse extension.

3,559,979

RUBBER METAL COLLAR END-BEARING

Alf John Muller, Bittenfeld, Wurttemberg, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Oct. 10, 1968, Ser. No. 766,609

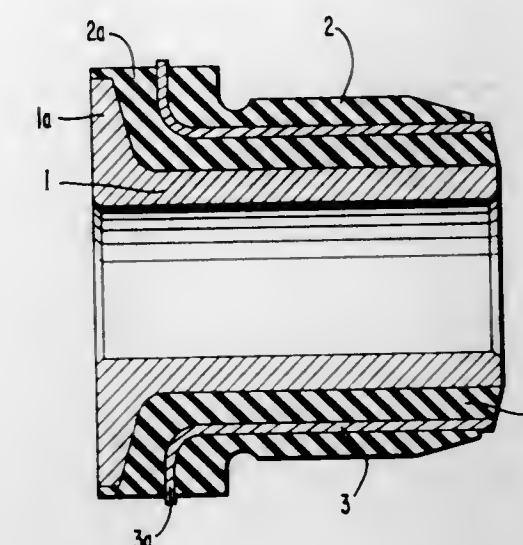
Claims priority, application Germany, Oct. 12, 1967, 1,625,525

Int. Cl. F16f 16/12

U.S. Cl. 267—1

2 Claims

A rubber-metal collar end-bearing which includes an inner metal bushing, a rubber part vulcanized to the outer surface of the metal bushing and provided with a collar, and a metal



thereof; the metal sleeve and the metal disc are preferably made in one piece in the form of a flange-bushing.

3,559,980

PLATE CONTROLLED JIGS FOR BUILT-UP SURFACE

Kiyoshi Terai, Asiya-shi; Tatsumi Kurioka, and Hideshi Takeuchi, Kobe-shi, Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

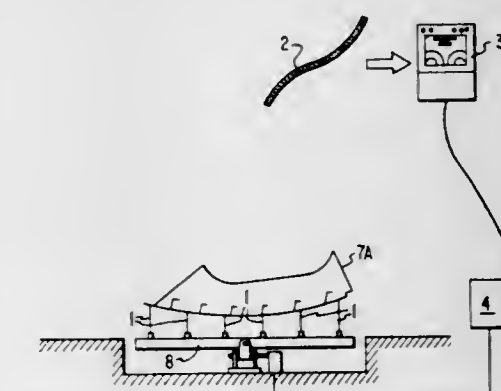
Filed Feb. 7, 1969, Ser. No. 797,615

Claims priority, application Japan, Feb. 8, 1968, 43/8975

Int. Cl. B25b 11/02; B23g 3/18

U.S. Cl. 269—20

5 Claims



A plurality of spaced, extensible rodlike jigs carried by a support surface in upstanding fashion for supporting a built-up surface are selectively adjusted by central control means from an information storage tape carrying predetermined positional format information by feeding the tape through a transducer which feeds control signals to the central jig control means.

3,559,981

DIFFERENTIAL HANDLING TOOL

Harold R. Abshear, 1520 W. Silliker, La Habra, Calif. 90631

Filed Mar. 26, 1968, Ser. No. 716,180

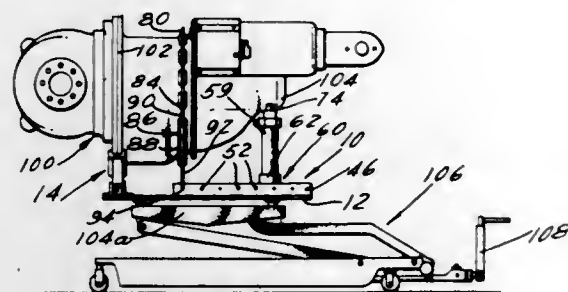
Int. Cl. B25b 5/14

U.S. Cl. 269—130

3 Claims

A motor vehicle differential supporting and holding ap-

paratus having adjustable differential flange holders and a neck rest for positioning under the differential neck. A chain



secures the neck on the neck rest and is tightened by means of a turnbuckle.

3,559,982

COLLATING MACHINE

Wilhelm Eppers, St. Georgen, Black Forest, Germany, assignor to Math. Bauerle GmbH, St. Georgen, Black Forest, Germany

Filed July 9, 1969, Ser. No. 845,653

Claims priority, application Germany, Oct. 30, 1961, 1,411,018

Int. Cl. B65h 39/02

U.S. Cl. 270-58

11 Claims



A machine for collating sheets of paper. A photoelectric-sensing device determines whether more than one type of a sheet has been fed, while a spring contact sliding against a roller determines the absence of a sheet. If either more than one sheet is sensed or the absence of a sheet is detected, an electrical path is closed by a cam operated by movement of the conveyor of the machine. This closing shuts down the conveyor and a machine operator can then correct the sensed problem.

3,559,983

LARGE SHEET FOLDER INCLUDING SHEET SECURING MEANS

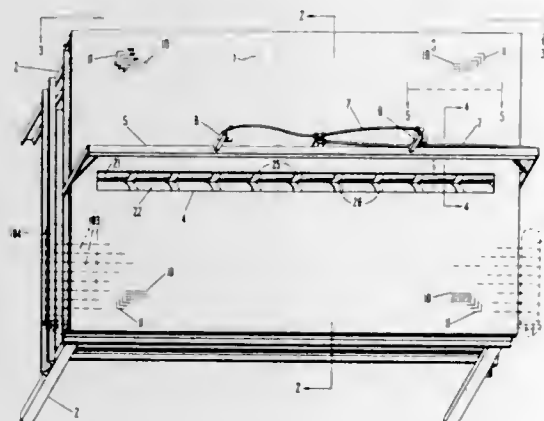
Robert L. Sjostrom, Boca Raton, Fla., assignor to Sjostrom Automations, Inc., Boca Raton, Fla., a corporation of Florida

Filed May 12, 1967, Ser. No. 637,953

Int. Cl. B65h 45/18, 45/04

U.S. Cl. 270-69

7 Claims



A machine for inspecting and folding manufactured sheets and heavy fabrics such as shower curtains having a table top upon which the sheet can be manually spread and inspected. A longitudinal slot is centrally located in the table top through which the sheet is driven by an airblast or punch bar

for effecting a first fold. A series of parallel rolls effects three longitudinal folds in the sheet. A series of rolls perpendicular to the longitudinal rolls sequentially effects three or four folds with the folded sheets being delivered from the machine on a level lower than the table top upon which the sheet was originally spread.

3,559,984

JOGGING APPARATUS

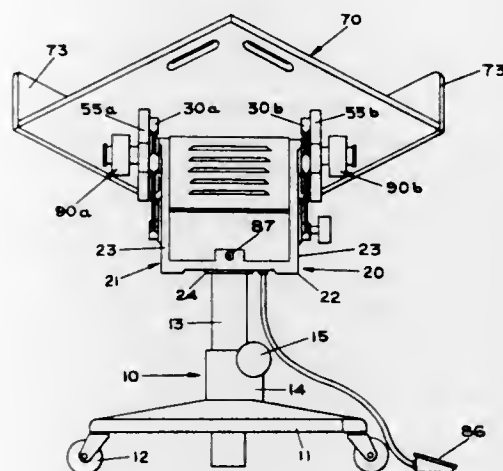
Dan P. Westra, Grand Haven, Mich., assignor to The Challenge Machinery Company, Grand Haven, Mich., a corporation of Michigan

Filed June 13, 1968, Ser. No. 736,856

Int. Cl. B65h 31/34

U.S. Cl. 271-89

19 Claims



An apparatus for vibrating stacks of paper stock or the like into aligned relationship with one another including a paper supporting table flexibly suspended above a suitable framework. The table has a shaft rotatably affixed thereto and the shaft is provided with adjustable offcenter weights at its extremity. Rotation of the shaft imparts vibration to the table, the degree of such vibration depending upon the adjustment of the weights. The apparatus is constructed such that the table may be tilted about the axis of the shaft and, thus, the drive motor may be positioned on the support framework without necessitating readjustment of the driving mechanism each time the table angle is readjusted.

3,559,985

SHEET-FEEDING MECHANISM FOR PRINTING PRESSES

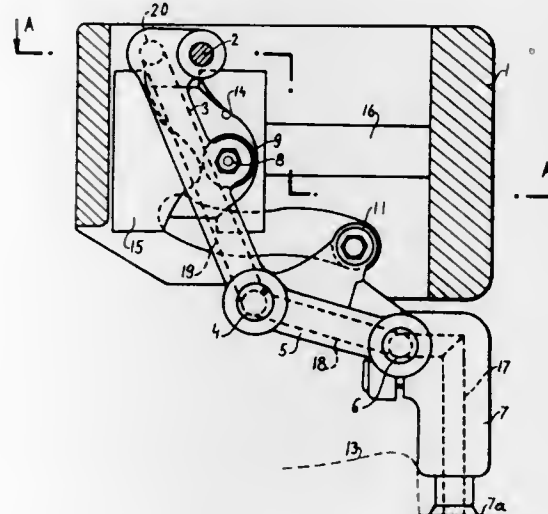
Jaroslav Janecek, Bruno, and Jaroslav Jiruse, Blansko, Czechoslovakia, assignors to Adamovske Strojirny, Narodni podnik, Adamov, Czechoslovakia

Filed Aug. 21, 1968, Ser. No. 754,290

Int. Cl. B65h 3/08

U.S. Cl. 271-26

4 Claims



A swingable lever pivoted to a support and having pivotally connected thereto a carrier which is provided with a follower

engaging a profiled track in the support for guiding movement of the carrier. A suction rod equipped with suction cups is supported by the carrier, and the carrier as well as the lever are provided with air passage means communicating through the suction rod with the suction cups.

Pulleys are positioned so as to guide a series of lines to different members of different weights in the form of chains enclosed in separated compartments so that the user may change the weight to be lifted.

3,559,986

ROLLABLY MOUNTED DOLLIES FOR LEG EXERCISES

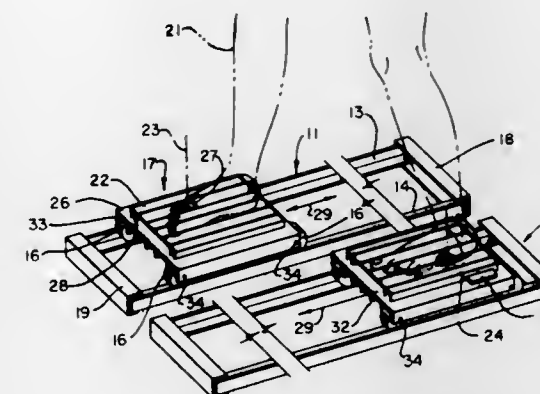
Harry C. Ehrmantraut, 541 Hawthorne Ave., Los Altos, Calif. 94022

Filed June 6, 1968, Ser. No. 735,085

Int. Cl. A63b 21/00, 23/04

U.S. Cl. 272-79

1 Claim U.S. Cl. 272-83



A pair of dollies supported for rolling movement along one or two guideways permits a person to stand with a foot on each dolly and laterally separate the dollies in exercising the leg muscles. Each dolly carries a tread portion pivotally movable to positions disposed at an angle to the direction of separation of the dollies. A method of exercising the leg muscles while in a standing position with a foot on each dolly includes the steps of laterally spreading the two feet apart to permit the torso to settle toward the ground followed by laterally drawing the feet together to raise the weight of the lowered torso toward its initial position.

3,559,987

EXERCISING APPARATUS

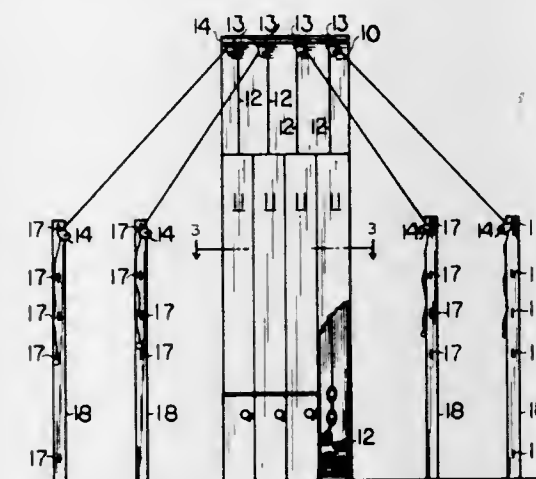
Kenneth S. Pear, 3680 5th Ave., San Diego, Calif. 92103

Filed May 5, 1969, Ser. No. 821,662

Int. Cl. A63b 21/06

U.S. Cl. 272-81

1 Claim



An exercising apparatus especially adapted for use for the muscular development of athletes and others and having a means of progressively increasing the force required as the exercising movement is performed and having an especially unique means of developing the muscles of not only the arms but the muscles of the entire body including the legs as well.

3,559,988

SPRING TYPE ARM EXERCISING DEVICE

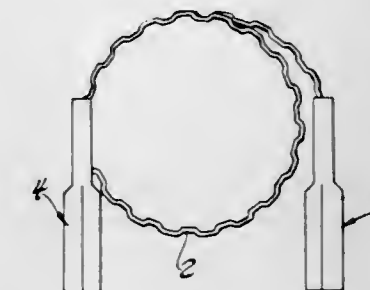
Russell C. Greenless, 316 E. Shadbolt St., Lake Orion, Mich.

Continuation-in-part of application Ser. No. 577,377, Sept. 6, 1966, now abandoned. This application Jan. 13, 1969, Ser. No. 790,720

Int. Cl. A63b 21/00

1 Claim U.S. Cl. 272-83

14 Claims



An exercising device including a spring having a coiled configuration in its unstressed condition, and a handgrip attached to each end of the spring operable to uncoil the spring upon relative twisting movement between the handgrips. The unstressed, coiled spring circumscribes an arc of substantially 540° between the handgrips and comprises a sinuous spring having alternating, oppositely facing loop portions.

3,559,989

WATER BALANCING GAME

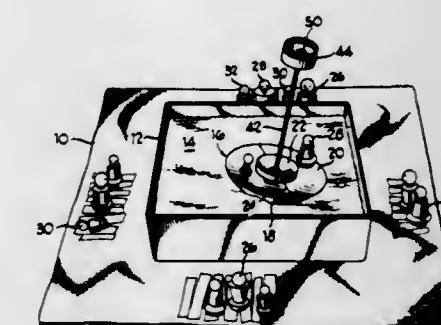
Jeffrey D. Breslow, Evanston, Ill., assignor to Marvin Glass & Associates, Chicago, Ill., a partnership

Filed Feb. 8, 1968, Ser. No. 704,000

Int. Cl. A63f 9/00

U.S. Cl. 273-1

1 Claim



A game including a water-filled container, a round-bottom raft floating in the container and including a mast, a "crow's nest" at the upper end of the mast containing a relatively movable marble, a plurality of different size playing pieces for positioning on the raft, and chance means for determining the placement of the playing pieces on the raft. When a player causes the raft to tip sufficiently to spill pieces into the water, he is penalized.

3,559,990

BOWLING GAME APPARATUS WITH SURFACE OF PARABOLOID SHAPE

Arthur Alfred Philpot, 37 Northumberland St., Tusmore, South Australia, Australia

Filed June 13, 1968, Ser. No. 745,649

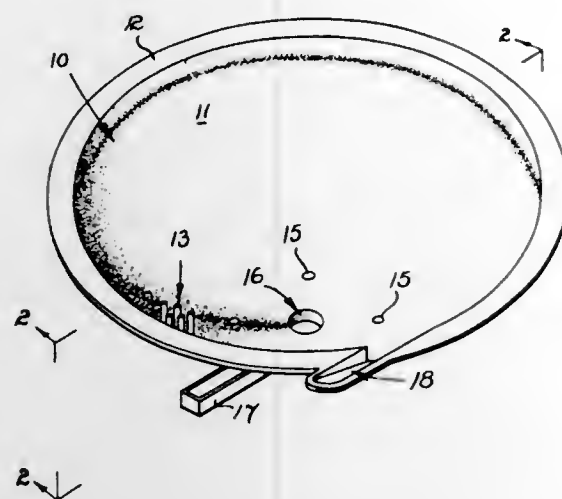
Int. Cl. A63d 3/02

U.S. Cl. 273-39

2 Claims

A game apparatus suitable for a game of bowls having a

smooth concave surface of paraboloid shape with target horse, hockey puck, etc. and the game is played by inserting a card into a control circuit connection and actuating the cir-



means thereon so that the target means can be positioned on the concave surface close to the bowler.

3,559,991

BALL GAME WITH PINCH TYPE PROJECTORS

Karl Immendorf, 33 Weinbergstr., Überlingen(Bodensee), Germany

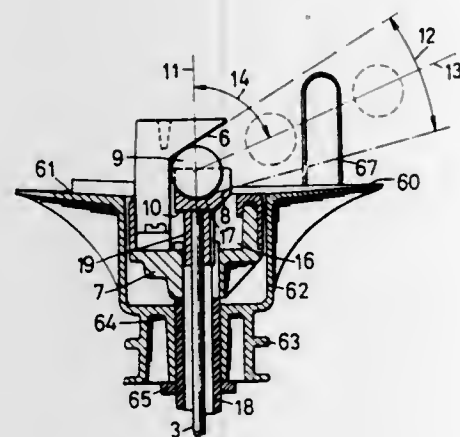
Filed June 19, 1968, Ser. No. 738,163

Claims priority, application Germany, Mar. 13, 1968, 35907

Int. Cl. A63f 7/10

U.S. Cl. 273-85

17 Claims



A model football game having a playing field and two teams of rotatable but fixedly positioned figures corresponding to the members of opposing teams and a plurality of goals, each of the figures being provided with means for projecting a ball and with defense means positioned therearound. Each projector consists of a vertically movable solenoid operated ball receiving cup and a fixed inclined surface above the cup. As the cup is forced upwardly the ball is pinched between the cup and the inclined surface and is thereby projected.

3,559,992

PUNCH CARD OPERATED GAME

Harry Edward Kramer, 104 Hillside Ave., Metuchen, N.J.

Filed Jan. 22, 1968, Ser. No. 699,548

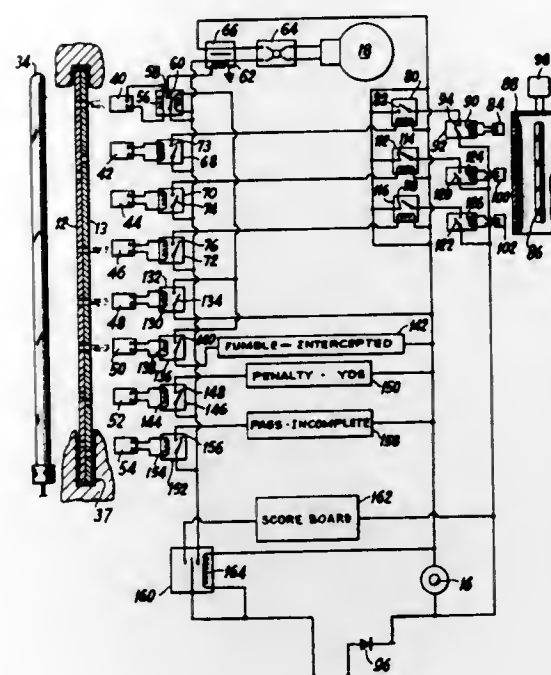
Int. Cl. A63f 7/06

U.S. Cl. 273-94

19 Claims

A game device having an electrical control for indicating the advance or backward movement of a token and preferably for advantageously driving the token is operated by a punch card such as a computer-type card having, for example, ten or more cross columns and eighty or more longitudinally arranged columns for storing the playing information. The token advantageously comprises a football, race

horse, hockey puck, etc. and the game is played by inserting a card into a control circuit connection and actuating the cir-



3,559,993

STOCKMARKET GAME AND METHOD

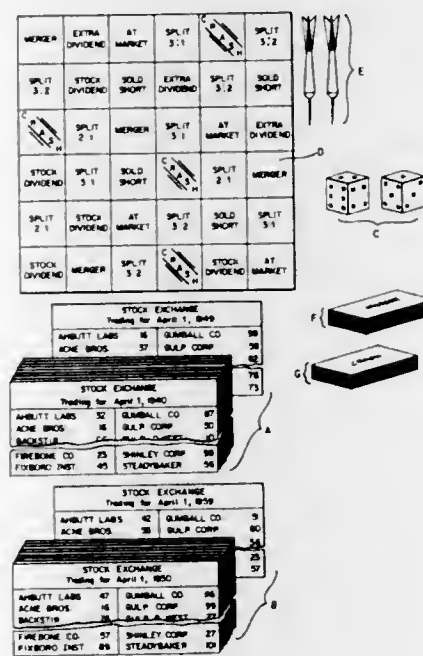
William J. Thomas, 447 Manorview Ave., Mount Pocono, Pa.

Filed Sept. 24, 1968, Ser. No. 762,090

Int. Cl. A63b 65/00

U.S. Cl. 273-95

4 Claims



A game is provided, whereby a plurality of persons may play in a simulated stockmarket atmosphere, towards the accumulation of profit, utilizing elements of chance and elements of skills. The game includes buying and selling sheets, each having indicia thereon, a board having indicia thereon related to the buying and selling sheets, a set of darts for use in selecting the indicia on the board, a set of dice and two sets of cards having additional interrelated indicia thereon.

3,559,994

REMOTE CONTROL TARGET FOR A SHOOTING RANGE

Henry A. Larsen, Manitowish Waters, Wis., assignor to Arrowmatic, Inc., Manitowish Waters, Wis., a corporation of Wisconsin.

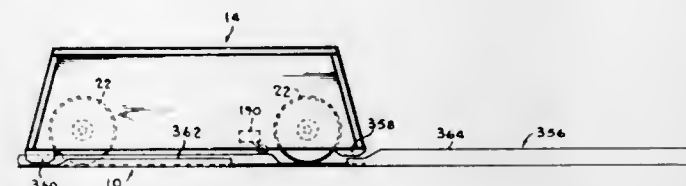
Continuation-in-part of application Ser. No. 420,757, Dec. 23, 1964, now abandoned. This application June 5, 1968, Ser.

No. 748,140

Int. Cl. A63b 63/00

U.S. Cl. 273-105.6

3 Claims



A target apparatus for an archery range including a wheeled cart mounted on a track. The drive motor is energized and controlled by means of a cable connected between a takeup device mounted on the cart and one end of the range. Control circuitry is provided to selectively drive the cart between opposite ends of the range and to position the cart at preselected distances from the front of the range. Various safety devices are provided to automatically stop the cart at opposite ends of the range and to stop the cart and sound an alarm should a user step onto the range. Such devices include cam members which engage the cart and lift it up causing the front wheels to spin freely out of contact with the support surface. They also include an electrically energized warning device which is energized by a foot pad member positioned at the front of the range.

3,559,995

QUESTION ANSWERING GAMEBOARD AND SPINNER

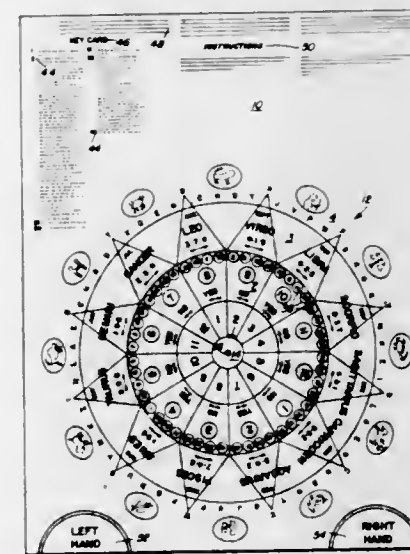
Rufus F. Steadman, Austin, Tex., assignor to Psychomantic Game Company, Austin, Tex., a corporation of Texas

Filed Apr. 29, 1968, Ser. No. 724,993

Int. Cl. A63f 5/04

U.S. Cl. 273-141

5 Claims



This invention is a question answering gameboard and spinner. The gameboard has a plurality of concentric circles of answers, including Zodiac connotations, positive and negative answers, alphabet, months, several sets of numbers, one set referring to a key chart of answers that also appears on the board, and areas on the edge of the board for receiving the hands of the player that he may concentrate on his questions, and thus influence the correct answers thereto, possibly by Extra Sensory Perception or otherwise. It is intended as a game for entertainment, but is capable of "Ouija" game usage, depending on the individual playing therewith.

At the center of the question answering playing area, a spinner receiving area is provided in the form of a magnet

disc having a boss at its center, and a spinner having a pivot aperture at its center point provided with a minimum friction shaft having a base in which is mounted a magnet with spaced apart magnetic poles to be held on the disc by magnetic attraction, and be held against shifting by the boss extending between the spaced apart poles of the magnet.

3,559,996

DEVICE FOR SIMULATING PLAY ON FULL SCALE GOLF COURSES

Robert E. Hopp, New York, N.Y., assignor to Product Investors Corporation, Ltd., New York, N.Y., a corporation of New York

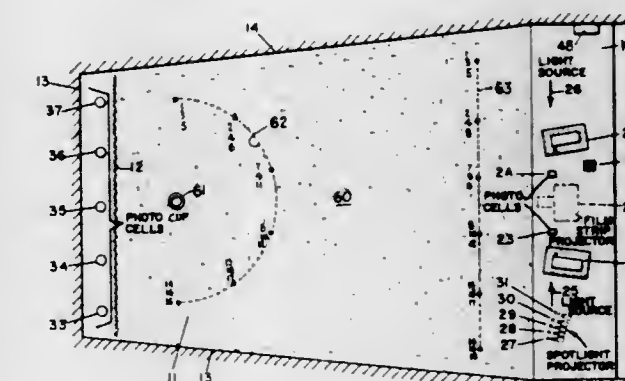
Continuation-in-part of Ser. No. 301,795, Aug. 13, 1963.

This application Feb. 9, 1967, Ser. No. 629,339

Int. Cl. A63b 67/02, 69/36

U.S. Cl. 273-176

5 Claims



Apparatus for playing a simulated game of golf includes a display screen target positioned forwardly of a tee area, sensors adjacent the tee area and target, a computer, a film strip projector, spotlight projectors and a putting area located between the target and tee area. The film strip projector includes a film strip showing photographic images of a golf green taken from successive locations, say ten yards apart, along the center of the fairway of a real golf course. In use, a golfer at the tee area sees a projected image of a golf green on the target and drives a golf ball against the target, thus simulating the driving of a golf ball into a real fairway toward the green. The sensors, which may be photoelectric cells, determine when a ball is driven from the tee area and strikes the target. The computer determines the probable distance the ball would have traveled if it had not been stopped by the display screen target, and causes the film strip projector to move the film strip and project another image of the golf green from the location where the ball probably would have landed in the real fairway. The sensors also detect the probable lateral location of the ball in the real fairway and this lateral location is indicated on the projected image by one of the spotlights. The film strip projector is driven by a synchronous motor which moves the film strip in front of the projector aperture at the rate of exactly four frames per second, in response to signals from the computer. The film strip projector also includes a four-spoked capstan which cooperates with a computer controlled solenoid operated latching mechanism for positively framing each film frame.

3,559,997

GOLF PUTTING PRACTICE DEVICE

Frederick Joseph Hitch, 188 St. George's Terrace, Perth, Western Australia, Australia

Filed Jan. 23, 1969, Ser. No. 793,309

Claims priority, application Australia, Jan. 25, 1968,

32,570/68

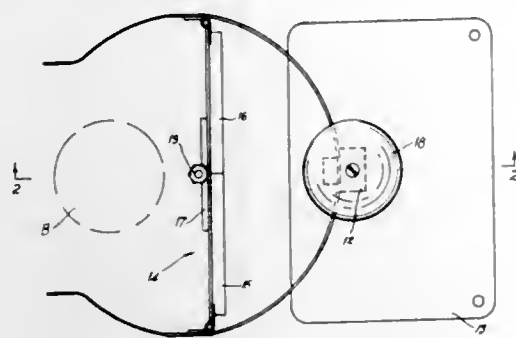
Int. Cl. A63b 57/00, 69/36

U.S. Cl. 273-177

3 Claims

The ends of an arcuate spring member are held apart by a detecting member which is adapted to collapse and actuate a signalling bell when struck by a golf ball putted into the

receiving area defined by the arcuate spring member. The collapsible detecting member includes two parts which are pivotally connected to the arcuate spring member and to each other.

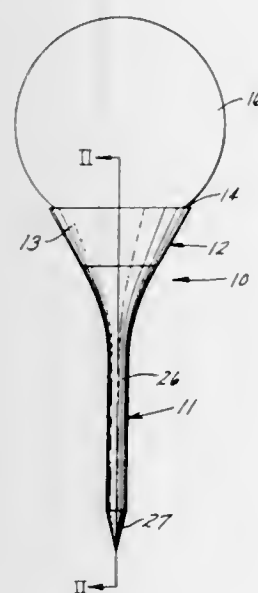


3,559,998
GOLF TEE

Norman A. Kelly, Wayne Township, Kosciusko County, Ind. (1514 Country Club Drive, Warsaw, Ind. 46580)
Filed Sept. 16, 1968, Ser. No. 759,838
Int. Cl. A63b 67/14

U.S. Cl. 273-212

5 Claims



A plastic golf tee having upper and lower parts, the lower part being relatively rigid for insertion into the ground and the upper part being relatively resiliently flexible for engaging and supporting the golf ball, said upper part including a manually engageable, centrally disposed abutment for pressing the lower part of the tee into the ground, said abutment being located so that it does not normally engage the golf ball. The upper part of the tee has a flexible and upwardly diverging sidewall defining a frustum of a cone. The upper edge of the sidewall normally supports the ball out of contact with the abutment. A pin extends downwardly from the abutment into an aperture in the lower part to secure the upper and lower parts together.

3,559,999

MAGNETIC HEAD POSITIONER FOR RECORDING AND REPRODUCING APPARATUS

Norwood Kenneth Perkins, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

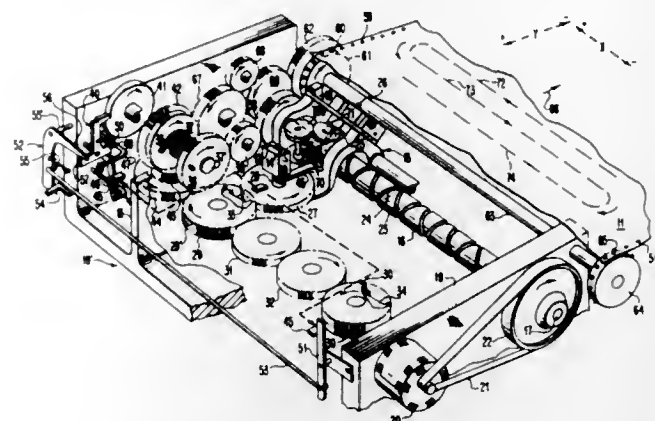
Filed Dec. 13, 1968, Ser. No. 783,526
Int. Cl. G11b 5/52, 21/04

U.S. Cl. 274-4

12 Claims

A magnetic head, which has an erase gap and a record-

playback gap, is movable in opposite directions across a recording medium and always has its erase gap positioned in



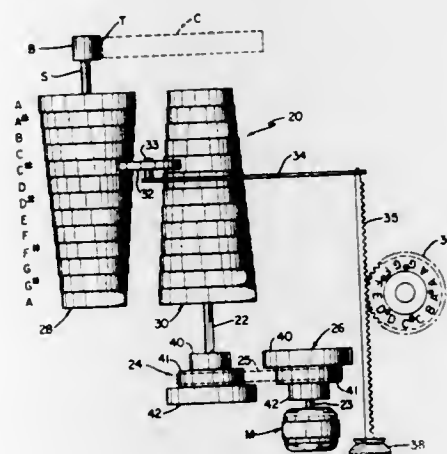
3,560,000

MUSICAL SOUND RECORDING SYSTEM AND METHOD
Lowell Edward Beisner, 8545 W. 64th Ave., Arvada, Colo.
Original application Feb. 16, 1967, Ser. No. 616,717, now abandoned. Divided and this application Oct. 3, 1968, Ser. No. 786,517

Int. Cl. G11b 15/46, 25/06

U.S. Cl. 274-11

3 Claims



A musical selection is recorded on a first sound track driven at a speed corresponding to the frequency level of the key in which the selection is to be played. The same selection, or different harmony parts of that selection, are then successively played in different keys and are recorded on separate sound tracks at speeds corresponding respectively to the frequency or characteristic frequency of each different key selected. In each successive recording, the first recording is played back for reference purposes to provide the proper tempo for recording at each different speed. Thereafter, the recordings on each separate track are played back simultaneously at the reference speed and may be rerecorded on a single track. Although the given selection is recorded at different speeds, when played back at the reference speed each recording will blend and harmonize with the first recording. A speed changing mechanism is employed with a magnetic tape drive to carry out the method on a single tape provided with multiple sound tracks.

3,560,001

TURNABLE AND TONE ARM MECHANISM FOR RECORD PLAYER

Jack L. Kelly, Bethel Park, Pa., and Ronald K. Wlandt, Decatur, Ill., assignors to General Electric Company, a corporation of New York

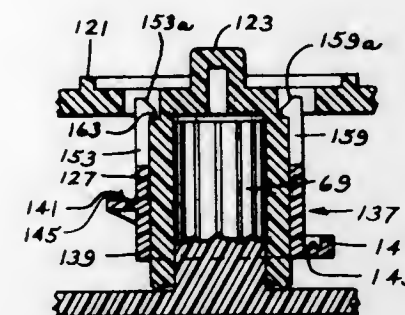
Filed Jan. 6, 1969, Ser. No. 789,248
Int. Cl. G11b 17/06

U.S. Cl. 274-15

3 Claims

In a miniature record player for reproducing diminutive records, there is provided a bifurcated tone arm, and a

plastic turntable. The tone arm has a pickup cartridge mounted on one of its free ends. The plastic turntable includes a turntable section having a pair of opposed slots formed therein adjacent the axis of rotation of the turntable. Also included in the turntable, in accordance with the present invention, is a plastic ramp element which includes a



pair of opposed elongated fingers that snap into cooperation with the slots of the turntable section to secure the ramp element into aligned and contiguous relationship with the turntable section. The ramp element cooperates with the tone arm to help cam the tone arm off a record placed on the turntable at the end of each program cycle.

3,560,002

AUXILIARY OIL SEAL

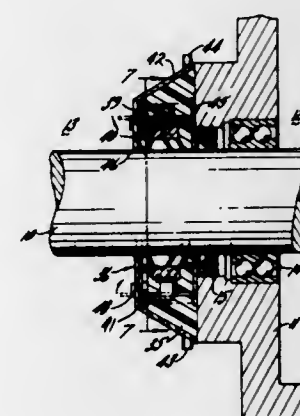
Richard W. Smedley, c/o The Smedley Co., 1008 Alann Drive, Joliet, Ill. 60435

Filed July 31, 1969, Ser. No. 846,368

Int. Cl. F16j 15/32

U.S. Cl. 277-1

13 Claims



An auxiliary seal, which may be installed upon a gear box and associated shaft or similar apparatus which has developed a fluid leak through a previously installed seal is provided. A wraparound seal member is clamped into place by a circumferential clamp and a settable plastic material retains both parts in position upon the shaft adjacent the leaking seal. The settable plastic material adheres to the housing wall adjacent the shaft, but does not adhere to the shaft itself, so as to allow rotation of the shaft in the usual manner.

3,560,003
SEALS

Laurence E. Smith, Cincinnati, Ohio, assignor to Philco-Ford Corporation, Philadelphia, Pa., a corporation of Delaware

Filed Apr. 14, 1969, Ser. No. 815,826

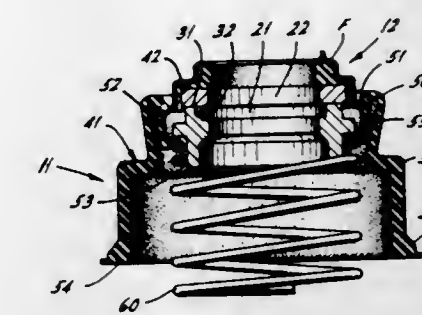
Int. Cl. F16j 9/00, 15/40

U.S. Cl. 277-9.5

5 Claims

A rotary shaft seal having precision lapped surfaces, and means for protecting these surfaces from contamination during preassembly handling. A first lapped seal ring has a flexible tubular boot attached thereto, which is provided with peripheral ridge means in such a way that "telescoping" of the boot causes a ridge to intercept a rigid flange provided on

a second lapped seal ring, and thereby to press one of the lapped seal ring surfaces against the other. This arrangement



3,560,004

SHAFT SEAL HAVING PASSAGE FOR HEAT-TRANSFER FLUID

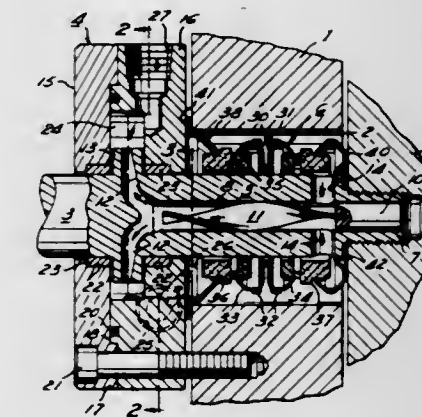
Philip F. Donley, Shaker Heights, and Mervil D. Chapman, South Euclid, Ohio, assignors to Ernest F. Donley Sons, Inc., Cleveland, Ohio, a corporation of Ohio

Filed Mar. 24, 1969, Ser. No. 809,692

Int. Cl. F02f 11/00; F16j 15/40

U.S. Cl. 277-22

19 Claims



A sealing system for a rotatable shaft, adapted to extend through a wall member or the like, wherein seal means disposed about the shaft and effective to form an essentially fluidtight enclosure between the shaft and wall member also includes a heat-transfer system positioned inwardly of the seal relative to the shaft to regulate the environmental temperature and particularly that of the seal. The heat-transfer system comprises a continuous passage of two segments of travel which are preferably consecutive. Each segment extends substantially axially of the shaft and performs a heat-transfer function. One of these segments lies along and outside of the shaft to contact it directly with the heat-transfer fluid.

3,560,005

SEAL FOR A ROTATING CHAMBER

Rene Bovagne, Chalon-sur-Saone, France, assignor to Societe des Forges et Ateliers du Creusot, Paris, France, a company of France

Filed June 17, 1968, Ser. No. 737,476

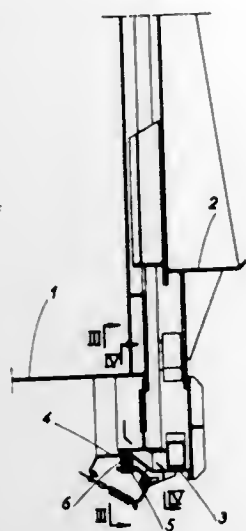
Claims priority, application France, June 16, 1967, 110,657
Int. Cl. F27b 7/24

U.S. Cl. 277-147

9 Claims

A seal is provided between a rotating chamber and a stationary cap by providing the rotating chamber with an annu-

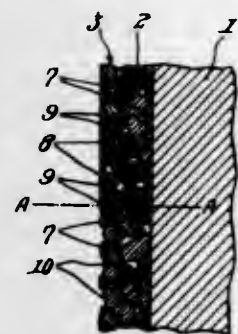
lar collar secured to the chamber by a partition. The stationary cap carries a sealing ring which is urged into engage-



ment with the collar by resilient means, the ring engaging the whole periphery of the collar.

3,560,006 PISTON RINGS

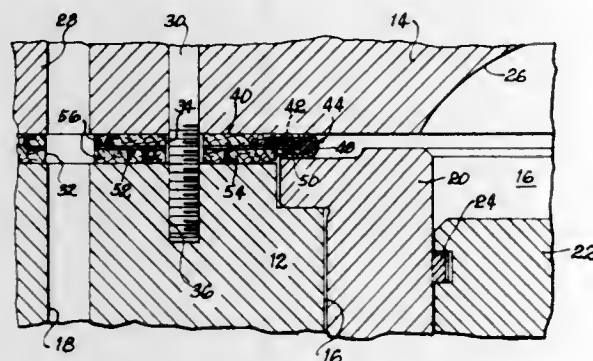
Tamotsu Watanabe, Kashiwazaki-shi, Japan, assignor to Riken Piston Ring Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sept. 12, 1968, Ser. No. 759,367
Claims priority, application Japan, Oct. 4, 1967, 42/63512
Int. Cl. F02f 5/00; F16j 15/28, 9/00
U.S. Cl. 277-235 7 Claims



Piston rings having improved resistances to wear and scuffing are provided by forming a bearing coat of a mixture of molybdenum and an appropriate ceramic material, such as aluminum trioxide, zirconium dioxide or titanium oxide, on at least one of the bearing surfaces of the piston ring by flame spraying such mixture on the surface or on a recessed area thereof.

3,560,007 GASKET ASSEMBLY

Ramon J. Ascencio, Chicago, Ill., assignor to Felt Products Mfg. Co., a corporation of Delaware
Filed Dec. 6, 1968, Ser. No. 781,921
Int. Cl. B65d 53/00; F02f 11/00; F16i 15/00
U.S. Cl. 277-235 4 Claims

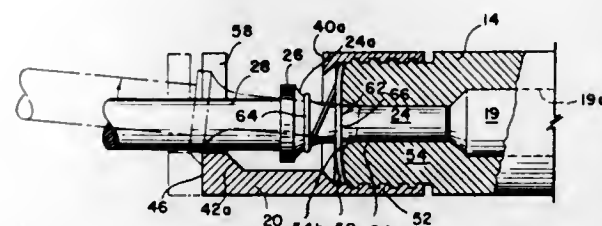


A head gasket assembly and method of assembly. A head gasket defines a combustion opening with armor in the open-

ing and spaced from the periphery of the opening. A plurality of tabs project into the combustion opening for suspending the armor in spaced relation to the combustion opening.

3,560,008 SAFETY LOCKING TOOL HOLDER FOR PNEUMATIC HAMMER

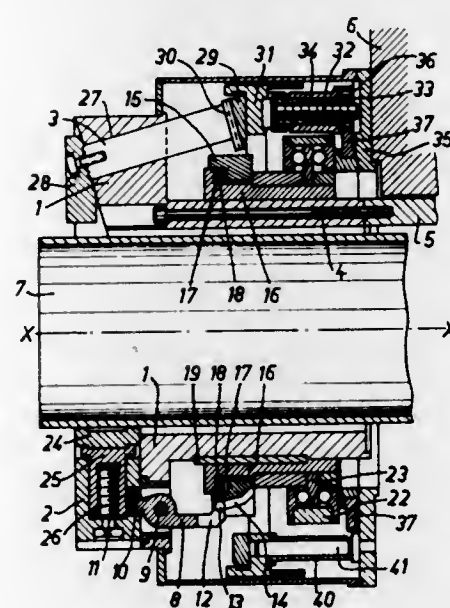
James O. Taylor, Lantana, Fla., assignor to Florida Pneumatic Manufacturing Corporation, Lantana, Fla.
Filed Mar. 4, 1968, Ser. No. 710,235
Int. Cl. B23b 31/06
U.S. Cl. 279-19 8 Claims



A safety locking holder for mounting an attachment tool onto a pneumatic hammer prevents tool removal when the holder is fully screwed onto the hammer. The holder includes a slotted collar and an open chamber portion which permit ready insertion and removal of an attachment tool when the holder is in nonlocking engagement with the hammer.

3,560,009 MACHINE-TOOL CHUCK

Pierre E. Renoux, Colombes, France, assignor to Societe anonyme dite: Cri-Dan, Paris, France, a corporation of France
Filed Sept. 26, 1968, Ser. No. 762,798
Claims priority, application France, Oct. 2, 1967, 123,019
Int. Cl. B23b 31/16
U.S. Cl. 279-120 6 Claims

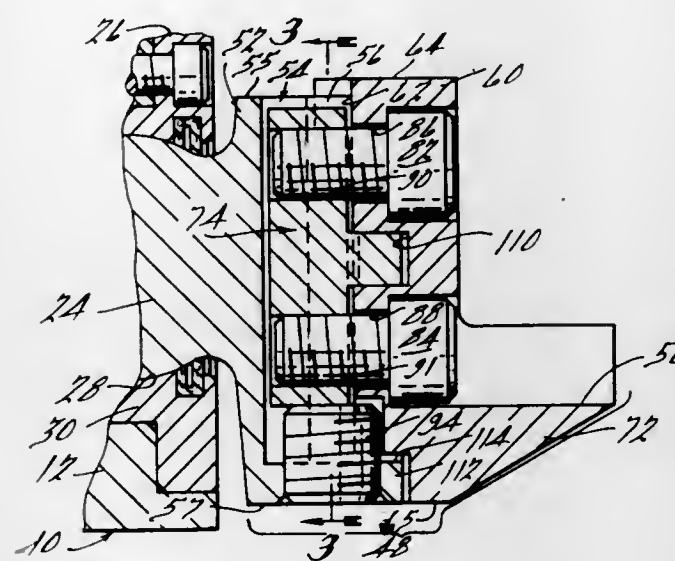


A machine tool chuck, as for a lathe, including chuck body having clamping means for tightly holding a workpiece. The clamping means includes a plurality of clamping jaws and a first actuating mechanism for permitting radial displacement of the jaws in a manner to compensate for eccentricity of the workpiece relative to the chuck body. Centering jaws are provided for engaging and centering the workpiece substantially within a machining zone which is spaced axially from one end of the chuck body. The centering jaws are axially withdrawn from engagement with the workpiece by a second

actuating mechanism after the clamping jaws engage the workpiece.

3,560,010 JAW MOUNTING FOR CHUCKS

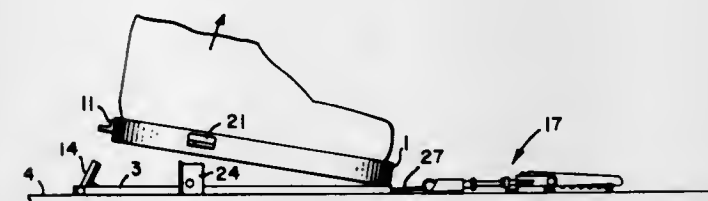
George Hohwart, Farmington, Mich., assignor to N.A. Woodworth Company, Ferndale, Mich., a corporation of Michigan
Filed Feb. 6, 1969, Ser. No. 797,165
Int. Cl. B23b 31/10
U.S. Cl. 279-123 6 Claims



A sturdy, compact jaw assembly for work holding chucks and the like having a master jaw and a top jaw thereon, the latter being connected by suitable fastening screws to a T-nut mounted for sliding adjustment in a T-slot provided in the master jaw, and wherein work clamping and holding forces on the face of the top jaw are sustained jointly by a cross-key on and integral with the T-nut and an adjusting screw in the master jaw behind and bearing on the T-nut.

3,560,011 SAFETY BINDING MECHANISM

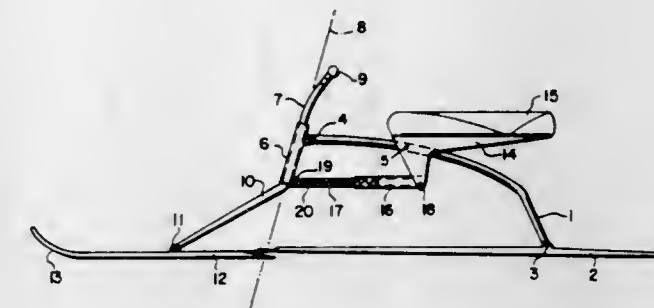
Richard G. Spademan, 933 Addison Ave., Palo Alto, Calif.
Filed Oct. 22, 1968, Ser. No. 769,628
Int. Cl. A63c 9/08
U.S. Cl. 280-11.35 6 Claims



An improved stability safety binding of the type in which all degrees of movement of a ski boot relative to a ski are releasably resisted without requiring the use of a toe fastening device. A unitary safety release mechanism spring-biases upwardly and inwardly directed clamping arms into engagement with flanges at the sides and rear of the ski boot. The rear clamp resists rearward longitudinal movement of the boot, and the side clamps are inclined in an outwardly and rearwardly direction to resist forward longitudinal movement of the boot.

3,560,012 SKI-BOB

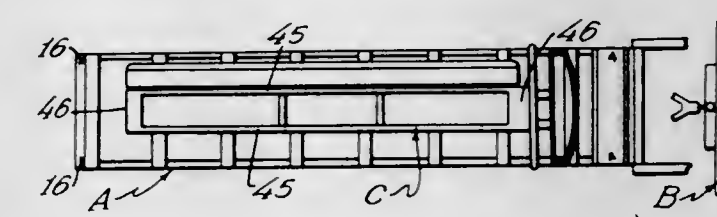
Josef Auer, Worgl, Tirol, Austria
Filed Dec. 5, 1968, Ser. No. 781,526
Claims priority, application Austria, Dec. 15, 1967, July 26, 1968, 11315/67; 7268/68
Int. Cl. B62b 13/04
U.S. Cl. 280-16 9 Claims



A vehicle combining features of skis and of a bobsleigh in which a normally upright frame carrying a seat for rider is equipped with a ski-like front runner and a similar rear runner, the front runner being mounted on a steering column. A universal pivot assembly located closely adjacent the axis of the steering column connects the rear end of the front runner to the front end of the rear runner. The steering column is attached to the frame by means of a bearing which pivots in the longitudinal upright plane of the frame and is hinged to the hinged mounted seat so that the weight of the rider tends to pivot the bearing in a direction to draw the two runners into longitudinal alignment.

3,560,013 SNOWMOBILE-TOBOGGAN HITCH KIT

Lawrence J. Lee, 1410 Ames Ave., Saint Paul, Minn. 55106
Filed Apr. 29, 1969, Ser. No. 820,063
Int. Cl. B62b 13/00
U.S. Cl. 280-19 6 Claims



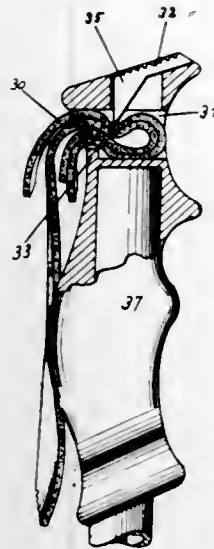
This invention relates to a toboggan kit used to provide a means of attaching a toboggan to a snowmobile. The kit includes reinforcing plates which extend inside and outside the curved front end of the toboggan and are bolted together. A hitch is hinged to the reinforcing plates by a transverse horizontal axis and extends forwardly for attachment with the snowmobile. Preferably a seat is mounted along the longitudinal center of the toboggan to be straddled by the occupants. A windshield is also preferably provided at the front end of the seat.

3,560,014 SKI POLE PROVIDED WITH HAND LOOP

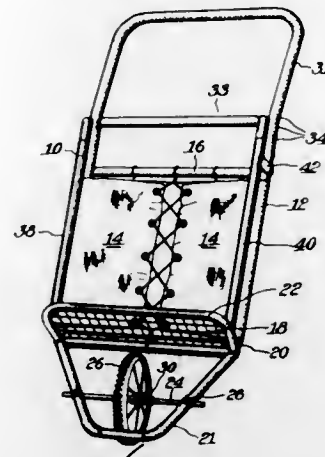
Franz Xaver Bruckl, Krottenkopfstrasse 50, Eschenlohe, Germany
Filed Aug. 12, 1968, Ser. No. 751,854
Claims priority, application Germany, Aug. 17, 1967, P 15 78 728.7; Austria, Mar. 15, 1968, A 2597/68
Int. Cl. A63c 11/22
U.S. Cl. 280-11.37 3 Claims

An adjustable hand loop is secured to the grip of a ski

pole. The belt of the hand loop is held by fastening and ad-



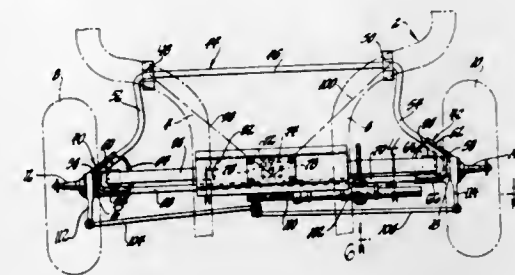
3,560,015
COMBINED WHEEL AND PACK CARRIER
 Lee J. Tracy; Jesse L. Tracy, and David S. Tracy, 629 8th St.,
 Ogden, Utah 84404
 Filed June 28, 1968, Ser. No. 740,924
 Int. Cl. B62b 1/12
 U.S. Cl. 280-47.3 3 Claims



A device which can be used in a manner similar to a wheel barrow in moving a load and which is easily convertible by removing and reattaching the wheel to a pack carrier which can be readily and detachably secured to the back of an individual for pack carrying.

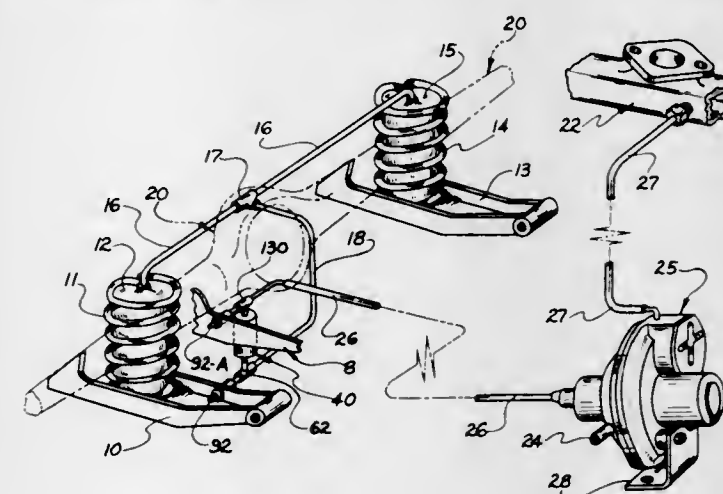
justing means, which are provided on the transverse top face of the ski pole grip and of the ski pole.

3,560,016
DIRIGIBLE WHEEL SUSPENSION INCLUDING MEANS FOR INDUCING LATERAL ACCELERATION RESPONSE UNDERSTEER
 Ronald T. Bundorf, Royal Oak, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
 Filed June 11, 1968, Ser. No. 736,157
 Int. Cl. B60g 3/10
 U.S. Cl. 280-96.2 2 Claims



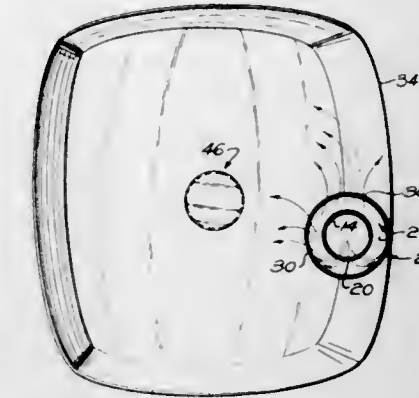
A dirigible wheel suspension for vehicles in which transversely oppositely directed wheel deflection control arms are connected to the vehicle superstructure by pivot means permitting yieldable lateral translation of the wheels relative to the vehicle sprung mass responsive to centrifugal force acting on the vehicle. A steering mechanism mounted in a fixed position on the vehicle operatively engages the wheels via steering linkage connected to the wheels forwardly of their axis of dirigible movement so that a given steering angle of the wheels imposed by the steering mechanism progressively decreases as centrifugal force acting on the vehicle increases.

3,560,017
CONTROL APPARATUS FOR VEHICLE SUSPENSIONS
 Arthur E. Vogel and Palmer Fultz, Columbus, Ohio, assignors of twenty-five percent each to Robert T. Dawson, Coshocton, Ohio, and Warren H. F. Schmieding, Mount Helix, La Mesa, Calif.
 Continuation of application Ser. No. 579,644, Sept. 15, 1966. This application Nov. 5, 1969, Ser. No. 871,565
 Int. Cl. B60g 15/08
 U.S. Cl. 280-124 35 Claims



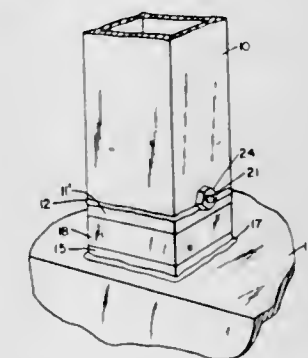
A control system for vehicle suspensions of the type that include sprung and unsprung weight portions, air chambers operative between the weight portions and an air compressor for delivering pressurized air to said chambers. The system is further characterized by the compressor being stallable at predetermined pressures selected for the air chambers by a height control valve means mounted on one of said weight portions. The present application further relates to a novel height control valve for use in controlled suspension systems such as the one described above.

3,560,018
VEHICLE SAFETY APPARATUS
 George W. Goetz, Detroit, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
 Filed July 31, 1968, Ser. No. 749,063
 Int. Cl. B60r 21/00
 U.S. Cl. 280-150 4 Claims



A safety apparatus includes a reservoir containing fluid under pressure, means for opening the reservoir upon the occurrence of a collision, a diffuser for directing the flow of fluid from the reservoir, and a confinement adapted to be inflated from a collapsed condition to an expanded condition in which the confinement is operative to restrain an occupant of a vehicle against movement resulting from a collision. The relationship between the diffuser and the reservoir is such as to result in a directing of the flow of fluid from the reservoir without an undue restriction of the flow. The pressure-volume relationship between the fluid in the reservoir and the fluid in the inflated confinement is such as to provide sufficient fluid for inflating the confinement and absorbing the kinetic energy of an occupant engaging the inflated confinement during the collision.

3,560,019
SHOCK CUSHIONING MOUNTING MEANS FOR CANOPIES ON HEAVY EQUIPMENT
 James C. Moore, Portland, Oreg., assignor to Portland Wire & Iron Works, Portland, Oreg., a corporation of Oregon
 Filed May 22, 1969, Ser. No. 826,895
 Int. Cl. B62 25/06
 U.S. Cl. 280-150 6 Claims



A mount including cooperating portions, one a bayonet member with a protruding body of decreasing cross-sectional area and the other a sleeve member having a correspondingly decreasing internal cross-sectional area capable of receiving the bayonet body in a close fit; one portion secured to the bottom of the canopy post and the other portion secured to the vehicle; a cushioning element normally maintaining a slight overall clearance between bayonet body and the surrounding sleeve wall; and locking means preventing any greater separation between bayonet body and sleeve than normally caused by the cushioning element.

3,560,020

TEMPLE PROTECTION, ESPECIALLY FOR PASSENGER MOTOR VEHICLES

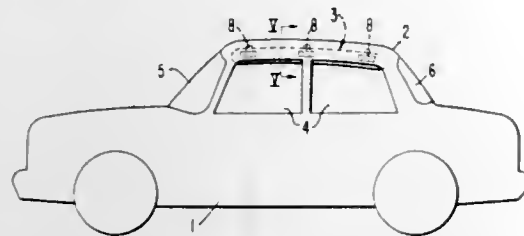
Bela Barenyl, Stuttgart-Vaihingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Oct. 17, 1968, Ser. No. 768,394
Claims priority, application Germany, Oct. 20, 1967, P 16 30 372.3

Int. Cl. B60r 21/04

U.S. Cl. 280—150

30 Claims



A temple protection for increasing the interior safety of a passenger space formed by a closed vehicle body, especially of passenger motor vehicles, in which a preferably padded rail is mounted within the area of the upper edge of the side windows and/or door apertures that extends essentially from the windshield to the rear window; the rail is secured at the vehicle body or at the lateral roof bearer with a spacing to the lateral wall by means of deformation members.

3,560,021

MUDGUARDS

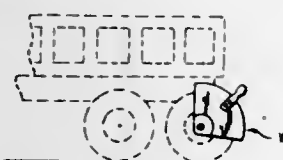
William W. Watson, 4912 W. Jerelyn Place, Milwaukee, Wis. 53219

Continuation-in-part of application Ser. No. 786,999, Dec. 26, 1968. This application Aug. 19, 1969, Ser. No. 851,415

Int. Cl. B62d 25/16

U.S. Cl. 280—154.5

11 Claims



A mudguard for the rear wheels of dump trucks. The mudguard is pivotally mounted to enable moving it when the truck is being unloaded.

3,560,022

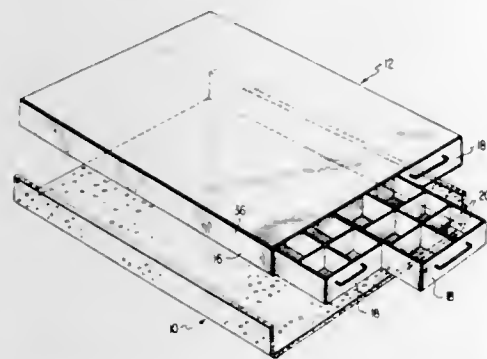
VACUUM LOCK CHEST SUPPORT

Dwight B. Gold, 9471 Olive St., St. Louis, Mo. 63132
Filed Mar. 18, 1969, Ser. No. 808,121

Int. Cl. B60p 7/10

U.S. Cl. 280—179

2 Claims



A thin sheet of polyurethane is completely compressed between an overlying chest and an underlying support surface to create a "vacuum lock" coupling therebetween.

3,560,023

GROUND ENGAGING IMPLEMENT SUPPORTS FOR ATTACHMENT TO TRACTORS

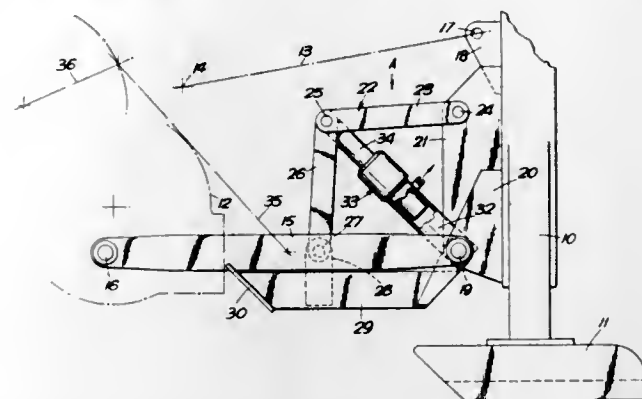
Harry William Norton and Ian Robertson, Ludlow, England, assignors to F. W. McConnell Limited, Ludlow, England, a British company

Filed Feb. 28, 1969, Ser. No. 803,362
Claims priority, application Great Britain, Mar. 1, 1968, 10,134/68

Int. Cl. B60s 9/10

U.S. Cl. 280—475

7 Claims



A ground engaging support for attachment to a tractor comprises a support structure on which an implement may be mounted, which support structure is adapted for attachment to a tractor by means of pivotal connections between the support structure and upper and lower links extending rearwardly on the tractor, so that the support structure may be brought into and out of contact with the ground by swinging the links. A subsidiary pivoted linkage is connected between the support structure and at least one of the links an hydraulic ram being provided to deform the subsidiary linkage in a manner to impart a downward load to the support structure when it is in engagement with the ground.

3,560,024

SMALL CAR HITCH BAR ASSEMBLY

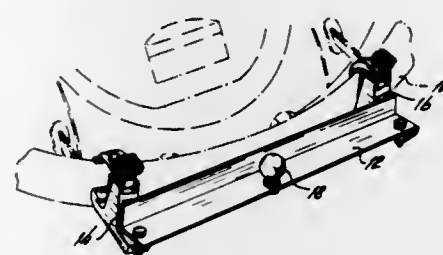
John C. Abromavage, Tempe, and James W. Ryden, Phoenix, Ariz., assignors to Arcoa, Inc., Phoenix, Ariz., a corporation of Oregon

Filed June 25, 1969, Ser. No. 836,235

Int. Cl. B60d 1/14

U.S. Cl. 280—502

7 Claims



A hitch bar assembly of the type mounting a ball socket and attachable to the rear bumper of Volkswagen type vehicles where the trailer load is not a critical factor. The invention is directed principally to bumper clamping compressive elements mounted at both ends of the hitch bar.

3,560,025

INSERT FOR BOOKS AND THE LIKE AND METHOD FOR MAKING SAME

Richmond V. Ostrander, Waukegan, Ill., assignor to United States Envelope Company, Springfield, Mass., a corporation of Massachusetts

Filed Aug. 28, 1968, Ser. No. 756,053

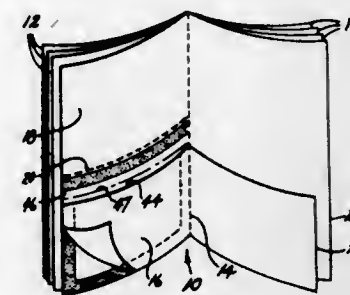
Int. Cl. B42d 1/00

U.S. Cl. 281—3

2 Claims

An insert for binding in books and the like made from folded sheet material and having two panels folded into

face-to-face relation along a horizontal fold line and divided into two pages by a vertical line of weakening. Portions of the panels which form one of the pages are connected in face-to-face relation by a generally U-shaped line of adhesive to form a removable envelope. After the insert is bound in a book it is trimmed to size, along with



the other pages of the book, by cutting along its unbound edges. This does not effect the envelope appearing on the first page as the line of glue maintains the desired connection between the two overlying panels, but as to the second page it does disconnect the two panels and forms one of them into a removal coupon or the like.

3,560,026

COUPLING ASSEMBLY

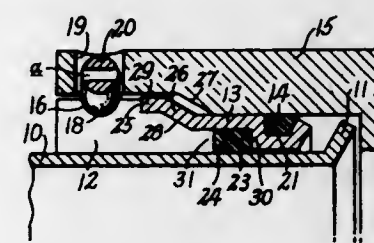
Homer D. Roe, 8 Chapin Place, Huntington, N.Y. 11743

Filed Apr. 30, 1969, Ser. No. 820,568

Int. Cl. F16l 17/02

U.S. Cl. 285—105

2 Claims



A coupling assembly releasably connected to a pipe or tube in a conduit system has a casing which encloses axially outer and inner sleeves, respectively, mounted coaxially on an end portion of the pipe, said outer sleeve to retain the pipe effectively in the assembly and said inner sleeve to retain outer and inner rings in effective sealing contact with the casing and the pipe and said outer sleeve being releasably interlocked with the casing; and a portion of the inner sleeve arranged between the casing and the outer sleeve closely engages the latter to exert constrictive pressure thereon with increasing internal pressure in the system whereby camming action of the inner sleeve constricts said outer sleeve so that the pipe is more securely clamped thereby and restrained against blow-out or outward axial displacement.

3,560,027

COUPLING ASSEMBLY

Charles H. Graham, Mountain View, Calif., assignor to Gra-Tec, Inc., Los Altos, Calif., a corporation of California

Continuation of application Ser. No. 515,848, Dec. 23, 1965, which is a continuation-in-part of application Ser. No. 432,598, Feb. 15, 1965. This application Feb. 20, 1967, Ser. No. 617,145

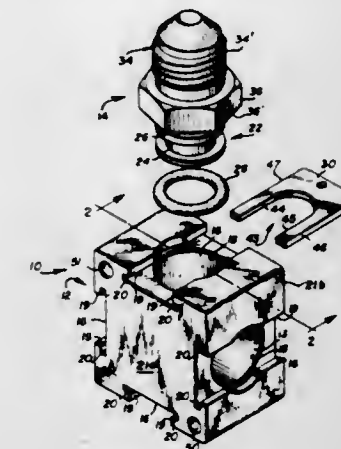
Int. Cl. F16l 41/00

U.S. Cl. 285—150

8 Claims

The coupling assembly disclosed herein comprises a distribution block and associated fitting terminations sealably connected with the block. The distribution block is provided with a plurality of intersecting smooth bores

extending thereinto from the sides thereof to provide a plurality of ports and a corresponding number of slots, each intersecting one of the bores adjacent a port. Each of the fitting terminations includes a cylindrical surface portion having a pair of axially spaced annular grooves and slidably received within the associated bore, and a shoulder



portion abutting a block side surface when the termination is positioned within the bore with the outer annular groove aligned with an associated slot. A clip slides within the slot and a portion of that outer groove and a resilient O-ring is positioned within the other groove, respectively, to lock and seal the block and termination together.

3,560,028

PIPE JOINT DEVICE

Manabu Ohba, Aichi, Japan, assignor to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

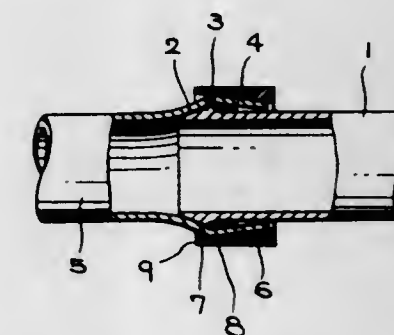
Filed Dec. 30, 1968, Ser. No. 787,796

Claims priority, application Japan, Jan. 19, 1968, 43/3,262

Int. Cl. F16l 33/22

U.S. Cl. 285—255

1 Claim



A pipe joint device comprising a first tubular member formed on one end portion with a protrusion, a second tubular member to be connected to said first tubular member, and an annular member formed on its inner circumferential surface with an inclined surface which is to be fitted over the outer circumferential surface of said second tubular member.

3,560,029

Edwin Floyd, Jr., Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Continuation-in-part of application Ser. No. 670,732, Sept. 26, 1967, which is a continuation-in-part of application Ser. No. 631,841, Apr. 18, 1967, which in turn is a continuation of application Ser. No. 468,793, July 1, 1965. This application Sept. 22, 1969, Ser. No. 865,229

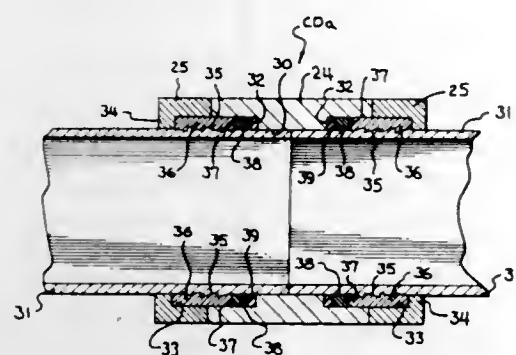
Int. Cl. F16l 19/02

U.S. Cl. 285—369

7 Claims

A wave guide connector for connection onto an end of a wave guide comprises a body member having an open-

ing extending therethrough with the opening having a configuration corresponding to the cross-sectional configuration of the wave guide. The end of the wave guide fits into the opening of the body member and is provided with serrated areas. Serrated inserts are disposed in the



opening in engagement with the serrated areas and means is removably secured onto the body member and in engagement with the serrated inserts thereby securing the inserts and the end of the wave guide in the opening of the body member.

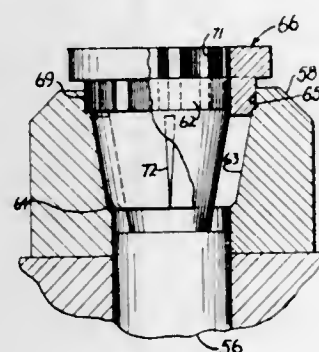
3,560,030 CLOSURES

Fred Macks, 8 Willow Lane, Vermilion, Ohio 44089, and Harold Gold, 3645 Holland Road, Shaker Heights, Ohio 44122

Filed May 11, 1967, Ser. No. 637,663
Int. Cl. B25g 3/28

U.S. Cl. 287—20.3

7 Claims



This invention relates to closures and fastening devices that can be used to plug entrance holes in manifolds and the like, to anchor stud, shaft and tube members in holes in a body, and to anchor tube, cap or wheel members to a shaft of the like. The invention provides means for obtaining dovetail-like locks between the sealing or anchoring members, whereby internal pressure or ejecting force causes the sealing contact stress or the pull-out resistance to increase.

3,560,031 COMPRESSIBLE DUAL AXLE MOUNT

James Gilmour, Jr., Rte. 2, Aurora, Ill.
Continuation-in-part of application Ser. No. 610,606, Jan. 20, 1967. This application Dec. 2, 1968, Ser. No. 780,366

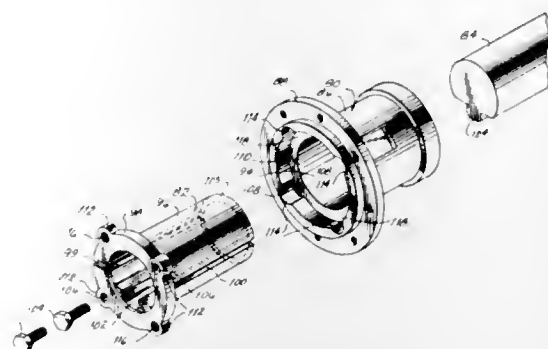
Int. Cl. B60b 27/06

U.S. Cl. 287—52.06

5 Claims

A mount for adding an additional wheel to a tractor comprising a hub with an integral wheel supporting end

plate and a removable insert clamped between the tractor's axle and the hub. In a first embodiment, the hub is U-shaped and the inserts are bolted both to the tractor's axle and to the hub. In a second embodiment, the hub



is annular and the insert comprises a tapered sleeve that is wedged between the tractor's axle and the hub. In both embodiments the inserts may be interchanged with other inserts allowing the hub to be mounted on axles of different diameters.

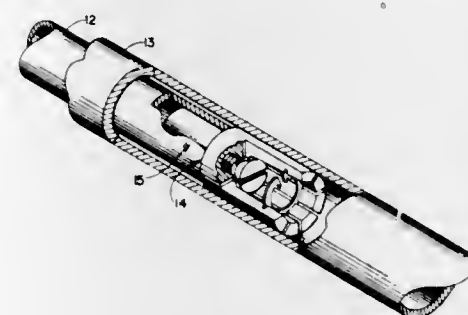
3,560,032 ADJUSTABLE CLUTCH FOR RELATIVELY MOVING TUBULAR PARTS

Abraham B. Cohen, Syosset, N.Y., and Melvin L. Freeman, Edmond, Okla., assignors to LTV Ling Altec, Inc., Oklahoma City, Okla., a corporation of Delaware

Filed May 27, 1968, Ser. No. 732,464
Int. Cl. F16b 7/14

U.S. Cl. 287—58

5 Claims



A clutch which is adjusted by selectively spreading fingers attached to one end of an elongated element telescoped within a tube, the adjustment being effected and maintained by a bolt whose head turns against wedge-shaped fingers and a compression spring that constantly urges the fingers outward into contact with the tube.

3,560,033 TELESCOPIC POSITIVE LOCK STRUT

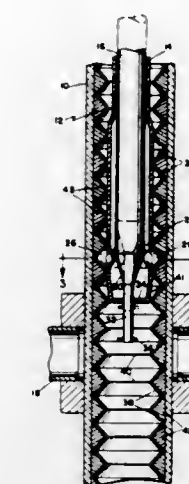
Homer A. Barkus, 2621 University Ave., San Diego, Calif. 92104
Filed Feb. 25, 1969, Ser. No. 802,169
Int. Cl. F16b 7/10

U.S. Cl. 287—58

3 Claims

The strut is adaptable to chairs, tables, stands for microphones, lamps and the like, and many other uses for which telescopic struts are required. A fully enclosed wedge and ball type mechanism provides positive locking at any of a large number of different positions, and means is included to retain the strut at any selected

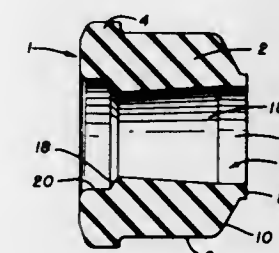
locked position. A simple release mechanism permits rapid adjustment and, if the locking mechanism is not



properly engaged, application of load on the strut will complete the locking action without danger of slippage.

**3,560,034
FLANGED-END BUSHING**
Gary L. Hipsher, Logansport, Ind., and Robert D. Vosburgh, Utica, Mich., assignors to The General Tire & Rubber Company, a corporation of Ohio
Continuation of application Ser. No. 732,365, May 27, 1968. This application May 28, 1969, Ser. No. 828,599
Int. Cl. F16f 1/38
U.S. Cl. 287—85

6 Claims



An improved flanged-end resilient bushing of the type used, for example, as an isolation mounting in automobile suspensions, comprises an annular elastomeric insert radially compressed between a pair of rigid concentric sleeves. The elastomeric insert is composed of a flange and a body portion. Longer bushing life is achieved by molding the insert with the bore through the body portion having at least about a 2° taper, extending from a smaller diameter at the junction with the flange to a larger diameter at the free end of the body portion opposite the flange.

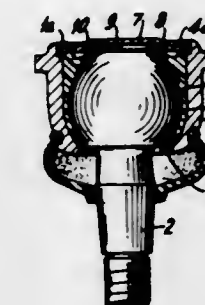
**3,560,035
UNIVERSAL JOINT CONSTRUCTION**
Georg Kindel, Lemförde, Hannover, Germany, assignor to Lemförder Metallwaren AG, Lemförde, Hannover, Germany
Filed Jan. 17, 1968, Ser. No. 698,636
Claims priority, application Germany, Jan. 19, 1967, L 55,522
Int. Cl. F16c 11/06

U.S. Cl. 287—90

6 Claims

The construction of a ball and socket joint, particularly for the articulation of wheels of an automobile suspension system, includes a bearing shell construction which

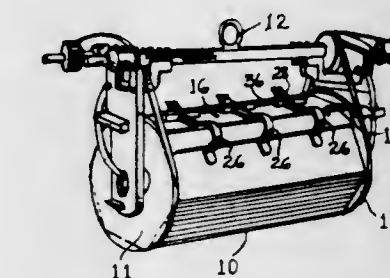
is arranged within an outer housing to provide a universal pivotal support for a ball portion of a journal pin. The bearing shell includes an annular projecting portion and a resilient cover member is engaged over the annular projecting portion and held within an annular recess defined in the outer housing. Automatic adjustment of the joint is effected by a spring element which is formed by the bearing shell itself. For this purpose, the bearing shell is



advantageously made of a single hard plastic material which either includes a separate spring-like element formed therein or is formed of a material such that it provides an inward loading effect on the ball portion of the joint pin. To produce this action in accordance with the invention, the shell is formed such that it has an inwardly extending curvature as compared to the curvature of the ball head of the joint pin.

**3,560,036
LATCH FOR THE COVER OF AN ELECTRICAL
PLATING ROTATING BARREL**
Walter F. Kiefer and Richard G. Stutz, Chicago, Ill., assignors to The Stutz Company, Chicago, Ill., a corporation of Illinois
Filed Aug. 25, 1969, Ser. No. 852,828
Int. Cl. E05c 19/06
U.S. Cl. 292—87

2 Claims



A latch for the cover of an electrical plating rotating barrel in which the latch (of which there is one or more) comprises a latch finger pivotally connected to the cover for removal therewith when the cover is removed from the cover opening in the barrel, the latch having a keeper head adapted to snap over and onto a latch bar provided by the barrel along the edge of the cover opening thereof.

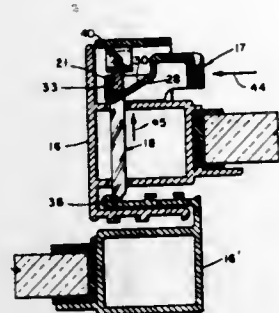
**3,560,037
SLIDING WINDOW LATCH**
Philip Crain, Valley Stream, N.Y., assignor to Allen-Stevens Corp., Woodside, N.Y., a corporation of New York
Filed July 28, 1969, Ser. No. 845,327
Int. Cl. E05c 1/16, 7/02

U.S. Cl. 292—170

9 Claims

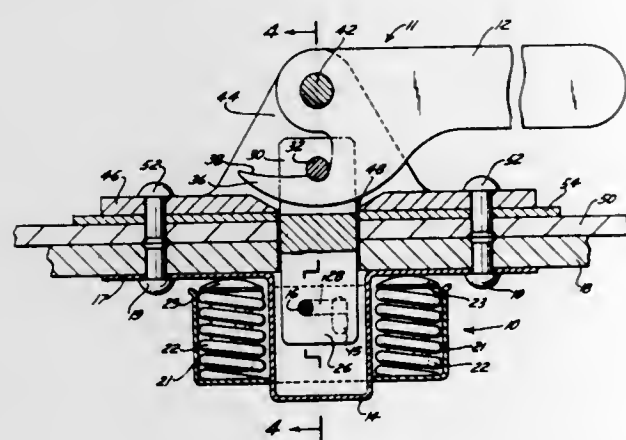
A latch for sliding windows which consists of a latching element having an extended flange at one end and an actuator comprising a guide member which slides within an aperture in the latching element. Camming surfaces

provided on the actuator engage the flange extensions and translate the latching element in a direction normal to



the direction of movement of the actuator. A spring affixed to the latching element flange is held in compression by a housing member.

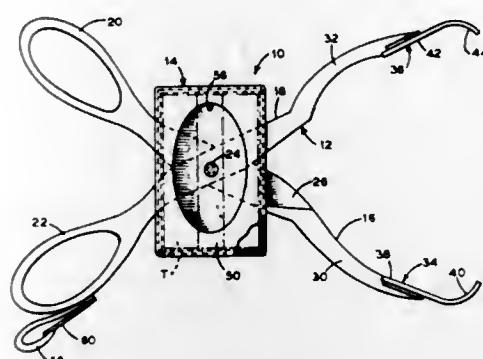
3,560,038
LEVER ACTUATED FASTENER ASSEMBLY
Conrad J. Gunther, Uniondale, N.Y., assignor to Dzus Fastener Co., Inc., West Islip, N.Y., a corporation of New York
Filed Dec. 18, 1968, Ser. No. 784,578
Int. Cl. E05c 3/04
U.S. Cl. 292-241 3 Claims



A fastener assembly which includes interengageable receptacle and operating handle members in which the receptacle member has a relatively fixed supporting base portion, a detent portion mounted on said base portion and spring means interposed between said base and detent portions with the detent portion being shiftable relative to the base portion from a normal position with the spring means being relatively expanded to a position where the spring means is relatively contracted. The operating handle member is in turn provided with an operating lever portion shiftable between open and closed positions and also with a cam portion projecting therefrom for engaging the detent portion when the lever is in open position with the detent portion being in relatively spring expanded position whereby when the operating lever is thereafter shifted to closed position the detent portion is in turn shifted to relatively spring contracted position thereby holding the assembly in closed or locked position and under spring tension.

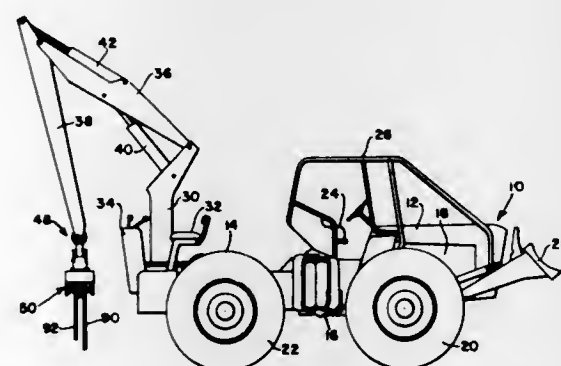
3,560,039
SANITATION DEVICE
Jack Gruber, 280 Prospect Ave., Hackensack, N.J. 07601
Filed Dec. 6, 1968, Ser. No. 781,937
Int. Cl. A47j 45/10; B25b 7/00
U.S. Cl. 294-16 5 Claims
Apparatus for handling and disposing of animal excrement and the like comprising a pair of tongs having

transverse elongated scoop portions connected to the end of each lever which curves concavely inwardly toward the opposite lever so that the scoop portions form a



closed-end scoop when the tong is closed. Tissue retaining means mounted on the tongs to hold a packet of tissues for use in handling the excrement.

3,560,040
GRAPPLE
Welker W. Funk, Moline, Ill., assignor to Deere & Company, Moline, Ill., a corporation of Delaware
Filed July 16, 1968, Ser. No. 745,222
Int. Cl. B66c 1/00
U.S. Cl. 294-97 5 Claims

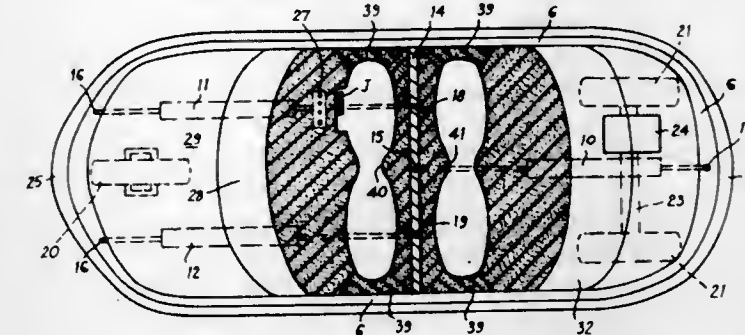


A grapple device that includes a horizontally elongated housing supporting a pair of depending grapple tines and encasing a pair of horizontal cylinders that extend in side-by-side disposition with one of the cylinders operating to move one tine and the other cylinder operating to move the other tine. The housing structure is supported on an end of a boom by a universal joint that has rubber bushings contained therein that frictionally engage cylindrical walls or surfaces of the universal joint so as to dampen and to resist swinging of the grapple structure on the boom.

3,560,041
AUTOMOBILE ROAD VEHICLES
David B. Foster, White House, Sunninghill Road, Windlesham, Surrey, England
Filed Feb. 19, 1968, Ser. No. 706,335
Claims priority, application Great Britain, Feb. 20, 1967, 8,022/67
Int. Cl. B62d 39/00
U.S. Cl. 296-1 2 Claims

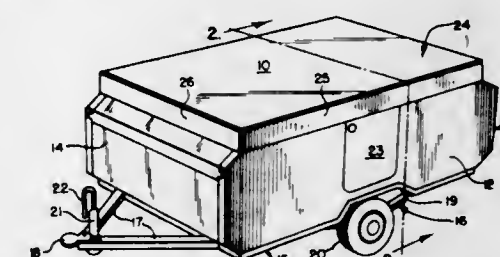
A vehicle comprising a mounting chassis, a driver/passenger compartment formed as an assembly separate from said mounting chassis, and shock-absorbing means connected between said mounting chassis and said compartment whereby said compartment can move longitudinally with respect to said mounting chassis. The driver/passenger compartment is provided with interior padding

surrounding the occupants from head to feet with the padding being provided with openings therethrough at the locations of the glazed areas of the vehicle body, said



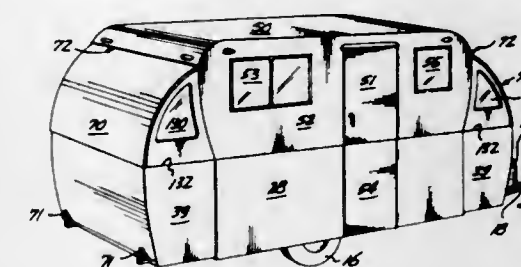
padding also being shaped to follow the profile of the seated occupants and to prevent the occupants from coming into contact with the glazed areas in the event of collision.

3,560,042
TRAVEL TRAILER CONSTRUCTION
James F. McCarthy, Brookfield, Ill., assignor to Free Winds, Inc., a corporation of Illinois
Filed Oct. 14, 1968, Ser. No. 767,343
Int. Cl. B60p 3/34
U.S. Cl. 296-23 12 Claims



A trailer construction adapted to be attached to and drawn rearwardly of a motor vehicle when in a relatively compact condition and which is capable, when unhitched or detached from the draft vehicle, of being quickly and easily expanded vertically as well as fore and aft by the interaction of a plurality of foldable and slidable solid or rigid panels to provide a weathertight and waterproof enclosure of relatively large interior dimensions suitable for living quarters.

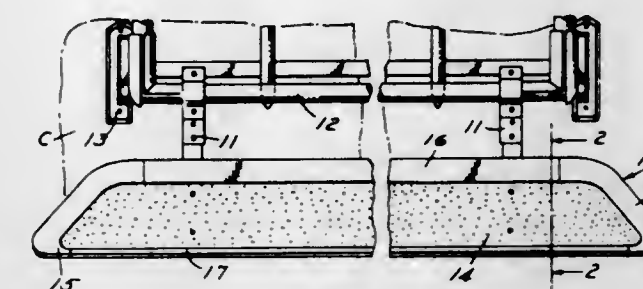
3,560,043
EXPANDABLE HOUSE STRUCTURE
Kenneth R. Harter, 6406 S. 143rd St., Seattle, Wash. 98104
Filed May 12, 1969, Ser. No. 823,862
Int. Cl. B60p 3/34
U.S. Cl. 296-27 5 Claims



A housing unit is provided which is capable of being expanded from a compact condition desirable for mobility by vertical movement of a roof section relative to a main frame section and by substantially simultaneous longitudinal extension of at least one end section outward of the other sections.

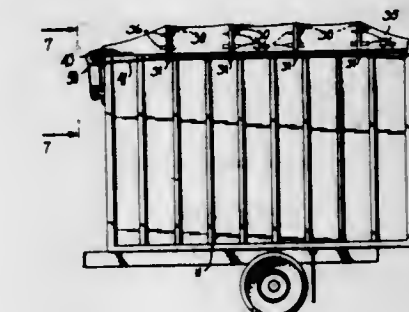
883 O.G.—8

3,560,044
AUTOMOBILE WIND DEFLECTOR
Frederick A. Helm, Detroit, Mich., assignor to Helm Design & Manufacturing, Inc., Detroit, Mich., a corporation of Michigan
Filed Apr. 30, 1969, Ser. No. 820,579
Int. Cl. B60j 1/20
U.S. Cl. 296-91 10 Claims



A wind deflector mounted adjacent the rear window of an automobile and comprising a longitudinally extending member with upper and lower edges which is made of a sheet of stainless material. The outer surface of the sheet has a satin finish and the inner surface of the sheet is polished. The upper and lower edges are bent inwardly over the satin finish to provide longitudinally extending ribs that have their exterior surfaces polished.

3,560,045
FLEXIBLE COVER POSITIONING APPARATUS
Erwin F. Finneman, Rte. 1, Box 25, Anamoose, N. Dak. 58710
Filed Mar. 21, 1969, Ser. No. 809,269
Int. Cl. B60j 7/10
U.S. Cl. 296-137 4 Claims

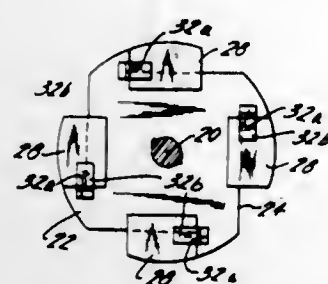


A downwardly opening track affixed to the upper edges of opposed sides of a truck box with a plurality of dollies movably engaged therewith, a plurality of support rods having a flexible cover attached thereto affixed to a dolly at either end thereof, an endless flexible cable mounted by pulley means adjacent each end of at least one of the tracks and affixed to the rear dolly engaged in said track, and an electric motor engaged with the pulley means for moving the endless cable for stretching or retracting said flexible cover over the box.

3,560,046
INTEGRAL TABLE AND SEATING ARRANGEMENT
Jeffrey Owen Brosk, 150 E. 69th St., New York, N.Y. 10005
Filed Sept. 26, 1968, Ser. No. 762,709
Int. Cl. A47b 25/00
U.S. Cl. 297-157 8 Claims

An integral table and seating arrangement in which a number of seats together with back rests are situated about a table portion supported at its center. The support

for the table portion is in the form of a vertical post extending to a base resting on the floor. The base extends over sufficient area on the floor to provide a stable sup-



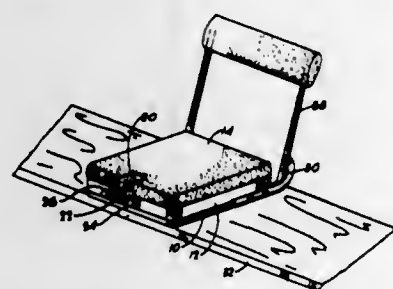
port for the entire assembly. The arrangement of the table portion and adjoining seats, is designed to form an integral type of construction.

3,560,047 FOLDABLE PORTABLE CHAIR WITH LIQUID DISPENSER

John W. Davis, 1200 La Cruz Drive,
El Paso, Tex. 79902
Filed June 25, 1969, Ser. No. 836,284
Int. Cl. A47c 7/62

U.S. Cl. 297—188

5 Claims



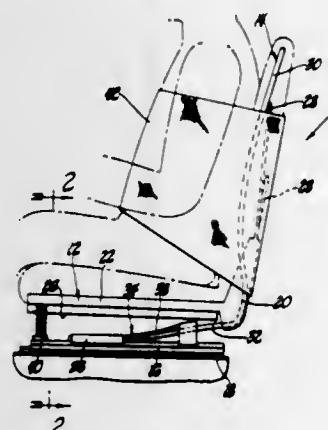
A portable foldable chair is provided with a seat having therein a hollow thermally insulated container with means to introduce hot or cold liquids therein as well as means to dispense liquids therefrom.

3,560,048 SUSPENSION SAFETY SEAT

Hyland C. Flint, 3551 Walnut Lake Road,
Orchard Lake, Mich. 48033
Filed Dec. 5, 1968, Ser. No. 781,406
Int. Cl. A62b 35/60

U.S. Cl. 297—389

9 Claims



A seat assembly of the type utilized in vehicles including a seat portion and a back portion with a restraining means such as a seat belt, vest, or the like, attached to the seat portion or back portion for retaining a person in the

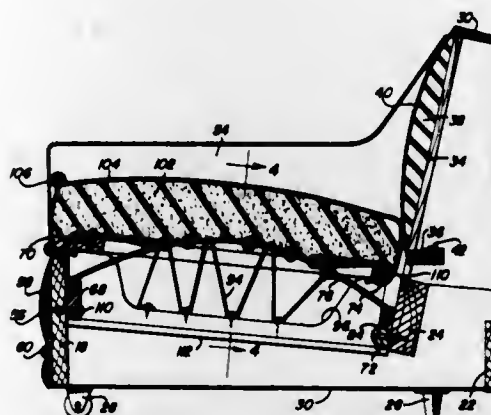
seat assembly. A pair of flexible wire-like elements are connected to a base and extend rearwardly and upwardly therefrom to support the seat and back portion. These flexible elements allow the seat and back portions to move forwardly with a person retained in the seat and members coact with these flexible elements to progressively engage the flexible elements as the seat and back portions move forwardly to reduce the flexibility of the flexible elements.

3,560,049 SOFA WITH INTEGRAL CUSHION

Robert E. Burton, Coalinga, Calif.
(464 Montgomery St., Orange, Calif. 92668)
Filed Apr. 17, 1969, Ser. No. 816,925
Int. Cl. A47c 7/14, 7/02

U.S. Cl. 297—452

8 Claims



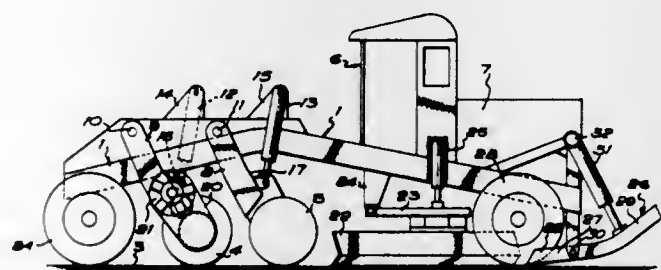
An article of furniture which may be in the form of a sofa having cushions constructed as an integral part thereof with each cushion including a rigid framework having a plurality of arcuately bowed serpentine springs with resilient adjustment straps attached thereto. The end springs have stabilizing tie cords and interconnecting coil spring members.

3,560,050 MACHINES FOR REMOVING WORN ROAD SURFACES

Peter Lockwood, Darlington, England, assignor to
Greenside Machine Company Limited
Filed Feb. 24, 1969, Ser. No. 801,548
Claims priority, application Great Britain, Mar. 20, 1968,
13,430/68; July 16, 1968, 33,811/68
Int. Cl. E01c 23/09

U.S. Cl. 299—39

5 Claims



Apparatus for removing a worn road surface down to a predetermined depth prior to the application of a new surface, comprises a chassiss support means for the chassiss in the form of road wheels or tracks means to displace said chassiss in a forward and/or reverse direction, a pick-carrying hydraulically driven cutting drum supported from said chassiss and located within said support

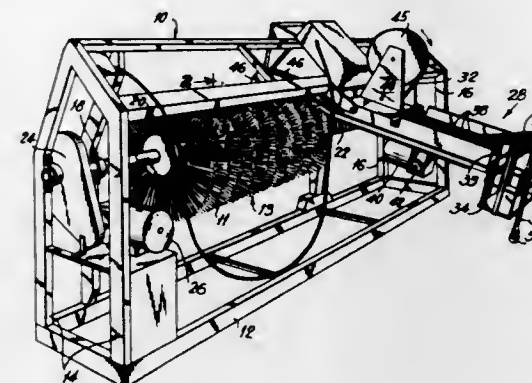
means thereof and rotatable in the same direction as the road wheels about a horizontal axis at an angle to the longitudinal axis of said chassis, and means to adjust said cutting device in a substantially vertical plane to determine the depth of said road surface to be removed.

3,560,051 PLASTIC BRISTLE MAT AND HOLDER FOR WIND- ING ON A STREET SWEEPING BROOM

William Gould, 93 Sagamore Road,
Millburn, N.J. 07041
Filed July 17, 1968, Ser. No. 745,429
Int. Cl. A46d 9/00

U.S. Cl. 300—14

8 Claims



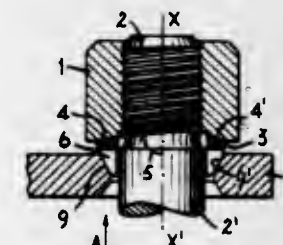
A plastic bristle mat formed of a succession of individual bristles, multi-layered thick and interconnected by means of a pair of spaced seams of a flexible filament or thread stitched crosswise to the bristles on opposite sides of a center portion of the bristles. The stitching allows some relative movement of the individual bristles and bendability of the mat transverse to the longitudinal axis of the mat. A predetermined length of the mat is stored in a storage container which is removably mounted adjacent a feed conveyor and the mat is uniformly fed from the container automatically into a core, which could have various configurations. The core is disposed about a shaft to form a broom. The container moves with the conveyor.

3,560,052 DEVICES FOR MOUNTING VEHICLE WHEELS

Henri Verdier, Beauregard-Péveque, Puy-de-Dôme,
France, assignor to Compagnie Generale des
Etablissements Michelin, ralsion sociale Michelin
& Cie, Clermont-Ferrand, Puy-de-Dôme, France
Filed Oct. 14, 1968, Ser. No. 767,302
Claim priority, application France, Oct. 17, 1967,
124,804
Int. Cl. B60b 3/16

U.S. Cl. 301—9

2 Claims



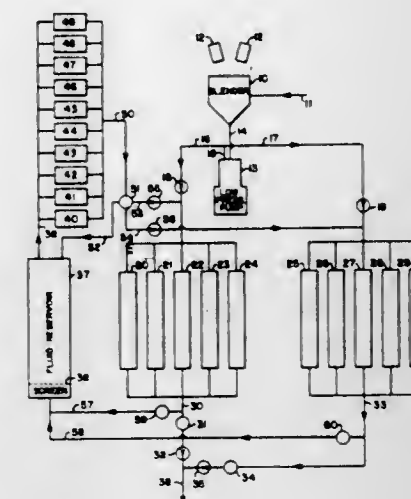
A centering ring mounted around the shank of a vehicle-wheel bolt and gripped between the wheel and a nut has a continuous annular surface in contact with the nut. The ring is nevertheless sufficiently elastic, by virtue of at least one partial slot or by means of a bore selected in such a manner as to leave with the shank of the bolt a sufficiently small clearance, to grip the shank of the bolt when the nut is tightened.

3,560,053 HIGH PRESSURE PUMPING SYSTEM

John E. Ortloff, Houston, Tex., assignor to Esso Production Research Company, a corporation of Delaware
Filed Nov. 19, 1968, Ser. No. 776,949
Int. Cl. B65g 53/30

U.S. Cl. 302—14

4 Claims



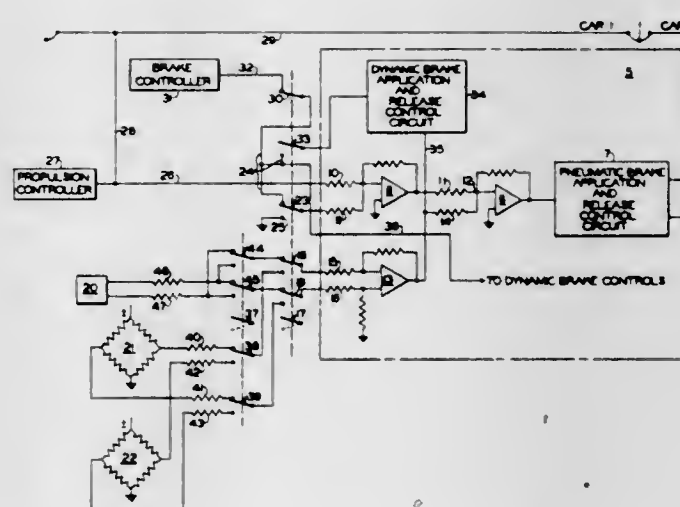
A system for pumping a hydraulic fracturing fluid or similar liquid containing suspended solids at high pressure wherein the solids-laden fluid is charged into an accumulator at low pressure and then displaced from the accumulator at high pressure without passing through the high pressure pumping equipment.

3,560,054 BRAKE CONTROL SYSTEM FOR RAILROAD TRAINS

Ronald A. Sarbach, Columbus, Ohio, assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania
Filed Apr. 22, 1969, Ser. No. 818,334
Int. Cl. B60t 13/68

U.S. Cl. 303—20

13 Claims



An electronic brake control system for railway trains in which strain sensors monitor buff and draft coupler forces existing between adjacent cars in the train consist to establish a brake control signal at the trailing one of the cars. The analog polarity signal produced in accordance with the degree and character of coupler strain establishes control of the vehicle brakes, the effectiveness of which control is varied by a consequent change in coupler force as the vehicle brake controls attempt to arrive at a condition of brake effort where coupler forces are balanced. The

head-end car in the train consist establishes the reference rate of retardation on the consist to which the trailing car brake controls adhere. Rate feedback means on the head-end car constrains its brake controls to maintain a linear and repeatable retardation rate in accordance with the level of brake request signal. Blending of friction and dynamic brake control is obtained on the head-end car with other variable dynamic conditions effective on each trailing car being inherently reflected through the brake control signal produced by coupler strain whereby each car in the train shares the braking responsibility in accordance with the dynamic characteristics peculiar to that particular car.

3,560,055

LOCOMOTIVE BRAKE CONTROL SYSTEM SUITED FOR REMOTE MULTIPLE UNIT OPERATOR

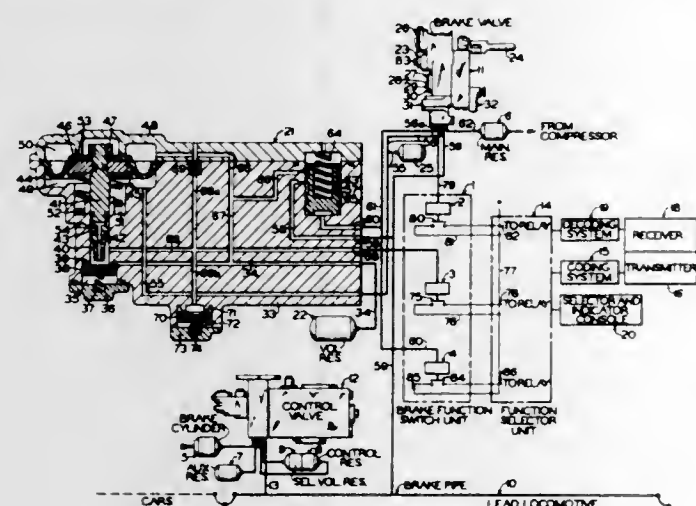
Robert J. Worbois, Irwin, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania

Filed May 9, 1969, Ser. No. 823,307

Int. Cl. B60t 13/68

U.S. Cl. 303—20

9 Claims



Brake control apparatus for the lead locomotive of a multiple unit locomotive control system wherein the brake valve on the lead locomotive is manually operable conventionally to control application and release of the brakes on the forward portion of the train from the lead locomotive and, in a novel manner, also to effect corresponding control (via radio-transmitted signals initiated by manual operation of the brake valve on the lead locomotive) of the brakes on the remaining portion of the train from the brake valve on a slave locomotive remotely located in the train. Switch devices selectively operated in correspondence to the operation of the brake valve on the lead locomotive establish suitable control circuitry for radio transmission of appropriate brake control signals from the lead to the slave locomotive. One of the switches is controlled through an intermediate valve means so as to cause reduction of equalizing reservoir pressure on the slave locomotive in correspondence with that on the lead locomotive thereby initiating a service application of the brake on the train as the slave locomotive concurrently with that initiated at the lead locomotive.

3,560,056

SKID CONTROL SYSTEM

William Stelzer, Milford, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich., a corporation of Delaware

Filed Dec. 16, 1968, Ser. No. 783,794

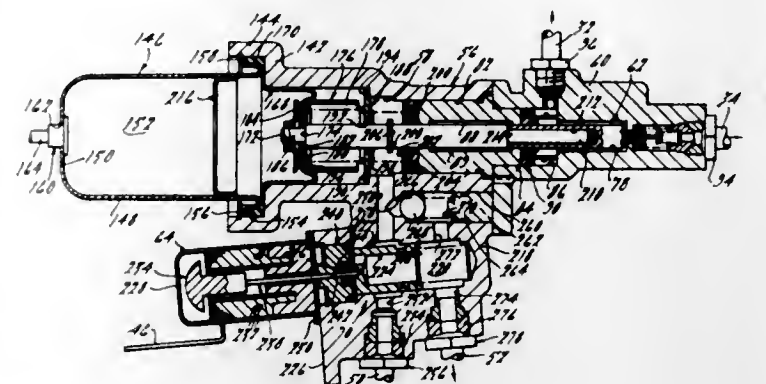
Int. Cl. B60t 8/08

U.S. Cl. 303—21

23 Claims

A skid control system adapted for operative association with the fluid actuated braking system of an automotive or similar type vehicle; the system including a modulating

valve assembly for selectively controlling the flow or supply of hydraulic brake actuating fluid between the master brake cylinder of the vehicle and one or more of



the wheel cylinders thereof; the modulating valve including a pressurized cylinder and being operable in response to and actuable by an increase in fluid pressure from a source thereof ancillary to the hydraulic brake system.

3,560,057

FLUID PRESSURE BRAKE APPARATUS FOR REMOTE MULTIPLE UNIT LOCOMOTIVE TRAINS

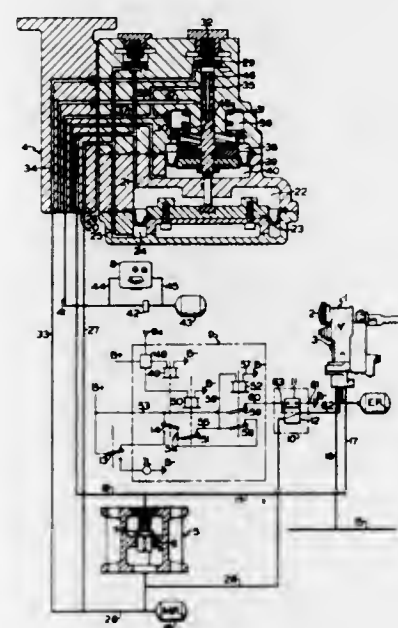
Robert J. Worbois, Irwin, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania

Filed May 28, 1969, Ser. No. 828,670

Int. Cl. B60t 15/18

U.S. Cl. 303—67

4 Claims



An apparatus utilized in multiple unit train brake controls whereby electrical circuitry, including a brake pipe flow indicator in cooperation with a control signal communication continuity sensing relay, is employed for preventing an undesired recharging of the brake pipe at a location remote from the lead locomotive by operation of a brake valve on a remote locomotive in the train, which recharging would otherwise result when a brake pipe reduction calling for a brake application on the train is effected by the operation of the brake valve on the lead locomotive at a time when normal control signal communication between the lead locomotive and said remote locomotive is interrupted, thereby preventing initiation of such brake application at said remote locomotive in normal manner.

3,560,058

DISTRIBUTION VALVE

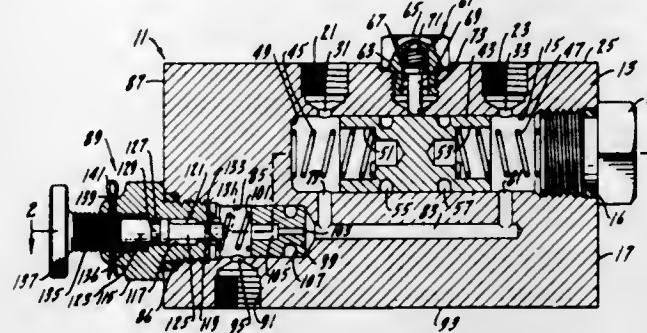
Charles Gale Middleton, Addison, Ill., assignor to Stromberg Hydraulic Brake and Coupling Company, Chicago, Ill., a corporation of Illinois

Filed Apr. 25, 1969, Ser. No. 819,246

Int. Cl. B60t 17/22, 15/00

U.S. Cl. 303—84

7 Claims



A distribution valve for supplying at least two outlet conduits from one or more inlet or supply conduits and arranged to shut off any one of the outlet conduits upon a pressure drop therein without adversely affecting the supply to the other outlet conduits. The valve is arranged to lock in its shut off positions. A bypass conduit which is normally supplied by all of the supply conduits is provided with its own pressure drop shut off valve and this valve has a manually controlled bleeder.

3,560,059

SEALING DEVICE FOR A HINGE JOINT OF ENDLESS TRACK LINKS

Hideo Miyake, Osaka-fu, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho (Komatsu Mfg. Ltd.), Tokyo, Japan

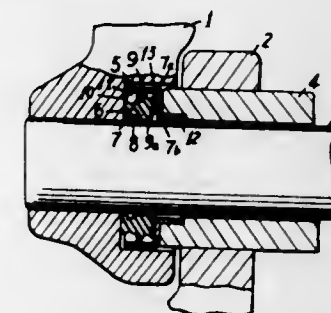
Filed Mar. 13, 1969, Ser. No. 806,797

Claims priority, application Japan, Mar. 21, 1968, 43/21,569; Feb. 4, 1969, 44/9,123; Feb. 8, 1969, 44/10,667

Int. Cl. B62d 55/20

U.S. Cl. 305—11

8 Claims



A sealing device for use with a hinge connection structure comprising a pin fixed on a track link of the endless track mechanism and a bushing fixed on an adjacent track link. The pin is received in and surrounded by the bushing with a small clearance therebetween so that an annular space may be formed between the track link on which the pin is fixed and the bushing fixed on the adjacent track link. The sealing device comprises in combination a retainer Z-shaped in cross-section and made of metal or like hard material which has an outer diameter slightly smaller than the inner diameter of said annular recess, and a seal ring made of rubber or like resilient material and formed with at least one lip on its outer circumferential surface so as to form at least one sealed chamber between the lip and the retainer. The retainer is firmly attached to an end face of the bushing so that the retainer may be mounted in the annular recess. The seal ring is mounted in said annular recess such that opposite ends thereof are maintained in contact with the

track link and the retainer, whereby the seal ring can be held in place by the retainer and provide a seal to the clearance between the pin and the bushing. The surface of the seal ring maintained in contact with the retainer may have attached thereto a sliding member, which may extend throughout the width of the seal ring, if desired. A lubricant may be contained in the at least one sealed chamber so as to permit the seal ring and the retainer to smoothly move in rotational and sliding motions relative to each other.

3,560,060

ROD GUIDE AND CENTRALIZER

Nate Morris, 10234 Metronome, Houston, Tex. 77042

Filed Dec. 18, 1968, Ser. No. 784,667

Int. Cl. E21b 17/10; F16c 1/26

U.S. Cl. 308—4

1 Claim



A polyurethane rod guide and centralizer for use on sucker rods extending longitudinally through production tubing such as is used in pumping fluids to the surface in oil wells wherein the rod guide and centralizer surround the rod to position it generally axially of the tubing to prevent engagement of the rods with the tubing when such rods are reciprocated therein for actuating as well pump connected to the sucker rods.

3,560,061

MEANS FOR MOUNTING TRANSLATING MACHINE MEMBER

Howard C. Shaw, Jr., 1955 Quarton Road, Bloomfield Hills, Mich. 48013

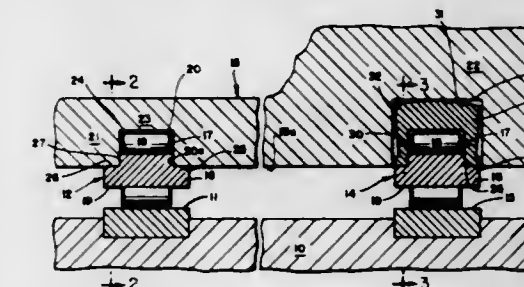
Continuation-in-part of application Ser. No. 694,751, Dec. 29, 1967, which is a continuation of application Ser. No. 494,821, Oct. 11, 1965. This application July 11, 1968, Ser. No. 744,025

The portion of the term of the patent subsequent to Apr. 12, 1985, has been disclaimed and dedicated to the Public

Int. Cl. F16c 19/08

U.S. Cl. 308—6

1 Claim



The use of specially designed mounting configurations for way bearings of the roller-raceway variety in order to minimize the space required by the bearings and the

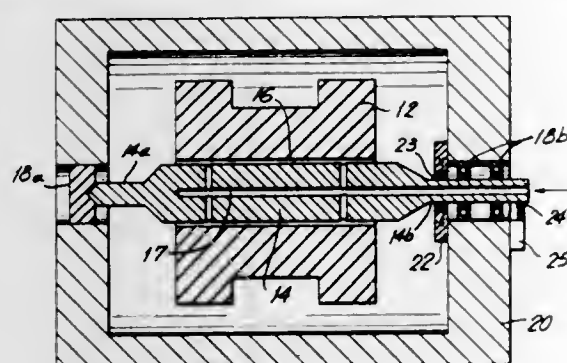
amount of machining ordinarily required on the mounting face of the machine member. In one aspect, the bearing provides a mounting surface between the upper and lower runs to mate with confronting surfaces on the mounting face of the machine member, thereby allowing maximum section strength and minimum machine assembly profile. Where section strength and machine profile are of secondary importance, the bearing mounting utilizes two arcuately contoured surfaces, perpendicularly related between the bearing and the machine member to compensate for manufacturing imperfections.

3,560,062 GAS BEARING ASSEMBLY WITH AUXILIARY BEARING

Leslie C. Kun, Williamsville, and Hans H. Ammann, Hamburg, N.Y., assignors to Union Carbide Corporation, a corporation of New York
Filed Aug. 16, 1968, Ser. No. 753,157
Int. Cl. F16c 17/16, 21/100

U.S. Cl. 308—9

9 Claims



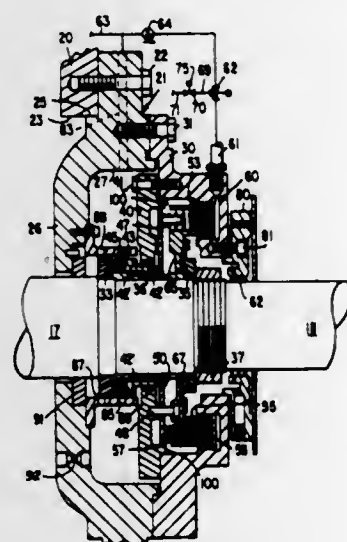
Gas bearing damage may be minimized by attaching auxiliary bearings and restraining means to the normally stationary gas bearing member which restraining means permits auxiliary bearing rotation should the gas bearing fail. Rotor driving force termination may commence when auxiliary bearing rotation begins.

3,560,063 SHAFT SEAL MECHANISM FOR OPEN TYPE FLUID COMPRESSORS

Martin M. McClusky and James W. Endress, Syracuse, N.Y., assignors to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware

Filed June 23, 1969, Ser. No. 835,636
Int. Cl. F16c 1/24; F16k 41/00; F16j 15/16
U.S. Cl. 308—36.2

5 Claims



A shaft sealing mechanism for open type fluid compressors, such as refrigeration compressors, in which the operating shaft extends outwardly through the end wall

of the compressor bearing housing. The sealing mechanism consists of an assembly of components mounted in the end wall of the bearing housing, the mechanism including running and shut down seals. A common spring means is interposed between the movable elements of the seals and serves to continuously maintain the running seal in sealing engagement and to urge the shut down seal in sealing engagement. The movable element of the shut down seal is carried by a piston which, by the application thereto of hydraulic pressure, prevents engagement of the shut down seal elements but, in the absence of such pressure, the shut down seal is actuated to sealing engagement by the common spring means.

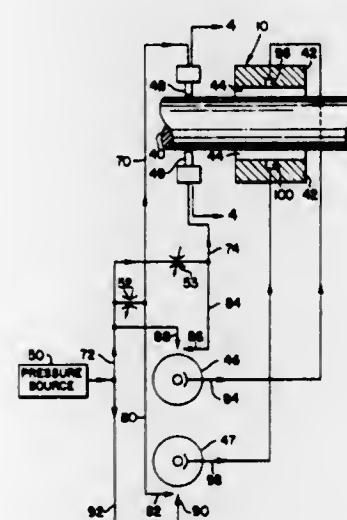
3,560,064 SERVO CONTROLLED FLUID BEARING

Alexander Sliver, Tarzana, Calif., assignor to The Garrett Corporation, a corporation of California

Filed Jan. 3, 1969, Ser. No. 788,881
Int. Cl. F16c 1/24

U.S. Cl. 308—122

13 Claims



A servo controlled fluid bearing arrangement is disclosed with a journal type bearing being illustrated. The servo device, for example a vortex amplifier or a fluid amplifier, communicates with a pressure source and the spacing between the shaft and the bushing of the bearing. Eccentric rotation of the shaft activates the device to selectively increase and decrease pressure within the spacing to counteract shaft displacement.

3,560,065 REINFORCED PLASTIC BEARING

Samuel M. Shobert, Mishawaka, and Joseph K. Tunis III, South Bend, Ind., assignors to Plas-Steel Products, Incorporated, Walkerton, Ind., a corporation of Indiana

Filed Feb. 5, 1968, Ser. No. 703,067
Int. Cl. F16c 27/00; F02f 5/10

U.S. Cl. 308—238

4 Claims



A reinforced plastic bearing comprising a generally toric core of glass strands disposed in a resin material, and a tubular layer of tetrafluoroethylene-cotton threads embedded in a resin material and enrobing the core to

provide an exterior surface including the tetrafluoroethylene fibers of the embedded threads. Preferably, the resin material embedding the tetrafluoroethylene-cotton threads is loaded with finely divided particles of tetrafluoroethylene impregnating the cotton fibers of the embedded threads.

The preferred method for fabricating such a bearing comprises the steps of arranging the glass strands to provide an elongated bundle having a circular cross section and impregnating the strands with resin, arranging the tetrafluoroethylene-cotton threads peripherally about the bundle, helically wrapping the bundle with the threads thereon about a cylindrical mandrel, curing the resin, and cutting the helically wrapped bundle axially along the mandrel to separate the bearings.

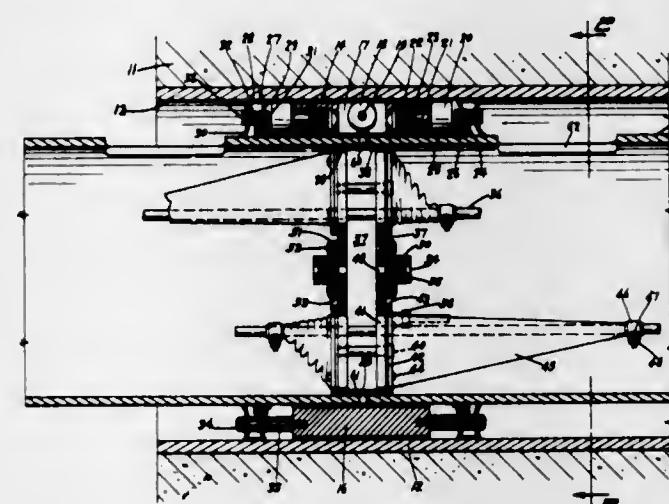
3,560,066 ATMOSPHERE CONTROL SYSTEM FOR MANIPULATOR WALL PENETRATION

Demetrius G. Jelatis and Lester W. Haaker, Red Wing, Minn., assignors to Central Research Laboratories, Inc., Red Wing, Minn., a corporation of Minnesota

Filed July 3, 1969, Ser. No. 838,786
Int. Cl. A41g 11/00

U.S. Cl. 312—1

10 Claims



An atmosphere control system against passage of gases or gas-borne substances for the horizontal through tube of a remote control master-slave manipulator. The system includes a pair of spaced apart sealing assemblies with gas chamber between. The manipulator tie rods are sealed by booting. The motion tapes and cables pass between felt wipers. Safety of the operator and/or control of the cell atmosphere is insured by maintaining gas under slight pressure in the gas chamber so as to cause controlled leakage outwardly from that chamber in both directions. Spaced apart rotary lip seals with gas chamber between are also provided in the annular space between the through tube and wall opening to permit free rotation of the through tube while maintaining an effective seal.

3,560,067 MERCHANDISE STORING AND DISPENSING UNIT

Harold J. Stieg, Pittsburgh, Pa., assignor of fifteen percent to Lawrence Skendrovic, West Mifflin, Pa.; twenty percent to Stone & Raynovich, Pittsburgh, Pa., a partnership; and five percent to Walter Saymansky, Washington County, Pa.

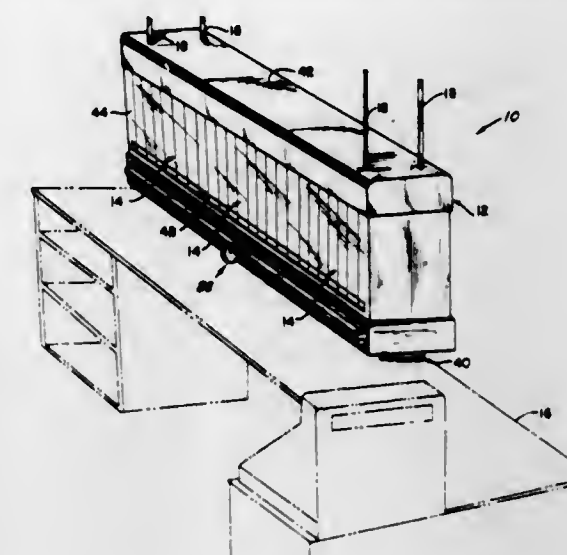
Filed Apr. 28, 1969, Ser. No. 819,761
Int. Cl. A47f 1/00, 3/02

U.S. Cl. 312—42

10 Claims

A merchandise storing and dispensing unit is provided which is suspended from overhead at the checkout counter

or cash register of a store. The unit contains a plurality of vertically reciprocal merchandise containers that are positionable so that they may be pulled down out of the unit to remove merchandise or positioned up into the unit for storage. The containers are balanced to remain



in whatever position they are placed. A lock is provided so that the unit may not have merchandise withdrawn therefrom except in the presence of store personnel. The unit utilizes overhead space for storage and is particularly adaptable for storing and dispensing cartons of cigarettes.

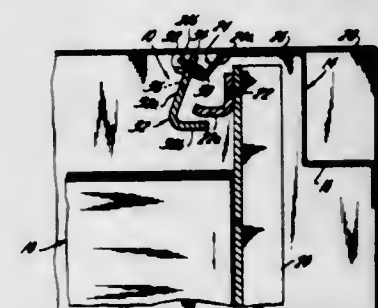
3,560,068 DRAWER LATCH MECHANISM

Walter H. Ostrom, Wescorville, Pa., assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut

Filed July 15, 1969, Ser. No. 842,442
Int. Cl. E05b 65/46; E05c 15/04

U.S. Cl. 312—217

8 Claims



A latch mechanism for drawer-type cabinets comprises a vertical latch-mounting member secured to the cabinet enclosure and a latch member mounted on the latch-mounting member for pivotal movement into and out of engagement with projecting latch pieces on the drawers. The latch member is mounted on the mounting member by means of a series of spaced-apart lugs on one of the members receivable in corresponding slots in the other of the members, the lugs having formations for retaining the latch member secured to the mounting member while affording pivotal movement.

3,560,069 ADJUSTABLE RACK ASSEMBLY IN AN AUTOMATIC DISHWASHER

Donald G. H. Doecke, Greenfield, Wis., assignor to General Electric Company, a corporation of New York

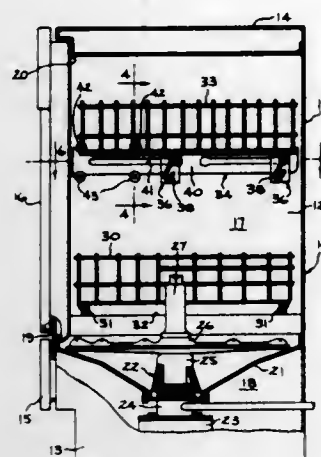
Filed July 1, 1969, Ser. No. 838,201
Int. Cl. A47b 88/00, 95/00

U.S. Cl. 312—351

9 Claims

A dish-supporting rack in a dishwasher cabinet is provided with an improved rack assembly including improved

means for facilitating manual vertical adjustment of the rack. The invention is specifically applicable to a front opening dishwasher having spaced apart upper and lower dish racks that are slidably mounted to be manually moved



to an outward extended position in the access opening to facilitate loading and unloading tableware therein. The vertical adjustment means is provided in combination with the slidable support means of the upper rack.

3,560,070

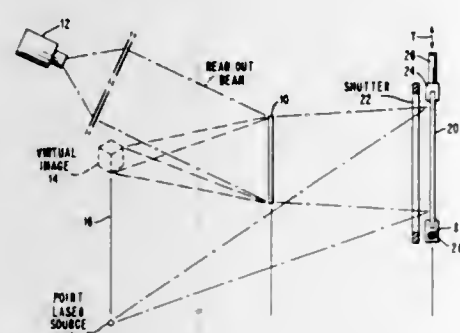
METHOD FOR MAKING SECONDARY HOLOGRAMS FROM MULTIPLEXED HOLOGRAMS OR INTEGRAL PHOTOGRAPHS WHEREIN THE SCREEN EFFECT IS ELIMINATED

Keith S. Pennington, Putnam Valley, and Robert V. Pole, Yorktown Heights, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Mar. 13, 1968, Ser. No. 712,671
Int. Cl. G02b 27/00

U.S. Cl. 350—3.5

6 Claims



A method is described for forming secondary holograms from either a multiplexed (i.e. sampled) hologram or from an integral photograph wherein the screen effect normally produced by either the multiplexed hologram or the integral photograph is eliminated. An integral photograph is a photographic recording of an object through a plane array of fly's eye lenses from which three-dimensional real and virtual images can be later observed. A multiplexed or sampled hologram is a hologram which is formed by interlacing a plurality of holograms on a single emulsion using a mask placed in the reference and/or the integral photograph is eliminated. An integral photograph or hologram of an integral photograph, a screen or grid effect is produced due to the fact that the fly's eye lens array is discontinuous and the areas between the lenses in the array do not record any information. In observing the image from a multiplexed hologram, a similar screen or grid effect appears due to the fact that

a mask was employed in producing the multiplexed hologram.

In the method of the present invention, a secondary hologram is recorded in the Fourier transform plane of the image and the secondary hologram plate is translated in the Fourier plane a number of times and a separate recording of the image is superimposed for each translation. Since the secondary hologram plate is in the Fourier plane of the image, the image does not shift due to the translation of the plate. However, since the secondary hologram plate is not in the Fourier plane of the integral photograph or the multiplexed hologram as the case may be, the grid will be recorded at different locations on the secondary hologram for each translation, that is, the grid will shift due to the translation of the hologram. The shifting of the grid for the successive recordings will cause it to smear out and will not be viewable in the resultant secondary hologram.

3,560,071

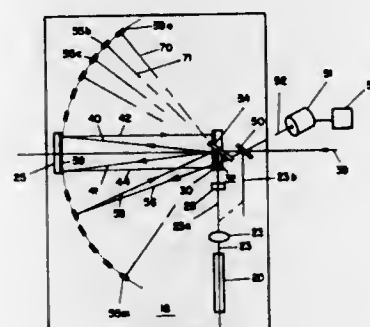
HOLOGRAPHIC RECORDING AND VISUAL DISPLAY SYSTEMS

Daniel Silverman, 5969 S. Birmingham St., Tulsa, Okla. 74105, and Everett A. Johnson, 15 S. Prospect Ave., Park Ridge, Ill. 60068

Filed Apr. 17, 1968, Ser. No. 721,989
Int. Cl. G02b 27/22

U.S. Cl. 350—3.5

18 Claims



This invention is concerned with methods and apparatus for recording multiple exposure holograms on a film record and displaying reconstructed images of the separately recorded subjects. Means are provided, by the use of simultaneous application of multiple different reference beams, to reconstruct a plurality of images, each of which can be separately controlled in intensity. Also, the recording of the separate subjects can be controlled in a predetermined timed sequence, and the corresponding reconstruction of the plurality of images can be controlled in the same or different timing sequence. Means are provided for recording the separate subjects by keeping the subject and reference beam in fixed directions and rotating the plane of the recording film.

3,560,072

SYSTEM FOR THE STORAGE, RETRIEVAL AND DISPLAY OF INFORMATION

Daniel Silverman, 5969 S. Birmingham St., Tulsa, Okla. 74105

Continuation-in-part of application Ser. No. 612,698, Jan. 30, 1967. This application Apr. 17, 1968, Ser. No. 721,998

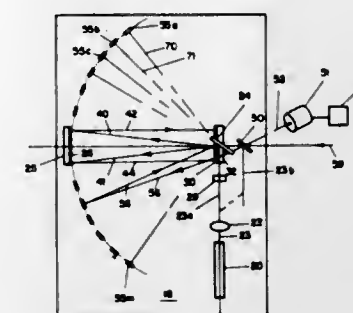
Int. Cl. G02b 27/22

U.S. Cl. 350—3.5

19 Claims

This invention is concerned with an information storage and retrieval system capable of storing information in the form of microreproductions of pictorial or alphanumeric information or information in digital form. Information in the form of patterns of areas of different color, grayness, or degrees of transparency are recorded on a

photographic medium as multiple holographic exposures. Each exposure is made with a reference beam of coherent light of different intensity patterns, or of uniform intensity, but different direction with respect to the recording film. The same reference beams are used to reconstruct the recorded images as were used to record them. The reconstructed images can be utilized by direct viewing, by photographic copying or by photoelectric scanning. Means are provided, including patterns or guide indicia, on the sub-



ject record and the means to vary the intensity of the reference beams, so that, with the help of servo means responsive to these sets of guide indicia, the subject records and the patterns of the reference beam can be precisely positioned with respect to the holographic film. In preparing the hologram, a pattern of guide indicia is recorded on the film to facilitate the replacement of the developed film to the precise position occupied by the film during the recording process.

3,560,073

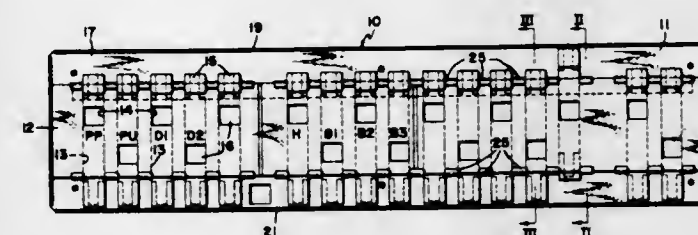
RETROREFLECTIVE SIGNAL DEVICE

LeRoy A. Knapp, West Boylston, Mass., assignor to Machinery Electrification, Inc., Northboro, Mass., a corporation of Massachusetts

Filed Dec. 19, 1968, Ser. No. 785,283
Int. Cl. G02b 5/12

U.S. Cl. 350—97

2 Claims



This invention relates to a signal device and, more particularly, to apparatus for use in supplying a pattern of retroreflective spots in an automatic warehousing arrangement or the like.

3,560,074

95% TITANIUM DIOXIDE GLASS SPHEROIDS

Charles E. Searight, Ezra M. Alexander, John R. Ryan, and Steven H. Brasfield, Jackson, Miss., assignors to Cataphote Corporation, Jackson, Miss., a corporation of Ohio

Continuation of application Ser. No. 405,925, Oct. 23, 1964. This application Oct. 21, 1968, Ser. No. 769,433

Int. Cl. G02b 5/12

U.S. Cl. 350—105

5 Claims



Disclosed is the production of glass having at least a 75% by weight equivalent content of titanium dioxide.

The glass as small spheres is useful as retroreflective lens for traffic marking surfaces and other uses, wherein the glass spherical elements or beads contain greater than 75% by weight of titanium dioxide and are suitable as retroreflective lens elements.

3,560,075

ORIENTED POLYMER MICROCRYSTALLINE LIGHT POLARIZING STRUCTURES

Orlando A. Battista, Yardley, Pa., and Mamerto M. Cruz, Jr., Pennington, N.J., assignors to FMC Corporation, Philadelphia, Pa., a corporation of Delaware

Filed Mar. 24, 1967, Ser. No. 625,815

Int. Cl. G02b 5/30

U.S. Cl. 350—147

10 Claims



Light polarizing refracting structures are formed from dispersions of anisotropic organic and inorganic polymer microcrystals, the polymers having a crystalline-amorphous morphological structure. The microcrystals are dispersed in a non-solvent liquid medium which may include a dissolved polymer and the dispersion spread or cast into sheet form. The microcrystals are oriented and the liquid is then volatilized to form a film of the microcrystals or to form a polymer sheet containing the dispersed, oriented microcrystals.

3,560,076

CURVED LAMINATED LIGHT POLARIZING DEVICE

Francis G. Ceppi, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

Filed June 1, 1967, Ser. No. 642,792

Int. Cl. G02b 5/30

U.S. Cl. 350—155

8 Claims



A strongly curved laminated polarizing lens substantially free of haze and cosmetic defects due to the curve forming operation is disclosed. Laminae on the convex side of the polarizing layer are substantially thicker than on the concave side, thereby reducing the stress on the polarizing layer. The curved shape is imparted after lamination.

3,560,077

VARIABLE TRANSMISSION PASSIVE Q-SWITCH

Walter R. Sooy, Manhattan Beach, Calif., David P. Bortfeld, Spreitenbach, Switzerland, and Richard E. Bradbury, Los Angeles, Calif., assignors to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Feb. 19, 1968, Ser. No. 706,385

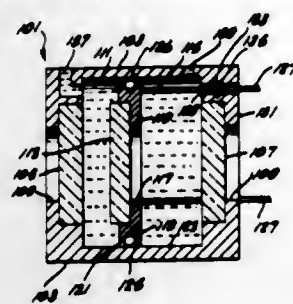
Int. Cl. G01n 1/10; G02f 1/36

U.S. Cl. 350—160

2 Claims

This is a passive Q-switch that may be adjusted to provide variable transmission characteristics. In its most basic form, it may consist of a cell with spaced and parallel optically flat windows that contains a solution of a passive

Q-switch material such as cryptocyanine dissolved in isopropyl alcohol. The transmission or absorption of the

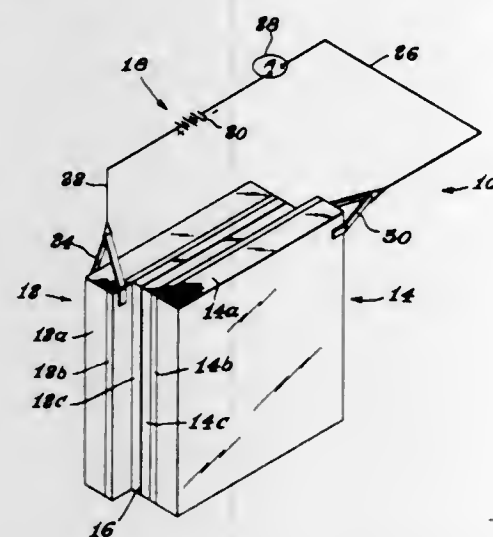


switch is varied by changing the thickness of the absorbing liquid layer between the windows.

3,560,078
COLOR REVERSIBLE LIGHT FILTER UTILIZING SOLID STATE ELECTROCHROMIC SUBSTANCES
James A. McIntyre and Robert D. Hansen, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed July 1, 1968, Ser. No. 741,637
Int. Cl. G02f 1/28

U.S. Cl. 350—160

4 Claims



The invention provides a color reversible light filter system utilizing solid state films of inorganic compounds having electrochromic properties in a multi-layer glass panel. The glass panel consists of two panes of substantially transparent glass, with one pane being coated with a layer of tin oxide, and a film of silver chloride containing free silver, to provide a colorless electrode; the opposite pane being coated with a layer of tin oxide and a film of tungstic acid, or preferably a mixture of tungstic and molybdic acid, to provide a color-reversible electrode. A stable color is developed in the glass panel by applying a DC electrical potential across the electrodes for only a few minutes and, when desired, the panel can be rendered colorless in about the same length of time by reversing the polarity of the electrodes.

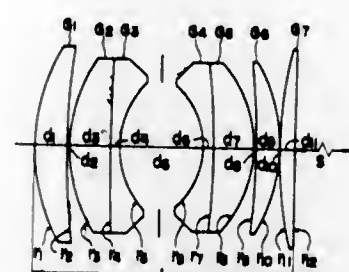
3,560,079
PHOTOGRAPHIC LENS OF LARGE APERTURE RATIO HAVING LONG BACK FOCUS
Zenji Wakimoto and Yoshiyuki Simizu, Tokyo, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan, a corporation of Japan
Continuation-in-part of application Ser. No. 460,634, June 2, 1965. This application Dec. 13, 1968, Ser. No. 795,382
Claims priority, application Japan, Nov. 12, 1964, 39/87,702
Int. Cl. G02b 9/60

U.S. Cl. 350—217

2 Claims

Lens system of a modified Gauss type in which the thickness of the second lens group is reduced and the

thickness of the third group is increased, and in which the last group is separated into two lens elements to lengthen

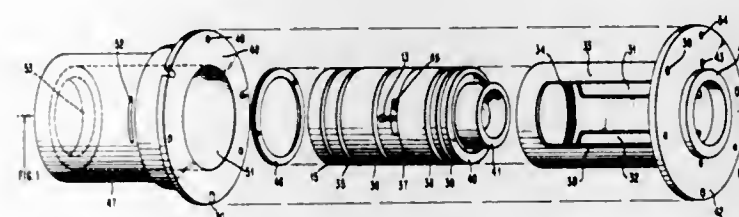


the back focus of the system and provide a F:1.4 lens corrected for spherical and chromatic aberrations, astigmatism and coma, with an angular field of $\pm 23^\circ$.

3,560,080
APPARATUS AND METHOD FOR ADJUSTABLY MOUNTING LENSES
Janusz S. Wilczynski, Ossining, N.Y., and William G. Santy, New Canaan, Conn., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Jan. 9, 1967, Ser. No. 608,046
Int. Cl. G02b 7/02

U.S. Cl. 350—252

2 Claims



A lens mount assembly for mounting a plurality of lens components aligned in order from front to rear, with the rear component fixed and the other components adjustable rotatably and transversely, comprises an inner stationary barrel having a rearmost flange in which the rear lens component is mounted, the barrel having a plurality of axially extending access slots evenly spaced around the barrel. The barrel contains a diaphragm between lens components which has adjustment means projecting through one of the slots. A plurality of mounting spacer rings formed with ridges is located between and has loosely mounted thereon the lens components. A clamping ring is threaded into the front end of the inner barrel to clamp the lens components into adjusted positions. An outer barrel fits over the inner barrel and is fastened thereto.

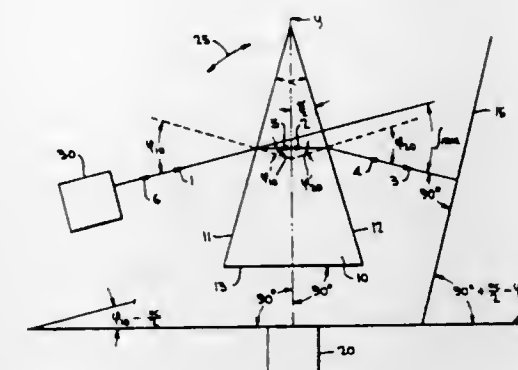
3,560,081
METHOD FOR GENERATING ULTRA-PRECISE ANGLES
Robert L. Applier, Ellicott City, Md., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Aug. 7, 1967, Ser. No. 658,964
Int. Cl. G01b 11/27

U.S. Cl. 350—285

6 Claims

A method for generating ultra-precise angles employing a rotatably supported triangular prism and a fixed position light reflecting mirror adapted, when the prism is in a reference position, to reflect as a parallel return

ray a given ray of monochromatic light incident upon the prism. Upon rotation of the prism through a monitored angular displacement about an axis parallel to the prism refracting surfaces, there is generated an angle defined by the resultant angular displacement of the reflected return ray with respect to the incident ray; the angle thus generated being substantially smaller than the

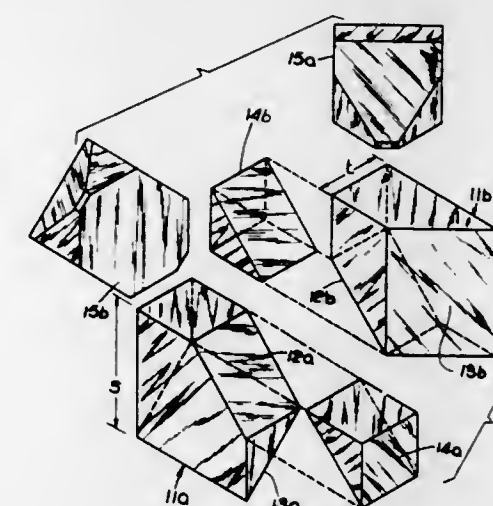


monitored angular displacement of the prism, whereby significantly reducing any error introduced in determining the value of the generated angle due to error encountered in monitoring prism rotation. Angles thus generated have particular utility in testing and calibrating of body rotation monitoring devices, such as autocollimators.

3,560,082
OPTICAL INVERTING SYSTEMS
James Morris Burch and John William Charles Gates, Teddington, England, assignors to National Research Development Corporation, London, England
Continuation of application Ser. No. 622,755, Mar. 13, 1967. This application Nov. 5, 1969, Ser. No. 874,372
Claims priority, application Great Britain, Mar. 16, 1966, 11,615/66
Int. Cl. G02b 5/04

U.S. Cl. 350—286

7 Claims

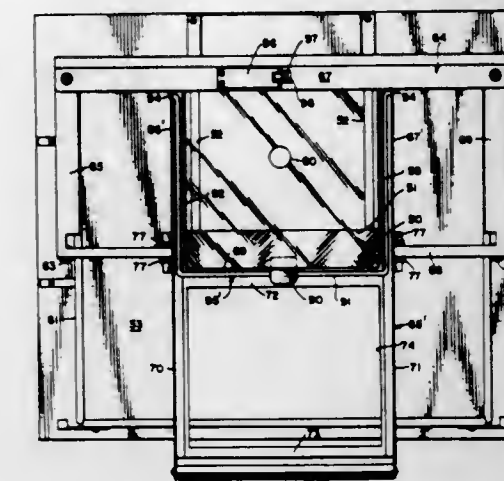


A device for producing from an entering light beam two emerging beams which are mutually inverted with respect to a straight line defined by the device. The entering beam is split at a first semi-reflecting film into two component beams, which are respectively redirected onto opposite faces of a second semi-reflecting film separate from the first by means of two similar and similarly orientated reversing reflectors, for example roof prisms, which are set optically orthogonal to each other and disposed to give equal path lengths for the two component beams between the two films.

3,560,083
MICROIMAGE READER
Phillip J. Brownscombe, Millington, N.J., assignor to Eugene Dietzgen Co., Chicago, Ill., a corporation of Delaware
Filed Jan. 24, 1968, Ser. No. 700,125
Int. Cl. G03b 21/14

U.S. Cl. 353—22

7 Claims



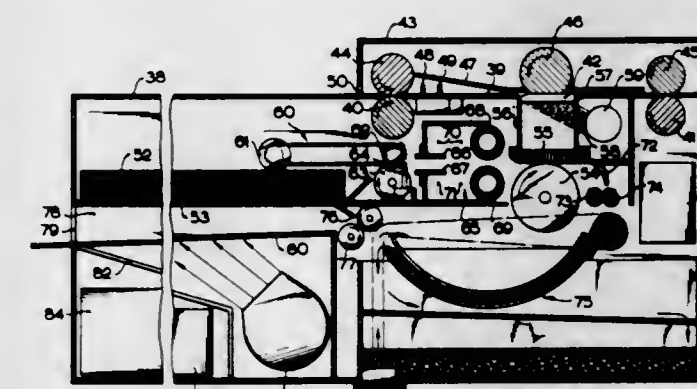
Reader for selective projection of microimage on multi-image sheet with roller-guided sheet translating carriage, indexing means, constant focus construction, and adjustable mounting for focus lens.

ERRATUM
For Class 353—78 see:
Patent No. 3,560,088

3,560,084
EXPOSURE DEVICE FOR COPYING APPARATUS
Walter Limberger, Hamburg-Poppenbützel, Germany, assignor to Lumoprint Zindler KG, Hamburg, Germany, a corporation of Germany
Filed Apr. 25, 1968, Ser. No. 724,193
Claims priority, application Germany, Apr. 28, 1967, L 56,380
Int. Cl. G03b 27/00

U.S. Cl. 355—1

8 Claims



An exposure device for a photographic copying apparatus in which a fiber-optical array is spaced from the image source. The optical fibers are provided with light-absorptive layers at the incident-light end such that the distance between the image source and the image plane across the fiber optical network in millimeters corresponds to the length of the absorptive sheath or layer along the optical fiber, multiplied by the maximum tolerable lack of definition in microns and divided by the cross-section of the fiber parallel to the measurement of the lack of definition in microns.

3,560,085

APPARATUS FOR GRAPHIC DISTORTION

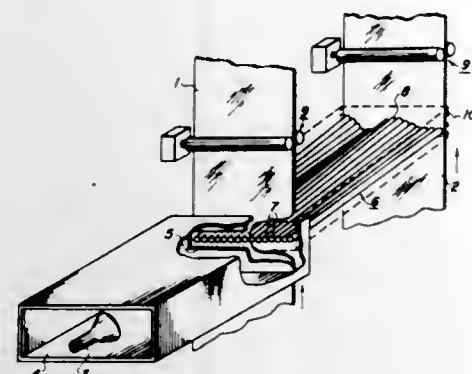
Morton Silverberg, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Continuation of applications Ser. No. 506,635 and Ser. No. 506,794, both filed Nov. 8, 1965. This application Aug. 9, 1968, Ser. No. 751,451

Int. Cl. G03b 27/00

U.S. Cl. 355-1

4 Claims



Method and apparatus for scrambling and reconstructing a document pattern so that the resulting scrambled version is unintelligible to the observer and wherein precise registration of the scrambled version with an unscrambling unit is unnecessary. In the first embodiment, a bundle of fiber optics have the ends thereof placed in contact with a document and a recording surface. The document end of the fiber optics is formed into an orderly array of rows and columns, while the recording end of the bundle has the individual fibers formed into a series of corresponding mathematically continuous curves. In the second embodiment, a fiber optic bundle has one end formed as a single straight line and the other end as a mathematically continuous curve, wherein the straight line end of the fiber optic bundle is used to scan an original while the curved end simultaneously composes the distorted image on a copy surface.

3,560,086

ELECTROSTATIC PROCESSOR

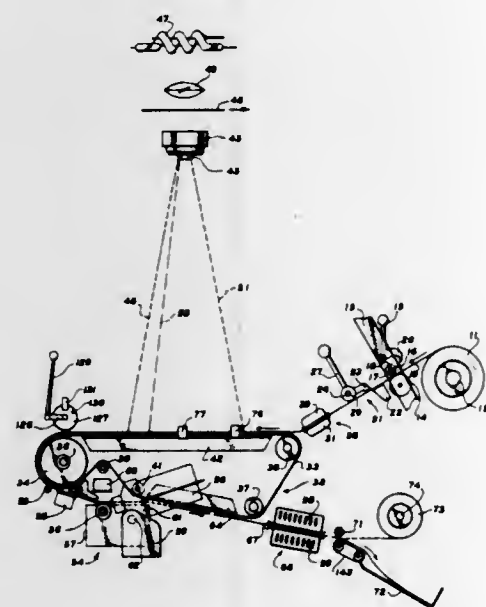
Bevan H. Johnston, La Mesa, Calif., assignor, by mesne assignments, to Stromberg Datagraphix, Inc., Rochester, N.Y., a corporation of Delaware

Filed Nov. 6, 1967, Ser. No. 680,691

Int. Cl. G03g 15/00

U.S. Cl. 355-13

13 Claims



A processor is described for reproducing images from microfilm and the like in which flexible sheet material, such as paper, is fed through a cutter to a conveyor. The

sheet material position is sensed to activate cutting, exposing and developing operations. The conveyor allows sheet material slippage during cutting. Different sheet sizes may be obtained by utilizing a plurality of sensors which are positioned at predetermined locations and which may be individually selected for control, either manually or automatically. The cutter may be deactivated to permit exposing and developing on a continuous strip, in which case exposure may be synchronized with sheet movement by a timing wheel.

3,560,087

SCANNING LENGTH CONTROL FOR AN ORIGINAL SUPPORTING SLIDE

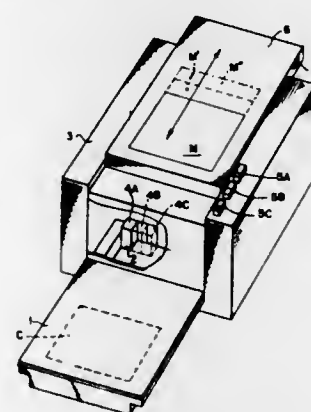
Takaji Washio, 616 Minami, Okamachi, Toyonaka, Osaka Prefecture, Japan; Yoshitake Miyoshi, 1985-1 Tawaraguchi, Ikoma-cho, Ikoma-gun, Nara Prefecture, Japan; and Tatsuo Aizawa, 6-34 Kuwazu-cho, Higashiumiyo-shi-ku, Osaka, Japan

Filed Sept. 18, 1968, Ser. No. 760,535
Claims priority, application Japan, Sept. 20, 1967, 42/60,319

Int. Cl. G03b 27/32

U.S. Cl. 355-14

7 Claims



Equipment for limiting the travel of a master carrying slide during the exposure of a charged electrophotographic copy sheet so the travel of the master will be limited to the length of the copy and the slide will immediately return to its starting position so that a maximum number of copies can be made from a given size master and no time is wasted in idle travel of the master. The extent of travel is controlled by the cartridge carrying the copy sheets, with the cartridge having shaped slots corresponding to the size of the copy sheets therein to control the slide travel by engaging switches on the machine which are in series with corresponding switches operated by the slide.

3,560,088

COLLAPSIBLE REAR-SCREEN PROJECTION THEATRE

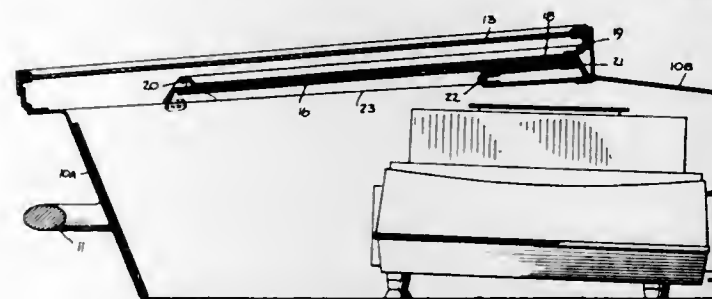
Robert C. Schwartz, Jamaica Estates, N.Y., assignor to Motiva Ltd., Jamaica Estates, N.Y., a corporation of New York

Filed May 20, 1969, Ser. No. 826,199

Int. Cl. G03b 21/28

U.S. Cl. 353-78

5 Claims



A collapsible rear-screen projection theatre for successively presenting the images of film slides contained

in a standard slide projector. The projector is installed in a box-like carrying case at an optical position to direct a slide image onto a first mirror secured to the inclined front wall of the case. Mounted above an opening in the top of the case is a foldable screen assembly having a second mirror secured to an inclined rear panel thereof, such that when the assembly is in the erect state, the slide image is reflected by the first mirror through the opening onto the second mirror which, in turn, directs the image onto the rear of a translucent screen.

3,560,089

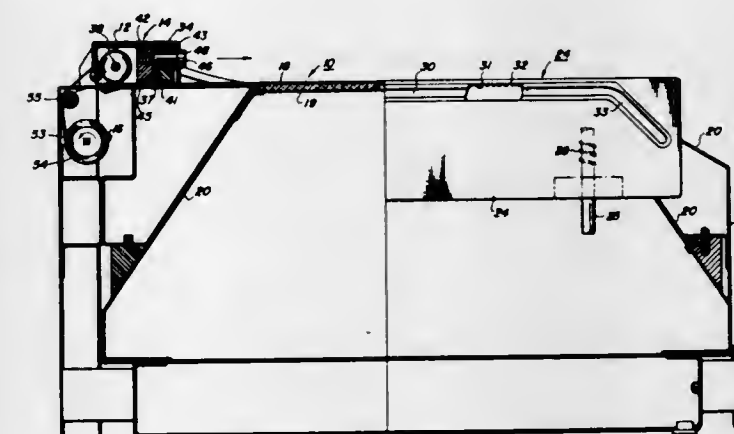
PLATEN COVER

Hugh L. Jones, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed July 26, 1968, Ser. No. 747,906

Int. Cl. G03b 27/62

U.S. Cl. 355-82

3 Claims



A cover for a platen employing a pair of curtains which are drawn in succession from rolls over the platen. The first or leading curtain is of a size sufficient to at least cover the transparent portion of the platen when unrolled and consists of a material with inherent self-coiling tendencies. The second or trailing curtain is larger than the first curtain and covers the entire platen area including the first curtain when unrolled. A draw carriage supported for movement across the platen area in a pair of liftable track members is provided. One end of each curtain is attached to the carriage so that drawing of the carriage across the platen area unrolls both curtains in succession onto the platen and any document resting thereon. Where the document is relatively thick, the liftable track members enable the carriage to be raised for passage over the document.

3,560,090

PLATEN COVER

Burton L. Jones, Fairport, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed July 26, 1968, Ser. No. 747,907

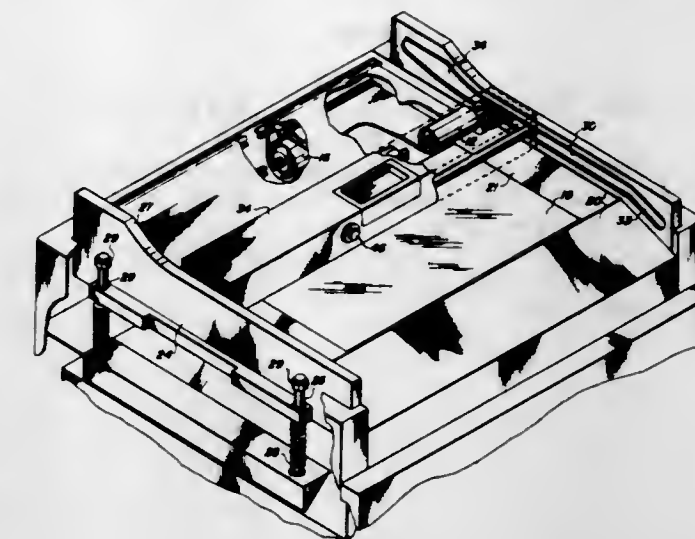
Int. Cl. G03b 27/62

U.S. Cl. 335-82

10 Claims

A cover for a platen employing a pair of curtains which are drawn in succession from rolls over the platen. The first or leading curtain is of a size sufficient to at least cover the transparent portion of the platen when unrolled and consists of a material with inherent self-coiling tendencies. The second or trailing curtain is larger than the first curtain and covers the entire platen area including the first curtain when unrolled. A draw carriage supported for movement across the platen area in a pair of liftable track members is provided. One end of each curtain is attached to the carriage so that drawing of the carriage across the platen area unrolls both curtains in succession

onto the platen and any document resting thereon. Where the document is relatively thick, the liftable track mem-



bers enable the carriage to be raised for passage over the document.

3,560,091

HIGH PRESSURE OPTICAL CELL

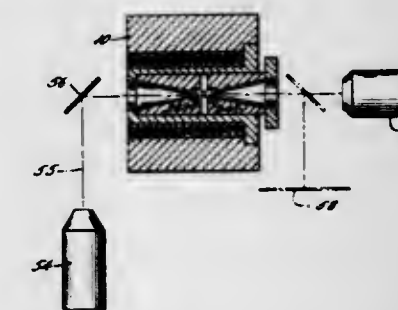
Alvin Van Valkenburg, McLean, and Ellis R. Lippincott, Vienna, Va., and Charles E. Weir, Washington, D.C., assignors to High Pressure Diamond Optics, Inc., McLean, Va.

Filed Apr. 12, 1968, Ser. No. 720,866

Int. Cl. G01b 11/16; G01n 1/00, 21/16

U.S. Cl. 356-32

2 Claims



A high pressure optical cell has an insert and temperature varying means for the material tested, which may be a coil within the insert of insulating material or a laser beam with optical means for observation of the material.

3,560,092

CLIPBOARD WITH SLATE SURFACE

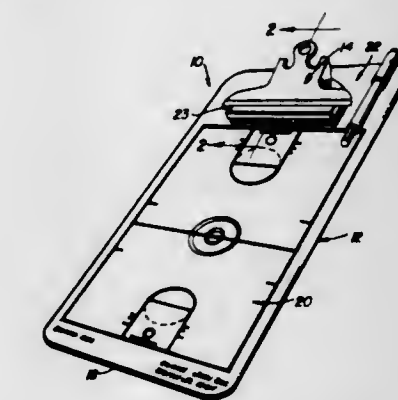
L. J. Coney, Box 265, Roxton, Tex. 75477

Filed July 24, 1968, Ser. No. 747,270

Int. Cl. B42f 1/02; B43l 1/10

U.S. Cl. 35-62

3 Claims



A rectangular shaped board whose surface on both sides thereof is of slate or other material that will accept chalk as the writing medium therefor. Indicia of a basketball

court, football field or other field of athletic contest are aligned in the longitudinal direction of the board with a clip at one end thereof to hold overlying papers or other materials.

3,560,093

SUPERIMPOSED COMMON CARRIER MASK INSPECTION SYSTEM

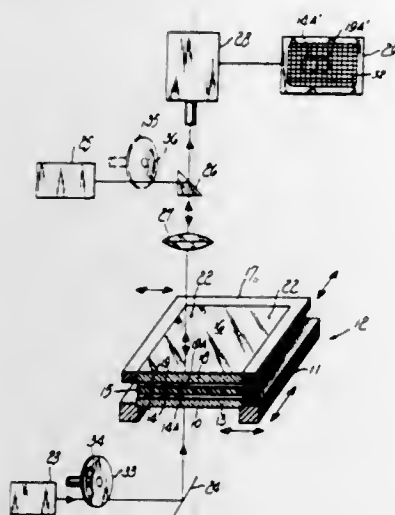
Liber J. Montone, Reading, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed July 16, 1968, Ser. No. 745,232

Int. Cl. G01b 9/08, 11/24

U.S. Cl. 356—166

11 Claims



A system in which the positions of the opaque areas on the surface of a first transparent photographic mask are compared to the positions of the opaque areas on the surface of a second transparent photographic mask. The two mask surfaces are placed face to face and separated by a layer of material possessing the characteristics of a "one-way" mirror. A single television camera, focused on the adjacent mask surfaces, views the two masks which are alternately illuminated from above and below. When illuminated from below, light is transmitted through both masks and the "mirror," and images of the opaque areas on both masks appear on a monitor. When illuminated from above, the "mirror" reflects light and only the image of the opaque areas on the upper mask appears on the monitor. A "flicker effect," or other visual differential detection system, indicates the degree of deviation of the positions of the opaque areas on the first mask from the second mask.

3,560,094

SHAFT POSITION ENCODER

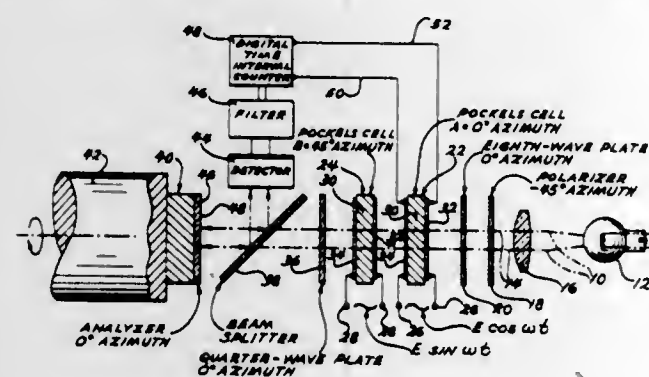
Carlo Del Carlo, Utica, Mich., assignor, by mesne assignments, to Teeg Research Inc., Detroit, Mich., a corporation of Delaware

Filed July 13, 1965, Ser. No. 472,402

Int. Cl. G01r 21/40; G02f 1/26

U.S. Cl. 356—117

8 Claims



An optical shaft encoder utilizing a beam of polarized light which is modulated according to a predetermined

frequency by a modulation signal. The modulated polarized light is passed through an analyzer mounted on the end of a shaft whose angular position is to be measured. The light emerging from the analyzer impinges upon a detector which provides an electrical signal at its output which is compared to the modulation signal. The phase shift between the modulation signal and the detected signal is proportional to the angle of rotation of the shaft.

3,560,095

THEODOLITE

Charles Fredrik Wilhelm Thorlin, Stockholm, Sweden, assignor to AGA Aktiebolag, Lidlango, Sweden, a corporation of Sweden

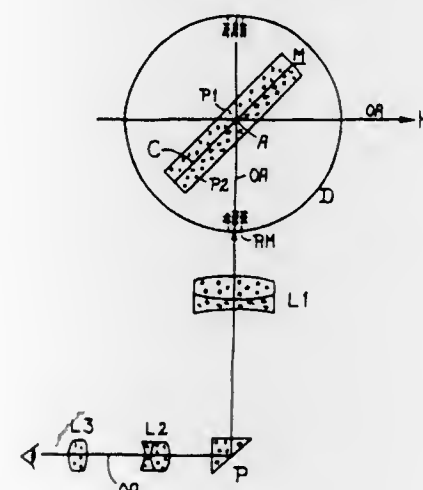
Filed May 26, 1969, Ser. No. 827,500

Claims priority, application Sweden, June 7, 1968, 7,649/68

Int. Cl. G01b 11/26

U.S. Cl. 356—140

4 Claims



In a theodolite, the optical axis is deflected by a mirror attached to a rotatable disk having a circumferential scale graduated in angles. To eliminate errors of centricity of the disk axis relative to the scale, the disk is reversible about the axis of rotation and the mirror is provided with a reflective surface on the rear side, scale markings being provided for reading off a value 180° different from that corresponding to the original position.

3,560,096

VENEER CLIPPER CONTROL SYSTEM

Gerald L. Watson, Portland, and Lloyd R. Bristol, Beaverton, Oreg., assignors to Morvue, Inc., Tigard, Oreg., a corporation of Oregon

Filed Dec. 7, 1967, Ser. No. 688,954

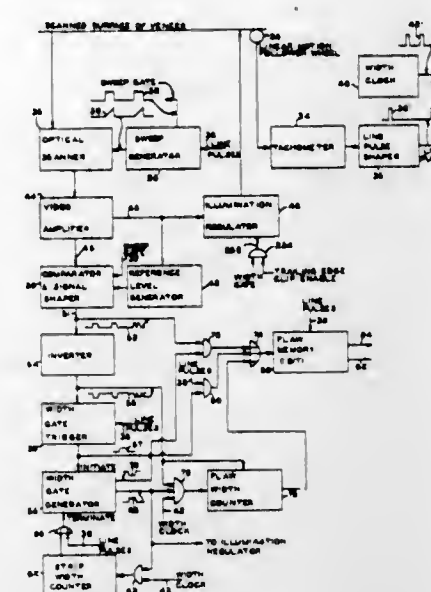
Int. Cl. G01b 11/00; G01n 21/16

U.S. Cl. 356—156

7 Claims

A television camera tube optically scans evenly spaced lines across a longitudinally moving strip of veneer in response to line pulses derived from a tachometer synchronized with the movement of the strip and under automatically controlled strip illumination conditions. Strip width and flaw width counters of clock pulses controlled by the output of the camera tube cause the production of a flaw pulse, if along any line scan the width of good wood is incorrect or at least one flaw of excessive width is present. A flaw length counter of flaw pulses in conjunction with a line pulse counter determine what portions of the strip are unacceptable and in conjunction with delaying counters of line pulses cause actuation of the knife to cut unacceptable portions from the strip and to cut panels from acceptable portions of predetermined minimum width and also standard maximum width. A

knife response compensator compensates for errors due to changes in rate of movement of the strip and for knife



position when the knife has not had time to return to rest position from a previous clip.

3,560,097

PHOTOELECTRIC MICROSCOPE

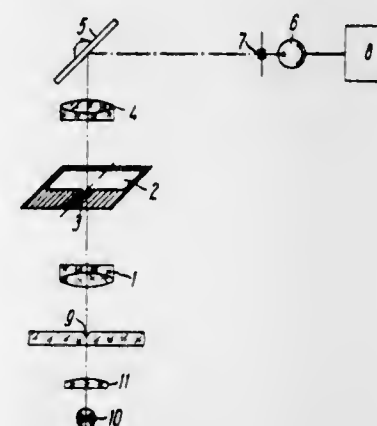
Anatoly Alexandrovich Gavrilkin, Ullitsa Yanki Kupaly 17/30, kv. 112, and Yakov Aronovich Raikhman, Leninsky prospekt 53, kv. 78, both of Minsk, U.S.S.R.

Filed May 3, 1967, Ser. No. 635,730

Int. Cl. G01b 11/04

U.S. Cl. 356—170

3 Claims



A photoelectric microscope for measuring the position of at least one reference line or dash with respect to its optical axis is characterized in that its optical axis is not the center of oscillations of a scanner but the axis of a constructional base element, i.e. of a slit diaphragm, the position of the reference line or dash being determined relative to the borders of said slit diaphragm by the relation between time intervals in a signal characteristic of the superimposed and time-base scanned image of a mask with the base slit diaphragm and the image of the reference line or dash sighted in the plane of this mask with the diaphragm. The photoelectric microscope determines with high accuracy not only the moment of alignment with the axis of the reference line or dash, but it also measures the position of the reference dash relative to the optical axis of the photoelectric microscope with further presenting of the output information in digital form or in linear units, for which purpose the width of the slit diaphragm is used as a scaling element.

3,560,098

DOUBLE-BEAM PHOTOMETER INCLUDING STRUCTURE TO ELIMINATE RE-RADIATION FROM THE OUTPUT SIGNALS

Wolfgang Witte and Joachim Marckmann, Uberlingen (Bodensee), Germany, assignors to Bodenseewerk Perkin-Elmer & Co. GmbH, Uberlingen (Bodensee), Germany

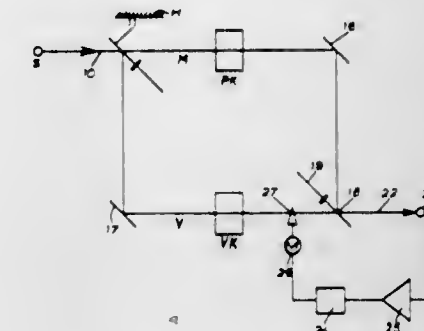
Filed Apr. 30, 1969, Ser. No. 820,540

Claims priority, application Germany, May 8, 1968, P 17 72 389.6

Int. Cl. G01j 1/36; G01n 21/22

U.S. Cl. 356—205

10 Claims



A double-beam photometric system (e.g., a spectrophotometer) causes the radiation from the source to pass through the (first) sample path during a first quarter-period to the detector, so that the detector receives sample-transmitted radiation, P , plus "characteristic" radiation generated by the elements in the sample path, P_0 . During the second quarter-period the radiation is blocked from the sample path, while the detector "sees" this same path, thereby obtaining only the "characteristic" sample path radiation, P_0 . During the third quarter-period both the source radiation and the path to the detector are switched to the second reference path, so that the detector "sees" reference transmitted source energy, V , plus re-radiation from the reference path elements, V_0 . In the final quarter-period the source radiation is blocked from the reference path, so that the detector sees only the reference path re-radiation, V_0 . Thus the four quarter-period signals are: $P+P_0$, P_0 , $V+V_0$, and V_0 . By synchronously demodulating the detector signal so as to invert the second and third quarter-periods together relative to the first and fourth, the four signals become: $+P+P_0$, $-P_0$, $-V-V_0$, and $+V_0$. Thus the D.C. sum of the signals is $P-V$, free of all re-radiation components, which signal may therefore be utilized in a conventional servo-system to drive a reference beam attenuator so as to cause a nulling of the difference between P and the attenuated V signal. This system is relatively insensitive to errors in phase synchronization of the optical switching means (e.g., rotating sector choppers) and the electrical demodulator.

3,560,099

COLORIMETER FLOW CELL INCLUDING A BAFFLE TO REMOVE GAS BUBBLES

Christian Thorkild Boe, Farum, and Mogens Myrup Andreassen, Copenhagen, Denmark, assignors to Institutet for Produktudvikling, Danmarks Tekniske Højskole, Lyngby, Denmark, a corporation of Denmark

Filed July 7, 1969, Ser. No. 839,528

Claims priority, application Denmark, July 10, 1968, 3,385/68

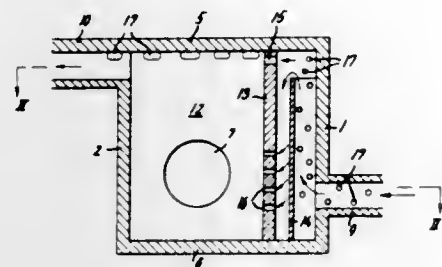
Int. Cl. G01n 1/10

U.S. Cl. 356—246

6 Claims

A colorimeter flow cell with opposed windows for the passage of a light beam. The cell is divided in two chambers by a wall extending parallel to the light beam. Liquid

enters the first chamber and flows to the second chamber through upper and lower apertures in the wall. Gas is separated from the liquid in the first chamber and passes



holder therethrough. The holder is provided with a flat upper surface and a curved lower surface and widening means disposed on the handle to prevent the jacket from coming detached from the holder and one of the flaps formed adjacent the cutout portion is provided with sealing means for securing the jacket to the holder.

3,560,102
LIQUID HERBICIDE APPLICATOR
Clifford C. Wetzel, R.F.D., Ithaca, Mich. 48849
Filed July 26, 1968, Ser. No. 748,051
Int. Cl. B43m 11/02

U.S. Cl. 401—218

13 Claims

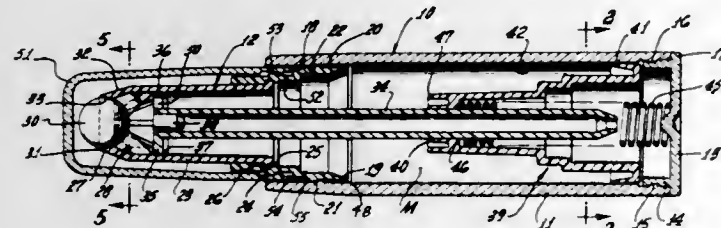
to an outlet from the second chamber without interfering with the light beam, as the windows are at a lower level than the upper apertures.

3,560,100
ROLL-ON APPLICATORS
Walter B. Spatz, Santa Monica, Calif., assignor to Spatz Laboratories, Venice, Calif., a corporation of California

Filed Mar. 10, 1969, Ser. No. 805,743
Int. Cl. B43k 5/06

U.S. Cl. 401—180

27 Claims



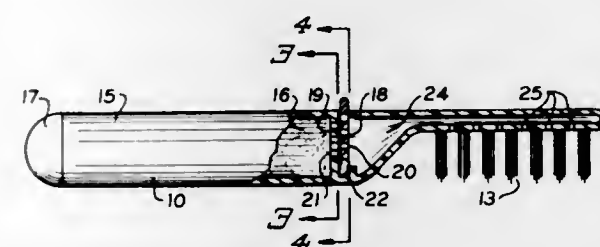
A liquid herbicide applicator having a soft, rubber-like roller to which a liquid herbicide is distributed by gravity, the quantity of liquid distributed to the roller being regulated by vertical adjustment of the supply of liquid. The flow of liquid from the source to the roller is self-controlled in accordance with the position of the applicator.

3,560,103
TOOTHBRUSH WITH INTEGRAL DENTIFRICE CONTAINER

Michael P. Miranda, New York, N.Y.
(745 President St., Brooklyn, N.Y. 11215)
Filed Oct. 23, 1968, Ser. No. 770,008
Int. Cl. A46b 11/04

U.S. Cl. 401—278

5 Claims



Toothbrushes adapted for carrying in the pocket or purse wherein the dentifrice and brush are both contained within a closable container.

3,560,104
TWO-STAGE, VORTEX-TYPE CENTRIFUGAL COMPRESSOR OR PUMP

Abas Beaucan Neale, 3172 Ellington Drive, Hollywood, Calif. 90028

Filed Feb. 28, 1969, Ser. No. 803,248
Int. Cl. F04d 1/00, 1/08, 17/08

U.S. Cl. 415—83

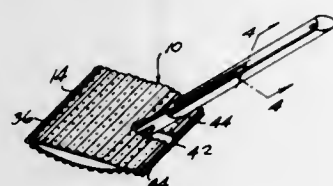
17 Claims

A rotor is enclosed by a housing rotatable preferably about a horizontally extending central axis, the rotor having a central first stage spindle and an annular second

3,560,101
DISPOSABLE SWAB AND HOLDER
Ragnvald G. Leland, 2334 W. 241st St., Lomita, Calif. 90717
Filed Apr. 11, 1969, Ser. No. 815,325
Int. Cl. A47i 17/02

U.S. Cl. 401—201

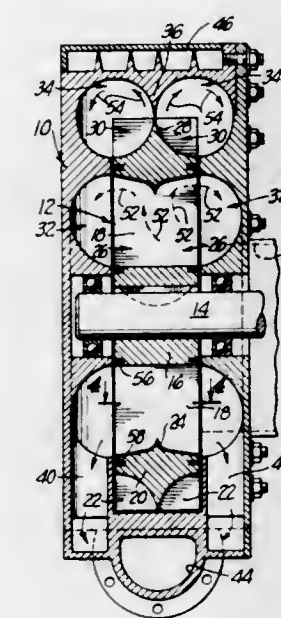
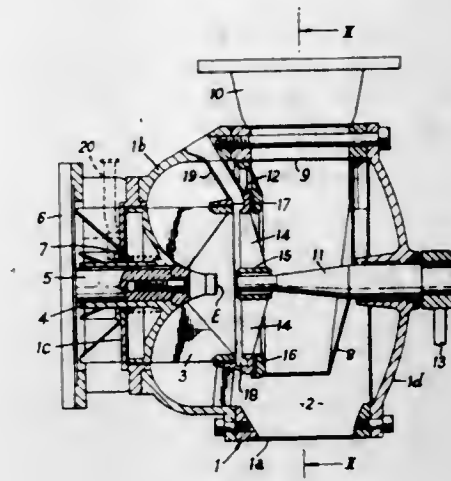
2 Claims



A disposable swab and holder comprising a swab member of flexible material for holding detergent, said flexible material being adapted to be folded upon itself to form a jacket to fit upon a holder. The jacket has open ends and is provided with a cutout portion adjacent one side thereof, and said cutout portion receives a handle of a

stage spindle spaced outwardly therefrom with first stage blades between the spindles and second stage blades projecting radially outwardly from the second stage spindle. Radially separated annular fluid cavities, preferably substantially totally arcuate in radial cross sections, are formed in the housing axially adjacent each side of the rotor axially aligned with and opening into the rotor fluid cavities formed between the first and second stage rotor blades. The second stage spindle is formed arcuately inwardly along the first stage rotor blades either partially or totally dividing the first stage rotor fluid cavities into axially adjacent parts, each part with its associated housing fluid cavity forming a combined cavity part approaching circular in radial cross section. The second stage spindle is similarly formed arcuately outwardly along the

other limb to bring the latter selectively into register completely or partially with the ports, whereby the direc-

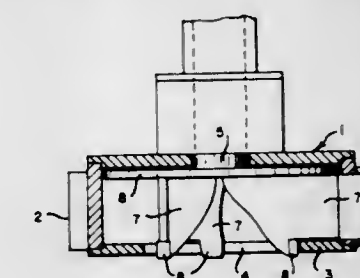


tion of liquid flow through the ports can be reversed and the rate of delivery can be varied.

3,560,106
SLURRY HANDLING PUMP
Nils-Johan Sahlstrom, % Sahlstrom Manufacturing Co., N-J Sahlstrom Maskin AB, Suntetorp, Skovde, Sweden
Filed Feb. 13, 1969, Ser. No. 799,017
Int. Cl. F01d 1/02, 25/24; F04d 7/00

U.S. Cl. 415—204

6 Claims



second stage blades and preferably to radially adjacent similar inward projections of the housing to provide two or three axially adjacent, combined rotor and housing second stage fluid cavities, each approaching circular in radial cross section. A fluid inlet is formed through the housing from one or both sides of the rotor into the housing first stage cavities, axially aligned fluid communications in the housing at the sides of the rotor between the first and second stage housing cavities, and a fluid outlet upwardly through the housing from all of the second stage housing cavities, the fluid inlets and outlets preferably being in the lower portion of the housing. Where necessary, a cooling fluid channel may be formed around the housing outwardly of the second stage fluid cavities and radially aligned with all of said cavities.

A slurry handling pump including a scrool casing and a centrifugal impeller having angularly spaced blades with their inner edges being radially spaced from the axis of rotation of the impeller. Portions of the free ends of the blades towards the axis of rotation extend outwardly of the pump inlet. The pump inlet includes a pair of slots extending radially from the edge thereof.

3,560,105
IMPELLER PUMP

Graham F. Clifford, Stanley, N.C., assignor to Samuel Pegg & Son Limited, Leicester, England, a British company

Filed Jan. 2, 1969, Ser. No. 788,446
Claims priority, application Great Britain, Jan. 2, 1968, 211/68

Int. Cl. F04d 29/40, 31/00; F01d 25/24
U.S. Cl. 415—116

4 Claims

A reversible impeller pump comprising a casing defining a chamber in which is mounted a rotary impeller and which has two circumferentially spaced ports communicating with liquid flow conduits, and a reversing mechanism comprising a conduit substantially in the form of a pipe elbow which is mounted in the chamber with one limb thereof in communication with the eye of the impeller and which is turnable about the axis of the

3,560,107
COOLED AIRFOIL
Harold E. Helms, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Sept. 25, 1968, Ser. No. 762,410
Int. Cl. F01d 5/08

U.S. Cl. 416—90

3 Claims



A convection cooled airfoil for high temperature turbo-machines is of laminated structure with an outer layer of thorium dispersed nickel chrome alloy and an inner layer

of Hastelloy X. These are bonded together. Grooves in the inner surface of the outer layer and outer surface of the inner layer register to provide passages extending chordwise of the blade in the faces of the blade. Holes in the layers connect these passages to the inner and outer surfaces of the blade to provide for circulation of cooling air through the blade walls in the direction from the leading to the trailing edge.

3,560,108

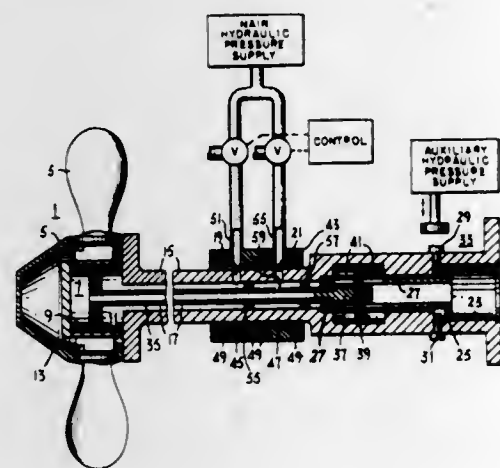
SAFETY DEVICE FOR VARIABLE PITCH PROPELLERS

Carl-Axel Lindahl, Kristinehamn, Sweden, assignor to Aktiebolaget Karlstads Mekaniska Werkstad, Karlstad, Sweden, a company of Sweden
Filed Nov. 29, 1968, Ser. No. 779,838
Claims priority, application Sweden, Nov. 28, 1967, 16,288/67

Int. Cl. B63h 3/08

U.S. Cl. 416-157

5 Claims



A safety device for variable pitch marine propellers comprises, according to a preferred embodiment of the invention, a hub, propeller blades rotatably mounted in the hub for adjustment of their pitch, and a fluid motor located in the hub to effect such adjustment. A second fluid motor is normally inoperative, but, upon failure of the first motor, operates, independent of the first motor, to change the propeller pitch to one providing forward movement of the ship, regardless of the pitch then established by the main pitch-control system.

3,560,109

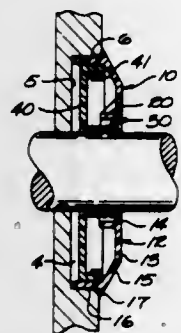
ANTI-WINDMILLING

John G. Lewis, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis, Mo., a corporation of Missouri
Filed June 2, 1969, Ser. No. 829,468

Int. Cl. B64c 11/00

U.S. Cl. 416-169

11 Claims



In a unidirectional electric fan a movable brake surface is resiliently biased toward a motor shaft by means anchored to a fixed frame and external to the motor shaft and moved in a direction away from the shaft by the shaft

itself when the shaft is driven by the motor. Preferably, a multiturn spring embraces the shaft and has a part anchored to a fixed frame and another part in frictional engagement with a bearing surface on the shaft. The spring is so formed and arranged as to move away from the bearing surface when the motor shaft is rotated in the direction in which it is driven by the motor and to move toward the bearing surface when the shaft is not rotated in that direction.

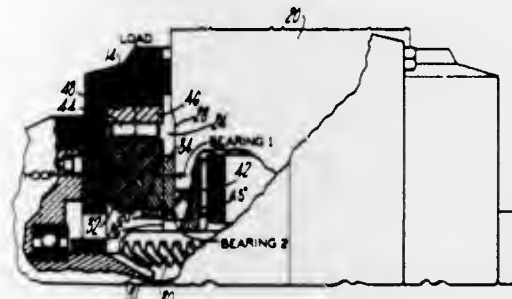
3,560,110

RETENTION MEANS

Robert W. Cornell, West Hartford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Jan. 3, 1969, Ser. No. 788,857
Int. Cl. B64c 11/06

U.S. Cl. 416-214

6 Claims



This relates to retention means for securing a propeller blade, having a cylindrical shank, to its hub and consisting of a split collar (two halves) and a ring cooperating therewith forming a rigid unitary-like connection. Cam surfaces on the inner and outer diameter of the collar, each having predetermined slopes, bear against a complementary slope formed on a boss formed on the root of the propeller blade and the other bears against a complementary slope formed on the ring so that the wedging action when assembled, forces the inner diameter of the collar to bear against both the slope on the boss and the cylindrical surface of the blade. The angles of the slopes are so selected as to prevent rocking or fretting action when in the assembled condition and to provide load paths to enhance the structural system.

3,560,111

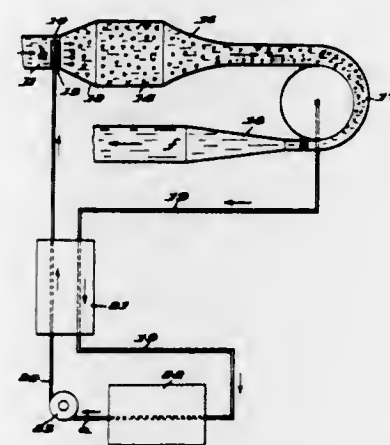
METHOD OF AND APPARATUS FOR PUMPING LIQUIDS AT HIGH TEMPERATURE BY MAKING A GASEOUS EMULSION

Jacques Sterlini, Paris, France, assignor to Compagnie Electro Mecanique, Paris, France
Filed Nov. 22, 1968, Ser. No. 778,121
Claims priority, application France, Dec. 1, 1967, 130,635

Int. Cl. F04b 19/00, 19/24; F04f 1/00

U.S. Cl. 417-54

3 Claims



A method and apparatus for pumping hot liquids by making a gaseous emulsion in which a gas flowing in a

closed cycle is injected in a compressed state in the form of fine bubbles into a hot liquid to be pumped to form an emulsion. The gas in the emulsion is allowed to heat up to the temperature of the liquid, the emulsion is then expanded accompanied by a transfer of heat from the liquid to the gas, the gas is then separated from the liquid and, after cooling, is passed to a low temperature compressor. The gas after being compressed is then re-injected into the liquid following a heat exchange with the hot gas after being separated from the liquid.

3,560,112

DEVICE FOR CONTROLLING THE DELIVERY OF A RECIPROCATING PUMP

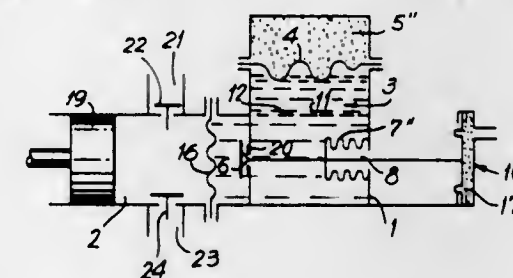
Lev Nikolaevich Britvin, Ul. Dybenko 12, kv. 51, Moscow, U.S.S.R.

Filed Sept. 3, 1968, Ser. No. 756,965

Int. Cl. F04b 11/00, 49/00

U.S. Cl. 417-275

6 Claims



A device for controlling the delivery of a reciprocating pump comprises a controlled by-pass valve connected to an elastic member mounted in a housing of the device, the by-pass valve defining an inner space in the housing separated from the working chamber of the pump. The elastic member receives pressure on one side thereof from a source of power and pressure on the other side thereof from the inner space. The surface of the elastic member, which is opposite the surface facing the inner space, forms, together with the housing, an outer space of a variable volume which is hermetically isolated from the inner space.

3,560,113

CONTROL VALVE

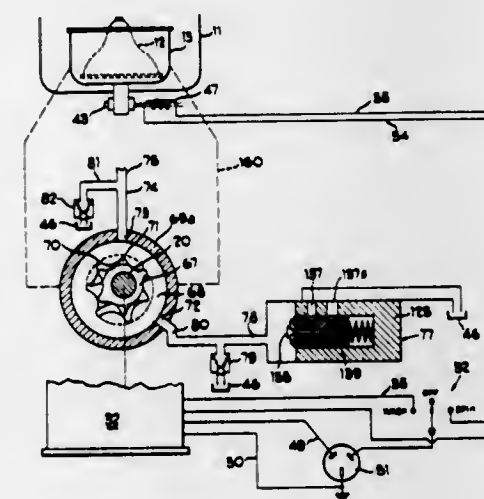
Curtis E. Kurtz, Arlington Heights, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Delaware

Filed Aug. 11, 1969, Ser. No. 849,074

Int. Cl. F04b 49/00

U.S. Cl. 417-294

9 Claims



A flow control valve for a fluid power transmission having a valve body receiving a slidable valve spool responsive to centrifugal action to control flow. A dash-pot valve is provided in the spool responsive to fluid pressure to control fluid flow.

3,560,114

PUMP

Bede Alfred Boyle, Newcastle, New South Wales, Australia, assignor of one-half to Laurice W. Boyle, Newcastle, New South Wales, Australia

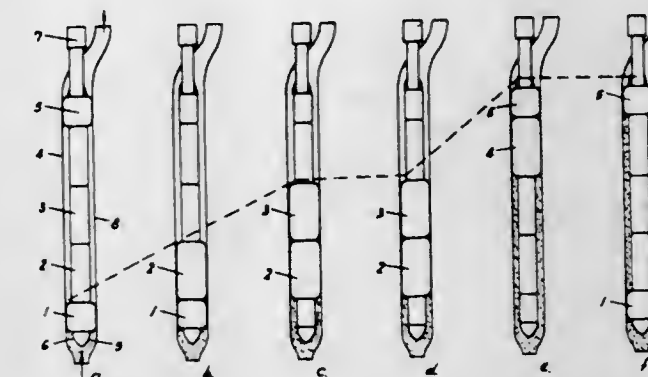
Filed Jan. 28, 1969, Ser. No. 794,744

Claims priority, application Australia, Feb. 6, 1968, 33,166/68

Int. Cl. F04b 17/00

U.S. Cl. 417-347

7 Claims



A pump for pumping slurries or other high viscosity fluids without the use of valves through which the pump fluid is required to pass. The pump has an elongated housing having a plurality of resilient expandable chambers or sacks axially aligned therein. When a chamber is contracted it leaves an annular gap between itself and the interior walls of the housing and when expanded, seals sufficiently tightly against the smooth interior walls so that no valving action is necessary to prevent backflow of the pumped material within the housing.

3,560,115

THREE ELEMENT COMBINED ENERGY CYCLE

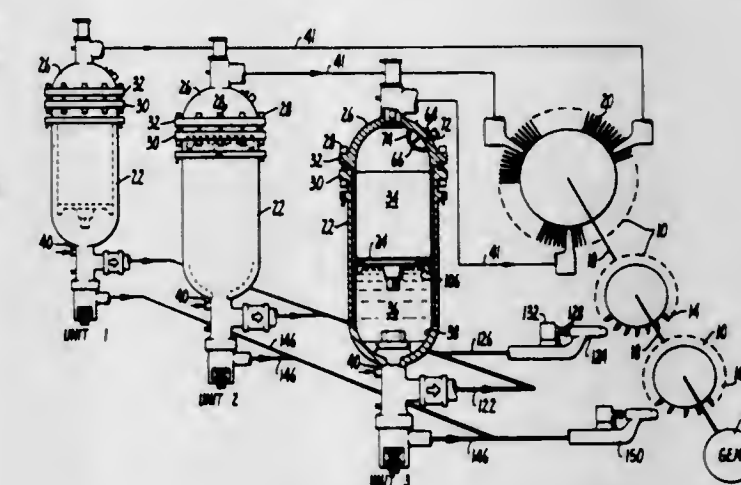
Eric A. Salo, 15898 Via Pinale, San Lorenzo, Calif. 94580

Filed Nov. 4, 1968, Ser. No. 773,000

Int. Cl. F04b 17/00

U.S. Cl. 417-339

6 Claims



A combustion pump, primarily for powering an electric generator, having: a high pressure cylindrical casing containing a piston freely slidable within the casing; an hydraulic chamber, defined by the bottom of the free piston, the cylindrical casing and a hemispherical lower portion of the casing, into which water is admitted to raise the free piston to a top position; a combustion chamber defined by the top of the free piston, the cylindrical casing and a hemispherical cylinder head wherein a compressed mixture of fuel and air is admitted and ignited, whereby the piston is forced to descend, pumping the water in the hydraulic chamber at high pressure to a first hydraulic impulse turbine, and thereafter, upon reaching, a

lower first terminal pressure, pumping the water to a second hydraulic impulse turbine until a selected second terminal pressure is reached, whereupon the products of combustion are discharged to a gas turbine.

3,560,116

ENCLOSED MOTOR-COMPRESSOR, PARTICULARLY A SMALL REFRIGERATING MACHINE

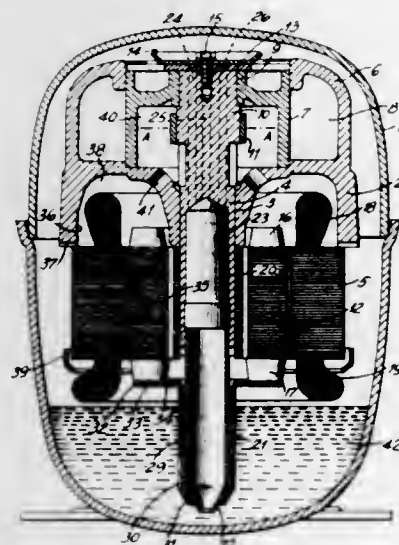
Knud V. Valbjorn, Nordborg, Hans Ulrik Leffers and Heinz Mahncke, Sonderborg, and Bendt Wegge Romer, Augustenborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark, a company of Denmark
Filed Jan. 30, 1969, Ser. No. 795,267

Claims priority, application Germany, Feb. 1, 1968,

P 16 28 157.5
Int. Cl. F04b 39/02

U.S. Cl. 417—372

9 Claims



An encapsulated refrigeration motor-compressor hermetically sealed in a capsule and in which the motor is cooled by a separate oil flow than that lubricating the compressor. The two independent oil flows are taken from a common oil sump by a twin centrifugal pump. The motor has a vertically disposed hollow motor shaft to which is attached a length of tubing in communication with the bore of the shaft defining a first centrifugal oil pump. A second length of tubing is mounted circumferentially and axially of the first-mentioned length of tubing spaced outwardly therefrom defining a second centrifugal oil pump driven in conjunction with the first pump from the common motor shaft. A single centrifugal pump consisting of a single length of tubing can provide the two oil flows by constructing it with an axially extending enlargement at the zone of division of the discharge into two output flows.

3,560,117

OIL PUMP FOR ENCLOSED MOTOR-COMPRESSOR, ESPECIALLY FOR SMALL REFRIGERATING MACHINES

Knud V. Valbjorn, Nordborg, and Hans Ulrik Leffers and Heinz Mahncke, Sonderborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark, a company of Denmark

Filed Jan. 30, 1969, Ser. No. 795,301

Claims priority, application Germany, Feb. 1, 1968,

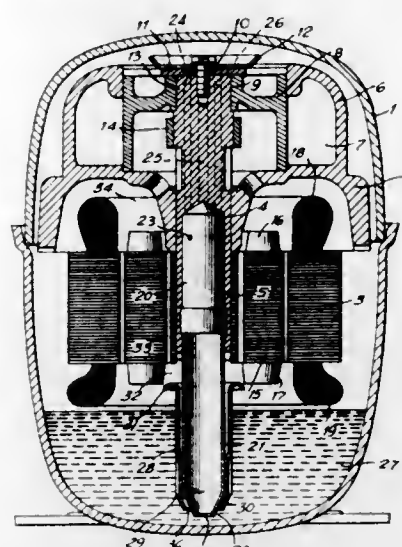
P 16 28 156.4
Int. Cl. F04b 39/02

U.S. Cl. 417—372

8 Claims

An encapsulated refrigeration motor-compressor hermetically sealed in a capsule and in which the motor has a vertically disposed hollow motor shaft to which is attached a length of tubing in communication with the

bore of the shaft defining a first centrifugal oil pump. A second length of tubing is mounted circumferentially and axially of the first-mentioned length of tubing spaced



outwardly therefrom defining a second centrifugal oil pump driven in conjunction with the first pump from the common motor shaft.

3,560,118

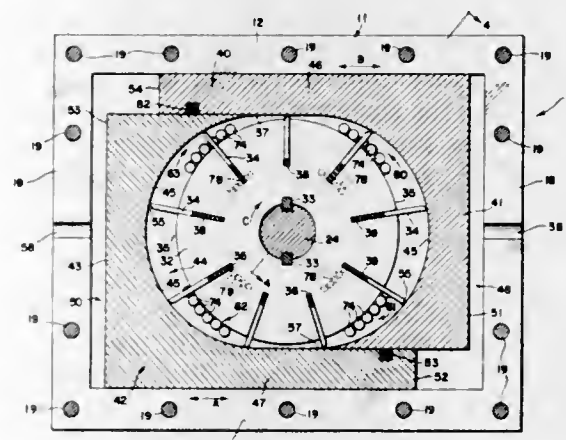
ROTARY MOTOR OR PUMP

Derso W. Palachik, 16 Bridlington St., Scarborough 722, Ontario, Canada
Filed June 11, 1969, Ser. No. 832,085

Int. Cl. F01c 21/16

U.S. Cl. 418—26

14 Claims



A deformable stator formed of opposed essentially semi-circular linearly movable sections having overlapping extensions on either side of a radially vaned rotor enclosure a pair of variable volume meniscoidal stator chamber sections whereby a fluid pressure unit is provided utilizable either as a hydraulic motor capable of variable torque output or a pump of predetermined pressure output responsive to automatic control of its volumetric displacement rate.

3,560,119

FLUID PUMP OR MOTOR

Werner Busch, Munich, Allach, and Paul Hufnagel, Munich, Germany, assignors to Krauss-Maffei Aktiengesellschaft, Munich, Germany, a corporation of Germany

Filed Dec. 18, 1968, Ser. No. 784,841

Claims priority, application Germany, Dec. 18, 1967,

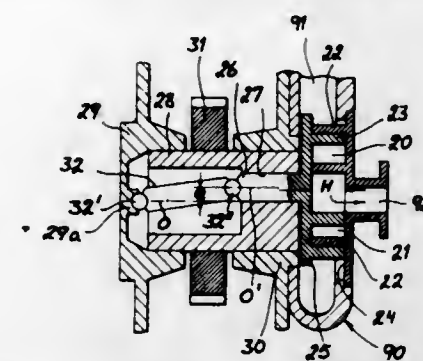
P 16 53 815.1

Int. Cl. F02b 53/00; F04c 17/02; B23f 23/08
U.S. Cl. 418—55

18 Claims

Two relatively displaceable members are formed with at least two interfitting spiroidal peripheral wall elements of like pitch, angularly and radially offset to contact one

another along at least one pair of diametrically opposite locations simultaneously, defining together with adjoining sidewalls one or more pairs of chambers of progressively varying volume upon a relative orbiting of their centers



with substantial maintenance of their relative angular orientation whereby the points of contact shift along their peripheries, alternately opening each chamber toward an outer and an inner port.

3,560,120

ROTARY COMPRESSOR

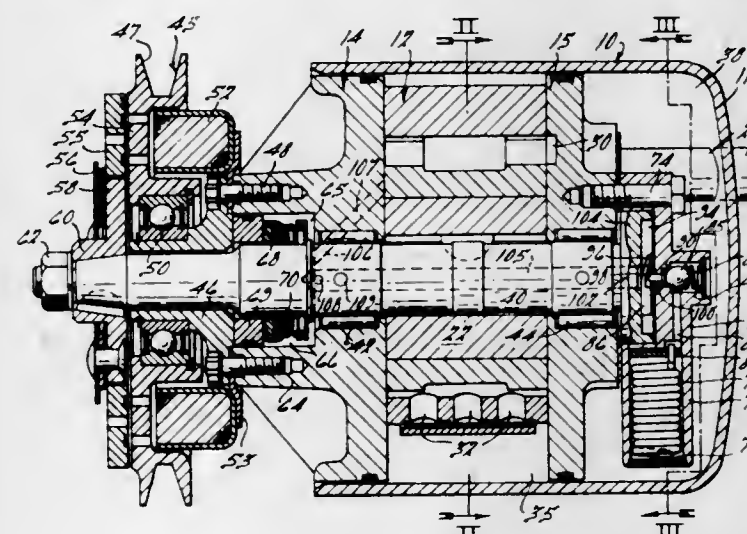
Edwin L. Gannaway and Robert M. Draper, Sidney, Ohio, assignors to Copeland Refrigeration Corporation, Sidney, Ohio, a corporation of Michigan

Continuation of application Ser. No. 713,581, Mar. 18, 1968. This application Sept. 9, 1968, Ser. No. 767,030

Int. Cl. F04c 29/02; F04d 29/06

U.S. Cl. 418—84

4 Claims



A vane-type rotary compressor is housed in a cylindrical cup-shaped sheet metal housing shell, the compressor assembly comprising three main body sections of generally cylindrical form including a cylindrical stator section sandwiched between inner and outer covering sections sealed in the shell and one forming an outer end closure which defines a bearing support, a seal chamber, and a support for a driving clutch and pulley, the internal cover section being spaced from the closed rear wall of the shell and acting as a rear bearing support and also as a partition for a combined oil sump and high pressure discharge chamber and also supporting the lubricant feeding and control means and the suction and discharge conduits. The lubricating means comprises a capillary tube for feeding oil from the sump and a centrifugally operable valve which closes off escape of oil from the sump when the compressor is not running. The vanes are provided with vent channels to the vane pockets. A section of the stator wall which is engaged by the vanes in the area defining the seal between the high and low pressure regions is concentric and has a close fit with the rotor, to provide a seal of substantial angular extent as distinguished from a tangent seal between the rotor and stator.

3,560,121

GEAR PUMP WITH MOVABLE ELEMENT HAVING CONTIGUOUS CYCLIC UNLOADING SUPPRESSION MEANS

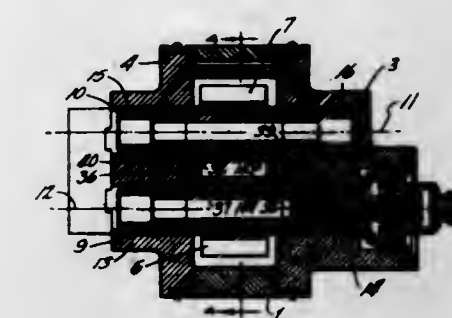
Godwin L. Noell, Middletown, Conn., assignor to Chandler Evans Inc., West Hartford, Conn., a corporation of Delaware

Filed Feb. 28, 1969, Ser. No. 803,358

Int. Cl. F01c 1/18; F02b 53/00; F04c 15/00

U.S. Cl. 418—129

10 Claims



A gear pump having first and second intermeshing gears capable of pumping fluids containing highly abrasive contaminants, separate pivotably movable elements engaging the periphery of said first and second gears respectively adjacent the pump discharge such that high pressure is introduced into the gear tooth interstices next to the innermost gear teeth prior to the disengagement of said gear teeth to thereby maintain continuous peripheral sealing engagement of the outboard extremity of each movable element under all pump operating conditions.

ERRATA

For Classes 83—13 thru 214—522 see:
Patent Nos. 3,560,123 thru 3,560,133

3,560,122

CANDLE CONTAINING WICK OF NOVEL COMPOSITION

Richard D. Cassar, West Chester, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed July 9, 1969, Ser. No. 840,531

Int. Cl. F23d 13/16

U.S. Cl. 431—288

3 Claims

A candle wick having the composition defined herein, and whose cross-sectional area when compared to the cross-sectional area of the candle it is contained in has a ratio between 0.042 and 0.250, is useful in place of the costly and difficult-to-make cotton wicks used in candles. The wick composition comprises 65 to 98.8 weight percent paraffin wax, 0.1 to 10 weight percent palygorskite particles and 1.1 to 25 weight percent of polyethylene having a weight average molecular weight in the range of 500,000 to 6,000,000, the latter two being uniformly distributed in the wax.

3,560,123

METHOD AND APPARATUS FOR AUTOMATICALLY SHEARING METAL PLATES BY SUPERSONIC FLAW DETECTION

Shozo Sekino, Osamu Araki, and Yukito Sasaki, Kitakyushu, Japan, assignors to Yawata Iron & Steel Co., Ltd., and Mitsubishi Electric Corporation, Tokyo, Japan

Filed July 3, 1968, Ser. No. 742,247

Claims priority, application Japan, July 6, 1967,

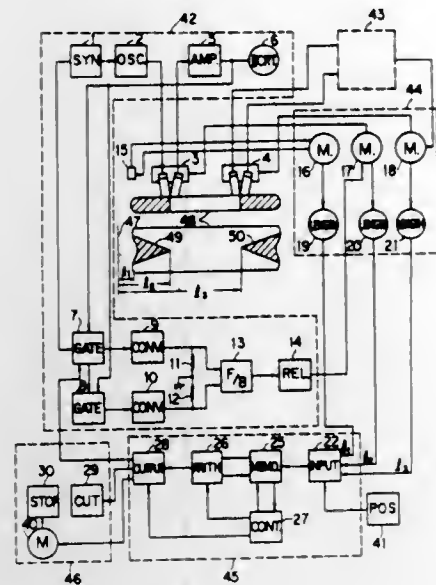
42/43,489
Int. Cl. B26d 5/00

U.S. Cl. 83—13

3 Claims

A method and apparatus for automatically shearing metal plates by supersonic flaw detection, wherein the location of flaw present in a metal plate as hot-rolled and

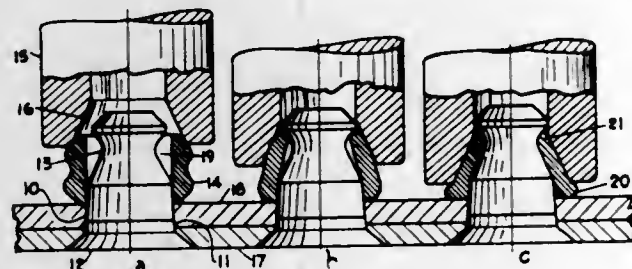
still in the state of high temperature is detected by means of supersonic flaw detection, whereby the distance of this flaw and that of the good material part from a standard



3,560,124
RIVET FASTENER
Emric Bergere, 2324 Nottingham Ave.,
Los Angeles, Calif. 90027
Filed Nov. 1, 1966, Ser. No. 595,562
Int. Cl. F16b 19/05

U.S. Cl. 85—7

7 Claims

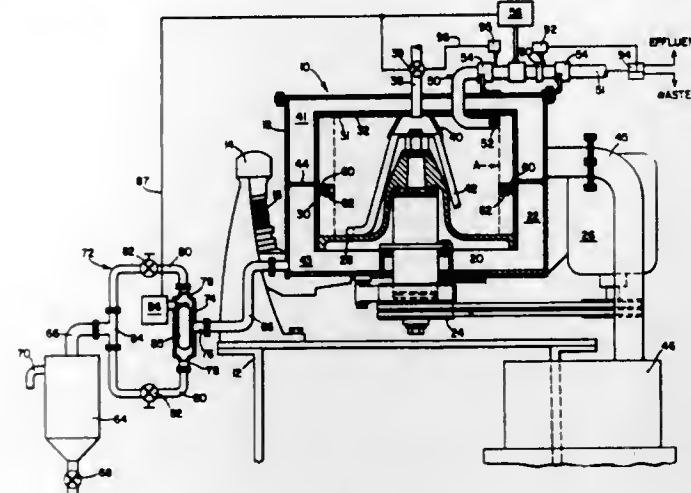


A fastener for joining structural members is disclosed which markedly improve the fatigue life of the structural members. The fastener includes a pin having a head and a shank adapted to be inserted through aligned apertures in the structural members. The shank includes a tapered portion, a collar-receiving portion at the end opposite the head and an intermediate portion connecting the tapered portion and the collar-receiving portion. The tapered portion of the shank is adapted to seat, with an interference fit, in tapered parts of the apertures so that when the pin is set in place under tension, the parts of the structural members surrounding the tapered portion of the pin are subjected to compressive preloads higher than the tensile loads to be applied to the structural members during utilization. The collar has planar ends, frusto-conical end sections and a sinuous exterior surface between the end sections. The collar is swaged about and within an annular depression in the collar-receiving portion of the pin by means of a setting tool cooperating with one of the frusto-conical end sections thereby seating the pin and subjecting it to substantial tensile load. The desired compressive bearing preload is thereby produced in the parts of the structural members surrounding the tapered portion of the pin.

3,560,125
CENTRIFUGE APPARATUS
Charles Edward Trump, Bedford, N.Y., assignor to
Pennwalt Corporation, a corporation of Pennsylvania
Filed July 8, 1968, Ser. No. 743,075
Int. Cl. B04b 11/00

U.S. Cl. 233—19

6 Claims



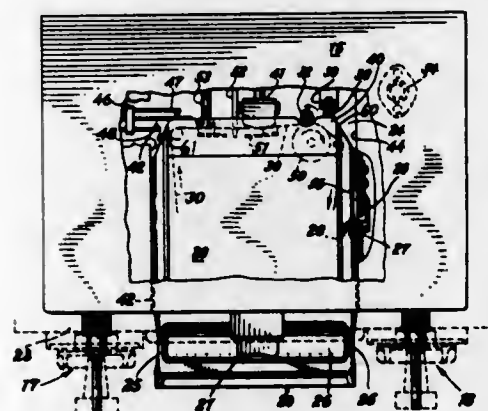
A heavy phase material, separated from a light phase material and accumulated on the peripheral wall of a centrifuge bowl, is removed from the bowl by a skimmer in response to sensing action of a detector. The latter includes an overflow conduit extending inwardly from an opening in the bowl wall to the maximum desired level of the heavy phase material. The conduit conducts a sample of the material at such level to a gravimetric device which senses an increase in specific gravity above that of the light phase material, as would be occasioned by its contamination with heavy phase material. The device indicates that heavy phase material has accumulated to the maximum desired level and responds by actuating a skimmer for removing the heavy phase material from the bowl.

3,560,126
MAGNETIC TAPE CARTRIDGE PLAYER SYSTEM
William P. Lear, Beverly Hills, Calif., assignor to Gates
Learjet Corporation, Wichita, Kans., a corporation of
Delaware
Continuation-in-part of application Ser. No. 494,645,
Oct. 11, 1965. This application Mar. 13, 1968,
Ser. No. 712,648

The portion of the term of the patent subsequent to
Oct. 1, 1985, has been disclaimed
Int. Cl. G11b 23/06; B65h 17/48

U.S. Cl. 242—55.19

11 Claims



The player accommodates magnetic tape cartridges with the tape arranged in endless array. The cartridge is in rectangular form, and is inserted in an opening of the player for direct engagement in the play mode. A recess or V-notch in one side of the cartridge coacts with a prepositioned retention member biased into the opening. The member engages the notch to provide a substantial forward force component that presses an exposed tape portion

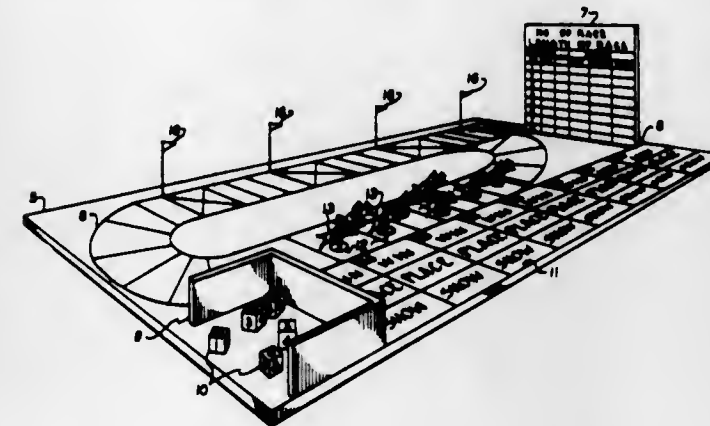
against the drive capstan and for transcription by a pick-up head, and simultaneously provides a lateral force component that presses the cartridge against an opposite side guide that holds the cartridge in stable play position.

3,560,127
RACING GAME
Joseph Imperato, Seldon, N.Y., assignor to Riders Up,
Inc., Seldon, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 728,526,
May 13, 1968. This application Oct. 29, 1968, Ser.
No. 771,488

U.S. Cl. 273—134

Int. Cl. A63f 3/02

1 Claim



A game apparatus for simulating a horserace, said apparatus comprising a board having a track printed thereon, U-shaped fence at one end of the board for rolling dice, a removable starting gate for handicapping purposes, eight simulated horses bearing different symbols, and five dice having a first symbol on six faces, a second symbol on five faces, each of third and fourth symbols on four faces, a fifth symbol on three faces, each of sixth, and seventh symbols on three faces, and an eighth symbol on two faces.

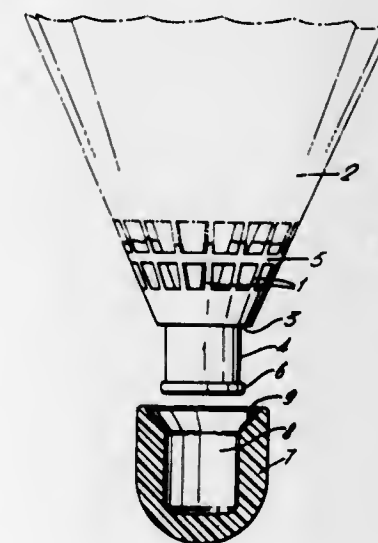
3,560,128
SHUTTLECOCK AND METHOD OF MAKING THE SAME
William Charles Carlton, Fitches, Finchfield, England,
assignor to Carlton Sports Company Limited, London,
England
Continuation-in-part of application Ser. No. 496,890,
Oct. 18, 1965. This application Apr. 4, 1968, Ser.
No. 725,555

Claims priority, application Great Britain, Nov. 6, 1964,
45,276/64

U.S. Cl. 273—106

Int. Cl. A63b 67/18

5 Claims



A shuttlecock having a flexible skirt including a flared array of stems, a vane area and a stem-extension collar,

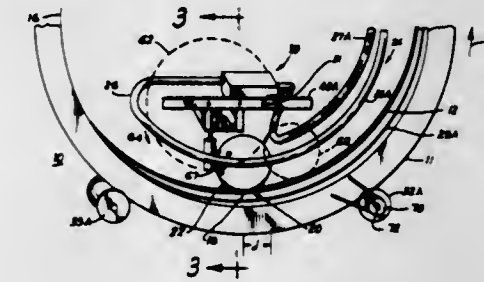
is moulded from nylon, the assembly forming a one-piece structure. The stem-extension collar is cylindrical but a curled or straight annular flange, rim or enlargement is formed on its outer end, either in the mould or preferably, after removal therefrom. A striking cap made of expanded polyvinyl chloride is slipped over the outer end of the stem-extension collar. The cap then starts to shrink and as a result of this shrinkage a groove is formed on the inner walls of the cap, the annular flange, rim or enlargement then fitting snugly in said groove and locking the cap against any rectilinear movement or removal. But the cap may be rotated on its axis, hence though firmly secured is not rigidly mounted. This spin-ability of the cap is an advantageous feature when playing badminton.

3,560,129
ROTATING ARM ASSIST FOR RING-TYPE BALL ELEVATORS

Joe Diaz, Houston, Tex., assignor to
Michael P. Breston, Houston, Tex.
Filed Oct. 14, 1968, Ser. No. 767,203
Int. Cl. A63d 5/02

U.S. Cl. 273—49

7 Claims



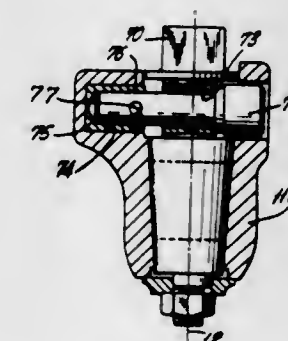
This invention relates to conventional, automatic, ring-type ball elevators, used in bowling alleys. The elevator has a ring defining a cylindrical surface movable continually through a circular path extending transversely of an alley pit. The lower extremity of the path constitutes a ball-pickup station. A stationary, arcuate track is radially displaced a distance from the periphery of the cylindrical surface for guiding and elevating the ball. The improvement of this invention provides a rotating, ball-engaging arm within the cylindrical volume defined by the cylindrical surface. The arm positioned at a suitable distance from the cylindrical surface, near the ball-pickup station, engages and assists the ball to enter the space between the track and the cylindrical surface.

3,560,130
LOCK CORE SERVICE VALVE
George Horhota, 713 Stanley Terrace,
Roselle, N.J. 07203
Continuation-in-part of application Ser. No. 658,855,
Aug. 7, 1967. This application Jan. 15, 1968, Ser.
No. 704,501

U.S. Cl. 251—111

Int. Cl. F16k 35/06

4 Claims

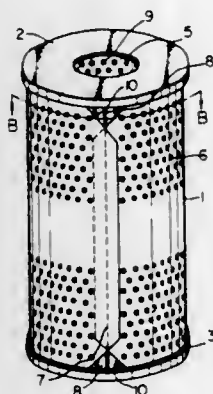


A valve having a housing and a valve core or member is disclosed which can be locked by a locking pin, espe-

cially a Smith-Morse pin. The locking pin passes through the valve core and presents rotation of the core relative to the housing in one position and allows rotation thereof in another position.

3,560,131 FILTER ELEMENT

Kokichi Yotsumoto, Sagami-hara-shi, Japan, assignor to Caterpillar Mitsubishi Ltd., Tokyo, Japan
Filed Dec. 31, 1968, Ser. No. 788,242
Claims priority, application Japan, Jan. 11, 1968, 43/1,264
Int. Cl. B01d 27/08
U.S. Cl. 210—484 4 Claims

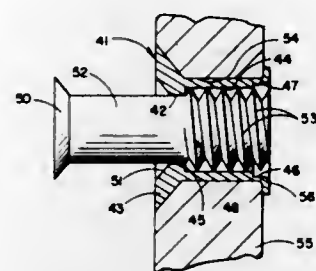


A filter element having an outer wrapper, and improvement wherein openings are provided at the upper and lower ends of the joint of the outer wrapper.

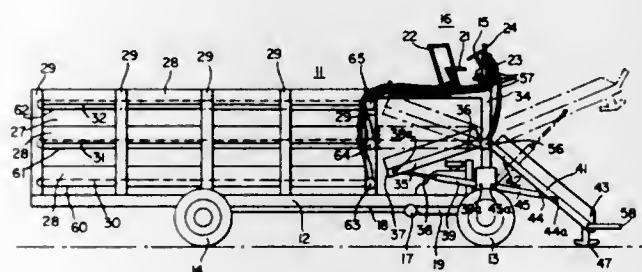
**3,560,132
ARRANGEMENT FOR CAPTIVE SCREW**
Bulent Gulistan, Malibu, Calif., assignor to Deutsch Fastener Corp., Los Angeles, Calif., a corporation of California
Continuation-in-part of application Ser. No. 697,361, Jan. 12, 1968, which is a division of application Ser. No. 590,601, Oct. 31, 1966. This application Nov. 22, 1968, Ser. No. 778,262
The portion of the term of the patent subsequent to Mar. 24, 1967, has been disclaimed
Int. Cl. F16b 41/00

U.S. Cl. 151—69 5 Claims
A captive screw arrangement including a sleeve through which is extended a screw blank, after which the portion of the shank projecting beyond the sleeve is provided with screw threads of a larger major diameter than the

bore of the sleeve. A second bore of larger diameter is included, resulting in a thin-walled portion enabling a flange to be bent outwardly for attaching the sleeve to a work-piece. The interior of the sleeve beyond the first bore may



**3,560,133
GRAIN BIN UNLOADER**
William George Ryzek, Kansas City, Mo., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed July 28, 1969, Ser. No. 845,294
Int. Cl. B60p 1/42
U.S. Cl. 214—522 6 Claims



A foldable auger provided with a spirally wound spring-like member attached at one end thereof to the central portion of an auger shaft of a swingable auger with the other end of the springlike member being slidably received within the hollow shaft of the nonswinging auger for guiding said swinging auger into engagement with the nonswinging auger when moving same to operative position.

CHEMICAL

**3,560,134
AZO, VAT AND FLUORESCENT DYES DUST-PROOFED WITH A LIGHT MINERAL OIL AND A FATTY ACID OF POLYOXYALKYLATED SORBITAN**
Clemens Streck, Loudonville, N.Y., assignor to GAF Corporation
No Drawing. Filed June 19, 1967, Ser. No. 647,203
Int. Cl. C09b 67/00

U.S. Cl. 8—34 4 Claims
A dustproofing formulation comprising a mixture of a low viscosity mineral oil and a polyoxyalkylated sorbitan ester of a long chain fatty acid, the dustproofing formulations being suitable for use in dustproofing of powders contemplated for use with coloring agents which are acceptable for use in cosmetics and foodstuffs, or wrapping materials which may come in contact with foodstuffs and cosmetics.

**3,560,135
NOVEL CONCENTRATED SOLUTION OF CATIONIC DYES**
Wataru Yamaya and Sadao Fujino, Kitakyushu-shi, Japan, assignors to Mitsubishi Chemical Industries Limited, Tokyo, Japan
No Drawing. Filed May 17, 1967, Ser. No. 639,020
Claims priority, application Japan, May 24, 1966, 41/32,727
Int. Cl. D06p 1/20

U.S. Cl. 8—39 8 Claims
The dye solution comprises (1) at least one cationic dye, (2) phosphoric acid or an acidic phosphoric acid ester and (3) at least one water-soluble organic solvent. The solvent is a polyol of the formula:



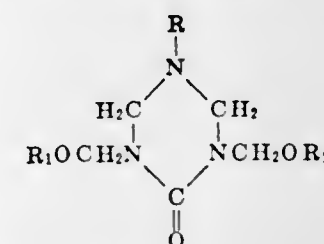
wherein R and R' denote an alkylene group having 2 to 3 carbon atoms or a 2-oxy-propyl group, n denotes an

integer which is zero to 2 and G denotes an oxygen atom. When n is 1, G may also be a sulphur atom, a sulphonyl group or a >N·COH group; a lower alkyl ether of said polyol; dimethyl sulphoxide; or dimethyl formamide.

**3,560,136
HAIR DYEING WITH SUBSTITUTED NITROPHENYLENE-DIAMINES**
Gregoire Kalopissis, Paris, and Andree Bugaut, Boulogne-sur-Seine, France, assignors to L'Oreal, Paris, France
No Drawing. Filed Dec. 1, 1966, Ser. No. 598,179
Claims priority, application Luxembourg, Dec. 3, 1965, 49,990; Apr. 13, 1966, 50,894; Oct. 19, 1966, 52,201
Int. Cl. A61k 7/12 5 Claims
The invention relates to processes for dyeing keratinic fibers and live human hair with substituted nitrophenylene-diamines.

**3,560,137
WHOLLY AROMATIC POLYAMIDES OF INCREASED HYDROLYTIC DURABILITY AND SOLVENT RESISTANCE**
Walter Leopold Hahn, Waynesboro, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Aug. 15, 1967, Ser. No. 660,602
Int. Cl. D06m 9/00 6 Claims
Heating crimped synthetic, linear, wholly aromatic polyamide and polyimide fibers to a temperature in the range of 275° C. to 400° C. for 1 to 10 minutes increases their hydrolytic durability and solvent resistance.

**3,560,138
DYED CELLULOSIC FABRIC TREATED WITH DMDHEU IN COMBINATION WITH A METHYLATED TRIAZONE**
Myrtle Joanne Spangler, Danville, Va., assignor to Dan River Inc., Danville, Va., a corporation of Virginia
No Drawing. Filed Aug. 1, 1967, Ser. No. 657,512
Int. Cl. D06m 13/14, 13/40; D06p 5/06 5 Claims
Improved textile creaseproofing compositions are prepared by mixing a triazone having the following general formula:



where R, is an alkyl or hydroxyalkyl radical having 1 to 6 carbons and R₁ and R₂ are hydrogen or an alkyl radical having 1 to 4 carbons with 1,3-dimethylol-4,5-dihydroxyethylene urea and alkylated derivatives thereof and an acid catalyst. The improved properties of these compositions make them particularly suitable for imparting crease-resistance to fabrics treated with sensitive dyes.

**3,560,139
PROCESS FOR IMPROVING CELLULOSE TEXTILE MATERIAL BY ALKALINE TREATMENT**
Toshihiko Suminokura, Yojuro Kyogoku, and Kazuo Sekiguchi, Neyagawa, Japan, assignors to Kurashiki Spinning Co., Ltd., Kurashiki, Japan, a corporation of Japan
Filed Aug. 18, 1967, Ser. No. 661,564
Claims priority, application Japan, Sept. 6, 1966, 41/59,072
Int. Cl. D06m 1/10 4 Claims
Cellulose textile material is treated with a solution having a high caustic soda concentration of 25–35% at

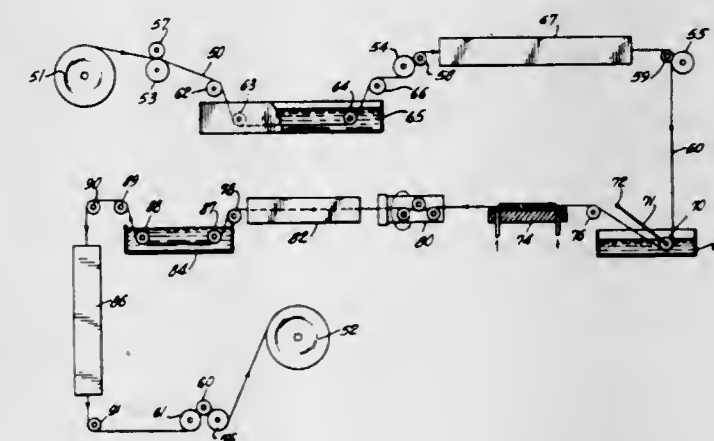
room temperature in the first step, and thereafter is treated with a solution of a low caustic soda concentration of about 10% at room temperature in the second step, and thereby the cellulose textile material swells much more than conventional one-step treatment with a caustic soda solution.

If the above two-step method is used without tension, the stretchability, moisture adsorption and dyeing capacities of the cellulose textile material will be improved; if with tension, its luster and strength will be improved.

**3,560,140
METHOD OF TREATING TEXTILE MATERIALS WITH LIQUID AMMONIA**
J & P Coats Limited, Glasgow, Scotland
Robert M. Galley, Paisley, Scotland, assignor to No Drawing. Filed Nov. 29, 1967, Ser. No. 686,729
Claims priority, application Great Britain, Dec. 2, 1966, 53,960/66 7 Claims
U.S. Cl. 8—125 7 Claims
Int. Cl. D06m 1/02

Cellulosic textile materials of improved strength are obtained by treatment with liquid ammonia followed by stretching the material during the ammonia removal step.

**3,560,141
ALDEHYDE, ALUM AND DIHYDROXYBENZOIC ACID TANNED COLLAGEN ARTICLES PRODUCTION**
John Kurilla, Plainfield, N.J., assignors to Ethicon, Inc., a corporation of New Jersey
Continuation of application Ser. No. 594,076, Nov. 14, 1966, which is a continuation-in-part of application Ser. No. 284,049, May 29, 1963. This application Aug. 2, 1968, Ser. No. 758,644
Int. Cl. A61l 17/00 12 Claims
U.S. Cl. 8—127.6 12 Claims



The invention involves tanning a collagen tape made of filament spun from hides disintegrated by swelling by tanning the tape with an aldehyde, a resorcylic acid, and an aluminum salt. Formaldehyde, acetaldehyde, glyoxal, succinaldehyde and malonic aldehyde are enumerated as the aldehyde while alum, basic aluminum acetate, and aluminio formo-acetate are the aluminum salts used. In one example, the tape is tanned in a solution of 1 to 2% resorcylic acid, .05% EDTA, and 1% NaHSO₃ or formaldehyde sulfoxylate. The tape is dried, and then retanned in a bath of .5 to 2.5% aluminio formo-acetate and .05 to 4% formaldehyde at pH 2 to 4.7. The tape is dried and false twisted.

3,560,142

USE OF QUATERNARY AMMONIUM COMPOUNDS IN THE DYEING OF POLYACRYLONITRILE WITH BASIC DYE STUFFS

Robert Christian Keller, Basel, and Hilmar Roedel, Basel-Land, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Dec. 11, 1967, Ser. No. 689,354
Claims priority, application Switzerland, Dec. 28, 1966, 18,629/66

Int. Cl. D06p 5/06

U.S. Cl. 8—172

9 Claims

Benzylated or naphthylated polyalkylene polyaminesaternized with dimethyl sulphate are used as adjuvants in dye baths containing a basic dyestuff in order to regulate the uptake of the dye on fibrous materials consisting of or containing polyacrylonitrile fibres or threads.

3,560,143

METHOD OF PROVIDING AN INERT ATMOSPHERE WITHIN AN ELASTOMERIC AIR CHAMBER

Lawrence R. Sperberg, 6740 Fleeta Drive, El Paso, Tex. 79912

No Drawing. Continuation of application Ser. No. 602,123, Dec. 16, 1966. This application Oct. 18, 1967, Ser. No. 676,076

Int. Cl. B01d 53/00

U.S. Cl. 23—2

7 Claims

Removal of oxygen from air in elastomeric chambers comprising adding to the air chamber of the elastomeric chamber an agent consisting essentially of hydrazine and an inert diluent.

3,560,144

PYROCHLORE-TYPE TERNARY OXIDES $Ti_2Ru_2O_7$ AND $Ti_2Ir_2O_7$ Arthur W. Sleight, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed June 28, 1968, Ser. No. 741,220

Int. Cl. C01b 15/00

U.S. Cl. 23—50

3 Claims

Described and claimed are the two ternary compounds $Ti_2Ru_2O_7$ and $Ti_2Ir_2O_7$, both of which have the pyrochlore-type structure. The compounds are produced from mixtures of the binary oxides, Ti_2O_3 and RuO_2 or IrO_2 , respectively, in substantially the stoichiometric ratios at temperatures of 400° C. to 1,400° C. The compounds are useful in electrical applications.

3,560,145

METHOD OF PREPARING RADIOACTIVE CYANATES LABELED WITH CARBON ISOTOPE ^{14}C

Josef Ratusky and Richard Tykva, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie Ved, Prague, Czechoslovakia

No Drawing. Filed Sept. 26, 1967, Ser. No. 670,779

Claims priority, application Czechoslovakia, Sept. 28, 1966, 6,222

Int. Cl. C01c 3/00; C09k 3/00

Radioactive cyanates labeled with carbon isotope ^{14}C are produced by placing a non-radioactive cyanate into a radioactive carbon dioxide $^{14}CO_2$ atmosphere at a temperature sufficiently high to cause an exchange reaction by which ^{14}C from $^{14}CO_2$ will change place with non-radioactive carbon of the cyanate starting material. The reaction temperature preferably will be at or above the melting point of the cyanate and generally between about 100° C. and 380° C.

3,560,146

PROCESS FOR IMPROVING THE STEREOSPECIFICITY OF CATALYTIC COMPONENTS COMPRISING $TiCl_3$

Luciano Luciani and Gianfranco Corsi, Ferrara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Aug. 4, 1967, Ser. No. 658,319
Claims priority, application Italy, Aug. 9, 1966, 18,418/66

Int. Cl. C01b 9/02

U.S. Cl. 23—87

6 Claims

Process for improving stereospecificity of $TiCl_3$ containing catalyst wherein $TiCl_3$ composition is obtained by reducing $TiCl_4$ with Al or H_2 and thereafter activating by vigorous milling at ambient temperature for from about 4 to 24 hours, this process comprising thereafter intimately admixing $TiCl_3$ composition with from about 1–12% by weight thereof of a halogenated or non-halogenated aromatic hydrocarbon at below 60° C. for between about 30 minutes and 4 hours.

3,560,147

METHOD FOR THE PRODUCTION OF CONCENTRATED NITROGEN OXIDE

Witold Janiczek, Henryk Ryszawy, and Antoni Gajewski, Tarnow, Poland, assignors to Instytut Nawozow Sztucznych, Pulawy, Poland

Filed Apr. 12, 1968, Ser. No. 720,997

Claims priority, application Poland, Apr. 15, 1967, P 120,022

Int. Cl. C01c 1/18; C01b 21/26

U.S. Cl. 23—103

5 Claims

In a process wherein NH_3 is oxidized with oxygen and water vapor to form nitric oxide and water vapor, the water vapor upon being condensed, carries with it, a small amount of nitric oxide which forms dilute HNO_3 . The dilute HNO_3 , otherwise useless, is neutralized with NH_3 to form dilute NH_4NO_3 which is then concentrated using the heat evolved during its formation.

3,560,148

PROCESS FOR PURIFYING INDUSTRIAL SOLUTIONS OF SODIUM ALUMINATE

Louis Tamié, Douvres-la-Délivrande, and Jacques Millet, Versailles, France, assignors to Pechiney, Compagnie de Produits Chimiques et Electrometallurgiques, Paris, and Societe Appareils et Evaporateurs Kestner, Lille, France

No Drawing. Filed Mar. 15, 1968, Ser. No. 713,315

Claims priority, application France, Mar. 20, 1967, 99,395

Int. Cl. C01f 7/06

U.S. Cl. 23—143

6 Claims

A process for the removal of sodium carbonate from aluminate solutions generated during the attack on bauxite with caustic soda for the recovery of alumina, wherein, after the solution is hydrolyzed and the precipitated aluminum trihydrate separated, the solution is processed through a series of evaporators wherein the concentration and temperature are increased and a series of expansions in which the suspension is concentrated and cooled to a temperature within the range of 50° to 60° C. and a concentration of 300–330 grams per liter of total Na_2O with the accompanying precipitation of sodium carbonate as fine crystals and adding a concentrated solution of caustic soda to the suspension to raise the total Na_2O content to about 350 grams per liter whereby, without subsequent heating, the sodium carbonate crystals are increased in size for easier separation.

3,560,149

PROCESS FOR TREATING PHOSPHATE ROCK

Joseph W. Markey and Ernest C. Camp, Jr., College Park, Ga., assignors to Cities Service Company, a corporation of Delaware

Filed Apr. 29, 1968, Ser. No. 725,017

Int. Cl. C01b 25/18

U.S. Cl. 23—165

11 Claims

Phosphoric acid can be prepared from phosphate rock by acidulating the rock from about 75–85% by weight nitric acid to form an acidulate and thereafter precipitating anhydrous calcium nitrate by raising the nitric acid content of the acidulate. The precipitated anhydrous calcium nitrate can be decomposed in the presence of a nitrogen oxide containing atmosphere and the product gases can be used to form nitric acid which can be recycled to the acidulation or anhydrous calcium nitrate precipitation steps. The decomposition gases can also be recycled directly to form nitric acid in situ.

By decomposing the precipitated calcium nitrate in the presence of a nitrogen oxide-containing atmosphere, a product gas stream containing a high proportion of nitrogen and a relatively low proportion of undesired inerts may be obtained. The calcium nitrate may be decomposed in the presence of a bed of fluidized solids. The bed may comprise by-product lime that is heated and recycled to the decomposition zone. A portion of the product gas may be recycled to the decomposition zone at a bed fluidizing velocity. The product gases, comprising nitrogen oxides and oxygen, are particularly suitable for use in the formation of concentrated nitric acid. This acid may conveniently be recycled to the acidulation or anhydrous calcium nitrate separation operations. The product gases may also advantageously be recycled directly to the acidulation mixture so as to form nitric acid in situ.

3,560,150

SEPARATION OF NITRIC AND PHOSPHORIC ACIDS

Joseph W. Markey, College Park, Ga., assignor to Cities Service Company

No Drawing. Filed July 31, 1968, Ser. No. 748,966

Int. Cl. C01b 21/46, 25/22

U.S. Cl. 23—158

10 Claims

Nitric acid can be separated from a mixture of nitric and phosphoric acids by contact with nitric oxide, which reacts with the nitric acid to form nitrogen dioxide gas and water. The nitrogen dioxide gas is removed so that a phosphoric acid solution containing a greatly reduced nitrite concentration can be obtained. The nitrogen dioxide gas stream can be employed to produce additional quantities of nitric acid. The mixture of nitric and phosphoric acids can be obtained from the nitric acid acidulation of phosphate rock followed by removal of calcium nitrate.

If the nitric oxide stream as formed is to be cooled prior to contacting the acid mixture and this stream contains oxygen, it should be quickly quenched to below about 500° C. to minimize the formation of nitrogen dioxide. One convenient source of a nitric oxide-containing gas stream is the thermal decomposition of calcium nitrate at a temperature of about 650° C. The nitric oxide may also be obtained by the reaction of air and ammonia gas at a temperature of about 900–1,000° C. in the presence of an oxidation catalyst. Since oxygen will generally be present in each of these product gas streams, a rapid quenching to below about 500° C. is necessary in order to minimize the reaction of oxygen with the nitric oxide.

3,560,151

PROCESS FOR THE PRODUCTION OF FINELY DIVIDED SILICON DIOXIDE

Georg Vogt, Kempten, Allgäu, Gunther Wiebke, Unterpfaffenhofer-Germering, and Ludwig Eberle, Sankt Mang, near Kempten, Germany, assignors to Elektroschmelzwerk Kempten G.m.b.H., Munich, Germany

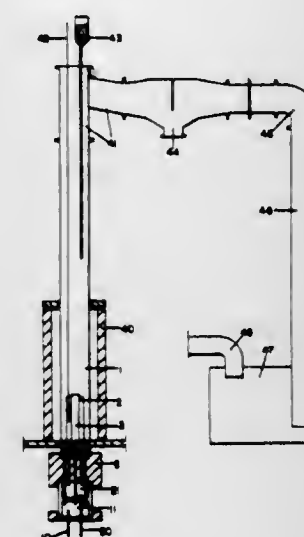
Filed Aug. 1, 1967, Ser. No. 657,552

Claims priority, application Germany, Aug. 5, 1966, E 32,230

Int. Cl. C01b 33/18

U.S. Cl. 23—182

2 Claims



Silicon dioxide in finely subdivided form is produced by passing a mixture of silicon halides and oxygen through a turbulent, or fluidized bed of heated particles of solids which react with one or both of the gases passed through. Examples of such solids include silicon carbide, ferrosilicon, silicon, and the like. The bed is preferably fluidized, and is maintained at a temperature of the order of at least 1000° C.

3,560,152

VAPOR PHASE PRODUCTION OF TITANIUM DIOXIDE PIGMENTS

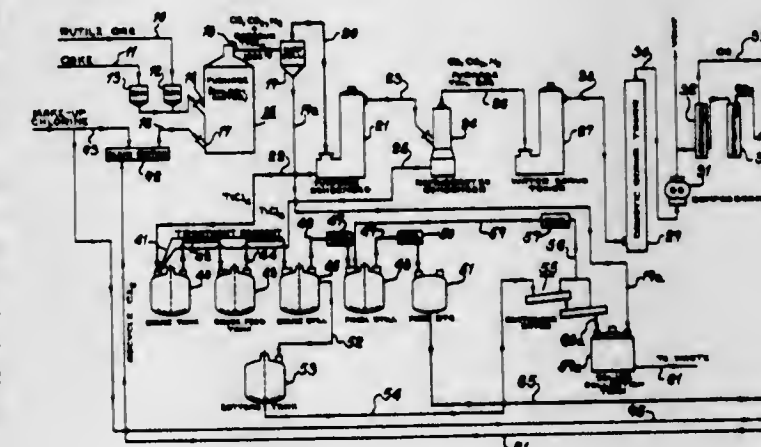
Willard W. Dunham, Jr., and Carl K. Stoddard, Westfield, and Harry G. Rodman, New Shrewsbury, N.J., assignors to National Lead Company, New York, N.Y., a corporation of New Jersey

Filed Nov. 26, 1965, Ser. No. 509,999

Int. Cl. C01g 23/04

U.S. Cl. 23—202

19 Claims



Process and apparatus for the vapor phase production of titanium pigments as a continuous operation, starting with titanium bearing raw materials, such as titanium

ore, including conversion thereof to TiCl_4 by chlorinating in the presence of a solid carbonaceous reductant at elevated temperature with evolution of said TiCl_4 in admixture with CO , CO_2 and other gaseous and solid constituents, followed by separation of the solids, separation of the TiCl_4 from other gaseous constituents and purification thereof, purification of the remaining gaseous constituents to remove therefrom constituents other than carbon dioxide and carbon monoxide, separating these two to produce a purified carbon monoxide, thereupon continuously reacting the purified TiCl_4 in a vaporized state in a closed reaction chamber with a free oxygen containing gas at elevated temperature maintained by burning said carbon monoxide with a portion of said oxygen to form titanium dioxide particles and chlorine containing gas, and continuously discharging said reaction products from the reaction chamber and separating the solids content from said chlorine containing gas and recycling the solids-free chlorine containing gas for reaction with additional said carbonaceous reductant and titanium raw material.

3,560,153

CONVERSION OF ILMENITE TO RUTILE UTILIZING SULFUR DIOXIDE

Nevin K. Hlester, Portola Valley, Calif., assignor to Bechtel International Corporation
No Drawing. Filed Feb. 27, 1969, Ser. No. 803,109
Int. Cl. C01g 23/04

U.S. Cl. 23—202

2 Claims

Ilmenite is converted to rutile by heating the ilmenite in the presence of sulfur dioxide and a reductant to sulfidize the iron content followed by leaching of the sulfidized ilmenite with sulfurous acid. In a subsequent roasting step, sulfur dioxide is released which can be recycled to the sulfidizing step.

3,560,154

PROCESS FOR PREPARING ALKALI METAL ORTHOTELLURATE AND TELLURIUM DIOXIDE

Alexander Arno Jueschke and William J. Wendt, Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 699,282, Dec. 14, 1967. This application May 28, 1969, Ser. No. 830,924
Int. Cl. C01b 19/00; C01d 11/00; C22b 7/04

U.S. Cl. 23—209

17 Claims

Alkaline solutions containing tellurium and selenium but substantially free of heavy metal ions, are treated with strong oxidants to precipitate high purity alkali metal orthotellurate at temperatures below the atmospheric boiling point. The orthotellurate may be further treated by contacting it with a reductant to convert tellurium from the +6 valence state to its +4 valence state. The pH is then adjusted to the acid range to precipitate tellurium dioxide of exceptional purity. High purity metallic tellurium may be produced from the tellurium dioxide in accordance with well-known techniques.

3,560,155

GRAPHITE PRODUCT

Franciszek Olstowski, Freeport, Tex., and Kenneth W. Guebert, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Original application Mar. 30, 1966, Ser. No. 538,589, now Patent No. 3,448,181, dated June 3, 1969. Divided and this application Nov. 5, 1968, Ser. No. 810,413
Int. Cl. C01b 31/04

U.S. Cl. 23—209.2

1 Claim

This invention is a new form of graphite flake. Such flakes are irregular in form, have a density of between 0.25 and 1.5 gm./cc. and are prepared by compressing in-

dividual particles of vermicular expanded graphite to the desired density. Masses of these flakes may be compressed to form cohered articles without the need of a binder.

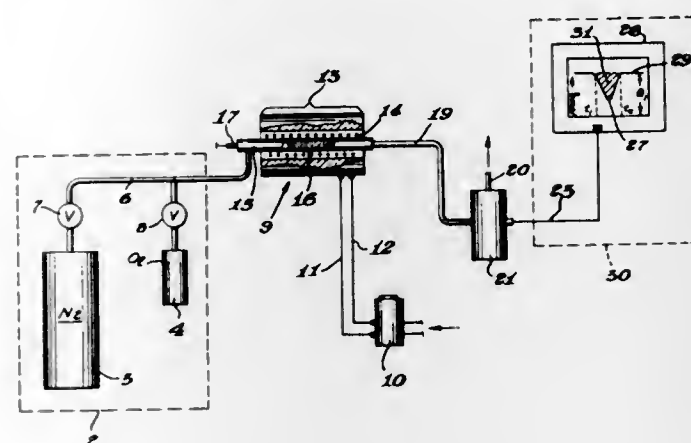
3,560,156

DETERMINING THE OXYGEN DEMAND OF COMBUSTIBLE MATERIALS IN AQUEOUS DISPERSIONS

James L. Teal, Charles E. Hamilton, and Dennis A. Clifford, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed May 3, 1965, Ser. No. 452,809
Int. Cl. G01n 31/12

U.S. Cl. 23—230

6 Claims



Determining the oxygen demand of combustible materials in aqueous dispersions, comprising the steps of flowing a feed gas stream composed of an inert gas containing oxygen into a confined, heated combustion zone, at a constant rate. The feed gas stream is passed through a combustion supporting, porous catalyst bed in the combustion zone which is heated to a combustion supporting temperature and then is fed into a detector for small amounts of free oxygen. A small amount of a dilute aqueous dispersion of a combustible material is injected into the feed gas stream within the combustion zone upstream from the catalyst bed. The resulting gaseous product is then swept from the combustion zone into the oxygen detector by the continuing pressure of the feed gas stream. Since the feed gas stream contains only a small amount of oxygen, very small amounts of combustible materials in the aqueous dispersion produce a large percentage deviation in the oxygen content of the effluent gas from the combustion zone.

3,560,157

SURFACE ANALYSES

John Lynde Anderson, Orlando, Fla., assignor to Cleanometer Corporation

No Drawing. Continuation-in-part of application Ser. No. 506,566, Nov. 5, 1965, now Patent No. 3,412,247, which is a continuation-in-part of application Ser. No. 161,246, Dec. 21, 1961, now Patent No. 3,297,874, which in turn is a continuation-in-part of application Ser. No. 78,284, Dec. 27, 1960. This application Jan. 9, 1967, Ser. No. 607,872
Int. Cl. G01n 31/06; G21h 5/00

U.S. Cl. 23—230

8 Claims

A process for controlling or monitoring operations in which the production of chemically reactive materials is studied by selecting representative articles having surfaces modified by chemically reactive material and contacting those surfaces with a radioactive chemical that has at least one component that is selectively retained by at least a part of the material. The chemical is such that it will leave the material at an evaporative rate which is measured, and the amount of the retention of the chemical is followed by measuring the evaporative rate of the

chemical. Knowing through previous determinations precisely what evaporative rates attain from previously prepared surfaces having or being the desired and proper material, one thus controls the chemical reactions involved to avoid the issuance of articles bearing faulty material.

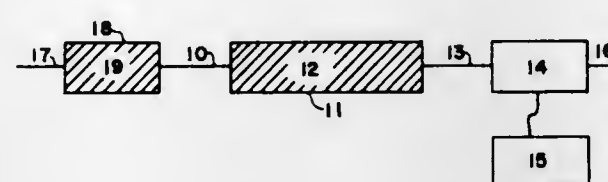
3,560,158

METHOD FOR ANALYSIS OF LABILE HYDROGEN CONTAINING COMPOUNDS

Royal H. Benson, Texas City, Tex., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Aug. 12, 1965, Ser. No. 479,109
Int. Cl. G01n 23/12

U.S. Cl. 23—230

12 Claims



A method for analyzing for labile-hydrogen-containing compounds in mixtures by passing said mixture through a fixed phase of a tritium-containing substrate to effect exchange of said labile hydrogen with said tritium, detecting and measuring the radioactivity of the resulting tritium-containing compounds and using the radioactive measurement to determine the amount of the labile-hydrogen-containing compound in the mixture.

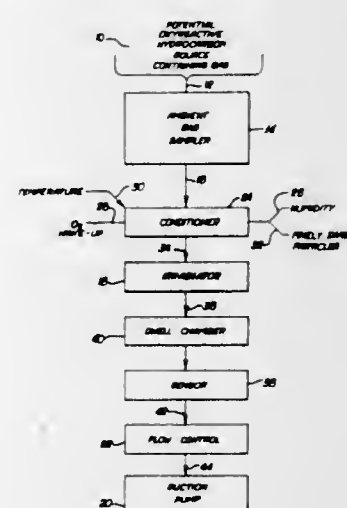
3,560,159

METHOD FOR DETECTING HIGHLY LOCALIZED SOURCES OF OXYREACTIVE HYDROCARBONS USING ULTRAVIOLET IRRADIATION

Alexander Goetz, Altadena, Calif., assignor to Alexander Goetz, as trustee of the Goetz family trust
Filed Sept. 26, 1967, Ser. No. 670,713
Int. Cl. G01n 21/12, 21/34

U.S. Cl. 23—232

19 Claims



Detection of localized sources of oxyreactive hydrocarbons emitted into ambient gases is accomplished by converting in the gas the emitted molecularly disperse, normally nondetectable hydrocarbons into detectable particulates and inspecting the gas for the presence or absence of these particulates to reveal the presence or absence of such hydrocarbons in the gas. This invention provides extremely sensitive indication of such localized hydrocarbon sources as subsurface oil deposits, trespassing personnel and leaks in fluid container walls.

3,560,160

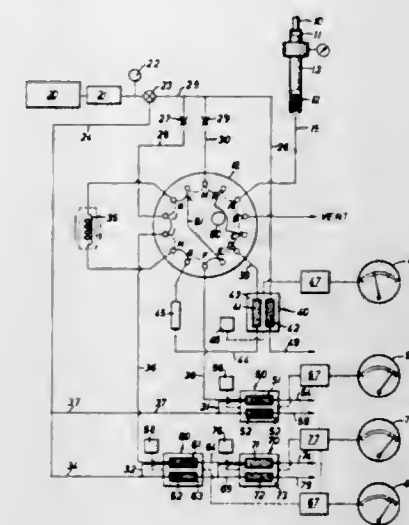
PULSE CALORIMETRIC DETECTOR

Keith P. Lanneau, Baton Rouge, La., assignor, by mesne assignments, to Tracor, Inc., Austin, Tex., a corporation of Texas

Filed July 11, 1968, Ser. No. 744,145
Int. Cl. G01n 31/08, 31/10

U.S. Cl. 23—232

34 Claims



An analytical method and compact portable device useful for making quantitative measurements of the amounts of hydrocarbons and carbon monoxide in a gas sample, such as an automobile exhaust, effects the analysis by catalytic combustion of the sample. A selected volume of sample to be analyzed is pulsed into a chromatographic column wherein the hydrocarbon components are separated from the carbon monoxide, carbon dioxide, hydrogen and other components. The amounts of hydrocarbon and carbon monoxide are then separately determined by measuring the heat generated by each of these components as they are passed over a suitable combustion catalyst at specific temperatures to effect complete combustion. Analysis of carbon dioxide can be simultaneously accomplished by providing a third detector device for carbon dioxide determination.

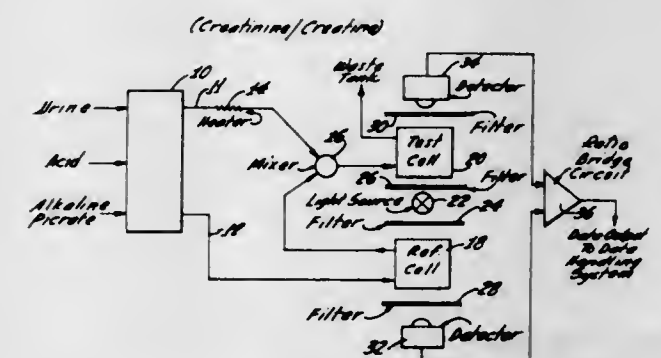
3,560,161

AUTOMATED FLUID CHEMICAL ANALYZER
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of James R. Clark, Glendale, Gerald A. Soffen, Los Angeles, Jerry L. Stuart, La Canada, and Joon H. Rho, Altadena, Calif.

Filed Mar. 14, 1968, Ser. No. 713,162
Int. Cl. G01n 31/00, 33/16

U.S. Cl. 23—253

50 Claims



A fully automated fluid chemical analyzer including at least one analyzer unit having the analytical equipment for performing an analysis of a fluid-reagent mixture and generating an electrical signal proportional to the quantity of a selected constituent in the fluid. The apparatus is

operated and controlled by an electronic logic and sequencer circuit which drives valve motors to connect a selector and a control valve in each analyzer unit to a fluid to be analyzed, reagent solutions, calibrate solutions, and rinse solutions. The solutions needed for the analysis of a fluid are self-contained within the apparatus. Also self-contained within the apparatus are all the drive motors and timing mechanisms necessary for automated operation of the analyzer apparatus. A data handling system is also included within the apparatus for receiving and processing the electrical signals produced by the analyzer units. Each analyzer unit in addition to the selector and control valves includes a test cell for receiving a mixture of the fluid to be analyzed and the chemical reagents and any chemical modifying solutions needed for the analysis. The various fluids are drawn into the test cell and expelled therefrom by a microsyringe pump included in each analyzer. Each analyzer unit contains an appropriate analytical device such as a colorimeter or fluorometer for performing the actual analysis and generating the electrical signal which is transmitted to the data handling system. A heater and temperature sensor may be associated with the test cell to control its temperature during the analysis. For the analysis of a fluid for the quantitative determination of creatine and creatinine, a single chemical reagent consisting essentially of picric acid, a metal hydroxide, and a metal salt stabilizer is used. The analysis is performed after the pH of the fluid being analyzed has been adjusted by the apparatus to from 0.1 to 1.

3,560,162

DIAGNOSTIC DEVICE

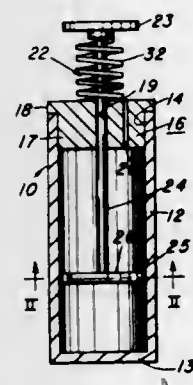
Myron Budd Mittleman, Chicago, Ill., assignor to Armour Pharmaceutical Company, Chicago, Ill., a corporation of Delaware

Filed Nov. 27, 1968, Ser. No. 779,531

Int. Cl. B01f 13/00, 3/00; G01n 33/16

U.S. Cl. 23—253

10 Claims



A manually operable diagnostic device useful in measuring prothrombin time comprising a cylindrical member having recoillable agitator means disposed therewithin for operative engagement with a sample of blood or blood plasma contained thereby and capable in operation to provide a clearly discernible, and hence readily determined measure of the prothrombin time of the whole blood or blood plasma.

3,560,163

DIAGNOSTIC DEVICE

Myron Budd Mittleman, Chicago, Ill., assignor to Armour Pharmaceutical Company, Chicago, Ill., a corporation of Delaware

Filed Dec. 23, 1968, Ser. No. 786,317

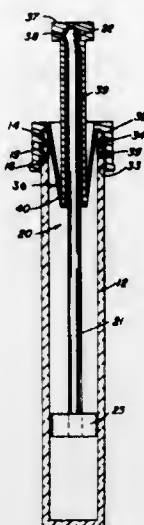
Int. Cl. B01f 11/00; G01n 33/16

U.S. Cl. 23—253

5 Claims

A manually operable diagnostic device useful in measuring prothrombin time comprising a housing member having a special resilient connector associated therewith

and connected to an agitator extendible within said member for operative engagement with a sample of blood or blood plasma contained thereby and capable in opera-



3,560,164

CARBON BLACK REACTOR

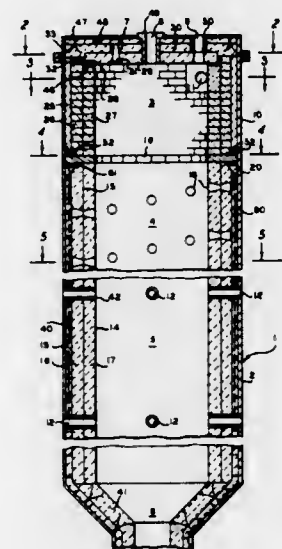
Charles R. Venable, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed July 30, 1969, Ser. No. 845,959

Int. Cl. F27d 1/04

U.S. Cl. 23—259.5

6 Claims



A carbon black reactor in which the reaction zone and quench zone are formed of castable materials with the feed introduction zone being formed of refractory brick and precast shapes and closed by a removable cover insulated to form a suspended arch construction.

3,560,165

FLUE SMOKE INCINERATOR

Gearl L. Beasley, 2136 W. Lindley, Oklahoma City, Okla. 73107

Filed Sept. 24, 1969, Ser. No. 860,735

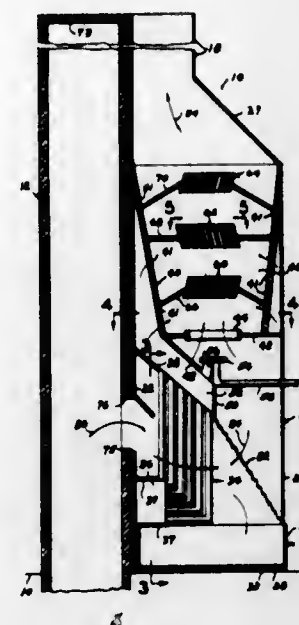
Int. Cl. F23j 5/06

U.S. Cl. 23—277

4 Claims

An upright housing forms a gas passageway communicating with the exhaust of a flue for receiving its heated gases. A heat exchanger, near the inlet end of the housing, reduces the temperature of the flue gases. Means

within the housing gas passageway direct the flue gases toward burner means which initiate combustion of the unburned hydrocarbons in the flue gases while additional



3,560,167

UPFLOW CATALYTIC REACTOR FOR FLUID HYDROCARBONS

Charles J. Bruckner, Drexel Hill, and Edward A. White, Middletown Township, Pa., assignors to Air Products and Chemicals, Inc., Philadelphia, Pa., a corporation of Delaware

Filed Dec. 18, 1968, Ser. No. 784,712

Int. Cl. B01j 9/04

U.S. Cl. 23—288

10 Claims

air, supplied by the heat exchanger means, supplements the oxygen content of the flue gases as they progress through the burner means to maintain combustion.

3,560,166

SYSTEM FOR TREATMENT OF SUBSTRATES BY A PLURALITY OF FLUID REACTANTS

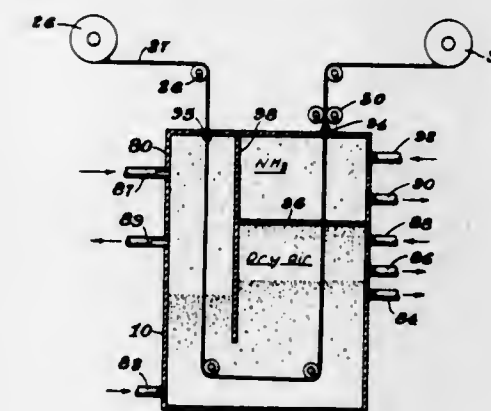
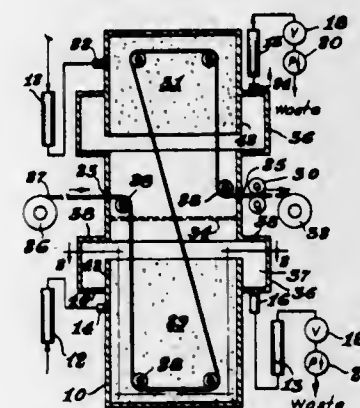
Wilhelm E. Walles, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Feb. 5, 1968, Ser. No. 703,085

Int. Cl. B01j 1/00

U.S. Cl. 23—285

16 Claims



3,560,168

SINGLE CRYSTAL SODIUM TETRABORATE DECAHYDRATE PRODUCTION

Lyman S. Stanton, Martinez, and James V. Wiseman, Lafayette, Calif., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

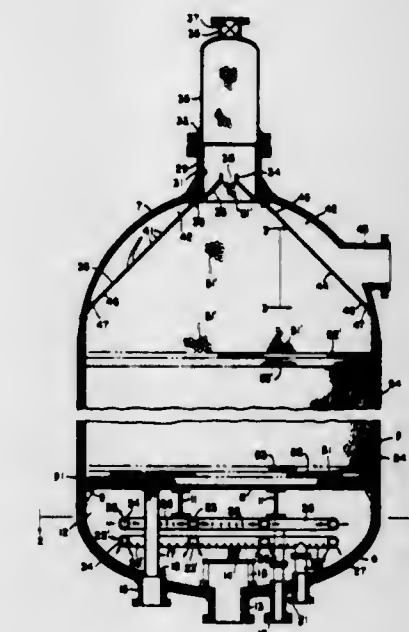
Continuation of application Ser. No. 565,288, July 14, 1966. This application Sept. 2, 1969, Ser. No. 856,892

Int. Cl. B01d 7/02; C01b 15/12

U.S. Cl. 23—302

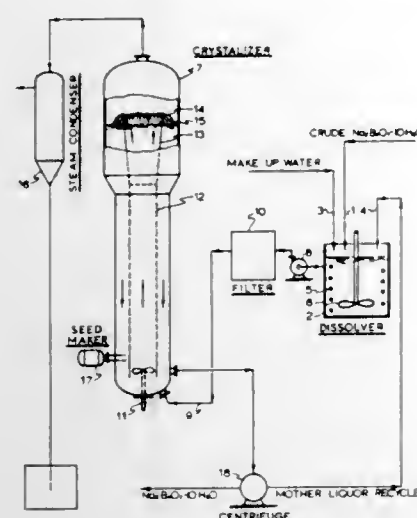
1 Claim

Process for producing single crystal borax by supersaturating an aqueous solution of borax containing slur-



A reactor for contacting hot, liquid-phase or mixed-phase hydrocarbons with a compact mass of granular catalyst maintained within the reactor as a fixed bed; in which reactor, the liquid hydrocarbons, with or without accompanying gaseous reactants, are caused to flow upwardly through the bed, in a flooded operation, at such relatively-high rate of flow as to cause possible mass lifting and falling of the bed or such volumetric expansion thereof as to create an internal disturbance of the catalyst particles resulting in detrimental attrition of the catalyst. The reactor is provided at its upper end and spaced therefrom with a perforated frusto-conical means to contain the upper portion of the bed. Means are provided for automatically adding inert material to the top of the bed through the frusto-conical means from a reservoir mounted on top of the reactor vessel.

ried seed crystals to a low concentration and then allowing the supersaturated solution to return to normal saturation.



tion. Improved apparatus for generating seed crystals in a vertical vacuum cooling crystallizer is also described.

3,560,169

MANNER OF PROCESSING PLUTONIUM-CONTAINING URANIUM FUEL FROM NUCLEAR REACTORS

Alf Harald Larsson, Stockholm, and Åke Valdemar Hultgren, Nyköping, Sweden, assignors to Aktiebolaget Atomenergi, Stockholm, Sweden
No Drawing. Filed Apr. 8, 1968, Ser. No. 719,736
Claims priority, application Sweden, Apr. 21, 1967, 5,676/67

Int. Cl. B01d 11/04

U.S. Cl. 23—339 3 Claims

In the recovery of plutonium and uranium from the core of a nuclear reactor by dissolving the fuel elements in an aqueous solution of, for instance, nitric acid, the highly irradiated central portions of the core are dissolved separately from those of the less irradiated peripheral portions to form separate first and second aqueous solutions which are separately extracted with organic solvents, the first solution with one selective to plutonium relative to uranium and fission products and the second one selective to plutonium and uranium relative to fission products. The residue of the first solution is combined with the second solution.

3,560,170

ROD-SHAPED MULTILAYER SEMIFINISHED MATERIAL AND A PROCESS AND AN APPARATUS FOR MANUFACTURING SUCH MATERIAL

Eugen Dürrwachter, Carl-Ludwig Meyer, Ulf Harmsen, and Wolfgang Pöttken, Pforzheim, Germany, assignors to Dr. Eugen Dürrwachter DODUCO, Pforzheim, Germany
Original application May 3, 1966, Ser. No. 547,282. Divided and this application July 17, 1968, Ser. No. 767,868

Claims priority, application Germany, Jan. 3, 1966, D 49,065, D 49,066, D 49,067

Int. Cl. B22f 7/02

U.S. Cl. 29—182.2 10 Claims

An item formed by extrusion from a plurality of sinter-bonded layers is used as an electrical contact piece subject to mechanical wear. The particular structure of the piece including an as-extruded fibrous structure and a plurality of sinter-bonded layers, one of which is formed from a solderable material, and the other of which comprises a metal and another component formed by the thermal decomposition of a material which evolves gas when subject to heat is also claimed.

3,560,171

THERMOSTAT METAL

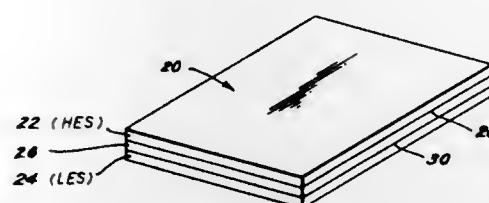
Jacob L. Ornstein, Norton, Ernest R. Howard, Attleboro, and Seth R. Thomas, Plainville, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed May 1, 1968, Ser. No. 725,724

Int. Cl. B32b 15/00

U.S. Cl. 29—195.5

6 Claims



A three-layer, composite thermostat material of high flexivity and electrical resistivity and low cost is shown to comprise a layer of metal of relatively high coefficient of thermal expansion embodying a chromium-nickel-iron alloy and a layer of metal of relatively low coefficient of thermal expansion embodying a nickel-iron alloy, these metal layers being metallurgically bonded to opposite sides of an intermediate metal layer of stainless steel. The resistivity, corrosion resistance, strength, work-hardening properties, and ability to withstand high temperatures of the intermediate metal layer cooperate with the corresponding characteristics of the high and low expansion materials bonded thereto to provide an economical, composite thermostat material having a resistivity, flexivity, corrosion resistance, useful deflection temperature range, strength, and ability to withstand high temperatures comparable to composite thermostat materials previously achieved only at substantially greater cost.

3,560,172

IRON-SILICON MAGNETOSTRICTIVE LAMINATED MATERIAL AND ELEMENTS

John R. Kench, Minneapolis, and Allan Pierskalla, St. Louis Park, Minn., assignors to Honeywell Inc., a corporation of Delaware

Filed May 31, 1968, Ser. No. 733,650

Int. Cl. B32b 15/00

U.S. Cl. 29—196.3

6 Claims



A laminated magnetostrictive material consisting of silicon-iron laminations joined by a layer of a copper-silver alloy and method of making the material.

3,560,173

ADDITIVE FOR GAS TURBINE, JET PROPULSION AND DIESEL ENGINE FUELS

Richard C. Coffey, Baden, Pa., and Richard L. Smith, Atlanta, Ga., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

No Drawing. Filed Dec. 9, 1966, Ser. No. 600,392

Int. Cl. C101 1/02

U.S. Cl. 44—56

4 Claims

The addition of from 1 to 10 percent of N-propyl alcohol to aviation fuels prevents the separation from the fuel of both the dissolved and the suspended water. Gas turbine, jet propulsion, and like fuels normally contain 15

to 30 parts per million of suspended water and approximately 75 parts per million dissolved water. In-flight cooling and vibration causes the coalescence of this water and it accumulates in the bottom of the tank where it promotes the growth of microorganisms and the corrosion of aircraft structure. The addition of the N-propyl alcohol to the fuel prevents the separation of this water from the fuel and the consequent damage to the aircraft structure.

3,560,174

MOTOR FUEL COMPOSITION

Stanley R. Newman, Fishkill, Kenneth L. Dille, Wappingers Falls, and Rodney L. Sung, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed Nov. 22, 1967, Ser. No. 684,971

Int. Cl. C011 1/26

U.S. Cl. 44—69

4 Claims

Motor fuel composition containing 2-chloroethyl diphenyl phosphate surface ignition suppressor.

3,560,175

DRILL SPLITTING APPARATUS

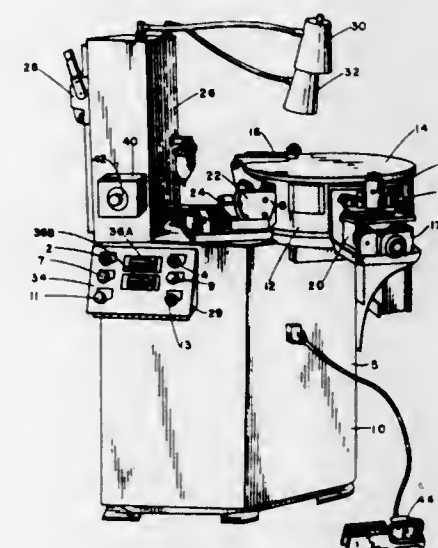
John E. Buchanan, Arlington, Tex., assignor to Precision Drill Pointing Incorporated, Arlington, Tex., a corporation of Texas

Filed Aug. 5, 1968, Ser. No. 750,210

Int. Cl. B24b 19/00

U.S. Cl. 51—96

15 Claims



There is disclosed a drill splitting apparatus having a plurality of work stations. The apparatus includes means for positioning the drill adjacent to the grinding wheel to grind a split or notch on the drill at the desired angle. There is also disclosed means for automatically dressing the grinding wheel when predetermined numbers of drills have been split and for automatically advancing the work stations to compensate for material dressed from the grinding wheel.

3,560,176

EPOXY RESIN BONDED GRINDING WHEEL

John R. Thompson, Westboro, Mass., assignor to Avco Corporation, Cincinnati, Ohio

No Drawing. Filed Dec. 19, 1968, Ser. No. 785,400

Int. Cl. C08g 51/12

U.S. Cl. 51—298

13 Claims

The invention is directed to an organic resin bond for abrasive. An epoxy resin system containing grinding aid

substituents in the molecular structure is described and claimed with halogenated bisphenol-based resins preferred.

3,560,177

MANUFACTURE OF GLASS FIBERS

Stéphane de Lajarte, Paris, and Jean Asolo, Les Clayes-sous-Bois, Yvelines, France, assignors to Compagnie de Saint-Gobain, Victor-Hugo, Neuilly-sur-Seine, Seine, France, a corporation of France

Continuation-in-part of application Ser. No. 563,635, July 1, 1966, which is a continuation-in-part of application Ser. No. 208,280, July 9, 1962. This application Apr. 3, 1968, Ser. No. 724,675

Claims priority, application France, Dec. 27, 1961, 883,117

Int. Cl. C03c 25/06

U.S. Cl. 65—3

8 Claims

The continuous production of a mat of glass fibers having high temperature-resistant characteristics is made possible by the formation of the mat from freshly made fibers, exceeding one micron in diameter, of a glass composition having a predetermined content of silica and alkali oxide, ranging from 66% to 73% of the former, and 34% to 27% of the latter, with less than 5% of stabilizing metallic oxides of the divalent and trivalent groups, so that when the freshly formed mat is passed through an aqueous mineral acid leaching bath immediately following its formation, the mat of fibers is transformed to one essentially of silica in the course of a period no longer than three minutes.

3,560,178

FIBER PRODUCING APPARATUS WITH BREAK OUT CONTROL MEANS

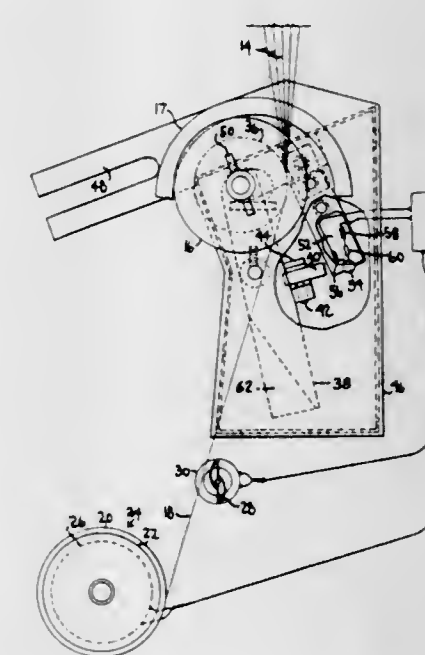
Jackson D. Minkler, Lexington, N.C., assignor to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania

Filed July 9, 1968, Ser. No. 743,559

Int. Cl. C03b 37/02

U.S. Cl. 65—11

4 Claims



A resilient element in a mercury switch is attracted by a magnet attached to a weighted arm of a pivoted gathering shoe which groups filaments into a strand to complete the electrical circuit for the winder motors and traverse. Upon break-out of the strand, the shoe pivots, the mercury switch is opened and the winder and traverse motors are electrically disconnected and stop operating.

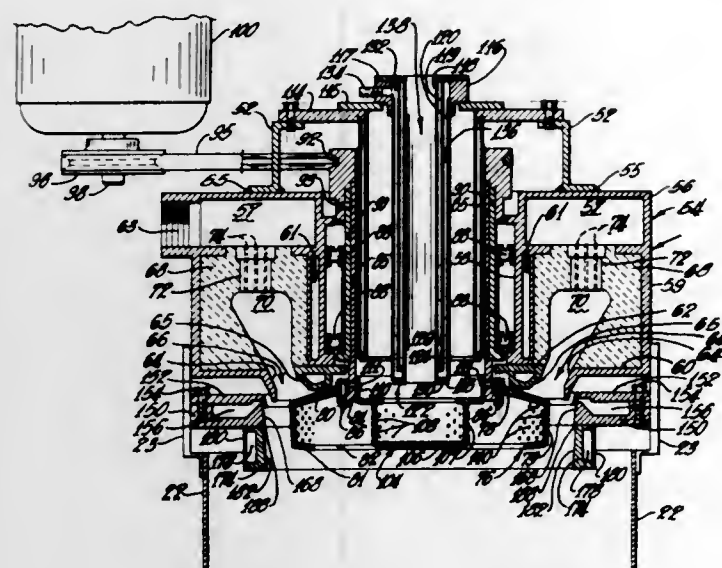
3,560,179

ROTARY APPARATUS WITH FLUID BLAST MEANS FOR MAKING GLASS FIBERS FROM HEAT-SOFTENABLE MINERAL MATERIALS
Dale Kleist, St. Louisville, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Filed July 9, 1968, Ser. No. 743,545
Int. Cl. C03b 37/04, 37/06

U.S. Cl. 65—14

4 Claims



The disclosure embraces a method of and apparatus for processing heat-softenable mineral materials, such as glass, and involves delivering primary filaments by centrifugal forces from a spinner into a gaseous blast which attenuates the primary filaments into fibers. The apparatus includes a blower control surface fashioned with a recess or zone configured to establish turbulence at a region to promote fracture of longer fibers into shorter length fibers, the latter being particularly useful in forming high density fibrous products.

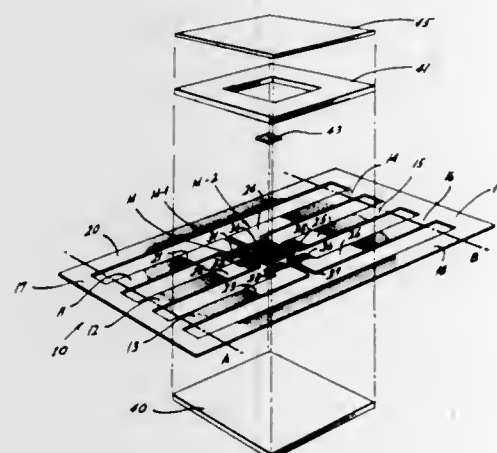
3,560,180

GLASS METAL SEALING TECHNIQUE
Kathleen G. Merat, Lansdale, Pa., assignor to Philco-Ford Corporation, Philadelphia, Pa., a corporation of Delaware

Filed May 15, 1968, Ser. No. 729,260
Int. Cl. C03c 27/02

U.S. Cl. 65—23

2 Claims



A method of glass sealing metallic portions of a lead frame to produce a microcircuit flat pack wherein magnesia is applied to surface areas of the lead frame, the

surface areas laying inside and outside of the metallic portions. A glass seal ring is superimposed over the metallic portions and is then sealed to those portions. The magnesia prevents the glass from wetting the surface areas to which the magnesia was applied. Thereafter, the magnesia is removed.

3,560,181

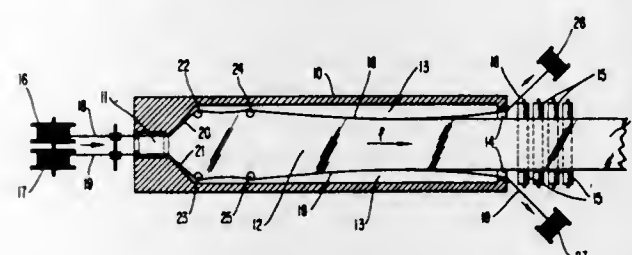
METHOD AND APPARATUS FOR CONTROLLING THE WIDTH AND THICKNESS OF FLOAT GLASS
Stéphane Dufau de Lajarte and Maurice Bourgeaux, Paris, France, assignors to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France

Filed Nov. 28, 1967, Ser. No. 686,227
Claims priority, application France, Dec. 8, 1966, 86,656

The portion of the term of the patent subsequent to Sept. 23, 1986, has been disclaimed
Int. Cl. C03b 18/00

U.S. Cl. 65—91

6 Claims



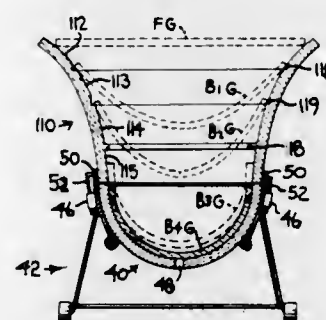
A method and apparatus for preventing the thickening and shrinking of glass sheet which employs flexible wire spreaders which travel within the edges of the glass and heated mechanical guides which sustain the efforts of the wires by being positioned inside the wires and through the glass sheet as the sheet progresses downstream.

3,560,182

BENDING GLASS SHEETS
James S. Golightly, Pittsburgh, Pa., assignor to PPG Industries, Inc., a corporation of Pennsylvania
Filed Jan. 24, 1968, Ser. No. 700,242
Int. Cl. C03b 23/00

U.S. Cl. 65—107

9 Claims



Method and apparatus for bending glass sheets by gravity sagging using a slide containing one or more discontinuities, such as grooves and/or ridges, extending circumferentially of the slide in spaced horizontal planes to interrupt free sliding of the sheet down the slide intermittently to interrupt any tilting of the glass sheet relative to the shaping surface of the bending apparatus.

3,560,183

BENDING GLASS SHEETS
George W. Stille, Freeport, and John A. Comperatore, Natrona Heights, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania
Filed Sept. 13, 1968, Ser. No. 759,602
Int. Cl. C03b 23/02

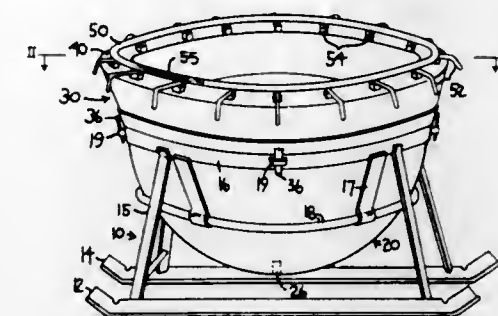
U.S. Cl. 65—107

3 Claims

Bending thick glass into hemispherical shapes comprising using a mold of concave elevation of material having

less thermal expansivity than glass, said mold comprising a ring of rigid material having greater thermal expansivity than glass and sufficiently smaller in diameter than the mold at glass loading temperature to support the glass

draft tube of a bead furnace. The particles are directed through a single feed conduit having a laterally extending portion which is positioned above a receptacle containing an annular array of bins. These bins are respectively



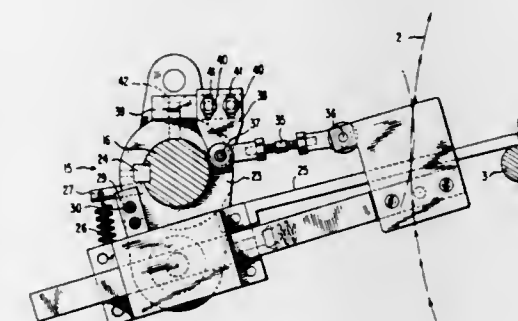
over said mold at the temperature at which the mold is loaded and capable of expanding sufficiently more rapidly than the mold to deposit the glass onto the mold after the glass has attained a sufficiently high temperature to deform in response to external stresses.

3,560,184

APPARATUS FOR GAUGING THE POSITION OF A GLASS TUBE
William E. Hughes and Charles A. Porter, Vineland, N.J., assignors to Owens-Illinois, Inc., a corporation of Ohio
Continuation of application Ser. No. 508,454, Nov. 18, 1965. This application May 14, 1969, Ser. No. 826,082
Int. Cl. C03b 23/12

U.S. Cl. 65—158

8 Claims



This application discloses an apparatus for gauging the length of a glass article which is useful in an ampule forming machine. The gauging plate is mounted in a manner which permits it to travel through substantially the same arcuate path as the tubing during the brief interval of receiving such tubing even though the gauging plate is pivotally mounted about an axis located radially outwardly from the tubing path of travel. The movement of the gauging plate through substantially the same path as the tubing for this brief interval reduces relative movement between the tubing and the gauging plate which occurs in conventional ampule machines, and which causes deformation to the tubing.

3,560,185

APPARATUS FOR FEEDING VITREOUS MATERIAL

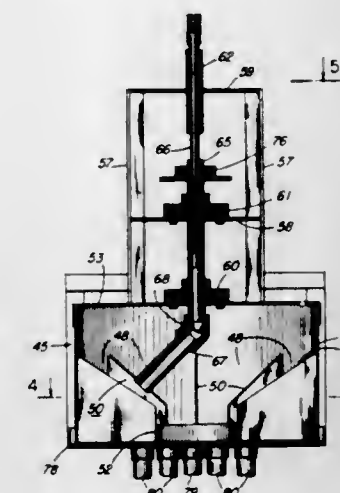
Arthur G. Nylander, Passaic, N.J., assignor to Potter Bros. Inc., Carlstadt, N.J., a corporation of New York
Filed Mar. 11, 1968, Ser. No. 712,293
Int. Cl. C03b 19/10

U.S. Cl. 65—142

13 Claims

An apparatus for evenly distributing crushed glass particles among a plurality of flow paths leading to the

connected to the infeed ends of the flow paths. The feed conduit is continuously rotated at a uniform rate to successively position the laterally extending portion over each of the bins and thereby evenly distribute the particles among the flow paths.

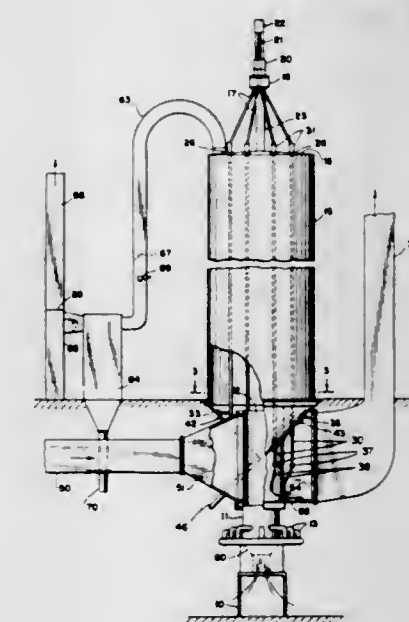


3,560,186

APPARATUS FOR PRODUCING GLASS BEADS WITH PREHEATING MEANS
Arthur G. Nylander, Passaic, N.J., assignor to Potters Bros., Inc., Carlstadt, N.J., a corporation of New York
Filed Mar. 11, 1968, Ser. No. 712,186
Int. Cl. C03b 19/10

U.S. Cl. 65—142

12 Claims



An apparatus for producing glass beads from crushed glass particles in which the infeed conduits for the particles extend for an appreciable length within the vertical expansion chamber of the bead furnace, thus preheating the particles prior to the time they are introduced into the draft tube of the furnace.

3,560,187

TANK FURNACE FOR CONTINUOUS PRODUCTION OF CRYSTAL GLASS

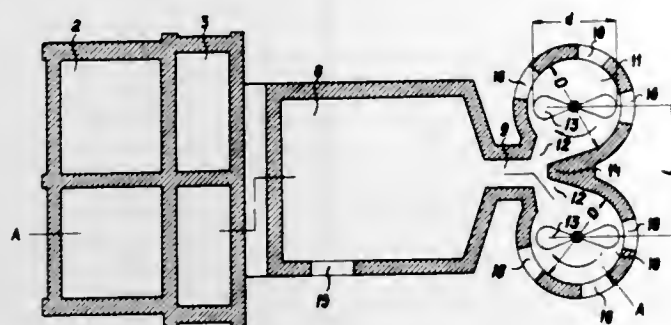
Mieczyslaw Hryszkiewicz and Michal Tokarski, both of Ul. Hutnicza 3, Stronie Slaskie, Poland; Jan Wojcicki, Ul. Orwicza 6, Krakow, Poland; and Zbigniew Uljasz, Ul. 22go Lipci 41, Sosnowiec, Poland

Continuation of application Ser. No. 487,354, Sept. 3, 1965. This application Jan. 13, 1969, Ser. No. 793,229
Claims priority, application Poland, Sept. 7, 1964,
P 105,661

Int. Cl. C03b 5/18

U.S. Cl. 65—180

7 Claims



Apparatus for the continuous treatment of molten glass having a melting tank which opens via a narrow passageway at the bottom of the tank into a pair of cylindrical mixing chambers containing stirrers, the chambers being connected in parallel at the narrow passageway.

ERRATUM

For Class 65—260 see:
Patent No. 3,559,425

3,560,188

GLASS FEEDING APPARATUS HAVING A PLURAL CHARGE ORIFICE PLATE SUPPORT FRAME

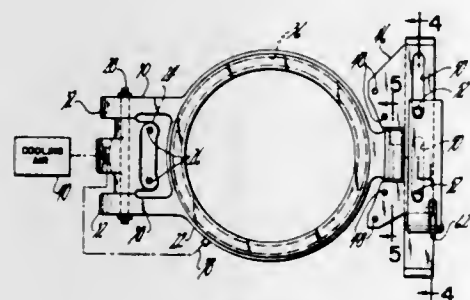
Frederick W. Winzer, East Granby, Conn., assignor to Emhart Corporation, Bloomfield, Conn., a corporation of Connecticut

Filed July 3, 1968, Ser. No. 742,346

Int. Cl. C03b 5/26

U.S. Cl. 65—328

4 Claims



A plural charge orifice plate support frame is pivotally mounted to the outlet spout casing of a molten glass feeder bowl, and a sliding latch, also mounted to the casing, clamps a free end of the frame in its raised position so that an internally cooled plural charge orifice plate is positioned adjacent the outlet spout. The frame includes an annular portion which is hollow and carries cooling air to the orifice plate. The sliding latch includes a slide movable across the path of pivotal movement of the free end of the frame, the free end and the slide having cooperating ramp surfaces for camming the free end into a latch opening.

3,560,189

GLASS MAKING FURNACE

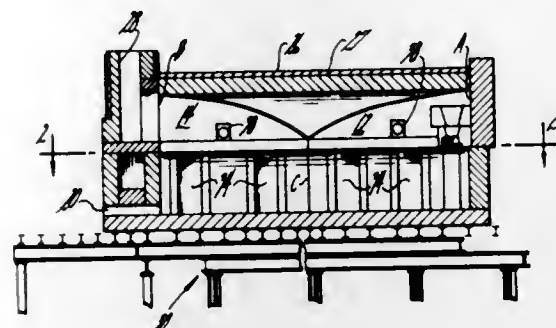
John F. Blumenfeld, Simsbury, and George F. Hanks, Avon, Conn., assignors to Emhart Corporation, Bloomfield, Conn., a corporation of Connecticut

Filed Feb. 27, 1968, Ser. No. 708,687

Int. Cl. C03b 3/00

U.S. Cl. 65—335

3 Claims



A square shaped furnace has dual glass batch chargers at one corner, and a throat through which the molten glass can be withdrawn at a diagonally opposite corner. The furnace has roof with a maximum height along a line connecting the diagonally opposed corners, and the height decreases toward the other two laterally opposed corners of the square furnace. The molten glass is heated from above by burners, and laterally opposed electrodes mounted in bays in the furnace side walls extend into the molten glass for Joule-effect heating.

3,560,190

MUSHROOM NUTRIENT SUPPLEMENT

Donald H. Hughes and Hugo H. Schumacher, Jr., Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Dec. 30, 1968, Ser. No. 788,080

Int. Cl. C05f 11/00

U.S. Cl. 71—5

7 Claims

A pre-mixed, dry, friable, granular, nutrient supplement for mushroom cultivation is disclosed, comprising cottonseed oil, cottonseed meal, and a hardwood sawdust or fuller's earth absorbent for the cottonseed oil.

3,560,191

NORMALLY LIQUID MIXTURES OF ELEMENTAL PHOSPHORUS AND SULFUR AS PLANT NUTRIENTS

Gustave K. Kohn, Berkeley, and Robert E. Warnock, Concord, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Nov. 22, 1968, Ser. No. 778,311

Int. Cl. C05b 17/00

U.S. Cl. 71—32

5 Claims

Soil is fertilized with sulfur and phosphorus by applying normally liquid mixtures of elemental white phosphorus and elemental sulfur at a depth of about 1 to 10 inches and at a rate of about 5 to 120 pounds per acre.

3,560,192

MICRONUTRIENT ENRICHED GRANULAR FERTILIZERS

George Di Cicco, Lawrenceville County, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed May 3, 1968, Ser. No. 726,580

Int. Cl. C05b 7/00

U.S. Cl. 71—51

8 Claims

Free-flowing and uniform micronutrient enriched fertilizer compositions are provided. The compositions include a granular fertilizer, up to about 20% by weight of a finely divided micronutrient, and an aqueous zinc chloride

binder solution. The zinc chloride binder is present in an amount sufficient to bind the micronutrient to the surface of the fertilizer granules without destroying the fertilizer's free-flowing properties. The compositions are prepared by first moistening the surfaces of the fertilizer granules with the binder and then mixing the micronutrient with the moistened granules until adhesion is substantially complete.

3,560,193

ARSONATE HERBICIDE COMPOSITIONS

John H. Kirch, Roslyn, Pa., assignor to Amchem Products, Inc., Ambler, Pa.

No Drawing. Continuation-in-part of applications Ser. No. 597,204, Nov. 28, 1966, and Ser. No. 718,251, Apr. 2, 1968. This application Aug. 25, 1969, Ser. No. 852,897

The portion of the term of the patent subsequent to Sept. 9, 1986, has been disclaimed

Int. Cl. A01n 9/20

U.S. Cl. 71—97

5 Claims

A herbicidal composition and method of use for eradicating perennial woody and brush species involving a composition including an arsonate compound and a phenoxalkanoic compound.

3,560,194

FERTILIZER

Ira B. Phillips, Tucson, and Ben E. Adams and William H. Lawhon, Carlsbad, N. Mex., assignors to Duval Corporation, Houston, Tex.

No Drawing. Filed Aug. 24, 1966, Ser. No. 574,806

Int. Cl. C05d 1/02

U.S. Cl. 71—64

4 Claims

This patent discloses the treatment of fertilizer salts with mineral oil to reduce dusting.

3,560,195

N-ALKOXY-2-BENZIMIDAZOLE CARBOXIMIDOYL CHLORIDES

George Holan, Brighton, Victoria, and Eva Lea Samuel, Bentleigh, Victoria, Australia, assignors to Monsanto Chemical (Australia) Limited, West Footscray, Victoria, Australia

No Drawing. Filed Sept. 18, 1967, Ser. No. 668,679

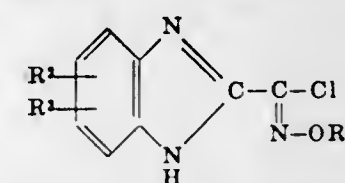
Claims priority, application Australia, Sept. 19, 1966, 11,199/66

Int. Cl. A01n 9/22

U.S. Cl. 71—92

5 Claims

N-alkoxy-2-benzimidazole carboximidoyl chlorides of the formula:



wherein R¹ is alkyl of not more than six carbon atoms; R² and R³ are independently selected from the group consisting of hydrogen, chlorine, bromine, nitro, alkyl of not more than four carbon atoms and alkoxy of not more than four carbon atoms, exhibit herbicidal activity.

3,560,196

BIOLOGICALLY ACTIVE PARTICULATE MATERIAL AND THE PROCESS FOR MANUFACTURING SAME

John C. Horal, Hagerstown, and Stephen F. Tucker, Clear Spring, Md., assignors to The Ruberoid Co., New York, N.Y., a corporation of New Jersey

No Drawing. Filed Apr. 26, 1967, Ser. No. 633,718

Int. Cl. A01n 9/24

U.S. Cl. 71—115

4 Claims

Biologically active particulate material capable of releasing a biochemical at a controlled rate due to the

3,560,197

METHOD OF BLAST FURNACE CONTROL

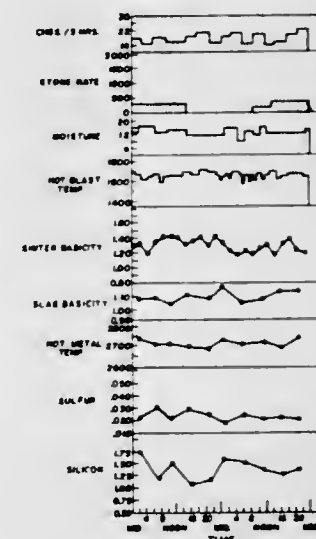
Donald J. Shellenberger, Bethel Park, and Thomas A. Powell, Jr., Upper St. Clair, Pa., assignors to Jones & Laughlin Steel Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Mar. 20, 1968, Ser. No. 714,738

Int. Cl. C21b 5/00

U.S. Cl. 75—41

4 Claims



The operation of a blast furnace is controlled by changing the moisture level of the hot blast in response to variations in the peak hot metal temperature from cast to cast with relation to an aim peak hot metal temperature. Burden ratio changes are made as the hot blast moisture level reaches predetermined maximum and minimum values along with equivalent moisture changes in order to maintain the moisture level within a predetermined range without affecting the hot metal temperature.

3,560,198

SEPARATION OF MAGNESIUM AND CARBON MONOXIDE VAPORS

William A. Mod, John J. Newport III, and Oliver Osborn, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Aug. 14, 1967, Ser. No. 660,215

Int. Cl. C22b 45/00, 9/08

U.S. Cl. 75—67

6 Claims

A process for separating magnesium vapors from carbon monoxide vapors which comprises: contacting a magnesium-carbon monoxide vapor mixture maintained at a temperature of from about 1500° to about 1850° C. with a purification bed consisting of metal carbides which are characterized in that they react with carbon monoxide to form metal oxides and carbon at the indicated temperature range and furthermore, the metal carbides and metal oxides are not reduced by the magnesium vapors and do not fuse, melt or volatilize at the indicated temperature range. The metal carbides are further characterized in that they can be regenerated by heating the resultant metal oxides and carbon to a temperature greater than the separation temperature.

3,560,199

PROCESS FOR CHLORINATION OF MATERIAL CONTAINING HARD METAL

Kurt Alfred Jönsson, Nynashamn, Sweden, assignor to Rederiaktiebolaget Nordstjernan, Nynashamn, Sweden
No Drawing. Filed Feb. 29, 1968, Ser. No. 709,230
Claims priority, application Sweden, Mar. 14, 1967, 3,500/67

Int. Cl. C22b 7/00

U.S. Cl. 75—112

6 Claims

The invention relates to the chlorination of hard metal scrap i.e., cemented carbide. In order to gasify the carbon from the carbides of the hard metal carbon dioxide is added in the chlorination process.

3,560,200

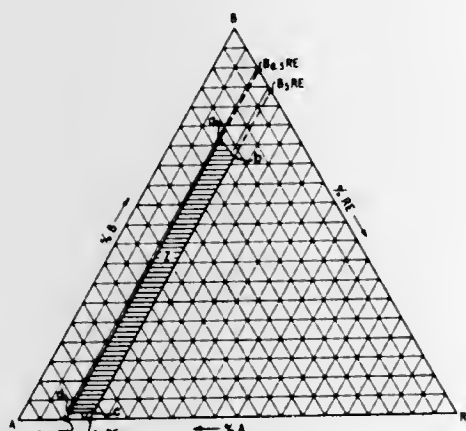
PERMANENT MAGNETIC MATERIALS

Ethan A. Nesbitt, Berkeley Heights, Jack H. Wernick, Madison, and Ronald H. Willens, Martinsville, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Apr. 1, 1968, Ser. No. 717,671

Int. Cl. C22c 19/00, 39/00

U.S. Cl. 75—122

17 Claims



The specification describes magnetic compositions of the ternary system Co-Cu-Rare earth and related compositions wherein the cobalt may be partially or completely substituted with iron, aluminum or nickel. Certain of the included compositions have coercivities of many thousands of oersteds.

3,560,201

METHOD OF PRECIPITATING METAL VALUES

Clarence Arthur Laffer, Kearny, Ariz., and Gerald D. Mittelstadt, Republic, Mich., assignors to Kennecott Copper Corporation, New York, N.Y., a corporation of New York

Original application July 11, 1966, Ser. No. 564,112, now Patent No. 3,479,020, dated Nov. 18, 1969. Divided and this application Feb. 13, 1969, Ser. No. 810,439

Int. Cl. C22b 15/12

U.S. Cl. 75—109

6 Claims

A column of solid precipitant is maintained within a reaction zone and a solution pregnant with values to be recovered is injected into the column at the lower end of the reaction zone. Periodically and while pregnant solution continues to be injected, a quantity of solution is discharged from the lower end of the reaction zone to flush out accumulated precipitate and to flush precipitate from precipitant in the lower part of the column. Precipitate is preferably also collected immediately below the column of precipitant, and the periodic discharges of solution are sudden and massive for flushing purposes.

3,560,202

STRAIN METER FUNCTIONING ALLOY

Haruo Kawamoto, 4-1904 Kamitakado, Suginami-ku, Tokyo, Japan
Filed Apr. 19, 1968, Ser. No. 722,677
Claims priority, application Japan, Apr. 26, 1967, 42/26,275

Int. Cl. C22c 27/00

U.S. Cl. 75—176

1 Claim

A strain meter functioning alloy of chromium base having specific characteristics towards temperature and sensitivity. These characteristics are provided by the addition of appropriate quantities of Al and Fe to the alloy. The addition of these elements renders the strain meter functioning alloy to have such characteristics that it has larger gauge factor and that temperature coefficient of gauge factor and temperature coefficient of electric resistance can be controlled negative or positive in the neighbourhood of zero point. By virtue of these characteristics, the strain meter equipped with the alloy of this invention will be provided with such features that it has the least displacement of zero point and little sensitivity change by temperature variation.

3,560,203

ELECTROPHOTOGRAPHIC DEVELOPING PROCESS

Satoru Honjo and Masamichi Sato, Kita-Adachigun, Saitama, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Nov. 2, 1967, Ser. No. 680,227

Claims priority, application Japan, Nov. 2, 1966, 41/72,265

Int. Cl. G03g 13/00

U.S. Cl. 96—1

7 Claims

In an electrophotographic liquid developing process wherein a reversal development is carried out while applying an external voltage, the improvement comprising varying said external voltage so as to be synchronized with the attenuation characteristics of a light sensitive layer in contact with the liquid developing solution, and thereby applying a voltage sufficient to just negative an electric field by electric charges of a maximum charge density or a voltage slightly less than that.

3,560,204

PRINTING BY ELECTRICAL ATTRACTION OF INKS

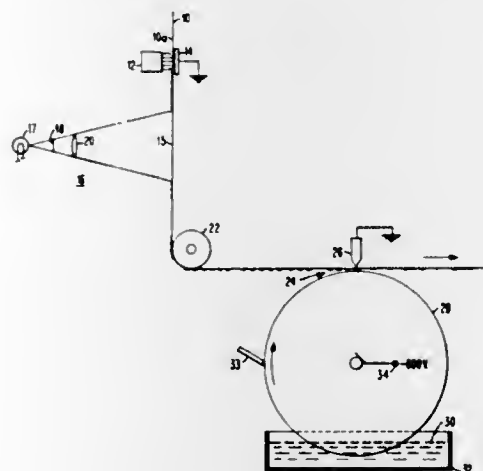
Eugene P. Damm, Jr., Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk N.Y., a corporation of New York

Filed Nov. 7, 1966, Ser. No. 592,547

Int. Cl. G03g 13/10, 13/22

U.S. Cl. 96—1

11 Claims



Printing is effected by first placing an electric charge over the coated surface of a zinc oxide coated web of

paper. This charge is neutralized in selected image areas by a projected light image. The web is then passed between a ground electrode and a smooth ink bearing conductive drum charged to a potential on the order of that of the unneutralized portions. Liquid ink from the drum is bodily attracted from the drum to the neutralized image areas in an unsupported column.

3,560,205

METHOD OF FORMING A PHASE MODULATING HOLOGRAM ON A DEFORMABLE THERMOPLASTIC

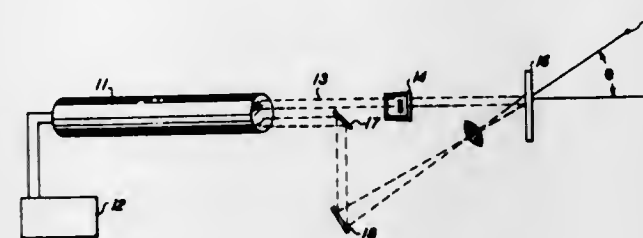
John C. Urbach, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Jan. 20, 1966, Ser. No. 521,982

Int. Cl. G03g 13/22

U.S. Cl. 96—1.1

10 Claims



Method and apparatus for producing holographic interference patterns wherein a modulated coherent object beam and an off axis reference beam cooperate to discharge a photoconductive thermoplastic recording member which is then recharged and allowed to deform in accordance with the residual charge pattern thereon. The off axis angle is a function of the quasi-resonant frequency of the thermoplastic.

3,560,206

PRODUCTION OF LATENT PERIODIC MEMORY PATTERNS IN FROSTABLE FILMS

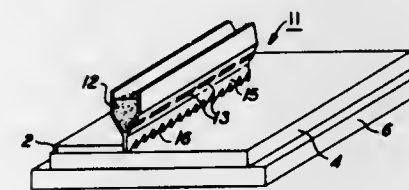
Alex E. Jvirblis, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Dec. 21, 1966, Ser. No. 603,545

Int. Cl. B41m 5/18

U.S. Cl. 96—1.1

7 Claims



Prescreening techniques are set forth which produce latent periodic memory patterns in the deformable surface of a frostable recording member. When the pre-treated material is later used in a conventional frost imaging mode it is found that the prescreened latent pattern develops on the frostable surface and undergoes amplification under the influence of the development environment, finally serving as the modulated carrier for the frost imagery impressed thereupon.

3,560,207

CYANINE DYES CONTAINING A PYRAZOLE NUCLEUS AS SPECTRAL SENSITIZERS FOR ORGANIC PHOTOCONDUCTORS

Earl J. Van Lare, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Jan. 31, 1968, Ser. No. 701,828

Int. Cl. G03g 5/00, 5/06

U.S. Cl. 96—1.6

34 Claims

Organic photoconductors are spectrally sensitized with cyanine dyes containing a pyrazole nucleus.

3,560,208

CYANINE DYE CONTAINING A PYRROLE NUCLEUS USED AS A SENSITIZER FOR ORGANIC PHOTOCONDUCTORS

Arthur Fumia, Jr., and Donald W. Heseltine, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Feb. 15, 1968, Ser. No. 705,619

Int. Cl. G03g 51/06

U.S. Cl. 96—1.6

30 Claims

Organic photoconductors are spectrally sensitized with a cyanine dye which features a pyrrole nucleus linked by the 2-carbon atom thereof to the methine chain of the dye.

3,560,209

ELECTROPHOTOGRAPHIC SENSITIZING DYES

Philip W. Jenkins, Donald W. Heseltine, and John D. Mee, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 9, 1968, Ser. No. 766,327

Int. Cl. G03g 5/06

U.S. Cl. 96—1.6

46 Claims

Compounds containing a heterocyclic nitrogen atom substituted by an —OR group are useful as sensitizers for photoconductors in electrophotographic elements.

3,560,210

METHOD OF RECORDING A PLURALITY OF HOLOGRAMS AND SEPARABLE EMULSION EXPOSURE PACKAGE THEREFOR

Allen W. Grobin, Jr., Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 13, 1967, Ser. No. 609,203

Int. Cl. G03c 5/04, 1/90

U.S. Cl. 96—27

2 Claims

An emulsion exposure package is made of a photosensitive emulsion on a glass plate and a reflecting surface on a base cemented to the emulsion by an ice water soluble coating of a vinyl acetal resin. The base with reflecting surface is removed by dissolving the coating in water at a temperature on the order of 5° C. A plurality of layers of emulsion may also be cemented together by a soluble coating, and may be mounted on or between glass plates. Several holograms may be recorded in the emulsions.

3,560,211

LIGHT SENSITIVE LEUCO DYE SYSTEMS CONTAINING NO MOLECULAR OXYGEN THEREIN

Richard A. Fotland, Lyndhurst, Ohio, assignor to Horizons Incorporated, a division of Horizons Research Incorporated

No Drawing. Filed Sept. 22, 1967, Ser. No. 669,678

Int. Cl. G03c 1/72, 5/24

U.S. Cl. 96—48

14 Claims

Compositions consisting essentially of a mixture of (1) at least one leuco dye base and (2) an organic or inorganic iodide, chloride or bromide, preferably dispersed

or dissolved in a synthetic polymer, e.g. as a film, exhibit sensitivity to high energy radiation, i.e., radiation having wavelengths shorter than 400 millimicrons.

Subjecting the composition (film) to an oxygen free atmosphere preferably under conditions such that molecular oxygen present in the composition is removed from the composition is found to markedly increase the sensitivity of the same, when the treatment is effected prior to or during exposure to the high energy radiation.

3,560,212

PROCESSING OF COLOUR PHOTOGRAPHIC MATERIALS IN THE PRESENCE OF A COMPETING COUPLER

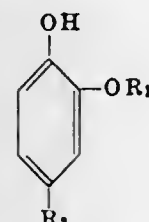
Eric MacDonald, Holcombe Brook, England, Billie Nam, Lexington, Mass., and David Price, Chelmsford, England, assignors to Ilford Limited, Ilford, England
No Drawing. Filed Oct. 23, 1967, Ser. No. 677,059
Claims priority, application Great Britain, Oct. 28, 1966, 48,492/66

Int. Cl. G03c 7/02

U.S. Cl. 96—55

7 Claims

This application describes a process of colour development of colour photographic material wherein at least one silver halide emulsion layer containing a developable silver salt is colour developed to yield a dye image, the developed silver and the residual silver halide being removed, there is provided the step of developing the photographic material with a colour developing solution which contains alkali metal sulphite in the presence of an image-forming colour coupler and a compound of the following general formula:



where R₁ is an alkyl group containing up to 6 carbon atoms and R₂ is hydrogen or an easily displaceable substituent group.

3,560,213

DIRECT-POSITIVE SILVER HALIDE EMULSIONS CONTAINING SILVER HALIDE REDUCING AGENTS IN A LOW pH ENVIRONMENT

Heman Dowd Hunt, Eatontown, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Sept. 12, 1967, Ser. No. 667,077

Int. Cl. G03c 5/24

U.S. Cl. 96—64

10 Claims

Direct-positive colloid-silver halide photographic emulsion layers containing a silver halide reducing agent in a low pH environment at all times prior to imagewise exposure.

3,560,214

DYE-CONTAINING PHOTOGRAPHIC ELEMENTS
Walter Robert Ruda, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed Mar. 7, 1968, Ser. No. 711,359

Int. Cl. G03c 1/84

U.S. Cl. 96—84

10 Claims

Photographic elements are shown which contain light absorbing dyes characterized by carboxylic acid-substituted pyrazoline nuclei. Such dyes find utility as anti-halation and filter dyes, the bleachability and non-migratory characteristics of which may advantageously be altered by control of the pH of the dye environment.

3,560,215

LIGHT-SENSITIVE DIAZOTYPE MATERIAL

Carel Jacobus Knoester and Hubertus Johannes Wilhelmus Pecsasse, Venlo, Netherlands, assignors to Van Der Grinten N.V., Venlo, Netherlands
No Drawing. Filed July 12, 1967, Ser. No. 652,694

Claims priority, application Netherlands, July 15, 1966, 6610037

Int. Cl. G03c 1/54, 5/34; G07c 113/00

U.S. Cl. 96—91

8 Claims

Diazotype material having improved light-sensitivity and developing speed with good keeping and exposure properties is provided by utilizing in the light-sensitive layer a para-(tertiary) amino-2-(fluoro, chloro or bromo)-3-(fluoro, chloro or bromo)-benzenediazonium compound in which one of the tertiary amino substituents is alkyl or aralkyl and the other is alkyl, aralkyl or cyclohexyl, or in which said substituents form a heterocyclic ring with the p-amino nitrogen atom. The compound gives especially good light-sensitivity and keeping qualities when the para-amino group is acyclic.

3,560,216

LIGHT SENSITIVE FREE RADICAL IMAGING MATERIAL CONTAINING PYRAZOLINE SENSITIZERS

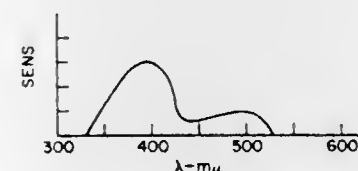
Haruo Hori and Masahiko Taguchi, Hino, Shochiro Hoshino, Tokyo, and Akira Kato and Keiichi Yumiki, Hachioji, Japan, assignors to Keuffel & Esser Company, Hoboken, N.J., a corporation of New Jersey
Filed Dec. 15, 1967, Ser. No. 690,898

Claims priority, application Japan, Dec. 16, 1966, 41/82,266

Int. Cl. G03c 1/72

U.S. Cl. 96—90

1 Claim



Light-sensitive imaging materials comprising color modifiers which visibly change in color or shade in the presence of free radicals in combination with photo-activators which yield free radicals upon exposure to actinic light are substantially increased in light-sensitivity by the addition of an aryl-substituted pyrazoline compound. Such sensitizers are particularly effective in increasing the rate of image-forming reaction with respect to normal spectral ranges rather than in broadening the band of spectral response of such materials.

3,560,217

IRON OR COPPER COMPOUND CATALYTIC DECOMPOSITION OF THIOGLUCOSIDES IN RAPESEED

Clarence George Youngs, Henry R. Sallans, and John Milton Bell, Saskatoon, Saskatchewan, Canada, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada
No Drawing. Filed Feb. 7, 1968, Ser. No. 703,562

Claims priority, application Canada, Feb. 21, 1967, 983,424

Int. Cl. A23k 1/00; A23j 1/14

U.S. Cl. 99—2

18 Claims

A process for the treatment of oil seeds of certain of the cruciferae family, such as rape and mustard to produce a proteinaceous product suitable for use in animal feedstuffs whereby in addition to the usual steps of crushing the seed, dry cooking the crushed seed to increase the

permeability of the cell walls thereof to oil, recovering oil from the crushed meal and drying the de-oiled meal, there is included the step of decomposing the thioglucosides by catalytic treatment with a compound of iron or copper at a temperature between from about 200° to 275° F. and at a moisture content of at least about 15%.

3,560,218

READILY DISPERSIBLE COCOA COMPOSITIONS CONTAINING DIOCTYL SODIUM SULFOSUCCINATE

Kenneth Whelan, Suffern, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 576,204, Aug. 31, 1966. This application Aug. 28, 1969, Ser. No. 853,982

Int. Cl. A23g 1/00

U.S. Cl. 99—26

13 Claims

Readily dispersible cocoa compositions are provided containing from 0.05 to 0.75% by weight dioctyl sodium sulfosuccinate. The cocoa compositions can be prepared by mixing cocoa powder with a solvent solution containing the desired amount of dioctyl sodium sulfosuccinate, and then drying the mixture to evaporate the solvent. The cocoa compositions are useful in the preparation of reconstitutable chocolate drink products.

3,560,219

REMOVING LIPID MATERIAL FROM WHEY
Jerry M. Attebery, Minneapolis, Minn., assignor to Emery Carlton Swanson, Minneapolis, Minn.

No Drawing. Filed July 1, 1968, Ser. No. 741,270

Int. Cl. A23c 21/00

U.S. Cl. 99—57

13 Claims

A process for removing dissolved lipid material from an aqueous solution, particularly from solutions containing protein and/or lactose, by adding a divalent metal ion and adjusting the pH to a value above 6 at a temperature below 140° F., producing a lipid-containing precipitate, and separating this precipitate from the supernate liquid.

3,560,220

DRIED EMULSIONS
James Gerow Bangert, 15 Pigeon Hill Road, Nanuet, N.Y. 10954, and Joseph John Halik, 1180 Midland Ave., Yonkers, N.Y. 10908

No Drawing. Filed Oct. 30, 1967, Ser. No. 679,178

Int. Cl. A23c 11/00

U.S. Cl. 99—63

11 Claims

An edible composition comprising fat, emulsifier, water-soluble caseinate, whey, and a buffer is provided. The composition may be prepared by drying an aqueous emulsion containing the ingredients, and there may also be included gums, thickeners, flavors, etc. The dried products are especially adapted for reconstitution with aqueous liquids such as water and/or milk and/or cream to furnish a baking ingredient, garnish, topping and dressing, especially of the sour cream type.

3,560,221

SODIUM STEARYL FUMARATE IN CHEMICALLY LEAVENED BAKERY PRODUCTS

Carl P. Hetzel, Bellerose, and Phillip F. Schamberger, Jr., East Northport, N.Y., assignors to Pfizer Inc.

No Drawing. Continuation-in-part of application Ser. No. 619,177, Feb. 28, 1967. This application Sept. 17, 1969, Ser. No. 858,848

Int. Cl. A21d 2/16, 13/08

U.S. Cl. 99—92

4 Claims

Sodium stearyl fumarate in chemically leavened cake formulations prevents the adverse effects ordinarily encountered at increased sugar levels and reduced shortening levels.

3,560,222

METHOD OF RAPIDLY DEVELOPING AND STABILIZING THE CURED COLOR IN COMMINUTED MEAT AND COMPOSITION THEREFOR

William E. Delaney, Chicago, Ill., assignor to Kadison Laboratories, Inc., Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 500,231, Oct. 21, 1965. This application Sept. 4, 1969, Ser. No. 855,365

Int. Cl. A22c 11/00; A23b 1/03

U.S. Cl. 99—108

9 Claims

A composition, and method of using same, for effecting the rapid development and stabilization of the cured color in comminuted meat products which comprises a solid, substantially water-insoluble, heat-rupturable body of a size not appreciably greater than the particulate material of a comminuted meat mass or emulsion, said body consisting essentially of a substantially inert vehicle exemplified by ethyl cellulose and certain food grade acids exemplified by citric acid. The acid is insulated from the meat mass by the inert vehicle and is released into said mass upon rupture thereof by heat whereby a change in pH of the meat mass is brought about, and the rapid development and stabilization of the cured meat color is achieved. In one form of the composition, the acid insulating vehicle comprises an inert, water-soluble substance for initially entrapping the acid particles, and an inert, substantially water-insoluble, heat rupturable substance for insulating the entrapped particles from the meat mass.

3,560,223

LIVER SAUSAGE WITH CASING AND METHOD OF PREPARING SAME

Albin F. Turbak, Danville, Ill., assignor to Tee-Pak, Inc., a corporation of Illinois

Continuation-in-part of application Ser. No. 518,116, Jan. 3, 1966. This application June 16, 1969, Ser. No. 833,423

Int. Cl. A22c 11/00, 13/00

U.S. Cl. 99—109

10 Claims



Liver sausage and a method of preparing same in the form of a "chub" package comprising an in situ cooked mass of a liver sausage recipe stuffed and encased in an oxygen- and water-impermeable, end-closed casing constituted by a substantially completely stretch-resistant tube formed by jointing and heat seal-seaming a laminate of a metal foil double-face coated with film-forming thermoplastic material.

3,560,224

METHOD OF MAKING CHEESE

Carl Olof Claesson and Ella Marjory Helena Claesson, Uppsala, Sweden, assignors to Alfa-Laval AB, Tumba, Sweden, a corporation of Sweden

Continuation-in-part of application Ser. No. 611,879, Jan. 26, 1967. This application Sept. 16, 1969, Ser. No. 858,492

Claims priority, application Sweden, Jan. 28, 1966, 1,169/66

Int. Cl. A23c 19/02

U.S. Cl. 99—116

3 Claims

In the processing of milk to produce cheese, it is initially treated by adding carbon dioxide thereto, preferably until the milk acquires a pH value of about 6.0 to 6.5, where-

by differences in the coagulation properties of different batches of milk are reduced, the coagulation time is reduced and a well developed curd is obtained.

3,560,225 EMULSIFIER COMPOSITION FOR CONFECTIONERY PRODUCTS

Bronislaw R. Wonsiewicz, Naperville, Fred R. Paulicka, Chicago, and William E. Wester, Orland Park, Ill., assignors to SCM Corporation, New York, N.Y.
No Drawing. Filed Dec. 16, 1966, Ser. No. 602,174
Int. Cl. A23g 3/00

U.S. Cl. 99—118 3 Claims
Emulsifier ester compositions comprising a phospholipid, a partial ester of polyatomic alcohol and a saturated aliphatic fatty acid and (optionally) a mixture of partial esters of glycerol and saturated aliphatic fatty acid have been prepared. Confectionery hard butter compositions comprising a hard butter having the emulsifier composition dispersed therein and high surface gloss confectionery formulations containing the hard butter compositions have also been prepared. Improved processes for enhancing and maintaining the surface gloss of confectionery formulations are described.

3,560,226 METHOD FOR PRODUCING FLAVORED OR COLORED CONFECTIONERY FOOD PRODUCTS

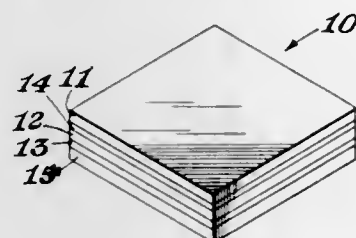
Maurie Laskin, Milwaukee, Wis., assignor to W. R. Grace & Co.
No Drawing. Filed June 6, 1967, Ser. No. 643,826
Int. Cl. A23g 3/00, 5/00; A21d 13/08

U.S. Cl. 99—130 7 Claims
Flavored and/or colored rehydratable, cellular, substantially dry freeze-dried confectionery food products are produced by adding a suitable amount of flavoring and/or coloring agent to the repressurizing gas stream which is used in bringing the freeze-drying chamber back to atmospheric pressure after the product has been dried to the desired moisture content at reduced subatmospheric pressures.

3,560,227 HIGH BARRIER COATED PAPERS COMPRISING A FILM OF RESINOUS POLYOLEFIN AND RESINOUS BARRIER LAYER WHICH IS ADHERED TO A PAPER SUBSTRATE THROUGH AN OLEFIN ADHESION PROMOTING LAYER

Jacob Eichhorn and Stanley F. Roth, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Jan. 17, 1968, Ser. No. 698,613
Int. Cl. B32b 27/08, 27/10

U.S. Cl. 99—171 16 Claims

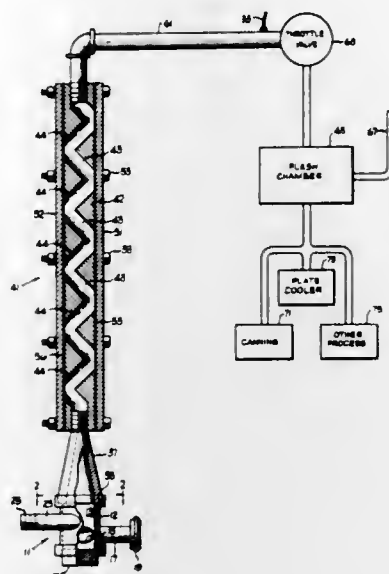


A new and useful high barrier film is described along with a method for its preparation. A layered polyolefin-halohydrocarbon melt is directly extruded onto a pre-treated paper substrate to obtain a novel high barrier coated paper.

3,560,228 METHOD FOR HEATING HEAT SENSITIVE FLUIDS

Martin E. Engel, Park Ridge, Ill., assignor to Kraftco Corporation, a corporation of Delaware
Original application Oct. 5, 1965, Ser. No. 493,162, now Patent No. 3,450,022, dated June 17, 1969. Divided and this application Dec. 31, 1968, Ser. No. 788,164
Int. Cl. A23c 3/02

U.S. Cl. 99—212 3 Claims



A method for subjecting heat sensitive liquids to high temperature short-time treatment. The method is effected by combining a heated gas with the heat sensitive liquid in a particular manner to effect thorough and uniform mixing of the gas in the heat sensitive liquid.

3,560,229 COLORFORMING COMPOSITIONS AND METHODS FOR PREPARING AND CONTROLLING SAME

Norman W. Farnham, Webster, and Earl J. Gosnell, Rochester, N.Y., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
No Drawing. Continuation-in-part of application Ser. No. 526,342, Feb. 10, 1966, which is a continuation-in-part of applications Ser. No. 135,294, and Ser. No. 135,314, Aug. 31, 1961. This application May 15, 1969, Ser. No. 825,036

U.S. Cl. 106—21 10 Claims

The present invention relates to novel color-forming compositions. In particular, the invention relates to color-forming compositions including colorless or light colored chromogenous lactone compounds and reactive phenolic compounds, and methods for preparing the compositions and for the control of the appearance and stability of color in the presence of heat or water by the inclusion of certain organic solvents in the color-forming composition.

3,560,230 SET RETARDED PORTLAND CEMENT COMPOSITION

Robert W. Previte, Lawrence, Mass., assignor to W. R. Grace & Co., Cambridge, Mass.
Filed Jan. 8, 1969, Ser. No. 789,969
Int. Cl. C04b 13/26

U.S. Cl. 106—90 4 Claims
The setting time of hydraulic cement compositions (e.g. portland cement concrete) is retarded by the addition of N,N-dimethyloldihydroxyethyleneurea to the composition.

3,560,231 PREPARATION OF FOAMED ALUMINUM SALT-FIBER COMPOSITIONS

Earl P. Moore, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 508,391, Nov. 17, 1965, which is a continuation-in-part of application Ser. No. 457,799, May 21, 1965, now abandoned. This application Dec. 22, 1967, Ser. No. 692,641

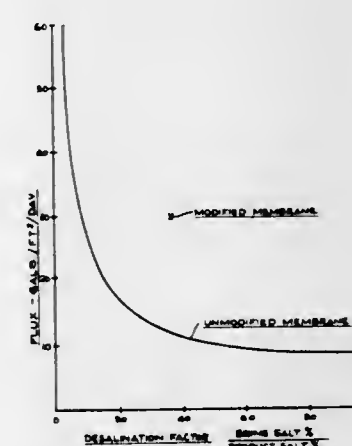
U.S. Cl. 106—122 10 Claims

Foams of basic aluminum salts and fibrous materials are prepared by mixing from 2 to 40 weight percent of a water dispersible polymeric basic aluminum salt, such as basic aluminum chloride, with water and from 0.02 to 4 percent of an anionic organic acid compound containing from 6 to 18 carbon atoms per acid group, such as sodium lauryl sulfate, and from 2 to 10 parts by weight, based on the weight of basic aluminum salt, of macrofibrous material such as wood pulp and foaming the mixture. The resulting foams dry to form rigid strong low-density structures.

3,560,232 MODIFIED CELLULOSE ESTER SEMIPERMEABLE MEMBRANE AND ITS METHOD OF MANU- FACTURE

Fred E. Littman, Santa Ana, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif., a corporation of Maryland
Filed Dec. 29, 1967, Ser. No. 694,709
Int. Cl. B29d 27/04; C08b 3/00

U.S. Cl. 106—169 10 Claims



Cellulose ester, especially cellulose acetate, semipermeable membranes having superior permeation properties of flux and solute rejection which are particularly suited for desalination of aqueous salt solutions by reverse osmosis produced by a method which includes pretreatment of the cellulose ester material in the form of an inert solvent solution with catalytic amounts of a concentrated strong acid prior to casting the cellulose ester material into a film. Method for producing the above described membrane, and method for desalination of salt water employing the above described membrane.

3,560,233 PROCESS FOR PRODUCING ZIRCONIUM- VANADIUM-SILICA PIGMENT

Alfred L. Hock, Manchester, England, assignor to Magnesium Elektron Limited, Manchester, England
No Drawing. Continuation-in-part of application Ser. No. 622,023, Mar. 8, 1967. This application Sept. 12, 1969, Ser. No. 857,541

U.S. Cl. 106—299 1 Claim
A process for producing zirconium-vanadium-silica pigment comprising heating mixture of zirconium oxide,

silica, vanadium pentoxide (or a vanadium compound which gives the pentoxide on heating), an alkali-metal fluoride and a substance containing sulphur oxy-acid ions which are substantially or completely volatile in the heating stage of the pigment-making process.

3,560,234 PROCESS FOR THE MANUFACTURE OF PIG- MENTS OF TITANIUM DIOXIDE IN THE RUTILE FORM

Raymond G. Holbein, Thann, France, assignor to Fabriques de Produits Chimiques de Thann et de Mulhouse, Thann, France
No Drawing. Filed Mar. 3, 1969, Ser. No. 803,938
Int. Cl. C09c 1/36

U.S. Cl. 106—300 13 Claims
A titanium dioxide rutile pigment of good brightness, colour, and other favourable properties is made by adding a rutile seed to a titanium sulphate solution, hydrolysing the titanium sulphate to a hydrous titanium dioxide gel, adding further rutile seed (preferably prepared in a different way), an alkali metal compound, a zinc compound, and an unusually high proportion of phosphoric acid or a phosphate, drying the gel containing the additives, and calcining it, preferably at about 1000° C.

3,560,235 DISPERSIONS

Donald Thomas Sarfas and Arthur Topham, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed June 21, 1968, Ser. No. 738,786
Claims priority, application Great Britain, June 22, 1967, 28,823/67

U.S. Cl. 106—308 12 Claims
Non-flocculating pigment compositions, suitable for use in printing inks and paints, are prepared by bleeding pigments with essentially colourless compounds containing at least one urea or urethane group and at least one basic amino group, preferably a tertiary amino group, not attached to an aromatic nucleus.

3,560,236 METHOD AND COMPOSITION FOR PREFER- ENTIALLY GLAZING CERAMIC BODIES

William H. Orth, Baltimore, Md., assignor to SCM Corporation, Cleveland, Ohio
No Drawing. Filed Dec. 30, 1968, Ser. No. 788,058
Int. Cl. B44d 1/52, 3/20

U.S. Cl. 117—5.5 4 Claims
This application discloses a method and composition for preferentially glazing predetermined areas of unfired (green) or fired ceramic articles. Those areas of the ceramic article that are to remain unglazed are coated with a film of substantially combustible, discrete (non-coalescing), hydrophobic particles prior to the application of an aqueous glazing slip. The aqueous glazing slip is then applied to the article by dip, spray, brushing, flow-coat, or waterfall methods and the slip adheres only to those areas which are not hydrophobically coated. The resulting body is then fired to fuse or mature the glaze and burn away the hydrophobic coating.

The invention makes possible the use of the waterfall method of applying aqueous glazing slip to unfired shaped (e.g., pressed, extruded, etc.) ceramic bodies which are to be preferentially glazed on the planar surface and not the edges thereof.

3,560,237

PROCESS OF CURING POLYMERIZABLE RESINS HAVING TERMINAL VINYL ESTER GROUPS USING HIGH ENERGY ELECTRONS

Lewis S. Miller, Bellevue, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
No Drawing. Filed Apr. 15, 1968, Ser. No. 721,152
Int. Cl. B44d 1/50

U.S. Cl. 117—93.31 18 Claims

A process of coating a porous or nonporous substrate with a liquid polymerizable film and subjecting the coated substrate to ionizing radiation sufficient to impart to the coating composition a dose of from 1 to 10 megarads in one second or less. The coating compositions, capable of substantially complete polymerization in less than one second, contain undiluted vinyl ester resins having terminal vinyl ester groups, or the above dissolved in vinyl monomers. The vinyl ester resins are made by reacting:

- (1) A polyfunctional material selected from the group consisting of (a) dicarboxylic acids having from 4 to 15 carbon atoms, (b) polyepoxides having terminal, reactive glycidyl groups, (c) polyfunctional isocyanates having terminal, reactive isocyanate groups, or (d) dicarboxylic acid esters of polyepoxides, polyamines, polyisocyanates, with
- (2) 2-hydroxyalkyl acrylates or methacrylates.

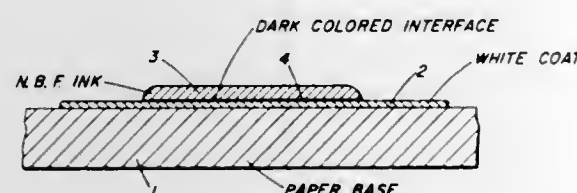
Particularly useful are coating compositions containing resins having terminal acrylate groups and an acrylate monomer, the polyfunctional acrylate having more than one 2-oxyalkylacrylate end group per molecule with the end groups being joined by a hydrophobic molecule such as a dicarboxylic acid, polyfunctional isocyanate or polyepoxide.

3,560,238

METHOD FOR PRINTING VISIBLE CHARACTERS WITH NARROW BAND FLUORESCENT INKS

John L. Rothery, Concord, Mass., assignor, by mesne assignments, to American Cyanamid Company, Stamford, Conn., a corporation of Maine
Filed May 26, 1967, Ser. No. 641,606
Int. Cl. C09d 11/00, 11/16

U.S. Cl. 117—12 2 Claims



Information, such as typewritten symbols, is made both in visibly readable form and in a code in which one or more narrow-band fluorescent materials are present in inks for particular symbols, the presence or absence of the components being detectable by ultraviolet illumination and detection of the particular fluorescent radiation produced.

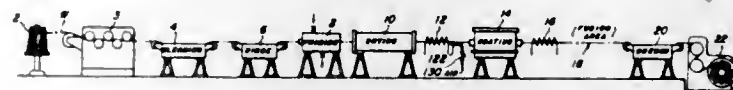
Paper or other substrate is coated with a material which is capable of reacting with color forming components in the inks to form visible color images. The ink is transparent so that ultraviolet light which is used for the determination of the code can pass into it without being absorbed or attenuated by colored pigments. The visual component for optical reading forms a boundary under the fluorescent ink next to the paper and can be observed through the transparent ink. All of the advantages of sensitive response to ultraviolet light for code reading and the capability of visual reading are retained without offsetting disadvantages.

3,560,239

METHOD OF COATING AN ELONGATED BODY

Walter K. Facer, Parma, Ohio, and Jane H. M. Rigo, Monroeville Borough, Pa., assignors to United States Steel Corporation, a corporation of Delaware
Original application Mar. 25, 1964, Ser. No. 354,594, now Patent No. 3,476,081. Divided and this application July 10, 1969, Ser. No. 840,750
Int. Cl. B44d 1/095, 1/42

U.S. Cl. 117—17 5 Claims



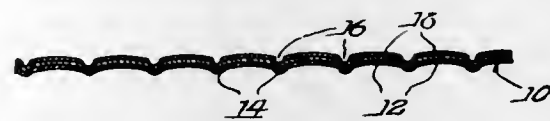
A continuous method of coating a clean steel wire or the like with resin includes applying a primer to the wire, drying the primer coating before heating it and preheating the primed object by passing it through an induction coil with the primer coating thereon and at the same time applying a cooling gas thereto to purge priming fumes and to keep the induction coil free of accumulations. The heated wire is then passed horizontally through a fluidized bed of powdered resin after which the coating is fused on the wire.

3,560,240

CRACKLING COAT PROCESS AND APPARATUS

Charles C. Simmons, Skokie, Ill., assignor to Enameled Steel & Sign Co., Inc., Chicago, Ill., a corporation of Illinois
Filed Sept. 10, 1969, Ser. No. 856,785
Int. Cl. C09d 5/28; B44d 5/06

U.S. Cl. 117—41 11 Claims



A method of obtaining a predetermined pattern or design in a crackle coating applied to a surface by texturing said surface with said pattern or design prior to application of said crackle coating. Upon drying, the crackle coat separates at points of indentation in the textured surface, forming a crackle design in a predetermined or predictable pattern as distinguished from a random crackle pattern. The color of the surface, or a base coat, shows through the separations in the crackle coat.

3,560,241

METHOD OF METALLIZING A POLYSULFONE BODY

Kenneth C. Davis, Endwell, and Glenn V. Elmore, Vestal, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
No Drawing. Filed Mar. 6, 1968, Ser. No. 710,733
Int. Cl. B44d 1/092

U.S. Cl. 117—47 5 Claims

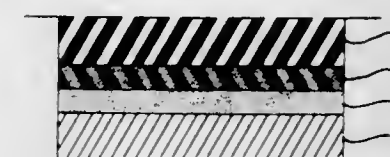
A plastic body is metallized by treating it with a solvent for the specific plastic material, followed by treatment in a second solvent which is miscible with the first solvent but is a nonsolvent for the specific material. The solvent treated material is sequentially treated in an acid conditioner, an alkaline cleaning solution, and neutralized in a dilute hydrochloric acid solution prior to metallization. Each step may be preceded by a rinsing step. The

3,560,244

METHOD FOR BONDING CURABLE MODIFIED ORGANOPOLYSILOXANES TO A SUBSTRATE AND ARTICLE PRODUCED THEREBY

Charles G. Neuroth, Blissfield, Mich., assignor to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware
Filed Mar. 14, 1968, Ser. No. 713,142
Int. Cl. B44d 1/14; B32b 15/08

U.S. Cl. 117—71 14 Claims



A method for bonding a room-temperature-curable modified organopolysiloxane to a substrate which comprises applying a zinc dust primer composition to the substrate, coating the dried primer composition with a curable organopolysiloxane and thereafter applying a curable modified organopolysiloxane to the organopolysiloxane coated substrate.

3,560,245

PAINTING POLYOLEFIN SUBSTRATES

Elihu J. Aronoff, Southfield, and Ernest O. McLaughlin, Detroit, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
No Drawing. Filed Dec. 4, 1967, Ser. No. 687,495
Int. Cl. B44d 1/14, 1/50

U.S. Cl. 117—72 13 Claims

A process for painting polyolefin comprising substrates which comprises applying to the surface to be painted a coating material consisting essentially of a liquid compound having two or more unreacted vinyl groups per molecule, exposing this surface to ionizing radiation, applying to the resultant surface a coating of paint that is polymerizable by ionizing radiation and exposing the painted surface to ionizing radiation.

3,560,246

METHOD FOR CATALYZING POLYUREA COATINGS

Billy D. Payne, Cleveland, and James W. Watson, Parma, Ohio, assignors to SCM Corporation, Cleveland, Ohio
No Drawing. Filed Apr. 26, 1968, Ser. No. 724,610
Int. Cl. B44d 1/28, 1/14; B32b 21/08

U.S. Cl. 117—72 12 Claims

A novel method for catalyzing the formation of polyurea by the reactions between polyfunctional-isocyanates and polyfunctional-imines through the presence of an effective amount of a phenolic catalyst is provided. One particularly important embodiment comprises the formation of polyurea film coatings on wood substrates by reacting alkylene diisocyanates and alkylene diimines in the presence of a chloro-substituted phenol.

3,560,247

POLYOLEFIN FILM OR NON-WOVEN FABRIC COATED WITH REMOISTENABLE ADHESIVE

William David Robinson, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Nov. 1, 1967, Ser. No. 679,607
Int. Cl. B44d 1/14; C09j 7/02

U.S. Cl. 117—76 7 Claims

A polyolefin film or non-woven fabric, particularly of polypropylene, having a top coating of a remoistenable adhesive such as partially hydrolyzed polyvinyl alcohol

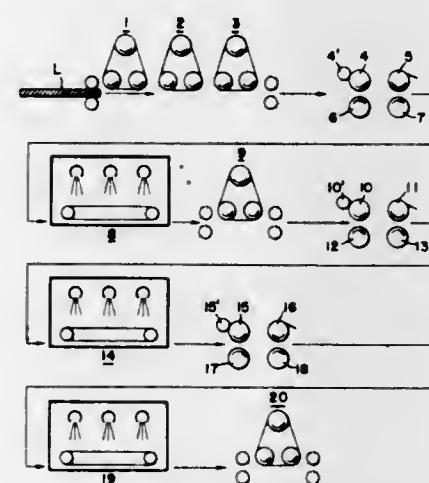
method of the invention provides firmly bonded metal films to polysulfone substrates. The bonded material has peel strengths of about 9 pounds per inch. The method of the invention as described herein is applicable to the manufacture of additive printed circuits.

3,560,242

PROCESS FOR THE PREPARATION OF SURFACED LAUAN PLYWOODS FOR DOORS, READY FOR PAINT

Kingo Urata, Fujikawa-machi, Shizuoka-ken, Japan, assignor to Noda Plywood Mfg. Co., Ltd., Shizuoka-ken, Japan
Filed Dec. 8, 1967, Ser. No. 689,092
Claims priority, application Japan, Oct. 6, 1967, 42/64,070

U.S. Cl. 117—57 2 Claims



A process for the preparation of surfaced lauan plywoods ready for paint, which are useful as door panel material, characterized by sanding the surface of plywoods to be treated; coating a treating agent on the sanded surface, pressure contacting the coated surface with a reverse coater roller rotating at a specific reverse peripheral velocity with respect to the mating feed roller and heating the plywood so treated to a specific temperature to harden the agent in order to obtain a more smooth, leveled surface; and then repeating twice more a serial operations consisting of such coating, pressure contacting and heating as above each under specific conditions in order to obtain a substantially perfectly smooth, leveled surface ready for paint finish.

3,560,243

PROCESS FOR IMPARTING WATER REPELLENCE AND PRODUCTS THEREOF

Ray F. Seifert, Grand Island, Edwin G. Niewadomski, Lewiston, and Warren B. Blumenthal, North Tonawanda, N.Y., assignors to National Lead Company, New York, N.Y.
No Drawing. Filed Apr. 19, 1967, Ser. No. 631,896
Int. Cl. B44d 1/44; D06m 15/00

U.S. Cl. 117—62.1 17 Claims

A fabric having thereon a substantially continuous, hydrophobic layer of a fatty acid-hydrous zirconia adsorbate is produced by alternately immersing said fabric in an aqueous soap solution and in an aqueous solution of ammonium zirconyl carbonate, which may also contain tetrammine zinc, tetrammine copper, and/or phenylmercury ions, drying after the second immersion, repeating such treatment, and drying said fabric at a temperature of at least 70° C. and preferably 90° C. The adsorbate layer is resistant to washing and dry cleaning solvents; and also where the other mentioned metal ions are included in the metal salt solution imparts resistance to attack by microorganisms.

is firmly anchored to the film or fabric through a plasticized coating of a vinyl acetate/dibutyl maleate copolymer or a vinyl acetate/ethylene/unsaturated monocarboxylic acid terpolymer.

3,560,248

METHOD FOR CONTROLLED DEPOSITION OF ELEMENTS ON STRUCTURES OF COMPLEX SHAPES

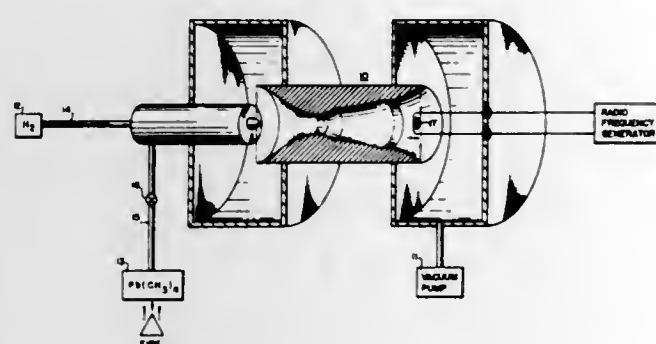
Doran W. Padgett, 3801 36th Road N. 22207, and Arnold A. Shostak, 3017 S. Buchanan St. 22206, both of Arlington, Va.

Filed Oct. 31, 1966, Ser. No. 591,380

Int. Cl. C23c 11/00

U.S. Cl. 117—93.2

10 Claims



This invention is directed to a method of depositing metallic elements onto physical structures of complex shapes under carefully controlled conditions. A radio frequency probe is inserted into the structure to be coated and the structure is evacuated. A radio frequency is applied to the inner cavity of the structure for induction heating thereof, then a gaseous metallic compound such as lead tetramethyl is admitted into the cavity and carried through the cavity by a carrier gas such as hydrogen. The radio frequency heats the structure and the gaseous metallic compound directed into the cavity decomposes with the result that the lead ions deposit onto the surface of the cavity. The method is carried out sufficiently to deposit a coating of a desired thickness. The probe may be moved axially through the cavity and the radio frequency decreased which will reverse the chemical reaction to smooth out the deposited coating.

3,560,249

METHOD FOR PRODUCTION OF POLYTETRAFLUOROETHYLENE MULTILAYER COATINGS ON HEAT-RESISTANT MATERIALS

Lev Vikentievich Chereshevich, Ulitsa Vasenko 5/15, kv. 29; Dmitry Dmitrievich Chegodaev, Ulitsa Fedosenko 19, kv. 39; and Nadezhda Elizavovna Yavzina, Ulitsa Tipanova 5, kv. 80, all of Leningrad, U.S.S.R.

No Drawing. Filed Sept. 23, 1968, Ser. No. 761,836

Int. Cl. B44d 1/14

U.S. Cl. 117—93.4

6 Claims

A method for the production of polytetrafluoroethylene multilayer coatings on heat-resistant materials which comprises depositing an aqueous dispersion of polytetrafluoroethylene onto said materials, followed by drying the deposited dispersion layer and baking the resultant layer of the polymer, wherein in the course of depositing the second and subsequent layers of the aqueous dispersion and/or immediately prior to dispersion deposition the surface of said materials is rubbed against a material capable of producing, on friction, a negative electrostatic charge on the surface of polytetrafluoroethylene.

3,560,250 MATERIAL AND PROCESS FOR THE MANUFACTURE OF COATINGS ON CELLULOSE HYDRATE FILM

Wilhelm Brandt and Irmgard Blindrum, Wiesbaden-Blebrich, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Blebrich, Germany

No Drawing. Filed Dec. 1, 1966, Ser. No. 598,197

Claims priority, application Germany, Dec. 4, 1965, K 57,829

Int. Cl. B44d 1/50; B32b 23/08

U.S. Cl. 117—93.31

4 Claims

A process which comprises applying onto the surface of a regenerated cellulose hydrate film an aqueous dispersion of a vinylidene chloride copolymer and a solution containing a phenoplast or an aminoplast in a water-diglycol mixture, and heating the surface of the film with a high frequency field or infrared radiation to a temperature range of 120° to 140° C., and product of said process.

3,560,251

WOOD TREATMENT METHOD

Bror Olof Hager, Djursholm, Sweden, assignor to Hager Aktiebolag, Stockholm, Sweden

No Drawing. Filed July 11, 1966, Ser. No. 563,979

Claims priority, application Germany, July 19, 1965, P 14 92 511.2

Int. Cl. B05c 11/10; B27k 3/02

U.S. Cl. 117—102

5 Claims

After wood has been impregnated with an aqueous solution of a wood preservative it is dried by heating it in a heated bath of high-boiling oil in a chamber, under vacuum, the temperature and subatmospheric pressure being adjusted to remove the solvent at a temperature below the normal boiling point of the solvent.

3,560,252

VAPOR DEPOSITION METHOD INCLUDING SPECIFIED SOLID ANGLE OF RADIANT HEATER

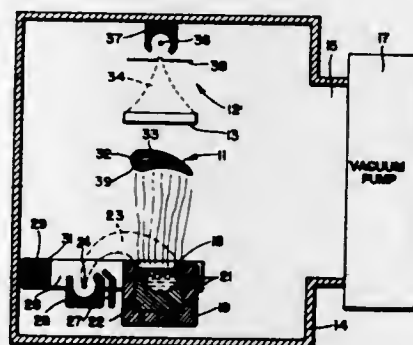
Kurt D. Kennedy, Berkeley, Calif., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York

Filed Aug. 13, 1968, Ser. No. 752,252

Int. Cl. C23c 13/02

U.S. Cl. 117—107

7 Claims



A method for vapor depositing a material on a substrate wherein the substrate is heated by radiant heaters maintained at temperatures sufficiently high to prevent condensation of vapor thereon and of a configuration which prevents overheating of the substrate.

3,560,253

FIRE RESISTANT COATED MASONRY STRUCTURAL UNITS

Robert J. Ashton, Toronto, Ontario, Canada, assignor to SCM Corporation, Cleveland, Ohio

No Drawing. Filed June 19, 1968, Ser. No. 738,099

Claims priority, application Canada, Apr. 27, 1968, 18,627

Int. Cl. C03c 17/32

U.S. Cl. 117—123

6 Claims

Coated masonry structural units exhibiting unusual fire and flame resistance, and thermal stability are provided.

These units comprise a masonry substrate such as concrete or cinder block, coated with a polyester composition containing hydrated alumina as the primary thermal stabilizer and fire retardant. Secondary fire retardants such as antimony can also be employed. The coating is formed by curing a thermosetting polyester composition containing alumina hydrate, unsaturated polyester, and monomeric compound copolymerizable therewith.

3,560,254

GRAFTING POLYMERS ON GLASS AND LIKE SILICEOUS MATERIALS

John David Seddon, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Sept. 8, 1966, Ser. No. 577,826

Claims priority, application Great Britain, Sept. 16, 1965, 39,583/65

Int. Cl. C08f 1/76

U.S. Cl. 117—124

11 Claims

There is provided a process for coating the surface of glass and like siliceous materials with a polymeric material wherein the glass is first treated with a compound which forms a chemical bond with the surface of the glass and is also capable of acting as an initiator in a polymerization reaction for the coating of polymeric material. Suitably a polar vinyl monomer is polymerized by initiation of the coating and the coating is a two-component initiator system consisting of a transition metal carbonyl or isocyanide and a compound represented by the formula $X_3C-Y-SiZ_3$ where X is halogen, Y is a direct link or a divalent organic radical and Z is halogen or alkyl linked to the silicon atom via an oxygen atom. Such coated glass surfaces may be thereafter dyed to present a colored surface.

3,560,255

COMPOSITE WOOD-POLYMER PRODUCT

Jack Maine, Saginaw, Mich., assignor to C. W. Maine & Sons, Inc., Saginaw, Mich.

No Drawing. Filed Mar. 18, 1968, Ser. No. 714,066

Int. Cl. B44d 1/28; B27k 3/34

U.S. Cl. 117—148

3 Claims

A composite wood-polymer product comprising wood impregnated from its surface inwardly with a polymer of tert-butylstyrene whereby the surface is substantially as tough as Formica and the composite product advantageously can be used in the manufacture of furniture such as desks, chairs, cabinets and the like. This invention also relates to a method for the preparation of such a composite product.

3,560,256

COMBINED THICK AND THIN FILM CIRCUITS

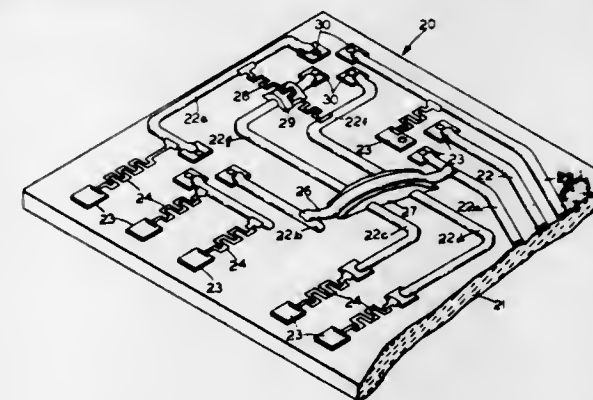
Halle Abrams, Allentown, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed Oct. 6, 1966, Ser. No. 584,894

Int. Cl. H05k 1/04, 3/16

U.S. Cl. 117—212

25 Claims



A thick and thin-film circuit includes at least three glazed conductors, a glazed dielectric formed over one of

the conductors, and a thin-film crossover resistor formed over the dielectric and connected to the other conductors. The resistor is formed from a film which is resistant to most atmospheres and solutions which would attack the conductors and adversely affect their electrical and physical integrity. A portion of this film is left over the conductors to protect them from such atmospheres and solutions. Where the film can be bonded to the substrate with a bond stronger than that between the conductors and the substrate, as is the case of sputtered tantalum nitride, another portion of the film is left on the substrate to extend over the conductors to form tabs on opposite sides of such conductors to thereby more firmly secure the conductors to the substrate.

3,560,257

METALLIZATION OF INSULATING SUBSTRATES

Frederick W. Schneble, Jr., and Edward J. Leech, Oyster Bay, and Joseph Polichette, South Farmingdale, N.Y., assignors to Photocircuits Division of Kollmorgen Corporation, Hartford, Conn., a corporation of New York

Filed Jan. 3, 1967, Ser. No. 606,919

Int. Cl. B44d 1/14, 1/34, 1/18

U.S. Cl. 117—212

21 Claims

A method for rendering insulating compositions receptive to the deposition of an electroless metal is provided which comprises utilizing in such compositions an organic compound of a metal which is a member selected from the metals in Groups 1-B and 8 of the Periodic Table of Elements, including mixtures of such compounds.

3,560,258

PATTERN DEPOSIT BY LASER

Alan Douglas Brisbane, Epping, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

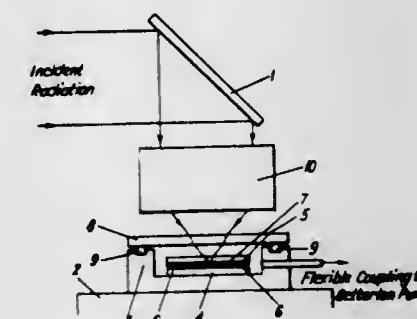
Filed May 31, 1967, Ser. No. 642,403

Claims priority, application Great Britain, July 22, 1966, 33,047/66

Int. Cl. H01s 3/00; C23c 13/04

U.S. Cl. 117—212

10 Claims



A technique for forming an interconnection pattern on a substrate by placing opposite the substrate a film of a vaporizable material disposed on a glass plate. A beam of intense radiant energy scans the metallic film through the glass plate to selectively evaporate portions of the film which deposit on the semiconductor substrate in accordance with the desired pattern.

3,560,259

METHOD OF RECLAIMING TANTALUM FROM TANTALUM SUBSTRATES HAVING OXIDES OF TANTALUM THEREON

Robert S. Moore, Pittsford, N.Y., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Dec. 4, 1969, Ser. No. 882,136

Int. Cl. C23g 1/02

U.S. Cl. 134—41

4 Claims

A method of reclaiming tantalum from a tantalum substrate having oxides of tantalum thereon. The tan-

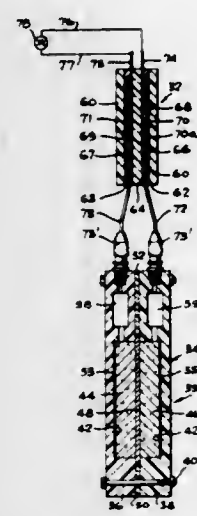
talum oxide covered substrate is contacted with molten KHSO_4 at a temperature in the range of 210°C . to 450°C . and in a weight ratio of at least two parts of KHSO_4 to one part of combined oxides. The substrate is maintained within the above temperature range for a period of time sufficient to dissolve the oxides and form a solution. The solution covered substrate is then treated with water to remove the solution therefrom to yield an essentially oxide-free tantalum substrate.

3,560,260

METHOD OF ELIMINATING GAS PRESSURE IN BATTERIES BY USING GAS IN FUEL CELL

Carl Berger, Corona Del Mar, Calif., assignor, by mesne assignments, to McDonnell Douglas Corporation, Santa Monica, Calif., a corporation of Maryland
Continuation of application Ser. No. 395,681, Sept. 11, 1964. This application Jan. 24, 1969, Ser. No. 797,350
Int. Cl. H01m 1/08, 27/14, 43/00
U.S. Cl. 136—3

6 Claims



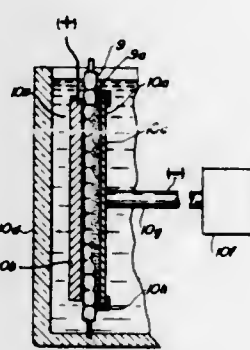
Combination of a fuel cell with a battery arranged with a conduit means between the battery and the fuel cell so that gas generated in the battery, e.g., hydrogen, is conducted to the fuel cell for reaction therein with another gas, e.g., oxygen, to generate an electric current and thereby eliminate gas pressure developed in the battery and also sealing the battery.

3,560,261

METHOD OF TREATING ELECTRODE OF ELECTROCHEMICAL GENERATOR DURING CHARGING

Zbigniew Starchurski, New York, N.Y., John O'M. Bockris, Philadelphia, Pa., and George Abbe Dalin, Union, N.J., assignors to Yardney International Corp., New York, N.Y., a corporation of New York
Continuation of application Ser. No. 441,069, Mar. 19, 1965. This application July 31, 1968, Ser. No. 749,925
Int. Cl. H01m 15/00, 29/04
U.S. Cl. 136—6

3 Claims



A rechargeable electrochemical current generator with two electrodes of opposite polarities, having generally

planar confronting working surfaces immersed in an electrolyte in which the active material (e.g. zinc) of the negative electrode is soluble, is charged with continuous displacement of the negative electrode in the plane of its working surface, such as rotation about an axis, to prevent the short-circuiting of the system by the growth of dendritic formations from the negative electrode to the positive counterelectrode. A stationary wiper may be held against the working surface of the negative electrode during its rotation to help smooth its active layer.

3,560,262

ELECTRODE WITH A NON-WOVEN FABRIC BASE AND ELECTROPLATED COATINGS OF NICKEL

Hideo Baba, Tokyo, and Yoshio Yamashita, Yokohama-shi, Kanagawa-ken, Japan, assignors to Sony Corporation, Tokyo, Japan, a corporation of Japan
Filed Dec. 6, 1968, Ser. No. 781,922
Claims priority, application Japan, Dec. 8, 1967, 43/103,176
Int. Cl. H01m 35/30

U.S. Cl. 136—76

4 Claims

A battery electrode is composed of a porous fabric base, such as, non-woven nylon, on which there is non-electrolytically plated a thin coating of conductive metal onto which there is electroplated a relatively thick coating of metal, such as nickel, and the thus plated base then has an active material, such as nickel hydroxide or cadmium hydroxide deposited in its pores. An electrode terminal may be connected directly to the resulting electrode structure or two such bases may be sandwiched together with a nickel mesh interposed therebetween and with the electrode terminal attached to the mesh.

3,560,263

ELECTROLYSIS

Dominicus A. J. Swinkels, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.
No Drawing. Filed Oct. 5, 1966, Ser. No. 584,341
Int. Cl. H01m 27/00; C22d 3/06; B01k 3/00
U.S. Cl. 136—86

7 Claims

Improvement to process for electrolytically dissociating fused alkali metal halides by adding an alkali metal to the fused halide to cause increased wetting of the carbon or graphite anodes by the fused halides. A preferred current reversal pulsing technique for introducing the alkali metal into the halide is described.

3,560,264

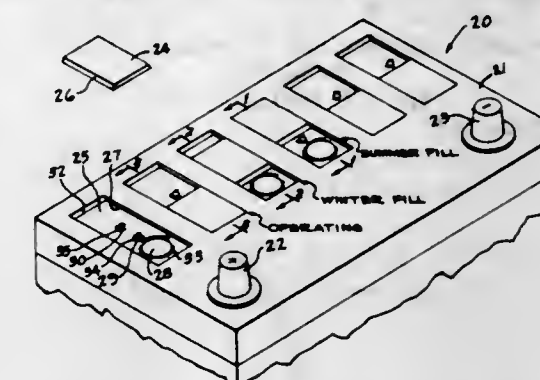
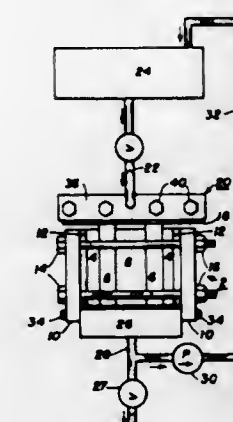
FUEL CELL WITH ELECTROLYTE OR FUEL DISTRIBUTOR

Royce E. Biddick, Edina, Minn., assignor, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California
Original application Nov. 4, 1964, Ser. No. 408,909, now Patent No. 3,475,222, dated Oct. 28, 1969. Divided and this application May 9, 1968, Ser. No. 738,747
Int. Cl. H01m 27/12, 7/00; B67d 3/00
U.S. Cl. 136—86

5 Claims

1. In combination an electrolyte and fuel distributor means and fuel cell comprising a plurality of electrodes separated by absorbent members, at least a portion of said plurality of electrodes having exposed surfaces and hydrophilic material secured in physical contact with said exposed surfaces whereby electrolyte collects on said hydrophilic material; said electrolyte and fuel distributor comprising a fluid impermeable closed-end conduit having a plurality of substantially co-planar apertures; a fluid absorbent element coextensive with and occupying at least a portion of the enclosure formed by said conduit, siphon-fluid conducting means extending through each of

said apertures, one end of said siphon means contacting the vent holes, or the vent hole only. When the battery said fluid absorbent element, the other end of said siphon means adapted to communicate at least one of electrolyte into the uncovered winter hole and depending upon



whether the closure covers the summer hole and the vent hole, or the vent hole only the solution in the cell rises to a "winter level" or to a "summer level" respectively.

and fuel to said absorbent members in said fuel cell; and means provided in said conduit through which at least one of electrolyte and fuel can be supplied thereto.

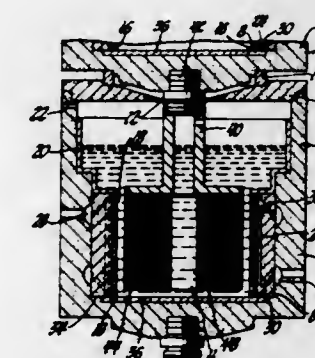
3,560,265

GALVANIC CELL WITH A MATRIX ELECTRODE

Gale M. Craig, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed July 8, 1968, Ser. No. 743,170
Int. Cl. H01m 27/00

U.S. Cl. 136—86

8 Claims



A matrix electrode for the molten lithium of a $\text{Li}|\text{LiCl}|\text{Cl}_2$

fuel cell, which electrode is a porous bundle of specifically oriented filaments of a material which is preferentially wetted by the lithium. A particular filament bundle has spacer filaments intermittently disposed between layers of woven or meshed filaments. A simply sealed battery of cells having matrix electrodes is described.

3,560,266

BATTERY SAFETY FILLING DEVICE

Eugene W. Mossford, Novelty, Ohio, assignor to ESB Incorporated, a corporation of Delaware
Filed Nov. 29, 1968, Ser. No. 779,701
Int. Cl. H01m 7/00

U.S. Cl. 136—177

6 Claims

An automatic, dual level, safety filling device is incorporated in the cover of a lead acid battery and comprises three openings in the cover over each cell and are referred to as the winter hole, summer hole, and vent hole respectively. A closure is slidably attached to the cover to close the winter and summer holes, or the summer and

A valving device in particular for electrochemical generators of semi-sealed type capable of providing exit communication between the enclosure of the generator and the exterior environment, the valving device being of a type comprising a hollow part having a cavity in communication with said enclosure and the exterior via one or more exit orifices or passages which place the enclosure in communication with the exterior environment and including an obturating elastic body lodged in such cavity and capable of volumetric change for freeing or clearing said exit orifices or passages under given differential pressures appearing between said enclosure and said exterior environment and sealing or obturating said orifices or passages when said pressure differential conditions are not present. The obturating body lodged in the cavity is compressible and elastic and its volume is variable and decreases as pressure upon it increases, being constituted primarily of an elastic porous or alveolate body whose pores or cells are sealed off and contain gas such as imprisoned air that is compressible. The variation in elastic volume of the body is obtained thanks to the compressibility of the imprisoned gas in one or more of the pores or cells that are bounded by elastic partitioning walls.

3,560,268

DEVICE FOR MEASURING ELECTROLYTE CONCENTRATION

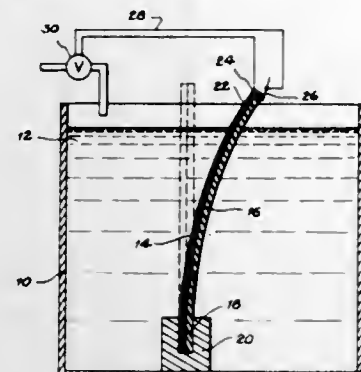
August Winsel, Kelkheim, Germany, assignor to Varta Aktiengesellschaft, Frankfurt am Main, Germany
Filed Sept. 30, 1968, Ser. No. 763,767

Claims priority, application Germany, Nov. 20, 1967, V 34,862

Int. Cl. H01m 45/06

U.S. Cl. 136—182

3 Claims



Bi-plastic strips for measuring the concentration of electrolyte in galvanic cells are formed from a strip of ion exchange material which swells in the electrolyte and a strip of a second material which is stable in the electrolyte and has a low bending moment. The two strips are used in a back-to-back relation with one end of the strip immobile and one end mobile.

3,560,269

NON-EARING ALUMINUM ALLOY SHEET

William A. Anderson, Pittsburgh, and John K. McBride, New Kensington, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

No Drawing. Filed Dec. 7, 1967, Ser. No. 688,681

Int. Cl. C22c 21/00; C22f 1/04

U.S. Cl. 148—11.5

8 Claims

Aluminum alloy sheet containing 4 to 5.5% magnesium, 0.2 to 0.7% manganese, the balance being essentially aluminum, in the state resulting from a cold rolling reduction which effects a reduction in the thickness of at least 85% and subsequent annealing, possesses a high level of strength together with the capability of being drawn into cups which exhibit substantially no earing.

3,560,270

METHOD OF IMPROVING THE WELDABILITY OF TITANIUM SHEET STEEL

David W. Reinbold, Bethlehem, Pa., and James L. Forand, Jr., Baltimore, and Walter L. Stitz, Ellicott City, Md., assignors to Bethlehem Steel Corporation

No Drawing. Filed Dec. 23, 1966, Ser. No. 604,184

Int. Cl. C21d 7/14, 9/46

U.S. Cl. 148—12

3 Claims

A method for improving the weldability of titanium sheet steel comprising coiling the sheet, as it comes off the hot mill at temperatures not lower than 1250° F.

3,560,271

NITRIDING METHOD

Hans Helmen, Meinerzhagen, Germany, assignor to Otto Fuchs, Meinerzhagen, Germany

Filed May 16, 1968, Ser. No. 730,216

Claims priority, application Germany, May 17, 1967, F 52,437

Int. Cl. C23c 9/14; C21d 1/74

U.S. Cl. 148—15.5

7 Claims

Metallic work pieces, particularly alloyed steel work pieces are nitrided at temperatures above 500° C. and are then conveyed into a pressure vessel at such speed that during conveying of the work piece the temperature thereof will drop relatively little, not more than 100° C. and

preferably so that the workpiece when introduced into the pressure vessel still has a temperature of at least about 500° C. Promptly after introduction of the hot work piece, the pressure vessel is evacuated and the hot work piece is allowed to cool by heat radiation while being located in the evacuated pressure vessel. Cooling in the above described manner will improve the quality of the nitrided work piece.

3,560,272

METHOD FOR MANUFACTURING HIGH TENSILE STRENGTH BOLTS HAVING ENHANCED STRESS-CORROSION RESISTANCE

Takao Yamazaki, 1-18 Kugenuma-kaigan, 6-chome, Fujisawa-shi, Kanagawa-ken, Japan

Filed Dec. 4, 1968, Ser. No. 781,106

Claims priority, application Japan, Jan. 22, 1968, 43/3,228

Int. Cl. C21d 1/74, 1/80

U.S. Cl. 148—16

3 Claims

A method of manufacturing high tensile strength bolts which have excellent stress-corrosion resistance and mechanical properties, and bolts manufactured by the method. The method comprises the steps of decarburizing the surface layer of the bolt to a depth of about 0.2 mm., heating the bolt and then quenching and tempering the decarburized bolt.

3,560,273

WELDING FLUX FOR JOINING COPPER-NICKEL ALLOYS

Walter A. Petersen, Ridgewood, N.J., assignor to The International Nickel Company, Inc., New York, N.Y.

No Drawing. Filed July 1, 1968, Ser. No. 741,286

Int. Cl. B23k 35/36

U.S. Cl. 148—24

5 Claims

A flux and flux covered welding electrode for welding copper-nickel alloys, particularly those containing chromium. If chromium is absent from flux, weld cracking likely. In addition to chromium, flux contains calcium carbonate, cryolite, titania, silicon and titanium. Use of manganese carbonate and bentonite beneficial.

3,560,274

WEAR-RESISTANT TITANIUM AND TITANIUM ALLOYS AND METHOD FOR PRODUCING SAME

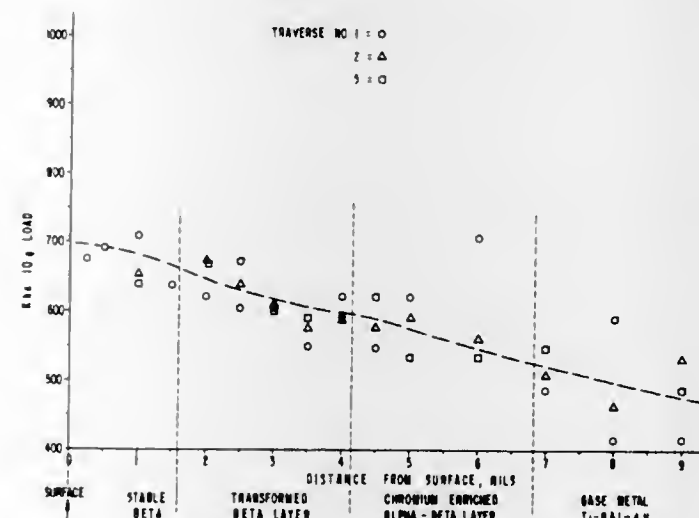
Horace R. Ogden, Columbus, Ohio, assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Continuation of application Ser. No. 568,903, July 29, 1966. This application Oct. 10, 1969, Ser. No. 866,151

Int. Cl. C23b 5/06, 5/52; B32b 15/00

U.S. Cl. 148—31.5

14 Claims



Producing a titanium or titanium alloy base metal article having a hard surface region of high adherence com-

prising plating the surface of the base metal with a layer consisting essentially of chromium to a maximum thickness of 0.5 mil and diffusion annealing the plated article to substantially completely diffuse the chromium into the base, thereby forming a chromium-stabilized surface layer of beta titanium-chromium alloy on said base metal.

An article of titanium or titanium alloy base metal having a hard surface comprising a body of said base metal and a diffused zone on the surface of the base metal consisting of essentially of a chromium-stabilized, beta titanium-chromium alloy.

3,560,275

FABRICATING SEMICONDUCTOR DEVICES

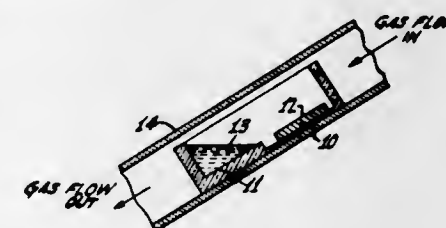
Henry Kressel, Elizabeth, and Frank Z. Hawrylo, Trenton, N.J., assignors to RCA Corporation, a corporation of Delaware

Filed Nov. 8, 1968, Ser. No. 774,421

Int. Cl. H01l 7/38

U.S. Cl. 148—171

8 Claims



A PN junction is formed in a solution grown epitaxial layer consisting of a mixed III-V compound semiconductor material by utilizing a single amphoteric conductivity modifier in the solution, and varying the temperature of the solution during the deposition of the epitaxial layer. The semiconductor material has the composition $B_xAl_yGa_zIn_wN_eP_fAs_gSb_h$, wherein each of subscripts, a, b, c, d, e, f, g, h ranges from 0 to 1, and $a+b+c+d=1$, and $e+f+g+h=1$. The amphoteric conductivity modifier is silicon or germanium, and the addition of the amphoteric modifier to the solution shortly before the deposition of the epitaxial layer is especially efficacious. Also described is the fabrication of an improved electroluminescent diode from a sub-class of the mixed III-V compound materials comprising two members of the group consisting of boron, aluminum, gallium and indium, and one member of the group consisting of nitrogen, phosphorus, arsenic and antimony.

3,560,276

TECHNIQUE FOR FABRICATING OF MULTILAYERED SEMICONDUCTOR STRUCTURE

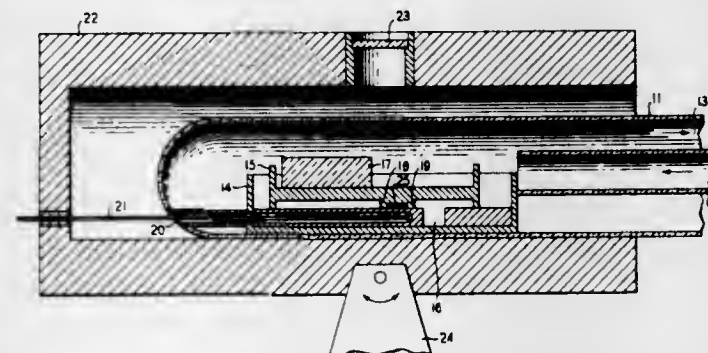
Morton B. Panish, Springfield, and Stanley Sumski, New Providence, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Dec. 23, 1968, Ser. No. 786,226

Int. Cl. H01l 7/38

U.S. Cl. 148—171

4 Claims



A solution epitaxy technique is employed for the growth of a multilayered structure including a pair of semicon-

ductive regions having different bandgaps with a p-n junction located in the narrow bandgap region. Structures so grown manifest lasing action at higher temperatures and lower threshold currents per unit cross-section than have been attainable heretofore.

3,560,277

PROCESS FOR MAKING SEMICONDUCTOR BODIES HAVING POWER CONNECTIONS INTERNAL THERETO

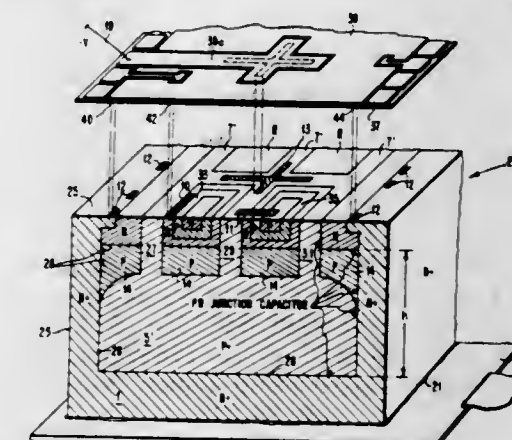
Robert H. F. Lloyd, Sunnyvale, and Stanley P. Davis, Cupertino, Calif., and Charles Frank Myers, Scottsdale, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 15, 1968, Ser. No. 697,731

Int. Cl. H01l 7/36

U.S. Cl. 148—175

8 Claims



A process for making semiconductor bodies, said bodies having power connections and decoupling means internal thereto, said connections comprising diffused low resistance semiconductor regions, wherein said process comprises the steps of forming the low resistance regions and the decoupling means by a series of diffusions including controlled out-diffusions.

3,560,278

ALIGNMENT PROCESS FOR FABRICATING SEMICONDUCTOR DEVICES

Arthur E. Sanera, Lubbock, Tex., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Nov. 29, 1968, Ser. No. 779,967

Int. Cl. H01l 7/44

U.S. Cl. 148—187

12 Claims

Disclosed is a process for fabricating semiconductor devices such as field-effect and bipolar transistors. A mask is formed on the surface of a semiconductor body and the semiconductor body is initially etched at three selected areas to expose three surface areas of the body. These areas define the locations through which impurity diffusions are made later in the process to form first, second and third regions within the semiconductor body. Next the first, second and third exposed areas of the body are recovered with a thin coating which serves as a diffusion mask to protect the second and third areas. Then the first area is reexposed by controlled etching in preparation for a first diffusion step in which an impurity is diffused through the first surface area to form a first active semiconductor device region within the body. Thereafter, the first surface area is covered by a mask while the thin coating is removed from the second and third surface areas to permit the subsequent diffusion of an impurity through these surface areas to form second and third active semiconductor device regions, respectively. Since the first, second and third surface areas were defined initially by the same masking and etching steps, the distance between the first and second regions is equal to the distance between the first and third regions. This precisely con-

trolled spacing between the above device regions enables semiconductor devices to be fabricated with selected electrical characteristics.

3,560,279

METHOD OF DOPING SEMICONDUCTOR MATERIAL

Janos Havas, Wappingers Falls, N.Y., assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

Filed Nov. 5, 1968, Ser. No. 773,410

Int. Cl. H011 7/34

U.S. Cl. 148—188

6 Claims

The present invention relates to a method of forming a p-n junction in a semiconductor material wherein the region on one side of said p-n junction has a desired low dopant concentration and wherein said region is formed by doping said semiconductor material from a silicon dioxide layer made from a colloidal silicon dioxide-liquid-dispersion containing boron impurity atoms and counterdopant atoms.

3,560,280

METHOD OF SELECTIVE REMOVAL OF OXIDE COATINGS IN THE MANUFACTURE OF SEMICONDUCTOR DEVICES

Sumio Nishida, Kodaira-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan

Continuation of application Ser. No. 594,875, Nov. 16, 1966. This application Nov. 21, 1969, Ser. No. 872,448

Claims priority, application Japan, Nov. 17, 1965,

40/70,273

Int. Cl. H011 7/00

U.S. Cl. 156—17

16 Claims



An oxide film formed on a semiconductor substrate is selectively etched by diffusing a metal such as aluminum or chromium into the oxide film prior to etching the film. The diffused metal hardens the oxide film and prevents excessive side etching. Other metals such as, for example, zirconium, zinc, titanium, molybdenum, rhodium, gold, niobium, calcium, magnesium and barium and the oxides of these metals may be employed.

3,560,281

PROCESS FOR REGENERATING AN ACID BATH

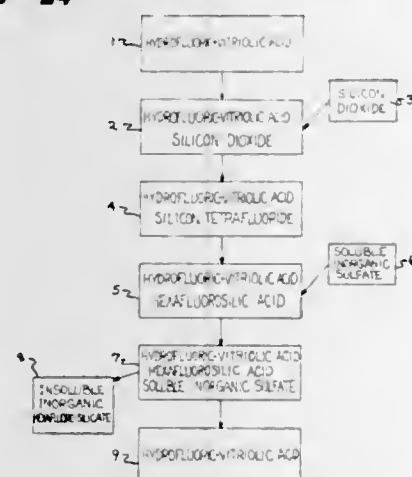
Cecil R. Nelson, Ashville, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio

Filed Oct. 2, 1967, Ser. No. 672,027

Int. Cl. C03c 15/00

U.S. Cl. 156—24

6 Claims



A process for regenerating a glass treating acid bath containing a mixture of hydrofluoric acid and sulfuric acid

by adding to said bath an aqueous soluble inorganic sulfate salt to precipitate a glass reaction product and to regenerate the bath.

3,560,282

PROTECTIVE TUBE FOR ELECTRICAL ELEMENTS AND ITS METHOD OF MANUFACTURE

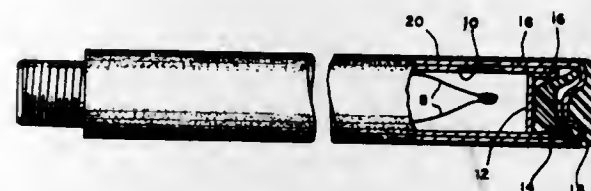
Norman H. Stark, 8810 Bonniwell Road, Mequon, Wis. 53092

Filed Dec. 14, 1967, Ser. No. 690,566

Int. Cl. C04b 31/06

U.S. Cl. 156—69

4 Claims



Disclosed herein is a protective tube for a thermocouple comprising a non-metallic mat of high temperature resistant material rolled to form a tube with the mat impregnated with a sulfate binder solution and coated with a thermo insulating material. A supporting conduit may be used to provide physical support for the rolled mat.

3,560,283

PROCESS FOR EFFECTING THERMAL SEALING OF STORAGE CELL CASINGS AND LIDS

Jean-Paul Gomis, Pavillons-sous-Bois, and René Chas-soux, Talence, France, assignors to Societe des Accumulateurs Fixes et de Traction (Societe Anonyme), Romainville, Seine-Saint-Denis, France, a company of France

Filed Feb. 24, 1969, Ser. No. 801,355

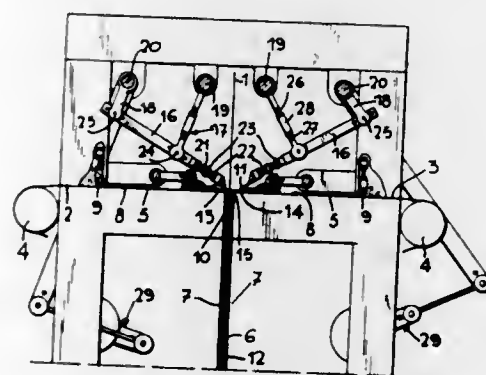
Claims priority, application France, Feb. 29, 1968,

141,783

Int. Cl. B29c 27/00; B65b 7/00; H01m 1/02

U.S. Cl. 156—69

8 Claims



Thermal sealing of thermoplastic storage cell casings and lids is effected by uniform heating by a single heating means to melt temperature of mating edges of the casing and lid and then applying uniform pressure to the molten plastic edges to join them while reinforcing the casing in the vicinity of its edges. Internal and external beads are formed at the joint and the external bead may be removed to form a smooth unbroken line at the joined casing and lid. The apparatus includes a single heating device movable into uniform distances from aligned edges of the casing and lid to heat such edges uniformly to melt temperature and removable thereafter to permit the melted edges to be brought together and joined and also includes reinforcement means for the casing edges as well as means for moving the molten edges in aligned condition together to effect their union, and subsequent trimming off of the external bead formed at the joint.

3,560,284

METHOD OF MAKING FOAM-BACKED TUFTED CARPET

Reuben Wisotzky, Lexington, and Richard E. Petersen, Concord, Mass., assignors to Pandel, Inc., Lowell, Mass., a corporation of Massachusetts

Filed Dec. 4, 1967, Ser. No. 687,608

Int. Cl. D05c 15/03

U.S. Cl. 156—72

19 Claims



Tufted rugs and carpeting having a thermoplastic backing, e.g. a closed cell foam backing, are prepared by applying a heat-sensitive plastisol composition to the back of a material composed of tufted yarns in a thermoplastic base fabric, fusing the plastisol composition to bind the base fabric and tufted yarns together, and then laminating the thermoplastic sheet to the plastisol layer using the plastisol layer as the sole source of a sensible heat to melt the thermoplastic sheet and bond it to the plastisol layer.

3,560,285

PROCESSES FOR PRODUCING COMPOSITE PANELS

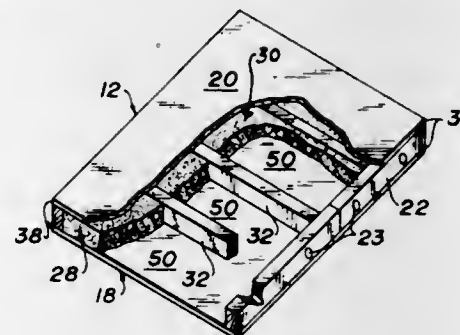
Richard C. Schroter, Orinda, David G. Berg, Oakland, and William A. Schuerman, Jr., Pleasant Hill, Calif., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif., a corporation of Delaware

Filed Feb. 6, 1967, Ser. No. 614,070

Int. Cl. B32b 5/18

U.S. Cl. 156—79

16 Claims



Processes for producing substantially distortion free composite panels made up of one or more outer relatively thin metal facings, edge stiffeners, glue lines having delayed setting up characteristics interposed between and having an affinity for the stiffeners and the outer metal facing or facings and a foamable core or backing material and the products produced thereby. During the processes of producing composite panels wherein a panel assemblage comprised of a stiffener, a glue line of the type described and a facing is subjected to thermal cycling involving elevated temperatures, the glue line initially exhibits sufficient tackiness and strength for floatingly and sealably bonding a stiffener to a metal facing while still permitting the facing to freely expand and contract relative to the stiffener without being dislodged therefrom and while still maintaining an effective sealed relationship therewith. The elevated temperature conditions occur during application and curing of the foamable core or backing material in situ against or between one or more facings. It is only after discontinuance of the thermal cycling that the glue line is allowed to finally set at normal room temperatures and all the elements of the composite panel

are allowed to become fully integrated one with another. By the improved use of a glue line having delayed setting up characteristics wherein the final setting up and curing of the glue line does not occur until after thermal cycling has been discontinued, the introduction of wrinkles, buckles, and distortions in a metal facing or facings in the final product is inhibited and a facially attractive product is produced.

3,560,286

METHOD OF MAKING A RADIAL TIRE IN FLAT-BAND FORM

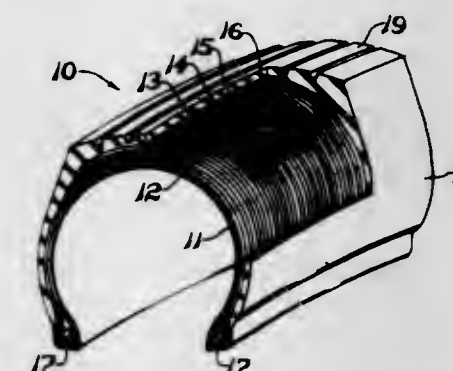
James Sidles, West Richfield, Dennis P. Skala, Akron, and Leonard Skolnik, Cleveland, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y., a corporation of New York

Filed Mar. 15, 1968, Ser. No. 713,373

Int. Cl. B29h 17/26

U.S. Cl. 156—132

5 Claims



A pneumatic tire comprising a carcass of radially disposed plies of inextensible reinforcing cords, surmounted by a restricting band of circumferentially disposed plies of reinforcing cords of predetermined stretchability intermediate the radially disposed plies, and the method of making such a tire in flat-band form on a conventional building drum.

3,560,287

METHOD AND APPARATUS FOR PROTECTING INSULATED PIPE

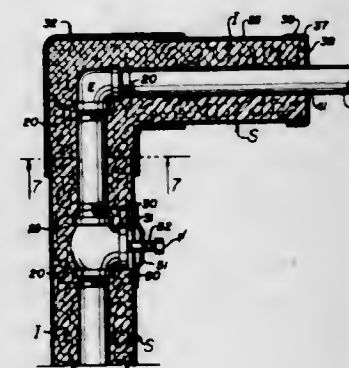
Robert W. Helling, Greeley, Colo., assignor to Lundvall and Associates, Greeley, Colo., a partnership

Filed Apr. 27, 1967, Ser. No. 634,347

Int. Cl. B29d 23/10

U.S. Cl. 156—218

7 Claims



A method for ensheathing an insulated pipe with a rectangular smooth-surfaced, resin sheet having the characteristics of high-impact polystyrene with a thickness in the range of 0.030 to 0.060 inch by welding the overlapping edges with a fluid cement having therein a solvent of the resin. The sheet is permanently curled to a radius

which will snugly embrace a range of sizes of pipe insulation and wrapped about the pipe so as to lap the longitudinal edges of the sheet as the wrap is completed.

3,560,288

METHOD OF MAKING A LAMINATED PHOTOGRAPHIC LIGHT-SENSITIVE ELEMENT

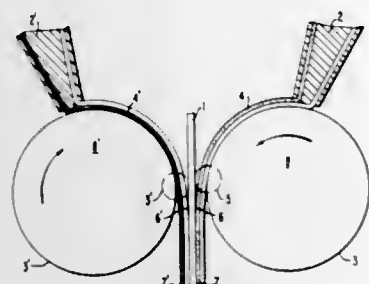
Takeshi Mikami, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Dec. 28, 1967, Ser. No. 694,180

Claims priority, application Japan, Dec. 28, 1966, 42/438

Int. Cl. B29c 23/00

U.S. Cl. 156—229

6 Claims



A method for coating both surfaces of a support suitable for photographic light-sensitive elements whereby one or more coating compositions are applied to continuously moving surfaces of cooling members, gelling said coatings by cooling, stripping the gelled layers from the cooling surfaces and adhering them to the surfaces of the support.

3,560,289

ROTARY EMBOSSED DIE COUNTER

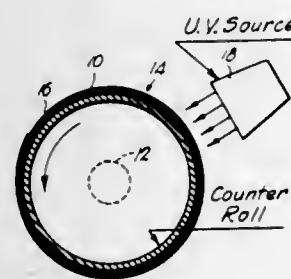
Stanley W. Otto, Kansas City, Mo., and Seth W. Warrell, Shawnee Mission, Kans., assignors to Hallmark Cards, Incorporated, Kansas City, Mo., a corporation of Missouri

Filed Feb. 21, 1968, Ser. No. 707,199

Int. Cl. B31f 1/00

U.S. Cl. 156—219

12 Claims



A rotary counter for use against a rotary embossing or foil stamping die having a modeled surface presenting a design. The counter is prepared by applying several layers of an ultraviolet sensitive, thermosetting synthetic resin reinforced with glass cloth to a counter roll. After partial curing of the resin to reduce the tackiness thereof, the die is rotated against the resin blanket on the counter roll to cause the outer face of the blanket to assume a shape which is the reverse of the die. A sheet of lead foil is inserted between the die and the deformed resin to provide paper clearance. Rotation of the die against the lead foil causes the latter to be deformed and the synthetic resin to assume the configuration of the adjacent face of the foil. Final cure of the resin on the counter roll is effected by application of ultraviolet energy to the resin during rotation of the counter roll.

3,560,290

BOOKBINDING WITH WELDED PAGES

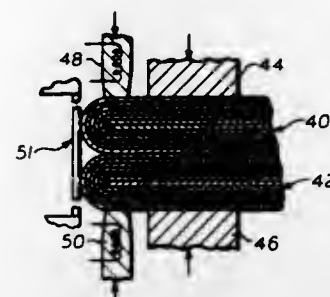
Mortimer S. Sendor, 80—30 221st St., Queens Village, New York 11429, and Bernard T. Sendor, 608 Blair Drive, Westbury, New York 11590

Filed Feb. 14, 1969, Ser. No. 799,373

Int. Cl. B31f 1/00

U.S. Cl. 156—227

16 Claims



This specification discloses methods of binding books without the use of adhesive, staples, sewing, mechanical, looseleaf binders or other means for holding the pages of the book together. Instead of using the expedients of the prior art, this invention uses leaves made from sheets of paper that can be welded together, the composition of the sheet being uniform throughout its entire area since when the sheet is made, no one knows what parts of its area will eventually be the edge portions of a book made from the sheet. Applications of concentrated energy applied to clamped-together leaves cause them to weld to one another to produce connections that compare favorably with the conventional binding mentioned above.

3,560,291

BONDING THERMOPLASTIC RESIN FILMS BY MEANS OF RADIATION FROM A LASER SOURCE

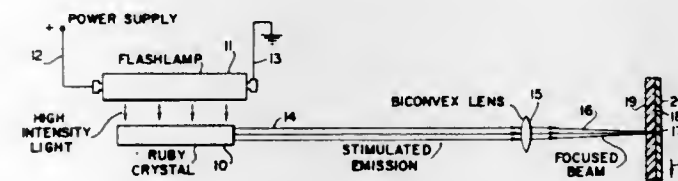
Andrew J. Foglia, Brooklyn, N.Y., and Arnold F. Stan-cell, New Brunswick, and George Brecht, Metuchen, N.J., assignors to Mobil Oil Corporation, a corporation of New York

Filed Mar. 27, 1964, Ser. No. 355,215

Int. Cl. B29c 27/04; B32b 31/26

U.S. Cl. 156—229

2 Claims



A method for bonding two structures of thermoplastic material which comprises bringing the structures together so that they are in mating contact, and subsequently irradiating the pressed together thermoplastic structures by placing the same in the path of high energy electromagnetic radiation, such as a pulsed laser beam for example, to effect softening of the interface whereby said structures are bonded together.

3,560,292

PROCESS FOR FASTENING ELASTIC BANDS TO TEXTILES

Otto Butter, Marktoberdorf, Germany, assignor to Firma X. Fendt & Co., Marktoberdorf, Germany
Filed Mar. 4, 1968, Ser. No. 710,228

Claims priority, application Germany, Mar. 4, 1967, F 51,722

Int. Cl. B32b 31/00

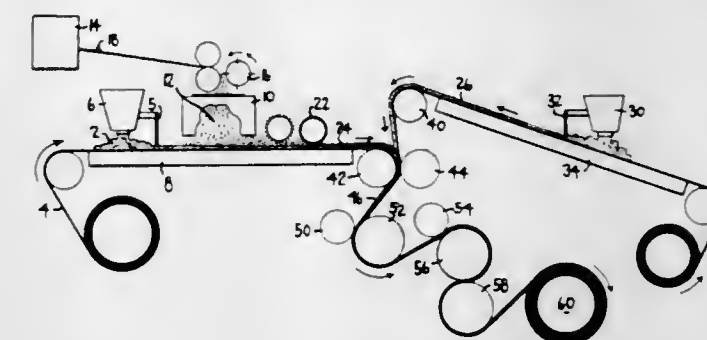
U.S. Cl. 156—229

14 Claims

Process for fastening a tensioned elastic band to a textile sheet by fusion bonds or welds at least at the ends

of the band and preferably at uniformly spaced spots throughout the entire extent of the band. The band or textile sheet may be provided with a thermoplastic synthetic material to improve the fusion bonding or welding. The fusion bonding may provide the only connection of the band with the textile sheet and overlapping sections

together. The laminate is then flexed alternately under pressure into convex and concave arcuate shapes to cause



the viscous resin to thoroughly impregnate the chopped strands.

3,560,295

METHOD OF LINING METAL PIPE

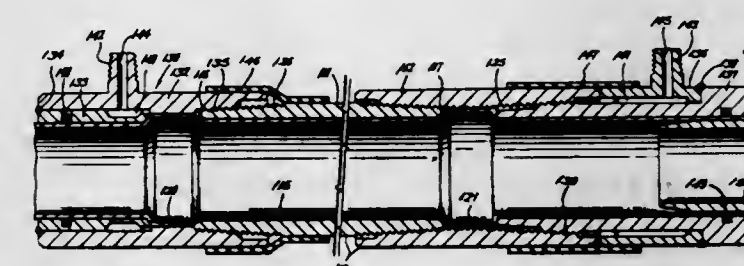
Willard B. Kimbrell, Wichita, and Sol B. Kimbrell, Great Bend, Kans., assignors, by mesne assignments, to The Bovaird Supply Company, Tulsa, Okla., a corporation of Delaware

Continuation of application Ser. No. 806,041, Mar. 7, 1969, which is a continuation of application Ser. No. 658,433, Aug. 4, 1967, which is a continuation-in-part of applications Ser. No. 414,989, Dec. 1, 1964, and Ser. No. 550,869, May 17, 1966, which in turn is a division of abandoned application Ser. No. 272,262, Apr. 11, 1963. This application Oct. 17, 1969, Ser. No. 867,416

Int. Cl. B29c 17/07; B32b 31/04

U.S. Cl. 156—287

3 Claims



A method of lining metal pipe with a tube of rigid thermal-plastic material having an outer diameter slightly smaller than the inner diameter of the pipe. The tube is coated with an epoxy cement and inserted axially into the pipe. Air is withdrawn from the space between the pipe and the tube to create a vacuum in this space. Hot oil at a temperature of about 285 degrees Fahrenheit is then flowed through the tube starting from one end of the tube at an inlet pressure of 1-5 pounds per square inch and discharging out the other end of the tube to atmospheric pressure for a time long enough to raise the temperature of the tube progressively from the oil inlet end of the tube to the oil outlet end of the tube to change the state of the tube from rigid to plastic. The vacuum causes the tube to expand outwardly progressively from one end of the pipe to the other as it is changed to a plastic state by the oil and the progressive expansion causes residual air to be squeezed out from between the tube and pipe. The vacuum is maintained while the formed tube is cooled, the tube being cemented to the pipe by the epoxy cement. A swab may be pushed through the cooled tube and pipe to further cool the tube and to remove oil adhering to the inside of the tube.

3,560,293

METHOD OF MAKING A CONTAINER WITH A PROTECTIVE KICK STRIP

Herbert M. Piker, Wyoming, Ohio, assignor to The Hamilton-Skotch Corporation, Hamilton, Ohio, a corporation of Ohio

Original application June 23, 1965, Ser. No. 466,230.

Divided and this application May 31, 1968, Ser. No. 733,678

Int. Cl. B29g 24/00

U.S. Cl. 156—245

7 Claims

The containers of the present invention are formed of expansible polystyrene foam particles resulting in the containers having relatively thick bottom, cover and spacing walls between said bottom and cover with the outer surfaces of said container bottom, top and separating walls quite soft and capable of deformation and bruises. The application of a relatively hard polystyrene sheet to the chest bottom and for a distance upwardly of said bottom to act as a kick-strip and thereby prevent damage to the chest bottom outer surface and walls outer surface upwardly from the bottom. The adherence of a similar hard polystyrene sheet to the outer surface of the cover avoids damage to the cover top surface and depending walls outer surface.

3,560,294

METHOD AND APPARATUS FOR COMBINING A VISCOUS RESIN AND GLASS FIBER STRANDS

Edward J. Potkanowicz, Apollo, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania

Filed Aug. 29, 1967, Ser. No. 664,094

Int. Cl. B32b 31/12

U.S. Cl. 156—276

6 Claims

A method and apparatus for combining a viscous resin and reinforcing glass fiber strands. The resin is doctored onto a polyethylene film and chopped glass fiber strands are deposited on the resin. Another polyethylene film containing a layer of resin is rolled onto the glass fiber strands to form a composite laminate and the laminate is pressed

3,560,296

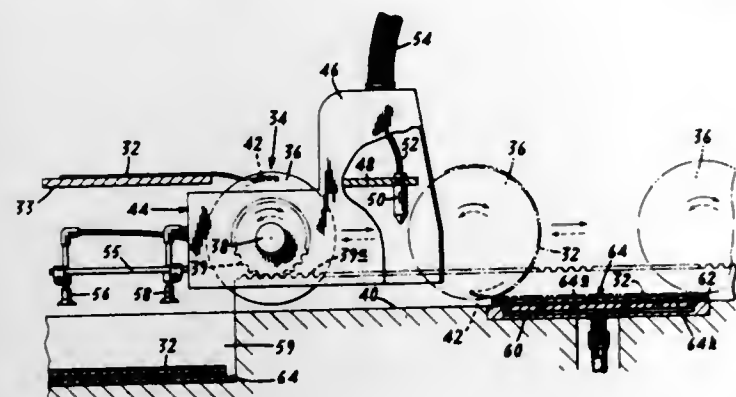
METHOD FOR PREPARING 3-DIMENSIONAL PICTURES

Victor G. Anderson, Rowayton, Conn., assignor to Victor Anderson 3-D Studios Inc., Mamaroneck, N.Y., a corporation of New York

Filed Aug. 11, 1967, Ser. No. 660,086
Int. Cl. C09j 5/02; B32b 31/00

U.S. Cl. 156—308

2 Claims



In the illustrative embodiment of the invention described herein, three dimensional color pictures are prepared by taking a succession of original pictures of an object at different viewing angles with a motion picture camera to provide a film strip. A set of at least three color separation negatives is then made by successively projecting a different primary component of the film strip, frame by frame, onto each of a corresponding number of photosensitive films through a lenticular screen which functions to individualize each frame exposure and, at the same time, causing relative movement between the lenticular screen and the exposed photosensitive film. After the photosensitive films are developed to provide color separation negatives, combined positive color prints are prepared from the separation negatives by graphic art methods. Thereafter, each color print is laminated in registered relation onto a lenticular screen produced in the same manner as the lenticular screen through which the frames of the film strip were projected.

3,560,297

PROCEDURE FOR SEALING TOGETHER LIGNOCELLULOSIC MATERIALS

Ernst Ludvig Back, Vikbyvagen 42, Lidlago, Sweden; Karl Gunnar Norberg, Lerbacksgard 26, Bandhagen, Sweden; and Frans Ingvar Johanson, Trebebovagen 82, Akersberga, Sweden
No Drawing. Filed Mar. 24, 1967, Ser. No. 625,572
Claims priority, application Sweden, Mar. 30, 1966, 4,224

Int. Cl. C09j 5/00

U.S. Cl. 156—306

12 Claims

A method for sealing cellulosic and lignocellulosic materials together or to other materials by heating the bonding surfaces of the cellulosic or lignocellulosic materials to at least 250° C. in the absence of added adhesive and maintaining the surfaces at this temperature for a maximum of 30 seconds. The bonding surfaces are then contacted with each other during or immediately after this heating and a pressure is applied.

3,560,298

PAPERLESS CIGARETTE FILTER AND APPARATUS FOR MANUFACTURE THEREOF

Collin Shaw McArthur, Hoyt Sturdivant Beard, and John Raymond Everhart, Winston-Salem, N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C., a corporation of New Jersey

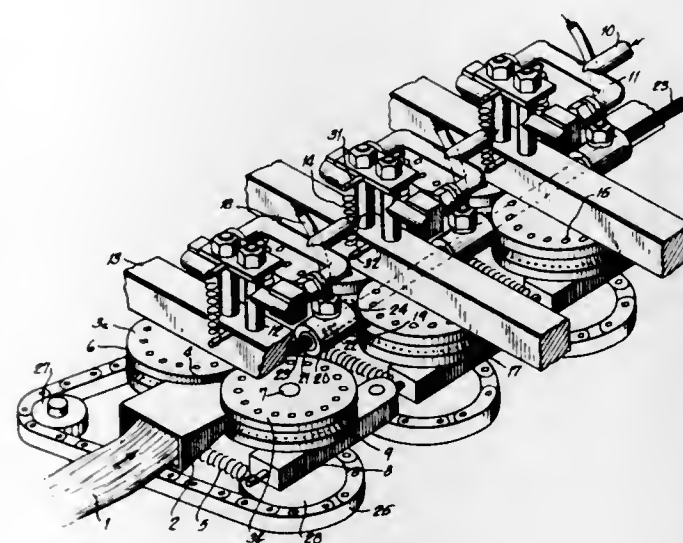
Filed July 30, 1968, Ser. No. 748,856
Int. Cl. B29j 5/08; D04h 3/12

U.S. Cl. 156—376

4 Claims

An improvement in manufacturing equipment for making paperless cigarette filter rods. A cigarette filter

element composed of a compacted bundle of cellulose acetate filaments characterized by a uniform porosity and a smooth surface is obtained by the use of such apparatus. The apparatus comprises: (1) a web gathering means for collecting and directing a web of plasticized filamentary tow into a rod compaction means formed between the surface of a series of oppositely rotating steam injecting wheels, (2) a rod-shaping means formed by the cooperative correspondence of the opposed surfaces of a contiguous pair of peripheral grooves located in the opposing surfaces of at least one pair of co-acting oppositely rotating apertured wheels, to form a die form, (3) a means for injecting a heating fluid directly into said rod-shaping means through its apertured walls while the contents of the rod-shaping means are under a compacting pressure



and the rotating wheels are in motion, (4) a means for drying, cooling, and consequently curing the plastic rod-shaped product of the heating and compacting action of the die. The means indicated by (4) may be a second pair or pairs of grooved apertured wheels connected to an air supply or may comprise a cylindrical enclosed plenum chamber containing therein a foraminated central tube through which the rod of heated tow passes. The passage of air into the plenum chamber causes a flow of air to circulate about, cool, and air cure the surface of a filamentary rod passing through the centrally located tube. The cured rod is subsequently severed into measured segments of cigarette filter rod elements having enhanced structural integrity and requiring no paper overwrap during manufacture.

3,560,299

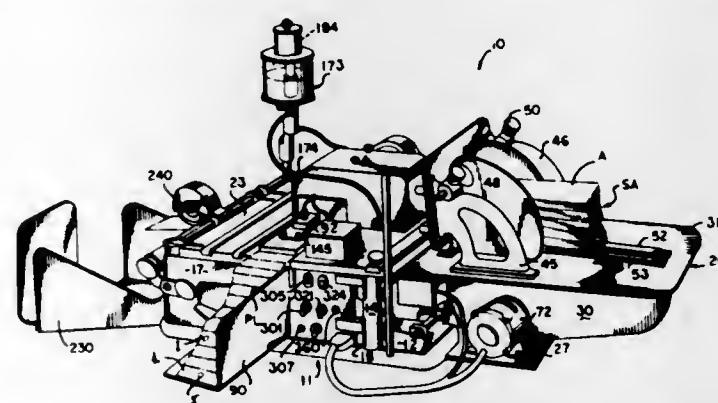
LABELLING MACHINE

Kurt R. Schneider, Bainbridge, N.Y., assignor to Litton Business Systems, Inc., a corporation of New York

Filed Dec. 24, 1964, Ser. No. 420,912
Int. Cl. B32b 31/12; B65c 1/02, 9/44

U.S. Cl. 156—351

11 Claims



A machine for associating first articles moving along a first path with second articles moving along a second

path; the two paths intersecting at a common zone. Drive means are provided for moving the articles along their respective paths under the control of control circuitry and a sensing mechanism responsive to the sensing of indicia disposed on the second articles. The sensing of a first form of indicia arrests the feed of first articles while permitting the feed of second articles while the sensing of a second form of indicia arrests the feed of both first and second articles.

3,560,300

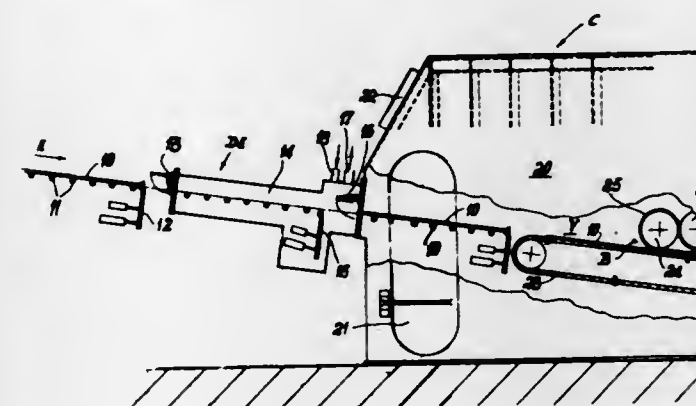
APPARATUS FOR PRODUCING COMPOUND LAMINATES

Ludwig Eigenmann, 2 Via delle Asole, Milan, Italy
Filed Apr. 13, 1966, Ser. No. 542,266

Int. Cl. B29b 1/06

U.S. Cl. 156—382

6 Claims



An apparatus for producing compound laminates consisting of a support layer and a hard coating film adhering to one face of the layer, in which a film of hardenable material is spread on a smooth upper face of a rigid planar support and a layer of setttable conglomerate material applied to the film after hardening of the latter to form, after settling of the layer, the laminate on the support, whereafter the laminate is separated from the support.

3,560,301

TIRE BUILDING MACHINE

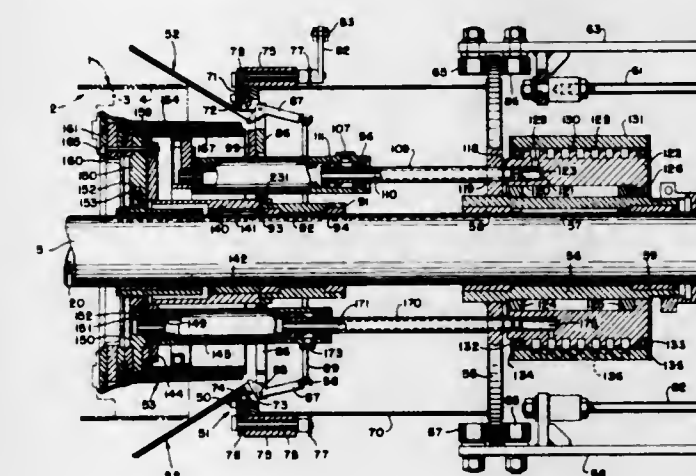
Armindo Cantarutti, Akron, Ohio, assignor, by mesne assignments, to NRM Corporation, a corporation of Ohio

Filed May 29, 1967, Ser. No. 642,067

Int. Cl. B29h 17/12, 17/22, 17/26

U.S. Cl. 156—401

27 Claims



An automatic tire building machine especially suitable for the production of radial tires having a bead setting and dual bag ply turn-up mechanism cooperating with an expansible rotatable drum to place the bead and properly turn the plies thereabout and then to place the side wall material.

3,560,302

SHAPING DRUM FOR THE MANUFACTURE OF TIRE CASINGS

Jean Léon Missioux, 55 Boulevard Gambetta, Sannois, Val d'Oise, France

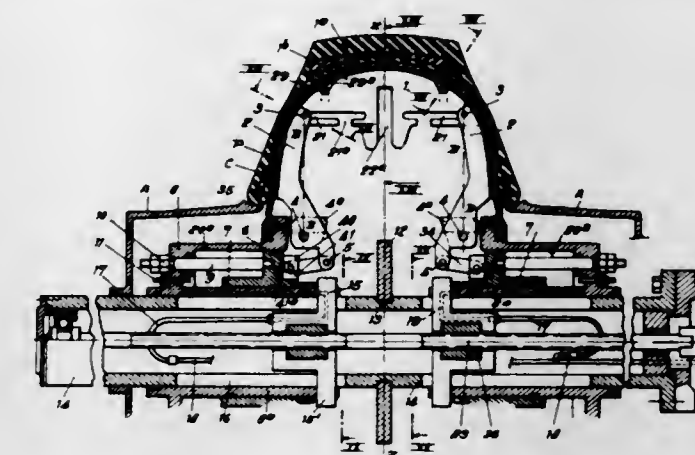
Filed Oct. 18, 1967, Ser. No. 676,344

Claims priority, application France, Nov. 15, 1966, 83,735

Int. Cl. B29h 17/26

U.S. Cl. 156—415

7 Claims



A machine for shaping a tire casing first in a rough form and then in a finished form. The shaping surface is defined by plural groups of three elements pivotally connected together and pivotally mounted for movement between expanded and retracted positions. In the expanded positions, the groups of elements define an annular surface for supporting a resiliently flexible cover which engages and forms the inner surface of the casing.

3,560,303

LABELLING MACHINE FOR CYLINDRICAL CONTAINERS

Lloyd Alexander Nelson, 715 Barkly St., West Footscray, Victoria, Australia

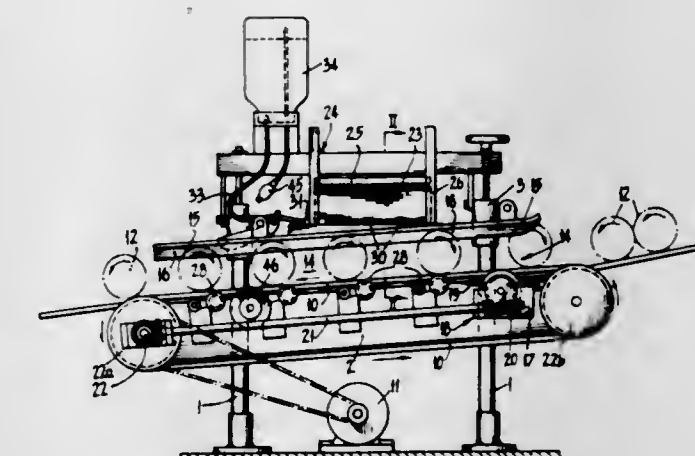
Filed Mar. 27, 1967, Ser. No. 626,069

Claims priority, application Australia, Apr. 4, 1966, 3,840/66

Int. Cl. B65c 9/04

U.S. Cl. 156—453

4 Claims



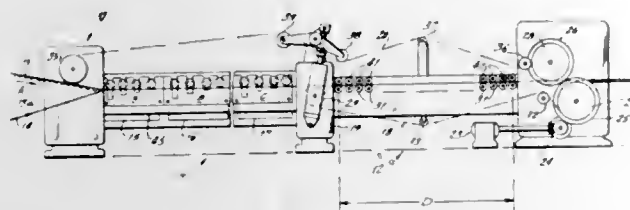
A construction wherein cans rolling down a chute are fed on to a moving conveyor belt and engaged between the conveyor belt and overhead guide rails. The belt is resiliently pressed towards the guide rails so as to reverse the direction of rotation of the cans. A glue dispenser transfers pickup glue to an area of each can circumference as it passes along, and there is a label dispenser

above the guide rails from which a label is picked up by the glue on the can and wrapped around and adhered to the rotating can.

3,560,304
APPARATUS FOR PRODUCING CORRUGATED BOARD

Lawrence J. Saunders, Elmont, N.Y., assignor to S & S Corrugated Paper Machinery Co., Inc., Brooklyn, N.Y., a corporation of New York

Filed Dec. 21, 1967, Ser. No. 692,529
Int. Cl. B31f 1/20, 1/22
U.S. Cl. 156—470 5 Claims

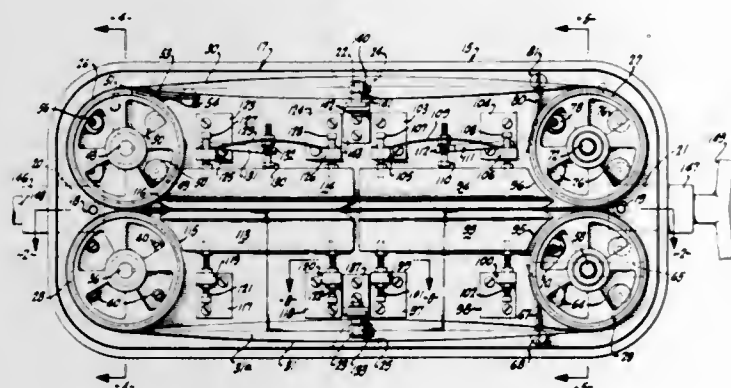


The length of a machine for producing corrugated board is substantially reduced by shortening the pulling section which receives the corrugated board web after it passes through the heating section. Shortening of the pulling section is achieved by constructing and positioning the rollers providing the loading on the upper conveyor belt of the pulling section to have diameters within the range of 1½" to 3" with spacings between centers being 1.1 to 1.3 times roll diameter for steel rollers in the range of 80" to 105" in length.

3,560,305
HEAT-SEALING MACHINE

William W. Hints, Novato, Calif., assignor of one-half to Bette C. Hints, Novato, Calif.

Filed Nov. 21, 1967, Ser. No. 684,681
Int. Cl. B32b 31/20
U.S. Cl. 156—498 22 Claims



A heat-sealing machine for uniting heat-sealable materials such as polyethylene and other of the thermoplastic materials. The machine constitutes an improvement over those disclosed in Chaffee Pats. No. 2,542,900 and No. 2,542,901 which have a pair of endless belts respectively entrained about pulley wheels therefor which orient and drive the belts so that adjacent surfaces thereof travel in the same direction to grip therebetween and advance the material to be sealed through a sealing station. The improved machine includes twisted metal belts which have a self-cleaning action, and it further includes arrangements for making the belts track properly with the pulley wheels about which they are entrained.

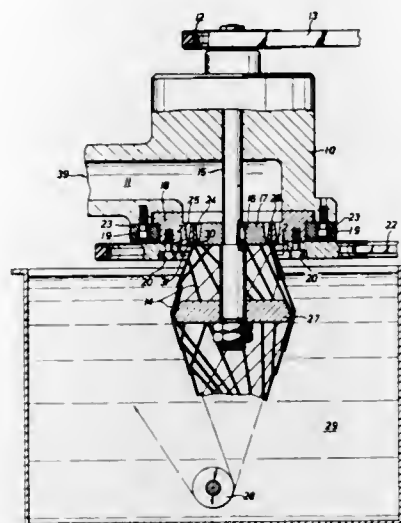
3,560,306
APPARATUS FOR MAKING OVERLAPPING RIBBON MESH

George S. Nalle, Jr., 108 W. 2nd St., Austin, Tex. 78701

Filed Sept. 20, 1968, Ser. No. 761,142
Int. Cl. B29b 1/00

U.S. Cl. 156—500

11 Claims



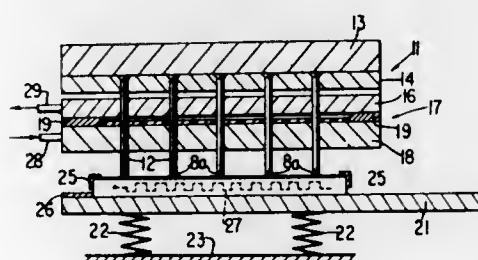
A plastic mesh product having a series of overlapping ribbons is formed by bonding such plastic ribbons with a second set of plastic filaments as the ribbons and filaments extrude from relatively rotating dies. The ribbon-like filaments are extruded from orifices so positioned that only a portion of the width of the ribbon is bonded to the second filaments thus producing a plastic product with overlapping ribbons having a "fish scale" character.

3,560,307
APPARATUS FOR APPLYING SPACING MEANS BETWEEN ELECTRODES OF ELECTRIC POWER SOURCES

Jean Henri Doll, Aulnay sous Bois, and Henri Desire Druesne, La Courneuve, France, assignors to Societe des Accumulateurs Fixes et de Traction (Societe Anonyme), Pont de la Folie, Romainville, France, a French company

Original application Mar. 22, 1966, Ser. No. 536,395.
Divided and this application Oct. 22, 1968, Ser. No. 788,976

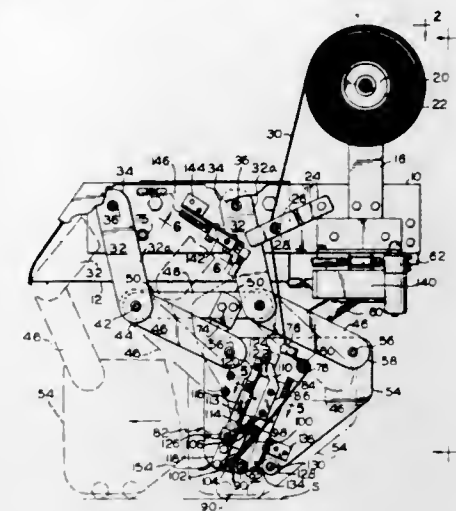
Int. Cl. B32b 31/12; B26f 1/14
U.S. Cl. 156—516 7 Claims



Apparatus for effecting substantially uniform spacing between plates of cells of a battery comprising means for severing individual spacer elements from a spacing sheet and directly adhering the severed elements to an electrode sheet and stacking said sheets with additional electrode sheets, the spacer elements serving to provide the substantially uniform spacing.

3,560,308
TAPE APPLYING APPARATUS
Erville C. Buck, Springfield, Oreg., assignor to The Willamette Valley Company, Eugene, Oreg., a corporation of Oregon

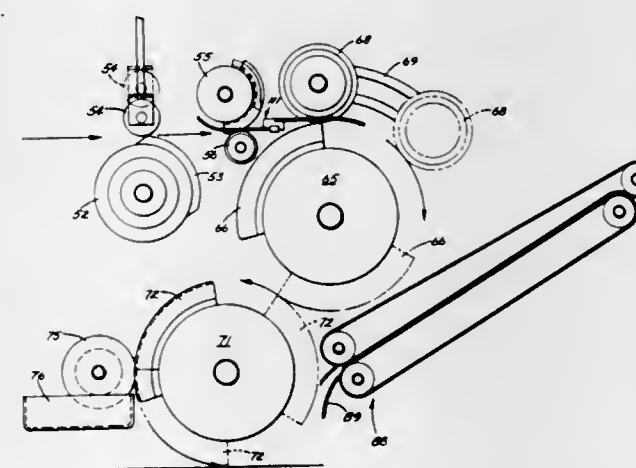
Filed July 24, 1969, Ser. No. 844,506
Int. Cl. B32b 31/04, 31/18
U.S. Cl. 156—522 7 Claims



An apparatus for applying a pressure-sensitive adhesive tape to a surface having a support structure to support a supply of pressure-sensitive adhesive tape above the surface, a pair of arms pivotally supported on the support structure and connected by a link at their lower ends, a second pair of arms pivotally connected to the first pair of arms at the lower ends thereof, and a carriage pivotally supported at the lower ends of the second pair of arms and adapted to carry a length of tape from the supply. A pneumatic piston and cylinder lower the carriage to a point at which the length of tape contacts the surface and adheres thereto and then advance the carriage horizontally and apply the tape to the surface. A knife is positioned on said carriage to sever the tape at a point prior to the termination of the horizontal advance of the carriage, and means are provided simultaneously to withdraw a slight excess of tape from the supply and return the carriage to its initial position with the excess tape in position to be applied to the surface during the next cycle of the apparatus.

3,560,309
ADDRESSING AND IMPRINTING MACHINE
John H. Gruver, Cleveland, and Alfred J. Carmont, Willowick, Ohio, assignors to Addressograph Multi-graph Corporation, Cleveland, Ohio, a corporation of Delaware

Filed June 18, 1968, Ser. No. 737,935
Int. Cl. B65c 9/18; B26f 3/02
U.S. Cl. 156—528 10 Claims

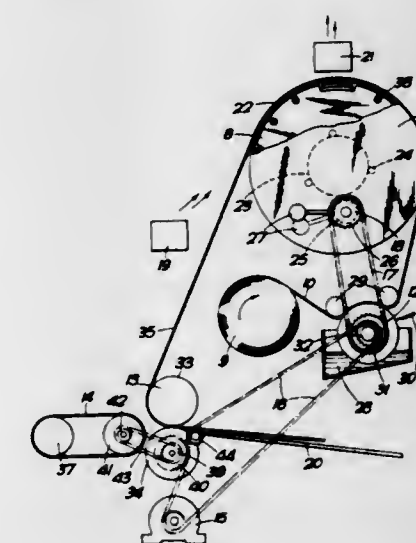


A machine is provided which perforates along a web between columns of information, e.g. addresses, and there-

after cuts a strip off the end of the sheet, taking only one address from each column to produce a strip containing a series of address units connected by perforated areas. Finally, the strip is pulled to burst it progressively, unit-by-unit, into labels or heat transfer printing masters as the case may be, and each unit of information is applied to an item such as a magazine or newspaper moving along a conveyor. The same machine is also capable of adjustment so as to cut and apply units from a single column web.

3,560,310
LAMINATING MACHINE
Brian Albert Bolton, Staines, England, assignor to Morane Plastic Company Limited, Staines, England, a British company

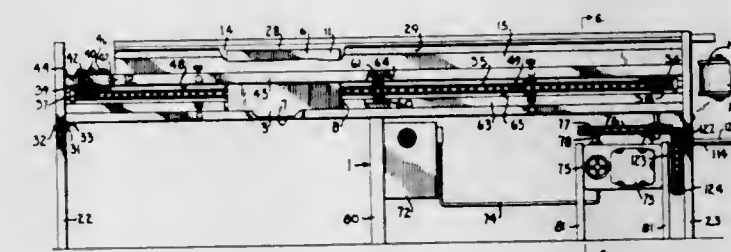
Filed May 20, 1968, Ser. No. 730,244
Claims priority, application Great Britain, May 22, 1967, 23,767/67
Int. Cl. B32b 31/06, 31/12
U.S. Cl. 156—552 7 Claims



A machine that coats thermoplastic film from a roll with liquid adhesive, passes the coated film over a heated rotary drum having internal stationary heating rods to dry or partly dry the adhesive, the friction between the film and the drum causing the drum to rotate. Web to be laminated is fed by a conveyor belt to a heated roll press which applies the coated film to the web. There are auxiliary drive means to rotate the drum during a warming up period.

3,560,311
METHOD AND MACHINE FOR MAKING TABLETS
Boyd C. Blair, Topeka, Kans., assignor to Brackett Stripping Machine Co., Inc., Topeka, Kans., a corporation of Kansas

Filed Jan. 15, 1968, Ser. No. 697,685
Int. Cl. B42c 13/00
U.S. Cl. 156—557 7 Claims



A method and apparatus for making tablets with the method including arranging a plurality of sheets into a set, registering edges of the sheets in the set, holding the set in a pressed together condition, grinding one edge of

the set and applying a hardenable quick drying adhesive to the one edge of the set, said method including maintaining the edges of the set in registry during grinding the one edge and applying adhesive thereto, said method including applying a strip having adhesive to the one edge, folding opposite margins of the strip to engage exterior sheets, and cutting the strip adjacent opposite ends of the one edge.

The apparatus for making the tablets having structure forming a defined path and a pair of cooperating endless belts, each having spaced endless thickened portions on the interior face thereof, means for receiving separate sheets arranged in a set, and means for holding said set between the endless belts and for moving the set along the defined path. The apparatus is adapted to move the set of sheets along the defined path to a grinder adjustable to trim one edge of the set and to an adhesive applying position where a wheel receiving adhesive from a container and applies same to the one edge. The apparatus includes a plurality of spaced guide rollers which are complementary to and adapted to engage the interior face of each endless belt and endless thickened portions thereon with one group of the guide rollers being mounted in adjustable rail sections. The adjustable rail sections are divided into segments and are resiliently mounted whereby the set of sheets is held in a selected position and the sheets in the set are maintained in registry. A plurality of tensioning rollers are associated with each endless belt to maintain a desired tension in the respective endless belts.

3,560,312

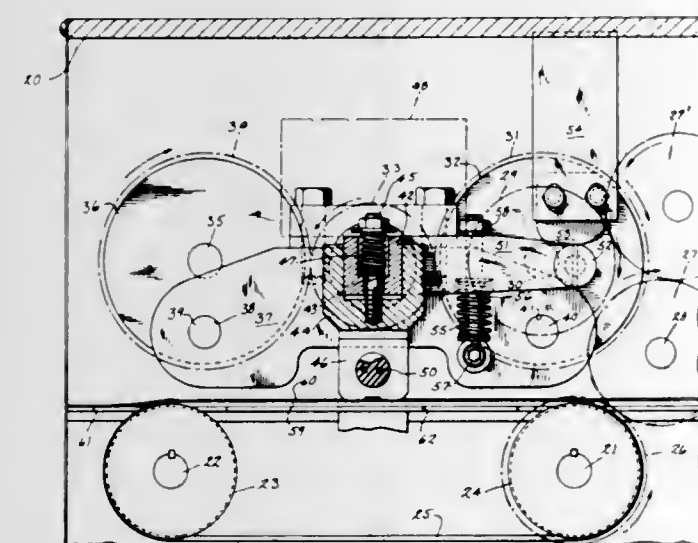
ORBITAL PRESSURE APPLYING APPARATUS FOR TRAVELING WEBS

Richard W. Smith, Racine, Wis., assignor to Pratt Manufacturing Corp., Milwaukee, Wis., a corporation of Wisconsin

Filed Aug. 7, 1968, Ser. No. 750,866
Int. Cl. B30b 15/34; B26c 1/56

U.S. Cl. 156—583

10 Claims



Packaging apparatus with means for continuously moving two superimposed continuous webs of packaging material, and including a heat sealing bar disposed transversely of the traveling web. There is mechanism for moving the heat sealing bar in an orbit to periodically engage the traveling web at longitudinally spaced points, and means automatically compensating for the change in speed of the sealing bar relative to the web due to the harmonic projection of the speed of the orbiting bar on a straight line, whereby said sealing bar, which engages the web for about 30 degrees on each side of center, is caused to travel at the same linear speed as the web during the entire period of engagement.

3,560,313
POM PON

Lawrence R. Herkimer, 11766 Valleydale Drive,
Dallas, Tex. 75230

Filed Sept. 17, 1968, Ser. No. 760,228

Int. Cl. D04d 7/06

U.S. Cl. 16—9

8 Claims



A pom pon for use by yell leaders, pep squads, and the like having strands of crepe paper or similar material secured to a body with a protective band around the portions of the strands on the body and a handle secured to the body for holding the pom pon.

3,560,314

THREE-DIMENSIONAL PAINTED WORKS OF ART

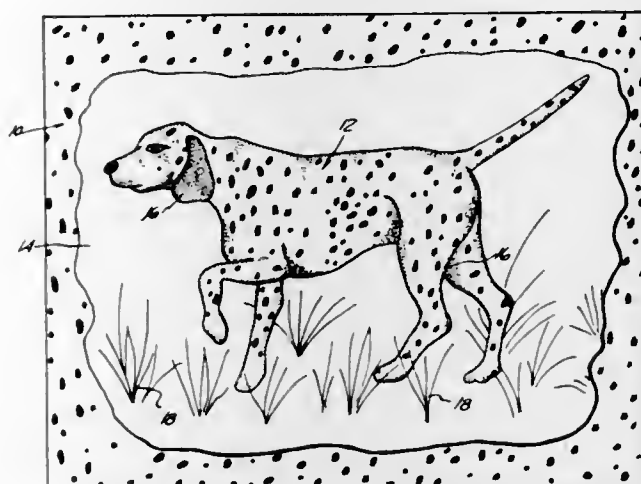
Robert Rodriguez, Westland, Mich., assignor to
Handcraft Studio, Inc., Detroit, Mich.

Filed June 27, 1969, Ser. No. 837,157

Int. Cl. B44f 3/00

U.S. Cl. 161—20

2 Claims



A representation of a selected animal is formed by transferring a silhouette of such animal to a textured simulated animal skin having the appropriate markings for such animal, painting over said markings throughout a wide border surrounding the outline of the silhouette, thereby revealing and defining the animal within the border, and finally applying additional paint to complete the appropriate shading and details on the animal and border.

3,560,315

MONOLITHIC FLOORING

Richard J. Evans, Decatur, and Joseph M. Judge, Millersville, Pa., assignors to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania

Filed Dec. 28, 1967, Ser. No. 694,295

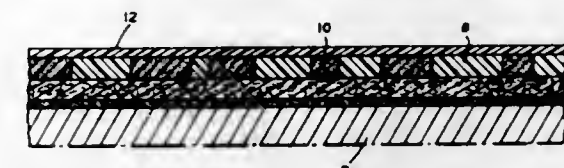
Int. Cl. B32b 31/10; E04c 1/24

U.S. Cl. 161—37

2 Claims

A seamless flooring and a method for laying the seamless flooring. A backing material containing a plurality of chips fastened thereto is fastened to a subfloor. Grouting is placed over the backing in the area between the chips

so that the grouting and upper surface of the chips form the upper surface layer of the flooring. A urethane wear-resistant layer is placed over top of the grouting and



upper surface of the chips. The placing of the grouting over the backing on the job site eliminates the appearance of a seam in the composite floor structure.

3,560,316

LAMINATED FIBER GLASS FLOORING AND METHOD OF MAKING THE SAME

Merwyn C. Gill, Pasadena, Calif.

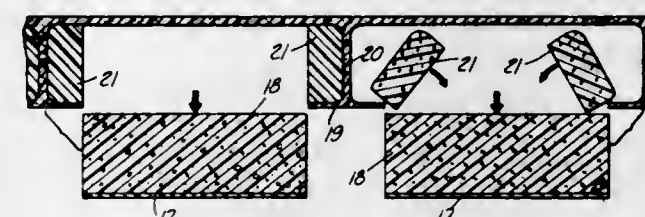
(4076 Easy St., El Monte, Calif. 91731)

Filed Sept. 25, 1967, Ser. No. 670,341

Int. Cl. B32b 1/04

U.S. Cl. 161—41

7 Claims



An integrally formed laminated fiber glass flooring material having a continuous top skin and I-beam stress elements; and a method of making such a structure by molding the resin impregnated glass cloth around a plurality of mandrels and then cutting away the bottom surface of each core element and removing the mandrel therefrom.

3,560,317

LUMINOUS STRETCH PANEL

William C. Nanny, San Francisco, and Russell D. Squire, San Mateo, Calif., assignors to Residential Lighting Sales Company, San Francisco, Calif., a partnership

Continuation of application Ser. No. 544,287, Apr. 21, 1966. This application June 24, 1969, Ser. No. 836,120

Int. Cl. B32b 1/04, 3/02

U.S. Cl. 161—43

7 Claims



An improved panel structure for luminous ceilings in which a thin translucent film is formed about an expanded cellular frame in extension across the opening there-through and in tension thereupon.

3,560,318

FIBROUS PULP CONTAINING PARTIALLY HYDROLYZED POLYVINYL ACETATE

Walter A. Miller, Somerville, and Ivey Allen, Jr., Ne-shanic, N.J., assignors to Union Carbide Corporation

No Drawing. Filed Dec. 26, 1967, Ser. No. 693,144

Int. Cl. B32b 5/08, 27/02

U.S. Cl. 161—82

8 Claims

A fibrous pulp comprising oriented fibers of at least three incompatible thermoplastic resins, said fibers having fibrillated surfaces, and one of said thermoplastic resins being a partially hydrolyzed polyvinyl acetate.

3,560,319

ADHESIVE TAPE

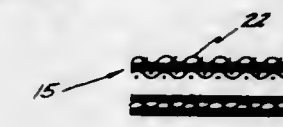
Leo G. Kuhlman, 1109 Audubon Road,
Park Hills, Ky. 41011

Filed June 11, 1968, Ser. No. 736,159

Int. Cl. B32b 15/02; C09j 7/04

U.S. Cl. 161—89

2 Claims



This invention discloses an adhesive tape that has a strippable protective backing consisting of a backing layer and a net cloth joined thereto by a pressure sensitive adhesive. The tape is reusable and includes a cloth base coated with adhesive on at least one of its surfaces.

3,560,320

INSULATING MATERIAL

Henry A. Letteron, Schenectady, N.Y., assignor to
General Electric Company

No Drawing. Continuation of application Ser. No. 182,968, Mar. 27, 1962. This application Oct. 5, 1967, Ser. No. 673,220

Int. Cl. B32b 5/26, 5/28

U.S. Cl. 161—93

3 Claims

Electrical insulating material is bonded to reinforcing backer material in the preparation of electrical insulating tapes by fused thermoplastic sheet material such as polyethylene, polypropylene, polybutylene, polystyrene, polyvinyl acetate, polyacrylate, cellulose acetate, cellulose acetobutyrate and polyvinyl acetal and blends thereof to provide a porous impregnable structure.

3,560,321

DECORATED ELECTRONICALLY PROCESSED MATERIALS WITH THE DIE PATTERN EMPHASIZED

Eugene A. Magid, 1610 Cloverly Lane,
Rydal, Pa. 19046

Filed Apr. 26, 1965, Ser. No. 450,819

Int. Cl. B32b 3/00, 3/28

U.S. Cl. 161—119

2 Claims



An ornamental plastic sheet structure. A plastic sheet which has a smooth exterior surface of a selected uniform color has a specifically configured pattern portion depressed out of the plane of the remainder of the sheet. The depressed pattern portion may be provided by way of electronic embossing. A decorative coating which is of an appearance and color different from the sheet color covers the sheet remainder only, so as to leave the depressed pattern portion with the initial sheet color exposed through the plane of the remainder of the sheet in a visually prominent manner.

3,560,322

FABRIC-SIMULATING LAMINATED SHEET STRUCTURE AND METHOD FOR MANUFACTURING THE SAME

Eugene A. Magid, Rydal, Pa. 19046

Continuation-in-part of application Ser. No. 383,567, July 20, 1964. This application Jan. 18, 1968, Ser. No. 716,252

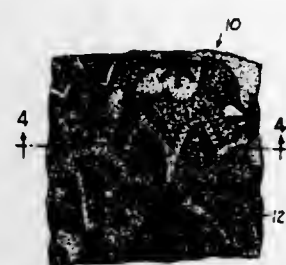
Int. Cl. B32b 5/00

U.S. Cl. 161—120

1 Claim

A fabric-simulating, laminated sheet structure and a method for manufacturing the same. The sheet structure

includes at least two layers of thermoplastic sheet material which are coextensively bonded together to form an interface therebetween, with one of these layers having an elasticity which is substantially less than that of the other of the layers so that this one layer forms a carrier layer for the other layer. The other layer is a foam plastic which forms a covering layer for the carrier layer, and the bonded layers are embossed with a multiplicity of registering depressions and projections distributed throughout the layers to provide the foam plastic cover



layer at its exterior surface which is directed away from the one carrier layer with a texturized velvety appearance and feel. These thermoplastic layers are initially at least temporarily bonded to each other at their interface under heat and pressure, and then after preheating the bonded layers are embossed with an engraved embossing roll which provides the multiplicity of depressions and projections distributed throughout the layers, this embossing taking place when the thermoplastic layers have a temperature sufficiently high to retain the registering embossed projections and depressions in the layers.

3,560,323

FIRE-PROOFING OF ELEMENTS PROVIDED WITH CAVITIES CONTAINING A POWDERED INFILL MATERIAL

Charles Emile Zwickert, 108 bis, Rue Jean Jaures, Noisy-le-Sec, Seine-Saint-Denis, France

Filed Dec. 9, 1966, Ser. No. 600,435

Claims priority, application France, Dec. 10, 1965, 41,728; Jan. 11, 1966, 45,459

Int. Cl. E04b 1/94; B32b 3/20; C09k 3/28

U.S. Cl. 161—139

9 Claims

A prefabricated panel having fireproof characteristics, said panel having internal cavities filled with a pulverulent mixture comprising a small proportion of borax which agglutinates the mixture upon heating, thus preventing the flowing of the mixture outside the cavities when the panel is perforated up to the cavities under action of a flame. Preferably, less than 60 grams of finely powdered borax per liter of mixture is thoroughly dispersed in the remainder of the mixture, which is usually a granular sound insulating agent such as sand, asbestos, refractory earth, cement, etc. If desired, the mixture may be partially pre-agglutinated by moderate heating. In addition, a small proportion of borax may be added to any adhesives used in making the panel.

3,560,324

FLEXWOOD LAMINATES COMPRISING A LAYER OF THERMOPLASTIC RESIN-CELLULOSE FIBER PARTICLE MIXTURE AND A LAYER OF CELLULOSIC FIBER

John J. Quackenbush, Monroe, Conn., assignor to National Distillers and Chemical Corporation, New York, N.Y.

No Drawing. Filed Nov. 23, 1966, Ser. No. 596,473

Int. Cl. B32b 21/08

U.S. Cl. 161—162

10 Claims

High strength water resistant laminates are prepared by pressing together one or more sheets of cellulose

fiber material and sheets comprising 25% to 75% of a thermoplastic resin and from 75% to 25% of a cellulose fiber filler.

3,560,325

PACKAGING LAMINATE FILM COMPRISING POLYETHYLENE AND ETHYLENE/VINYL ALCOHOL COPOLYMER

Hideobu Sogi, Teichiro Chiba, and Katsuaki Hirano, Kurashiki, Japan, assignors to Kurashiki Rayon Co., Ltd., Kurashiki, Japan

No Drawing. Filed June 17, 1968, Ser. No. 737,335
Claims priority, application Japan, June 17, 1967, 42/38,974

Int. Cl. B32b 27/08, 27/30; C08j 1/40

U.S. Cl. 161—165

7 Claims

Laminate film free from tendency of breakage at any boundary portions of heat sealing is prepared by laminating 10–100 μ thick film of ethylene/vinyl alcohol copolymer with ethylene content (X) of 20–45 mol percent, saponification of at least 97% and intrinsic viscosity of 0.05–0.20 l./g. on 10–100 μ thick polyethylene film and subjecting, before or after the above lamination, the ethylene/vinyl alcohol copolymer film to heat treatment for 1–60 seconds at a temperature (Y° C.) within the range expressed by the formula

$$139.3 - 0.72X \leq Y \leq 221.7 - 1.59X$$

3,560,326

TEXTILE-LIKE NONWOVEN FABRIC

William Wallar Bunting, Jr., Franklin James Evans, and David Ellis Hook, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of applications Ser. No. 712,070, Mar. 11, 1968, and Ser. No. 834,788, June 19, 1969, which are continuations-in-part of applications Ser. No. 584,627, Sept. 22, 1966, and Ser. No. 711,718, Mar. 8, 1968. This application Jan. 29, 1970, Ser. No. 6,964

Int. Cl. D04h 3/08; D06c 1/06

U.S. Cl. 161—169

2 Claims

Nonwoven textile fabrics having closely-spaced parallel regions of fiber entanglement are produced by treating fibrous sheet materials with streams of water or other suitable liquid. A layer of randomly disposed fibers is supported on a smooth surface and fibers are entangled along closely-spaced parallel lines with streams of liquid jetted under high pressure to form a structure of interlocking fibers which has adequate strength and durability without bonding agents for uses of woven textile fabrics.

3,560,327

LAMINATE COMPRISING A CERAMIC LAYER, A POLYTETRAFLUOROETHYLENE COATING LAYER AND A BONDING LAYER OF LOW THERMAL EXPANSION SOLDER GLASS

Walter H. Mills, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio

No Drawing. Original application Dec. 6, 1966, Ser. No. 599,394, now Patent No. 3,503,763, dated Mar. 31, 1970. Divided and this application Sept. 5, 1969, Ser. No. 855,748

Int. Cl. B32b 17/10, 27/06; C03c 5/00

U.S. Cl. 161—189

4 Claims

Devitrifying glass compositions for use as solder glasses or coatings, including about 13–23 wt. percent PbO, 4–11% B₂O₃, 4–6% Li₂O, 14–19% Al₂O₃ and 39–50% SiO₂. A nucleating agent may also be included. When crystallized the compositions have coefficients of thermal expansion in the range of about -5 to $+30 \times 10^{-7}/^{\circ}\text{C.}$, and contain lithia-alumina-silicate crystals (beta spodumene or beta-eucryptite) as the primary type, with no lead silicate or zinc silicate crystals present.

3,560,328

PHENOL-FORMALDEHYDE IMPREGNATED CELLULOSIC SHEETS AND LAMINATES

George J. Anderson, Wilbraham, and Ronald H. Dahms, Springfield, Mass., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed July 25, 1968, Ser. No. 747,433

Int. Cl. B32b 27/08, 27/42

U.S. Cl. 161—251

10 Claims

Impregnated cellulosic sheets and laminates which are cold punchable and have good electrical properties. Such constructions are prepared from cellulosic substrates impregnated with a mixture of carboxylated alkadiene interpolymer and a low molecular weight phenol-formaldehyde resin and then over-treated with a certain higher molecular weight substituted phenol-formaldehyde resin. Laminates are made from the resulting sheet-like members by first advancing same and then laying up and thermosetting under heat and pressure.

3,560,329

PROCESS FOR LOW SULFIDE CHEMICAL RECOVERY

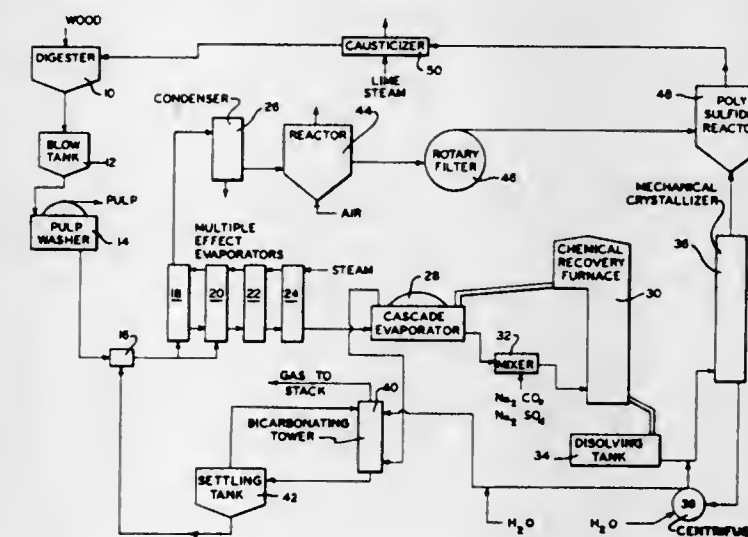
Hugh Wharton Nelson, Hartford, and Carl R. Bozzuto, Waterbury, Conn., assignors to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware

Filed Dec. 27, 1968, Ser. No. 787,347

Int. Cl. D21c 11/12

U.S. Cl. 162—30

7 Claims



A paper pulping and chemical recovery process is described which is particularly adapted to pulping with high sulfidity liquors such as those used in the polysulfide process. The sulfidity of the black liquor is reduced by reaction with sodium bicarbonate slurry to release hydrogen sulfide for reuse either directly or indirectly in the pulping process. The resulting low sulfidity black liquor is then burned in the normal manner to provide green liquor. Sodium carbonate is crystallized from the green liquor and used to produce the sodium bicarbonate which is reacted with the black liquor. The remaining green liquor is treated in the conventional manner to provide fresh cooking liquor.

3,560,330

MULTISTAGE CELLULOSE PULP BLEACHING WITH CHLORINE AND CHLORINE DIOXIDE

Nils Knut Gabriel Ahlberg, Falun, Sweden, assignor to Stora Kopparbergs Bergslags Aktiebolag, Falun, Sweden

No Drawing. Filed Feb. 3, 1967, Ser. No. 613,733

Claims priority, application Sweden, Feb. 25, 1966, 2,506/66

Int. Cl. D21c 9/12

U.S. Cl. 162—66

5 Claims

Bleaching cellulose pulp in a multistage process wherein the pulp at low consistency (2.5–3.5%) is bleached with chlorine, then treated with alkali to remove the major

portion of the lignon content of the pulp, and thereafter treated with an excess of elemental chlorine at a pulp concentration of not less than 5% and at a temperature of below 35° C. Small amounts of chlorine dioxide (0.5–2 gm./kilo of pulp) may optionally be added to the elemental chlorine in the second chlorine treatment step. Subsequent treatment stages may follow which include alkali washes and chlorine dioxide bleachings.

3,560,331

PULPING OF WOOD WITH SULFITE BASE DIGESTION LIQUOR CONTAINING ACETIC ACID

Andrew Beelik, Shelton, Wash., assignor to ITT Rayonier Incorporated

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,891

Int. Cl. D21d 3/00

U.S. Cl. 162—76

3 Claims

A high-grade sulfite wood pulp of substantially increased bleachability and intrinsic viscosity is produced by digesting wood in a conventional manner with a soluble-base sulfite digestion liquor in which from about 20 to 75 percent of the water, by volume, has been replaced with acetic acid.

3,560,332

PAPER MOLDFROOFED WITH DI(PHENYL-MERCURIC)-AMMONIUM SALTS OF ALIPHATIC CARBOXYLIC ACIDS

Henry C. Crandall and Alan R. Bowers, Mosinee, Wis., assignors to Mosinee Paper Mills Company, Mosinee, Wis., a corporation of Wisconsin

Filed Sept. 8, 1965, Ser. No. 485,843

Int. Cl. D21d 3/00; D21h 5/22

U.S. Cl. 162—161

3 Claims

Moldproof paper produced by adding water-soluble di(phenylmercuric)-ammonium salts of aliphatic carboxylic acids to a partially or fully dried web of paper.

3,560,333

METHOD AND APPARATUS FOR DRYING PAPER ON A YANKEE DRYER

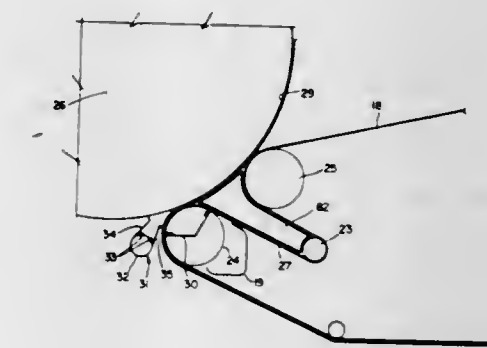
Dean C. Douglas, Wallingford, Richard L. Elderkin, Media, and Donald F. Pohlman, Springfield, Pa., assignors to Scott Paper Company, Delaware County, Pa., a corporation of Pennsylvania

Filed Aug. 15, 1967, Ser. No. 660,644

Int. Cl. D21f 11/00

U.S. Cl. 162—206

19 Claims



Papermaking apparatus is disclosed which includes steam supply means adapted to apply steam to the surface of a wet paper web to be dried in the region immediately preceding the point where the paper web contacts

the surface of the Yankee dryer. One embodiment of the method and apparatus disclosed involves contacting a wet paper web with steam immediately before it passes into the on-running side of a drying nip formed by a pressure roll in contact with the Yankee dryer. Embodiments of the method and apparatus are disclosed in which the above feature is utilized in conjunction with suction pressure rolls, and solid rolls, such as blind drilled rolls and grooved rolls. A further embodiment is disclosed in which steam is also applied to the exposed surface of a wet paper web carried on a Yankee dryer between two successive pressure rolls. One disclosed form of this embodiment involves the use of a hood between the paper web and the felt loop running from one pressure roll, around a guide roll and to a successive pressure roll. Another disclosed form of this embodiment involves enclosing the ends of the space defined by the felt loop and the surface of the Yankee dryer and the insertion of steam into that space to elevate the vapor pressure inside the space at least to the vapor pressure of the wet paper web carried on the Yankee dryer and, preferably, substantially to atmospheric pressure.

3,560,334

APPARATUS FOR INCORPORATING ADDITIVE DISPERSIONS TO WET WEBS OF PAPER

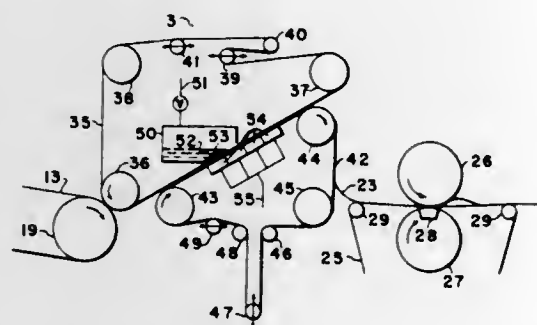
Hanns F. Arledter, Chillicothe, Ohio, assignor to The Mead Corporation, Dayton, Ohio, a corporation of Ohio

Continuation of application Ser. No. 490,453, Sept. 27, 1965. This application Jan. 27, 1969, Ser. No. 797,357

Int. Cl. D21h 3/00

U.S. Cl. 162—266

2 Claims



An uphill applicator apparatus for incorporating additives to wet webs of paper. The apparatus has particular utility for incorporation of dispersed additives to wet paper webs containing pre-applied flocculent materials, and comprises supporting foraminous wires, additives dispensing head box means and vacuum means for controlling the extent of penetration of the additive dispersion into the paper web.

3,560,335

VACUUM MOLD WITH KERF INSERTION SYSTEM

Robert W. Lueders and Washington H. Phillips, Lancaster, Pa., assignors to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania

Filed Aug. 29, 1967, Ser. No. 664,090

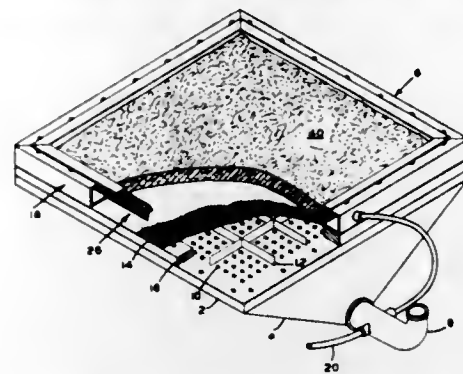
Int. Cl. B29j 5/00

U.S. Cl. 162—387

1 Claim

A mold for the forming of a ceiling tile by the vacuum molding technique wherein the end product is provided with a built-in kerf. A frame is prepared having the desired size and shape. The kerf defining structure which is to be embedded in the finished product to form the kerf is placed around the edge of the frame. The frame is then immersed in a tank containing a liquid pulp slurry. A vacuum pulls on one side of a screen resulting in a buildup of wet pulp fibers on the reverse side of the screen. A peripheral vacuum means assists in the formation of the peripheral edges of the ceiling tile. The kerf

defining structure is releasably held against the peripheral edge vacuum means by a removable perforated Z-shaped



support element. The pulp fibers build up around the kerf defining structure and actually result in the kerf defining structure being embedded in the finished product.

3,560,336

PROCESS FOR THE PREVENTION OR REDUCTION OF CARBON DEPOSITS ON METAL SURFACES IN A NUCLEAR REACTOR

Walter Karcher, Alkmaar, Netherlands, assignor to European Atomic Energy Community (Euratom), Brussels, Belgium

No Drawing. Filed Feb. 12, 1968, Ser. No. 704,526
Claims priority, application Netherlands, Mar. 19, 1967, 6703688

Int. Cl. G21c 9/00, 15/28

U.S. Cl. 176—38

2 Claims

A method of reducing carbon deposits on the metal surfaces of heat exchangers in a nuclear reactor operating at a high temperature and cooled with gas which comprises adding up to 0.1 gram of a silane such as triethyl silane per liter of cooling gas to the cooling gas either in the heat-exchanger or upstream just preceding the heat-exchanger.

3,560,337

APPARATUS AND METHOD FOR AUTOMATIC MUTUAL ADJUSTMENT OF THE COOLANT AND MODERATOR PRESSURES OF A NUCLEAR REACTOR

Lorenzo Tonarelli, Effretikon, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland, a corporation of Switzerland

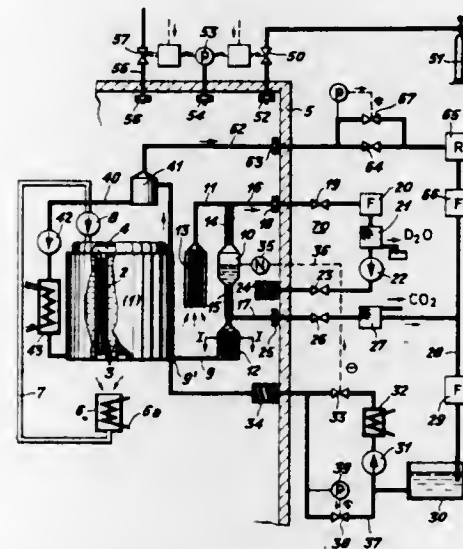
Filed Dec. 8, 1967, Ser. No. 689,125

Claims priority, application Switzerland, Oct. 26, 1967, 17,920/66

Int. Cl. G21c 15/00

U.S. Cl. 176—52

13 Claims



A levelling vessel is disposed outside the moderator vessel and is connected to both the moderator circuit in the moderator vessel and to at least one point in the

coolant gas circuit. The pressures of the coolant and moderator are compared within the levelling vessel without using any other barrier medium. Branch pipes are provided off the lines to the levelling vessel to permit purification and return of the coolant and moderator to their respective circuits.

3,560,338

GAS-COOLED NUCLEAR REACTORS

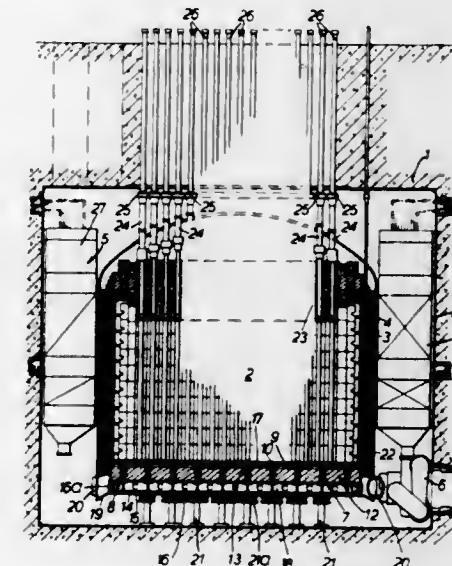
Gordon Brown, Sutton, England, assignor to Atomic Power Constructors Limited, Sutton, Surrey, England, a British company

Filed Feb. 9, 1968, Ser. No. 704,431

Int. Cl. G21c 15/00

U.S. Cl. 176—59

11 Claims



A nuclear reactor having a core entirely surrounded by a gas tight partition, which partition is located within and completely separated from a pressure vessel, the core is supported upon a lattice supporting structure, which contains a plenum chamber, heat exchangers are situated between the partition and the pressure vessel, and coolant gas is circulated from the plenum chamber up through fuel channels in the core down through the heat exchangers, part of the coolant flowing directly into the plenum chamber to join the remainder which passes up the side of the core and down through passageways in the core to the plenum chamber.

3,560,339

FUEL ELEMENTS

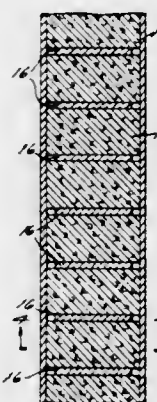
William E. McHugh, Rochester, Mich., assignor to Atomic Power Development Associates, Inc., Detroit, Mich., a corporation of New York

Filed May 12, 1967, Ser. No. 637,947

Int. Cl. G21c 3/34

U.S. Cl. 176—76

5 Claims



A nuclear reactor fuel element having an elongated tubular cladding which contains fuel particles and a disc of smaller diameter than the internal diameter of the cladding.

883 O.G.—10

3,560,340

PROCESS FOR TREATING BODY FLUIDS

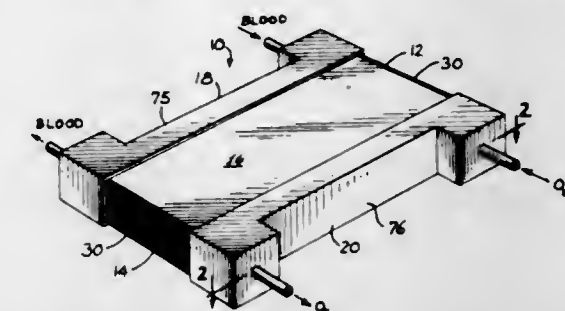
Ronald Leonard, Elk Grove Village, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill., a corporation of Delaware

Filed Mar. 11, 1968, Ser. No. 712,066

Int. Cl. C12k 9/00; B01d 13/00

U.S. Cl. 195—1.8

6 Claims



A support member in each of two sets of pockets formed by membranous layers, films fluid to minimize variation in resistance to flow causing short circuits. A pair of channels at the upstream and downstream end portions of at least one set of pockets and defined by the support members minimizes resistance to flow of fluid across the input and output end portions of the pockets of such set.

3,560,341

PROCESS FOR THE REMOVAL OF STRAIGHT CHAIN HYDROCARBONS FROM PETROLEUM FRACTIONS

Alfred Champagnat, Paris, and Jean Antoine Filosa, Laverne, France, assignors to The British Petroleum Company Limited, London, England, a British joint-stock corporation

No Drawing. Continuation of application Ser. No. 330,520, Dec. 16, 1963, which is a continuation-in-part of applications Ser. No. 131,470, Aug. 15, 1961, now Patent No. 3,193,390, and Ser. No. 228,728, Oct. 5, 1962. This application Aug. 15, 1968, Ser. No. 755,019

The portion of the term of the patent subsequent to June 21, 1983, has been disclaimed

Int. Cl. C12c 11/00; C12d 13/06; A23j 1/18

U.S. Cl. 195—3

10 Claims

A process for the production of an edible yeast product with a concurrent dewaxing of a petroleum fraction containing initially from 3 to 45% by weight of n-paraffin, said fraction further containing branched-chain paraffins, naphthenes and aromatics. Said process produces a dewaxed gas-oil product thus rendered more suitable for industrial use through a reduced proportion of n-paraffin and an edible yeast product which is cultivated at the expense of the n-paraffin initially present.

3,560,342

PROCESS FOR PRODUCING OROTIDYLIC ACID

Kiyoshi Nakayama, Sagami-hara-shi, and Haruo Tanaka, Machida-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Apr. 15, 1968, Ser. No. 721,189

Claims priority, application Japan, Apr. 18, 1967, 42/24,209; June 24, 1967, 42/40,141

Int. Cl. C12d 13/06

U.S. Cl. 195—28

19 Claims

A process for producing orotidylic acid by fermentation which comprises culturing a microorganism belonging to the genus Brevibacterium, Corynebacterium, Arthrobacter or Micrococcus in an aqueous nutrient medium and adding to the medium, either prior to the initiation of culturing or during culturing, 6-azauracil, 5-hydroxyuracil, ribosides or ribotides of these compounds, or mixtures thereof. Orotic acid or arotidine may also be added to the medium.

3,560,343

LOW D.E. STARCH CONVERSION PRODUCTS
 Frederick C. Armbruster, La Grange, and Clarence F. Harjes, Hinsdale, Ill., assignors to CPC International Inc., New York, N.Y., a corporation of Delaware
 No Drawing. Filed Mar. 24, 1967, Ser. No. 625,584
 Int. Cl. C12d 13/02

U.S. Cl. 195—31

9 Claims

The present invention provides a process for preparing low D.E. starch hydrolysates and low D.E. starch conversion syrup products which are both liquid and solid. Starch is treated with acid to a D.E. less than 15 and then converted with a bacterial alpha-amylase to a D.E. between 10 and 25. From the resulting hydrolysate product is obtained a non-having syrup which is almost completely water-soluble.

3,560,344

REDUCTION OF GASEOUS NITROGEN TO AMMONIA

William A. Bulen, Enon, Ohio, assignor to Charles F. Kettering Foundation, Yellow Springs, Ohio, a corporation of Ohio

No Drawing. Continuation-in-part of application Ser. No. 494,947, Oct. 11, 1965, now Patent No. 3,423,289. This application Aug. 29, 1967, Ser. No. 663,982

The portion of the term of the patent subsequent to Jan. 20, 1986, has been disclaimed

Int. Cl. C12d 13/00

U.S. Cl. 195—50

10 Claims

An organo-metallic catalyst useable in reduction of gaseous nitrogen to ammonia in a system independent of metabolizable carbohydrates and oxygen and requiring 105 Kcal./mole of N_2 gas reduced, based on the free energy of hydrolysis of adenosine triphosphate of 7 Kcal./mole, as well as a method of deriving the catalyst from microorganisms grown in nitrogen are described. The production of recoverable ammonia by the chemical reduction of nitrogen gas using this catalyst, an electron donor and a phosphorylating agent in an aqueous media buffered with zwitterionic materials at a pH in the range of 6 to 8, pH 7.25 being optimum is also described.

3,560,345

PROCESS FOR PRODUCING BACTERIAL ISOAMYLASE

Yasuyuki Yokobayashi, Sakai-shi, Osaka, and Kaname Sugimoto and Yoshinori Sato, Okayama, Japan, assignors to Hayashibara Co., Okayama-shi, Okayama, Japan, a corporation of Japan

No Drawing. Filed May 31, 1968, Ser. No. 733,326
 Claims priority, application Japan, June 2, 1967, 42/34,867

Int. Cl. C07g 7/02

U.S. Cl. 195—66

5 Claims

A culture medium, which contains appropriate sources of carbon and nitrogen and mineral materials, is inoculated with *Pseudomonas amyloclavata* (ATCC No. 21,262) and the strain is cultured with shaking at about 30° C. After the culture, the culture fluid obtained is centrifuged and cold acetone is added to the supernatant fluid to precipitate isoamylase. The isoamylase precipitated is centrifugally collected and dried in vacuo to yield the isoamylase in powdery form.

3,560,346

PROCESS OF PRODUCING SHAPED COKE

Heltmann Günter, Frankfurt am Main, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Continuation-in-part of applications Ser. No. 581,454, Sept. 23, 1966, and Ser. No. 664,597, Aug. 29, 1967. This application Dec. 19, 1969, Ser. No. 886,770

Int. Cl. C10b 53/08

U.S. Cl. 201—6

29 Claims

Process of producing coke pellets bokies in a rotary kiln comprising feeding to the kiln carbonaceous matter

having a high volatile content, an oxygen containing gas, and cokable pellets comprising a mixture of a substantially non-caking carbonaceous material and a highly coking carbonaceous material; coking the pellets in the rotary kiln; simultaneously burning the volatiles produced in said coking and the volatiles produced from the high volatiles carbonaceous matter to produce substantially all of the heat required to operate the process; and simultaneously producing from the high volatiles containing carbonaceous material the substantially non-caking carbonaceous material which is used in the pellet formation. On an overall basis there is added to the kiln highly caking coal, oxygen and high volatiles containing carbonaceous material.

The pellets are heat hardened in the kiln by raising their temperature at a rate of at least 15° C. per minute to a maximum temperature of about 500 to 1,000° C.

3,560,347

APPARATUS FOR CARBONIZING CARBONACEOUS MATERIALS USING MICROWAVE ENERGY

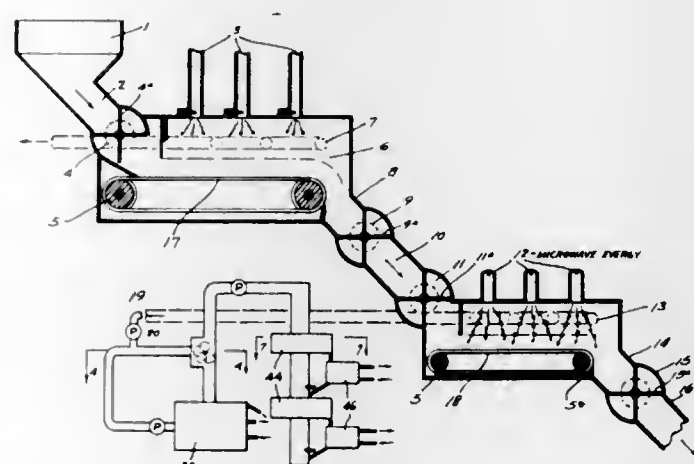
Edward M. Knapp, 951 N. Livingston St., Arlington, Va. 22205, and Weldon T. Ellis, Royal Arms Apts. S-11, 2011 Richard Jones Road, Nashville, Tenn. 37215

Original application Aug. 4, 1964, Ser. No. 387,453, now Patent No. 3,449,213, dated June 10, 1969. Divided and this application June 2, 1969, Ser. No. 829,538

Int. Cl. C10b 7/06

U.S. Cl. 202—108

3 Claims



Coal is first preheated in a first chamber by direct contact with hot gases and is then carbonized in a second chamber using microwave energy as the heat source. The volatile material from the second chamber is fractionally condensed.

3,560,348

BATTERY OF COKE OVENS

Nikolai Konstantinovich Kulakov, Ulitsa Danilevskogo 14, kv. 21; Solomon Grigorievich Grebshtein, Ulitsa Danilevskogo 14, kv. 39; and Evgeny Nikolaevich Nikitin, Ploschad Rozy Ljuxemburg 5, kv. 28, all of Kharkov, U.S.S.R.

Filed Nov. 8, 1967, Ser. No. 681,384

Claims priority, application U.S.S.R., Dec. 17, 1966, 1,117,023

Int. Cl. C10b 5/02, 5/16

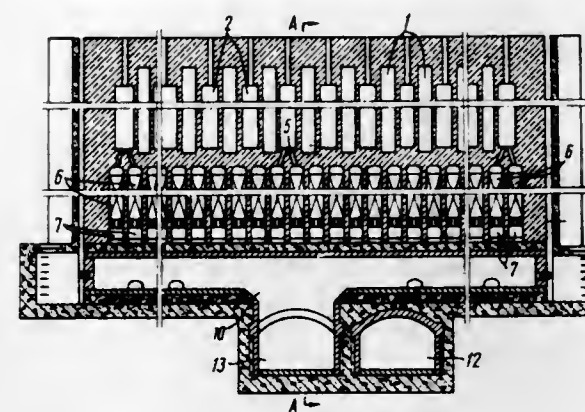
U.S. Cl. 202—141

3 Claims

A battery of coke ovens comprises a plurality of horizontal coke ovens with hollow firing members on both sides of the ovens; the hollow members are connected to regenerators which in turn are connected to longitudinal

side flues at the feed and discharge sides of the battery. The side flues empty into respective transverse channels

cavity therein corresponding to the particular tubular article to be formed. A flexible mandrel is then formed in the mold correspondingly shaped to the article being



formed. After the mandrel is removed from the mold, the tubular article is formed on the mandrel by an electro-deposition process.

3,560,351

METHOD OF MAKING A THERMOELECTRIC DEVICE

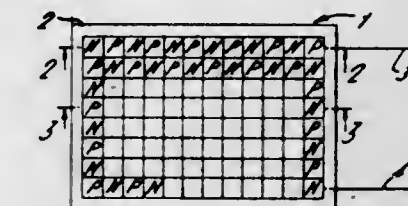
Colin E. Abbott, Windsor, and Bingley J. Wray, Woodley, near Reading, England, assignors to Mining & Chemical Products Limited, London, England, a British company
 Filed Aug. 24, 1967, Ser. No. 663,157

Claims priority, application Great Britain, Sept. 2, 1966, 39,225/66

Int. Cl. C23b 5/48, 7/00

U.S. Cl. 204—15

4 Claims



To both major faces of a flat matrix of thermoelements electroplating resist material is applied in a grid-like pattern. The matrix with the resist on its faces is then put in an electroplating bath and constitutes the cathode therein. Metallic electrical connecting links are then formed on the thermoelements by electrodeposition. The commutation of the deposited links is determined by the pattern of the resist material. The commutations of the two faces are different.

3,560,352

METHOD FOR CLEANING METAL SURFACES

Johannes van Garderen, Baarn, and George G. Busch, Bussum, Netherlands, assignors to M&T Chemicals Inc., New York, N.Y.

No Drawing. Filed Sept. 23, 1965, Ser. No. 489,745

Int. Cl. C23b 1/00; B08b 7/00; B44d 1/34

U.S. Cl. 204—32

3 Claims

In accordance with certain of its aspects, this invention relates to a process for cleaning pretreated metal surfaces bearing inorganic and organic contaminant consisting essentially of the steps of immersing said pretreated metal surface in water and then immersing said pretreated metal surface in water-immiscible organic solvent to form a non-stable suspension of water in organic solvent thereby obtaining a bright, clean metal surface free of contaminant, and coating said bright, clean metal surface.

3,560,353

ELECTROLYSIS CELL CURRENT EFFICIENCY WITH OXYGEN-CONTAINING GASES

Rudolf E. Svadlenak, Lewiston, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Sept. 26, 1967, Ser. No. 670,799

Int. Cl. C22d 3/06

U.S. Cl. 204—68

3 Claims

A fused salt electrolysis cell bath is treated with an oxygen-containing gas, such as air, wherein the treating is effected outside the electrolysis cell.

3,560,350

IRREGULAR SHAPED TUBING FORMED BY ELECTRODEPOSITION

Michael Mattia, Upper Darby, Pa., assignor to The Budd Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Oct. 1, 1968, Ser. No. 764,241

Int. Cl. C23b 7/02

U.S. Cl. 204—9

5 Claims

A method of electroforming tubular articles of irregular shapes is provided. A mold is first cast having a

3,560,354

ELECTROLYTIC CHEMICAL PROCESS

Donald C. Young, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California

Filed Oct. 16, 1967, Ser. No. 675,534

Int. Cl. C07b 3/00

U.S. Cl. 204—80

10 Claims

The invention comprises the use of a diaphragmless, alternating current electrolytic cell for the conducting of irreversible chemical reductions or oxidations. The electrolytic cell is used to generate an intermediate that is reactive with the reactant to form a chemical product. The reaction is performed in the electrochemical cell under irreversible conditions. In a specific embodiment the reaction is applied to the oxidation of olefins using an electrolyte containing a Group VIII noble metal and sufficient dissolved salts for providing the desired conductivity between the electrodes. The reaction can be performed in aqueous acids, organic carboxylic acids, alcoholic electrolytes, etc., and the product of the oxidation depends upon the choice of this medium. Use of aqueous electrolytes results in the formation of unsaturated carboxylates; and use of alcoholic reaction media results in the formation of acetals and unsaturated ethers. Examples of specific use are the oxidations of ethylene to acetaldehyde and/or vinyl acetate; or dimethyl acetal.

3,560,355

METHOD AND DEVICE FOR OPERATING MERCURY-PROCESS ELECTROLYTIC CELLS

Hiroshi Shibata, Teruo Imai, and Shigeji Kumaki, Iwakashi, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

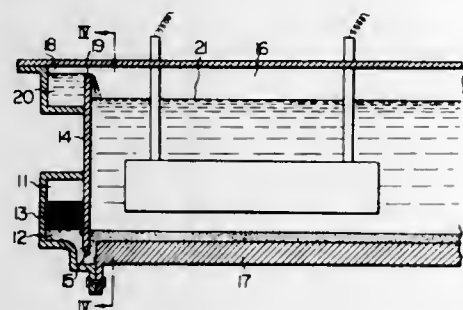
Filed Apr. 3, 1968, Ser. No. 718,438

Claims priority, application Japan, Apr. 19, 1967, 42/24,560; Nov. 24, 1967, 42/75,371

Int. Cl. C01d 1/08

U.S. Cl. 204—99

4 Claims



The refined brine recirculated to a mercury-cathode cell is introduced into the cell in the form of a falling laminar-flow curtain along almost the entire inner surface of an inlet transverse wall of the cell above the recovered mercury inlet, the laminar-flow curtain of brine thereby reaching and thoroughly washing the entering mercury to prevent any alkaline wash water flowing above the mercury from reaching the graphite anode. This laminar-flow curtain is formed by a long and narrow brine inlet provided in and extending horizontally across almost the full width of the transverse wall at a position sufficiently high above the surface level of the electrolyte in the cell.

3,560,356

PROCESS OF ELECTROLYTIC PICKLING OF COPPER-BERYLLIUM ALLOYS

Henri Richaud, Chambéry, France, assignor to Pechiney-Compagnie de Produits Chimiques et Electrometallurgiques, Paris, France

No Drawing. Filed May 19, 1967, Ser. No. 639,608

Claims priority, application France, June 10, 1966, 64,929

Int. Cl. C23b 1/00

U.S. Cl. 204—141

7 Claims

A process for pickling parts formed of copper-beryllium alloy in which small amounts of nickel or cobalt

may be present as additional alloying elements, wherein the part to be pickled is connected to the anode in a direct current electrolysis cell in which the electrolyte is an aqueous solution of an alkali metal halide present in an amount within the range of 100–200 grams per liter and a surface active agent.

3,560,357

ELECTROETCHING OF A CONDUCTIVE FILM ON AN INSULATING SUBSTRATE

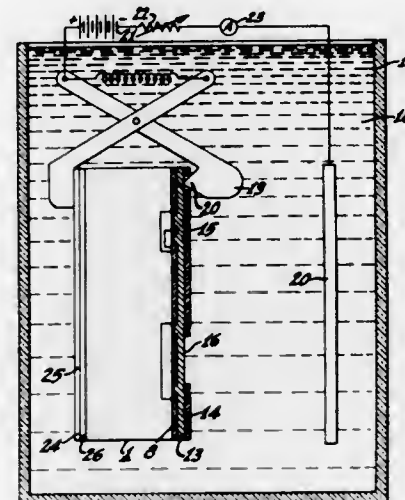
Joseph M. Shaw, Cranbury, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed July 26, 1968, Ser. No. 747,960

Int. Cl. C23b 3/04; C23f 1/02

U.S. Cl. 204—143

2 Claims



A tungsten film is etched electrolytically in a solution which also acts as a chemical etchant. The chemical action of the etchant removes the last traces of tungsten after the electrolytic etching action is terminated by break-up of the tungsten layer into a number of thin electrically isolated "islands."

3,560,358

ELECTROLYTIC ETCHING OF PLATINUM FOR METALLIZATION

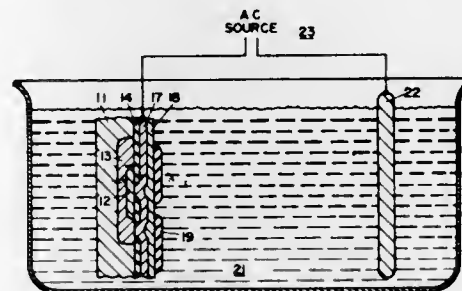
James R. Black, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Sept. 12, 1968, Ser. No. 759,344

Int. Cl. B23p 1/00

U.S. Cl. 204—143

4 Claims



A platinum thin film is patterned by a selective etching process, including the step of depositing the platinum film on a conductive substrate, followed by the application of a photoresist film on the platinum film, patterned in the same image as desired in the platinum. The composite structure is then subjected to alternating current electrolysis in a bath comprising an electrolyte which forms a soluble complex with the platinum. The technique is specifically applied to the fabrication of semiconductor devices with titanium-platinum metallization.

3,560,359

CORROSION PROTECTION

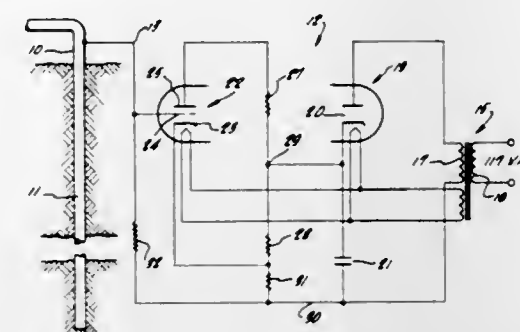
Richard L. Hood, 10333 Dolecetto, Rancho Cordova, Calif. 95670

Continuation-in-part of application Ser. No. 384,376, July 22, 1964. This application May 5, 1969, Ser. No. 825,121

Int. Cl. C23f 13/00

U.S. Cl. 204—147

7 Claims



A source of free electrons, such as is supplied by the grid of a conducting vacuum tube, is connected by a single electrical conductor to a metallic structure to be protected from corrosion. No return path for electrons from the metallic structure to the source is provided and it is not required that the protected structure be earth grounded.

3,560,360

PHOTOELECTRORETIC IMAGING PROCESS USING ANTHRAQUINONES AS THE ELECTRICALLY PHOTOSENSITIVE PARTICLES

Leonard M. Carreira, Webster, Warren E. Solodar and Basil M. Kyriakakis, Rochester, and Santokh S. Labana, Webster, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York

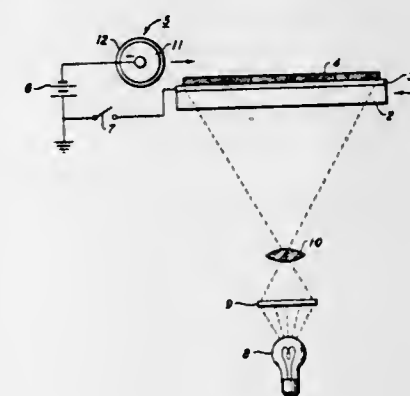
Filed Jan. 21, 1966, Ser. No. 522,187

The portion of the term of the patent subsequent to May 21, 1985, has been disclaimed

Int. Cl. G03g 5/06, 13/22

U.S. Cl. 204—181

8 Claims



Substituted and unsubstituted anthraquinones are used as electrically photosensitive particles in photoelectroretic imaging.

3,560,361

PRODUCTION OF AZACARBAZOLES

Victor Malcolm Clark, Coventry, and Gordon Ian Gregory and John Derek Cocker, Chalfont St. Peter, England, assignors to Glaxo Laboratories Limited

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,646
Claims priority, application Great Britain, Mar. 29, 1968, 15,327/68

Int. Cl. B01j 1/10

U.S. Cl. 204—158

8 Claims

Azacarbazoles are prepared by the photocyclization of a secondary or tertiary diaryl amine in which each of the two aryl groups is a monocyclic six membered ring

attached to the amine nitrogen atom by a nuclear carbon atom and at least one of the aryl groups contains at least one nitrogen atom in the nucleus. A halogen atom may be substituted in the azacarbazole so formed by reaction with a peracid to form an N-oxide derivative thereof which is subsequently reacted with a phosphorus oxyhalide to introduce the halogen atom with elimination of the N-attached oxygen. The halogen substituted azacarbazole may be reacted with a nucleophile to replace the halogen substituent with the residue of the nucleophile. The azacarbazoles have antiviral activity and/or may be employed as intermediates for the production of derivatives having antiviral properties and the 1,6-diazacarbazoles and 1,3,8-triazacarbazoles are new compounds.

3,560,362

METHOD AND APPARATUS FOR PROMOTING CHEMICAL REACTIONS BY MEANS OF RADIO-ACTIVE INERT GASES

Tomomichi Kasamatsu and Norikatsu Ohtsuka, Takasakishi, and Kaname Matsumoto, Tokyo, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

Filed Aug. 1, 1967, Ser. No. 657,606

Claims priority, application Japan, Aug. 3, 1966, 41/50,501

Int. Cl. C08d 1/00; C08f 1/16

U.S. Cl. 204—159.22

6 Claims

Chemical reactions are promoted by dissolving a radioactive inert gas in a liquid reaction system.

3,560,363

METHOD FOR CONTROL OF OXYREACTIVE HYDROCARBON LEVELS IN OXYGEN-CONTAINING GASES

Alexander Goetz, Los Angeles, Calif., assignor to Alexander Goetz, trustee of the Goetz family trust

Filed Sept. 26, 1967, Ser. No. 676,369

Int. Cl. B01j 1/10, 1/14

U.S. Cl. 204—162

27 Claims

The smog-generating potential of a gas to be released to the atmosphere such as auto exhaust gas or the gaseous effluent from a chemical process vessel is lowered prior to release of the gas to the atmosphere by converting the smog precursor compounds, i.e. oxyreactive hydrocarbons, which are molecularly dispersed in the gas into separable particles by irradiation and separating the particles thus produced.

3,560,364

METHOD FOR PREPARING THIN UNSUPPORTED FILMS OF SILICON NITRIDE

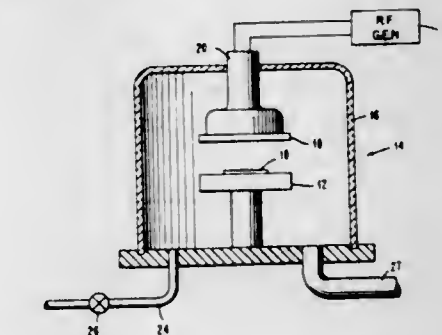
Paul J. Burkhardt, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Oct. 10, 1968, Ser. No. 766,413

Int. Cl. B29c 1/08; C23c 15/00

U.S. Cl. 204—192

4 Claims



A method is provided for producing extremely thin, free-standing or unsupported films of silicon nitride, having the formula Si₃N₄. The method includes the initial step of sputtered depositing, on a molybdenum substrate, a thin layer of silicon nitride. The assembly is

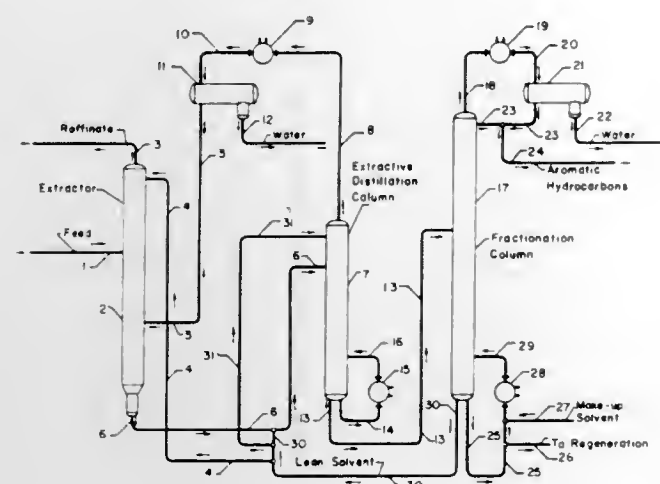
3,560,374

AROMATIC EXTRACTION PROCESS
Adrian J. Gruia, Corpus Christi, Tex., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Dec. 18, 1968, Ser. No. 784,631
Int. Cl. C10g 21/22

U.S. Cl. 208—313

6 Claims



Process for the extraction and recovery of aromatic hydrocarbons utilizing a selective solvent in which extractive distillation of the aromatic hydrocarbon-containing extract phase is utilized. The extractive distillation is performed in a manner such that a secondary absorption or extraction zone is created in the upper portion thereof. The preferred solvent comprises sulfolane and the preferred aromatic hydrocarbon recovered is benzene.

3,560,375

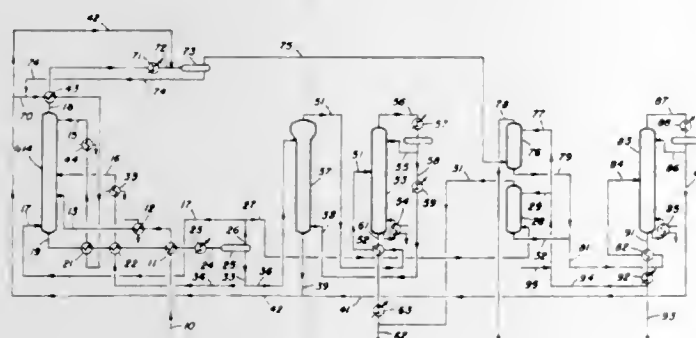
EXTRACTION OF AROMATIC WITH A SALT MODIFIED SOLVENT

Abraham P. Gelbein, Plainfield, and William Dimoplou, Jr., Bloomfield, N.J., assignors to The Lummus Company, Bloomfield, N.J., a corporation of Delaware

Filed Apr. 28, 1969, Ser. No. 819,743
Int. Cl. C10g 21/02; C07c 7/10

U.S. Cl. 208—324

14 Claims



A process for separating a non-aromatic hydrocarbon fraction and an aromatic hydrocarbon fraction from a mixture thereof wherein the mixture is contacted at a temperature between about 200° F. and about 400° F. with an extraction solvent of a highly polar organic liquid having 10–50 weight percent of soluble metal salt dissolved therein, preferably a salt of lithium, beryllium or magnesium, whereby the aromatic hydrocarbon fraction is extracted from the mixture. The extraction solvent

is cooled to a temperature below about 150° F., at which temperature a substantial portion of the aromatic hydrocarbon fraction is insoluble therein. Any remaining aromatic hydrocarbon fraction may be recovered from the extraction solvent by contacting the extraction solvent with a non-aromatic hydrocarbon solvent at a temperature no greater than 150° F., at which temperature the aromatic hydrocarbon fraction is selectively extracted from the extraction solvent.

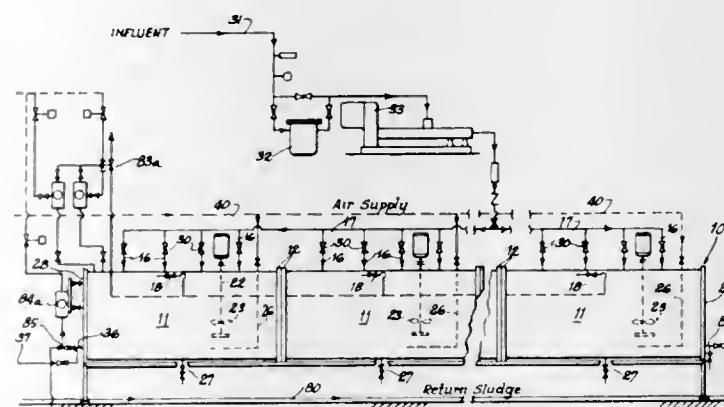
3,560,376

METHOD AND APPARATUS FOR USE IN THE ACTIVATED SLUDGE TREATMENT OF SEWAGE
Richard W. Heil, Clarendon Hills, Ill., assignor to Metropolitan Sanitary District of Greater Chicago, Chicago, Ill., a corporation of Illinois

Filed Oct. 30, 1968, Ser. No. 783,157
Int. Cl. C02c 1/12

U.S. Cl. 210—7

14 Claims



An apparatus and method used in the activated sludge treatment of secondary sewage utilizes a pressure aeration tank for treating a continuous flow of sewage influent. The tank is maintained at pressures up to 60 p.s.i. and the mixed liquor in the tank is continuously aerated. Influent is introduced in the aeration tank through a distribution manifold at spaced points longitudinally of the tank.

Upon entering the aeration tank, the influent is intermixed with return activated sludge (made up of living micro-organisms) forming a mixed liquor. Within the mixed liquor, micro-organisms feed upon the sewage nutrients, consuming them by adsorption and absorption. The flow of influent through each branch of the manifold is separately controlled so as to maintain the nutrient feed level of the mixed liquor uniform throughout the tank. The mixed liquor passes from the aeration tank to a clarifier which is also maintained at the same pressure as the treatment tank.

3,560,377

APPARATUS AND PROCESS FOR FILTERING FLUIDS

Herbert H. Loeffler, Arlington, Mass., assignor to Amicon Corporation, Lexington, Mass.

Filed Jan. 21, 1969, Ser. No. 792,636
Int. Cl. B01d 13/00

U.S. Cl. 210—23

18 Claims

Novel apparatus for processing of fluids under pressure and comprising a stack of novel disc-like processing units suitable for supporting filters, membranes, or other surfaces with which intimate contact is desired wherein said processing units are advantageously nested together. Proc-

3,560,379

METHOD AND APPARATUS FOR TREATING WATER

Josef Muskat, Michelbach, Germany, assignor to Passavant Werke, Michelbacherhutte, Germany, a corporation of Germany

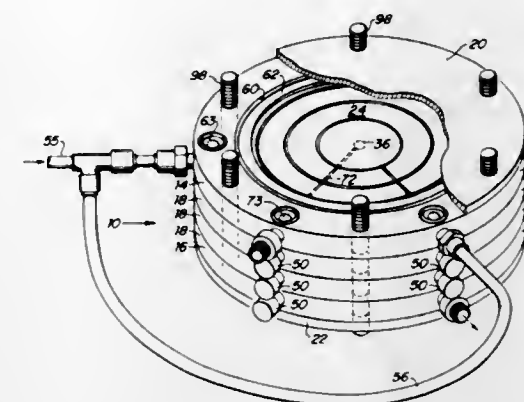
Filed Feb. 20, 1969, Ser. No. 801,034

Claims priority, application Germany, Mar. 14, 1968, P 17 08 604.3

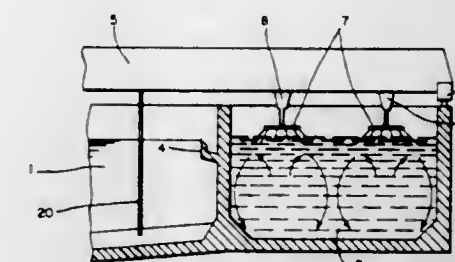
Int. Cl. C02c 1/18

U.S. Cl. 210—49

15 Claims



essing units are also subject of the instant invention as is the process whereby liquid processing may be carried out, e.g. in such apparatus, without short-circuiting of the liquid streams while avoiding excessive leakage.



A method and apparatus in which a liquid to be treated is placed in an elongated aeration tank and an aeration device, adjustably mounted on a bridge extending across the top of the tank, is moved in the elongated direction of the tank. Only the liquid in the area below the device is aerated and mixed, the other areas of the tank being relatively quiescent for the promotion of flocculation. A sludge scraper attached to the bridge moves therewith to scrape sludge from a secondary tank adjacent the aeration tank.

3,560,378

ION-EXCHANGE PROCESS

Donald Eric Weiss, Blackburn, Victoria, Brian Alfred Bolto, Mitcham, Victoria, Donald Willis, Blackburn, Victoria, Robert McNeill, Chelsea, Victoria, and Douglas Lyons Ford, Waverley, New South Wales, Australia; said Weiss, Bolto, Willis, and McNeill assignors to Commonwealth Scientific and Industrial Research Organization, East Melbourne, Victoria, and said Ford assignor to Union Carbide Australia Limited, Sydney, New South Wales, Australia

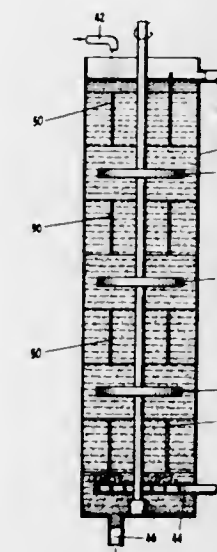
Filed Apr. 19, 1968, Ser. No. 722,641

Claims priority, application Australia, Apr. 20, 1967, 20,648/67

Int. Cl. B01d 15/02, 15/04

U.S. Cl. 210—36

11 Claims



An ion exchange process utilizing an ion exchange adsorbent having a particle size less than 210 microns and having ferromagnetic properties. The adsorbent, in the magnetized state, is mixed with liquid to be treated to form an agitated suspension. The adsorbent is separated from the treated liquid by allowing the same to magnetically flocculate in the absence of mixing.

3,560,380

DRY CONCENTRATES FOR PREPARING HEMODIALYSIS SOLUTIONS

John H. Stade, Ferguson, Mo., assignor to Mallinckrodt Chemical Works, St. Louis, Mo.

No Drawing. Filed Oct. 28, 1968, Ser. No. 771,351

Int. Cl. C09k 3/00

U.S. Cl. 252—1

7 Claims

Stable dry concentrates for preparing hemodialysis solutions comprising salts of sodium, magnesium and calcium and, optionally, also a potassium salt and dextrose, contain a substantial proportion of sodium acetate which has been spray-dried to a very low moisture content, e.g. not more than 0.2% by weight, the total moisture content of the concentrate being not greater than 0.75% by weight. Such concentrates show greatly increased resistance to caking and discoloration and even after prolonged storage dissolve completely in water to give clear colorless solutions.

3,560,381

HIGH DENSITY BORON PRODUCT COMPRISING A MECHANICAL MIXTURE OF BORIC OXIDE WITH ANHYDROUS BORAX OR SODIUM TETRABORATE PENTAHYDRATE

Frank T. Winters, Jr., La Crescenta, John C. Middleton, Yorba Linda, and Lawrence L. Schwalley, Whittier, Calif., assignors to United States Borax & Chemical Corporation, Los Angeles, Calif., a corporation of Nevada

No Drawing. Filed Apr. 30, 1968, Ser. No. 725,482

Int. Cl. A01n 9/02; C09k 3/28

U.S. Cl. 252—8.1

10 Claims

A high density, water soluble boron product formed from a mechanical mixture of boric oxide with either anhydrous borax or sodium tetraborate pentahydrate (borax 5 mol). The product has a Na₂O/B₂O₃ molar ratio of from .16 to .32 and a loose density of greater than 50 pounds/cu. ft.

3,560,382

NYLON CARPET YARN FINISH

Neil Lamar Finch, Sr., Kinston, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Nov. 8, 1967, Ser. No. 681,595
Int. Cl. D06m 13/26, 13/18

U.S. Cl. 252—8.9

5 Claims

A nylon fiber finish which includes a soft paraffin wax, a hard microcrystalline wax, a salt of a partial phosphate ester, a polyoxyalkylene derivative of a fatty alcohol and potassium hydroxide, provides nylon fibers, filaments, tows and yarns with highly satisfactory antistatic properties and filament to filament frictional characteristics.

3,560,383

METAL WORKING LUBRICANTS

Norbert Schwartz, Homer, James F. Richards, Cortland County, and Joseph F. Pistell, Cortland, N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Continuation-in-part of application Ser. No. 686,300, Nov. 28, 1967. This application Feb. 14, 1969, Ser. No. 799,513
Int. Cl. C10m 1/24, 1/32

U.S. Cl. 252—34.7

8 Claims

Lubricant compositions particularly useful for metal working comprising a soap base and as an improving agent, a compound selected from the group of (1) acetylenic alcohols, (2) acetylenic glycols, and (3) ethoxylated acetylenic glycols.

3,560,384

ASHLESS LUBRICANT ADDITIVE

Robert A. Halling, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Oct. 14, 1968, Ser. No. 767,486
Int. Cl. C10m 1/48

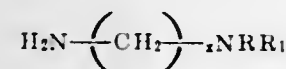
U.S. Cl. 252—46.7

5 Claims

An ashless lubricant additive which improves the viscosity index, the anti-corrosion, anti-oxidant, anti-wear and detergent properties of the base oil. The additive is the reaction product of

(A) a phosphosulfurized ethylene/propylene/1,4-hexadiene terpolymer having an average molecular weight of between about 3,500 and about 65,000 and containing about 35–70 weight percent propylene, about 1–6 weight percent 1,4-hexadiene and the remainder being ethylene; with

(B) an amine of the formula



wherein x is an integer of 2 or 3, and R and R₁ are alkyl groups of 1–4 carbon atoms.

3,560,385

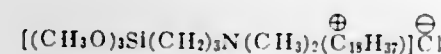
METHOD OF LUBRICATING SILICEOUS MATERIALS

Charles A. Roth, Saginaw, Mich., assignor to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed Nov. 1, 1968, Ser. No. 772,851
Int. Cl. C10m 1/50

U.S. Cl. 252—49.6

7 Claims

An organosilicon quaternary ammonium compound, such as



is applied to the surfaces of solid siliceous material, for example, glass fibers, as a lubricant.

3,560,386

HYDROCARBON DISTILLATE CONTAINING BORON ESTER OF POLYALKYL-POLYHYDROXYALKYL-ALKYLENEPOLYAMINE

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. This application is a continuation-in-part of application Ser. No. 559,410, June 22, 1966, which is a division of application Ser. No. 366,921, May 12, 1964. This application Dec. 26, 1968, Ser. No. 787,203
Int. Cl. C10m 7/02

U.S. Cl. 252—49.6

6 Claims

Hydrocarbon distillates are benefited by the addition thereto of a boron ester of a polyalkyl-polyhydroxyalkyl-alkylenepolyamine. As a specific example, the combustion properties of gasoline is improved.

3,560,387

LUBRICATING OILS

Wolfgang Schmitt, Hamburg, Germany, assignor to Deutsche Erdöl-Aktiengesellschaft, Hamburg, Germany, a corporation of Germany
No Drawing. Filed Feb. 19, 1968, Ser. No. 706,633
Claims priority, application Germany, Feb. 23, 1967, D 52,371
Int. Cl. C10m 1/26

U.S. Cl. 252—56

5 Claims

Lubricant containing as an essential ingredient imparting lubricating properties, ester of 2,2-dialkylpropanediol-1,3 and monocarboxylic acid, wherein at least one of the alkyl groups contains more than 4 carbon atoms. The lubricants are well suited for use in aircraft and gas turbine engines.

3,560,388

MAGNETIC COATING COMPOSITION WITH THREE COMPONENT EPOXY BINDER

Louis M. Higashi, Monte Sereno, Calif., assignor to Memorex Corporation, Santa Clara, Calif., a corporation of California
No Drawing. Continuation-in-part of application Ser. No. 735,997, June 11, 1968, which is a continuation-in-part of application Ser. No. 619,017, Feb. 27, 1967. This application July 22, 1969, Ser. No. 843,842
Int. Cl. H01j 1/37

U.S. Cl. 252—62.54

5 Claims

A fluid, heat curable magnetic coating composition in which magnetic particles are dispersed in a three component thermosetting epoxy binder. The coating also contains volatile solvents. The epoxy binder contains (1) a high equivalent weight epoxy with a molecular weight of about 400–4,000 per epoxy group, (2) a low equivalent weight epoxy with a molecular weight of about 130–211 per epoxy group, and (3) an aromatic polyamine curing agent having at least two primary amine groups per molecule.

3,560,389

LIQUID DETERGENT BLEACH COMPOSITION

Anthony L. L. Hunting, London, England, assignor to Cyclo Chemicals Limited, London, England, a British company
No Drawing. Filed Aug. 8, 1967, Ser. No. 661,761
Claims priority, application Great Britain, Aug. 11, 1966, 36,041/66
Int. Cl. C11d 7/54

U.S. Cl. 252—95

7 Claims

A liquid detergent bleach composition comprising an aqueous mixture of a detergent, a bleaching or oxidizing agent, and a hydrotrope in which the components are present in such an amount so as to provide a clear liquid at room temperature is disclosed.

3,560,390

ANTIMICROBIC DETERGENTS

Irving Gaines, Montclair, N.J., assignor to Millmaster Onyx Corporation, New York, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 602,550, Dec. 19, 1966. This application May 24, 1968, Ser. No. 731,702

Int. Cl. C11d 9/50

U.S. Cl. 252—107

4 Claims

A microbiocidal detergent composition comprising a mixture of (1) a quaternary ammonium compound and (2) a soap or non-soap anionic detergent, the quaternary ammonium compound being present in a proportion of about 0.1% to 5.0% by weight of the composition and consisting of (a) the cationic residue of a quaternary ammonium compound having an alkyl group of 12 to 18 carbon atoms attached to the quaternary nitrogen and a phenol coefficient of at least 200 against *Staphylococcus aureus* and *Salmonella typhosa* at 20° C., and (b) an organic anion consisting of the residue of either an acidic or pseudoacidic organic compound having a replaceable hydrogen.

3,560,391

DETERGENT COMPOSITIONS CONTAINING PHOSPHONIO CARBOXYLATES

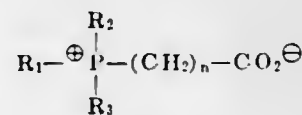
Francis L. Diehl and Howard F. Drew, Wyoming, and Robert G. Laughlin, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Original application Aug. 23, 1966, Ser. No. 574,470. Divided and this application Jan. 26, 1970, Ser. No. 5,900

Int. Cl. C11d 1/04, 3/06

U.S. Cl. 252—135

7 Claims

Phosphonio carboxylates having effective detergency in cool water laundering and having the following general formula are disclosed:



R₁ is C₁₀–C₁₈ alkyl; R₂ and R₃ are each C₁–C₄ alkyl or hydroxyalkyl; n ranges from 3 to 5. The phosphonio carboxylates are employed with a builder material selected from water-soluble inorganic alkaline builder salts, organic alkaline sequestrant builder salts and mixtures thereof, in a ratio of detergent compound to builder material of from about 4:1 to about 1:20. A cool water laundering process is also disclosed.

3,560,392

DETERGENT COMPOSITIONS CONTAINING ENZYME-STABILIZING COLLAGEN-DERIVED PROTEINS

Jean-Pierre D. B. Eymery, Brussels, Belgium, and Harold H. Beyer, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Continuation-in-part of application Ser. No. 686,403, Nov. 29, 1967. This application Aug. 27, 1968, Ser. No. 755,710

Int. Cl. C11d 3/065

U.S. Cl. 252—138

17 Claims

Granular detergent compositions containing a mixture of organic detergent and an alkaline builder salt in a weight ratio of builder salt to organic detergent of about 30:1 to about 1:4; a proteolytic enzyme characterized by enzymatic activity in the pH range of from about 10 to about 12 at a temperature of about 50° F. to

about 200° F.; and a stabilizing amount of a proteinaceous partially hydrolyzed and partially solubilized collagen, said partially hydrolyzed and partially solubilized collagen having an average molecular weight in the range of about 5,000 to about 250,000.

3,560,393

DETERGENT COMPOSITIONS CONTAINING REVERSED ZWITTERIONIC PHOSPHORUS COMPOUNDS

Roger E. Zimmerer, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Original application Oct. 4, 1966, Ser. No. 584,099. Divided and this application Feb. 10, 1970, Ser. No. 10,302

Int. Cl. C11d 3/30, 3/34, 3/36

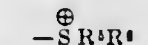
U.S. Cl. 252—152

4 Claims

Detergent compositions containing reversed zwitterionic compounds having a negatively charged center adjacent a hydrophobic chain and a positively charged center removed by 2 to about 4 carbon atoms from the negatively charged center are disclosed. These compounds have the formula R—Z—R¹—X wherein R is an aliphatic radical, e.g., alkyl or alkenyl, containing from about 10 to about 20 carbon atoms; Z is a negatively charged radical selected from the group consisting of phosphate, phosphonate, and phosphinate radicals; R¹ is an alkylene radical containing from 2 to about 4 carbon atoms; and X is a positively charged radical selected from the group consisting of ammonium and tertiary sulfonium radicals; said ammonium radical having the formula



wherein R², R³ and R⁴ are selected from the group consisting of hydrogen, methyl, and ethyl; said tertiary sulfonium radical having the formula



wherein R⁵ and R⁶ are selected from the group consisting of methyl and ethyl.

3,560,394

EXTRACOORDINATE SILICON COMPLEXES CONTAINING A CYCLIC ANHYDRIDE OF A POLYCARBOXYLIC ORGANIC ACID

Edwin P. Plueddemann and Harold L. Vincent, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Application Nov. 16, 1964, Ser. No. 412,590, now Patent No. 3,461,095, dated Aug. 12, 1968, which is a continuation-in-part of application Ser. No. 358,504, Apr. 9, 1964. Divided and this application Oct. 23, 1968, Ser. No. 770,059

Int. Cl. C08g 51/80

U.S. Cl. 252—182

17 Claims

A curing agent for epoxy resins is disclosed which comprises a cyclic anhydride of a polycarboxylic organic acid and an extracoordinate silicon complex.

3,560,395

AQUEOUS KETONE PEROXIDE-HYDROGEN PEROXIDE COMPOSITION

Solomon Crigg Westbrook, Jr., Buffalo, N.Y., assignor to Pennwalt Corporation, a corporation of Pennsylvania
No Drawing. Filed Sept. 12, 1968, Ser. No. 792,179

Int. Cl. C08f 1/60

U.S. Cl. 252—186

13 Claims

A peroxide solution composition consisting essentially of a single alkanone peroxide, hydrogen peroxide, water,

and organic solvent; having an active oxygen content of about 5-16%; the peroxide content having been prepared by reaction of the total alkanone and hydrogen peroxide in aqueous medium, which peroxidation product mixture becomes part, or all, of the final composition.

The peroxide solution composition is especially useful in the curing of water extended unsaturated polyester resins.

3,560,396

CALCIUM HYPOCHLORITE COMPOSITIONS CONTAINING SPRAY-DRIED SODIUM NITRATE

Homer L. Robson, Hamden, Conn., assignor to Olin Corporation, a corporation of Virginia

No Drawing. Filed July 28, 1967, Ser. No. 656,688
Int. Cl. C01b 11/06; C09k 3/00

U.S. Cl. 252-187

3 Claims

Calcium hypochlorite compositions, suitable for bleaching and sanitation uses, are provided which have lowered rates of propagation of decomposition when heated. These novel compositions incorporate, with calcium hypochlorite, a spray-formed sodium nitrate preparation in suitable proportions. Also novel are spray-formed sodium nitrate preparations containing added diluents.

3,560,397

PHOTOLUMINESCENT PHOSPHORS

Frank J. Avella, Flushing, N.Y., assignor to General Telephone and Electronics Laboratories, Inc.

No Drawing. Filed Sept. 27, 1965, Ser. No. 490,706
Int. Cl. C09k 1/44

U.S. Cl. 252-301.1

13 Claims

A family of phosphor compositions having the formula $M^{2+}_{0.5}RM^{4+}_{0.5}VO_4$ where M^{2+} is a divalent element selected from the group consisting of calcium, strontium, cadmium, and zinc, M^{4+} is a tetravalent element selected from the group consisting of zirconium and thorium and R is a rare earth activator. The phosphors emit red light under ultraviolet excitation and may be used for color correction in high pressure mercury lamps.

3,560,398

PHOSPHORS FOR COLOR DISPLAY SYSTEMS

Samuel R. Shortes, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Dec. 2, 1966, Ser. No. 598,826
Int. Cl. C09k 1/12; H01j 29/20

U.S. Cl. 252-301.6

9 Claims

Disclosed are phosphor particles which emit light of different hues when energized by electrons of different energy levels, each particle being a compound phosphor material such as zinc cadmium sulfide (silver activated), having a core portion in which the constituents exist in a first ratio and having a surrounding outer surface portion in which the constituents exist in a second ratio different from the first, the constituent ratio varying gradually from the inner core portion ratio to the outer core portion ratio.

3,560,399

ACTIVATED DEVELOPER AND METHOD OF FLAW DETECTION

John E. Irsak, Bay Village, Ohio, assignor to Day-Glo Color Corporation

No Drawing. Filed Oct. 24, 1965, Ser. No. 504,980
Int. Cl. C09k 3/22; G01n 21/16

U.S. Cl. 252-301.2

8 Claims

Sensitivity of powder-developed penetrant system of flaw detection increased by partially pre-wetting of powdered developer with solvator for flaw-indicating dye. The presence of solvator for the dye provides the option

of carrying (or not carrying) at least some of at least one of what would otherwise be a component of a flaw penetrant liquid, such as one or more flow-indicating dyes.

3,560,400

PROCESS FOR CONCENTRATING SILICA AQUASOLS

Henry Thomas Joseph Chilton, Llangollen, Wales, assignor to Monsanto Chemicals Limited, London, England, a British company

No Drawing. Filed Dec. 13, 1967, Ser. No. 690,061
Claims priority, application Great Britain, Dec. 23, 1966, 57,649/66

Int. Cl. B01d 13/00; B01j 13/00

U.S. Cl. 252-313

6 Claims

Process for the production of a concentrated silica aquasol, which process comprises the removal of water from a dilute silica aquasol which is contained in one compartment which is separated from a second compartment by a membrane which is permeable by water molecules but not by the colloidal particles of silica. The water transfers from said aquasol in the first compartment to a liquid contained in the second compartment by means, for example, of pressure applied to the aquasol. An improvement in the throughput is achieved by pre-treating the aquasol with ion-exchange resins to reduce the pH to a value of from about 2 to about 4.

3,560,401

PERSISTENT ANTIFOAM COMPOSITIONS AND METHODS OF MAKING SAME UTILIZING BASIC MATERIALS

Matthew J. O'Hara, Spring Valley, and Donald R. Rink, Yorktown Heights, N.Y., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Aug. 11, 1967, Ser. No. 659,870
Int. Cl. B01d 19/04

U.S. Cl. 252-358

17 Claims

Antifoam compositions having persistent effectiveness especially in aqueous alkaline medium, said compositions being a mixture resulting from heating a poly(diorganosiloxane) liquid, a finely divided inorganic filler, such as, silica, aluminum oxide and titanium dioxide, and a basic material, such as, alkali metal and alkaline earth metal oxides, hydroxides, alkoxides, aryloxides and silanates, tetraalkylammonium hydroxides, alkoxides and silanates, tetraalkylphosphonium hydroxides, alkoxides and silanates, trialkylhydrazinium hydroxides, alkoxides and silanates, and trialkylguanidinium hydroxides, alkoxides, and silanates, and monoalkyl, dialkyl and trialkyl amines. Also, alkaline aqueous liquids, e.g., synthetic rubber latices, containing such novel antifoam compositions.

Processes for producing such persistent antifoam compositions by heating the poly(dimethylsiloxane) liquid in the presence of the finely divided inorganic filler and the basic material as above illustrated at a temperature in a broad range, for example, 100 to 300° C., for a period of time in a broad range, e.g., one-half to five hours. Also, processes for suppressing foam over long periods utilizing such novel antifoam compositions.

3,560,402

APPARATUS FOR MECHANICALLY BREAKING STABLE FOAMS

Jack F. Kilborn, Natchez, Miss., Clarence W. Scott, Panama City, Fla., and Kenneth W. Hobbs, Springhill, La., assignors to International Paper Company, New York, N.Y., a corporation of New York

Filed Apr. 10, 1968, Ser. No. 720,092
Int. Cl. B01d 19/00

U.S. Cl. 252-361

5 Claims

A stable foam of bubbles is expanded and drawn by a vacuum source through a riser and into a mechanical

foam breaker. The breaker reduces the expanded foam to its liquid and gaseous components and disperses the liquid as discrete droplets against the walls of an enclosing

contacting such catalyst therein with a strong reducing agent, such as, hydrazine, borohydrides or hypophosphites until development of gaseous hydrogen occurs.

3,560,405

BUTADIENE POLYMERIZATION AND CATALYST SYSTEMS THEREFOR

Robert P. Zelinski, Bartlesville, Okla., and Rudolf H. Gaeth, Lake Jackson, Tex., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Feb. 26, 1968, Ser. No. 707,951
Int. Cl. C08f 1/44

U.S. Cl. 252-429

3 Claims

A catalyst system comprising (1) a molybdenum trihalo dicarboxylate and a mixture of (2) an organometallic compound or a lithium aluminum hydride represented by the formulas R_mAlCl_n , $LiAlH_4R_{(4-x)}$, and R_yM wherein R is a saturated aliphatic, saturated cycloaliphatic, or aromatic hydrocarbon radical or combinations thereof containing from 1 to 20 carbon atoms, m and n are integers of 1 or 2 such that $m+n=3$, x is an integer of from 0 to 4, M is lithium, sodium, potassium, rubidium, cesium, beryllium, magnesium, zinc, cadmium, aluminum, gallium, or indium, and y is an integer equal to the valence of the metal and (3) a nickel compound such as nickel oxide, a nickel salt of an organic or inorganic acid, a nickel salt of a beta-diketone, or a complex compound of nickel such as dicyclopentadienylnickel, nickel tetracarbonyl, or the nickel complex with the ethyl ester of acetoacetic acid or at least one transition metal compound of titanium, vanadium, chromium, molybdenum, manganese, cobalt or iron is employed for the polymerization of butadiene. Polymers ranging from high cis to high vinyl can be obtained using the catalysts of this invention. The products can be hydrogenated immediately following polymerization with the polymerization catalyst functioning as the catalyst for the hydrogenation step.

3,560,403

PERSISTENT ANTIFOAM COMPOSITIONS AND METHODS OF MAKING SAME UTILIZING DI-ALKYLAMINO ORGANOSILICONE FLUIDS

Matthew J. O'Hara, Spring Valley, and Donald R. Rink, Yorktown Heights, N.Y., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Aug. 11, 1967, Ser. No. 659,871
Int. Cl. B01d 19/04

U.S. Cl. 252-358

9 Claims

Antifoam compositions having persistent effectiveness especially in aqueous alkaline medium, said compositions being a mixture containing an organosiloxane liquid polymer or other non-aqueous liquid, such as, a hydrocarbon oil or a polyoxyalkylene glycol, and a hydroxyl containing, finely divided, inorganic filler, such as, silica, aluminum oxide and titanium dioxide, reacted with a dialkylamino organosilicone fluid, such as those of the formula $(R'_2N)_x(SiR_2O)_nSiR_2(R)_{2-x}$ wherein x is 1 to 2, n is 0 to 40 and R is an alkyl group having 1 to 10 carbon atoms and R' is an alkyl group having 1 to 3 carbon atoms.

3,560,404

REACTIVATING PYROPHORIC TYPE CATALYSTS IN AN ORGANIC SOLVENT

Margarete Jung, Kelkheim, and Hans H. von Dohren, Frankfurt am Main, Germany, assignors to Varta Aktiengesellschaft, Frankfurt am Main, Germany

No Drawing. Filed Dec. 20, 1967, Ser. No. 691,986
Claims priority, application Germany, Dec. 30, 1966, V 32,673

Int. Cl. B01j 11/02, 11/30

U.S. Cl. 252-414

7 Claims

Process for the reactivation of deactivated hydrogenation catalyst which as main catalytic components contain catalytically active forms of the metallic elements iron, nickel and cobalt comprising introducing the catalyst to be reactivated into a non-aqueous organic liquid and

3,560,406

PROCESS AND CATALYST FOR MANUFACTURING CYCLIC KETONES BY CATALYTIC DEHYDROGENATION OF CYCLIC ALCOHOLS

Bernard Juguin, Ruell-Malmaison, France, assignor to Institut Francais du Pétrole, des Carburants et Lubrifiants, Ruell-Malmaison, France

No Drawing. Filed Nov. 15, 1967, Ser. No. 683,120
Claims priority, application France, Nov. 28, 1966, 85,302

Int. Cl. B01j 11/32

U.S. Cl. 252-457

15 Claims

Cyclic ketones with high specificity and increased yields are produced by the catalytic dehydrogenation of cyclic alcohols. The catalyst utilized for the dehydrogenation process comprises silica, zinc oxide, at least one oxide of an alkaline earth metal and at least one basic compound of an alkaline metal.

3,560,407

METHOD OF MAKING A CATALYST COATED WITH SAMARIUM OXIDE

James C. McCormick, West Seneca, N.Y., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware

Original application July 20, 1965, Ser. No. 473,328.
Divided and this application Nov. 30, 1967, Ser. No. 702,764

Int. Cl. B01j 11/06

U.S. Cl. 252-462

4 Claims

This invention relates to a process of making a decomposition catalyst for concentrated hydrogen peroxide com-

prising etching an alloy of silver and palladium with nitric acid and then coating the porous alloy with samarium oxide, obtained by decomposing samarium nitrate by heat.

3,560,408

CATALYTIC MINERAL FIBERS AND THEIR PREPARATION

Jean-Pierre Kiehl and Gabriel Pupier, Lyon, France, assignors to Societe Generale des Produits Refractaires, Paris, France

No Drawing. Filed Apr. 10, 1968, Ser. No. 720,324
Claims priority, application France, Apr. 10, 1967, 102,802

Int. Cl. B01j 11/06, 11/32

U.S. Cl. 252-463

5 Claims

A catalytic mineral fiber containing at least 70 percent alumina, less than 20 percent of at least one catalyst distributed within the crystalline lattice or between the oxide crystals, and containing less than 30 percent other refractory oxides and less than 5 percent recrystallization inhibitors, and having a specific B.E.T. surface at least equal to 70 m²/g. and stable up to at least 1050° C. The fiber is produced by the preparation of a solution in water of aluminum oxychloride and a hydrolyzable salt of a catalytic element along with recrystallization inhibitors. The solution has an adjusted pH between 3 and 5 and a viscosity acceptable to extrusion, drawing, etc., to form fibers that are converted into insoluble oxides in an atmosphere of steam at a temperature varied according to pressure.

3,560,409

SOLUTIONS OF METALLIC SILVER IN ISOCYANIDES

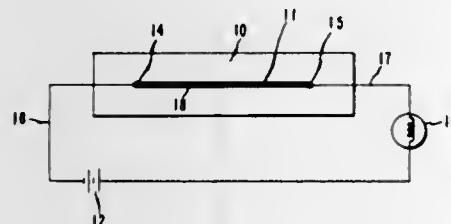
Harris D. Hartzler, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Sept. 29, 1967, Ser. No. 671,823

Int. Cl. H01f 1/02; C23c 3/00

U.S. Cl. 252-514

10 Claims



Described are solutions of silver in isocyanides, e.g., cyclohexyl isocyanide, and the preparation thereof. The solutions are useful for making electrically conducting printed circuits at moderate temperatures.

3,560,410

RESISTOR COMPOSITIONS CONTAINING PYROCHLORE-RELATED OXIDES AND CADMIUM OXIDE

Kenneth E. Schubert, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 803,434, Feb. 28, 1969. This application Nov. 28, 1969, Ser. No. 880,941

Int. Cl. H01b 1/06

U.S. Cl. 252-518

10 Claims

Resistor compositions, which yield, upon firing, smooth resistors having a wide range of resistances, low TCR's

and good stability properties, comprising (1) an oxide of the formula



wherein

M is at least one metal selected from the group consisting of yttrium, lanthanum, thallium, indium, cadmium, lead and the rare earth metals of atomic number 58-71 inclusive.

M' is at least one metal selected from the group consisting of platinum, titanium, tin, chromium, rhodium, iridium, rhenium, zirconium, antimony and germanium, (2) an inorganic binder, and (3) a required amount of cadmium oxide or of a cadmium oxide precursor. The control over properties afforded by this combination of ingredients and proportions thereof enhances the significance of this invention.

3,560,411

EPOXYALKYL ESTERS OF ENDO-METHYLENE HEXAHYDROPHthalic ACID

Klaas Ruyter and Geert C. Vegter, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 9, 1968, Ser. No. 782,413
Claims priority, application Great Britain, Jan. 17, 1968, 2,557/68

Int. Cl. C08g 30/10

U.S. Cl. 260-2

9 Claims

Composition containing one or more novel di epoxy alkyl and epoxy cyclo alkyl esters of unsubstituted or alkyl substituted bicyclo[2,2,1] - heptane - 2,3 - dicarboxylic acids which can be cured to useful resins.

3,560,412

THERMOSETTING COMPOSITIONS COMPRISING BLENDS OF ACETAL RESINS AND AMINE-ALDEHYDE RESINS

Joseph J. Bernardo, 92 Corabelle Ave., Lodi, N.J. 07644, and Joseph F. Ackerman, 19 Woodmere Road, Cedar Grove, N.J. 07009

No Drawing. Continuation of application Ser. No. 594,405, Nov. 15, 1966. This application Jan. 12, 1970, Ser. No. 7,298

Int. Cl. C08g 37/32, 51/72

U.S. Cl. 260-21

11 Claims

Polyacetal resins are made by reacting polyols containing three or more hydroxyl groups with formaldehyde in the presence of acid catalysts. These resins, when blended with amine-formaldehyde resins, are excellent coatings for wood, paper, metal, plastics and glass. The blends are liquid and can be used without addition of solvent.

3,560,413

PROCESS FOR VULCANIZING AND FOAMING ACTIVE LIQUID DIOLEFIN POLYMERS

Douglas C. Edwards, Sarnia, Ontario, and Peter Noel Lewis, Calgary, Alberta, Canada, assignors to Polymer Corporation Limited, Sarnia, Ontario, Canada, a body corporate and body politic

No Drawing. Filed Jan. 12, 1968, Ser. No. 697,326
Claims priority, application Canada, Feb. 3, 1967, 981,925

Int. Cl. C08f 27/03, 47/10

U.S. Cl. 260-2.5

8 Claims

A liquid polymer of an olefinically unsaturated compound, e.g. butadiene-1,3, the polymeric molecules of which have more than one active halogen atom, for example, two allylic bromides, is mixed with a small amount of an amine salt of an acid such as haloacetic acid or carbon dioxide to produce a homogeneous mixture and then the amine salt is decomposed whereby the mixture is foamed and vulcanized to produce a cellular vulcanizate. Triethylene tetramine trichloracetate salt is one of the amine salts which may be used.

3,560,414

PROCESS FOR PREPARING FOAMABLE BEADS

John J. Miskel, Jr., Ramsey, and Alfred J. Ackerman, Bloomington, N.J., assignors to Dart Industries Inc., a corporation of Delaware

No Drawing. Filed Feb. 9, 1968, Ser. No. 704,276

Int. Cl. C08f 47/10; C08j 1/26

U.S. Cl. 260-2.5

11 Claims

The process comprises coating beads of a polymer such as polystyrene with an organic agent, for example, zinc stearate, impregnating the coated beads with liquefied butane at conditions sufficient to maintain the butane in the liquefied state, removing the excess butane from the impregnated beads and recovering the resulting foamable beads. Coating the beads prevents bead agglomeration during the impregnation step.

3,560,415

CELLULAR POLYURETHANE PLASTICS

Gerhard Grögler and Erwin Windemuth, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Feb. 27, 1968, Ser. No. 708,502

F 51,654

Int. Cl. C08g 22/04, 22/16, 22/44

U.S. Cl. 260-2.5

8 Claims

Foam plastics based on compounds with reactive hydrogen atoms, organic polyisocyanates, and water as blowing agent by the single stage or multistage process, in which foaming with polyisocyanates and water takes place in the presence of compounds with at least one aziridine ring, the nitrogen atom of which is linked to a methylene group which may be alkylated or arylated, which aziridine compounds may already have a high molecular weight and which, at least in the cases where only one aziridine ring is present in the molecule, still have at least one hydrogen atom which is reactive with isocyanates.

3,560,416

HYDROPHILIC POLYURETHANE FOAMS

Joerg Sambeth and Alexis Archipoff, Carouge, Geneva, Switzerland, and Jean-Pierre Godechot, Paris, France, assignors to Elekal, Paris, France

No Drawing. Continuation-in-part of application Ser. No. 597,236, Nov. 28, 1966. This application June 27, 1969, Ser. No. 837,365

Int. Cl. C08g 22/44

U.S. Cl. 260-2.5

6 Claims

This specification discloses hydrophilic polyurethane foams. The foams are prepared by reacting a morpholine derivative containing an active hydrogen atom with the ingredients conventionally used to prepare polyurethane foams.

3,560,417

OFFSET AND LITHOGRAPHIC PRINTING PROCESS, MATERIAL FOR THE USE IN SAME, AND PROCESS FOR THE PREPARATION THEREOF

Phillip A. Pizzi, Berlin, N.J., assignor to Jack P. Randall, Bronxville, N.Y., and Clarence P. Reberkenny, Cherry Hill, N.J., fractional part interest to each

No Drawing. Continuation-in-part of application Ser. No. 727,703, May 8, 1968. This application Mar. 13, 1969, Ser. No. 807,080

Int. Cl. B41n 1/00, 1/08

U.S. Cl. 260-8

17 Claims

A printing process including lithographic printing for printing on plastic, paper, metal foil and similar substrates to obtain improved multi-color fidelity is provided by the use of a print-receptive blank comprising a plastic support and a white "blanket" or coating comprising a titanium dioxide pigmented interpolymer of (a) units having carboxylate groups derived from a polymerizable carboxylic acid having α,β -unsaturation in a vinylidene group

(b) units from at least one neutral, free-radical polymerizable ester having a vinylidene group attached to a functional group, and (c) units from at least one neutral, polymerizable monoxinylidene compound, in a formaldehyde stabilized colloid, e.g. gelatin.

3,560,418

STYRENE-ACRYLONITRILE COPOLYMERS AND PROCESS FOR THEIR PREPARATION

Joseph Matthew Kelley, Westfield, Walter F. Hanzl, Pompton Plains, and M Robert Stepanian, Rochelle Park, N.J., assignors to Dart Industries Inc., a corporation of Delaware

No Drawing. Filed June 12, 1968, Ser. No. 736,272

Int. Cl. B01f 17/32; C08f 1/11, 19/18

U.S. Cl. 260-17

2 Claims

A technique is herein provided for preparing clear, water white big styrene-acrylonitrile copolymer beads with low or negligible monomer concentration via a suspension polymerization process employing critical amounts of hydroxyethyl cellulose and an epoxy resin.

3,560,419

LIGHT STABILIZED ANTISTATIC POLYAMIDES

Lawrence W. Crovatt, Jr., Gulf Breeze, and Oscar A. Pickett, Jr., Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Jan. 10, 1969, Ser. No. 790,439

Int. Cl. C08g 51/54; C08k 1/66

U.S. Cl. 260-18

4 Claims

Tensile strength loss on exposure to light is reduced, in polycarbonamides containing between 0.1 and 20.0 weight percent polyalkoxylated triglyceride of a fatty acid containing from 10 to 30 carbon atoms, by adding from 0.005 to 4.0 weight percent of a trialkyl (C₆ to C₁₈) phosphine oxide.

3,560,420

HOT MELT ADHESIVE COMPRISING POLYETHYLENE AND AN ETHYLENE-VINYLACETATE COPOLYMER

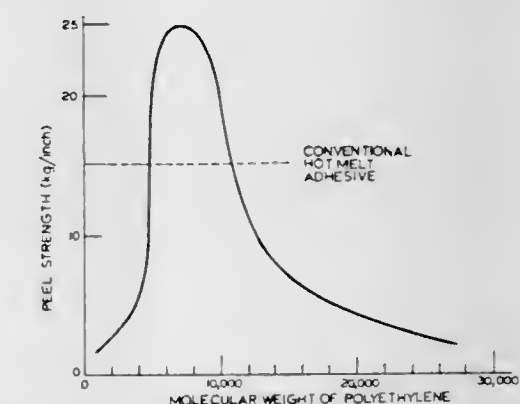
Toru Tamura and Shigeru Kondo, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed June 27, 1969, Ser. No. 837,027

Int. Cl. C08g 37/00; C09j 3/14, 3/26

U.S. Cl. 260-25

3 Claims



A thermoplastic hot melt adhesive characterized by high performance and low cost, is obtained by blending low molecular weight polyethylene, phenolic resin, abietic acid ester, terpene, resin, and ethylene-vinylacetate copolymer, such blend containing a homogeneous mixture of 30 to 60 weight percent of ethylene-vinylacetate copolymer which has 20 to 40 weight percent vinylacetate and which has a specific viscometric value from 0.6-0.90, 0 to 20 weight percent of phenolic resin which has a softening

temperature of 70 to 110° C., 5 to 20 weight percent of polyethylene which has molecular weight of from 5,000 to 10,000, 10 to 40 weight percent of abietic acid ester which has a softening temperature of 70 to 100° C., 5 to 30 weight percent of terpene resin which has a softening temperature of from 70 to 110° C., the remainder being mineral filler.

3,560,421

PROCESS FOR IMPROVING POLYAMIDE FILAMENT LUBRICITY

Paul R. Cox, Jr., and Lawrence W. Crovatt, Jr., Cary, N.C., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 593,713, Nov. 14, 1966. This application July 28, 1969, Ser. No. 845,544

Int. Cl. C08g 51/52; D01f 1/02

U.S. Cl. 260—28

11 Claims

The lubricity of polyamide filament can be substantially improved without significantly altering the appearance of the filaments by dispersing a small amount of a microcrystalline wax having a refractive index greater than 1.5 and less than 1.6 in the polyamide prior to its extrusion in filamentary form.

3,560,422

FAST TACK FORMULATION

Eugene R. Cox, Ponca City, Okla., assignor to Continental Oil Co., Ponca City, Okla., a corporation of Delaware

No Drawing. Filed Nov. 8, 1967, Ser. No. 681,580

Int. Cl. C08f 45/52

U.S. Cl. 260—28.5

1 Claim

Wax composition, having superior fast tack, comprising paraffin wax, ethylene-vinyl acetate copolymer, α -methyl styrene-vinyl toluene copolymer, and terpolymer of α -methyl styrene, vinyl toluene, and ethylhexyl acrylate.

3,560,423

LUSTER OF FIBERS CONTAINING SOLID PARTICULATE MATERIALS

Raymond Adrian Levesque, Joppatowne, Md., and Richard Frederick Schmidt, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Feb. 6, 1968, Ser. No. 703,260

Int. Cl. C08f 45/04, 45/24; C08g 51/02

U.S. Cl. 260—29.6

9 Claims

A composition useful for the preparation of shaped articles comprising a synthetic organic polymer, a solvent medium capable of dissolving said polymer, finely divided particulate solids coated with an organic liquid, said liquid being insoluble in and immiscible with the polymer solution. The liquid coating has a viscosity in the range of from about equal to the polymer solution viscosity to less than that which interferes with shaping. This composition can be wet-spun in a manner to produce lustrous fibers containing the coated particulate solids in agglomerate form.

3,560,424

SHRINK-PROOFING PROCESS

John H. Glaser, Waltham, and Basil Yankopoulos, Taunton, Mass., assignors to Amicon Corporation, Lexington, Mass.

No Drawing. Filed July 22, 1968, Ser. No. 746,250

Int. Cl. C08f 33/02, 45/54

U.S. Cl. 260—29.6

1 Claim

A novel process, and the novel products produced thereby, wherein hydrogels of the type having not more than very limited covalent cross linking—and most advantageously no covalent cross-linking at all—are treated

with ceric ion solution in an acid medium, and thereby made shrink resistant. The process is most suitable for use in shrink-proofing ionically-crosslinked materials like polyelectrolyte complex resins.

3,560,425

PARTICULATE BLEND OF POLYACRYLONITRILE AND A LATENT SOLVENT

Leon E. Wolinski, Buffalo, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 22, 1967, Ser. No. 692,692

Int. Cl. C08f 45/46

U.S. Cl. 260—29.6

3 Claims

Dry blends of acrylonitrile polymer and a latent solvent such as dimethyl sulphoxide-ethylene glycol or dimethyl sulphoxide-water, the blends being melt extrudable.

3,560,426

COATING COMPOSITION OF AN AMINE TERMINATED PRECURSOR OF AN IMIDE POLYMER AND A MELAMINE RESIN

Paul L. Adesko, Mount Prospect, Ill., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 670,754, Sept. 26, 1967. This application July 16, 1968, Ser. No. 745,136

Int. Cl. C08g 37/30, 37/32, 51/44

U.S. Cl. 260—30.2

19 Claims

A coating composition having a low viscosity particularly useful for wire coating which comprises: (A) an amine terminated aromatic polymeric precursor of an imide containing polymer which precursor is either a polyamic acid, a polyamide-amic acid, or a mixture thereof; and (B) a reactive melamine resin.

3,560,427

METHOD FOR CONSOLIDATING A PERMEABLE MASS

Cornells Bezemer, Franciscus H. Meljs, and Marinus van Zanten, Rijswijk, Netherlands, and Clifford V. Wittenwyler, Union, N.J., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Division of application Ser. No. 690,400, Dec. 14, 1967, now Patent No. 3,476,189, which is a continuation-in-part of application Ser. No. 422,515, Mar. 24, 1965, now Patent No. 3,368,262. This application June 2, 1969, Ser. No. 829,728

Claims priority, application Great Britain, Mar. 26, 1964, 12,985/64, 12,986/64

Int. Cl. C08g 51/34

U.S. Cl. 260—33.4

4 Claims

A method of consolidating formations using a resin-forming composition and a silane bonding agent having in the molecule at least one R—COO— radical bonded directly or indirectly to a Si atom and wherein R is an unsaturated aliphatic hydrocarbon.

3,560,428

PROCESS FOR PREPARING IMPROVED PHENYLENE POLYMER LACQUERS AND PRODUCTS

Norman Bilow, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

No Drawing. Filed Sept. 5, 1967, Ser. No. 665,286

Int. Cl. C08g 33/00, 49/00; C09d 3/60

U.S. Cl. 260—33.8

9 Claims

Improved homogeneous phenylene lacquer and plastic compositions comprised of aromatic polymers of terphenyls, quaterphenyls, mixtures thereof, and mixtures

of the same with other aromatic monomer and phenyl material with not more than 5 aromatic rings copolymerized with an aromatic polymethylol compound such as polyoxyxylylene and an acid catalyst by an improved method of "A" stage polymerization therein in selective solvent combinations.

3,560,429

FERROCENE-XYLYLENE COPOLYMERS AND PROCESS

Norman Bilow, Los Angeles, Calif., and Harold Rosenberg, Dayton, Ohio, assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Mar. 6, 1969, Ser. No. 805,007

Int. Cl. C08f 45/04, 45/30

U.S. Cl. 260—33.8

12 Claims

Thermosetting ferrocene-xylylene glycol copolymers and polyferrocenylene-xylylene glycol copolymers are prepared by reacting ferrocenyl compounds with xylylene glycol in the presence of a suitable catalyst. These copolymers can be molded and cured to structures of extremely high molecular weight by treatment with heat and pressure. The property of being thermosetting makes the copolymers of this invention useful in the fabrication of composite plastic structures.

3,560,430

PROCESS AND APPARATUS FOR MIXING A PIGMENT DISPERSION INTO A POLYAMIDE MELT

Ernst Meyer, Oberbruch, Rhineland, Wolfgang Grimm, Erlenbach, Klaus Gerlach, Obernau, and Helmut Linhart, Aschaffenburg, Germany, assignors to Glanzstoff AG, Wuppertal, Germany

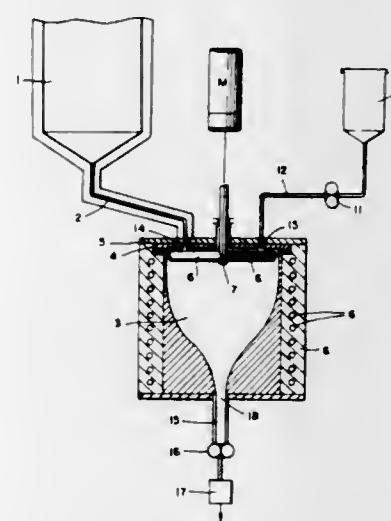
Filed Nov. 20, 1968, Ser. No. 777,370

Claims priority, application Germany, Nov. 21, 1967, P 16 94 348.9

Int. Cl. B01f 3/12; C08g 51/02

U.S. Cl. 260—37

7 Claims



Process and apparatus for the uniform mixing of a polyamide melt with a pigment dispersed in a liquid medium soluble in the polyamide wherein the melt is divided, immediately after introduction of the liquid pigment dispersion as a thin liquid stream, into planar segments or displaced layers having a maximum thickness of about 1500 microns, preferably 20 to 850 microns, using a paddle wheel stirring mechanism at the inlet end of an elongated mixing vessel tapering radially inwardly down to its outlet or discharge end.

3,560,431

PREVENTION OF YELLOWING IN POLYAMIDES

Gene C. Weedon, 5431 Lingle Lane, Richmond, Va. 23234, and Joseph D. DeCaprio, 1004 Terrace Ave., Hopewell, Va. 23860

No Drawing. Filed July 9, 1968, Ser. No. 743,290

Int. Cl. C08g 51/56, 51/62

U.S. Cl. 260—45.7

6 Claims

The base color and yellowing tendency of polyamide material containing alkali metal iodides is substantially improved by combining therewith a trace amount of an alkali metal salt additive, such as sodium sulfite, sodium thiosulfate or a bisulfite addition compound of acetone or an appropriate aldehyde, the additive being introduced into the polyamide material or the surface of the material being contacted with a solute containing the alkali salt additive.

3,560,432

STABILISATION OF POLYMERS

Peter James Briggs, Eric Samuel Nicholson, and Vijay Ratna Sharma, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Mar. 14, 1968, Ser. No. 712,930

Claims priority, application Great Britain, Mar. 17, 1967, 12,565/67; Oct. 2, 1967, 44,779/67

Int. Cl. C08f 45/58, 45/60

U.S. Cl. 260—45.8

10 Claims

Polymers, especially polyolefines, are stabilized particularly against heat and oxidation, by the addition of mono or bis-(3,5-dialkyl-4-hydroxybenzyl) amines in combination with a triaryl phosphite, cyclic phosphite or monoester of phosphorous acid.

3,560,433

POLYURETHANES STABILIZED WITH PIPERIDINOSULFIDES

Isamu Suzuki and Kiyoshi Ichikawa, Fuji, and Keisuke Murayama and Syoji Morimura, Tokyo, Japan, assignors to Sanko Company Limited, Tokyo, and Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed June 5, 1969, Ser. No. 830,874

Claims priority, application Japan, June 8, 1968, 43/39,235

Int. Cl. C08g 51/58, 51/60

U.S. Cl. 260—45.8

8 Claims

This invention discloses the stabilization of polyurethane elastomers against deteriorations by light, heat and chlorine bleaching by incorporating therein at least one of piperidinosulfide compounds alone or in combination with at least one of phenol compounds, in a sufficient amount to effectively prevent such deteriorations, usually each in an amount of 0.01 to 5% by weight based on the amount of the polyurethane polymers.

3,560,434

ENHANCEMENT OF RESISTANCE OF OLEFIN POLYMERS TO COPPER-CATALYZED OXIDATIVE DEGRADATION

Charles Abramoff, New York, N.Y., assignor to Argus Chemical Corporation, Brooklyn, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 739,636, June 25, 1968. This application Dec. 12, 1969, Ser. No. 884,711

Int. Cl. C08f 45/58, 45/60

U.S. Cl. 260—45.8

19 Claims

Compositions are provided which are useful in the enhancement of the resistance of olefin polymers to copper-catalyzed oxidative deterioration, consisting essentially of 3-amino-1,2,4-triazole and pentaerythritol, and optionally, at least one olefin polymer stabilizer. Olefin polymer compositions, such as propylene polymer compositions, containing such compositions, and a process for enhancing the

resistance of olefin polymers to copper-catalyzed degradation by incorporation of such compositions, are also provided.

3,560,435

METHOD OF POLYMERIZING ORGANOSILICON COMPOUNDS USING A NITRO CATALYST

Chi-Long Lee, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Oct. 24, 1968, Ser. No. 770,406
Int. Cl. C08f 11/04

U.S. Cl. 260—46.5 17 Claims
A method for polymerizing organosilicon compounds is disclosed. Cyclic organosilicon compounds, such as $[(CH_3)_2SiO]_3$, and a catalyst which is the reaction product of an aromatic organic compound having analiphatic carbon-carbon double bond and tetranitromethane are mixed. Silanol containing organosilicon compounds are polymerized by mixing them with the defined catalyst.

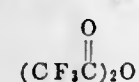
3,560,436

CURABLE COMPOSITION FROM CYCLIC POLYDIORGANOSILOXANE

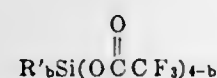
John P. Szendrey, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed May 19, 1969, Ser. No. 825,968
Int. Cl. C08f 11/04

U.S. Cl. 260—46.5 10 Claims
A composition of $(R_2SiO)_a$,



and



where R is alkyl or 3,3,3-trifluoropropyl, R' is a monovalent hydrocarbon or halogenated hydrocarbon radical, a is 3 or 4 and b is 0 or 1 is disclosed. The composition is stable in the absence of moisture but cures to a gelled material when exposed to moisture. The composition is useful as a rubbery material, a potting composition and as an encapsulant.

3,560,437

METHOD OF PREPARING POLYDIORGANOSILOXANE POLYMERS FROM CYCLIC POLYDIORGANOSILOXANES

John P. Szendrey, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed May 19, 1969, Ser. No. 825,969
Int. Cl. C08f 11/04

U.S. Cl. 260—46.5 5 Claims
Cyclic polydiorganosiloxanes of the formula $(R_2SiO)_a$ where each R is an alkyl radical or 3,3,3-trifluoropropyl radical and a is 3 or 4 is mixed with perfluoroacetic anhydride at room temperature and thereafter exposed to moisture to provide polydiorganosiloxane endblocked with perfluoroacetoxy groups.

3,560,438

PREPARATION OF POLYBENZOXAZOLES AND POLYBENZTHIAZOLES

Charles D. Burton and Norman L. Madison, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed May 8, 1968, Ser. No. 727,737
Int. Cl. C08g 33/02

U.S. Cl. 260—47 5 Claims
The present invention relates to heterocyclic polymers prepared by reacting 3,3'-dihydroxybenzidine or 3,3'-dimercaptobenzidine with a dialkyl or diaryl imidate or thioimide compound in the presence of an acid reaction promoter and an inert carrier liquid.

3,560,439

SATURATED COPOLYESTER RESINS CONTAINING A MINOR AMOUNT OF STRUCTURAL UNITS DERIVED FROM 2-HYDROXY-5-METHOXY ISOPHTHALIC ACID

John A. Price, Swarthmore, and Mary J. Stewart, Media, Pa., assignors to FMC Corporation, Philadelphia, Pa.

No Drawing. Filed Aug. 9, 1968, Ser. No. 751,373
Int. Cl. C08g 17/08

U.S. Cl. 260—47 6 Claims
A highly polymeric linear copolyester made by the melt polymerization of reactants comprising: (a) an aromatic dicarboxylic acid or a lower alkyl di-ester thereof, (b) a diol, and (c) 2-hydroxy-5-methoxy isophthalic acid or a lower alkyl diester thereof.

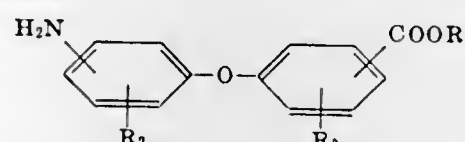
3,560,440

HIGH MOLECULAR WEIGHT LINEAR AROMATIC COPOLYAMIDES

Heinrich Gilch, Gerhard Darow, and Ludwig Bottenbruch, Krefeld-Bockum, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 3, 1969, Ser. No. 813,278
Claims priority, application Germany, Apr. 13, 1968,
P 17 70 203.3

U.S. Cl. 260—47 6 Claims
High molecular linear aromatic copolyamides by condensation of aminophenoxybenzoic acid esters of the general formula



wherein:

R₁ represents an alkyl or aryl radical and R₂ and R₃ represent hydrogen, alkyl or aryl radicals, together with equivalent amounts of aromatic diamines and aromatic dicarboxylic acids or with aromatic aminocarboxylic acids.

3,560,441

ANTIMONY TRIOXIDE INORGANIC COMPOUND GLASS FLAME RETARDANT COMPOSITIONS AND METHODS FOR THEIR PREPARATION

Morton Schwarcz, Watchung, Angelo Charles Cocuzza, Edison, and Roland Reed Van Der Beck, Somerville, N.J., assignors to M & T Chemicals Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 16, 1968, Ser. No. 784,192
Int. Cl. C09k 3/28

U.S. Cl. 260—45.75 45 Claims
Flame retardant compositions are provided and methods for their preparation for imparting flame retardancy to various resin compositions including halogenated polyolefins, polyolefins in combination with a halogen source such as polyethylene and polypropylene, polyesters, synthetic fibers, polyvinyl chloride and copolymers thereof, other polymers and halogenated polymers, with the flame retardancy of said resins being achieved in conjunction with a much higher degree of transparency to the vinyl resin compositions when transparent resin compositions are desired, and a much higher degree of true color by reducing interference between light and pigment when colored resin compositions are desired. The above is achieved by lowering the refractive index of an antimony trioxide flame retardant to more nearly coincide with a resin composition into which it may be introduced by forming an admixture of antimony trioxide with an inorganic salt in the ratio of 10:90 to 99:1, heating the admixture to a temperature of between about 650° C. and 1100° C. for a period of time sufficient to melt, rapidly cooling the melt to form glass, reducing the formed glass to a particle size within the range of 60 microns or less, and introducing the ground glass composition into

the resin composition to impart thereto flame retardancy while maintaining low opacity. Further, resin compositions containing the flame retardant compositions are provided and their method of preparation.

3,560,442

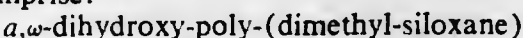
ORGANO-POLYSILOXANE COMPOSITIONS CONVERTIBLE INTO ELASTOMERS AT ROOM TEMPERATURE

Hans Dietrich Goltz, Cologne-Stammheim, Peter Schwabe, Leichlingen, and Walter Simmler, Odenthal-Schlinghofen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

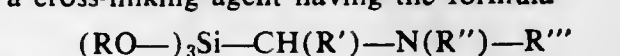
No Drawing. Filed Oct. 1, 1968, Ser. No. 764,327
Claims priority, application Germany, Oct. 20, 1967,
P 16 94 209.9

U.S. Cl. 260—46.5 11 Claims
Novel cross-linking agents are disclosed which can be combined with plastically shapable organo-polysiloxanes; the resulting novel mixtures or compositions being storage stable under exclusion of all moisture. The cross-linking reaction takes place on exposure of the compositions to water, atmospheric humidity sufficing, at temperatures below 50° C. The compositions are especially adapted to be used for the filling of joints and as sealing materials in the building industry. The elastomers resulting therefrom have an increased adhesion to the substrate saving the expenditure of priming. The novel compositions comprise:

(A) an α,ω -dihydroxy-poly-(dimethyl-siloxane) which, in addition to its diorgano-siloxane units, may contain up to 10 mol-percent of siloxane units having the formula $CH_3SiO_{3/2}$, and may be admixed with fillers and an α,ω -bis-(trimethyl-siloxy) - poly - (dimethyl-siloxane); and
(B) a cross-linking agent having the formula



in which R is an alkyl radical with 1 to 4 carbon atoms; R' is a hydrogen atom, an alkyl radical with 1 to 6 carbon atoms or a phenyl radical; R'' is a hydrogen atom or a methyl radical; and R''' is a hydrogen atom, an alkyl, cycloalkyl, aminoalkyl, (methylamino)-alkyl or (dimethylamino)-alkyl radical with 1 to 6 carbon atoms in its alkyl group, or a radical having the formula $(RO)_3SiCH(R')-$ or the formula



(RO)₃Si-CH(R')-N(R'')-R'''

3,560,443

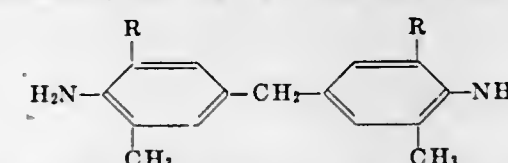
SELECTED 4,4'-METHYLENE BIS(2-ALKYL-6-METHYLANILINES) AS CURING AGENTS FOR EPOXY RESINS

Norman K. Sundholm, Middlebury, Conn., assignor to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey

No Drawing. Original application Mar. 28, 1967, Ser. No. 626,396. Divided and this application Sept. 23, 1968, Ser. No. 798,484

The portion of the term of the patent subsequent to Dec. 2, 1986, has been disclaimed and dedicated to the Public

U.S. Cl. 260—47 4 Claims
Epoxy resins are cured with 4,4'-methylenebis(2-alkyl-6-methylanilines) having the structural formula:



where R is an ethyl group or a secondary alkyl group having 3 to 6 carbon atoms.

3,560,444

HEAT REACTIVE MIXTURES OF BIS(HYDROCARBYLOXYALKYL) ESTERS OF AROMATIC TETRACARBOXYLIC ACIDS AND AROMATIC DIAMINES

Ralph E. De Brunner, Kettering, Ohio, assignor to Monsanto Research Corporation, St. Louis, Mo.

No Drawing. Original application June 30, 1966, Ser. No. 561,755. Divided and this application Sept. 9, 1968, Ser. No. 767,574

U.S. Cl. 260—65 3 Claims
Heat reactive mixtures of bis(hydrocarbyloxyalkyl) esters of aromatic tetracarboxylic acids and aromatic diamines, said mixtures being useful as coating and laminating compositions.

3,560,445

HIGH TEMPERATURE UNSATURATED POLYESTER

Frank Fekete, Monroeville, and John S. McNally, Arnold, Pa., assignors to Koppers Company, Inc., a corporation of Delaware

Filed June 5, 1967, Ser. No. 643,481
Int. Cl. C08f 21/02; C08g 17/10

U.S. Cl. 260—75 9 Claims
An unsaturated polyester, having excellent electrical and high temperature properties when copolymerized with a monomer such as styrene or vinyl toluene is formed by reacting 1,4-cyclohexane dimethanol and a second dihydric alcohol such as ethylene glycol or neopentyl glycol with maleic anhydride and an unsaturated, hydrogenated aromatic dicarboxylic acid such as tetrahydrophthalic anhydride. The copolymerized polyester resin is useful in electrical applications as a replacement for wood, ceramics, and rubber materials or the like.

3,560,446

PROCESS FOR THE PRODUCTION OF HIGH MOLECULAR WEIGHT POLYIMIDES FROM URETHANES

Wilfried Zecher, Cologne-Stammheim, and Rudolf Merten, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 30, 1968, Ser. No. 748,591
Claims priority, application Germany, Aug. 7, 1967,
F 53,161

U.S. Cl. 260—77.5 7 Claims
A process for the production of polyimides by reaction of carbamic acid esters and cyclic dicarboxylic acid anhydrides at temperatures of from 0 to 450° C.

3,560,447

METHOD FOR FORMING ELASTOMERIC PARTICLES AND PARTICLES PRODUCED THEREBY

Wallace Karl Bingham, Woodbury Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation-in-part of application Ser. No. 377,114, June 22, 1964. This application Dec. 8, 1967, Ser. No. 688,956

U.S. Cl. 260—77.5 9 Claims
Substantially infusible and insoluble elastomeric particles between 3 and 120 microns in size are formed by shearing

liquid precursor material in a liquid medium that provides conditions effective to convert the particles to the cured form; in a specific embodiment polyurethane particles are formed in an aqueous medium. One use for the particles is as a flattening agent in a paint composition.

3,560,448

SYNTHETIC POLYAMIDES

John Ewart Lodge, Pontypool, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Aug. 31, 1967, Ser. No. 664,640
Claims priority, application Great Britain, Sept. 13, 1966, 40,815/66

Int. Cl. C08g 20/00

U.S. Cl. 260—78

11 Claims

A linear fiber-forming copolyamide of the mixture of (1) an aliphatic diamine and an aliphatic dicarboxylic acid or (2) an aliphatic amino carboxylic acid with (3) a metal salt of 9,9-bis omega carboxy alkylfluorene mono or disulfonic acid and an aliphatic diamine.

3,560,449

INTERNAL ANTISTATIC AGENT FOR POLYAMIDE USE AND POLYAMIDE COMPOSITIONS HAVING IMPROVED ANTISTATIC PROPERTY

Hiroshi Kitagawa, Nagoya, Ataru Suwada, Hirakata-shi, and Satoyoshi Ohno, Kyoto, Japan, assignors to Toray Industries, Inc., Tokyo, and Sanyo Chemical Industries, Ltd., Kyoto, Japan

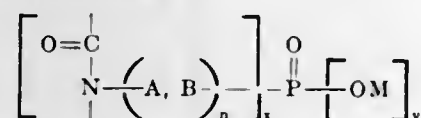
No Drawing. Filed Apr. 25, 1968, Ser. No. 724,219

Int. Cl. C08g 20/00

U.S. Cl. 260—78

4 Claims

An internal antistatic agent for synthetic polyamide use which comprises a compound which is a phosphoric ester of an addition product of (i) is carbonamide group-containing compound and (ii) an alkylene oxide of 2 to 3 carbon atoms, said compound containing a structural unit of the formula



wherein A stands for ethyleneoxide, B stands for propyleneoxide,

(A,B)_n stands for a homopolymer of ethyleneoxide or propyleneoxide or block or random copolymer of ethyleneoxide and propyleneoxide, n is an integer from 10 to 1000, x is 1 or 2, M is metals or hydrogen and y is 1 or 2, with the proviso that the sum of x and y is equal 3, and when x is 2, M is a metal and when x is 1, at least one of the M's is a metal.

3,560,450

LACTONE POLYMERIZATION PROCESS WITH PARTICULATE INITIATOR

Dario P. Curotti, Amsterdam, Netherlands, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 23, 1968, Ser. No. 786,444

Int. Cl. C08g 17/017

U.S. Cl. 260—78.3

4 Claims

An improved process for the slurry polymerization of one or more β-propiolactones, at least 50% mole being

pivalolactone, in a liquid hydrocarbon diluent in the presence of a solid carboxylate anion containing initiator which is either a preformed betaine or a "living" prepolymer, at least 80% by weight of the initiator possessing a particle size between 5 and 200 microns.

3,560,451

PLASTIC AND NONFLAMMABLE SULFUR COMPOSITION

Jean-Baptiste Signouret, Billiere, France, assignor to Societe Nationale des Petroles d'Aquitaine, Tour Aquitaine, Courbevoie, France, a corporation of France
No Drawing. Filed Feb. 12, 1968, Ser. No. 704,553

Claims priority, application France, Feb. 17, 1967, 95,305

Int. Cl. C08g 33/00

U.S. Cl. 260—79

7 Claims

A nonflammable plastic composition is obtained by melting together sulfur with three compounds which are: (1) a dithiophosphoric acid ester acrylic hydrocarbyls, (2) a vinyl-aryl hydrocarbon and (3) a polythiomethylene-alkanol resin. The three compounds are mixed with the molten sulfur separately or jointly, except that the ester (1) and the resin (3) are never added at the same time, and the moments of their addition are separated by a period of heating the mixture at 120° to 180° C.

3,560,452

PRODUCTION OF A PHENYL-SUBSTITUTED POLYACETOXAMIDRAZONE

Ulrich Schulze, Elsenfeld, and Gerhard Meyer, Obernburg, Germany, assignors to Glanzstoff AG, Wuppertal, Germany

No Drawing. Filed July 2, 1969, Ser. No. 838,681

Claims priority, application Germany, July 10, 1968, P 17 70 846.2

Int. Cl. C08g 20/20, 20/22

U.S. Cl. 260—78

14 Claims

Production of a polyacetoamidrazone bearing phenyl substituents on the oxamidrazone portions of the linear polymer chain, the polymer being produced by reaction of N,N'-bis-(phenyl)-oxamidrazone with a dicarboxylic acid dichloride or dibromide in the presence of an acid acceptor. The resulting polycondensate exhibits valuable properties as a fiber-forming or film-forming product and is easily converted into the corresponding and more stable poly-bis(1,2,4-triazole) which is also phenyl-substituted.

3,560,453

PRODUCTION OF AN N-DIMETHYL-SUBSTITUTED POLYACETOXAMIDRAZONE

Albert Schöpf, Hering, Odenwald, and Gerhard Meyer, Obernburg, Germany, assignors to Glanzstoff AG, Wuppertal, Germany

No Drawing. Filed July 7, 1969, Ser. No. 839,666

Claims priority, application Germany, July 10, 1968, 1,770,845

Int. Cl. C08g 20/20, 20/22

U.S. Cl. 260—78

9 Claims

Production of a polyacetoamidrazone bearing a methyl group as a substituent on nitrogen atoms in the polymer chain, the polymer being produced by reaction

of N,N'-dimethyl oxalic acid bisamidrazone with a dicarboxylic acid dichloride or dibromide in the presence of an acid acceptor. The resulting polycondensate exhibits valuable properties as a fiber-forming or film-forming product.

3,560,454

PROCESS FOR THE CONTINUOUS POLYMERIZATION AND COPOLYMERIZATION OF ETHYLENICALLY UNSATURATED COMPOUNDS

Robert Büning, Oberlar-Troisdorf, and Karl-Heinz Diesel, Nienburg (Weser), Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany, a corporation of Germany

Filed Dec. 16, 1968, Ser. No. 784,495

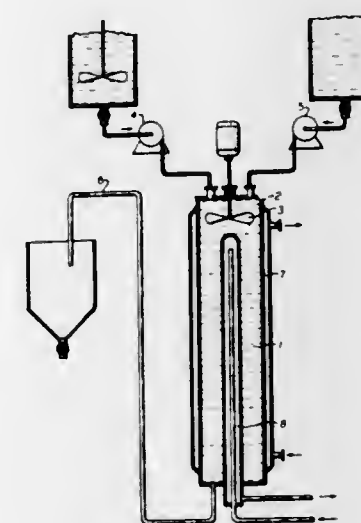
Claims priority, application Germany, Dec. 20, 1967, P 17 20 524.2

Int. Cl. C08f 1/62, 1/98

U.S. Cl. 260—78.4

14 Claims

Improvements in the process for continuously polymerizing or copolymerizing in emulsion, ethylenically



unsaturated monomers using redox systems as catalysts comprising continuously polymerizing or copolymerizing the monomer or comonomers at a temperature of from 80° C. to -40° C. in an annular gap column having a mixing chamber arranged preceding the column, the suspension which is thereby obtained being removed continuously through an overflow apparatus.

3,560,455

PROCESS OF FORMING COPOLYMERS OF MALEIC ANHYDRIDE AND AN ALIPHATIC OLEFIN HAVING FROM 20 TO 30 CARBON ATOMS

Stanley M. Hazen, Cheswick, and William J. Heilman, Allison Park, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed May 26, 1969, Ser. No. 827,920

Int. Cl. C08f 1/08

U.S. Cl. 260—78.5

8 Claims

Maleic anhydride and an aliphatic olefin having from 20 to 30 carbon atoms, such as a mixture of alpha-olefins having from 20 to 30 carbon atoms, are copolymerized in the presence of a free-radical catalyst and a solvent such as a saturated dihalogenated aliphatic liquid hydrocarbon having from one to five carbon atoms, for example propylene dichloride. Enough solvent is employed to solubilize not only the reactants but also the copolymer products. The copolymer is precipitated in a filterable particulate solid form substantially free of monomers by cooling the entire reaction product to a temperature from

3,560,456

PROCESS OF FORMING COPOLYMERS OF MALEIC ANHYDRIDE AND AN ALIPHATIC OLEFIN HAVING FROM 16 TO 18 CARBON ATOMS

Stanley M. Hazen, Cheswick, and William J. Heilman, Allison Park, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed May 26, 1969, Ser. No. 827,921

Int. Cl. C08f 1/08

U.S. Cl. 260—78.5

8 Claims

Maleic anhydride and an aliphatic olefin having from 16 to 18 carbon atoms, such as 1-octadecene, are copolymerized in the presence of a free radical catalyst and a solvent such as a saturated dihalogenated aliphatic liquid hydrocarbon having from one to five carbon atoms, for example, propylene dichloride. Enough solvent is employed to solubilize not only the reactants but also the copolymer products. The copolymer is precipitated in a filterable particulate solid form by admixing the entire reaction product with an aliphatic monohydroxy alcohol having three carbon atoms, such as n-propanol.

This invention relates to the preparation of a copolymer of maleic anhydride and an aliphatic olefin having from 16 to 18 carbon atoms per molecule in a particulate solid form.

3,560,457

PROCESS OF FORMING COPOLYMERS OF MALEIC ANHYDRIDE AND AN ALIPHATIC OLEFIN HAVING FROM 12 TO 14 CARBON ATOMS

Stanley M. Hazen, Cheswick, and William J. Heilman, Allison Park, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed May 26, 1969, Ser. No. 827,922

Int. Cl. C08f 1/08

U.S. Cl. 260—78.5

8 Claims

Maleic anhydride and an aliphatic olefin having from 12 to 14 carbon atoms, such as 1-dodecene, are copolymerized in the presence of a free radical catalyst and a solvent such as a saturated dihalogenated aliphatic liquid hydrocarbon having from one to five carbon atoms, for example, propylene dichloride. Enough solvent is employed to solubilize not only the reactants but also the copolymer products. The copolymer is precipitated in a filterable particulate solid form by admixing the entire reaction product with an aliphatic monohydroxy alcohol having from three to four carbon atoms, such as n-propanol and n-butanol.

3,560,458

PROCESS FOR POLYMERIZATION OF CATIONICALLY POLYMERIZABLE MONOMERS

Joseph P. Kennedy, Cranford, and Francis P. Baldwin, Summit, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 364,295, May 1, 1964. This application Mar. 13, 1968, Ser. No. 712,605

Int. Cl. C08d 3/02

U.S. Cl. 260—85.3

15 Claims

A catalyst system for preparing homopolymers and copolymers of cationically polymerizable monomers wherein the catalyst system comprises an organic halide cocatalyst and a cationic catalyst of the type Al(M)₂R, where M is a branched or straight-chain C₁ to C₁₂ alkyl and R is M, hydrogen or halogen.

catalytic systems prepared from titanium tetra-alkoxides, organometallic compounds of aluminum, and a silicon compound.

3,560,474 METHOD OF POLYMERIZATION OF ISOBUTYLENE UTILIZING $AlBr_3$ OR AlI_3 WITH AN ACTIVATING COMPOUND

Miroslav Chmelař and Miroslav Marek, both of 23 Vratislavova, Prague 2, Czechoslovakia
No Drawing. Continuation-in-part of application Ser. No. 703,882, Feb. 8, 1968, which is a continuation-in-part of application Ser. No. 621,454, Mar. 8, 1967. This application May 14, 1969, Ser. No. 824,660
Claims priority, application Czechoslovakia, Mar. 11, 1966, 1,652/66
Int. Cl. C08f 3/14

U.S. Cl. 260—94.8 7 Claims
Isobutylene is polymerized rapidly in the presence of aluminum bromide or aluminum iodide as a catalyst and in the simultaneous presence of an activating compound such as $TiCl_4$, $TiBr_4$, VCl_4 , $SbCl_5$, $SnCl_4$, $GaCl_3$, BF_3 or BrI even if the amount of the activating compound is too small to cause polymerization on its own in the absence of a co-catalyst which forms a Lewis acid with the activating compound, and if the polymerization zone is free from such a co-catalyst. $AlBr_3$ or AlI_3 is consumed during polymerization, thus permitting the polymerization to be controlled by gradual addition of minute amounts of the aluminum halide.

3,560,475 PROTHROMBIN COMPLEX PREPARED BY PRECIPITATION WITH POLYETHYLENE GLYCOL

Lajos F. Fekete, Valinda, and Edward Shanbrom, Santa Ana, Calif., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.
No Drawing. Filed June 19, 1969, Ser. No. 834,883
Int. Cl. C07g 7/00

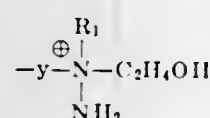
U.S. Cl. 260—112 7 Claims
A prothrombin complex prepared from a plasma fraction containing Factors II, VII, IX and X by adsorption with tribasic calcium phosphate, elution with trisodium citrate, and multiple precipitations with polyethylene glycol.

3,560,476 BASIC MONOAZO AND DISAZO DYES CONTAINING HYDROXYETHYL HYDRAZINIUM GROUPS

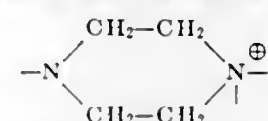
Roland Entschel and Curt Mueller, Basel, and Walter Wehrli, Riehen, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland
No Drawing. Continuation-in-part of applications Ser. No. 188,837, Apr. 19, 1962, now Patent No. 3,252,965, Ser. No. 188,889, Apr. 19, 1962, now Patent No. 3,252,967, Ser. No. 250,787, Ser. No. 250,788, and Ser. No. 250,789, all Jan. 11, 1963, Ser. No. 300,068, Aug. 5, 1963, Ser. No. 306,306, and Ser. No. 306,321, both Sept. 3, 1963, Ser. No. 344,557, Feb. 13, 1964, and Ser. No. 610,718, Jan. 20, 1967. This application June 26, 1967, Ser. No. 648,962

Claims priority, application Switzerland, Apr. 21, 1961, 4,709/61; Jan. 12, 1962, 359/62; Apr. 24, 1962, 4,709/62; May 3, 1963, 5,588/63; Jan. 16, 1964, 479/64; Feb. 7, 1964, 1,482/64

Int. Cl. C09b 29/36, 45/48; D06p 1/02
U.S. Cl. 260—152 7 Claims
Basic dyes of the monoazo and disazo series containing at least one hydrazinium group of the formula:



connected to a dye radical A, wherein R_1 is methyl, ethyl or hydroxymethyl or, together with the bridge member y and the dye radical A and the N-atom bound to R_1 , is:



are excellent for dyeing, padding or printing Orlon and related materials.

3,560,477 PHENYL-AZO-NAPHTHOIC ACID ARYLIDE PIGMENTS

Rudolf Mory, Dornach, and Willy Mueller, Riehen, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a company of Switzerland
No Drawing. Filed Feb. 28, 1967, Ser. No. 619,165
Claims priority, application Switzerland, Mar. 23, 1966, 4,191/66

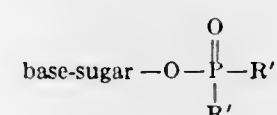
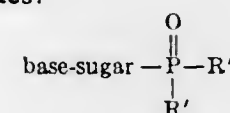
Int. Cl. C07c 107/04; C09b 29/20
U.S. Cl. 260—203 9 Claims
The present invention concerns monoazo dyestuff pigments. They are characterized in that the diazo component is a 3-amino-4-carboxy-benzoic acid anilide, the anilide radical of which is substituted in m- or p-position to the $-NH-$ group by a carboxylic acid arylide radical, and in that the coupling component is a 2,3-hydroxy-naphthoic acid arylide. When incorporated in plastics or lacquers these pigments yield orange to red colorings having excellent fastness properties.

3,560,478 ANALOGUES OF NUCLEOSIDE PHOSPHATES

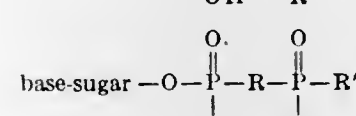
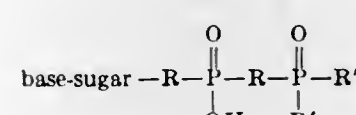
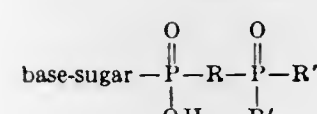
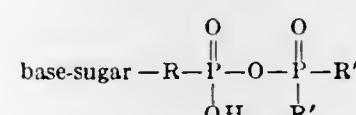
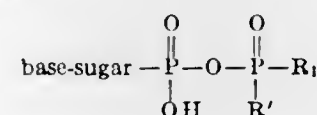
Terrell C. Myers, 2571 E. 71st St., Chicago, Ill. 60649
No Drawing. Continuation-in-part of application Ser. No. 526,041, Feb. 9, 1966. This application June 14, 1968, Ser. No. 746,723

Int. Cl. C07d 51/52, 51/54
U.S. Cl. 260—211.5 3 Claims
Phosphonate derivatives of base-sugar phosphates having the formulae:

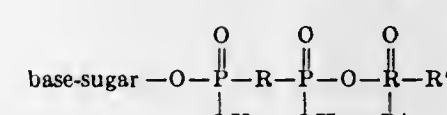
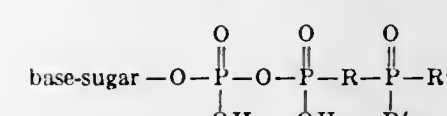
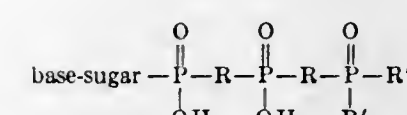
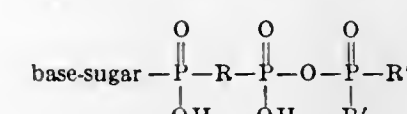
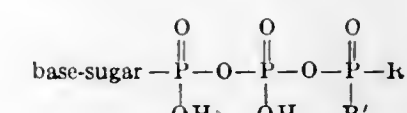
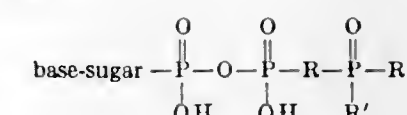
Monophosphonates:



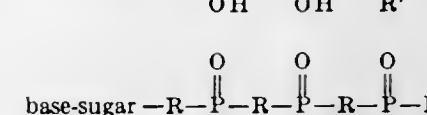
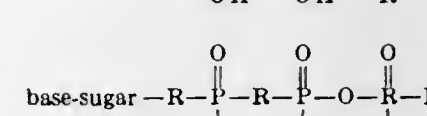
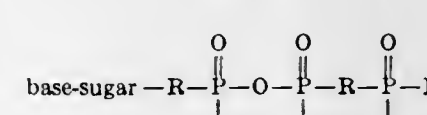
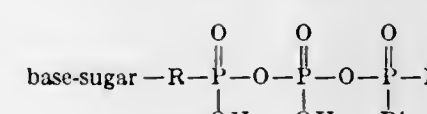
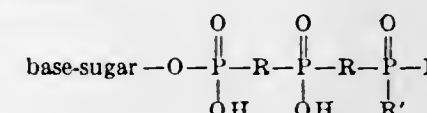
Diphosphonates:



Triphosphonates:



Triphosphonates:



in which at least one of the R' groups is selected from the group consisting of R'' and OR'' in which R'' is a monovalent organic group selected from the group consisting of a lower aliphatic group and halogen derivatives thereof, a fatty acid group and halogenated derivatives thereof, an aryl group and halogenated derivatives thereof, an alkaryl group and halogenated derivatives thereof, a heterocyclic group and a base sugar group and in which the base is selected from the group consisting of a purine base and a pyrimidine base.

3,560,479 FIRE-RETARDANT CELLULOSIC COMPOSITIONS

Kailash Chandra Pande, Farmingdale, N.Y., assignor to Borg-Warner Corporation, Chicago, Ill.
No Drawing. Filed Oct. 21, 1969, Ser. No. 868,215
Int. Cl. C08b 23/00, 27/66, 27/68

U.S. Cl. 260—212 6 Claims
A flame-retardant composition comprised of a cellulosic composition and a bis- β , β -(dialkylphosphono) propionic acid derivative integrally attached to the cellulosic polymer chain of the cellulosic composition.

3,560,480 PROCESS FOR MAKING ANIONIC WATER-SOLUBLE POLYSACCHARIDES

Emilio Kruger, Milan, Italy, assignor to Cartiera Di Calrate S.p.A., Milan, Italy
No Drawing. Filed June 17, 1969, Ser. No. 834,140
Int. Cl. C08b 25/02, 29/14

U.S. Cl. 260—231 4 Claims
A process for obtaining anionic water soluble polysaccharides by introducing acid groups into the polysaccharides chain in an anhydrous solvent is described. The derivatised polysaccharides have good film forming properties and can be used as additives in the paper industry.

3,560,481 PHARMACEUTICALLY ACTIVE AZATRICYCLIC CARBOXAMIDES

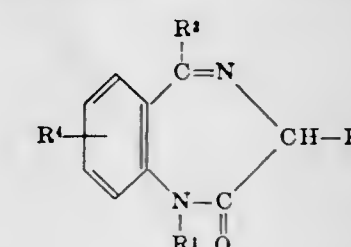
Gilbert H. Berezin, West Chester, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Nov. 12, 1968, Ser. No. 775,114
Int. Cl. C07d 41/00

U.S. Cl. 260—239 2 Claims
This invention relates to the novel compounds 4-azatri-cyclo[4.3.1.1^{3,8}]undecane - 4 - carboxamide and 4-azatri-cyclo[4.3.1.1^{3,8}]dodecane - 4 - carboxamide, the methods of preparing same and novel intermediates formed in their preparation. These compounds are useful as antiviral agents.

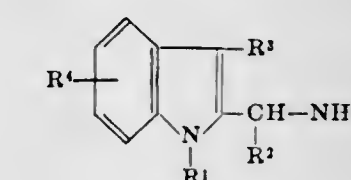
3,560,482 METHOD FOR PRODUCING BENZODIAZEPINE DERIVATIVES

Hisao Yamamoto, Nishinomiya-shi, Shigeo Inaba, Takarazuka-shi, Tadashi Okamoto, Ashiya-shi, Toshiyuki Hirohashi, Kobe, Kikuo Ishizumi, Minoo-shi, Michihiro Yamamoto, Takarazuka-shi, Isamu Maruyama, Minoo-shi, Kazuo Mori, Kobe, and Tsuyoshi Kobayashi, Minoo-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan
No Drawing. Filed Nov. 29, 1968, Ser. No. 780,207
Claims priority, application Japan, Dec. 8, 1967, 42/78,906; Dec. 9, 1967, 42/79,161; Dec. 12, 1967, 42/79,921, 42/79,922; Apr. 25, 1968, 43/28,172
Int. Cl. C07d 53/06

U.S. Cl. 260—239.3 4 Claims
Benzodiazepine derivatives of the formula,



wherein R^1 and R^2 are respectively hydrogen or alkyl; R^3 is cycloalkyl, unsubstituted or alkyl- or halogen-substituted pyridyl, furyl or thienyl, etc. and R^4 is hydrogen, halogen, nitro, alkyl, alkoxy, haloalkyl or alkylsulfonyl, which have excellent tranquilizing effect are produced by reacting a 2-aminomethylindole derivative of the formula,



wherein R^1 , R^2 , R^3 and R^4 have the same meanings as defined above or a salt thereof, with an oxidizing agent.

3,560,483

1,4-DIALKYL-3,6-DIPHENYLEPH(THIO, DITHIA OR TETRATHIA)-2,5-PIPERAZINEDIONES

Steve George Svokos, Westwood, N.J., and Robert Bruce Angier, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed June 13, 1969, Ser. No. 833,147

Int. Cl. C07d 93/36

U.S. Cl. 260—239.3

9 Claims

This disclosure describes compounds of the class of 1,4-dialkyl-3,6-diphenylepi(thia, dithia or tetrathia)-2,5-piperazinediones useful as antifungal and antiviral agents.

3,560,484

PROCESS FOR THE PREPARATION OF ε-CAPROLACTAM

Ikuzo Tanaka, Hideo Uehara, Hukue Osaki, and Masayuki Yamagata, Tokyo, Japan, assignors to Teijin Limited, Osaka, Japan, a corporation of Japan

No Drawing. Filed June 17, 1969, Ser. No. 834,173

Claims priority, application Japan, June 21, 1968,

43/42,971; Aug. 1, 1968, 43/54,498, 43/54,499;

Nov. 4, 1968, 43/80,545; Nov. 5, 1968, 43/81,166

Int. Cl. C07d 41/06

U.S. Cl. 260—239.3

11 Claims

ε-Caprolactam is prepared in a single step without formation of by-product ammonium sulfate by contacting 2-nitrocyclohexanone and/or 2-nitrocyclohexen-1-ol with hydrogen at a temperature ranging from 150° to 300° C. in the presence of a liquid medium such as water, alcohols, ethers, benzene or mixtures thereof and of an active hydrogenation catalyst, preferably in the further presence of a nitrogen-containing basic substance such as ammonia.

This invention relates to a novel process for the preparation of ε-caprolactam.

3,560,485

Δ²-PYRAZOLINE OPTICAL BRIGHTENERS

Erich Schinzel, Frankfurt am Main, Siegfried Bildstein, Keekheim, Taunus, and Karl Heinz Lebkucher, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Continuation of application Ser. No.

490,112, Sept. 24, 1965. This application Sept. 29,

1967, Ser. No. 671,606

Claims priority, application Germany, Sept. 25, 1964,

F 44,060

Int. Cl. C07d 49/10; B44d 5/00

U.S. Cl. 260—239.8

6 Claims

Novel optical brightening agents for the treatment of fibrous materials and films, processes for their use and detergent compositions containing them.

3,560,486

PREGNANE DERIVATIVES

Arthur F. Marx and Dirk van der Sijde, Delft, Netherlands, assignors to Koninklijke Nederlandsche Gist- en Spiritusfabriek N.V., Delft, Netherlands

No Drawing. Filed Mar. 13, 1968, Ser. No. 712,600

Claims priority, application Netherlands, Mar. 13, 1967,

6703781

Int. Cl. C07c 173/00

U.S. Cl. 260—239.55

71 Claims

New 14α,17α-methylenedioxypregnane derivatives are provided wherein atoms 14 and 17 of the steroid skeleton are bridged by one carbon and two oxygen atoms, arranged in such a way that they form a 1,3-dioxane ring system with carbon atoms 13, 14 and 17 of the steroid skeleton.

3,560,487

17β-LACTONES OF 14β-HYDROXY-STEROIDS AND PROCESS FOR PREPARING THEM

Hans Kohl, Schwalbach, Taunus, Werner Fritsch, Neu- enhain, Taunus, Werner Haede, Hofheim, Taunus, Kurt Radschelt, Kelkheim, Taunus, and Ulrich Stache, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister, Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Mar. 19, 1969, Ser. No. 808,689

Claims priority, application Germany, Apr. 27, 1968,

P 17 68 308.8

Int. Cl. C07c 173/02

U.S. Cl. 260—239.57

2 Claims

17β-lactones of 14β-hydroxy steroids are prepared by reacting carda-14,20(22)-dienolides or bufa-14,20,22-trienolides or the corresponding Δ⁴-derivatives with N-bromo acyl amides, the resulting 15α-bromo-14β-hydroxy derivatives are treated with Raney nickel in an organic solvent at room temperature and the 3-oxo groups are reduced with a metal hydride complex.

3,560,488

3-SULFANILAMIDO-4-SUBSTITUTED-1,2,5-THIADIAZOLES

Roger J. Tull, Metuchen, Leonard M. Weinstock, Rocky Hill, and Paul Davis, Metuchen, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Oct. 1, 1964, Ser. No. 400,894, now Patent No. 3,484,452, dated Dec. 16,

1969. Divided and this application Mar. 6, 1969, Ser.

No. 816,471

Int. Cl. C07g 91/68

U.S. Cl. 260—239.95

2 Claims

This invention relates to a method of synthesizing 1,2,5-thiadiazoles. More particularly, it is concerned with a new process for making certain 3-functionally substituted-1,2,5-thiadiazoles. It relates also to new 1,2,5-thiadiazoles obtained according to such new process.

3,560,489

7-α-AMINOACYL CEPHALOSPORINS

Robert B. Morin, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana

No Drawing. Continuation-in-part of applications Ser. No. 137,000, Sept. 11, 1961, and Ser. No. 438,038, Mar. 8,

1965. This application Aug. 12, 1966, Ser. No. 571,966

Int. Cl. C07d 99/24

U.S. Cl. 260—243

15 Claims

Certain substituted 7-α-aminoacyl cephalosporins, prepared by the acylation of 7-aminocephalosporanic acid, having high antibiotic activity.

3,560,490

TRIFLUOROMETHYL FURAN DERIVATIVES

Kenneth K. Wyckoff, David M. Tennent, and Ronald E. Bambury, Ashland, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 482,907, Aug. 26, 1965, now Patent No. 3,405,163,

Ser. No. 493,534, Oct. 6, 1965, now Patent No.

3,442,913, and Ser. No. 493,535, Oct. 6, 1965, now

Patent No. 3,439,000. This application Feb. 28, 1966,

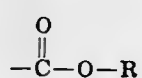
Ser. No. 530,316

Int. Cl. C07d 5/26

U.S. Cl. 260—240

20 Claims

Novel hydrazone and oxime derivatives of 5-trifluoromethylfurans. The hydrazone or oxime group can be in either the 2- or 3-position of the furan ring. The 2- or 3-position which does not contain a hydrazone or oxime can be substituted with phenyl or naphthyl. The 4-position of the furan ring can be substituted with an ester group of the formula



wherein R is (lower) alkyl, cycloalkyl of 3 to 6 carbon atoms, phenyl, naphthyl, benzyl, phenethyl, α-naphthylmethyl or β-naphthylmethyl. The novel hydrazones and oximes of this invention can be used as growth promoting agents and as coccidiostatic agents for veterinary animals.

3,560,491

ANTHRAQUINONE DYESTUFFS

Rütger Neeff, Leverkusen, Germany, assignor to Farbfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed July 10, 1967, Ser. No. 651,980

Claims priority, application Germany, July 16, 1966,

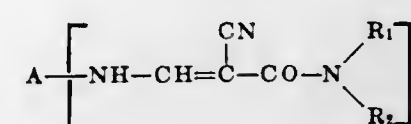
F 49,712

Int. Cl. C07c 97/12

U.S. Cl. 260—240

13 Claims

This invention concerns anthraquinone dyestuffs of the formula



wherein A is an anthraquinone radical, n is an integer from 1 to 4 and R₁ and R₂ complete the residue of aliphatic or heterocyclic amines. These dyestuffs are prepared by reaction of the appropriate cyanoacetic acid amide with N-anthraquinonyl-N'-formamidium salts. These dyestuffs are useful for dyeing or printing of textiles.

3,560,492

ETHYLENICALLY-UNSATURATED CYCLIC NITRILE ADDUCT COMPOUNDS

Emmett H. Burk, Jr., Glenwood, Ill., and Donald D. Carlos, Crown Point, Ind., assignors to Sinclair Research, Inc., New York, N.Y.

No Drawing. Application Nov. 9, 1967, Ser. No. 681,925, now Patent No. 3,480,595, dated Nov. 25, 1969, which is a continuation-in-part of application Ser. No.

592,285, Nov. 7, 1966. Divided and this application

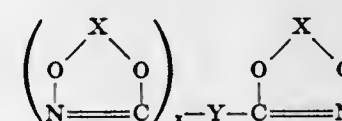
Dec. 6, 1968, Ser. No. 804,030

Int. Cl. C07d 85/52, 87/02, 91/04

U.S. Cl. 260—240

17 Claims

The disclosure is of ethylenically-unsaturated cyclic nitrile compounds of the formula



wherein X is a thionyl, carbonyl or oxalyl group, Y is an addition-polymerizable, ethylenically-unsaturated group (e.g., vinyl), and x is 0 or 1. The compounds may be polymerized to form homopolymers or addition polymers with ethylenically-unsaturated polymerizable monomers (e.g. styrene).

3,560,493

SPIRO DIBENZO[a,d]CYCLOHEPTEN-OXAZOLIDINE AND OXAZINE

Martin A. Davis, Montreal, Quebec, Canada, assignor to Ayerst, McKenna & Harrison Limited, Laurent, Quebec, Canada

No Drawing. Filed Nov. 25, 1968, Ser. No. 778,779

Int. Cl. C07d 85/26, 87/06

U.S. Cl. 260—244

3 Claims

There are disclosed herein spiro[5H-dibenzo[a,d]cyclohepten-5,2'-oxazolidine] and 3', 4', 5', 6'-tetrahydrospiro[5H - dibenzo[a,d]cyclohepten - 5,2' (2'H) - 1',3' - oxa-

3,560,494

PROCESS FOR PHOSPHONIC ETHYLATION OF AMINES

Frederick Charles Copp, London, England, assignor to Burroughs Wellcome & Co (U.S.A.) Inc., Tuckahoe, N.Y.

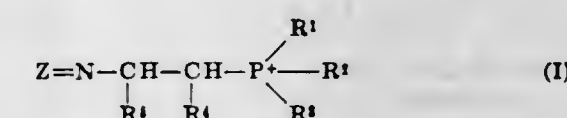
No Drawing. Filed Oct. 18, 1966, Ser. No. 587,394

Int. Cl. C07d 87/26

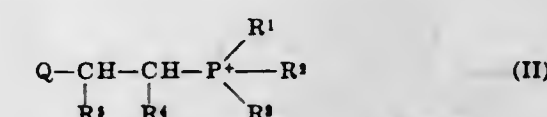
U.S. Cl. 260—247

9 Claims

A method for preparing the cation of Formula I



which comprises reacting a cation of Formula II



with a secondary amine Z=NH; where R¹, R² and R³ are lower alkyl or phenyl, R⁴ is hydrogen, R⁵ is hydrogen or lower alkyl, Q is phenoxy unsubstituted or substituted with lower alkyl, lower alkoxy or halogeno, Z=N— is unsubstituted di-lower alkylamino, pyrrolidino, morpholino or piperidino, in all definitions above lower alkyl and lower alkoxy have 1 to 5 carbons. The products of this method are useful as intermediates in the preparation of well known antihistamines and analgesics.

3,560,495

1-HETEROCYCLIC AMINO METHYL OR 1-HETEROCYCLIC HYDRAZINO METHYL-3-PHTHALIMIDO OR (3',6'-DITHIA - 3',4',5',6'-TETRAHYDRO-PHTHALIMIDO) - PYRROLIDINEDIONES - 2,5 OR PIPERIDINEDIONES-2,6

Ernst Frankus, Dorfstrasse 14, Schleckheim, near Aachen, Germany; Heinrich Mueckter, Eupener Str. 291, Aachen, Germany; and Siegfried Herrling, Auf der Llesler 8; Franz Otto, Galmelstrasse 57; and Horst Boehlke, Trockener Welher 33, all of Stolberg, Rhineland, Germany

No Drawing. Filed May 9, 1966, Ser. No. 548,400

Claims priority, application Austria, Oct. 15, 1965,

A 9,341/65; Germany, May 8, 1965, P 15 45 672.1;

Oct. 13, 1965, P 15 45 707.5

Int. Cl. C07d 87/46

U.S. Cl. 260—247.1

7 Claims

Dicarboxylic acid imides which are substituted by an acylated amino or imino group and at the imido group by basically substituted methyl have valuable pharmacological properties, such as antitumor, immuno-suppressive, blood pressure lowering, and sedative properties. Examples of such compounds are 3-phthalimido piperidinediones-2,6 substituted in 1-position by a morpholino, piperidino, or pyrrolidino methyl group or by an N-methyl-N-morpholino or N-methyl-N-piperidino amino methyl group; 3 - (3',5'-dithia-3',4',5',6'-tetrahydrophthalimido) piperidinedione-2,6 substituted in 1-position by a morpholino, piperidino, or pyrrolidino methyl group; 3-phthalimido pyrrolidinedione-2,5 substituted in 1-position by a morpholino, piperidino, or pyrrolidino methyl group, and others.

3,560,496

2-BENZYL-as-TRIAZINE-3,5(2H,4H) DIONES
Harold L. Howes, Jr., and Richard C. Koch, New London, Conn., assignors to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Oct. 16, 1968, Ser. No. 768,192
Int. Cl. C07d 55/10

U.S. Cl. 260—248 9 Claims
2-benzyl-as-triazine-3,5(2H,4H) diones and novel 2-substituted-benzyl-as-triazine-3,5(2H,4H) diones and their use as agents for the control of coccidiosis are described.

3,560,497

2-PHENYL-as-TRIAZINE-3,5(2H,4H) DIONES
Max W. Miller, Stonington, Conn., assignor to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Oct. 16, 1968, Ser. No. 768,191
Int. Cl. C07d 55/10

U.S. Cl. 260—248 6 Claims
2-phenyl-as-triazine-3,5(2H,4H) diones and novel 2-substituted-phenyl-as-triazine-3,5(2H,4H) diones and their use as agents for the control of coccidiosis are described.

3,560,498

TETRASUBSTITUTED PYRIDAZINES
Donald E. Bublitz, Concord, Calif., and Raymond H. Rigerink, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Aug. 14, 1968, Ser. No. 752,720
Int. Cl. C07d 51/76

U.S. Cl. 260—250 10 Claims
Tetra(methylthio)pyridazine and tetra(phenylthio)pyridazine and the tetrasubstituted pyridazines in which from one to three of the substituents are methylthio, ethylthio, methoxy, or ethoxy and the remaining substituents are chloro. These compounds are useful as pesticides.

3,560,499

PROCESS FOR THE PREPARATION OF 1,2,8,9-TETRAAZAPHENALENES
Karl J. Doebel, Ossining, and John E. Francis, Pleasantville, N.Y., assignors to Geigy Chemical Corporation, Ardsley, N.Y.
No Drawing. Continuation-in-part of applications Ser. No. 445,762, Apr. 5, 1965, Ser. No. 539,303, Apr. 1, 1966, and Ser. No. 583,980, Oct. 3, 1966. This application Nov. 13, 1968, Ser. No. 775,550
Int. Cl. C07d 51/04

U.S. Cl. 260—250 7 Claims
3-keto-2,3-dihydro-1,2,8,9-tetraazaphenalene and the corresponding 7-phenyl compound are prepared by treating 3-substituted phthalic acid derivatives with hydrazine. The compounds possess hypotensive properties and are chemical intermediates.

3,560,500

3-HALO-1,2,8,9-TETRAAZAPHENALENES
Karl J. Doebel, Ossining, and John E. Francis, Pleasantville, N.Y., assignors to Geigy Chemical Corporation, Ardsley, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 718,227, Apr. 2, 1968, which is a continuation-in-part of applications Ser. No. 445,762, Apr. 5, 1965, Ser. No. 539,303, Apr. 1, 1966, and Ser. No. 583,980, Oct. 3, 1966. This application Mar. 24, 1969, Ser. No. 810,008
Int. Cl. C07d 51/04

U.S. Cl. 260—250 7 Claims
3-halo-1,2,8,9-tetraazaphenalenes optionally substituted in the 4, 5, 6, 7 and/or 9 positions and their salts are intermediates for the preparation of the corresponding 3-amino-1,2,8,9-tetraazaphenalenes which are cardiovas-

cular agents. Representative embodiments are 3-chloro-1,2,8,9-tetraazaphenalene and 3-bromo-9-methyl-1,2,8,9-tetraazaphenalene.

3,560,501

PROCESS FOR MAKING DIHYDROQUINAZOLINES
Gordon Northrop Walker, Morristown, N.J., assignor to Ciba Corporation, New York, N.Y.
No Drawing. Filed Sept. 15, 1966, Ser. No. 579,483
Int. Cl. C07d 51/48

U.S. Cl. 260—251 1 Claim
2-hydroxy- or mercapto-4-aryl-quinazolines, or the esters or ethers thereof, can be partially reduced with alkali or alkaline earth metal borohydrides, to form the corresponding 3,4-dihydro derivatives, which are valuable intermediates in the preparation of pharmacologically active 2-amino derivatives thereof.

3,560,502

NEW QUINAZOLINE COMPOUNDS AND METHODS FOR THEIR PRODUCTION
John Davoll, Shepperton, England, assignor to Parke, Davis & Company, Detroit, Mich.
No Drawing. Filed May 24, 1968, Ser. No. 731,727
Claims priority, application Great Britain, May 25, 1967, 24,462/67
Int. Cl. C07d 51/48

U.S. Cl. 280—256.4 6 Claims
2,4-diamino-6-(substituted nitrosamino)quinazoline compounds and salts thereof. The substituent on the 6-nitrosamino group is a group such as benzyl, substituted benzyl, naphthylmethyl, furylmethyl, thienylmethyl, or pyridylmethyl. The compounds can also be substituted at the 5-position by chlorine or methyl and at the side-chain carbon atom adjacent to the nitrosamino group by lower alkyl. The compounds have pharmacological activities, primarily an antiparasitic and antimalarial agents.

3,560,503

DI-LOWER ALKYL-SUBSTITUTED OCTAHYDRO-PYRAZINOPYRIMIDINONES
Nitya Anand, Ranjit Kumar Chatterjee, Raman Narayana Iyer, Ranjana Sakena, and Amla Bhushan Sen, Lucknow, India, assignors to Council of Scientific and Industrial Research, New Delhi, India
No Drawing. Filed Sept. 18, 1968, Ser. No. 760,704
Int. Cl. C07d 57/24

U.S. Cl. 260—256.4 2 Claims
Substituted piperazinopyrimidinones such as 2-ethyl-6-methyl-2,3,4,4a,5,6,7,8-octahydro-1H-pyrazino[1,2-c]pyrimidin-1-one which have utility as antifilarial agents.

3,560,504

VIROSTATICALLY EFFECTIVE SUBSTITUTED 3-ALKENYL-5-ETHYL URACIL COMPOUNDS
Kailash Kumar Gauri, Lentföhrden, Holstein, Germany, assignor to Robugen G.m.b.H., Esslingen am Neckar, Germany, a company of Germany
No Drawing. Filed Sept. 3, 1968, Ser. No. 757,146
Int. Cl. C07d 51/30

U.S. Cl. 260—260 12 Claims
Highly effective virostatic agents are substituted 5-ethyl uracil compounds which have alkenyl with 3 to 6 carbon atoms in 3-position and may be substituted in 1-position by alkyl with 1 to 4 carbon atoms, cycloalkyl, aryl, or aralkyl and in 4-position by halogen. Examples of such compounds are 1,5-diethyl-3-allyl-4-chloro uracil, 1-methyl-3-allyl or crotyl-4-chloro-5-ethyl uracils, 1-methyl or ethyl-3-allyl or crotyl-5-ethyl uracils. They are preferably obtained by alkenylation in 3-position of the corresponding 5-ethyl uracil compounds which have in 3-position hydrogen. They are preferably topically applied

to the virus-affected areas of the body in the form of solutions, ointments, powders, sprays, or the like which contain between about 0.5% and about 50% thereof.

3,560,505

SUBSTITUTED 7-(1-ALKOXY-1-ALKEN-1-YL)-7,8-DIHYDRO-6-METHOXY-6,14-ENDO-(ETHENO OR ETHANO) CODIDES AND MORPHIDES
John Johnston Brown, Pearl River, N.Y., Robert Allis Hardy, Jr., Ridgewood, N.J., and Carol Nora Roth, née Carol Therese Nora, Houston, Tex., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Continuation-in-part of application Ser. No. 671,106, Sept. 27, 1967, which is a continuation-in-part of application Ser. No. 642,698, June 1, 1967. This application May 15, 1969, Ser. No. 825,052
Int. Cl. C07d 43/28; A61k 27/00

U.S. Cl. 260—285 10 Claims
This disclosure describes compounds of the class of substituted 7-(1-alkoxy-1-alken-1-yl)-7,8-dihydro-6-methoxy-6,14-endo-(etheno or ethano) codides and morphides which possess analgesic activity.

3,560,506

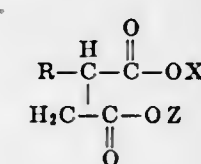
SUBSTITUTED 7-(DI(LOWER ALKOXY)METHYL)-AND 7-(LOWER ALKYLENEDIOXYMETHYL)-7,8-DIHYDRO-6-METHOXY-6,14-ENDO-(ETHENO OR ETHANO) CODIDES AND MORPHIDES
John Johnson Brown, Pearl River, N.Y., Robert Allis Hardy, Jr., Ridgewood, N.J., and Carol Nora Roth, née Carol Therese Nora, Houston, Tex., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Continuation-in-part of application Ser. No. 671,128, Sept. 27, 1967, which is a continuation-in-part of application Ser. No. 634,099, Apr. 27, 1967. This application May 15, 1969, Ser. No. 825,053
Int. Cl. C07d 43/28; A61k 27/00

U.S. Cl. 260—285 10 Claims
This disclosure describes compounds of the class of substituted 7-[di(lower alkoxy)methyl]- and 7-(lower alkylenedioxy)methyl-7,8-dihydro-6-methoxy-6,14-endo-(etheno or ethano) codides and morphides which possess analgesic activity.

3,560,507

QUATERNARY AMMONIUM ALKENYL SUCCINATES
Reginald L. Wakeman, Philadelphia, Pa., and Joseph F. Coates, Washington, D.C., assignors to Millmaster Onyx Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 365,796, May 7, 1964. This application Feb. 27, 1968, Ser. No. 708,520
Int. Cl. C07d 35/24

U.S. Cl. 260—286 14 Claims
The products of this invention conform, in general, to the following structure:



wherein R is a straight or branched chain alkenyl radical containing from 6 to 18 carbon atoms; X or Z or both are cations of microbiocidal quaternary ammonium compounds; or either X or Z is such a quaternary am-

3,560,508

PROCESS FOR THE PRODUCTION OF 5,7-DI-CHLORO-8-HYDROXY-QUINOLINE AND 5,7-DICHLORO-8-HYDROXY-QUINALDINE
Karl Ruhl, Castrop-Rauxel, and Georg Grigoleit and Ludwig Rappen, Duisburg-Melderich, Germany, assignors to Rutgerswerke und Teerverwertung Aktiengesellschaft, Frankfurt-am-Main, Germany
No Drawing. Filed Feb. 20, 1968, Ser. No. 706,759
Int. Cl. C07d 33/44

U.S. Cl. 260—289 6 Claims
5,7-dichloro-8-hydroxy-quinoline or 5,7-dichloro-8-hydroxy-quinaldine is produced by chlorinating a solution in chloroform of the starting material 8-hydroxy-quinoline or 8-hydroxy-quinaldine with an excess of chlorine in the presence in the solution of 0.5 to 5% by weight of iodine, based on the weight of the starting compound. After chlorination, the solvent is removed from the reaction mixture by distillation with the addition of water and the chlorinated product is precipitated and filtered off. The yield amounts e.g. to about 94–97% of the theory.

3,560,509

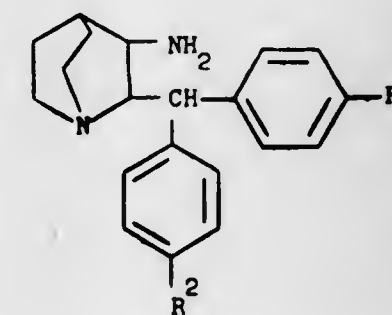
O-(1-ADAMANTANECARBONYL)-SCOPOLAMINE
Robert B. Moffett, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Feb. 19, 1969, Ser. No. 800,752
Int. Cl. C07d 43/06

U.S. Cl. 260—292 3 Claims
O-(1-adamantanecarbonyl)-scopolamine (including acid addition salts, quaternary ammonium salts, and the N-oxide) prepared by the reaction of 1-adamantanecarbonyl chloride and scopolamine useful as an anticholinergic, mydriatic, antiperspirant, antispasmodic, antiseptory.

3,560,510

2-BENZHYDRYLQUINUCLIDINES
Edward John Warawa, Milwaukee, Wis., assignor to Aldrich Chemical Company, Inc., Milwaukee, Wis.
No Drawing. Filed Mar. 5, 1969, Ser. No. 804,691
Int. Cl. C07d 39/06

U.S. Cl. 260—293 19 Claims
Compounds of the formula



where R¹ and R² are both hydrogen, chloro, bromo, fluoro, trifluoromethyl, methoxy, methylenedioxy or amino; and the pharmaceutically acceptable nontoxic salts thereof exhibit diuretic activity and are useful as diuretic agents in mammals to promote the excretion of water and sodium.

3,560,511

TOPICAL ANAESTHETIC PIPERIDYL CARBINOL

Luigi Bernardi, Via Pinerolo 30, and Cesare Bertazzoli, V. le Caterina de Forlì 16, both of Milan, Italy, and Dario Ghiringhelli, Via Caprano, Angera (Varese), Italy

No Drawing. Continuation-in-part of application Ser. No. 612,801, Jan. 31, 1967. This application Dec. 24, 1968, Ser. No. 786,738

Claims priority, application Italy, Dec. 29, 1967, 24,494A/67

Int. Cl. C07d 29/24

U.S. Cl. 260—294.3

2 Claims

Disclosed is diphenylacetate of 1,α,α-trimethyl-2-piperidylcarbinol and the process for the preparation thereof from α,α-dimethyl-2-piperidylcarbinol, which is first hydrogenated to the corresponding piperidylcarbinol, treating this compound with formaldehyde and hydrogen in the presence of a suitable catalyst, and esterifying the product to form the diphenylacetate. The product is useful as a topical anaesthetic. 1,α,α-trimethyl-2-piperidylcarbinol prepared as above is a racemic base which may be further separated into the two optical antipodes, the D(+) form of which has been found to have a higher local anaesthetic activity and a lower toxicity than the corresponding base. Either the racemic base or its two optical antipodes can be reacted with the conventional acids for forming pharmaceutically acceptable acid addition salts.

3,560,512

3-SUBSTITUTED-2,1-BENZISOTHIAZOLINE-2,2-DIOXIDES

Joseph A. Skorcz, Milwaukee, and John T. Suh and Claude I. Judd, Mequon, Wis., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 571,972, Aug. 12, 1966. This application Nov. 14, 1967, Ser. No. 682,991

Int. Cl. C07d 91/06

U.S. Cl. 260—301

7 Claims

The compounds are 2,1-benzisothiazoline-2,2-dioxides substituted in the 3 position which are useful in the preparation of wood preservatives, moth proofing agents, pickling inhibitors and as pharmaceutical agents, particularly antihypertensive agents. Among the compounds disclosed are 1,3-dimethyl-3-(2'-carboxyethyl)-2,1-benzisothiazoline-2,2-dioxide and 1,3-dimethyl-3-[(N-dimethylaminoethyl) - 2' - carbamylethyl]-2,1-benzisothiazoline-2,2-dioxide.

3,560,513

2-LOWER ALKYL-9,10-DIHYDRO-4H-BENZO[5,6]CYCLOHEPTA[1,2-d]THIAZOL-4-ONES AND THEIR PREPARATION

Eugene E. Galantay, Morristown, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Application Aug. 30, 1967, Ser. No. 664,313, now Patent No. 3,442,903, which is a continuation-in-part of application Ser. No. 610,780, Jan. 23, 1967. Divided and this application Jan. 21, 1969, Ser. No. 792,766

Int. Cl. C07d 91/42

U.S. Cl. 260—302

5 Claims

The compounds are of the class of 4-(3-mono- and dialkylaminopropylidene)-2-lower alkyl - 9,10-dihydro-4H-benzo[5,6]cyclohepta[1,2-d]thiazoles which are useful as tranquilizers. The compounds are prepared by thiating a 2-lower alkyl-9,10-dihydro-4H-benzo[5,6]cyclohepta[1,2-

d]oxazol-4-one, treating the resulting benzocycloheptathiazol-4-one with a metallo dialkylaminopropyl halide Grignard reagent and dehydrating the carbinol resulting from the hydrolysis of the Grignard adduct to obtain the corresponding 4-(3-dialkylaminopropylidene)-2-lower alkyl-9,10 - dihydro - 4H-benzo[5,6]cyclohepta[1,2-d]thiazole, which may then be N-dealkylated to the corresponding 3-monoalkylaminopropylidene-containing analog.

3,560,514

2-(LITHIUMMETHYL)-4,5-DIANISYLTHIAZOLE

Daniel Lednicher, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Original application Sept. 26, 1966, Ser. No. 581,747, now Patent No. 3,458,526. Divided and this application Oct. 17, 1968, Ser. No. 768,519

Int. Cl. C07d 91/34

U.S. Cl. 260—302

1 Claim

The present invention is directed to novel compounds and is more particularly concerned with certain 2-substituted-4,5-dianisylthiazoles [2-substituted-4,5-bis(p-methoxyphenyl)thiazoles], certain novel intermediates therefor and the production thereof.

3,560,515

NEW THIAZOLOBENZODIAZEPINE COMPOUNDS AND METHODS FOR THEIR PRODUCTION

Edward F. Elslager and Donald F. Worth, Ann Arbor, Mich., assignors to Parke, Davis & Company, Detroit, Mich., a corporation of Michigan

No Drawing. Filed Aug. 5, 1968, Ser. No. 750,012

Int. Cl. C07d 99/06

U.S. Cl. 260—306.7

7 Claims

5,10-dihydro - 3 - (aryl)thiazolo[3,2-b][2,4]benzodiazepines, in which the 3-aryl group is phenyl, hydroxyphenyl, dihydroxyphenyl, (lower alkoxy)phenyl, di(lower alkoxy)phenyl, tolyl, xylyl, 2-thienyl, or 2-furyl; acid-addition salts thereof; and their production by reacting 1,2,4,5-tetrahydro-3H-benzo[2,4]diazepine-3-thione with an appropriately substituted halomethyl aryl ketone. The compounds of the invention are useful as inhibitors of blood platelet aggregation.

3,560,516

OXAZOLE DERIVATIVES

Ryonosuke Yoshida, Kamakura-shi, Kanagawa-ken, Itsutoshi Maeda, Tokyo, Kazushi Togo, Kawasaki-shi, Kanagawa-ken, Seichiro Asai, Tokyo, and Masahiro Takehara, Kawasaki-shi, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Aug. 1, 1967, Ser. No. 657,517

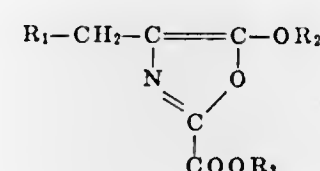
Claims priority, application Japan, Aug. 8, 1966, 41/52,012, 41/52,013, 41/52,014; Oct. 3, 1966, 41/65,041; Jan. 10, 1967, 42/1,893; May 15, 1967, 42/30,724

Int. Cl. C07d 85/00

U.S. Cl. 260—307

4 Claims

Pyridine derivatives which are known precursors of vitamin B₆ are prepared from oxazole derivatives of the formula



wherein R₁ is hydrogen, carboxy, or carbo-lower alkoxy, R₂ is lower alkyl, and R₃ is hydrogen or lower alkyl by partial decarboxylation and further reactions in a known manner, or by Diels-Alder reaction with suitable dienophiles. The oxazole derivatives are prepared by reacting a dialkyl oxalate with an ester of alanine or aspartic acid to the corresponding N-alkoxalyl amino acid ester, and closing the oxazole ring by means of a dehydrating agent and an organic base.

3,560,517

ISOXAZOLIDINE CARBOXANILIDES

Hans Grabinger, Richard Sehring, and Karl Zelle, Ingelheim am Rhein, Germany, assignors to C. H. Sohn Boehringer, Ingelheim am Rhein, Germany

No Drawing. Filed Dec. 6, 1967, Ser. No. 688,319

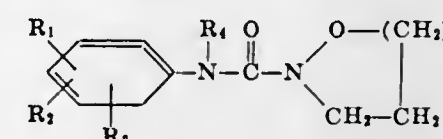
Claims priority, application Germany, Dec. 6, 1966, B 90,229; May 19, 1967, B 92,616; May 23, 1967, B 92,677

Int. Cl. C07d 85/08, 87/04

U.S. Cl. 260—307

6 Claims

Novel urea derivatives of the formula



wherein R₁ and R₂ are selected from the group consisting of hydrogen, halogen, lower alkyl, lower alkoxy and lower alkylthio of 1 to 5 carbon atoms, trifluoromethyl and aryloxy which may be substituted with a substituent selected from the group consisting of halogen and alkylthio of 1 to 5 carbon atoms, R₄ is selected from the group consisting of hydrogen, halogen, lower alkyl, lower alkoxy and lower alkylthio of 1 to 5 carbon atoms and aryloxy which may contain substituents selected from the group consisting of halogen and alkylthio of 1 to 5 carbon atoms, R₄ is selected from the group consisting of hydrogen and alkyl of 1 to 5 carbon atoms and n is an integer from 1 to 2 which compounds possess herbicidal activity.

3,560,518

AROMATIC-POLY(NITRILE CARBONATES)

Emmett H. Burk, Jr., Glenwood, Ill., and Donald D. Carlos, Crown Point, Ind., assignors to Sinclair Research, Inc., New York, N.Y.

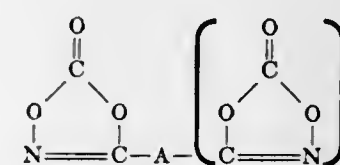
No Drawing. Continuation-in-part of application Ser. No. 659,618, Aug. 10, 1967, which is a continuation-in-part of application Ser. No. 502,450, Oct. 22, 1965. This application Mar. 18, 1968, Ser. No. 714,003

Int. Cl. C07d 85/06

U.S. Cl. 260—307

6 Claims

There are disclosed compounds of the formula:



wherein n is an integer of 1 to 3 and A is aromatic hydrocarbon of up to about 30 carbon atoms and of 2 to 3 monocyclic aromatic rings or one fused bicyclic aromatic ring or one fused tricyclic aromatic ring. The compounds can be made by reacting the corresponding hydroxamic acids and phosgene. The compounds are useful

3,560,519

AROMATIC MONO(NITRILE CARBONATES)

Emmett H. Burk, Jr., Glenwood, Ill., and Donald D. Carlos, Crown Point, Ind., assignors to Sinclair Research Inc., New York, N.Y.

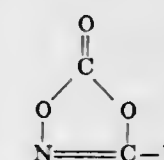
No Drawing. Continuation of application Ser. No. 671,932, Oct. 2, 1967, which is a continuation-in-part of application Ser. No. 502,620, Oct. 22, 1965. This application Mar. 28, 1969, Ser. No. 816,150

Int. Cl. C07d 85/06

U.S. Cl. 260—307

3 Claims

Compounds of the formula



wherein R is an aromatic hydrocarbon radical of 1 to 3 aromatic rings which can be substituted with, for instance, halogen, nitro, or alkoxy, e.g., methoxy, groups except that when R is monocyclic, R is substituted on the ring with at least one of the aforementioned groups. The compounds can be made by reacting the corresponding hydroxamic acids and phosgene.

3,560,520

IMIDAZOLINE/ALKYLENE OXIDE REACTION PRODUCTS

Warren L. Perilstein, Orchard Lake, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Original application Dec. 22, 1967, Ser. No. 692,706, now Patent No. 3,449,095, dated June 10, 1969. Divided and this application Dec. 30, 1968, Ser. No. 800,315

Int. Cl. C07d 49/30

U.S. Cl. 260—309.6

9 Claims

A gasoline having improved detergency and anticaking properties is described. The improved properties are effected by adding to the gasoline a small but effective quantity of a novel reaction product of (a) 1-hydroxyethyl-2-alkenyl imidazoline and (b) an alkylene oxide. The novel additive and the method of preparing it are also described.

3,560,521

BLOCKING GROUPS FOR CYSTEINE CONTAINING PEPTIDES

John D. Milkowski, Rahway, Daniel F. Veber, Plainfield, and Ralph F. Hirschmann, Scotch Plains, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Aug. 7, 1967, Ser. No. 658,665

Int. Cl. C07d 27/10

U.S. Cl. 260—326.3

2 Claims

Novel protecting groups for peptides containing a cysteine residue. Process for the synthesis of peptides containing a cysteine residue wherein the mercapto function of the cysteine residue is protected by a labile blocking group. Novel intermediates useful in peptide synthesis.

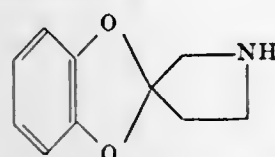
3,560,522

SPIRO[1,3-BENZODIOXOL-2,3'-PYRROLIDINE] AND INTERMEDIATES THEREOF

John Gmunder, Muttentz, Switzerland, and Richard Berthold, Reinach, Basel-Land, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland
No Drawing. Filed Jan. 15, 1969, Ser. No. 791,509
Claims priority, application Switzerland, Jan. 24, 1968, 1,118/68; Apr. 8, 1968, 5,192/68; May 29, 1968, 7,961/68

Int. Cl. C07d 13/10, 27/04, 27/10

U.S. Cl. 260—326.5 3 Claims
The invention concerns spiro[1,3-benzodioxol-2,3'-pyrrolidine] of the formula:



and pharmaceutically acceptable acid addition salts thereof. Processes for preparing the above compound and salts are also described and the invention also concerns various intermediates employed in such processes. Spiro[1,3-benzodioxol-2,3'-pyrrolidine] and pharmaceutically acceptable acid addition salts thereof are useful antidepressants.

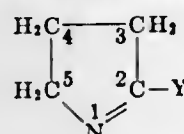
3,560,523

2-SUBSTITUTED Δ₁-PYRROLINE DERIVATIVES AND METHOD OF PREPARATION

André Etienne, Paris, and Yves Correia, Saint-Auban, France, assignors to Pechiney-Saint-Gobain, Paris, France
No Drawing. Filed Nov. 1, 1967, Ser. No. 679,651
Claims priority, application France, Nov. 3, 1966, 82,355

Int. Cl. C07d 27/14

U.S. Cl. 260—326.9 7 Claims
The invention is concerned with the preparation of 2-substituted Δ₁-pyrroline derivatives having the formula



in which Y is a substituted alkyl group in which the substituent is nitro, cyano, carbonyl and/or alkyl-carboxyl by reaction of 2-alkoxy Δ₁-pyrrolone with a labile hydrogen compound containing the Y group.

3,560,524

PREPARATION OF EPISULFIDES FROM EPOXIDES

Donald L. Clason, Mentor, and Lester E. Coleman, Willoughby Hills, Ohio; said Clason assignor to The Lubrizol Corporation, Wickliffe, Ohio
No Drawing. Filed Nov. 26, 1968, Ser. No. 779,260

Int. Cl. C07d 41/06, 59/00

U.S. Cl. 260—327 5 Claims
Epoxides are converted into episulfides in excellent yield by reaction with a thiolactam having 5-7 atoms in the ring. 2-thiopyrrolidone and ε-thiocaprolactam, especially the former, are preferred.

3,560,525

5-PHENYL-2-FURANACETIC ACIDS, 5-PHENYL-2-THIOPHENEACETIC ACIDS, AND THEIR DERIVATIVES

James S. Kaltenbronn, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich.
No Drawing. Continuation-in-part of application Ser. No. 598,912, Dec. 5, 1966. This application Oct. 13, 1967, Ser. No. 675,036

Int. Cl. C07d 63/12, 5/16; A61b 27/00

U.S. Cl. 260—332.2 5 Claims
5-phenyl-2-furanacetic acids, 5-phenyl-2-thiopheneacetic acids, and salts, lower alkyl ester and lower dialkyl-

aminoalkyl esters thereof, in which the phenyl group is optionally substituted by m-halo, p-halo, m-methyl, p-methyl, m-methoxyl, and p-methoxyl, useful as pharmacological agents exhibiting anti-inflammatory activity; and their production by (a) hydrolyzing an appropriately substituted compound having a group hydrolyzable to a carboxyl group, such as, for example, 5-phenyl-2-furan-acetonitrile or 5-phenyl-2-thiopheneacetonitrile, (b) reacting the hydrazone of an appropriately substituted heterocyclic glyoxylic acid compound with a base, and (c) esterifying the free acid compounds of the invention to give the esters of the invention.

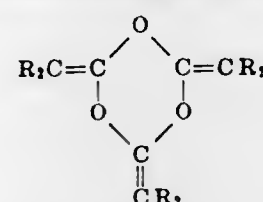
3,560,526

SUBSTITUTED TRIOXANES

Max M. Boudakian, Hamden, and Milton Lapkin, Woodbridge, Conn., assignors to Olin Mathieson Chemical Corporation
No Drawing. Filed Aug. 2, 1968, Ser. No. 749,617

Int. Cl. C07d 19/00

U.S. Cl. 260—340.7 6 Claims
Substituted trioxanes having the formula



wherein R is hydrogen, halogen, cyano, alkyl or aryl are prepared by dehydrohalogenation of selected α-haloaldehydes. These substituted trioxanes are useful as end-capping reagents for polyacetal resins and as acetylating agents for alcohols, amines, acids, etc.; they are also valuable sources of monomeric ketenes.

3,560,527

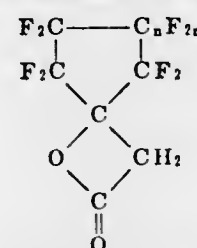
β-LACTONES OF (1-HYDROXYPERFLUOROCYCLOALKYL)ACETIC ACIDS AND PREPARATION THEREOF

Richard F. Sweeney, Dover, and Alson K. Price, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

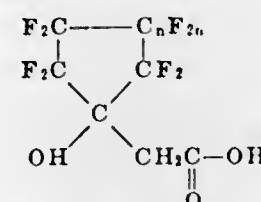
No Drawing. Filed Aug. 9, 1967, Ser. No. 659,338

Int. Cl. C07d 3/00

U.S. Cl. 260—343.9 11 Claims
Fluorinated lactones having the formula:



wherein n may be 0-2 are prepared by dehydrating a corresponding (1-hydroxyperfluorocycloalkyl)acetic acid having the formula



with phosphorus pentoxide.

The fluorinated lactones may also be prepared by heating a corresponding acid chloride of the above-described acids to decomposition, or by heating a mixture of such an acid with thionyl chloride, in the presence of an organic tertiary amine catalyst, for a period of time, and at a sufficiently high temperature, to form the corresponding subject fluorinated lactone. The fluorinated lactones may be converted to surface active unsaturated acids by reaction with anhydrous sulfuric acid.

3,560,528

6a,10a-TRANS-6a,7,10,10a-TETRAHYDRODIBENZO(b,d)-PYRAN PRODUCTION

Theodor Petrzilka, 6 Rigistrasse, Erlenbach, Switzerland
No Drawing. Filed May 8, 1968, Ser. No. 727,711
Claims priority, application Switzerland, May 19, 1967, 7,081/67

Int. Cl. C07d 7/20

U.S. Cl. 260—345.3 8 Claims
This invention is directed to a process of producing 1-hydroxy-3-n-amy-6,6,9-trimethyl-6a,10a-trans-6a,7,10,10a-tetrahydridibenzo(b,d)-pyran and related pyrans from resorcinols, which pyrans possess psychotomimetic and analgesic activity.

3,560,529

POLYMERIZATION OF ITACONIC ANHYDRIDE

John H. Blumbergs, Highland Park, and Donald G. MacKellar, Trenton, N.J., assignors to FMC Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Sept. 10, 1968, Ser. No. 758,669

Int. Cl. C08f 7/12

U.S. Cl. 260—346.8 4 Claims
Itaconic anhydride is homopolymerized by heating said anhydride at a temperature of at least about 70° C. in the presence of an initiating amount of a mixed itaconic-acyl peroxide.

3,560,530

PROCESS FOR THE OXIDATION OF ALKENES TO ALKENE OXIDES

Alvin B. Stiles, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 596,817, Nov. 25, 1966, which is a continuation-in-part of application Ser. No. 293,156, July 5, 1963, which in turn is a continuation-in-part of application Ser. No. 2,802, Jan. 18, 1960. This application June 19, 1969, Ser. No. 834,904

Int. Cl. C07d 1/14

U.S. Cl. 260—348.5 4 Claims
Alkene oxides are prepared in good yield from alkenes having 2-4 carbon atoms using a non-porous silver-cadmium alloy catalyst containing 1 to 15%, by weight of cadmium.

3,560,531

METALLATION WITH ALKALI METALS

Henri Marie Normant, Paris, France, assignor to Rhone-Poulenc S.A., Paris, France, a French body corporate
No Drawing. Filed Mar. 9, 1966, Ser. No. 532,840
Claims priority, application France, Mar. 12, 1965, 9,021

Int. Cl. C07c 15/16

U.S. Cl. 260—389 2 Claims
Compounds containing active hydrogen are metallated by contact with an alkali metal in a medium comprising hexamethylphosphoramide.

3,560,532

3-SILYL-ETHER STEROIDS

Marco Cereghetti and Andor Furst, Basel, Max Vecchi, Reinach, and Walter Vetter, Munchenstein, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Filed Feb. 13, 1969, Ser. No. 799,113
Claims priority, application Switzerland, Feb. 23, 1968, 2,751/68

Int. Cl. C07c 169/34, 169/20

U.S. Cl. 260—397.4 18 Claims
3-silyl-ether steroids of the androstane, pregnane, and corticoid series are prepared by reacting the corresponding 3-oxo-steroids with a silylating agent. End-products of the invention are useful as either anabolic, androgenic, progestational or corticoid agents depending upon the particular derivative prepared.

3,560,533

17α-(2-ALKYNYL)-1-METHYLESTRA-1,3,5(10)-TRIENE-3,17β-DIOLS AND ESTERS THEREOF

Paul D. Klimstra, Northbrook, Ill., assignor to G. D. Searle & Co., Chicago, Ill.
No Drawing. Filed Jan. 31, 1969, Ser. No. 795,715
Int. Cl. C07c 169/20

U.S. Cl. 260—397.5 6 Claims
17α-(2-alkynyl)-1-methylestra-1,3,5(10)-triene-3,17β-diols and esters thereof exhibit valuable pharmacological activity, e.g. estrogen-inhibitory, and are prepared by the reaction of 1-methylestra-1,3,5(10)-triene-17-one derivative carrying at the 3-position a substituted oxy group, e.g. tetrahydropyran-2-yloxy, with the Grignard reagent prepared from a 1-halo-2-alkyne followed by cleavage of the 3-(substituted oxy) function and acylation of the resulting diols.

3,560,534

TRANSVINYLATION USING MERCURIC ACETATE/PERCHLORIC ACID CATALYST

John M. MacDonald, Sarnia, Ontario, Canada, assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Aug. 1, 1967, Ser. No. 657,525
Int. Cl. C11c 3/10

U.S. Cl. 260—410.9 6 Claims
Vinyl acetate is reacted with C₃ to C₃₀ acid in a transvinylation reaction using a combination of mercuric salt and perchloric acid as catalyst.

3,560,535

PROCESS FOR PRODUCTION OF ALKYL ESTERS FROM ALKYL CARBOXYLIC ACID ANHYDRIDES

Gustave Bryant Bachman, Lafayette, Ind., and Gerald M. Tullman, Creve Coeur, Mo., assignors to Purdue Research Foundation, Lafayette, Ind., a corporation of Indiana
No Drawing. Filed Dec. 19, 1968, Ser. No. 785,351
Int. Cl. C07c 67/00

U.S. Cl. 260—410.9 3 Claims
A process for preparing alkyl esters by reacting iodine with an alkyl carboxylic acid anhydride in the presence of ozone to form the iodine triacylate, adding mercuric oxide and heating at a temperature of about 115-50° C. thereby producing said ester.

3,560,536

FRACTIONATION OF ALKALINE EXTRACTS OF TREE BARKS

Edwin H. Gygi, Longview, and Donald F. Root, Bellevue, Wash., assignors to Weverhaeuser Company, Tacoma, Wash., a corporation of Washington
Filed Apr. 10, 1967, Ser. No. 629,665
Int. Cl. C11b 13/00

U.S. Cl. 260—412 6 Claims
A method of separating the aromatic and aliphatic acid salts contained in a water-immiscible alcohol phase of an aqueous alkaline extract of tree bark by washing the alcohol phase with water on a very dilute aqueous caustic solution and separating the aqueous and alcohol phases.

3,560,537

PROCESS FOR PRODUCING STRAIGHT CHAIN MONOBASIC CARBOXYLIC ACID SOAPS AND THEIR DERIVATIVES

William R. Eller, Greenwell Springs, La., assignor to Ethyl Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 567,361, July 25, 1966, which is a continuation-in-part of application Ser. No. 530,403, Feb. 28, 1966. This application Nov. 8, 1968, Ser. No. 774,484
Int. Cl. C08h 17/36

U.S. Cl. 260—413 22 Claims
Normal alcohols having from about 6 to about 30 carbon atoms per molecule are selectively reacted with al-

kali metal hydroxide when in the presence of less reactive branched primary alcohols to produce carboxylic acid soaps of predominantly straight chain carbon skeletal configuration and also to produce hydrogen. The selectivity of reaction of straight chain alcohols and freedom from methylene group attack is enhanced by using proper elevated temperatures in combination with a deficiency of alkali metal hydroxide based on stoichiometric proportions for the total alcohol content of the reaction system and in the absence of oxidants for methylene groups at the temperatures involved. The soaps are usable as such or as synthesis intermediates for derivatives such as corresponding acids.

3,560,538

PROCESS FOR REMOVING FINES FROM MISCELLA

John C. Pressick, Clarendon Hills, Ill., assignor to CPC International Inc., a corporation of Delaware
Filed June 27, 1968, Ser. No. 740,694
Int. Cl. C11b 3/00

U.S. Cl. 260—428.5

12 Claims

Troublesome suspended fines in miscella are removed by a filtration technique which comprises adding water to crude miscella before desolventization but after meal separation. By adding water to the miscella at this point in the process, filtration rates significantly greater than those heretofore used in filtering fines from miscella can be achieved.

3,560,539

SELECTIVE CATALYST RECOVERY

Frank B. Booth, Placentia, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
No Drawing. Filed Aug. 21, 1968, Ser. No. 754,482
Int. Cl. C07f 15/00; C07c 45/02; B01i 11/03

U.S. Cl. 260—429

7 Claims

A method for the recovery of complexes of Group VIII noble metals and biphilic ligands from hydrocarbons or high boiling residues formed in hydrocarbonylation of olefins. The Group VIII noble metal is recovered in accordance by reduction of the high boiling fraction of a hydroformylation reaction medium to convert the aldehyde groups thereto to alcohols. This reduction is effected by treatment with conventional means, e.g., hydrogenation in the presence of heterogeneous hydrogenation catalysts at a temperature from about 25° to 325° C. or by nucleophilic attack by hydride ion by treatment at mild conditions with an alkali metal aluminum hydride or borohydride. The metal complex is essentially insoluble in the resulting alcohol tar and the catalyst precipitate is recovered by conventional solid-liquid separation techniques, e.g., filtration or centrifugation.

3,560,540

TRIHYDROCARBYL TIN (CYANO) (HALO) PHENOLATES

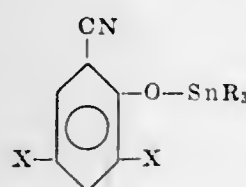
Adolph J. Deinet, 22 Oakwood Drive,
Woodcliff Lake, N.J. 07675

No Drawing. Filed Feb. 19, 1969, Ser. No. 800,741
Int. Cl. C07f 7/22; A01n 9/00; B21b 19/04

U.S. Cl. 260—429.7

2 Claims

Organotin compounds that have the structural formula



wherein each R represents an alkyl group having from 4 to 8 carbon atoms or a phenyl group; one of the X

substituents represents halogen; and the other X substituent represents hydrogen or halogen are effective in the control of the growth of undesirable organisms.

3,560,541

METHOD OF PREPARING VINYL SILANES
Werner Graf, Ignaz Bauer, Siegfried Nitzsche, and Rudolf Riedle, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Bavaria, Germany
No Drawing. Filed Jan. 14, 1969, Ser. No. 791,166
Claims priority, application Germany, Jan. 16, 1968, P 16 68 855.4

U.S. Cl. 260—448.2

7 Claims

The reaction of vinyl halides with hydrogen silicon compounds is carried out in the presence of halogenated organic compounds which are gases at the reaction temperature (i.e. above 500°), whereby the formation of soot is reduced and the yield of product is increased. A typical reaction feed comprises methylhydrogendichlorosilane, vinylchloride and trichloroethylene or ethylbromide.

3,560,542

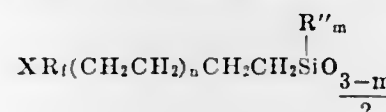
FUNCTIONAL PERFLUOROALKYLENE ORGANOSILICON COMPOUNDS

Yung Ki Kim and Ogden R. Pierce, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Original application Dec. 2, 1966, Ser. No. 598,613, now Patent No. 3,478,076. Divided and this application Aug. 1, 1969, Ser. No. 846,924
Int. Cl. C07f 7/08; C08f 11/04; C10m 1/50

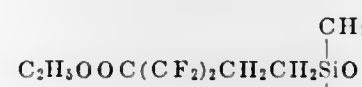
U.S. Cl. 260—448.2

4 Claims

Siloxanes containing at least one unit of the formula



for example,



are disclosed as lubricants, laminating resins, elastomers and surface active agents.

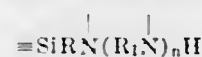
3,560,543

POLYIMINO ORGANOSILICON COMPOUNDS
Edwin P. Plueddemann, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Filed Feb. 19, 1968, Ser. No. 706,680
Int. Cl. C07f 7/10, 7/18

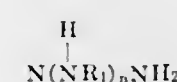
U.S. Cl. 260—448.2

9 Claims

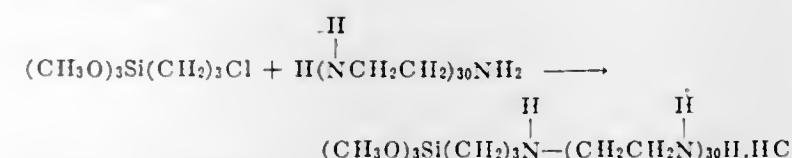
Organosilicon compounds having the substituent group



where n is at least 14, are made by reacting $\equiv\text{SiRCl}$ with



For example,



The organosilicon compounds increase the adhesion of polypropylene and other plastics to glass and glass fibers. Organosilicon compounds having amino substituents on carbon side chains have obtained considerable commercial success. These include silanes having the aminopropyl group substituted on silicon as well as those having the

aminoethylaminopropyl group. Such silanes have been employed in many applications, including those relating to the priming of surfaces to increase the receptivity of dyes and of organic plastics. U.S. Pats. 3,249,535 and 3,317,577 show organosilicon compounds having polyimino groups attached to the silicon in which the number of imine units range up to about 10.

It has been found that the compositions claimed herein give improved adhesion of certain plastics to glass and are in other ways superior to heretofore known amino-silicon compounds and the heretofore known polyimino silicon compounds.

3,560,544

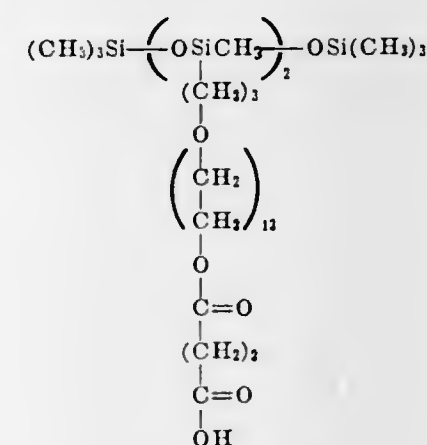
TRIORGANOSILOXY ENDBLOCKED POLYOXYALKYLENE SILOXANE POLYMERS

Loren A. Haluska, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,929
Int. Cl. C07d 103/02; C07f 7/02

U.S. Cl. 260—448.2

9 Claims

The compositions are of the class of triorganosiloxy endblocked polyoxyalkylene siloxane polymers and salts thereof. It has been found that the compositions described herein are particularly useful as surfactants. Illustrative of the composition in question is a compound of the formula



3,560,545

PROCESS FOR PREPARING METHYL OR PHENYLCHLOROSILANES

Richard Schrader and Hubert Hennek, Freiberg, Karl Dreier and Roland Bugge, Nunchritz, Joh. Frohnert, Freiberg, and Wolfg. Eichler, Nunchritz, Germany, assignors to VEB Chemiewerk Nunchritz, Nunchritz, Germany
Filed May 31, 1968, Ser. No. 733,352
Int. Cl. C07f 7/16

U.S. Cl. 260—448.2

7 Claims

Process for preparing organochlorosilanes, namely methyl- or phenylchlorosilanes wherein silicon-containing starting materials are reacted in the presence of a copper catalyst with methyl- or phenylchloride while being shaken in a vibrating zone during the reaction. In one embodiment, the catalyst is produced during the reaction from parts of the grinding mechanism. The process is carried out preferably in a vibrating mill.

3,560,546

PENTACOORDINATE ENDBLOCKED SILOXANES

Cecil L. Frye, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed Feb. 5, 1969, Ser. No. 796,903
Int. Cl. C07d 103/04; C07f 7/04

U.S. Cl. 260—448.8

14 Claims

Pentacoordinate endblocked siloxanes useful as curing agents for epoxy resins and as extreme pressure additives for lubricants are disclosed.

3,560,547

CHLOROCARBONATE PREPARATION
Marion E. Hill, Palo Alto, Calif., assignor to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Sept. 19, 1961, Ser. No. 139,582
Int. Cl. C07c 69/00

U.S. Cl. 260—463

10 Claims

1. The process of preparing chlorocarbonates of alkanols substituted in the beta carbon atom by a substituent selected from the group consisting of nitro, and fluoro and nitro groups which comprises: preparing a solution of said alkanol in carbon tetrachloride; heating said solution to the reflux temperature of the carbon tetrachloride in the presence of a ferric chloride catalyst which is at least partially hydrated; and maintaining said temperature whereby the chlorocarbonate of said alkanol is formed.

3,560,548

HALOGENATED BENZHYDRYL CARBONATES
Joseph W. Baker, Kirkwood, and Ignatius Schumacher, Webster Groves, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Nov. 7, 1968, Ser. No. 774,170
Int. Cl. C07c 69/00; A61k 27/00

U.S. Cl. 260—463

9 Claims

This disclosure covers halogenated benzhydryl carbonates as new chemical compounds. These compounds have been found to be useful in the control of bacteria.

3,560,549

BETA-CYANOALKYL ETHERS OF POLYOXYALKYLENE ADDUCTS OF MODERATELY HIGH MOLECULAR WEIGHT

Fedor Poppelsdorf, Charleston, W. Va., assignor to Union Carbide Corporation, a corporation of New York
No Drawing. Application June 26, 1963, Ser. No. 290,578, now abandoned, which is a continuation-in-part of abandoned applications Ser. No. 107,060, May 2, 1961, and Ser. No. 230,253, Oct. 12, 1962. Divided and this application Dec. 8, 1967, Ser. No. 688,976
Int. Cl. C07c 121/00, 121/46, 121/66

U.S. Cl. 260—465

26 Claims

Novel cyano compositions are disclosed as well as methods for their preparation. Representative compounds comprise:

- (1) α -(2-cyanoethoxy)- ω -(n-butyl)-poly-1,2-oxypropylene
- (2) α - ω -bis-(2-cyanoethoxy)-poly-1,2-oxypropylene-1,4, oxybutylene
- (3) α - ω -bis-(2-cyanoethoxy)-poly-1,2-oxypropylene
- (4) α - ω -bis-(2-cyanoethoxy)-poly-1,2-oxybutylene
- (5) 1,2,6-tris[α -(cyanoethoxy)-poly-1,2-oxypropyl] hexane
- (6) 1,2,3-tris[α -(2-cyanoethoxy)-poly-1,2-oxypropyl] propane
- (7) the tris(2-cyanoethyl)-ether of oxypropylated tris-(4-hydroxyphenyl)propane

The instant cyanoethers have biological activity suitable for agricultural use and are intermediates for amines, acids and esters.

3,560,550

PROCESS FOR THE PREPARATION OF CYANO-COMPOUNDS

Azel A. Griswold and Paul S. Starcher, Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York
No Drawing. Filed June 26, 1968, Ser. No. 740,086
Int. Cl. C07c 121/02

U.S. Cl. 260—465.2

4 Claims

A vapor phase process was developed which comprises contacting a lactone containing from 4 to 12 carbon atoms

in its ring structure, preferably ϵ -caprolactone, with ammonia in the presence of a modified alumina and at a temperature of from about 25° C. to 350° C. to produce an ω -hydroxynitrile and/or a bis-(ω -cyanoalkyl) ether. A liquid phase process was developed which comprises contacting an ω -hydroxynitrile or a bis-(ω -cyanoalkyl) ether with hydrogen in the presence of a hydrogenation catalyst, at a temperature of from about 20° C. to about 120° C. and at a pressure of from about 500 p.s.i.g. to about 2000 p.s.i.g. to hydrogenate the cyano groups to amine groups. In a further liquid phase step, the ω -hydroxylamine so produced can be further contacted with hydrogen and ammonia in the presence of a hydrogenation catalyst, at a temperature of from about 200° C. to about 300° C. and at a pressure of from about 2000 p.s.i.g. to about 7000 p.s.i.g. to produce the α,ω -alkylene diamine. This last-mentioned liquid phase step can be performed directly on the ω -hydroxynitrile or a mixture of the ω -hydroxynitrile and the bis-(ω -cyanoalkyl) ether to produce the α,ω -alkylenediamine.

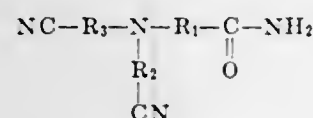
3,560,551

PROCESS FOR PREPARING SUBSTITUTED NITRILOMONOACETAMIDES

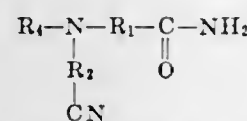
Melville E. D. Hillman, Summit, N.J., assignor to W. R. Grace & Co.

No Drawing. Continuation-in-part of application Ser. No. 719,250, Apr. 5, 1968. This application Oct. 10, 1968, Ser. No. 766,622

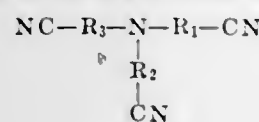
Int. Cl. C07c 121/02, 121/16, 121/20

U.S. Cl. 260—465.4 10 Claims
This invention is directed to; (a) a nitrilamide having the formula

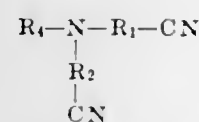
or



wherein, each of R₁, R₂, and R₃ is separately an alkylene radical having about 1–20 carbon atoms, and R₄ is an alkyl radical having about 1–20 carbon atoms; and (b) to a process for preparing said nitrilamides, said process comprising heating a nitrile having the formula



or



with hydrogen peroxide, all as described hereinafter. These products have two nitrile groups and can be polymerized with diamines to form polyamides useful as flocculating agents in water purification and sewage treatment; as intermediates for making polyamides with acid side groups, as antistatic compounds and as textile finishes.

3,560,552

3-OXYGENATED 2-METHYL-5-OXOCYCLOPENT-1-ENEHEPTANOIC ACIDS AND ESTERS THEREOF

Masateru Miyano, Morton Grove, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Oct. 28, 1968, Ser. No. 771,300

Int. Cl. C07c 61/36, 69/74

U.S. Cl. 260—468 10 Claims
The condensation of 3-oxoundecane-1,11-dioic acid with pyruvic aldehyde affords 3-hydroxy-2-methyl-5-oxocyclopent-1-eneheptanoic acid, which is converted to the

other novel compounds of this invention by acylation or oxidation of the hydroxy group or by esterification of the carboxylic acid group. These compounds display valuable pharmacological, e.g. anti-inflammatory, properties and are useful also as anti-germinant agents.

3,560,553

MANUFACTURE OF AROMATIC ACID FLUORIDES

William W. Prichard, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 9, 1968, Ser. No. 728,069

Int. Cl. C07c 63/24, 63/42, 69/78

U.S. Cl. 260—469 8 Claims

Aromatic carboxylic acid fluorides can be made by reacting aromatic sulfonyl halides with carbon monoxide and an alkali metal fluoride in the presence of a catalyst of Ru, Rh or Pd. The reagents should be free of hydrogen and substituents or substances which can be dehydrogenated under the conditions of the reaction to yield hydrogen. The aromatic acid fluorides are useful as analytical reagents and for the production of polyamide or polyester polymers.

3,560,554

ALKYLAMINOALKYL ETHERS OF CYCLOALKANOL

Zoltán Budai, László Pallos, Endre Komlós and Lujza Erdélyi, née Petőcz, Budapest, Hungary, assignors to Egyesült Gyógyszer-es Tapszergyár, Kereszturi ut, Budapest, Hungary

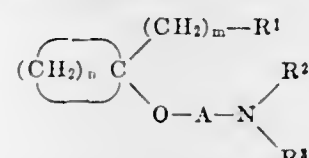
No Drawing. Filed June 30, 1967, Ser. No. 650,187

Claims priority, application Hungary, July 6, 1966, EE-1,284

Int. Cl. C07c 125/06

U.S. Cl. 260—471 5 Claims

Compounds of the formula



and their pharmaceutically acceptable acid addition salts, wherein R¹ is hydrogen, phenyl or monochlorophenyl, R² is alkyl having from 1 to 4 carbon atoms, R³ is hydrogen or —COOR⁴, R⁴ is lower alkyl, A is alkylene having from 2 to 4 carbon atoms, n is an integer from 4 to 6, and m is an integer from 0 to 8.

3,560,555

PREPARATION OF 1-(CARBAMOYL)-N-(CARBAMOYLOXY)THIOFORMIMIDATES FROM ALKYL ACETOACETATES

Julius J. Fuchs, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Dec. 27, 1968, Ser. No. 787,592

Int. Cl. C07c 161/00

U.S. Cl. 260—482 16 Claims
1-(carbamoyl)-N-(carbamoyloxy)thioformimidates such as methyl 1-(carbamoyl)-N-(methylcarbamoyloxy)thioformimidate and methyl 1-(dimethylcarbamoyl)-N-(methylcarbamoyloxy)thioformimidate are prepared by the steps of

- reacting an alkyl acetoacetate with nitrous acid produced in situ, in the presence of water or alcohol;
- chlorinating the product of (a) after cooling to —10 to 40° C.;
- reacting the hydroxamoyl chloride formed in (b) with an alkyl mercaptan and then adding a base;
- reacting the product of (c) with ammonia or an amine in the presence of water or an alcohol; and
- reacting the product of (d) with either
 - a carbamoyl chloride, optionally in the presence of a base; or

- an isocyanate, optionally in the presence of a basic catalyst, in water or organic solvents such as acetone and methylene chloride.

3,560,556

CYCLIC 2-STAGE METHOD FOR PRODUCING VINYL ACETATE FROM ETHYLENE

William E. Hendrix, Jr., and Robert B. Minch, Lewiston, N.Y., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed June 23, 1967, Ser. No. 648,224

Int. Cl. C07c 67/04

U.S. Cl. 260—497 6 Claims

Vinyl acetate is produced by a cyclic method in which an acetic acid catalyst solution (working solution) containing palladium, acetate, cupric and halide (chloride or bromide) ions is cycled continuously between two separate reaction stages. Ethylene is reacted with the solution in the first stage to produce vinyl acetate and partially reduced catalyst solution from which the vinyl acetate is separated, and the partially reduced solution is reacted with molecular oxygen in the second stage to reoxidize the solution before it is recycled to the first stage. In such a method, cuprous halide, which is precipitated in the solution in the first stage, forms objectionable adherent solid deposits upon equipment surfaces in the first stage. In accordance with the invention, such solid deposits are periodically removed from the first stage equipment surfaces by periodically discontinuing the feed of ethylene to the first stage while continuing the cycling through the first stage equipment of the reoxidized catalyst solution from the second stage.

3,560,557

DIPHENYL-UREAS, -THIOUREAS, -GUANIDINES AND -PARABANIC ACIDS

Adrian Marxer, Muttens, Switzerland, assignor to Ciba Corporation, New York, N.Y.

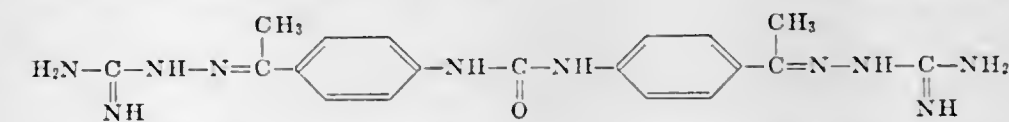
No Drawing. Continuation-in-part of application Ser. No. 594,386, Nov. 15, 1966, which is a continuation-in-part of Ser. No. 589,195, Oct. 25, 1966. This application July 11, 1967, Ser. No. 652,409

Claims priority, application Switzerland, Nov. 19, 1965, 15,988/65; Sept. 29, 1966, 14,092/66

Int. Cl. C07c 127/00

U.S. Cl. 260—501.14 9 Claims

Diguanyldihydrazones of diphenyl-ureas, -thioureas, -guanidines and -parabanic acids that contain in each of the two phenyl radicals a meta- or para-positioned alkanecarbonyl group, especially para,para'-diacetyl-diphenylurea-bis-guanyldihydrazone of the formula



salts thereof and pharmaceutical compositions containing them display a tumour inhibiting action and act against protozoae and amoebae.

3,560,558

HEXAHYDROINDANE DICARBOXYLIC ACID DERIVATIVES

Shohei Hayakawa, Hyogo, Yoshiko Kanematsu, Kyoto-shi, and Takashi Fujiwara, Hyogo, Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

No Drawing. Continuation-in-part of application Ser. No. 478,735, Aug. 10, 1965. This application Oct. 29, 1968, Ser. No. 771,994

Int. Cl. C07c 61/36

U.S. Cl. 260—514 10 Claims

4 α - (2 - carboxyethyl)-5-oxo-(1 α -hydrogen- or 1 α -hydroxyl) - 7 $\alpha\beta$ - methyl - 3 α -hexahydroindane-carboxylic

acids or lower alkanolic acids, which can be prepared by one-step fermentative degradation of the bile acids or their homologues, are useful as cholesterol lowering agents.

3,560,559

METHOD FOR OXIDIZING o-XYLENE, p-XYLENE AND CYCLOHEXANOL

Alvin L. Benham and Dennis E. Drayer, Littleton, Colo., and Harold D. McBride, Lincoln, Nebr., assignors to Marathon Oil Company, Findlay, Ohio, a corporation of Ohio

Filed Nov. 4, 1964, Ser. No. 408,884

Int. Cl. C07c 63/02

U.S. Cl. 260—524 3 Claims

A process for oxidizing alkyl aromatic or cycloaliphatic hydrocarbons by contacting them with an aqueous solution of ammonium dichromate at elevated temperatures. When the pH of the reaction medium is less than about 7, the product of the reaction is the ammonium salt of an organic carboxylic acid, which, upon acidification, yields the free organic carboxylic acid. When the pH of the reaction medium is above about 7, the oxidation product is the ammonium salt of an organic carboxylic acid amide.

3,560,560

PURIFICATION OF ACETIC ACID

Ben Wilton Kiff, Ona, W. Va., assignor to Union Carbide Corporation

No Drawing. Filed May 8, 1968, Ser. No. 727,732

Int. Cl. C07c 53/08

U.S. Cl. 260—541 4 Claims

Small amounts of formic acid, which are not ordinarily removable by conventional refining procedures, are removed from glacial acetic acid by selective oxidation over a molybdenum-containing catalyst.

3,560,561

CARBONYLATION OF ALLYLIC HALIDES, PHENYLHALIDES AND BENZYL HALIDES IN THE PRESENCE OF ORGANOMETALLIC CATALYTIC AGENTS

John A. Scheben, Erlanger, Ky., and Irving L. Mador and Milton Orchin, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

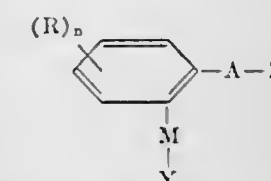
No Drawing. Filed July 17, 1967, Ser. No. 654,946

Int. Cl. C07c 51/58

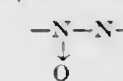
U.S. Cl. 260—544 7 Claims

This invention relates to improved methods of carbonylating, dimerizing, hydrogenating and/or isomerizing various unsaturated organic compounds which comprises performing the desired chemical reaction in the presence of a

small but effective amount of an organometallic catalytic agent of the formula:



wherein n is an integer from 0 to 4; each R is alkyl, aryl, hydroxy, alkoxy, aryloxy, nitro, halo, or a secondary alkyl or arylamino; M is ruthenium, platinum, osmium, palladium, iridium, or rhodium; Y is halide, nitrate, acetate, thiocyanate or cyanide; A is —CR'—N—, (wherein R' is hydrogen, alkyl or aryl), —NH—NH—,



3,560,578

REACTION FOR LINKING NUCLEI OF ADAMANTANE HYDROCARBONS

Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 725,888, May 1, 1968, which is a continuation-in-part of application Ser. No. 649,810, June 29, 1967. This application May 8, 1969, Ser. No. 823,138

Int. Cl. C07c 17/00, 23/18

U.S. Cl. 260—648

23 Claims

New products having adamantane nuclei linked through either a C₃ or C₄ polymethylene linkage are prepared by reacting adamantane or alkyladamantanes with a C₃–C₄ alkyl chloride or bromide at –20° C. to 50° C. using AlCl₃ or AlBr₃ as catalyst. Preferably primary or secondary C₃–C₄ alkyl halides are used as the reactant. Reaction conditions are such that the catalyst is maintained in solution in the reaction mixture. Bis-type products containing two linked adamantane nuclei and 0–2 halogen atoms substituted at bridgehead positions can be obtained, as well as polymers which can be linear or cross-linked. The products have various utilities, such as in compositions for coating, investment casting, caulking and potting, in adhesive compositions, as chromatographic separation media, and as thermostatic actuating elements.

3,560,579

PROCESS FOR PREPARING META-HALOTOLUENE

John D. Bacha, Monroeville, and Charles M. Selwitz, Pittsairn, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Filed Dec. 20, 1968, Ser. No. 785,793

Int. Cl. C07c 25/00, 25/04

U.S. Cl. 260—650

11 Claims

A process for isomerizing ortho-halotoluene or para-halotoluene to meta-halotoluene which involves contacting the ortho-halotoluene or para-halotoluene with hydrogen fluoride, boron trifluoride and halobenzene.

3,560,580

PREPARATION OF BROMINATED STYRENE

George A. Burk, Bay City, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Jan. 2, 1969, Ser. No. 788,612

Int. Cl. C07c 25/04, 25/28

U.S. Cl. 260—650

7 Claims

Ring-brominated styrenes are prepared by passing a mixture of ethylbromobenzene and bromine through a heated zone at a temperature between 600° and 700° C. to produce ring-brominated styrenes in good yield.

3,560,581

PROCESS FOR UPGRADING CHLORINATED HEAVY RESIDUES

Albert Antonini, Paris, Maurice Goharel, Saint-Auban, Basses-Alpes, and Georges Wetroff, Le Thillay, Seine-et-Oise, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Continuation-in-part of application Ser. No. 354,786, Mar. 25, 1964. This application July 25, 1967, Ser. No. 655,767

Int. Cl. C07c 17/34

U.S. Cl. 260—654

7 Claims

A process for upgrading chlorinated heavy residues resulting from the production of chlorinated hydrocarbons which include chlorobenzenes of the type tetra-, penta- and hexachlorobenzene, hexachlorobutadiene, hexachloroethane and tar-like products by mixing the residue with a compound capable of fixing free chlorine and advancing the mixture in a vapor state and in turbulent flow

through a reaction zone at a rate sufficient to give a Reynolds mean-value number in excess of 2000 with the reaction zone having a total internal surface to cross-section ratio in excess of 500, supplying the vapor to the reaction zone at a pressure in excess of 1 kg./cm.², and heating the mixture to a temperature within the range of 440–550° C. during passage through the reaction zone.

3,560,582

NOVEL POLYCYCLIC COMPOSITIONS AND PROCESS FOR PREPARATION

Gerhard F. Schröder, Karlsruhe, Germany

No Drawing. Continuation of application Ser. No. 411,127, Nov. 13, 1964, which is a continuation-in-part of application Ser. No. 348,284, Feb. 28, 1964. This application June 6, 1969, Ser. No. 834,587

Int. Cl. C07c 3/00, 13/00

U.S. Cl. 260—666

1 Claim

A novel class of tricyclo [3.3.2.0^{4,6}]deca-2,7,9-trienes is prepared by the irradiation of a dimer of cyclo-octatetraene to obtain tricyclo[3.3.2.0^{4,6}]deca-2,7,9-triene from which other derivatives are then synthesized.

3,560,583

PROCESS OF PREPARING SUBSTITUTED CYCLOPENTADIENES

Clare Augustus Stewart, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 15, 1969, Ser. No. 825,039

Int. Cl. C07c 3/00

U.S. Cl. 260—666

10 Claims

Substituted cyclopentadienes are prepared by reacting a cyclopentadiene compound with an alkali metal hydroxide and a substituted alkyl halide in the presence of a quaternary ammonium salt catalyst.

3,560,584

PROCESS FOR DEALKYLATING HYDROCARBONS

Pierre Dubaut, Le Vesinet, and Jean Francois Le Page, Rueil Malmaison, France, assignors to Institut Francais du Pétrole des Carburants et Lubrifiants, Rueil Malmaison, Hauts-de-Seine, France

No Drawing. Filed Dec. 13, 1968, Ser. No. 783,708

Claims priority, application France, Dec. 20, 1967, 133,224

Int. Cl. C07c 3/58; B01j 11/06

U.S. Cl. 260—672

7 Claims

A process for hydrodealkylating alkylaromatic hydrocarbons which consists of passing said hydrocarbons over a catalyst in the presence of hydrogen, said catalyst composed of 1 to 20% by weight of compounds of metals from Group I–A and 0.01 to 5% by weight of compounds of metals from Group VI–A deposited on an alumina, said alumina having a specific surface between 40 and 120 m.²/g., a porous volume between 0.4 and 0.8 cc./g., and more than 75% of the porous volume corresponding to pores having a diameter between 100 and 2,000 Å., said alumina also exhibiting a substantially null acidity.

3,560,585

CRYSTALLIZATION PROCESS

Regis Lafay, Suresnes, France, and Friedrich Wiegandt, Ithaca, N.Y., assignors to Institut Francais du Pétrole, des Carburants et Lubrifiants, Rueil Malmaison, France

Filed Jan. 17, 1968, Ser. No. 698,618

Claims priority, application France, Jan. 23, 1967, 92,199

Int. Cl. C07c 7/14

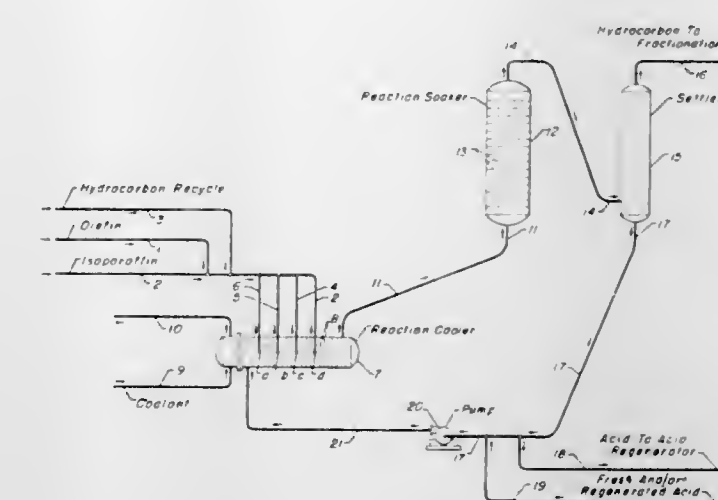
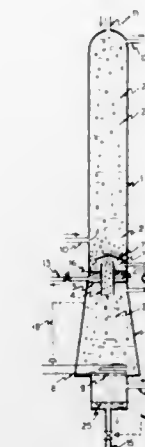
U.S. Cl. 260—674

15 Claims

A process for selectively crystallizing one of the constituents of a liquid feed mixture containing several con-

stituents and an apparatus for performing the crystallization process. The process comprises passing a feed mixture and an immiscible cooling liquid in countercurrent contact to each other, to cause crystallization of the constitu-

is then passed into a reaction soaker equipped with a number of spaced perforated plates therein where further alkylation takes place. The use of reaction cooler and reaction soaker vessels provides improved control



ent in the feed mixture. The crystals are passed to a purification zone suspended in melted crystals which were used to wash other crystals in the purification zone.

of the reaction temperature and more complete alkylation reaction.

3,560,586

PROCESS FOR DECOMPOSING 4,4-DIMETHYL-m-DIOXANE INTO ISOPRENE

Walter Kronig, Leverkusen, Wulf Schwerdtel, Cologne-Stammheim, Paul Losacker, Leichlingen, and Bodo Weicht, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 10, 1969, Ser. No. 832,002

Claims priority, application Germany, Nov. 29, 1968, P 18 11 655.7

Int. Cl. B01j 11/82; C07c 1/20, 1/100

U.S. Cl. 260—681

7 Claims

4,4-dimethyl-m-dioxane is decomposed into isoprene in the gaseous phase in a fluidized bed over a catalyst containing phosphoric acid and prepared by suspending a silicic acid filler having a specific surface of 30 to 200 m.²/g. and a kaolinite, montmorillonite or attapulgite clay in an aqueous stable silicic acid sol having a specific surface area of 150 to 400 m.²/g. (dry basis); adding to the resulting suspension a sufficient amount of an aqueous suspension of magnesium oxide to set the suspension into beads; drying the beads; heating the beads to 500 to 1,000° C. for at least 10 minutes; adding thereto 5 to 30% phosphoric acid; and further heating them to 300 to 650° C.

3,560,587

HYDROGEN FLUORIDE ALKYLATION WITH REACTION COOLER AND REACTION SOAKER VESSELS

William B. Borst, Jr., Mount Prospect, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Apr. 14, 1969, Ser. No. 815,841

Int. Cl. C07c 3/54

U.S. Cl. 260—683.48

8 Claims

An isoparaffin and olefin admixture is passed into a reaction cooler equipped with internally placed heat exchange means and spaced baffle means; the admixture is contacted with hydrogen fluoride alkylation catalyst under isothermal reaction conditions and the reaction effluent

3,560,588

3-AZABICYCLO[3.2.2]NON-3-YLTHIOCARBONYL DISULFIDES

John Joseph D'Amico, Dunbar, and Eiichi Morita, St. Albans, W. Va., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

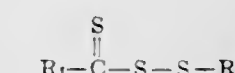
No Drawing. Filed Jan. 30, 1968, Ser. No. 701,559

Int. Cl. C08f 27/06; C07d

U.S. Cl. 260—793

7 Claims

Compounds of the formula



where R₁ and R₂ are amino radicals of one to sixteen carbon atoms selected from the group consisting of alkyl-amino, dialkylamino, and heterocyclicamino, at least one of R₁ and R₂ being 3-azabicyclo[3.2.2]non-3-yl, and their use for accelerating vulcanization of rubber are described.

3,560,589

EPOXY RESIN CONTAINING A VINYL ALKOXY-SILANE-ETHYLENICALLY UNSATURATED ACID ANHYDRIDE COPOLYMER

Yasuhiko Sato, Shiro Gomyo, and Kiyoshi Imai, Gunma-ken, Japan, assignors to Shinetsu Chemical Company, Tokyo, Japan

No Drawing. Filed July 10, 1968, Ser. No. 743,840

Claims priority, application Japan, July 12, 1967, 42/44,856

Int. Cl. C08g 45/04

U.S. Cl. 260—824

9 Claims

Compositions which consist of

- a copolymer prepared by reacting vinylalkoxy-silane containing at least one alkoxy group with an ethylenically unsaturated carboxylic acid anhydride, and
- an epoxy resin or a monomer containing an epoxy group, in the ratio of from 0.2 to 100 parts by weight of (a) to 100 parts by weight of (b).

3,560,590

DYEABLE POLYESTER COMPOSITION

Andor Schwarcz, Pompton Lakes, Milton Farber, Verona, and Phillip J. Cangelosi, Garfield, N.J., assignors to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey

No Drawing. Filed Feb. 14, 1968, Ser. No. 705,293

Int. Cl. C08g 39/10

U.S. Cl. 260—873

12 Claims

The invention relates to shaped articles containing a blend of a major portion of a polyester, a pyridine base polymer and a hydrophilic compound which is a homopolymer or derivative thereof, or copolymer, containing ethylene oxide units ($-\text{CH}_2-\text{CH}_2-\text{O}-$), said articles being dyeable with anionic and disperse dyes.

3,560,591

POLYESTER COMPOSITION HAVING ANTISTATIC ABILITY CONTAINING POLYALKYLENE OXIDES AND ORGANIC SULFONIC ACID SALTS

Michihiko Tanaka, Sunto-gun, Shizuoka-ken, and Eiichi Hayashi and Rei Yokouchi, Mishima-shi, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed May 9, 1967, Ser. No. 637,064

Claims priority, application Japan, May 13, 1966, 41/30,005; June 20, 1966, 41/39,609

Int. Cl. C08g 39/10

U.S. Cl. 260—860

12 Claims

A polyester composition with an excellent antistatic property comprising polyester in which are incorporated at least one polyalkylene ether substantially insoluble in the polyester and at least one alkali metal salt or alkaline earth metal salt of an organic sulfonic acid having no ester-forming group. Among these salts, sodium salts, potassium salts and calcium salts of alkylbenzenesulfonic acids, alkylphenylether sulfonic acids and alkylphenoxymethane sulfonic acids are preferable.

3,560,592

CHLORINATED POLYVINYL CHLORIDE AND ETHYLENE/ACRYLATE COPOLYMER COMPOSITIONS

Pierre Decroly and Ghislain Danguy, Brussels, Belgium, assignors to Solvay & Cie, Brussels, Belgium, a corporation of Belgium

No Drawing. Filed Aug. 10, 1967, Ser. No. 659,612

Claims priority, application France, Aug. 16, 1966, 73,146; June 21, 1967, 111,315

Int. Cl. C08f 29/12

U.S. Cl. 260—876

12 Claims

The processability and impact strength of chlorinated polyvinyl chloride alone or in combination with polyvinyl chloride are improved by the addition of a copolymer of ethylene and an alkyl ester of acrylic acid or a substitution derivative of acrylic acid. Further improvement in impact strength is obtained by the further addition also of certain modifying agents which are graft copolymers based on diolefin polymers or copolymers or certain two or three component interpolymers.

3,560,593

PRODUCTION OF BLOCK COPOLYMERS

Henry L. Hsieh, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,809

Int. Cl. C08f 15/04

U.S. Cl. 260—880

3 Claims

Rubbery block copolymers of conjugated dienes and monovinyl-substituted aromatic compounds are made in

the presence of a cyclopentylolithium initiator by first charging one of the monomers and allowing it to polymerize to substantially complete conversion of monomer into polymer, adding a dissimilar monomer to the first formed reaction mixture and allowing it to polymerize to substantially complete conversion and finally adding the remaining monomer which is dissimilar to the second monomer. Block copolymers prepared by this method have high green tensile strength.

3,560,594

DYE-RECEPTIVE POLYOLEFIN COMPOSITIONS

Alberto Bonvicini and Giuseppe Cantatore, Terni, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Original application May 22, 1967, Ser. No. 640,336, now Patent No. 3,510,437, dated May 5, 1970.

Divided and this application Aug. 19, 1969, Ser. No. 851,433

Claims priority, application Italy, May 27, 1966,

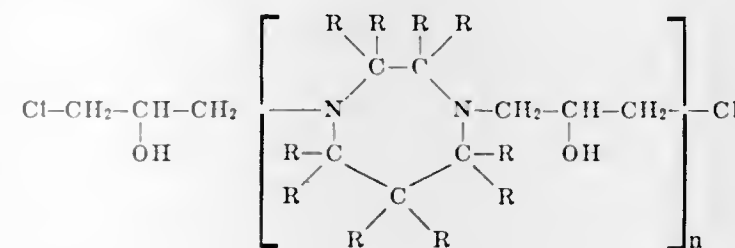
12,363/66

Int. Cl. C08f 41/12

U.S. Cl. 260—897

3 Claims

Dye-receptive compositions, preferably in the form of textile fibers, comprising 1–25% by weight of a basic nitrogen polycondensate obtained by reacting the condensation product of epichlorohydrin and a heterocyclic seven-membered disecundary diamine, this condensation product having the formula:



wherein R radicals are the same or different radicals selected from the group consisting of hydrogen and alkyl radicals having 1–12 carbon atoms, and n is an integer from 1 through 100, with a polyamine containing primary amino groups of the type



Where R is H, an alkyl group or a residue of a heterocyclic nucleus and X is a residue of a bivalent hydrocarbon, optionally containing S, N, O, etc., for example, hexamethylenediamine, ethylenediamine, diethylenetriamine, tetraethylenepentamine, aminoethylpiperazine, N-methylhexamethylenediamine, N-isopropylhexamethylenediamine, 3,3'-diaminodipropylether, 3,3'-diaminodiphenylmethane, N,N'-bis-(3-amino-propyl) piperazine, and the like; ad, correspondingly, 99–75% by weight of a synthetic polymer, e.g., a polyolefin.

3,560,595

FLUOROELASTOMER SEALANTS

Leslie Nathan Phillips, Farnborough, and David Kenneth Thomas and George Wood, Farnham, Surrey, England, assignors to Minister of Aviation in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

No Drawing. Filed Aug. 1, 1966, Ser. No. 569,063

Claims priority, application Great Britain, Aug. 3, 1965, 33,119/65; Nov. 30, 1965, 50,766/65

Int. Cl. C08f 29/22

U.S. Cl. 260—900

8 Claims

A curable sealant composition is provided comprising a fluorohydrocarbon elastomer having an average

3,560,598

PROCESS FOR MAKING PLASTIC MULTIFOCAL LENSES

Charles W. Neefe, Box 361, Big Spring, Tex. 79720

Continuation-in-part of application Ser. No. 570,107, July 11, 1966. This application Oct. 11, 1968, Ser. No. 766,817

Int. Cl. B29d 11/00, 3/00

U.S. Cl. 264—1

1 Claim

molecular weight less than about 20,000 and containing a sufficient amount of unsaturated carbon-carbon linkages to cure the sealant composition, a fluorohydrocarbon elastomer having an average molecular weight greater than about 40,000, and a suitable curing agent. Such sealant compositions have the advantage that they are readily extrudible, can be applied without solvent, or with the application of relatively little solvent and also may be cured in situ by heating at moderate temperatures for reasonable periods of time, say at less than 200° C. for less than 24 hours.

3,560,596

O-ALKYL S-PHENYL BENZYLPHOSPHONOTHIOLATES

Seiichi Hirane, Masahiro Aya, and Shigeo Kishino, Tokyo, Japan, assignors to Nihon Tokushu Noyaku Seizo Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan, and Farbenfabriken Bayer Aktiengesellschaft, Leverkusen-Bayerwerke, Germany, a corporation of Germany

No Drawing. Filed Jan. 22, 1968, Ser. No. 699,296

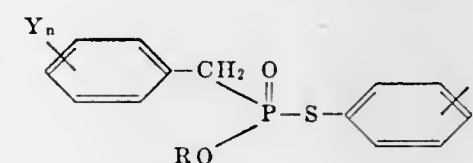
Claims priority, application Japan, Jan. 28, 1967, 42/5,710; Apr. 17, 1967, 42/24,342

Int. Cl. A01n 9/36; C07f 9/40, 9/42

U.S. Cl. 260—951

24 Claims

Agricultural and horticultural fungicides, especially useful for the control of microorganisms which breed diseases of rice, comprising organic phosphothiolates not containing heavy metals harmful to men and cattle, and the ingredients represented by the following Formula I



wherein R stands for a member selected from the group consisting of alkyl groups having 1–4 carbon atoms, X stands for a member selected from the group consisting of hydrogen atom, chlorine atom and methyl group, Y stands for a member selected from the group consisting of hydrogen atom, chlorine atom, alkyl groups having 1–4 carbon atoms and alkoxy groups and n is a number selected from the group consisting of zero, 1 and 2.

3,560,597

PROCESS FOR PREPARING DIALKYL THIOPHOSPHITES

Donald N. Bernhart and Daniel F. Simmons, Mount Pleasant, Tenn., assignors to Stauffer Chemical Company, New York, N.Y.

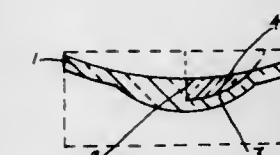
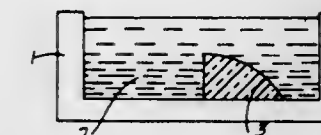
No Drawing. Filed Nov. 7, 1968, Ser. No. 774,167

Int. Cl. C07f 9/16

U.S. Cl. 260—981

6 Claims

A process for the preparation of dialkyl thiophosphites by the reaction of P_4S_7 and an alcohol in a molar ratio of at least about 1 to 8 and recovering the product by treating the reaction mixture with water having a temperature of less than about 40° C. in an amount sufficient to contain the water soluble impurities, separating the aqueous phase from the organic phase and distilling the organic phase to recover the dialkyl thiophosphite.



A method for making monocentric bifocal contact lenses. The reading segment being composed of a material possessing a higher index of refraction than the material of the lens and being semi-circular in shape and the optical center of the reading segment located at the center of the upper straight edge of the semicircular reading segment.

3,560,599

METHOD OF REGULATING THE UPPER SURFACE CONTOUR OF POLYURETHANE FOAM

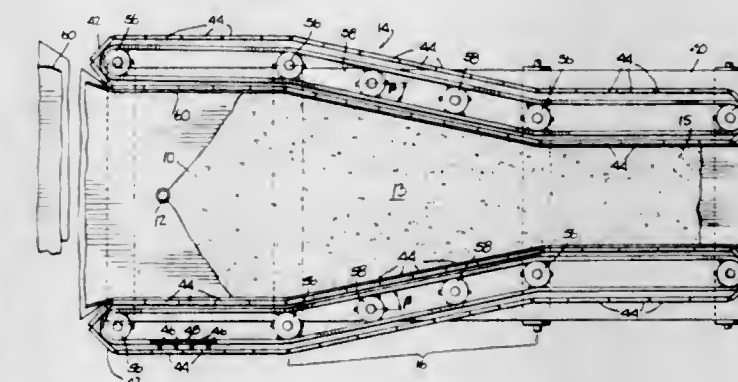
Charles Ferstenberg, Paramus, N.J., assignor to Tenneco Chemicals, Inc., New York, N.Y., a corporation of Delaware

Filed Aug. 5, 1968, Ser. No. 750,034

Int. Cl. B29d 27/04

U.S. Cl. 264—41

13 Claims



Control of upper contour of foamed polyurethane materials formed in an open top mold by selective control of lateral pressure to the rising foam by movement of the mold's sides toward one another in a manner decreasing the overall width of said foam.

3,560,600 SURFACE TREATMENT ON EXTRUDED PLASTIC FOAM

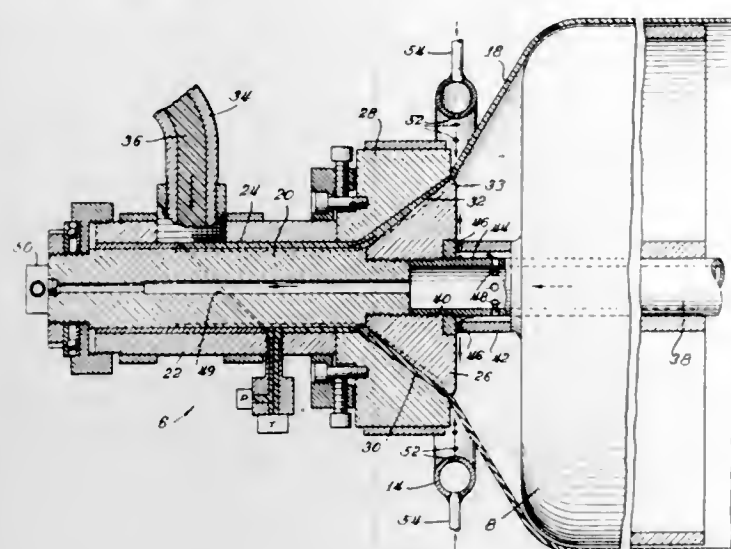
Vern L. Gliniecki, Bay City, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Nov. 7, 1963, Ser. No. 322,088

Int. Cl. B29d 29/00

U.S. Cl. 264—48

2 Claims



Method and apparatus for directing a cooling medium on opposite sides of a tubular foam extrudate to provide a high quality sheet having exceptionally smooth, high gloss surface free of defects.

3,560,601 PROCESS FOR MANUFACTURING POROUS THERMOPLASTIC SHEET MATERIAL

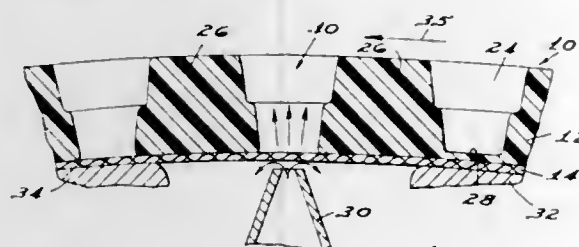
Harry T. Johnson, Dearborn, and Philip L. Turner, Southfield, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Nov. 25, 1968, Ser. No. 778,435

Int. Cl. B29c 17/00, 17/08, 24/00

U.S. Cl. 264—93

7 Claims



Fabric backed polyvinyl chloride sheet material is passed over an embossing roll containing the desired surface pattern and a plurality of small studs that produce depressions extending through about 80-95% of the polyvinyl chloride film thickness. Heated air then is directed against the sheet material. The heat and pressure of the air combine to remove the thin sections remaining at the bottoms of the depressions and smooth the edges of the resulting perforations.

3,560,602 METHOD OF PREPARING CHLOROETHYLENE POLYMER FILM HAVING A PERMANENT, NON-TRANSFERABLE HIGH SLIP SURFACE AND AN OPPOSED LOW SLIP SURFACE

Richard T. Marzolf, Midland, and Kenneth L. Meddaugh, Linwood, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed July 29, 1968, Ser. No. 748,562

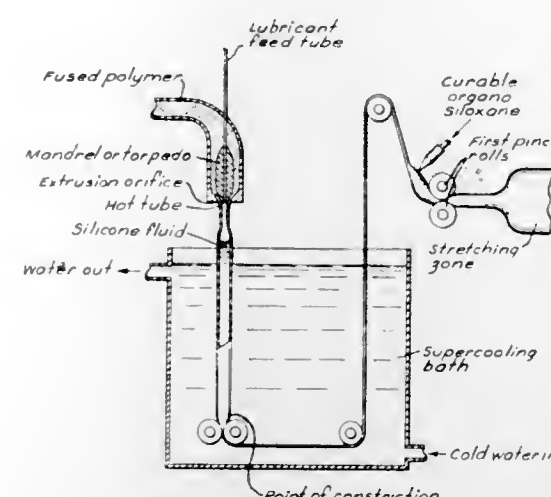
Int. Cl. B29c 17/07; B29d 23/04; C08g 47/00

U.S. Cl. 264—95

2 Claims

This invention relates to a chloroethylene polymer film having a permanent, non-transferable high slip surface

and an opposed low slip surface and a method of preparing the same by the continuous application of a curable organosiloxane to the interior surface of a tubular chloroethylene film having a prior coating of a non-curable



silicone fluid thereon. Such film is particularly suited for use in packaging foodstuffs where a packaging film having an interior, non-transferable high slip surface and an exterior low slip surface is required.

3,560,603 PROCESS FOR PREPARING ACRYLIC FIBERS

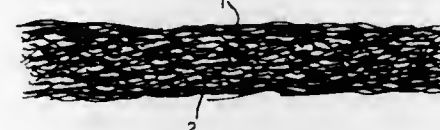
James Francis Ryan, Jr., deceased, late of Westover Hills, Va., by First and Merchants National Bank of Virginia, administrator, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Application Sept. 28, 1966, Ser. No. 582,482, which is a continuation-in-part of application Ser. No. 480,730, Aug. 18, 1965, which in turn is a continuation-in-part of abandoned application Ser. No. 307,822, Sept. 10, 1963. Divided and this application Jan. 9, 1969, Ser. No. 790,902

Int. Cl. D01d 5/22

U.S. Cl. 264—168

7 Claims



Low strength acrylic fiber having, upon boil-off, a substantially straight configuration and specific shrinkage, characteristics is disclosed. The fiber is prepared by washing and drawing freshly spun acrylic filaments, and plasticizing them under restraint to relax the filaments. This fiber, combined with high strength, high shrinkage fiber, is used to provide pill-resistant, bulked, composite yarns and fabrics thereof, having excellent aesthetics.

3,560,604 PROCESS FOR MAKING TEXTURED POLYPROPYLENE FILAMENTS

Jon D. Papps, Severna Park, Md., assignor to National Plastic Products Company, Inc., Odenton, Md., a corporation of Maryland

No Drawing, Filed Oct. 25, 1963, Ser. No. 318,842

Int. Cl. D01d 5/22

U.S. Cl. 264—168

11 Claims

Textured polypropylene filaments are produced by cold drawing a highly melt-drawn polypropylene filament at room temperature.

3,560,605

POLYETHYLENE TEREPHTHALATE INJECTION MOLDING COMPOSITIONS CONTAINING A POLYEPOXIDE

Erhard Siggel, Seckmauern, Walter Rein, Obernburg, and Hans-Martin Koepp, Erlenbach, Germany, assignors to Glanzstoff AG, Wuppertal, Germany

No Drawing, Filed Oct. 6, 1967, Ser. No. 673,308

Claims priority, application Germany, Oct. 8, 1966, G 48,116; Mar. 3, 1967, G 49,477

Int. Cl. B29f 1/00; C08g 45/04, 45/14

U.S. Cl. 264—328

19 Claims

A polyethylene terephthalate injection molding composition in which there is melt blended and homogeneously distributed a minor amount of the di- or polyepoxide of a dihydric phenol as a modifying agent. The composition, particularly after being subjected to a heat treatment in the regranulated state, is useful for injection molding into articles which are dimensionally stable and resistant to impact. Process steps include admixing, melt blending and regranulating the initial components and further include a subsequent heat treatment of the regranulated product and/or its injection molding into suitable articles.

3,560,606

PROCESS FOR PREPARING DRAWN POLYAMIDE FILMS

Mutsuo Kuga and Kayomon Kyo, Kyoto-shi, Takeshi Mashimo, Uji-shi, Wakuo Matsumura, Hirakata-shi, and Hiroshi Kayama, Uji-shi, Japan, assignors to Nippon Rayon Kabushiki Kaisha (Nippon Rayon Co. Ltd.), Kyoto-fu, Japan, a body corporate of Japan

Filed July 23, 1968, Ser. No. 746,889

Claims priority, application Japan, July 25, 1967,

42/47,768

Int. Cl. B29c 17/02

U.S. Cl. 264—289

10 Claims

Polyamide film is processed by adding 1 to 6% by weight water, preheating and then biaxially drawing at a temperature at least 5° C. higher than the preheating temperature. During preheating a substantial difference in water content between the interior and surface of the film is created. The films made by this process have a relatively low friction coefficient.

3,560,607

AEROSOL FORMULATIONS OF FINELY DIVIDED SOLID MEDICAMENTS WITH ANIONIC SUR- FACE-ACTIVE AGENTS

Philip Saxton Hartley, Springfield, Kegworth, England, assignor to Fisons Pharmaceuticals Limited, Loughborough, Leicestershire, England

No Drawing, Continuation-in-part of application Ser. No. 324,222, Nov. 18, 1963. This application July 5, 1968, Ser. No. 742,521

Int. Cl. A61c 27/00

U.S. Cl. 424—46

5 Claims

Aerosol formulations are provided comprising a finely divided solid medicament, a propellant, and an anionic surface-active agent selected from the group consisting of alkali metal, ammonium and amine salts of dialkyl sulphosuccinic acids wherein the alkyl groups contain from 4 to 12 carbon atoms, and alkali metal, ammonium and amine salts of alkylbenzene sulphonic acids wherein the alkyl groups contain from 8 to 14 carbon acids.

3,560,608

ORAL COMPOSITIONS FOR CRIES AND CALCULUS PROPHYLAXIS

William J. Griebstein, Mount Healthy, Robert J. Grabenstetter, Colerain Township, Hamilton County, and James S. Widder, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing, Continuation-in-part of application Ser. No. 805,853, Mar. 10, 1969, which is a continuation-in-part of application Ser. No. 605,614, Dec. 29, 1966.

This application Mar. 17, 1969, Ser. No. 807,974

Int. Cl. A61r 7/16

U.S. Cl. 424—49

3 Claims

Oral compositions containing stannous salts of certain polyphosphonic acids as a source of stable and dental enamel reactive stannous tin and as anticalculus agents.

3,560,609

HAIR-SETTING COMPOSITION

Maria A. Korden, Fairfax, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing, Filed Oct. 13, 1967, Ser. No. 675,023

Int. Cl. A61k 7/10

U.S. Cl. 424—72

9 Claims

A hair-setting lotion is provided which is comprised of an aqueous solution of a reaction product of a water-soluble alkylene polyamineepichlorohydrin resin and a water-soluble material such as sodium sulfite.

3,560,610

HAIR-SETTING COMPOSITION

Maria A. Korden, Fairfax, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing, Filed Oct. 13, 1967, Ser. No. 675,022

Int. Cl. A61k 7/10

U.S. Cl. 424—72

7 Claims

A hair-setting lotion is provided which is comprised of an aqueous solution of a reaction product of a water-soluble polyaminoureylene-epichlorohydrin resin and a water-soluble material such as sodium sulfite.

3,560,611

PROCESS FOR THE MANUFACTURE OF PREPARATIONS RICH IN INTERFERON

Charles Chany, Ernesto, Falcoff, and Francoise Fournier, Paris, France, assignors to Centre National de la Recherche Scientifique, and Institut National de la Sante et de la Recherche Medicale, both of Paris, France, fractional part interest to each

No Drawing, Continuation of application Ser. No. 635,356, May 2, 1967. This application Oct. 27, 1969, Ser. No. 869,942

Claims priority, application France, May 2, 1966, 59,921; Apr. 14, 1967, 102,803

Int. Cl. A61k 17/00, 23/00; C12k 9/00

U.S. Cl. 428—85

7 Claims

The invention provides a process for the manufacture of interferon-rich preparations by incubating human cells in the presence of an induction agent such as a virus, and separating the interferon formed.

3,560,612

METHOD OF ALLEVIATING HYPERCITRICEMIA
Toshiharu Matsumura, Nara, and Akira Tsunemitsu, Osaka, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Application Jan. 16, 1969, Ser. No. 797,333, which is a continuation of application Ser. No. 583,418, Sept. 30, 1966. Divided and this application Oct. 10, 1969, Ser. No. 870,917

Claims priority, application Japan, Sept. 30, 1965,

40/60,094

Int. Cl. A61k 19/00

U.S. Cl. 424—94

6 Claims

This invention relates to the administration of ubiquinone 35 (coenzyme Q7) for lowering blood citrate level in patients.

3,560,613

STABILIZATION OF PYRETHROID COMPOSITIONS
Raymond P. Miskus, Orinda, and Theresa Litwin Andrews, Oakland, Calif., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed May 9, 1967, Ser. No. 637,065

Int. Cl. A01n 9/08

U.S. Cl. 424—174

13 Claims

Pyrethroids, useful as insecticides, are stabilized against deterioration by air and sunlight by incorporating in a liquid petrolatum solution thereof (1) from 0% to 5% of a photo-stable, ultraviolet absorbent compound having a log molar extinction coefficient of not less than about 3.0 in the range of about from 2,000 to 3,200 angstrom units and not more than about 2.0 in the range of about from 4,000 to 7,000 angstrom units, such as amyl para-dimethylaminobenzoate, and (2) from 0% to 5% of an antioxidant, such as 2,6-di-tert butyl para-cresol.

3,560,614

USE OF A KERATOLYTIC SHAMPOO

Paul G. Embring, Uppsala, Sweden, assignor to Aktiebolaget Medisan, Uppsala, Sweden

No Drawing. Filed Jan. 31, 1967, Ser. No. 612,782

Claims priority, application Sweden, Jan. 31, 1966, 1,175/66

Int. Cl. A61k 27/00

U.S. Cl. 424—234

1 Claim

A shampoo preparation consisting of a mixture comprising salicylic acid, an anionic surface active agent, alkyl esters of phthalic acid and/or adipic acid, and optionally water is provided.

3,560,615

COMPOSITIONS OF THIEPIN AND OXEPIN DERIVATIVES

Walter Schindler, Riehen, and Erich Schmid, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 719,804, Dec. 14, 1967, which is a division of application Ser. No. 571,174, Aug. 9, 1966, now Patent No. 3,359,271, which in turn is a continuation-in-part of application Ser. No. 544,684, Apr. 25, 1966. This application Apr. 21, 1969, Ser. No. 818,120

Claims priority, application Switzerland, Apr. 29, 1965, 5,941; Dec. 1, 1965, 16,575; Feb. 11, 1966, 1,973

Int. Cl. A61u 27/00

U.S. Cl. 424—244

30 Claims

Compositions of dibenzo[b,f]thiepin-10(11H)-ones or dibenz[b,f]oxepin-10(11H)-ones having a piperazinyl group in the 11-position or the pharmaceutically acceptable acid addition salts thereof and methods of producing a depressant action on the central nervous system comprising administration of these compounds. An illustrative compound is 2-chloro-11-(4-methyl-1-piperazinyl)-dibenz[b,f]thiepin-10(11H)-one.

3,560,616

PROCESS OF PROTECTING VEGETATION FROM FUNGI USING QUINOXALINE FOLIAR FUNGICIDES

Richard R. Shaffer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed June 17, 1968, Ser. No. 737,294

Int. Cl. A01n 9/22

U.S. Cl. 424—250

12 Claims

A process has been developed for the protection of vegetation from fungi. This process involves the application of a 2,3-bis(haloalkyl)quinoxaline to the locus of vegetation in amounts to protect the vegetation from the fungi.

3,560,617

PHARMACEUTICAL COMPOSITION CONTAINING 3-BUTYLAMINO - 4 - CHLORO-5-SULPHAMYL-BENZOIC ACIDS AND SALTS THEREOF FOR THE TREATMENT OF OEDEMATOUS CONDITIONS AND HYPERTENSION

Peter Werner Feit, Gentofte, and Herta Bruun, Esrom, near Graested, Denmark, assignors to Lovens Kemiske Fabrik Produktionsaktieselskab, Ballerup, Denmark

No Drawing. Filed June 4, 1968, Ser. No. 734,213

Claims priority, application Great Britain, June 5, 1967, 25,937/67

Int. Cl. A61k 27/00

U.S. Cl. 424—250

15 Claims

The invention relates to diuretic and saluretic preparations in dosage unit form, containing the hitherto unknown 3-butylamino-4-chloro-5-sulphamyl-benzoic acid or a salt thereof with a pharmaceutically acceptable base as the active component, if desired together with a hypotensor, the dose of the diuretic being between 10 and 150 mg., calculated as the free acid.

3,560,618

TRIHALOPYRAZINE COMPOSITION AND USE FOR NEMATODE CONTROL

Frances C. O'Melia, Pleasant Hill, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed June 21, 1968, Ser. No. 738,835

Int. Cl. A01n 7/00, 9/22

U.S. Cl. 424—250

4 Claims

Soil-inhabiting nematodes are controlled by treatment with a nematocidal amount of trichloropyrazine or tribromopyrazine.

3,560,619

AMINOQUINAZOLINES AND QUINAZOLONES IN TREATMENT OF COCCIDIOSIS

Edward F. Harrison and Aubrey A. Larsen, Evansville, Ind., assignors to Mead Johnson & Company, a corporation of Delaware

No Drawing. Filed Jan. 3, 1967, Ser. No. 606,552

Int. Cl. A61k 27/00

U.S. Cl. 424—251

10 Claims

Administration to poultry of 6-halo-4-aminoquinazolines and 6-halo-4-quinazolones and their 2-methoxy analogs to combat *Eimeria tenella* infections.

3,560,620

INDUCTION OF FIBRINOLYSIS

Joseph M. Schor, Locust Valley, and Nathan Weiner, Rego Park, N.Y., assignors to Endo Laboratories Inc.

No Drawing. Filed Aug. 9, 1966, Ser. No. 571,195

Int. Cl. A61k 27/00

U.S. Cl. 424—258

16 Claims

Method for inducing fibrinolysis in mammals, and pharmaceutical compositions useful therefor, by the action of specified alkylenebis [1,2,3,4-tetrahydroisoquinoline] compounds or pharmaceutically acceptable acid addition salts thereof.

3,560,621

PHARMACEUTICAL METHOD OF USING 4-PYRIDYLBICYCLO[2.2.2]OCTANE - 1 - AMINES AND FORMULATIONS OF THE SAME

Walter A. Gregory and James C. Kauer, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 749,298, Aug. 1, 1968, which is a continuation-in-part of application Ser. No. 714,062, Mar. 18, 1968, which is a continuation-in-part of application Ser. No. 689,249, Dec. 11, 1967, which in turn is a continuation-in-part of application Ser. No. 467,705, June 28, 1965, now Patent No. 3,367,941. This application Dec. 8, 1969, Ser. No. 883,284

Int. Cl. A61k 27/00

U.S. Cl. 424—263

25 Claims

This invention relates to methods of using 4-pyridylbicyclo [2.2.2]octane-1-amines and derivatives thereof as antidepressant agents.

This invention further relates to pharmaceutical compositions containing as the active ingredient an antidepressant effective amount of the 4-pyridylbicyclo[2.2.2]-octane-1-amine.

3,560,622

TRIFLUOROMETHYL OXAZEPINES, THIAZEPINES AND DIAZEPINES AS ANTI-INFLAMMATORY AGENTS

Francis Joseph McEvoy, Pearl River, N.Y., and George Rodger Allen, Jr., Old Tappan, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Oct. 13, 1967, Ser. No. 675,044

Int. Cl. A61k 27/00

U.S. Cl. 424—267

9 Claims

The preparation of 11-substituted 2-trifluoromethoxydibenz[b,f][1,4] oxazepines; 11 - substituted 2 - trifluoromethoxydibenz[b,f][1,4]thiazepines and 11-substituted 2-trifluoromethoxy dibenz [b,f][1,4] diazepines, by ring closure of suitable intermediates, is described. The novel compounds are useful as anti-depressants, anti-inflammatory and anti-pyretic agents.

3,560,623

GRISEOFULVIN COMPOSITION

Herbert J. Florestano, Indianapolis, Ind., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 517,988, Jan. 3, 1966. This application Apr. 10, 1969, Ser. No. 815,204

Int. Cl. A61k 27/00

U.S. Cl. 424—285

1 Claim

Compositions containing griseofulvin and a substantially anhydrous vehicle, the vehicle comprising at least 50 percent of 12 to 18 carbon atoms fatty acid esters of polyethylene glycols of from 200 to 600 molecular weight and at least ten percent of a substantially anhydrous modifying substance, are useful in the control of fungal organisms. Typically, the compositions comprise from about

0.05 to about 10 percent griseofulvin and are employed in topical applications to combat fungal organisms on animal skin surfaces.

3,560,624

ANTICOCCIDIAL 2-ALKYLAMINO-4-AMINO BENZOIC ACIDS

Edward F. Rogers, Middletown, and Robert L. Clark, Woodbridge, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation of application Ser. No. 408,662, Nov. 3, 1964. This application Oct. 18, 1968, Ser. No. 768,933

Int. Cl. A61k 27/00

U.S. Cl. 424—310

3 Claims

Anticoccidial 2-alkylamino-4-amino benzoic acids are prepared by catalytic hydrogenation of 2-loweralkylamino-4-nitro benzoic acids. The active compounds may be employed in the form of lower alkyl esters, alkali metal or alkaline earth metal salts, or nontoxic acid addition salts.

3,560,625

METHOD OF, AND FORMULATIONS FOR, INTRODUCING ALKOXYBENZAMIDES INTO THE SYSTEMIC CIRCULATORY SYSTEM

Christopher Hollet Costello, Summit, N.Y., and Salvatore Joseph De Salva, Somerset, and John Phillip Ryan, New Brunswick, N.J., assignors to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Feb. 20, 1967, Ser. No. 617,058

Int. Cl. A61k 27/00

U.S. Cl. 424—324

4 Claims

Alkoxybenzamide analgesics are introduced into the systemic circulation system via a contiguous mucous membrane to increase onset of activity, potency, etc.

3,560,626

PROCESS FOR CONTROLLING NEMATODES WITH FLUORINATED ALCOHOLS

Robert E. A. Dear, Parsippany, and Everett E. Gilbert, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

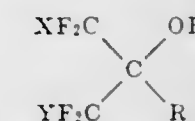
No Drawing. Original application May 16, 1966, Ser. No. 550,113. Divided and this application Oct. 4, 1968, Ser. No. 786,518

Int. Cl. A01n 9/24

U.S. Cl. 424—343

8 Claims

Use in controlling nematodes of fluorinated alcohols of the formula



wherein X and Y may be selected from the group consisting of hydrogen, fluorine or chlorine and R is a lower alkyl, alkenyl, alkynyl or chlorine-substituted alkynyl group.

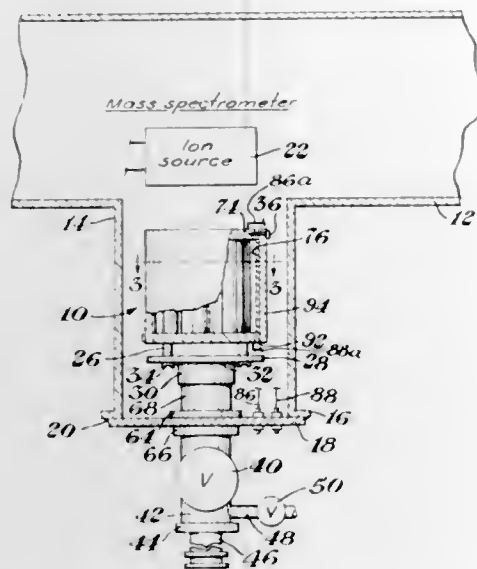
ELECTRICAL

3,560,627
FURNACE ASSEMBLY FOR THERMAL ANALYSIS USE
 Horst G. Langer, Wayland, Mass., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Aug. 7, 1969, Ser. No. 848,232
 Int. Cl. H05b 3/00

U.S. Cl. 13-31

6 Claims



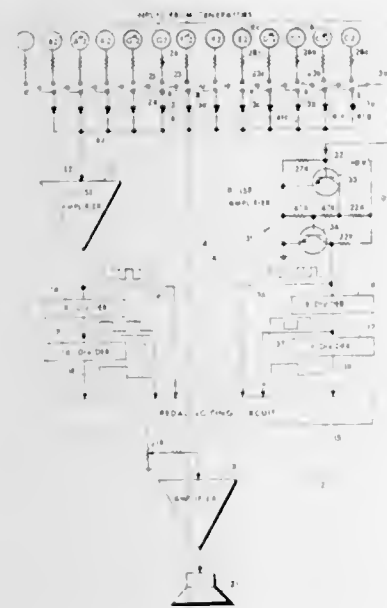
This invention relates to a heating furnace assembly which is adapted to be coupled to and become a part of a mass spectrometer adjacent to the ion source (usually) within the instrument. The furnace is a radiant heating device utilizing glow bar-type heating rods, with or without an adjacent reflective surface and is adapted to be controlled by means of temperature sensing means disposed within a separate thermal analysis cell which is adapted to be disposed within the furnace.

3,560,628
MULTI-CHANNEL KEY SWITCH CIRCUIT
 Bradley J. Plunkett, Van Nuys, and John R. Brand, Northridge, Calif., assignors to Warwick Electronics Inc., Chicago, Ill., a corporation of Delaware

Filed June 30, 1967, Ser. No. 650,531
 Int. Cl. G10h 1/00, 3/00, 1/02

U.S. Cl. 84-1.08

6 Claims



A series of key switches are provided with individual tone sources. From one end of the series, output signal is applied

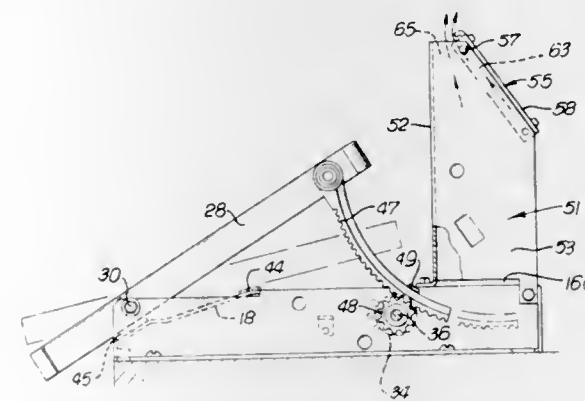
to a first frequency divider circuit, thence to suitable formants and to the output of the musical instrument. From another point, or points, in the series of key switches, a second output is taken and applied through a second frequency divider circuit; thence to the formants and output circuits. If two key switches are closed at the same time, that switch closest to the series end feeding the first channel determines the tone which will pass through the first channel. Selective means are provided to cause the other tone to pass through the second channel. In this way two tones can be simultaneously applied to the output circuit, i.e., loudspeaker, where previously only a single tone could be sounded at any one time (monophonic tone sounding).

3,560,629
MANUALLY-CONTROLLED CIRCUIT
 Morris L. Tucci, Van Nuys, Calif., assignor to Warwick Electronics Inc., Chicago, Ill., a corporation of Delaware

Filed Apr. 28, 1965, Ser. No. 451,446
 Int. Cl. G05g 1/14; G05h 1/02

U.S. Cl. 84-1.27

4 Claims



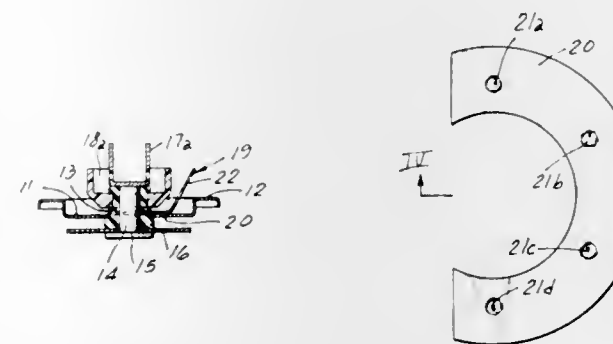
An electronic chassis is provided at its forward edge with a pivoted foot pedal overlying the chassis. The pedal is journaled between projecting sidewalls of the chassis, and through linkages, actuates a control mounted to the chassis. At the rear of the chassis is an upright housing in which relatively large heat-generating components cause a rising column of air which, through venturi action, creates a draft in a portion of the assembly located above the heat-generating components, the latter draft serving to cool other components mounted in the upper portion of the chassis.

3,560,630
ELECTRICAL COMPONENT GROUNDING TERMINAL ASSEMBLY
 Chester A. Heather, LaSalle, Ill., assignor to Electrical Utilities Company, LaSalle, Ill., a corporation of Illinois

Filed Aug. 8, 1969, Ser. No. 848,558
 Int. Cl. H01g 1/14

U.S. Cl. 174-51

4 Claims



A terminal assembly for an electrical component of the type wherein the component is enclosed within a conductive housing through which electrical connections to the com-

FEBRUARY 2, 1971

ELECTRICAL

337

ponent are made employs a grounding terminal electrically and mechanically connected to the housing adjacent the circuit terminals of the component. The grounding terminal is an integral portion of the terminal assembly and is configured to be secured to the housing in close proximity to the circuit terminals, and is provided with mechanical rigidity and electrical conductivity by way of an arcuate portion which is spotwelded to the housing. The terminal also includes a connecting portion which is adapted to receive a soldered connection or a quick-connect lead connector.

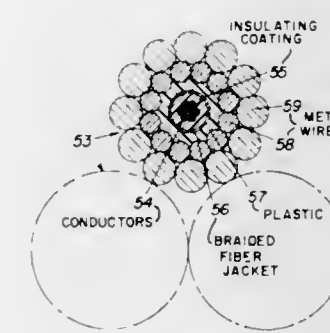
3,560,631
MULTICONDUCTOR ARMORED TOWING ROPE
 Lee A. Rhoades, and Manley T. Mallard, Culpeper, Va., assignors to The Rochester Corporation, Culpeper, Va., a corporation of Virginia

Original application Mar. 7, 1967, Ser. No. 621,337, now Patent No. 3,482,034. Divided and this application Jan. 21, 1969, Ser. No. 822,334

U.S. Cl. 174-113

Int. Cl. H01b 7/18

7 Claims



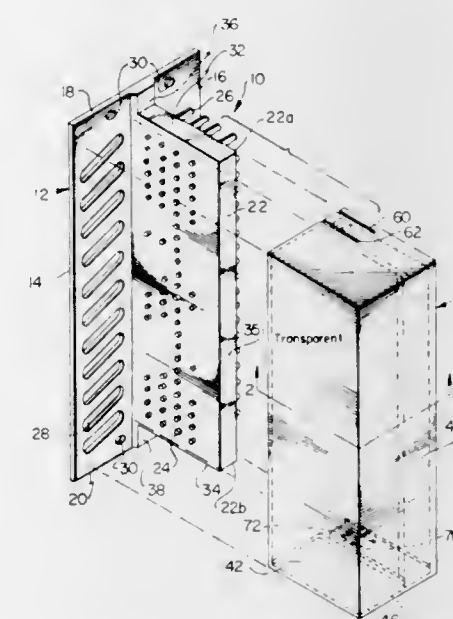
A fishing trawl net includes electrical shocking cables and other electrical instrumentation. The net is towed by a high tensile strength cable which includes an electrically conductive core.

3,560,632
COVER MEANS FOR A TELEPHONE TERMINAL BLOCK
 Lowell Wallace, Tateville, Ky. 42558

Filed Aug. 28, 1969, Ser. No. 853,827
 Int. Cl. H01r 9/02

U.S. Cl. 174-138

8 Claims



An enclosure formed of a transparent material for removable mounting on a conventional telephone terminal block and completely shielding the terminals at one side of the terminal mounting plate in spaced relationship relative thereto to protect the terminals against inadvertent physical or mechanical contact.

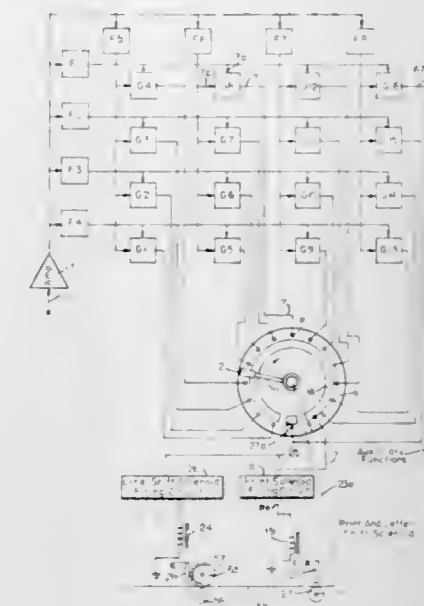
3,560,633
DECODER AND PRINTOUT UNIT FOR DATA TRANSMISSION SYSTEM

Jack Shapiro, 5 Lynn Drive, Englewood Cliffs, N.J. 07632
 Filed Jan. 14, 1969, Ser. No. 790,962

U.S. Cl. 178-4

Int. Cl. H04l 17/16

10 Claims



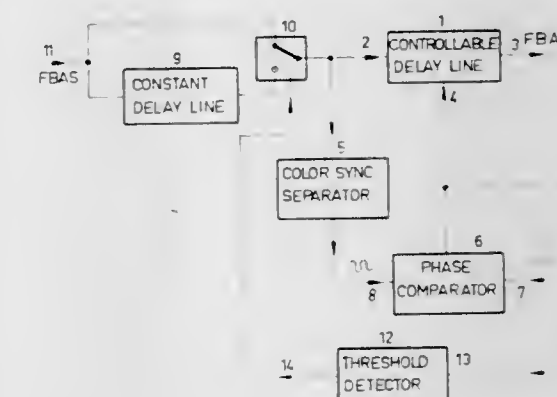
A device to accept multitone data signals from a data transmission source, such as a telephone line, decode said signals by means of filters combined with a matrix of gate circuits to produce a decoded output signal for the various combinations of the tones employed, said gate output signals being fed to a synchronizing commutator to fire printing solenoid circuits at the instant when the corresponding data character is in proper position on a printing wheel. Certain of the gate signals denote data characters and others control functions of line spacing, end of message, etc.

3,560,634
CIRCUIT ARRANGEMENT FOR TIME ERROR BALANCING
 Wolfgang Dillenburger, and Gerhard Krause, Darmstadt, Germany, assignors to Fernseh G.m.b.H., Darmstadt, Germany, a corporation of Germany

Filed Feb. 12, 1968, Ser. No. 704,603
 Claims priority, application Germany, Feb. 16, 1967, F51539
 Int. Cl. H04n 9/02

U.S. Cl. 178-5.2

4 Claims



In addition to the conventional adjustably controllable delay line in the path of a color television signal, a delay line of fixed or constant transit time is herein included in the path of the color signal. The conventional adjustable delay line is controlled ordinarily by a function of the phase difference or error between the color sync signal and a fixed frequency signal reference. Here, the constant time delay line is given a transit time constant equal to one-half a period of the color carrier, which is constant, and serves as the reference frequency. That constant delay line is cut out of, or back into, circuit according to the amplitude of the error signal, whose amplitude is made a linear function of phase angle here.

3,560,635

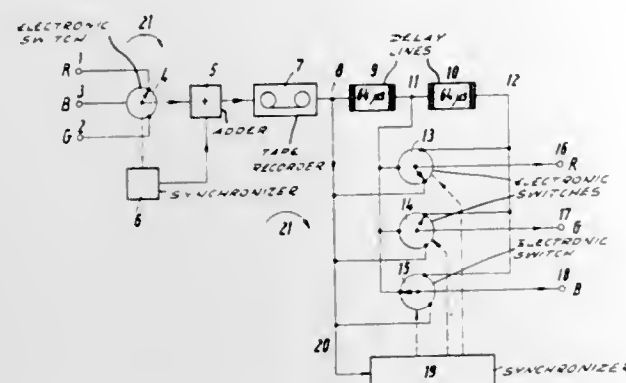
SYSTEM FOR TRANSMITTING A NARROW-BAND LINE AND FOR SIMULTANEOUS REPRODUCTION OF SUCH SIGNAL

Walter Bruch, Hannover, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm, Germany
Filed Mar. 28, 1967, Ser. No. 626,481

Claims priority, application Germany, Apr. 9, 1966, Oct. 14, 1966, T30887/T32270
Int. Cl. H04n 5/78, 5/02

U.S. Cl. 178-5.4

5 Claims



In a recording or transmitting system for color television signals where three signals R, G, B representing three different color components are recorded or transmitted one after the other line by line, the three color signals are made available simultaneously in each line by means of two delaying devices each with the delay time of the length of one line.

3,560,636

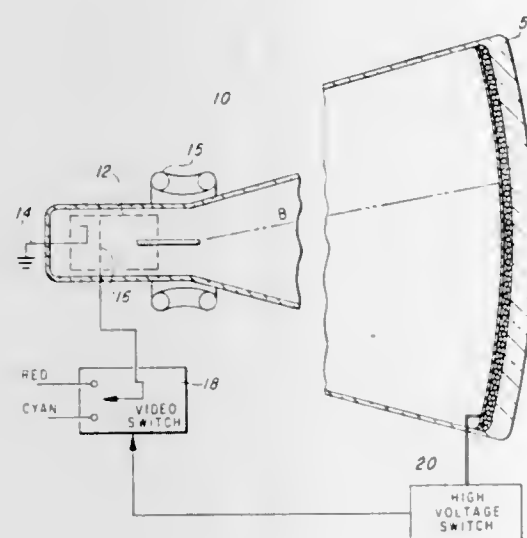
COLOR DISPLAY SYSTEM

Carl A. Barlow, Jr., Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Apr. 6, 1967, Ser. No. 628,962

Int. Cl. H04n 9/22; H01j 29/18

U.S. Cl. 178-5.4

3 Claims



Color display systems are described for producing polychromatic color images from two different color records corresponding to two substantially different respective hues, one color record effecting the production of an image portion in relatively long wavelength or red light, while the other image portion is produced in white light having a color temperature between about 2800°K to 3600°K. Phosphor materials which produce white light of this desired spectral composition and quality are disclosed as having a relative luminosity ratio of $I_R:I_G:I_B = 0.4/0.56/0.04$.

3,560,637

METHOD AND APPARATUS FOR SEPARATING MULTI-COLOR VIDEO SIGNALS INTO PRIMARY COLOR SIGNAL COMPONENTS BY POLARITY SEPARATION TECHNIQUES

Saneyuki Takeuchi, and Hideo Watanabe, Tokyo, Japan, assignors to Fuji Telecasting Company, Ltd., Tokyo, Japan, a corporation of Japan

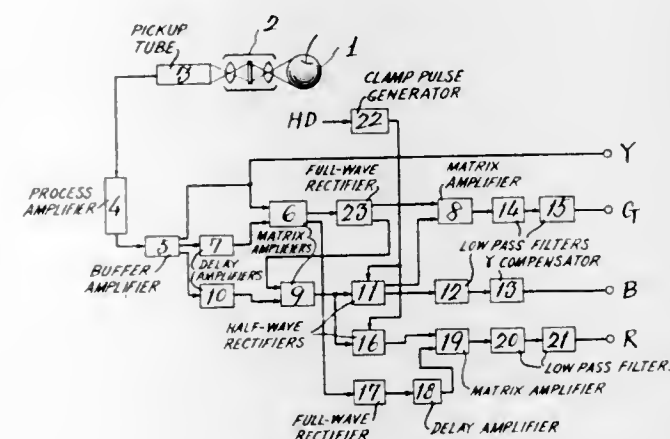
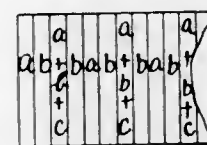
Filed Jan. 23, 1968, Ser. No. 699,928

Claims priority, application Japan, Feb. 9, 1967, 42/7916

Int. Cl. H04n 9/06

U.S. Cl. 178-5.4

15 Claims



Method and apparatus for separating a multicolor video signal into primary signal color components utilizing a finely divided, striped optical filter forming a video signal image on a signal image pickup tube provided with constant width primary color filaments. The output from the image pickup tube is divided into three signals. The second signal is delayed twice the time interval corresponding to the width of a primary color filament. The third signal is delayed by a time interval corresponding to the width of a primary color filament. The first and the delayed second signal is combined in a differential output device to provide a first intermediate signal, a portion of which is rectified in a full-wave rectification device to result in a second intermediate signal. The second intermediate signal and the delayed third signal are combined in a differential output device to provide a third intermediate signal. A portion of the third intermediate signal is rectified to produce a first primary color signal component comprising the negative portion of the third intermediate signal. A portion of the first primary color signal component is combined with the second intermediate signal in a differential output device to produce a second primary color signal component. Another portion of the third intermediate signal is rectified in a half-wave rectifying device to produce a positive portion of said third intermediate signal. The first intermediate signal is rectified in a half-wave rectification device to produce a positive portion of said first intermediate signal. The positive portion of the said first intermediate signal is delayed by an interval corresponding to the width of a primary color filament to result in a fourth intermediate signal. The fourth intermediate signal is combined in a differential output device with the positive portion of said third intermediate signal to produce a third primary signal component. Accordingly, the full-wave and half-wave rectification techniques applied to the intermediate signals, and the subsequent combination in differential output devices of the delayed signals comprise polarity separation techniques for separating a multicolor video signal into primary color signal components.

3,560,638

CHROMA DEYING SYSTEM UTILIZING REMOTE CONTROLLED CHROMA KEYS

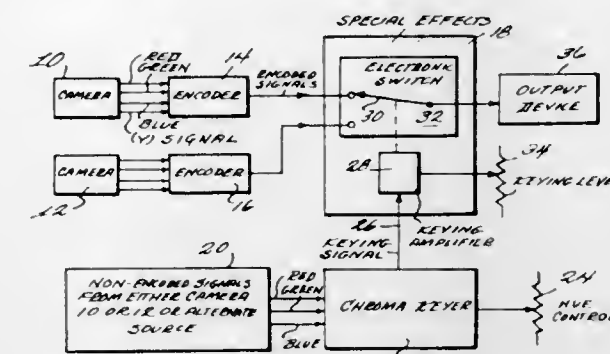
Ole Skrydstrup, Pierrefonds, Quebec, and John D. Ross, Dollard des Ormeaux, Quebec, Canada, assignors to Central Dynamics, Ltd., Montreal, Quebec, Canada, a body corporate

Filed Apr. 22, 1968, Ser. No. 722,841

Int. Cl. H04n 9/04

U.S. Cl. 178-5.4

10 Claims



A chroma-keying system is disclosed which utilizes a keying signal source which is responsive to a particular color of interest from a video source. The keying signal source is continuously adjustable so that any color may be selected from the video source. Whenever the selected color exceeds in amplitude a threshold level established at a keying amplifier, the amplifier causes an appropriate output device to be switched from one television camera to another to thereby create a special effects signal at the device. When the keying signal decreases in amplitude below the threshold level of the keying amplifier, the output device is switched back to the original camera. With a single control remotely located from the chroma-keying system (at the operator console, for example), the operator can continually adjust the color of interest from the video source and thus, the special effects signal at the output device can be continuously adjusted, if so desired.

3,560,639

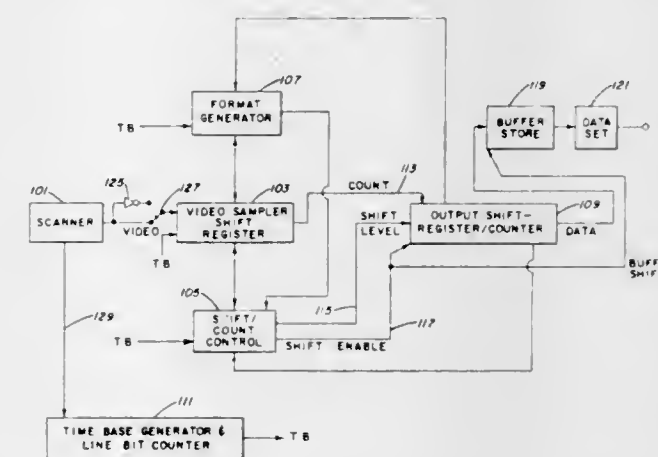
CASCADE RUN LENGTH ENCODING TECHNIQUE

James D. Centanni, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Oct. 3, 1966, Ser. No. 583,901

Int. Cl. H04n 7/12

U.S. Cl. 178-6

21 Claims



A selective encoding technique utilizing a typical distribution of information on a document to statistically encode the detected lengths of redundant background or data information into code word representations. A more frequently occurring run length will be encoded with a shorter code word than that of a lesser occurring run length. A format generator, in response to the changing run lengths presented to it, generates the necessary format levels to allow for the different code word lengths which represent the different detected run lengths.

3,560,640

MAGNETIC RECORDING SYSTEM HAVING GRAY SCALE REPRODUCTION

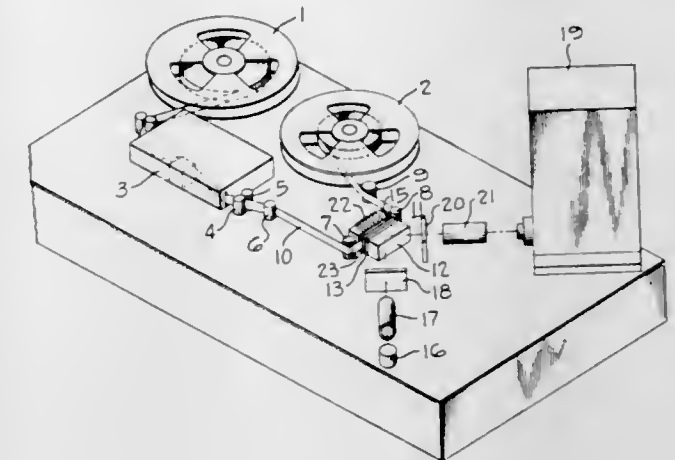
Robert K. Waring, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Jan. 10, 1968, Ser. No. 696,754

Int. Cl. H04n 3/10; G11b 11/10; G02f 1/18

U.S. Cl. 178-6.6

15 Claims



A magneto-optic reproducing system is disclosed in which primary magnetic images recorded on a recording medium are reproduced with a gray scale corresponding with the tone of the original. In such a system, a periodic magnetic field is applied to a receptor member at the same time that the local surface fields of the magnetic record are applied to the receptor member. The periodic magnetic field may be either spatially periodic or a time varying periodic field. An intermediate magnetic member is disposed between the recording medium and the receptor member to apply a magnetic field to the receptor member. This assists in providing good gray scale reproduction.

3,560,641

IMAGE CONSTRUCTION SYSTEM USING MULTIPLE ARRAYS OF DROP GENERATORS

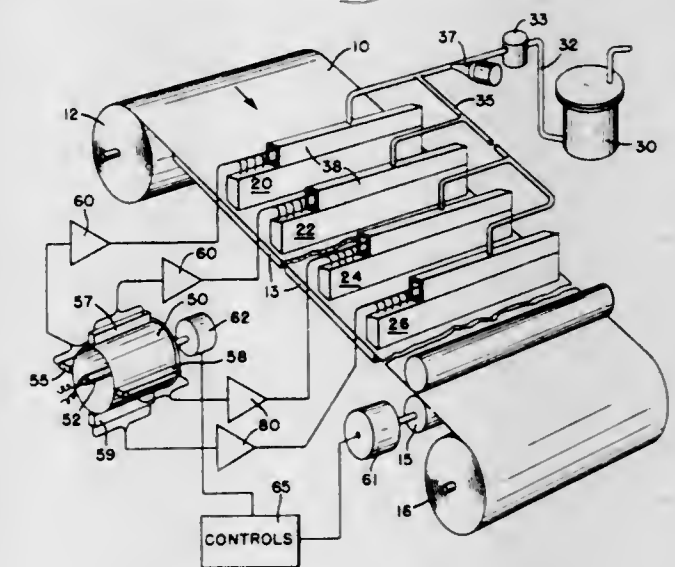
Richard P. Taylor, Russell H. VanBrimer, and Fred E. Culp, Chillicothe, Ohio, assignors to The Mead Corporation, Dayton, Ohio, a corporation of Ohio

Filed Oct. 18, 1968, Ser. No. 768,790

Int. Cl. H04n 1/22

U.S. Cl. 178-6.6

9 Claims



Arrays of laterally spaced orifices, all communicating with a liquid pressure supply, all subjected to vibration at the same frequency to separate the liquid jets into streams of individual drops, provide a system for locating all of the drops with a predetermined space-time correlation, by depositing the drops on a receiving element which has relative movement with respect to the arrays at a speed correlated to the

drop generation rate, or by irradiating the drops in space at a predetermined time to make them visible. Uses include printing multiple copies from a master, high-speed printout from a computer or memory, and creation of variable three dimensional visible shapes for study.

3,560,642

TELEVISION SATELLITE SYSTEM

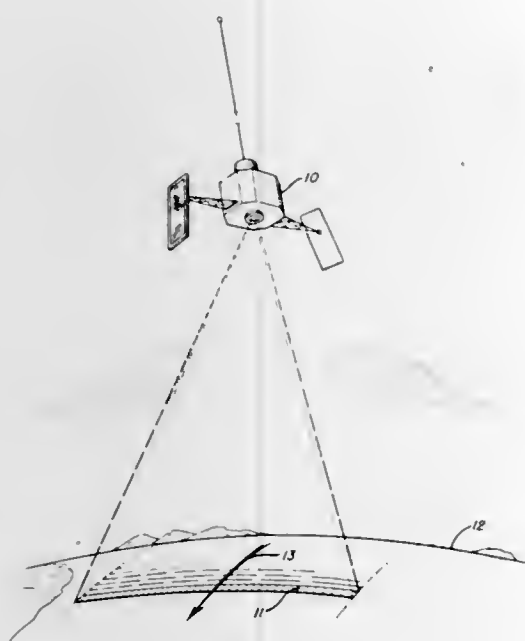
Irvin H. Schroeder, Rockville; Theodore Wyatt, Union Bridge; George B. Bush, Clarksville, and Charles J. Swet, Mount Airy, Md. assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Oct. 13, 1967, Ser. No. 675,255

Int. Cl. H04h 5/72

U.S. Cl. 178-6.8

9 Claims



The present invention generally relates to a long life television system carried aboard a passively stabilized satellite for continuously providing linearized, high resolution coverage of the earth or other body about which the satellite orbits. More specifically, the proposed system of the present invention operates on a line-scan principle; i.e., the satellite carries a lens system whose field of view is a narrow, elongated swath on the earth's surface which advances due to the satellite orbital motion. A fiber optic assembly receives the light image from the lens system and transfers it, as a substantially square raster, to the photosensitive faceplate of an image dissector camera tube, for example, where the image is then electronically scanned at a rate dependent upon the time that it takes for the satellite's field of view (image swath) to advance a distance corresponding to the width of one resolution element of the image dissector. The resulting output video information from the image dissector camera tube is then encoded, along with satellite altitude information, onto a transmitted carrier frequency. At the ground receiving station, the video information is decoded and is then transformed, by suitable electro-optical transducer means, into a visual display on a drum recorder or a cathode ray oscilloscope, for example. The proposed television system of the present invention also includes means for compensating or rectifying the video display to account for curvature of the earth.

3,560,643

LINE SCANNING SYSTEM

Charles E. Love, Malibu, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Nov. 2, 1967, Ser. No. 682,723

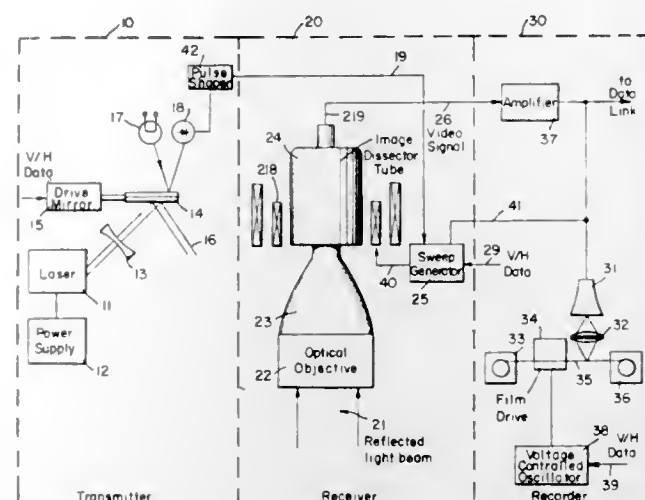
Int. Cl. H04n 3/08

U.S. Cl. 178-6.8

10 Claims

A ground mapping system for obtaining images of terrain from a moving aircraft including a transmitter equipped to scan a terrain target area with a laser beam, a receiver adapted to electronically scan a focal surface on which

reflected light images are formed, and a recorder for providing a record of the images formed on said focal surface



thereby producing a visual representation of the observed terrain.

3,560,644

MULTIPLE PROJECTION TELEVISION SYSTEM

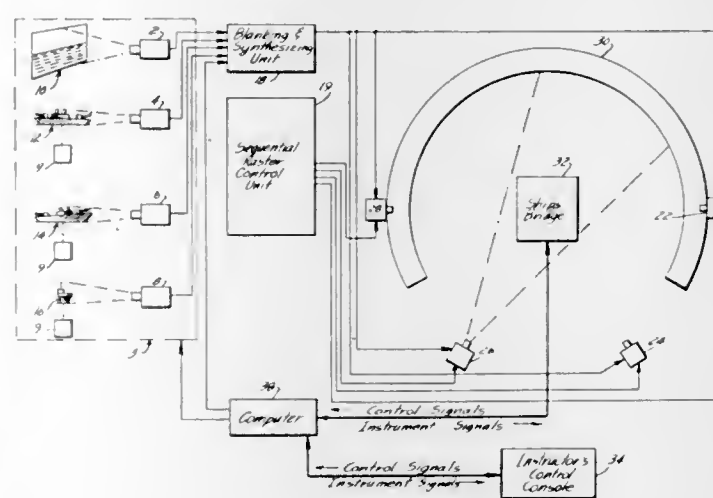
Edward A. Petrocelli, and Robert G. Palmer, Orlando, Fla., assignors to the United States of America as represented by the Secretary of the Navy

Filed Feb. 29, 1968, Ser. No. 709,385

Int. Cl. H04n 3/00, 5/74

U.S. Cl. 178-6.8

2 Claims



In prior art simulators used in training devices, a plurality of TV cameras survey a seascape and a plurality of ship models respectively to furnish video information which is combined into a picture of ships maneuvering on a seascape background and displayed on a CR tube monitor or a screen. The invention enhances the realism of such simulators by using a plurality of TV projectors each projecting a picture on a respective sector of a circular screen. Circuitry is provided for synchronizing the projectors with the cameras so that a ship may be caused to move across a screen which may completely surround a control station occupied by a trainee to give him the impression of being at sea. The circuitry enables any projector to project video information from any or all cameras, in contradistinction to prior art systems wherein each projector receives information from an associated camera only.

3,560,645

TELEVISION CAMERA GAIN CONTROL CIRCUIT WITH COMPRESSED WIDE CONTRAST RANGE RESPONSE

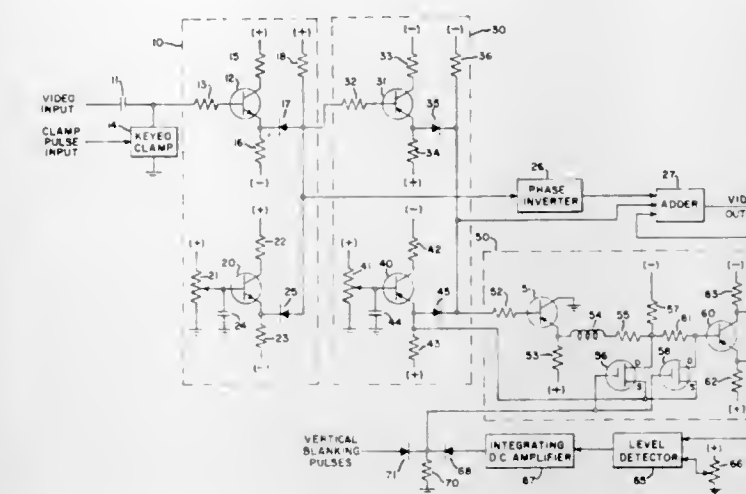
Howard B. Wallace, Jr., Syracuse, N.Y., assignor to General Electric Company, a corporation of New York

Filed Mar. 27, 1970, Ser. No. 23,387

Int. Cl. H04n 5/20

U.S. Cl. 178-7.1

14 Claims



Loss of detail in the bright portion of an image of a scene having a bright portion and a dark portion, as viewed by a vidicon pickup tube, is avoided by compressing the video signal in excess of a predetermined threshold amplitude. The signal is black-clipped at the predetermined threshold amplitude, and the entire portion of signal above this amplitude is compressed within a predetermined amplitude range by controlled attenuation circuitry whenever the signal exceeds this range. The portion of signal thus compressed is added to the portion of signal extant below the predetermined threshold amplitude to produce an amplitude-limited output signal which retains detail in the dark portion of the image while preserving most of the detail in the bright portion.

3,560,646

READING DEVICE EMPLOYING AN ENCLOSURE FOR A LIGHT SOURCE AND THE DOCUMENT TO BE READ AND HAVING A HIGHLY LIGHT REFLECTIVE INTERNAL SURFACE

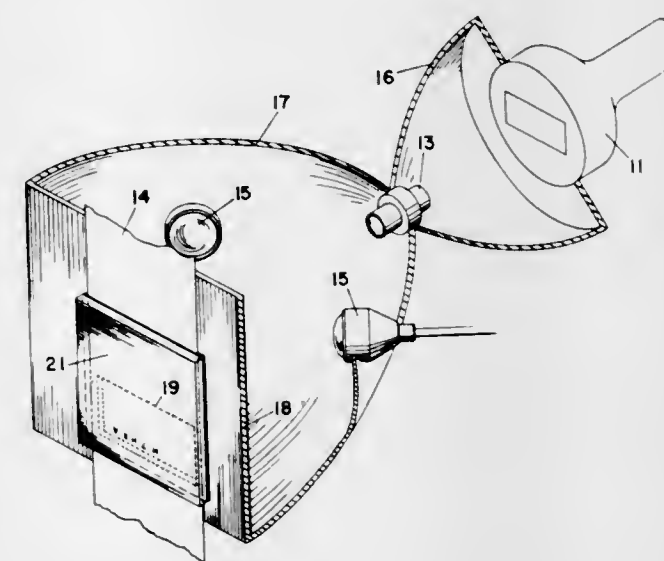
George L. Buc, Fairfax, Va., assignor to Farrington Electronics Incorporated, Springfield, Va., a corporation of Massachusetts

Continuation of application Ser. No. 501,230, Oct. 22, 1965, now abandoned. This application Feb. 20, 1969, Ser. No. 811,272

Int. Cl. H04n 1/10

U.S. Cl. 178-7.1

7 Claims



A reading device is disclosed wherein the document to be read is passed through one side of an enclosure, the side

walls of which are provided with a highly light reflective surface. At the opposite side of the enclosure is provided a scanning light source such as produced by a cathode ray tube. Disposed within the disclosure is at least one light sensitive device such as a phototube for receiving the light which is reflected from the document. Because of the light reflective surface, the efficiency of the scanning operation is significantly increased.

3,560,647

AUTOMATIC FOCUSING SYSTEM

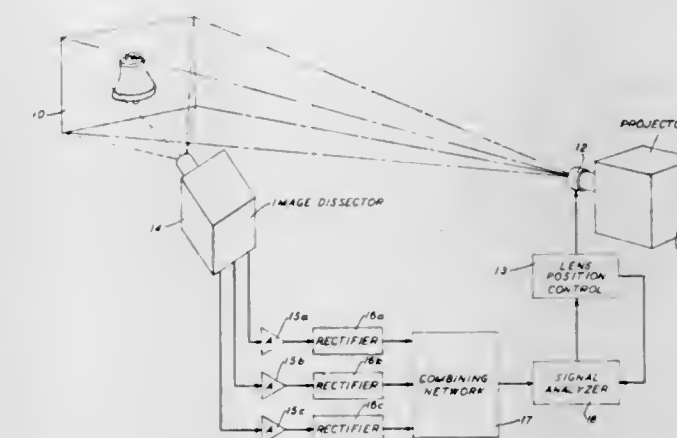
Leon D. Harmon, Watchung, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J., a corporation of New York

Filed Feb. 27, 1968, Ser. No. 708,639

Int. Cl. G03b 3/02

U.S. Cl. 178-7.2

8 Claims



A projected image may be brought into focus automatically by sensing a reflected image, e.g., with an electronic camera, and responsively adjusting the projector focus until an examination of the image denotes the greatest signal content. However, colorblind image dissectors fail to distinguish between image structures possessed of equal brightness characteristics but of different hues. By using separate spectrally sensitive channels, information about color as well as brightness transitions is made available for analysis. As a result, finer resolution sensing and optimum dissection is achieved.

3,560,648

SAMPLED DATA AUTOMATIC GAIN CONTROL CIRCUIT

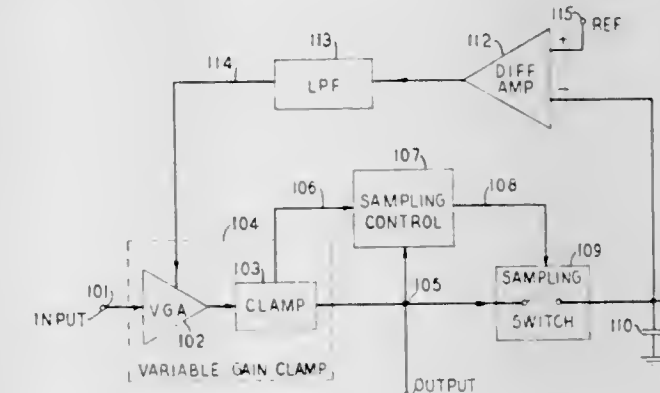
Sotirios C. Kitsopoulos, Summit, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J., a corporation of New York

Filed Aug. 29, 1968, Ser. No. 756,188

Int. Cl. H04n 5/56

U.S. Cl. 178-7.3

11 Claims



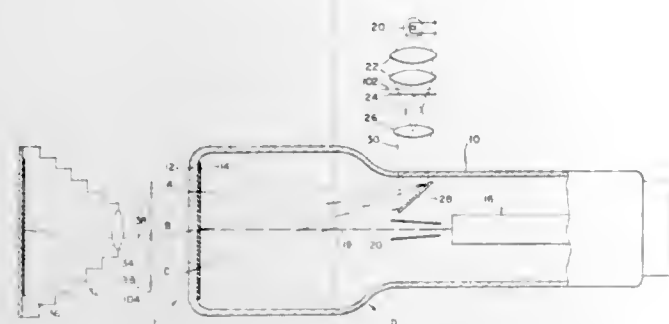
Precise automatic gain control is achieved by sampling the amplitude of individual ones of the synchronizing pulses of a received composite video signal. Spurious gain changes are minimized by deriving drive signals for initiating sampling of the synchronizing pulse amplitude from each of the individual synchronizing pulses.

3,560,649

CATHODE RAY TUBE WITH PROJECTION MEANS
Robert H. Anderson, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon
Filed May 23, 1967, Ser. No. 640,526
Int. Cl. H04n 5/64, 5/72

U.S. Cl. 178-7.5

12 Claims



A display means including a cathode-ray tube provided with light projection means or imaging a graticule or the like substantially in the plane of the cathode-ray tube's phosphor screen. Light projection is from the rear of the screen. The apparatus includes means for impeding or blocking the transmission of direct light originating in the projection means in order to prevent the occurrence of a bright spot in the display.

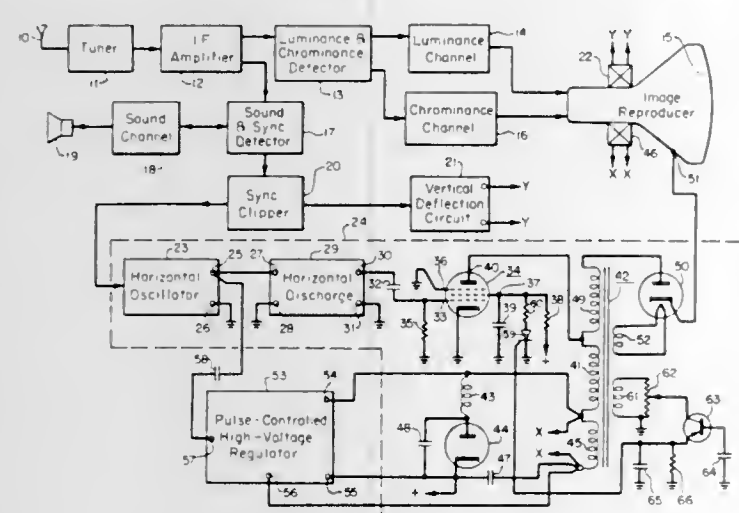
3,560,650

CONTROL CIRCUIT

Judson A. Hofmann, Oak Park, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed Dec. 20, 1968, Ser. No. 785,683
Int. Cl. H04n 3/18

U.S. Cl. 178-7.5

9 Claims



A control circuit for preventing the application of accelerating potential in excess of a predetermined maximum value to the cathode-ray picture tube of a television receiver. Positive polarity pulses amplitude-related to the applied accelerating potential are derived from the receiver horizontal deflection system and impressed across the collector-base junction of a transistor. This junction functions as a diode, and in cooperation with an external base-circuit capacitor-peak-rectifies the pulses to develop on the transistor's base a pulse-amplitude dependent control voltage. The emitter of the transistor is connected to the control electrode of a silicon controlled rectifier, which has principal electrodes connected between the screen of the horizontal deflection system output tube and ground. When the control voltage developed on the base exceeds the breakdown voltage of the transistor's emitter-base junction, the control voltage is impressed on the control electrode of the silicon controlled rectifier and causes that device to conduct, substantially reducing the screen current applied to the output tube. This reduces the energy available for powering the receiver's sweep-excited high voltage power supply, and hence prevents further generation of accelerating potential in excess of the predetermined maximum value.

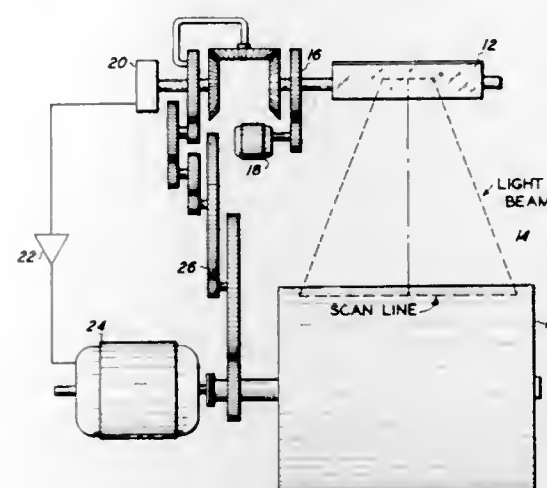
3,560,651

MECHANICAL FEEDBACK FOR FACSIMILE SCANNING SYSTEM

Charles T. Roth, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Nov. 8, 1967, Ser. No. 681,542
Int. Cl. H04n 1/36, 1/04

U.S. Cl. 178-7.6

8 Claims



A facsimile scanning system utilizing a feedback system to drive the scan drum combined with a stepping motor to index between scan lines. In conjunction with an adaptive bandwidth compression technique, a mechanical feedback system is utilized for drum and reciprocal mirror synchronization. Where the stepping rate is a function of the document complexity, a stepping motor is provided for stepping the drum for lines of variable information density detected on the document. The scanning mirror and the drum are geared together through a gear train which tends to rotate the scan line on the drum surface without relative motion between the optical scan line and the actual image on the drum surface.

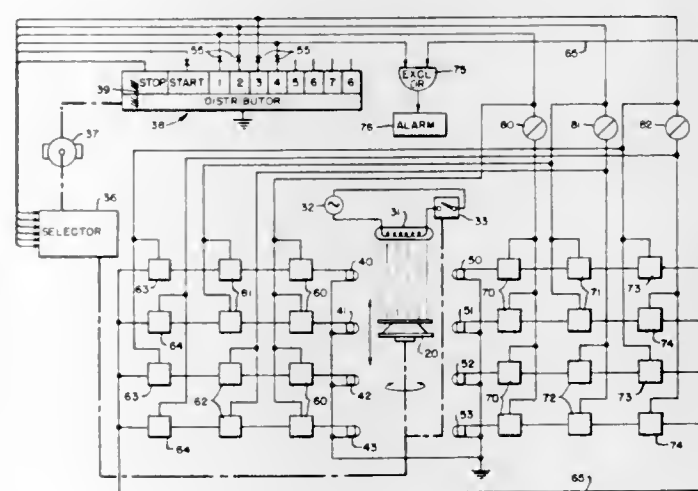
3,560,652

TYPE CYLINDER POSITION MONITORING CIRCUIT

George Arthur Kim, Chicago, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware
Filed Apr. 11, 1968, Ser. No. 720,545
Int. Cl. H04l 17/24

U.S. Cl. 178-34

12 Claims



A plurality of mirrors, each lying in a different plane and each separated from the others by nonreflective segments, are mounted on the top of a type cylinder for rotation therewith, and photocell pick up devices are arranged in two vertical columns opposite the mirrors in a number of levels equal to the number of vertical levels to which the type cylinder may be positioned. The permutation signal which causes the positioning of the type cylinder to particular vertical and rotational positions also is decoded to complete a cir-

cuit path to one only of the photocells. When the positioning of the type cylinder is completed, light is flashed onto the mirrors; and if a mirror is opposite the selected photocell, light impinges on the photocell. The output of the selected photocell then is used to indicate whether or not the proper vertical level and column selection has been made.

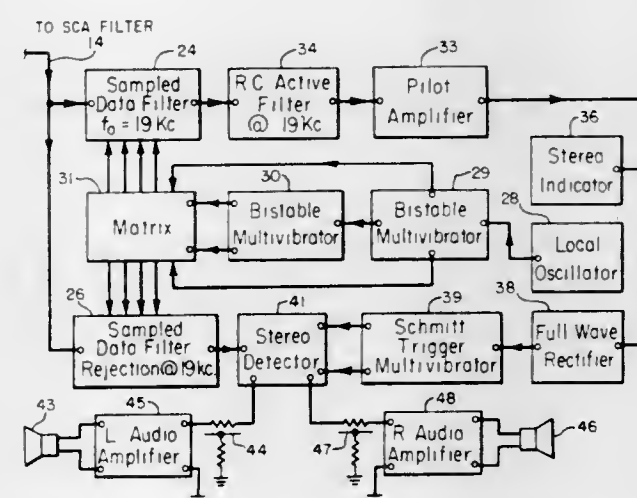
3,560,653

STEREO RECEIVER SUITABLE FOR INTEGRATED CIRCUIT CONSTRUCTION

Fleming Dias, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Continuation-in-part of application Ser. No. 599,468, Dec. 6, 1966, now Patent No. 3,466,399. This application Mar. 12, 1969, Ser. No. 806,636
Int. Cl. H04h 5/00

U.S. Cl. 179-15

16 Claims



A receiver for stereophonic program signals wherein demodulation of a received stereophonic subcarrier signal is accomplished by inductorless demodulation circuitry suitable for integrated circuit construction. A sampled data-type filter, located between the receiver frequency modulation detector and integrated circuit stereo demodulator, extracts the pilot signal from the composite signal with a sufficiently high signal-to-noise ratio to permit derivation of a continuous-wave demodulation signal at the subcarrier frequency within the integrated circuit demodulation stages without the provision of further tuned circuitry therein.

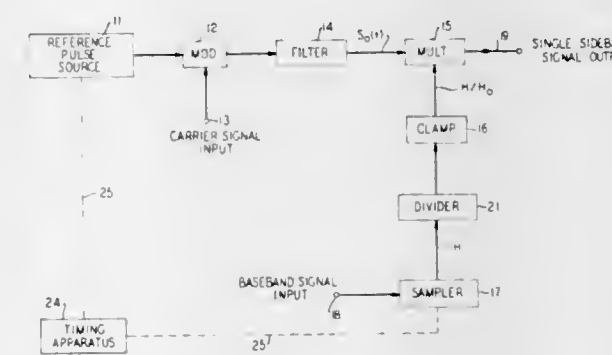
3,560,654

MODULATION AND DEMODULATION APPARATUS USING REFERENCE TIME FUNCTIONS

Sidney Darlington, Passaic Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Feb. 25, 1969, Ser. No. 802,142
Int. Cl. H04j 3/04

U.S. Cl. 179-15

15 Claims



A single-sideband modulator and demodulator are realized by using reference time functions. The desired modulated or

demodulated signals are generated by modulating and filtering a train of pulses of constant amplitude to develop a reference time function which, in turn, is scaled in accordance with sampled values of an applied baseband or modulated signal.

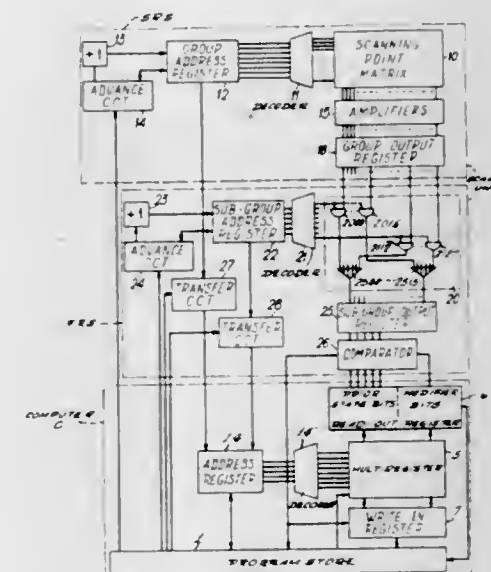
3,560,655

TELEPHONE SERVICE REQUEST SCAN AND DIAL PULSE SCAN DEVICE

Pierre M. Lucas, 20, rue Tarel, Issy-les-Moulineaux; Jean F. Duquesne, 120, rue de Javel, Paris, and Charles E. Abraham, 114 Elysees II, La Celle Saint Cloud, France
Filed Oct. 28, 1968, Ser. No. 771,108
Claims priority, application France, Oct. 27, 1967, 126,266
Int. Cl. H04m 3/22; H04q 3/54

U.S. Cl. 179-18

3 Claims



Scanning circuit arrangement for scanning test terminals respectively connected to subscriber's lines and disposed along rows and columns in a matrix, the purpose of which is to detect by means of a unique scanning the service requests and the dial pulses. The terminals are scanned in groups defined by a group address and forming group test words, at a first rate, and the groups are divided into subgroups defined by a subgroup address and forming subgroup test words, at a second rate multiple of the first rate. The subgroup test words are stored in the registers of a test multiregister and the actual and previous subgroup test words are compared in a comparator which detects the rank or address of the bits in the subgroup test word which have undergone a change. The address of the test terminal including the group address, the subgroup address and the bit address are applied to a second multiregister which comprises a plurality of originating registers and a table of correspondence between the test terminal addresses and the originating register addresses. From the test terminal address, the second multiregister derives the originating register address and the change of the test terminal is written in this originating register.

3,560,656

BINAURAL PHASE DIFFERENTIAL SYSTEM

Roswell W. Gilbert, New York, N.Y., assignor to Dictaphone Corporation, Bridgeport, Conn.
Filed May 1, 1967, Ser. No. 634,981
Int. Cl. H04r 5/00

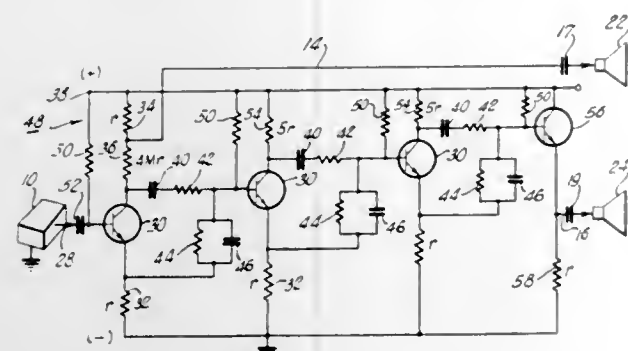
U.S. Cl. 179-1

11 Claims

Monaural electrical signals are divided into two separate components flowing in two separate channels, and the phase of the signal in one channel is shifted by means of a Wien bridge which has been offset (unbalanced) so as to transmit signals at all frequencies of interest substantially without attenuation. The signal in each channel is conducted to a separate loud speaker with the transducers either spatially separated or coupled together to form a headset. The phase

difference between the signal from one speaker and the signal from the other provides depth and reality in the

records which pertain to calls made of the entire group. Circuitry is also provided for indicating the traffic usage rate, or average trunk circuit holding time, and for recording in each



reproduced sound. Use of this system in dictation recording and reproducing equipment is described.

3,560,657

AUTOMATIC WARNING SYSTEM

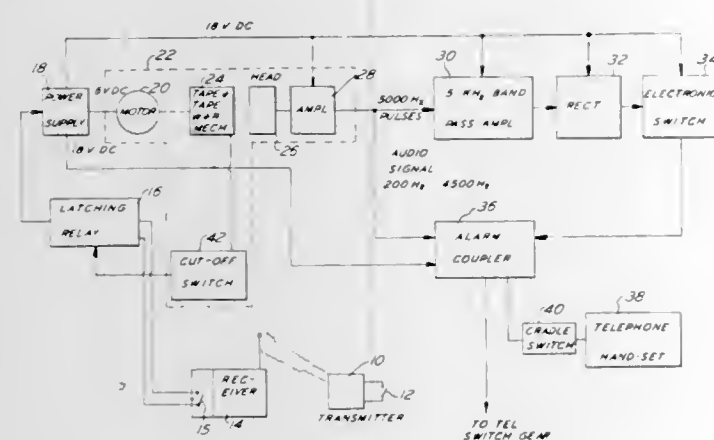
Paul L. Stone, Meadowbrook, Pa., and Paul J. Dever, Cherry Hill, N.J., assignors to Electro-Nite Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed July 5, 1968, Ser. No. 742,672

Int. Cl. H04m 11/04

U.S. Cl. 179-5

1 Claim



An automatic warning system responds to a warning signal energized by an outside agency by closing a switch which permits a power supply to energize the motor on a tape deck, the tape deck generates a plurality of single frequency pulses which are rectified and used to energize an electronic switch that provides data to a coupling mechanism and dials a remote telephone. After the telephone is dialed, the tape deck broadcasts a voice signal and then a further series of single frequency pulses that resets the system and dials a second number or the same number. The switch is then opened and the system turned off.

3,560,658

TRUNK USAGE RECORDING AND CALL CHARGING EQUIPMENT

Peter E. Molloy, deceased, late of Hazlet, N.J., by Elizabeth A. Molloy, executrix, Hazlet, N.J.; Edward C. Pienkowski, Westerville; James B. Shepard, Columbus, Ohio, and Richard M. Swanson, Holmdel, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

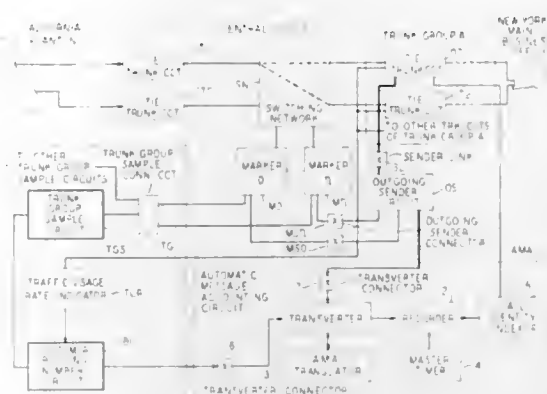
Filed Oct. 18, 1968, Ser. No. 768,938

Int. Cl. H04m 15/18

U.S. Cl. 179-8.6

23 Claims

Equipment is disclosed in a communication switching office for counting the number of trunk circuit usages in a trunk group and after a predetermined number are counted for causing a call data record to be made. Certain trunk circuits of the group are equipped to access call recording circuitry and are controlled by a trunk group sample circuit during the establishment of calls thereover to make the data



time a call usage record is made. The rate information together with the call usage data serves as a basis for charging a calling customer.

3,560,659

SYSTEM FOR THE TRANSMISSION OF ANALOGUE SIGNALS BY MEANS OF PULSE CODE MODULATION

Johannes Anton Greefkes, and Henricus Petrus Johannes Boudewijns, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware, by mesne assignments

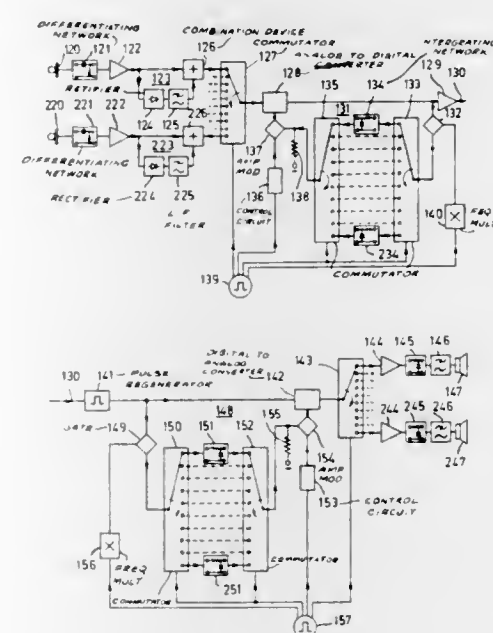
Filed Sept. 3, 1968, Ser. No. 757,051

Claims priority, application Netherlands, Sept. 2, 1967, 6712082

Int. Cl. H04j 3/18

U.S. Cl. 179-15

17 Claims



A pulse code modulation system for the transmission of analogue signals by converting prior to transmission successive samples of the analogue signal supplied by a level signal generator to an analogue to digital converter having dynamic high compression feedback control circuits for producing coded groups of pulses having different weights and numbers characterizing the analogue signals. After transmission, the coded groups of pulses are supplied to a digital to analogue converter, having characteristics reciprocal to those of the transmitter's analogue to digital converter, and a dynamic expansion control circuit, having reciprocal characteristics of the transmitter's compression circuits to produce exact reproductions of the original analogue signals.

3,560,660

TIME-ALLOCATION COMMUNICATION SYSTEM WITH SCRAMBLING NETWORK

Isidoro Poretti, Castiglione, and Gianmario Costa, Cornaredo, Italy, assignors to Societa Italiana Telecomunicazioni Siemens s.p.a., Milan, Italy, a corporation of Italy

Filed Dec. 16, 1968, Ser. No. 783,860

Claims priority, application Italy, Dec. 14, 1967, 23,856-A/67

Int. Cl. H04k 1/00

U.S. Cl. 179-15

10 Claims



another random selector responsive to the same combination of code pulses as the selector at the transmitting terminal.

3,560,661

DIRECTORY NUMBER-EQUIPMENT NUMBER AND EQUIPMENT NUMBER-DIRECTORY NUMBER TRANSLATOR ARRANGEMENT

Stanislas Kobus, Antwerpen, Belgium, and Adelin Eugene Gaston Salle, Paris, France, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

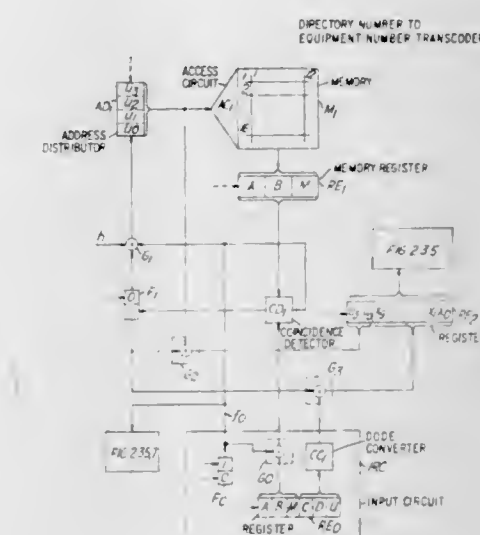
Filed Sept. 10, 1968, Ser. No. 758,750

Claims priority, application Netherlands, Sept. 22, 1967, 6713017

Int. Cl. H04q 3/47

U.S. Cl. 179-18

6 Claims



Telephone communication system wherein two groups of subscribers, associated with opposite terminals of a two-way trunk line, are selectively connectable to that trunk line for transmission or reception under the control of a train of stepping pulses generated during a signal-transmission period of an operating cycle or frame, the number m'' of stepping pulses in that train (and therefore the number of subscriber lines so connectable in any one frame) being half the total number of subscribers in each group. A distribution signal, sent out at the beginning of a frame during an allocation period, consists of a succession of address pulses identifying the calling subscribers whose message samples are transmitted in coded form during the following transmission period. The stepping pulses are fed to a scrambler which, under the control of a random selector responsive to the combination of code pulses in the first several message samples transmitted during an immediately preceding frame, suppresses a continuously varying number of stepping pulses in the original train to give rise to a modified train with a reduced number m' of stepping pulses, w being the number of subscribers to be connected as determined from a count of address pulses in the distribution signal immediately preceding such transmission. The $(m-w)$ supernumerary stepping pulses left over after the transmission of the w message samples are used to test hitherto idle subscribers for possible inclusion of their message samples during the next frame. During the occurrence of these supernumerary stepping pulses, as well as between the termination of the foreshortened pulse train and the end of the transmission period, a noise code generator is connected to the trunk to transmit spurious message signals which at the receiving terminal are weeded out by an unscrambler under the control of

The present invention relates to a two-way translator arrangement for an automatic switching system including n groups of substation lines, each of the n group including a plurality of substation lines, certain ones of the plurality of lines being normal lines having a normal class-of-service and whose directory and equipment numbers are associated by a predetermined systematic relationship and special lines whose directory and equipment numbers are not so associated and/or which have a special class-of-service. The special lines are further divided into first level special lines for which the group number portion of their directory and equipment numbers are associated by a given one-to-one relationship and second level special lines for which the group number portion of their directory and equipment numbers are not so associated. The arrangement includes a detection means addressable by one of the directory and equipment numbers to detect the presence of special lines and produces a control signal in response thereto, a first translation stage including n substages each assigned to the first level special lines of a different one of the n groups and a second translation stage assigned in common to the second level special lines of all the n groups. When the control signal is produced, the one of the n substages associated with that one of the n groups containing the addressed special line is activated to carry out the required translation and the second translator stage detects the failure of the one of the n substages to carry out the required translation because the addressed special line is not one of the first level special lines and to activate the second translator stage to carry out the required translation. In addition, an auxiliary translator stage is coupled to both the first and second translator stages to cooperate therewith in case the addressed line is of a complex class and/or has a transfer of call facility.

3,560,662

TIME-SHARING TELECOMMUNICATION SYSTEM WITH LOGIC CIRCUITRY FOR CLASSIFYING LINE-VOLTAGE CHANGES OF DIFFERENT DURATION

Luigi Casella, and Giorgio De Varda, Milan, Italy, assignors to Societa Italiana Telecomunicazioni Siemens s.p.a., Milan, Italy

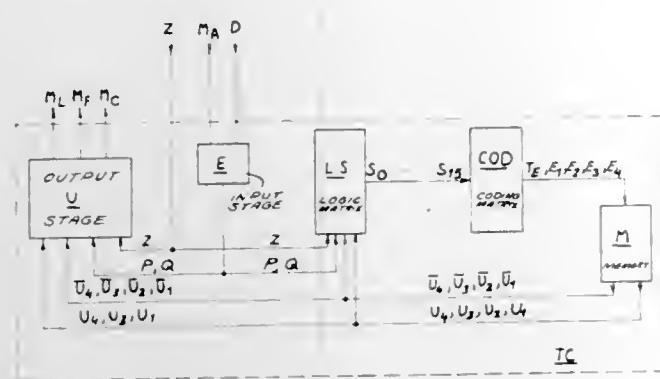
Filed Oct. 30, 1968, Ser. No. 771,770

Claims priority, application Italy, Oct. 30, 1967, 22,151A/67

Int. Cl. H04m 3/22

U.S. Cl. 179-18

7 Claims



Voltage changes of different duration (dialing pulses, inter-digit pauses, release of line) on a subscriber line of a telephone system are classified by a rapidly recurring sampling pulse (M_1), whose cadence is a fraction of the duration of a dialing pulse, and by a more slowly recurring test pulse (Z) with a period equal to a dialing pulse cycle. A logic matrix, responding to changes in line voltage detected by the sampling pulse, generates a first group of stable output signals (R, B, B') and unstable output signals (B_1, B_2, B_1', B_2') relating to one voltage state (0) and a second group of stable output signals (H, C, C') and unstable output signals ($H_1, H_2, C_1, C_2, C_1', C_2'$) relating to an alternate voltage state (1), a sustained voltage change from one state (e.g. 1) to the other (e.g. 0) causing a switchover from an assigned stable output signal (e.g. C) of one group by way of associated unstable output signals (e.g. C_1, C_2) to a corresponding stable output signal (e.g. B) of the other group. The occurrence of a test pulse (Z) shifts the output signals within each group in a predetermined sequence from a starting signal (B or C) via a transition signal (B' or C') to a permanence signal (R or H), giving rise to either of two classification pulses (M_1, M_2) to indicate line release in the presence of a permanence signal of the first group (R) or an interdigit pause in the presence of a transition signal of the second group (C'). A switchover to a starting signal of the second group (C) gives rise to a further classification pulse (M_2) to indicate a dialing pulse.

3,560,663

TRAFFIC CONTROL FOR MODIFYING THE ROUTING PLAN IN A NETWORK OF SWITCHING CENTERS

David K. K. Lee, and Don N. Wong, Chicago, Ill., assignors to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware

Filed Jan. 30, 1969, Ser. No. 795,285

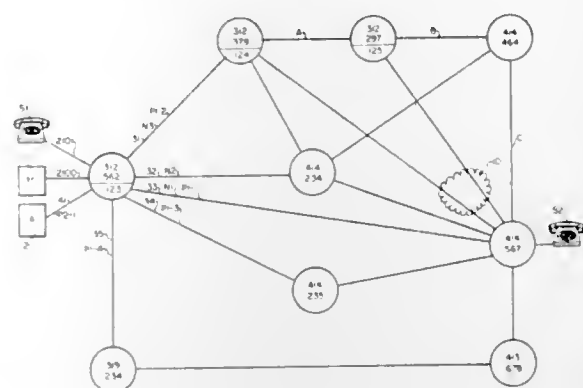
Int. Cl. H04q 3/56

U.S. Cl. 179-18

29 Claims

A communications network is disclosed wherein the code translation and routing apparatus at each switching center includes a memory having a number of code words and a number of routing words. Each code word stores a code which usually comprises three or six digits used in an associative search by comparison with the corresponding dialed digits. Each code word or group of code words is followed by one or three routing words, each of which designates one or more trunk groups, which may comprise a primary route and a number of alternate routes. Some of the code words include an automatic traffic control digit which directs which

one of three routing words is to be used. The value of the traffic digit for each code or group of codes may be modified by a traffic controller by a call from a special station, to thereby designate which one of three predetermined routing



plans stored in the respective routing words is to be used. Thus under abnormal traffic conditions caused, for example, by overloads in emergencies, or destruction of facilities, the traffic routing plan may be modified.

3,560,664

APPARATUS FOR MONITORING A PLURALITY OF RELAYS

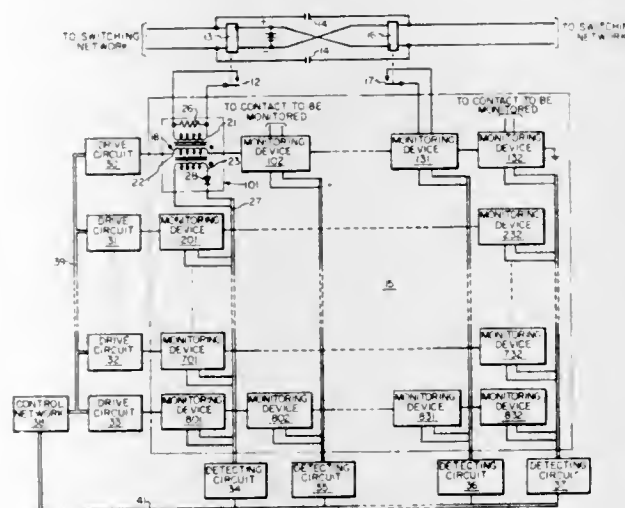
Frederick A. Stich, Hales Corners, Wis., assignor to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware

Filed Feb. 6, 1969, Ser. No. 797,161

Int. Cl. H04m 3/22

U.S. Cl. 179-18

7 Claims



A circuit for monitoring the status of a plurality of relays includes a plurality of monitoring devices each having a control winding connected across a contact of a relay being monitored, and drive and sense windings connected to drive and detector circuits, respectively. The drive circuit includes a switching transistor which momentarily connects the drive windings of a plurality of devices to a current source permitting a current pulse to traverse the windings. If the contact being monitored is open the current pulse induces a voltage in the sense winding, but if the contact is closed the control winding is shunted out and only a noise pulse is induced in the sense winding. The switching transistor is controlled by a differential amplifier which compares a voltage fed back from the output of the switching transistor to a reference voltage, amplifies the difference, and regulates the base drive to the switching transistor to compensate for changes in the impedance of the monitoring devices and maintain the magnitude of the current pulse constant.

3,560,665

WORK STUDY RECORDING SYSTEM

Laurence Howard Pountney, Allestree, and Clifford R. Ambury, King's Newton, England, assignors to Rolls-Royce Limited, Derby, England, a British Company

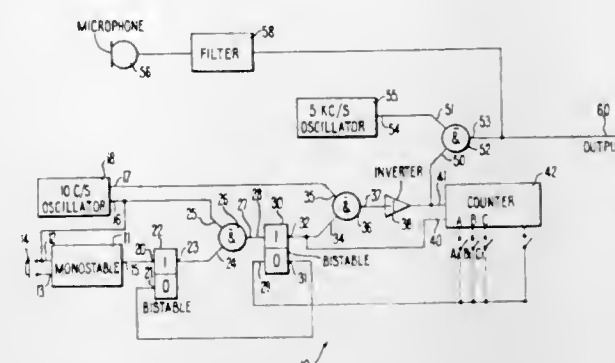
Filed Oct. 3, 1968, Ser. No. 764,692

Claims priority, application Great Britain, Oct. 7, 1967, 45982/67

Int. Cl. G11b 27/32, 31/00

U.S. Cl. 179-100.2

8 Claims



A work study recording system is described for analyzing a worker's performance of a production process or the like, consisting of a number of operations. The recording system includes an electrical information generating circuit connected to a recording means and a replay circuit also connected to the recording means for converting the recorded information into useable information. The electrical information generating circuit includes a transducer for converting spoken information into an electrical signal to be recorded, a means for generating electrical timing signals corresponding to the commencement and termination of each of the operations in the process which are recorded on the recording means and a manually operable means for recording further coded information on the recording means. The replay circuit receives the recorded signals from the recording means and measures the intervals between successive timing signals and it includes a printing device connected to receive signals from the replay circuit for printing the duration of each interval and the further coded information.

3,560,666

SINGLE DRIVE DUAL CASSETTE TAPE RECORDER WITH RADIO AND TAPE DUPLICATING

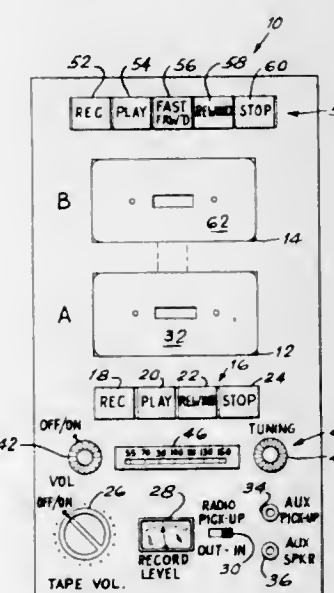
Jack Bookman, Orangeburg, N.Y., assignor to Teletronics Corporation of America, New York, N.Y., a corporation of New York

Filed Sept. 12, 1968, Ser. No. 759,280

Int. Cl. G11b 5/86, 15/28, 31/00

U.S. Cl. 179-100.11

4 Claims



A cassette-type tape recorder comprising first and second cassette receiving means provided in spaced relationship to

each other with a pair of magnetic playback assemblies operatively positioned with respect thereto. Single drive means are provided which are selectively operatively connected to each of the cassette receiving means, and controlling means are provided for selective actuation of the playback assemblies.

3,560,667

TRANSDUCER HAVING AN ARMATURE ARM SPLIT ALONG ITS LENGTH

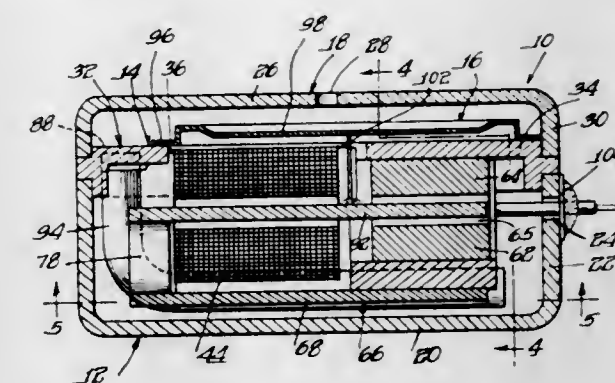
Elmer Victor Carlson, Prospect Heights, Ill., assignor to Industrial Research Products Inc., Elk Grove Village, Ill., a corporation of Delaware

Filed May 1, 1968, Ser. No. 725,762

Int. Cl. H04r 1/106

U.S. Cl. 179-114

6 Claims



A transducer having a case and a coil mounted within the case. A pair of spaced magnets mounted in the case and spaced from the coil. An armature reed construction having a first elongated arm split along its length with one end of the arm magnetically connected to the pair of spaced magnets. A pair of opposed bridges connected to the other end of the elongated arm. A second elongated arm having one end connected to the pair of bridges to form a substantially rigid section between the elongated arms. The second elongated arm positioned through the coil and between the spaced magnets.

3,560,668

MICROPHONE HAVING COUPLED ACOUSTIC CIRCUITS

Paul-Friedrich Warning, Mellendorf, Germany, assignor to Sennheiser Electronic, Bissendorf, Germany

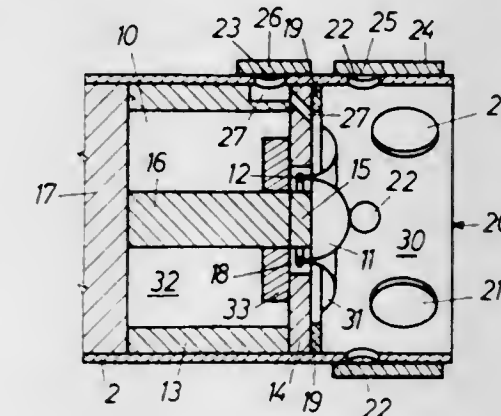
Filed Oct. 24, 1966, Ser. No. 588,796

Claims priority, application Germany, Oct. 25, 1965, 100188

Int. Cl. H04r 1/28

U.S. Cl. 179-138

16 Claims



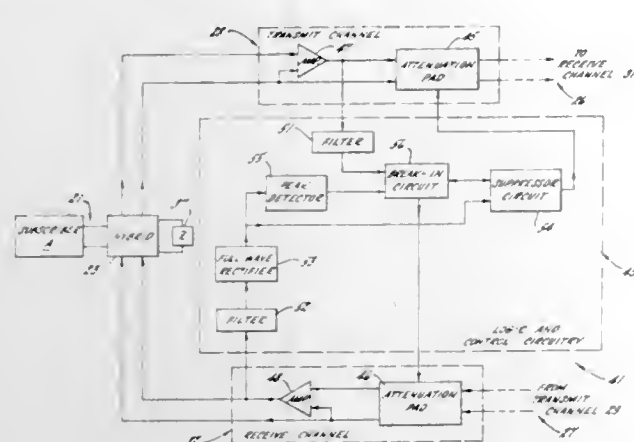
A microphone having a response characteristic in a set frequency range and a reinforced response at the upper limit of this range and comprising a housing containing an electroacoustic transducer with at least one diaphragm for producing output signals as a function of the sound striking the diaphragm and a substantially cylindrical acoustic resonance chamber coupled to the diaphragm. The opening to the acoustic resonance chamber forms the main sound inlet opening, and at least one group of subsidiary sound inlet openings are formed in the chamber walls.

3,560,669 ECHO SUPPRESSOR

John D. Foulkes, Lexington, and Warren G. Bender, Wellesley, Mass., assignors to Wescom, Inc., Downers Grove, Ill., a corporation of Illinois, by mesne assignment
Filed Feb. 25, 1969, Ser. No. 802,067
Int. Cl. H04b 3/24

U.S. Cl. 179—170.6

23 Claims



A voice controlled differential split echo suppressor employing linear logic circuitry for controlling the insertion and removal of loss in dependence upon the transmit and receive channel signal levels. The receive channel signal level exceeds a predetermined threshold level and the transmit channel signal level is below the receive channel average peak signal level, a relatively large suppression loss is immediately inserted into the transmit channel for operation of the echo suppressor in a suppression mode. Absent break-in by the near end subscriber, the echo suppressor remains in its suppression operating mode after the receive channel signal level falls below the threshold level until a predetermined suppression hangover time runs out at which time the suppression loss is removed and the echo suppressor is returned to operation in a quiescent mode. On the other hand, when the receive channel signal level is above the threshold level and the transmit channel signal level rises above the receive channel average peak signal level, the suppression loss is immediately removed from the transmit channel and a break-in loss, which increases with time from an initial negligible level to a final relatively low level, is inserted into the receive channel for operation of the echo suppressor in a break-in mode. The echo suppressor remains in its break-in operating mode after the transmit channel signal level drops below the receive channel average peak signal level until a predetermined break-in hangover time runs out, despite changes in the receive channel signal level. The suppression and break-in losses are provided by solid state devices which are switched from conductive to nonconductive states by still other solid state devices, so that the suppression and break-in operate times can be minimized without the production of significant switching transients.

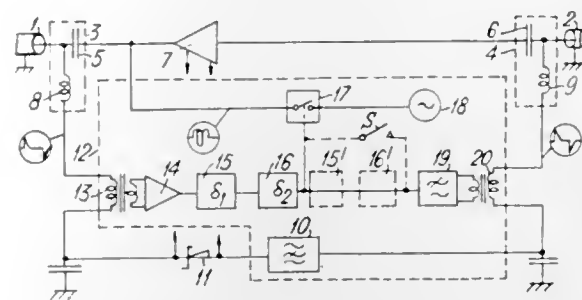
3,560,670 SUPERVISORY CIRCUIT FOR UNATTENDED REPEATERS

Roger W. Heyes, Basildon; Brian W. Richards, Wickford, and Alexander Tait Weir, Bromley, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Aug. 27, 1968, Ser. No. 755,583
Claims priority, application Great Britain, Sept. 1, 1967, 40,019/67
Int. Cl. H04b 3/46

U.S. Cl. 179—175.31
27 Claims

A supervisory system for a plurality of repeaters in a carrier current communication system wherein the transmission path includes a first frequency band to provide operating power for the repeater stations and a second frequency band for transmitting information signals. An interrogation signal separate from the operating power is sent from one terminal station to the nearest repeater station in the first frequency band. The interrogation signal is extracted from the path, delayed a predetermined time interval and then sent to the next repeater station for similar operation on the interroga-

tion signal. In each repeater station, the delayed interrogation signal causes a response signal to be transmitted along the path back to said one terminal station. Said one terminal station counts the number of response signals and measures the amplitude of selected ones of the response signals. If the

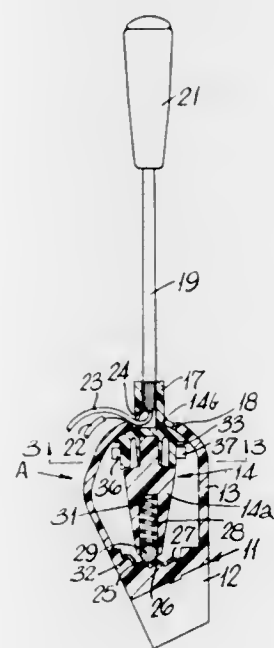


number of response signals does not equal a predetermined number, an alarm signal is generated indicating a fault in one of the repeater stations. The amplitude measurement will indicate the faulty repeater station due to the amplitude of its response signal not achieving a predetermined amplitude.

3,560,671 ELECTRICAL SWITCH WITH IMPROVED OPERATING MEANS

Edward Cryer, Higham, Near Burnley, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed May 13, 1969, Ser. No. 824,135
Claims priority, application Great Britain, May 21, 1968, 24,156/68
Int. Cl. H01h 19/00, 3/00

U.S. Cl. 200—6
6 Claims



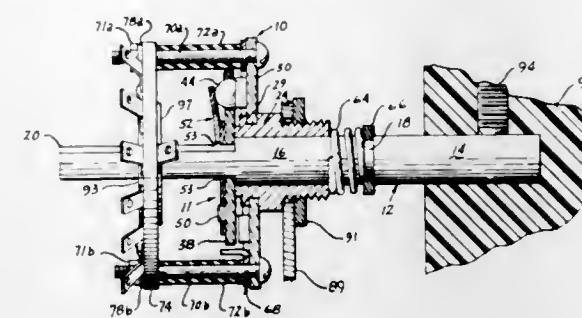
An electrical switch includes a body having an operating member mounted therein for pivotal movement. The operating member includes first and second parts which are rotatable relative to one another about an axis at right angles to the pivotal axis of the operating member in the body, and the operating member carries a movable contact. Fixed contacts are engageable by the movable contacts, and are supported on the body and the fixed contacts and the movable contacts cooperate with one another in the operative positions of the switch to maintain the operating member in any one of the operative positions. The switch further includes further contacts operable in response to rotation of the two parts of the operating member relative to one another.

3,560,672 GUARDED POSITION SELECTOR SWITCH WITH STOP POSITION MEANS

Raymond W. Ludlum, Blanchester, and David F. Warner, Brookville, Ohio, assignors to Ledex, Inc., Dayton, Ohio, a corporation of Ohio
Filed Jan. 21, 1969, Ser. No. 792,384
Int. Cl. H01h 3/52

U.S. Cl. 200—11

7 Claims

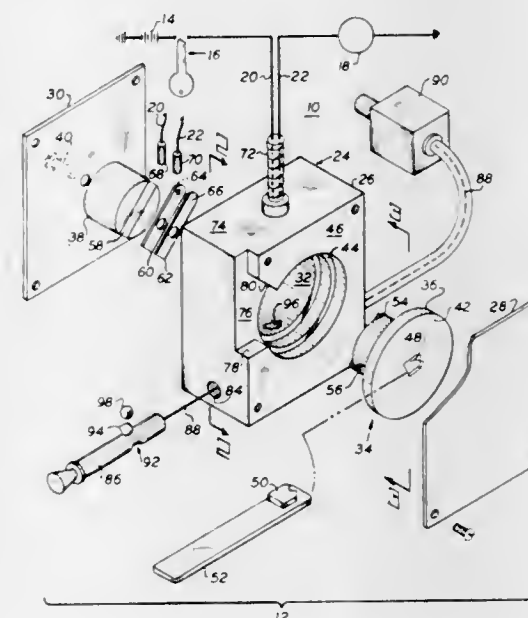


A rotary circuit selector switch is provided with a limited range of unguarded switch positions by fixing a radially extending abutment to the operating shaft for the switch and fixing peripherally spaced axially extending stops to a stationary frame for the switch. The range of unguarded switch positions is determined by the space between the stops in which the abutment is free to reciprocate. A guarded switch position is provided by giving the shaft freedom for limited axial movement against an opposing spring and by shortening the axial length of one of the stops so as to permit the abutment to pass the shortened stop when the shaft has been moved axially against the opposing spring. The guarded switch position is so named because a deliberate effort on the part of the switch operator is required to reach the guarded position.

3,560,673 ANTI-THEFT IGNITION SYSTEM

Max Norman Schweizer, 110 S. Clinton Ave., Bay Shore, N.Y., and Sam Barmherzig, 1457 E. 86th St., Brooklyn, N.Y.

Filed Feb. 24, 1969, Ser. No. 801,577
Int. Cl. H01h 27/00
U.S. Cl. 200—44
5 Claims



An antitheft ignition system which includes a simple, tamper-proof, switch assembly connected in series in a conventional ignition system comprised of a battery, ignition key operator switch, and starter. The switch assembly includes a housing within which is a key operated rotatable contact carrier which carries a set of movable contacts which engage or disengage a pair of stationary contacts carried on the interior of the housing depending on the position of the contact carrier.

er. Thus, the operator must have both the automobile ignition key and a switch assembly operating key in order to start the vehicle. In addition, the switch assembly also carries an actuating member for permitting the trunk or hood to be opened, which actuating member can only be operated when the switch assembly key is inserted in the switch to rotate the contact carrier from a "break" to a "make" position.

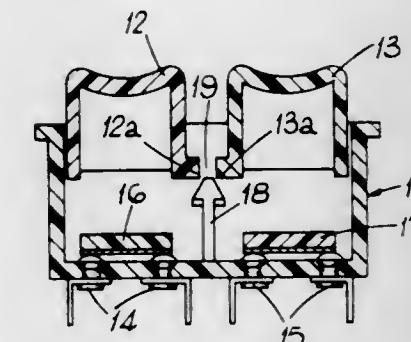
3,560,674 DUAL ROCKER SWITCH ASSEMBLIES INCLUDING BLOCKING MEANS FOR PREVENTING SIMULTANEOUS OPERATION OF BOTH SWITCHES

Keith Lewis, Burnley, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England, a British Company

Filed July 9, 1969, Ser. No. 840,339
Claims priority, application Great Britain, July 15, 1968, 33619/68
Int. Cl. H01h 9/24

U.S. Cl. 200—50

3 Claims



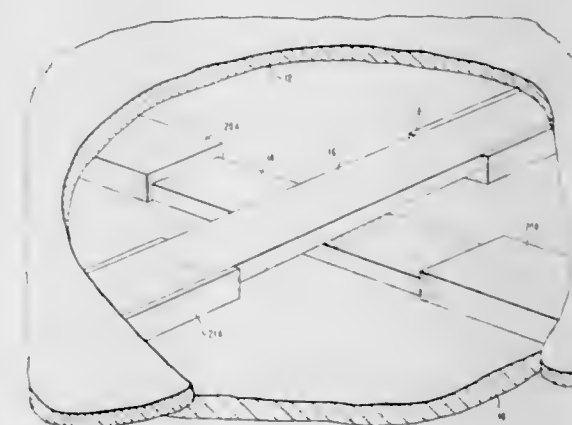
Dual rocker switch assembly in which each switch is provided with an operating member for moving a movable contact into engagement with a fixed contact. A blocking piece located adjacent the operating members is operative upon movement of one of the members to move its movable contact into engagement with the fixed contact to be positioned in the path of movement of the other operating member to prevent its movement.

3,560,675 DEPRESSIBLE DIAPHRAGM OVERLAY SWITCH FOR DISPLAYS

Morris Krakinowski, Ossining, and George R. Stilwell, Jr., West Nyack, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed May 26, 1969, Ser. No. 827,586
Int. Cl. H01h 43/08

U.S. Cl. 200—46

7 Claims



A two layer planar multicontact switch including a first substrate layer having a plurality of parallel conductive lines deposited on the upper surface thereof and a second diaphragm layer located over the substrate layer and having a plurality of parallel conductive lines deposited on the lower surface thereof. The conductive lines on the substrate are normal to the conductive lines on the diaphragm such that a plurality of matrix switch intersections are formed. The con-

ductive lines on the substrate and the diaphragm have insulating material selectively deposited thereon to electrically isolate the upper and lower conductive lines except at the points of intersection. The diaphragm layer may be mechanically depressed at the intersection points to selectively connect the upper lines with the lower lines to form switch closure contacts. The diaphragm and the substrate are formed from transparent material so that the switch can be employed in combination with a visual display.

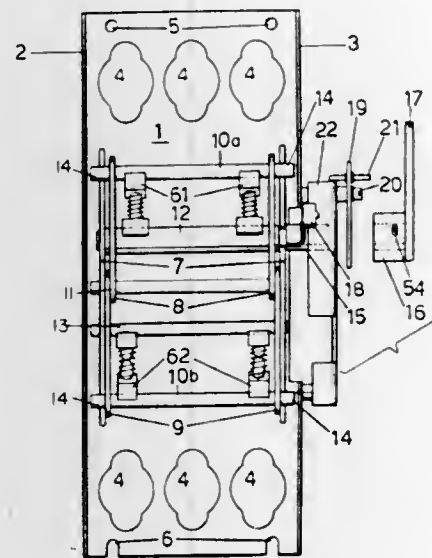
3,560,676

EXTRACTING DEVICE FOR APPARATUSES

Mario Battaglia, Milan, Italy, assignor to General Electric Company, New York, N.Y., a corporation of New York
Filed Mar. 26, 1969, Ser. No. 810,741
Claims priority, application Italy, Apr. 8, 1968, 14,953/68
Int. Cl. H01h 9/24

U.S. Cl. 200—50

5 Claims



A drawout type circuit breaker assembly in which a spring-biased trip member is normally held in an inactive position, but which is released to cause tripping of the circuit breaker whenever a removable handle for the drawout mechanism is mounted in place to assure that the breaker will be in open condition whenever the drawout mechanism is actuated.

In another aspect, the drawout mechanism includes two slidable rods supporting the circuit breaker, and two pairs of toggle links operating the rods.

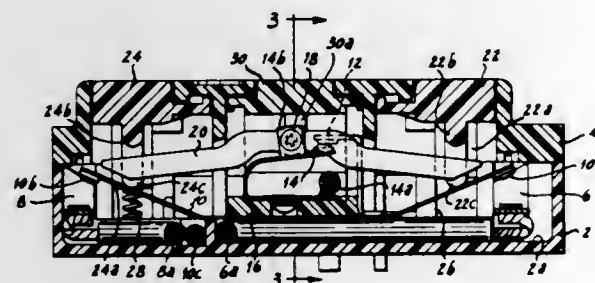
3,560,677

INTERLOCK BAR FOR MEMENTARY SELECTOR SWITCH

Arthur F. K0lb, Mequon, and Robert O. Graham, Milwaukee, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Aug. 19, 1969, Ser. No. 851,199
Int. Cl. H01h 9/20

U.S. Cl. 200—50

3 Claims

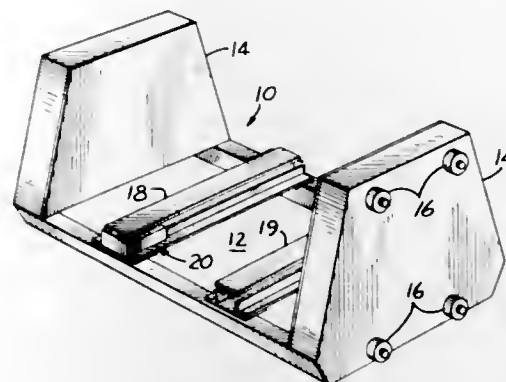


The outer buttons of a three-position, center-off switch are interlocked by an interlock bar pivotally mounted to the movable contact under the center button. The opposite ends of the bar underlie the outer buttons wherein depression of both outer buttons drive the bar downward to open the center contact before both outer contacts will close.

3,560,678
LOAD PRESENCE DETECTOR LEVER MOUNTED FOR PIVOTAL AND LONGITUDINAL MOVEMENT
Raymond H. Richardson, Chicago, Ill., assignor to Interlake Steel Corporation, Chicago, Ill., a corporation of New York
Filed Nov. 4, 1968, Ser. No. 773,115
Int. Cl. H01h 3/16

U.S. Cl. 200—61.44

16 Claims



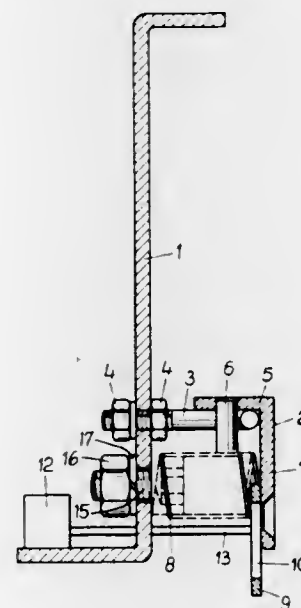
A load presence detector for a power-operated load handling fork assembly comprises a rotatable, longitudinally displaceable lever member. When the power-operated fork is extended, the lever member is rotated about a pivot axis and, if the storage space into which it is desired to deposit the load being carried by the forks is already occupied by another load, the rotated lever member contacts the load in the space and moves in a longitudinal direction to terminate power to the fork. If the space is unoccupied, the lever member rotates further about its pivot to allow the fork to deposit the load in the unoccupied space.

3,560,679

SAFETY DEVICES FOR MOVABLE STORAGE UNITS
Rudi Kombuchen, Dusseldorf, Germany, assignor to Acrow (Automation) Limited, London, England, a corporation of England
Filed June 25, 1969, Ser. No. 836,427
Claims priority, application Germany, Aug. 31, 1968, P 17 63 891.1
Int. Cl. H01h 3/16

U.S. Cl. 200—61.44

6 Claims

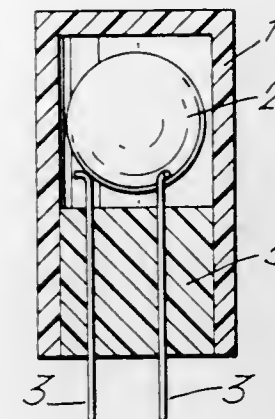


A safety device for a movable storage unit driven by an electric motor including a safety member pivotally suspended from the movable storage unit and an actuator connected with the safety member for controlling the operation of the electric motor such that pivotal movement of the safety member deenergizes the electric motor and stops the movable storage unit.

3,560,680
INERTIA SWITCH RESPONSIVE TO HIGH AND LOW LEVEL SHOCKS
Walter W. H. Clarke, Eversley, England, assignor to C.B. Associates Limited
Filed Apr. 18, 1969, Ser. No. 817,504
Claims priority, application Great Britain, Apr. 19, 1968, 18,722/68
Int. Cl. H01h 35/14

U.S. Cl. 200—61.45

8 Claims

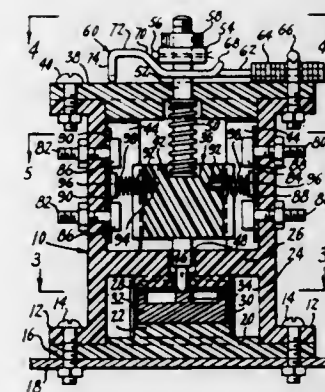


The invention concerns an inertia switch in the form of a sphere supported normally on a seat formed by three pins, two of which form electrical contacts. Upon dislodgement of the sphere upon a vibration of the switch a circuit between two of the contacts is broken whereby to actuate a device, such as a burglar alarm, controlled by the switch. The construction offers a simple and inexpensive yet extremely sensitive switch.

3,560,681
IMPACT CIRCUIT BREAKER FOR MOTOR VEHICLES
Milo R. Webber, 12235 Spring Trail, San Fernando, Calif.
Filed May 28, 1969, Ser. No. 828,636
Int. Cl. H01h 35/14

U.S. Cl. 200—61.45

6 Claims

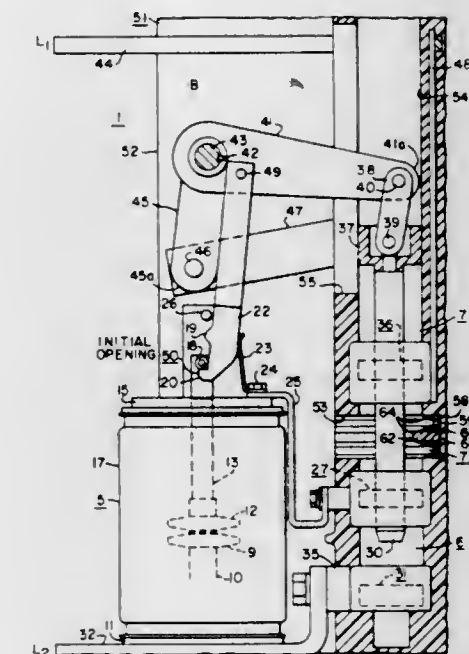


A vertical casing is provided therein with a vertically movable unit including a body operatively connected preferably at opposite sides to normally closed circuit breaking elements to properly complete the circuit from the positive sides of the generator and battery. The unit is normally supported in circuit closing position by an inertia element arranged in the bottom of the casing and adapted to be displaced laterally due to an impact occurring if the vehicle is in an accident. Under such conditions, a biasing spring moves the unit downwardly to break the circuits preferably from both the generator and battery. Manually operable means is provided for moving the unit upwardly to break the circuit to prevent the theft of the vehicle.

3,560,682
VACUUM INTERRUPTER WITH SHUNTING MAIN CONTACT STRUCTURE AND SERIES DISCONNECTING CONTACT STRUCTURE
Werner Kohler, and Hans-Joachim Grunefeld, Berlin, Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Erlangen, Germany, a corporation of Germany
Filed Nov. 7, 1966, Ser. No. 592,647
Claims priority, application Germany, Nov. 30, 1965, 1,265,815
Int. Cl. H01h 9/38, 33/12

U.S. Cl. 200—144

9 Claims



A vacuum-type circuit interrupter is provided having an electrically shunting main contact structure, comprising two spaced main stationary contacts associated therewith, and located externally of the vacuum envelope. The spaced main stationary contacts are electrically connected to the opposite terminals of the vacuum interrupter unit.

A movable main bridging contact electrically bridges the two spaced main stationary contacts in the closed-circuit position of the device to carry heavy current loads and to thereby relieve the duty imposed upon the separable contacts of the vacuum interrupter unit. Additionally, the movable main bridging contact separates from one of said two spaced stationary main contacts to provide a series disconnecting gap for more adequately withstanding high voltages in the open-circuit position of the device.

An operating mechanism is provided including a rotatable crank arm having the pivotal point of attachment of the moving contact of the vacuum interrupter unit positioned more closely to the axis of rotation of the crank arm than is the pivotal point of attachment of the movable main bridging contact. This varies the distance of opening travel between the two contacts. A lost-motion connection if provided between the operating link for the vacuum interrupter unit and a member secured to the movable operating rod of the vacuum-interrupter unit. This is released by camming at the end of the opening stroke to permit reclosure of the separable contacts of the vacuum interrupter unit by spring means.

The disconnecting gap may be provided with a plurality of contiguous insulating plates to provide a corrugated internal surface for a greater electrical creepage path across the series disconnecting gap in the open-circuit position of the interrupting device.

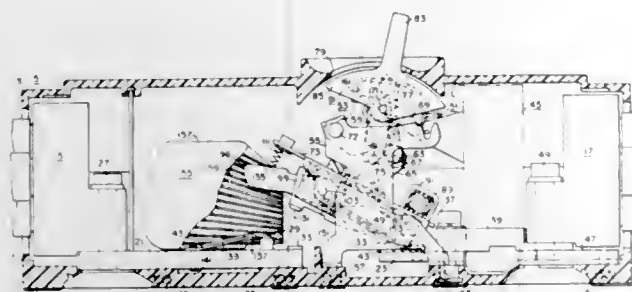
3,560,683

CIRCUIT BREAKER WITH IMPROVED CONTACT STRUCTURE

Alfred E. Maier, Beaver Falls, Pa., and Albert R. Cellerini, Beaver, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
 Filed Jan. 24, 1968, Ser. No. 700,248
 Int. Cl. H01h 33/12

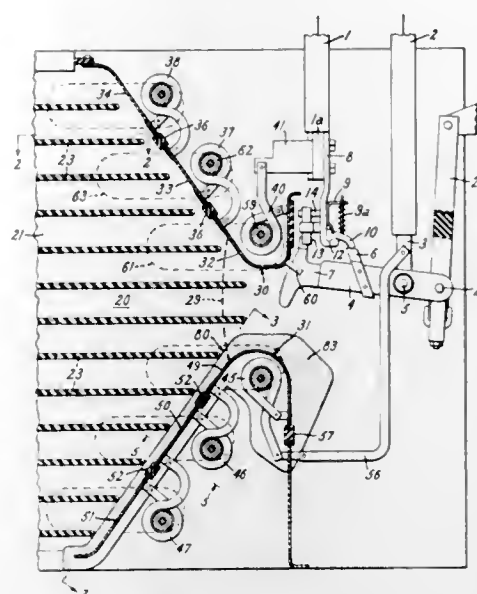
U.S. Cl. 200-146

25 Claims



A circuit breaker is provided with an improved contact structure of the type comprising a movable support and a contact arm movably supported on the support with current responsive magnetic means for providing contact pressure.

material under high humidity conditions. The face-plate surfaces adjacent an arc are shielded from the arc by a thermally-sprayed coating of refractory ceramic insulating material on said surfaces.



3,560,684

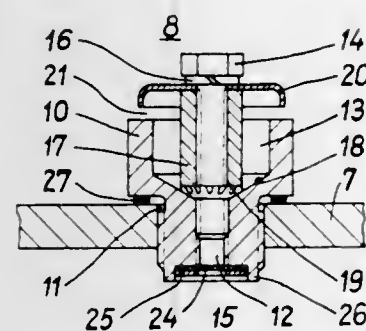
VENT FOR LIQUID CIRCUIT BREAKER

Furdoon Battiwala; Gunther Sinnecker; Stephan Boerger, and Gerd Pawlak, Berlin, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
 Filed June 14, 1968, Ser. No. 737,150
 Claims priority, application Germany, June 15, 1967, S110330

Int. Cl. H01h 33/68

U.S. Cl. 200-150

11 Claims



A liquid circuit breaker is equipped with an exhaust vent that has a part which is provided with a tapped bore for receiving a screw. The bore and screw form a helical passage for directing gas away from the circuit breaker while at the same time preventing discharge of the liquid.

3,560,685

ARC CHUTE FOR AN ELECTRIC CIRCUIT BREAKER
 Cecil Bailey, Woodlyn; Oscar C. Frederick, Springfield, and Joseph L. Talento, Media, Pa., assignors to General Electric Company, a corporation of New York
 Filed May 26, 1969, Ser. No. 827,583
 Int. Cl. H01h 9/30, 33/00

U.S. Cl. 200-144

7 Claims

Discloses an arc chute having spaced sidewalls of a first insulating material and arc runners having most of their active surfaces of a refractory metal. Between one of the runners and the sidewalls are two face plates of a second insulating material, such as glass-bonded mica, that is characterized by low gas evolution and greater surface resistivity than said first

An arrangement for securing an elongated resilient wire conductor to an insulating base having integral guide means associated therewith.

3,560,687

CROSS-STRING TELEPHONE EMPLOYING PUSHBUTTONS

Josef Hofer, and Guenter Haage, Wien, Austria, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Apr. 26, 1968, Ser. No. 724,574

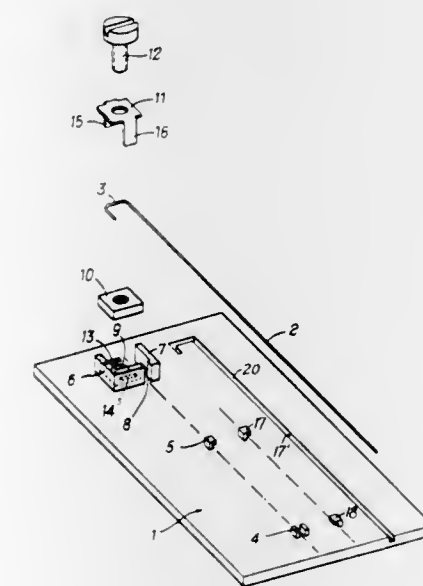
Claims priority, application Austria, Apr. 28, 1967, 4065/67

Int. Cl. H01h 3/12

U.S. Cl. 200-166

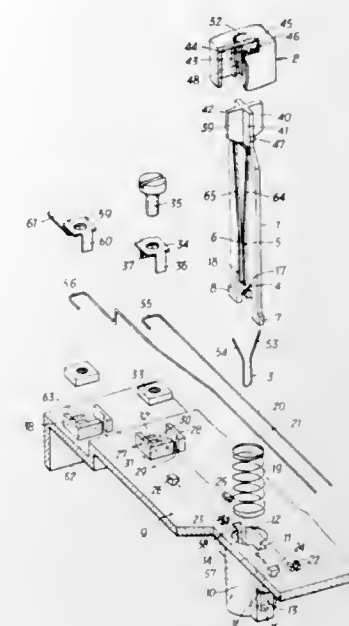
7 Claims

A pushbutton is provided for use with cross-string conductors supported on a base plate. The elements of the pushbut-



ton are made so that they may be assembled and attached to the board without the use of separate fasteners. Contact is completed between cross-string conductors on the base plate

resilient supports on which the pushbutton member is mounted and urged into its normal extended position. The switch contacts are attached directly to a printed circuit board, as is a light bulb which is positioned inside the pushbutton member for illuminating such member. The light bulb



when a part of the push button, i.e., a V-shaped spring, touches them. The pushbutton incorporates a spring which biases it to a neutral position when it is not pressed against the conductors.

3,560,688

CONTACT MEANS FOR ELECTRIC CIRCUIT BREAKERS

Sven Bachler, Ludvika, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a Swedish Corporation

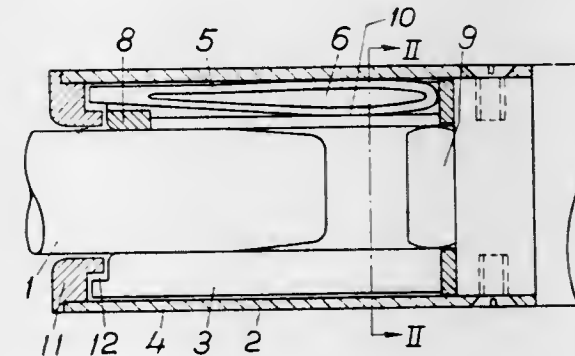
Filed May 12, 1969, Ser. No. 823,770

Claims priority, application Sweden, May 15, 1968, 6525/68

Int. Cl. H01h 1/44, 1/50

U.S. Cl. 200-166

8 Claims



A contact arrangement for circuit breakers includes a movable contact plug and a stationary sheath contact. In the sheath contact, a plurality of contact fingers are arranged in ring formation and are pressed against the contact plug by means of leaf springs punched out of sheet material. Each leaf spring is loosely inserted in a longitudinal groove in the associated contact finger in such a way that the spring action occurs in the plane of the spring.

3,560,689

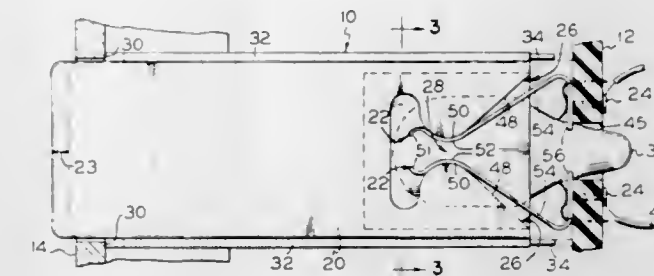
PUSHBUTTON SWITCH HAVING CAM ACTUATED SPRING CONTACTS ALSO ACTING AS RESILIENT SUPPORT FOR PUSHBUTTON

Arthur H. Matson, Portland, Oreg., assignor to Tektronix Inc., Beaverton, Oreg., a corporation of Oregon
 Filed Dec. 4, 1968, Ser. No. 781,024
 Int. Cl. H01h 9/18

U.S. Cl. 200-167

12 Claims

A pushbutton switch apparatus having cam actuated spring contacts is described in which such contacts also function as



is energized by the switch indirectly through a control circuit on the printed circuit board when the pushbutton is depressed to momentarily close the contacts of such switch and the control circuit causes such bulb to remain illuminated until another push button is depressed to change the conductive condition of such circuit.

3,560,690

ELECTRICAL SWITCH WITH LOWERED PANEL MOUNTING MEANS

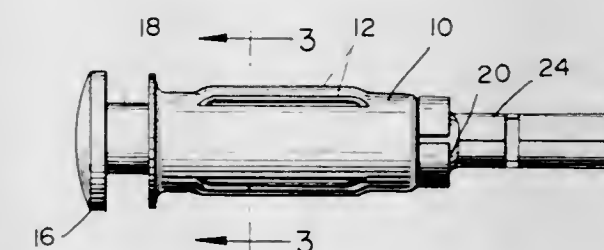
Edward J. Luce, Wayland, and Frederick J. Weremey, Milton, Mass., assignors to United-Carr Incorporated, Boston, Mass., a corporation of Delaware

Filed Dec. 18, 1968, Ser. No. 784,772

Int. Cl. G12b 9/10; H02b 1/04; H01h 9/08

U.S. Cl. 200-168

3 Claims



This is a door switch housing in which the body of the housing has either louvers or other movable parts which react under tension in an aperture to allow lateral movement of the housing while providing tight interference fit.

3,560,691

SWITCHES WITH SELECTION BY CO-ORDINATES

Pierre M. Lucas, 20 rue Turiel, Issy-Les-Moulineaux; Auguste A. Sautel, 13 rue Anatole France, Bonneuil-sur-Marne, and Serge M. Choupik, 1 rue des Fauvettes, 91 Ris-Orangis, France

Filed July 14, 1969, Ser. No. 841,518

Claims priority, application France, July 26, 1968, 160,690

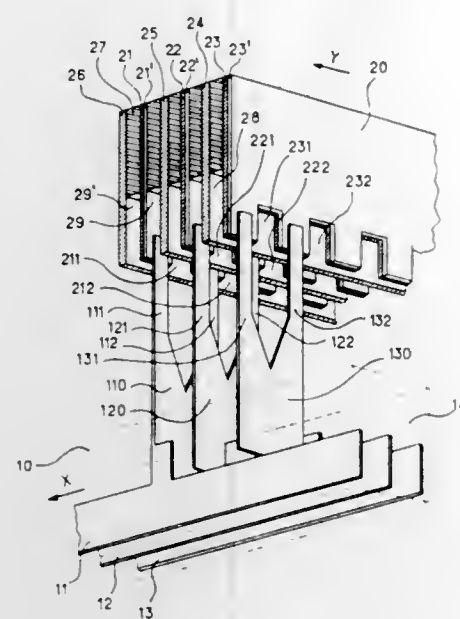
Int. Cl. H01h 67/26

U.S. Cl. 200-177

5 Claims

Crosspoint matrix for an electrical switch for selection by coordinates comprising a first set of conductive parallel bars located in a common plane and each carrying resilient forks and a second set of conductive parallel bars adapted to establish contact with said forks, this second set of bars being located in a plane spaced from the said common plane and parallel thereto. The bars of the second set have one conductive and one insulating surface against which the forks bear in make and idle positions respectively, with notches through the bars of the second set to allow the forks to pass through.

The bars of the second set also have unnotched insulating bars intercalated between them to define with them receiving



spaces comprised alternatively of two insulating surfaces and one insulating and one conducting surface.

3,560,692

INDUCTION-HEATING APPARATUS FOR COLD HEADER

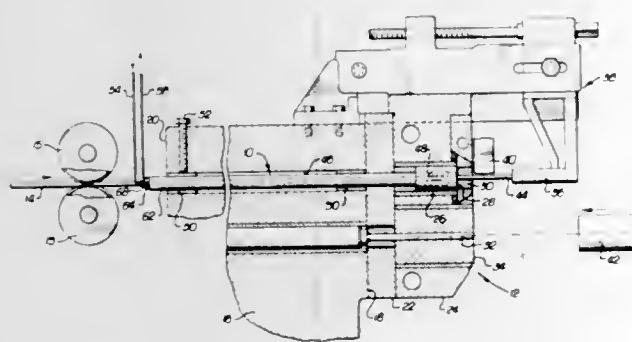
Franklin S. Briles, 6 Middleridge Road North, Rolling Hills, Calif. 90274

Filed Apr. 11, 1968, Ser. No. 720,698

Int. Cl. H05b 5/10

U.S. Cl. 219-7.5

3 Claims



An induction-heating unit of elongated tubular form for guiding rod or wire stock to a remote, generally inaccessible region and heating the stock when it reaches such remote location. The induction unit includes an elongated tubular body for carrying the high frequency induction current and guiding the rod or wire stock to a forward tubular induction head wherein the stock is heated as it passes therethrough, the body including a pair of concentric tubular conducting cases along which the respective induction heater conductors are affixed, the cases being separated by insulation material and the inner case having a tubular core of insulation material through which the stock is guided. This induction-heating unit has particular utility combined with a cold header for heating the stock within the cutoff quill to adapt a cold header for hot cutoff and heading.

3,560,693 MAGNETIC WELDING AND FORMING

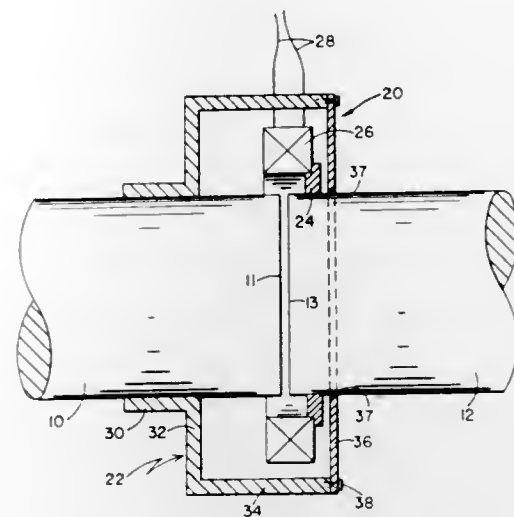
Theodore Joseph Morin, Jr., Needham, Mass., assignor to Industrial Magnetics, Inc., Canton, Mass., a corporation of Massachusetts

Filed June 17, 1968, Ser. No. 737,651

Int. Cl. B23k 13/00

U.S. Cl. 219-9.5

7 Claims



Apparatus for driving members toward each other with repulsive magnetic forces and including a magnetic driver, a magnetic coil and a connector secured to either the coil or driver and adapted to be secured to one of the members.

3,560,694 MICROWAVE APPLICATOR EMPLOYING FLAT MULTIMODE CAVITY FOR TREATING WEBS

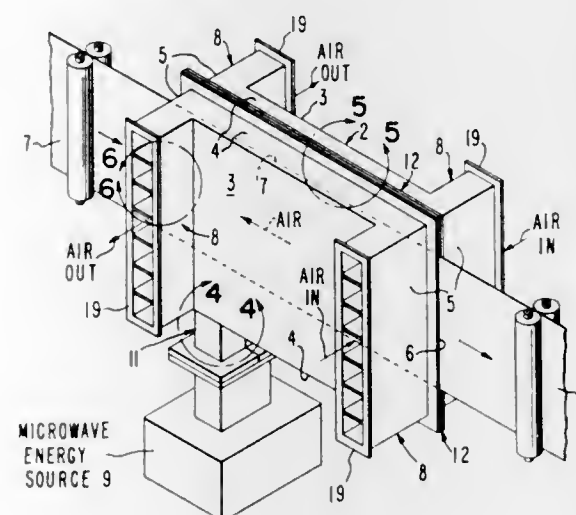
Jerome R. White, San Carlos, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California

Filed Jan. 21, 1969, Ser. No. 792,557

Int. Cl. H05b 9/06, 5/00

U.S. Cl. 219-10.55

8 Claims



A microwave applicator is disclosed. The applicator includes a flat multimode cavity having openings on opposite sides thereof for passing therethrough a web of material to be treated with microwave energy. The cavity is both designed and fed so as to be excited at its operating frequency only in those $TE_{l,m,n}$ and $TM_{l,m,n}$ classes of modes such that the value of l is limited to 1 and m or n or both have a value greater than zero (preferably both m and n have a range of values which includes 10) and such that the E-vector of the microwave energy lies generally in the plane of the treatment zone and has maximum intensity in the treatment zone. The flat multimode cavity resonator is fabricated in two half sections an upper half and a lower half which are joined together at their edges. A mode-damping means is provided for attenuating a certain undesired class of modes that could otherwise be supported within the cavity. Air ducts are pro-

vided at opposite ends of the resonator for directing air either parallel or antiparallel to the direction of movement of the web to be treated.

3,560,695 MICROWAVE APPLICATOR EMPLOYING A FLAT MULTIMODE CAVITY

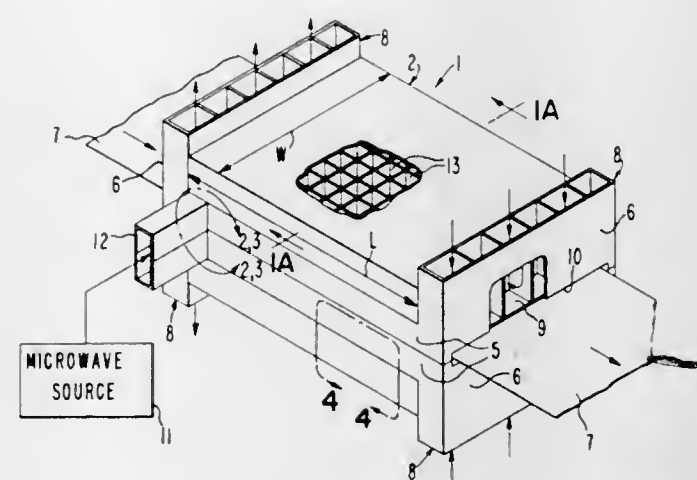
Norman H. Williams, San Francisco, and Jerome R. White, San Carlos, Calif., assignors to Varian Associates, Palo Alto, Calif., a corporation of California

Filed Feb. 17, 1969, Ser. No. 799,828

Int. Cl. H05b 9/06; H01p 1/16

U.S. Cl. 219-10.55

13 Claims



A microwave applicator is disclosed which is especially useful for treating thin films of dielectric material. The microwave applicator includes a flat multimode cavity having a pair of parallel broad walls closed on their sides by narrow sidewalls. The cavity is preferably excited in one of the $TE_{m,n}$ and/or $TM_{l,m,n}$ classes of modes, where l is 1, with an electric field vector of the excited classes of modes being generally parallel to the broad walls and of relatively high intensity in the midplane of the cavity. The cavity is reactively loaded with periodic elements for concentrating the frequencies of the aforementioned classes of modes near the frequency of operation to facilitate mode-stirring and to improve the time average impedance match to the cavity during mode stirring.

3,560,696 DEVICE FOR ORBITAL WELDING OF BUTT JOINTS OF PIPES

Vladimir Ivanovich Grinenko, Ulitsa Inzhenernaya, 10, Korpus 1, Kv. 10; Viktor Viktorovich Shefel, Vyatskaya Ulitsa, 1, Kv. 86; Viktor Petrovich Rybkin, Ulitsa Standartnaya, 3, Kv. 3, and Vladimir Petrovich Bogachev, Ulitsa Fonvizina, 14, Kv. 40, Moscow, U.S.S.R.

Filed June 20, 1968, Ser. No. 738,682

Claims priority, application U.S.S.R., June 26, 1967,

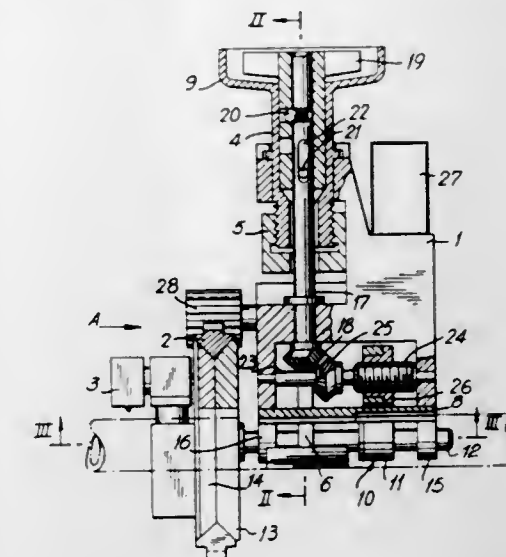
1,166,263

Int. Cl. B23k 9/02

U.S. Cl. 219-60

3 Claims

A device for the orbital welding of butt joints of pipes. The device comprises a body adapted for being removably secured on one of the pipes being welded. Guides are provided which extend in longitudinal direction in the body. The pipe is arranged along the guides. A slide block is mounted on the guides so that displacement of the slide block along the pipe axis can be effected. A drive is mounted on the stationary body and is adapted to displace the slide block on the



faceplate is mounted in the circular guides and supports a torch which orbits around the pipes at the butt joint thereof.

3,560,697 ADDING SPARK-COMMINUTED ZINC TO TOBACCO-SMOKE FILTERS

Thomas William Charles Tolman, Southampton, England, assignor to Brown and Williamson Tobacco Corporation, Louisville, Ky., a corporation of Delaware

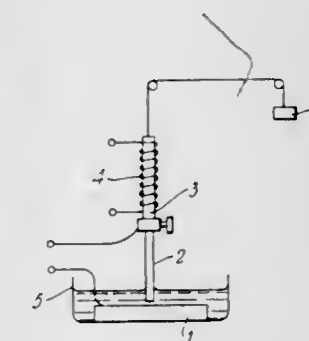
Filed Aug. 6, 1968, Ser. No. 750,656

Claims priority, application Great Britain, Aug. 9, 1967, 36520/67

Int. Cl. B23p 1/08; A24f 25/00

U.S. Cl. 219-69

7 Claims



The invention concerns a method and apparatus for improving the filtration properties of fibrous, filamentary and sheet tobacco smoke filtering material. The method consists in treating the said material with a finely divided zinc-containing powder produced by a high-energy comminution process carried out under water. The powder is advantageously a powder produced by electric-spark erosion action between two zinc electrodes submerged in water.

3,560,698 ADJUSTABLE WELDING HEAD ARRANGED TO FOLLOW A LAPPED SEAM

Ronald E. Taylor, Tandridge, and Joseph Manuel Tanenbaum, 4 Dewborune Ave., Toronto, 10 Ontario, Canada

Filed Jan. 27, 1969, Ser. No. 794,108

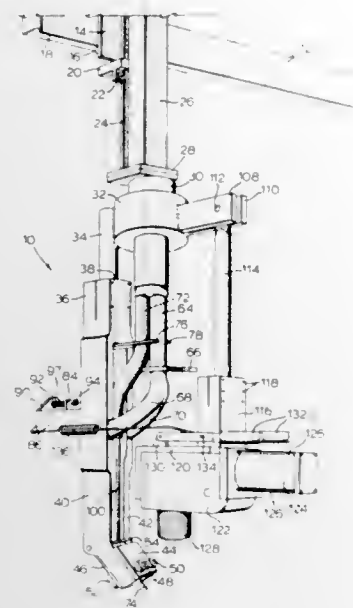
Int. Cl. B23k 9/12

U.S. Cl. 219-125

7 Claims

A welding head assembly has a pair of rigidly connected, bifurcated, open-ended tubes with rollers which bear against one side of a plate projecting from the base plate to which it

is to be welded. A weld wire emerges between the ends of the bifurcated tubes which carry a supply of flux to surround the tip of the weld wire. The assembly also has a downwardly de-



pending arm which has a drive wheel. The arm is pivotably biased so that the drive wheel bears against the other side of the plate with the result that the drive wheel propels the welding head assembly.

3,560,699

WELDING APPARATUS

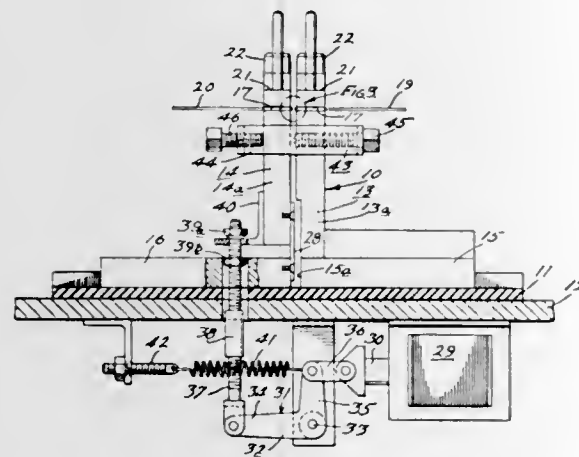
Walter J. Draving, Willow Grove; Robert C. Draving, Fort Washington; Alexander Patton, Jr., and Joseph E. Nerz, Philadelphia, Pa., assignors to Micro-Miniature Parts Corporation, Willow Grove, Pa., a corporation of Pennsylvania

Filed Sept. 29, 1967, Ser. No. 671,776

Int. Cl. B23k 11/02

U.S. Cl. 219-103

12 Claims



This patent application discloses special apparatus for effecting a butt weld between small workpieces such as wire. The apparatus disclosed includes holders for the workpieces, at least one of which is pivoted for bringing the workpieces together and useful in conjunction with a novel welding pack disclosed herein and claimed in the copending patent application Ser. No. 671,798, filed Sept. 9, 1967 simultaneously herewith, which welding pack utilizes a secondary capacitor to shunt the holders when the holders are coupled to a direct current power source.

3,560,700
ELECTRON BEAM WELDING OF TWO DISSIMILAR METALS

Werner Andreas Reidelsturz, Staffort; Dieter Rodrian, Karlsruhe, and Willy Franz Edmund Scheibe, Leopoldshafen, Germany, assignors to Gesellschaft Fur Kernforschung MBH, Weberstrasse, Germany, a corporation of Germany

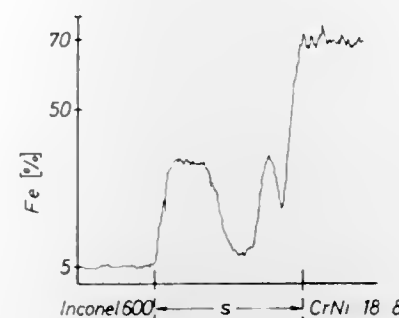
Filed July 17, 1968, Ser. No. 745,576

Claims priority, application Germany, July 18, 1967, P 16 15 280.0

Int. Cl. B23k 15/00

U.S. Cl. 219-121

2 Claims



In the welding of two metals which are substantially dissimilar with respect to at least one pure metal component such that in normal practice a zone of embrittlement occurs in the weld, a ductile weld is obtained by means of an electron beam applied along a line closely adjacent but spaced from the center line of the weld with the energy input of the electron beam being controlled so that the concentration of the pure metal component in the finished weld remains substantially constant across the width of the weld except for a very fine zone of transition at the edge of the weld wherein it changes to equal the concentration of that component in one of the two metals.

3,560,701

DEVICE FOR WELDING TUBES TO PLATES

Siegfried Hahne, Grafschafterstr., Germany (Messer Griesheim GmbH Frankfurt am Main Hanauer Landstr. 300 Germany)

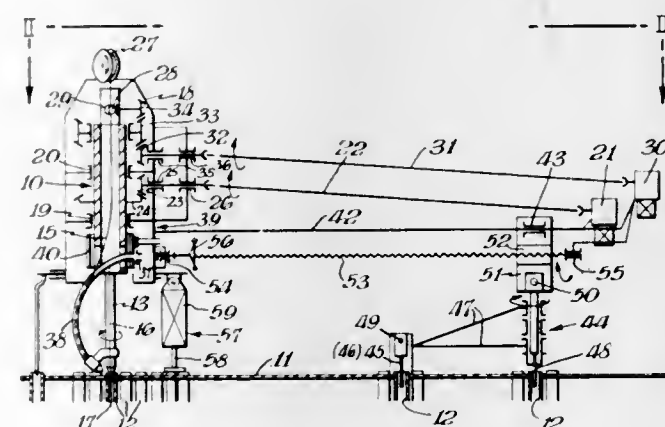
Filed Sept. 10, 1968, Ser. No. 769,449

Claims priority, application Germany, Oct. 14, 1967, 75,887

Int. Cl. B23k 9/12

U.S. Cl. 219-125

12 Claims



A device for the automatic welding of tubes or the like to plates or the like includes a welding unit and a holding unit connected together by a crossbar. The device is characterized by having the holding unit supported on the work piece per se.

3,560,702
COMPOSITE ELECTRODE FOR CONSUMABLE ELECTRODE ARC WELDING PROCESS

Masayasu Arikawa; Motomi Kano, Fujisawa-shi, and Sho Horiuchi, Kamakura-shi, Japan, assignors to Kobe Steel Ltd., Hyogo-ken, Japan, a corporation of Japan

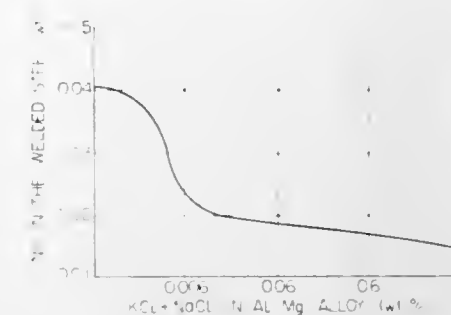
Filed Feb. 24, 1969, Ser. No. 801,690

Claims priority, application Japan, Mar. 2, 1968, 43/13520

Int. Cl. B23k 35/22

U.S. Cl. 219-146

6 Claims



A consumable composite electrode of infinite length for use in an automatic arc-welding of steel without shielding gas and the like shielding means comprising a steel sheath and a powdery mixture filled within the sheath and having a specific composition which contributes to the arc-welding of the steel workpiece.

3,560,703

HAIR CURLING APPARATUS

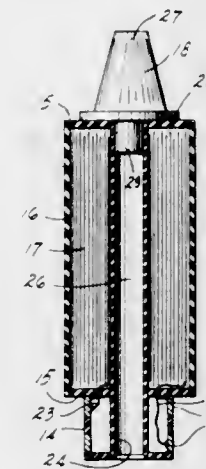
Conkling Chedister, 11 Mountinside Drive, Morris Township, Morris County, N.J. 07960

Filed Jan. 15, 1968, Ser. No. 697,809

Int. Cl. A45d 2/36; H05b 1/02

U.S. Cl. 219-222

12 Claims



A new and improved preheated curler having a unique heating means incorporated therein. The curler includes an insulating jacket having an internal insulating sleeve extending axially therealong with the heating means encapsulated therebetween, wherein the heating means comprises the greatest mass of the curler. The curler is inserted into an energizing unit having thermostatic control means which engages the sleeve and limits the curler temperature to a predetermined value. The curler is rapidly heated to the predetermined temperature which can be a relatively high temperature and, since the heating means is contained within an insulating jacket, it may be applied to the hair before becoming warm to the touch. The curler also retains and provides heat for a relatively long period of time.

3,560,704

ELECTRICALLY HEATED HAIR CURLER

John R. Albert, 8425 Cherakee Lane, Leawood, Kans. 66206

Continuation-in-part of application Ser. No. 782,214, Dec. 9, 1968, now abandoned. This application Apr. 2, 1969, Ser. No. 812,610

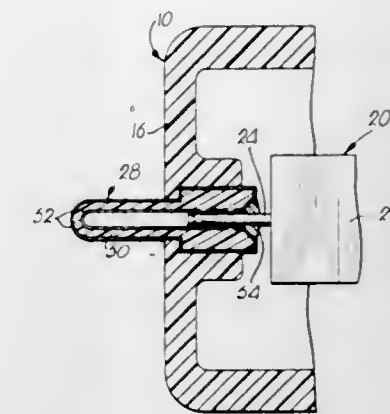
Int. Cl. A45d 2/36, 4/12; H05b 1/00

U.S. Cl. 219-222

3 Claims

Tubular hair curlers containing electric heating elements with capped terminals are heated on a support having con-

ductor bars across which the curlers are laid. A series of curlers are heated simultaneously to about 170° F. in 6 to 7 minutes, the heat loss being only about 1° F. per minute while the curlers are in the hair. The caps are made to con-



3,560,705

CIGARETTE LIGHTER FOR DOMESTIC APPLIANCES

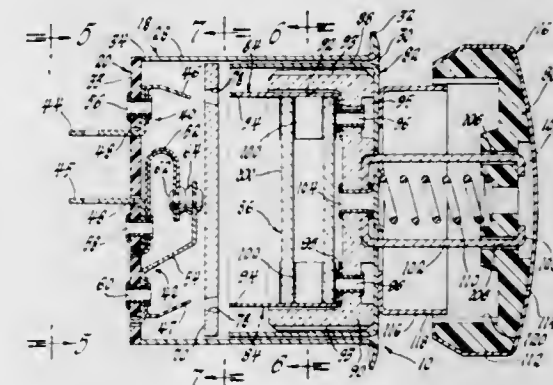
Charles A. Mendenhall, Rochester, N.Y., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 25, 1969, Ser. No. 852,687

Int. Cl. F23g 7/14

U.S. Cl. 219-265

5 Claims



A cigarette lighter for use in a domestic appliance includes a receptacle having a contact assembly mounted at one end and an igniting plug slidably received in the other end, the igniting plug including a hollow rectangular heating element which is electrically connected to a pair of downwardly projecting contacts. A ceramic shield disposed within the receptacle isolates the contact assembly from manual contact and includes apertures through which the terminals extend into engagement with the contact assembly for energizing the heating element. The contact assembly further includes a bimetal thermostat that is responsive to radiant energy and operative to open the igniting circuit to the heating element under predetermined operating conditions as sensed through slots formed in the insulating shield.

3,560,706

ELECTRIC FLUID HEATER AND FLOW RESPONSIVE SWITCH THEREFOR

Eduardo J. A. Fonseca, Avenida Trapiche, Quinta Ofelia LaFloresta, Caracas, Venezuela

Filed Dec. 5, 1966, Ser. No. 599,222

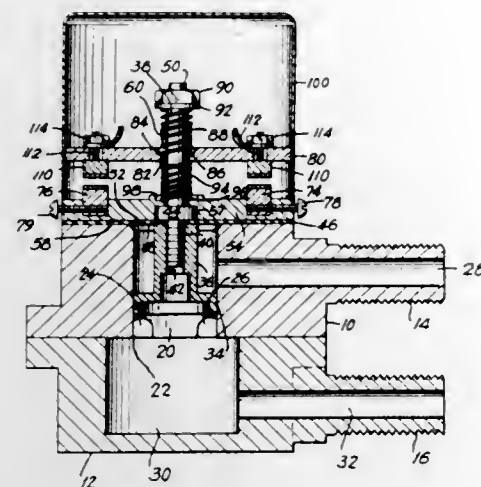
Int. Cl. H01h 35/40; F24h 1/20; H01b 1/02

U.S. Cl. 219-309

2 Claims

A hydraulic switch which functions upon change of hydraulic pressure which is created when a fluid enters the device or when a fluid is retained within said device. On the opening of a faucet situated on an outlet pipe of the device, the internal pressure reduces, thus allowing a piston to move.

Electrical contacts connected to said piston are displaced therewith for contact with fixed electrical contacts, thus closing a circuit and allowing application of electric power to a mechanism to be operated, e.g. a water heater, motor,



generator, engines, compressors, etc. A shaft is attached to the piston and is axially biased by springs to normally hold the electrical contacts in spaced relation. When the piston is displaced, the springs are stressed.

3,560,707 HEATING RODS

Erwin Kolfertz, Turnerstrasse 22, Solingen-Merscheid, Germany

Filed May 15, 1969, Ser. No. 824,910

Claims priority, application Germany, July 25, 1968, P 17 65 842.3

Int. Cl. H05b 1/00

U.S. Cl. 219—316

4 Claims



The invention is concerned with heating rods which are arranged to be suspended in and to heat the water in an aquarium, the rods consisting of a heating coil embedded in an insulating material within an outer protected glass tube. According to the invention the lower end of the glass tube is open and is sealed by a stopper within a protected cap which acts to cushion impact between the lower end of the glass tube and an aquarium wall.

3,560,708 HEATER COIL SUPPORT FOR ELECTRIC CLOTHES DRYERS

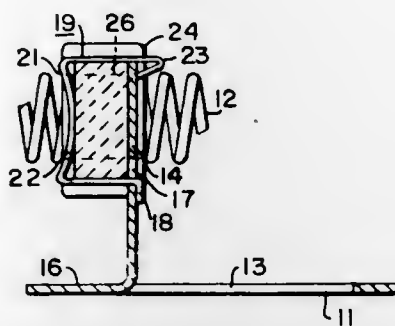
Clyde C. Fox, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed May 9, 1969, Ser. No. 823,369

Int. Cl. H05b 1/00, 3/06

U.S. Cl. 219—357

5 Claims



The invention provides a heater support structure for a clothes dryer. The support structure is characterized by the utilization of lanced-out tabs, in the heater reflector pan, as an integral part of support structure for insulators which support the heater coil.

3,560,709

ELECTRICAL FURNACE FOR HEATING A METALLIC SLEEVE

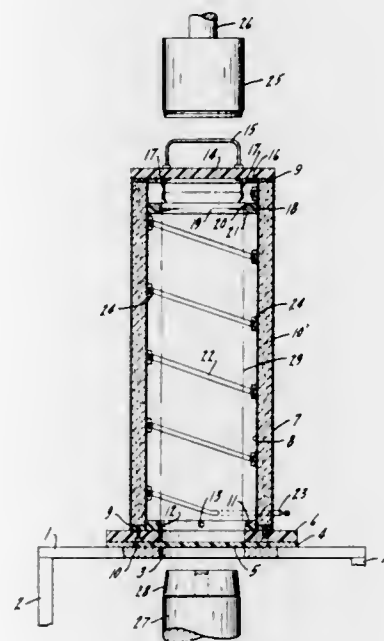
William T. Crane, Geneva; Kenneth L. Landmark, St. Charles, and Paul A. Rosene, South Elgin, Ill., assignors to Burgess-Norton Mfg., Co., Geneva, Ill., a corporation of Illinois

Filed Oct. 4, 1968, Ser. No. 765,104

Int. Cl. F27d 11/02

U.S. Cl. 219—406

8 Claims



An assembly for heat shrinking a metal sleeve or tube upon a metal arbor. The assembly comprises an electrically heated oven or furnace and means for retaining a tube or sleeve in the oven during heating. The total assembly also includes means for moving the heated tube onto an arbor upon which it is to be shrunk into final position.

3,560,710 ELECTRICALLY HEATED HOT-AIR DISPENSER

Walter Fuehlmann, Rorschach, Switzerland, assignor to Walter Robert Ditzler, Dornach, Switzerland, a firm of Switzerland

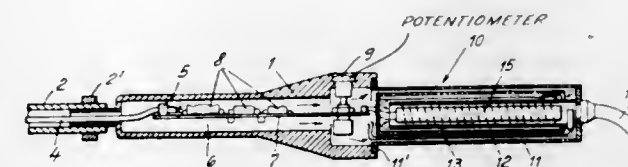
Filed Jan. 18, 1968, Ser. No. 698,763

Claims priority, application Switzerland, Jan. 20, 1967, 971/67

Int. Cl. H05b 1/02; F24h 3/04

U.S. Cl. 219—373

3 Claims



A hot-air dispenser having an elongated handle at one end of which an electric power-supply cable and a compressed-air tube are connected so that the inflowing air passes around the circuit elements and temperature-control potentiometer contained in the handle. At the other end of the handle, a series of coaxial tubes are provided, the innermost of which contains a resistive heating element and communicates with the outlet nozzle at the forward end of the heating assembly. The compressed air passes back and forth through the spaces between the tubes and from the outermost chamber inwardly. A bimetallic switch is cooled by the flow of compressed air but heats in the absence of airflow to cut off the resistive heating element when air supply is interrupted.

3,560,711

OVEN CONTROL SYSTEM AND PARTS THEREFOR OR THE LIKE

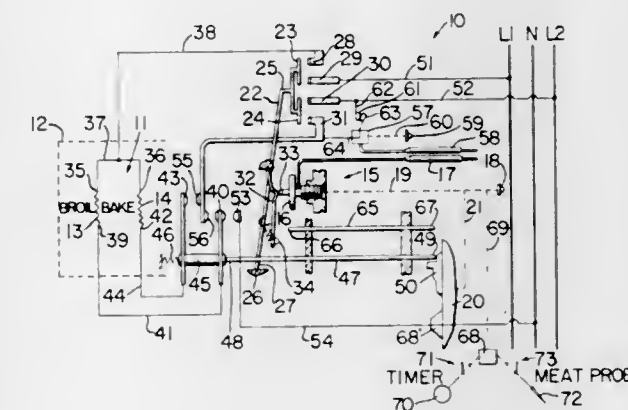
Siegfried E. Manecke, Indiana, Pa., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware

Filed Jan. 13, 1966, Ser. No. 520,421

Int. Cl. F27d 11/02

U.S. Cl. 219—413

11 Claims



An oven control system wherein a first control means is adapted to interconnect a source of high input energy to the heating means of the oven to produce a first temperature effect of the heating means in the oven and a second control means is adapted to interconnect a source of low input energy to the heating means to produce a second temperature effect of the heating means when the first control means has been moved to a "keep warm" position whereby the low input energy maintains the oven at a noncooking and warmth retaining temperature within a narrow temperature differential range.

3,560,712

STRESS-RELIEVING APPARATUS

George G. Toohill, c/o G & G Company, P.O. Box 1477, Huntington Beach, Calif. 92647

Filed May 19, 1969, Ser. No. 825,653

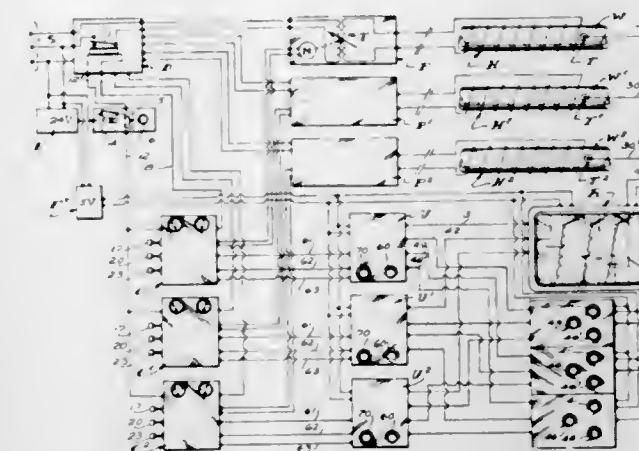
Int. Cl. H05b 1/02

U.S. Cl. 219—483

3 Claims

Apparatus for automatically controlling the flow of electric current to a plurality of electric heater units to selectively

control the rate at which structure related to each heater unit is heated; to maintain the structure to be heated at a predetermined maximum temperature for a predetermined period of time and to control the rate at which the structure is cooled, said apparatus including a variable power supply



unit for each heater unit, temperature sensing means related to the structure to be heated by each heater unit and control means between the power supply unit and the temperature sensing means including a manually adjustable timed programmer and recorder and adjustable means related to the power supply units and under the control of the timed programmer.

3,560,713

ELECTRICAL THERMAL CONTROL APPARATUS AND METHOD FOR CURING INSULATION ON A WINDING

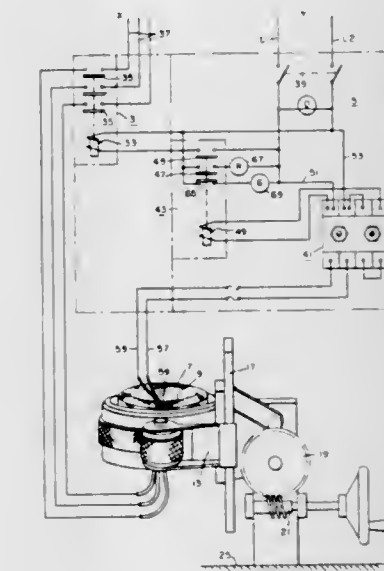
Junior Harold Troy, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 11, 1967, Ser. No. 689,462

Int. Cl. H05b 1/02

U.S. Cl. 219—491

6 Claims



Improved electrical control apparatus is provided for curing insulation on a winding. The apparatus comprises means for automatically energizing and deenergizing a winding to maintain the temperature of the winding within a predetermined temperature range in order to cure a heat curable resinous insulating composition on the winding.

3,560,714

ELECTRICALLY HEATED COFFEE POT

Bruce A. McDonald, 1016 Middle Ave., Apt. 3, Menlo Park, Calif. 94025

Filed Aug. 8, 1968, Ser. No. 751,206

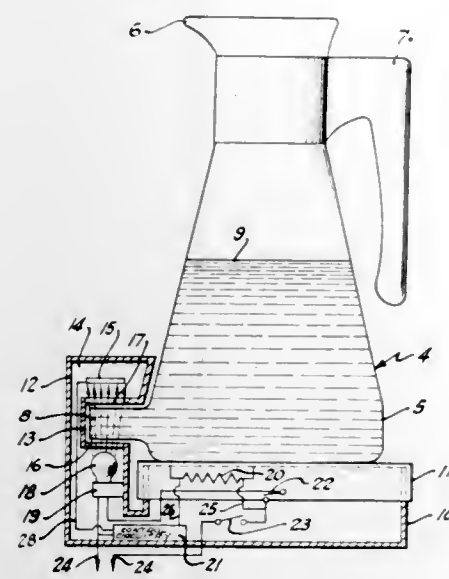
Int. Cl. H05b 1/02

U.S. Cl. 219—502

11 Claims

This invention relates to coffee pots; more particularly, to

a coffee pot that is heated by electricity; still more particularly, to an electrically heated coffee pot whose heat is con-



trolled by means of light passing through coffee as it is being made.

3,560,715

APPARATUS FOR CHANGING THE INFORMATION RECORDED ON CARDS

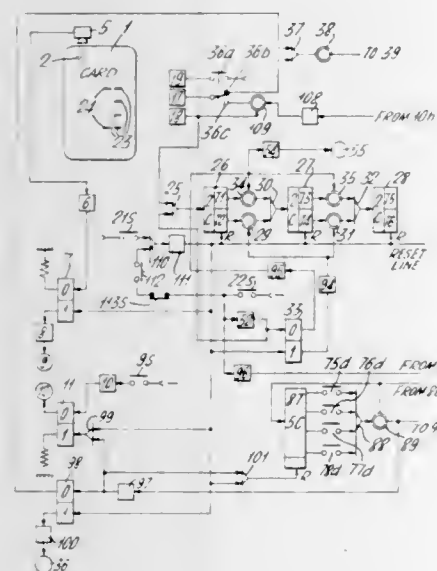
Hiroo Akamatsu, Osaka, and Masanori Nagata, Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan, a company of Japan

Filed May 29, 1967, Ser. No. 641,916

Int. Cl. G06k 5/02

U.S. Cl. 235-61.8

9 Claims

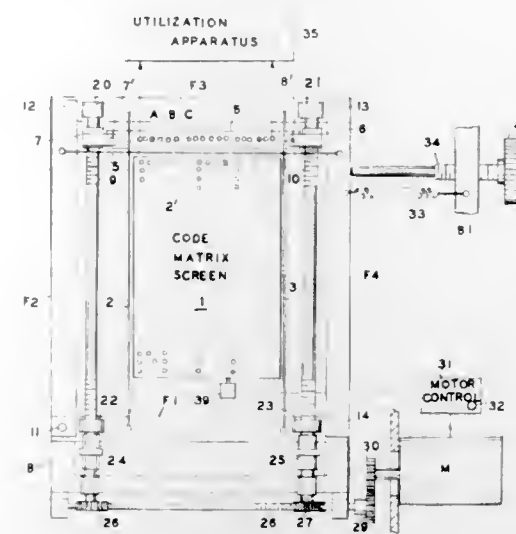


An apparatus for changing the information recorded on cards and especially the monetary value given to cards used in place of coins and/or bills in automatic vending machines and the like. The monetary value of a card as represented by code markings thereon is first read and memorized. Upon selection of an article the monetary value assigned thereto is subtracted from the memorized value read from the card. The result of the subtraction is recorded on the card for future use in place of the original monetary value recorded on the card. Dispensing of articles having a value greater than the memorized value is prevented. System and detailed circuit diagrams are provided.

3,560,716
CODE MATRIX READER FOR FILM
Robert E. White, Westbury, N.Y., assignor to OPTOMECHANISMS, INC., Plainview, N.Y.
Filed Apr. 21, 1967, Ser. No. 638,176
Int. Cl. G06k 1/10

U.S. Cl. 235-61.11

6 Claims



A reader for a digital code matrix carried on a film having a scanning bar with a plurality of photo detectors is mounted on a frame. The frame is rectangular in shape and pivotally connected on each corner so that it can assume the shape of a parallelogram. This is necessary since the code matrix is quite often photographically deposited on the film when it is moving or not flat so that rectangular code pattern is skewed. The scanning bar is motor driven. The photo detectors are connected to suitable utilization apparatus. A variant of this arrangement uses sensors which are fixed and the image is moved over the sensors.

3,560,717

DOCUMENT TRANSPORTING

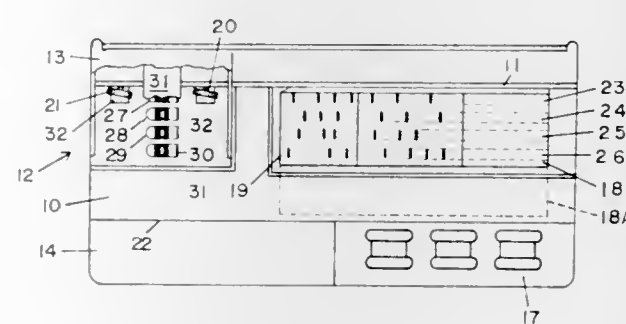
Harvey G. Patterson, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Nov. 13, 1967, Ser. No. 682,042

Int. Cl. G06k 13/07, 17/00

U.S. Cl. 235-61.11

8 Claims

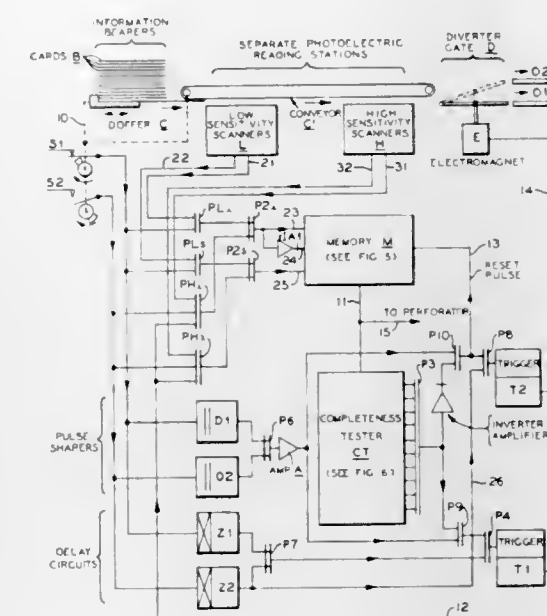


A cantilevered document-processing station is disposed over a document transport table. A document of any width is selectively transported under the cantilevered station for processing information with respect to the document. Canted drive rollers in the document-processing station move the document through the station and against a guide rail. A plurality of resilient document-holding fingers in the station have a dark color and a slit for improving the detecting resolution of the processing station in reading marks on the document.

3,560,718
MARKED GRID READING AND TESTING DEVICE
Arie Adriaan Spanjersberg, Leiderdorp, Netherlands, assignor to De Staat Der Nederlanden, Ten Deze Vertegenwoordigd Door de Directeur-Generaal Der Posterijen Telegrafie En Telefon, Hague, Netherlands
Continuation-in-part of application Ser. No. 420,990, Dec. 24, 1964, now abandoned. This application Dec. 10, 1968, Ser. No. 782,648
Int. Cl. G06k 7/00

U.S. Cl. 235-61.11

10 Claims



A device for reading marked areas on a grid on an information bearer comprising means for moving the bearer past a first reading means having a low sensitivity reader, storing and testing the results read for completeness, and then moving the bearer past a second reading means with a high sensitivity reader, and, if the first read results were not complete, storing and testing the reread results for completeness. The circuit of the reader which controls the device includes AND- and OR-gates, and cam-operated sequence switches for the successive operation of the reading stations, to each of which switches are connected delay devices and pulse shapers for controlling a single shift-register type memory or storing device and the completeness tester. This tester in turn operates separate triggers for (a) blocking the operation of the second or high sensitivity reader when the information stored in the memory or storing device has been tested to be complete as a result of the information read from the first or low sensitivity reader, and for (b) diverting the movement of the information bearer when the second or high sensitivity reader still tests the reread information to be incomplete.

3,560,719

EDGE PUNCHCARD

Ernest A. Dahl, Jr., Wilmette, Ill., assignor to Business Efficiency Aids Inc., Skokie, Ill., a corporation of Illinois

Filed Feb. 5, 1968, Ser. No. 702,915

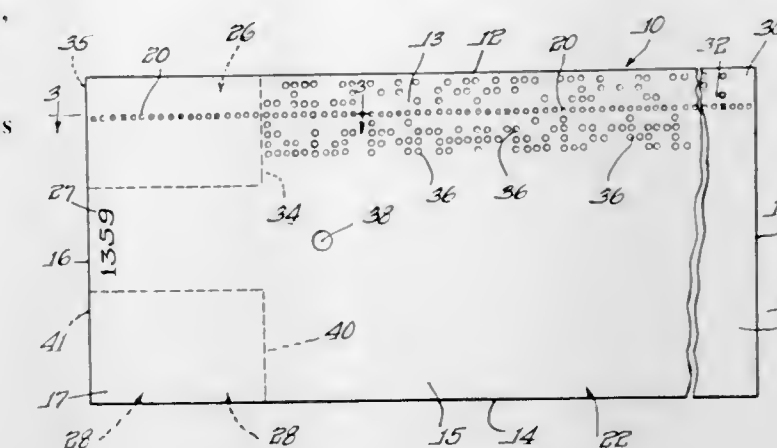
Int. Cl. G06k 19/02; B65h 3/16

U.S. Cl. 235-61.12

5 Claims

An edge punch coded card of double laminated construction including between the layers thereof, at the leading edge, magnetizable metal plate members. The plate members prevent feed track holes, punched therethrough to guide the card into a machine, as well as the leading edge of the card,

from becoming mutilated upon repeated entry into the machine. The plate members further serve to enable one to



magnetically separate a single card from a group of such cards.

3,560,720

ADD-SUBTRACT COUNTER

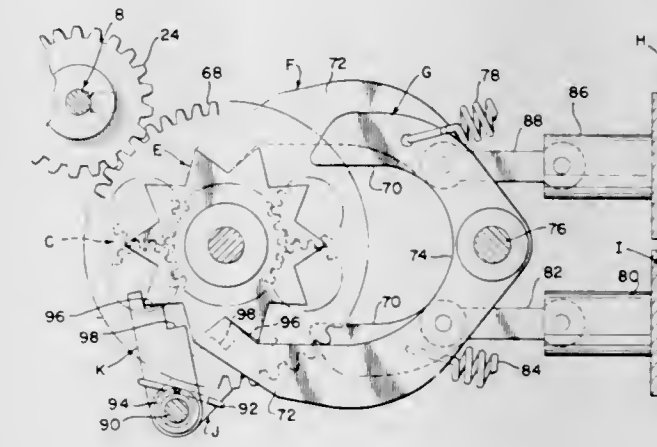
Gentiel M. Degryse, East Moline; Frederick E. Erickson, Port Byron, and Gary D. Fredell, East Moline, Ill., assignors to Gulf & Western Industries, N.Y., a corporation of Delaware, by mesne assignment

Filed Aug. 24, 1966, Ser. No. 574,707

Int. Cl. G06m 3/12

U.S. Cl. 235-92

4 Claims



An add-subtract counter for preventing miscounts which might occur when add and subtract pulses are applied slightly out of phase to the counter, including a stop member having a plurality of stopping surfaces, each surface engaging the ratchet wheel during a different portion of the pawl stroke.

3,560,721

REVERSIBLE COUNTER

Eldon D. Vaughn, Berkeley, Calif., assignor to American Optical Corporation, Southbridge, Mass., a corporation of Delaware, by mesne assignments

Filed Dec. 29, 1966, Ser. No. 605,675

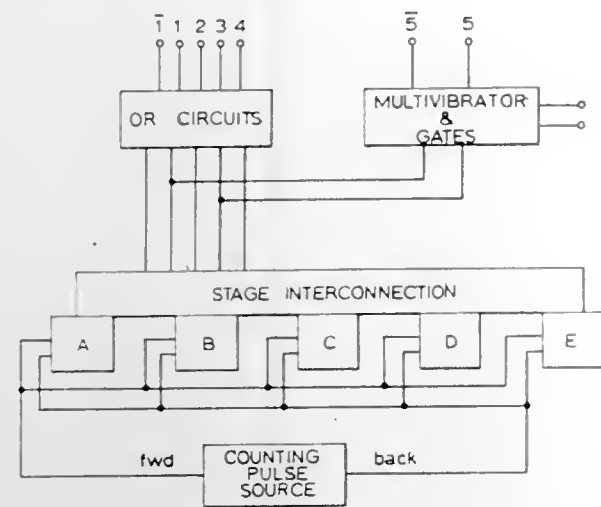
Int. Cl. G06m 3/14

U.S. Cl. 235-92

8 Claims

A plurality of $2n + 1$ counting devices with each having forward and backward pulse inputs and interconnected so that n devices conduct while $n + 1$ are nonconducting. The

output of one of the counting devices is connected to the input of each of two additional counting devices of a binary



stage and through a gate controlled by one of the binary stage devices as a count output.

3,560,722

APPARATUS FOR DETERMINING AND INDICATING A DIGITAL MEASURING RESULT

Hanspeter Kuepfer, Dietikon, Switzerland, assignor to Al-biswerk Zurich A.G., Zurich, Switzerland, a corporation of Switzerland

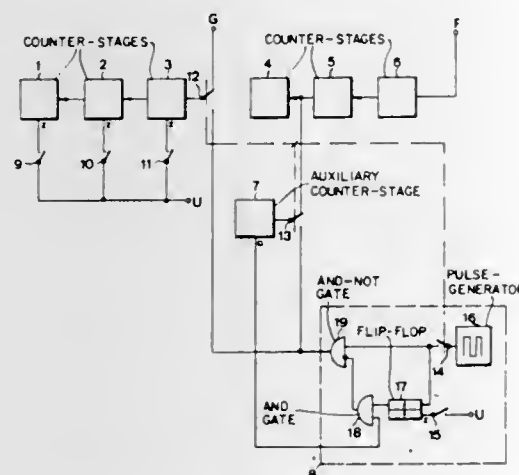
Filed Dec. 18, 1967, Ser. No. 691,615

Claims priority, application Switzerland, Jan. 19, 1967, 808/67

Int. Cl. G06m 3/08

U.S. Cl. 235-92

4 Claims



An apparatus for determining and indicating a final digital-measuring result or value obtained from a series of partial measurements. Each partial measurement can include more than one cipher or place and can be those obtained by coarse, fine, and very fine measurements. Further, one cipher or place of a coarser measurement overlaps a cipher or place of a finer measurement to thus be twice determined. The result obtained by a coarser measurement is accordingly corrected by that obtained by a finer measurement through the utilization of an auxiliary counting stage in the following manner. Initially, the coarser partial measurement storage means is preset to a value of -5 or -6 prior to measurement of the coarser value. The coarser value is then counted-in. The finer value is then counted into the finer partial measurement storage means with the value of the twice-determined or overlapping cipher or place of the finer partial measurement being also counted into the auxiliary counter stage. The difference between 10 and the value stored in the auxiliary counting stage is then fed into the coarser partial measurement storage means. In this manner, the second finest cipher or place in the coarser partial measurement storage means is corrected by normal counter transfer or carryover.

The value of the finest cipher or place in the coarser partial measurement storage means is not indicated.

3,560,723

DEVICE FOR GENERATING AN INSTRUCTION SIGNAL FOR USE IN AN AUTOMATIC DIGITAL READ-OUT APPARATUS

Shin-ichi Kamachi, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

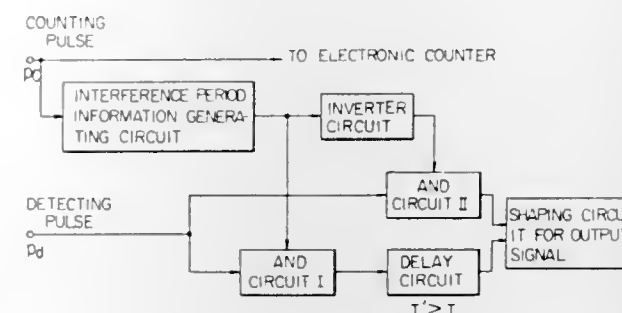
Filed Feb. 20, 1969, Ser. No. 800,935

Claims priority, application Japan, Mar. 1, 1968, 43/12870

Int. Cl. G06m 3/12; H03k 21/12

U.S. Cl. 235-92

3 Claims



Device for generating an instruction signal for demanding the digitally measured value of displacement to be transferred from the measuring station to the memory of an automatic digital readout apparatus. The measuring station generates a counting pulse successively each time the displacement reaches a measuring unit so as to be applied to the electronic counter of the automatic digital readout apparatus so that the digitally indicated measured value corresponding to the displacement is generated therein. A detecting pulse is generated when the displacement reaches the desired measuring point thereof, and this detecting pulse is applied to the electronic counter so as to permit the digitally indicated measured value provided therein at the measuring point of the displacement to be transferred to the memory whenever the interference period of the electronic counter elapses, in which interference period the electronic counter can not provide the correct digitally indicated measured value due to the counting operation therein.

3,560,724

OPTICAL CORRELATORS

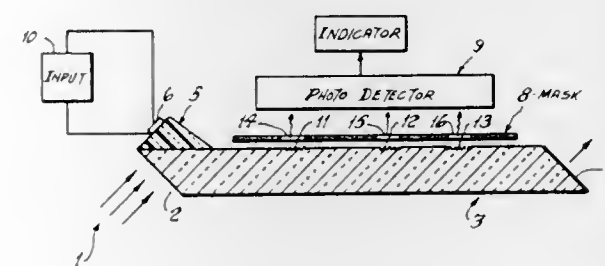
William J. Condell, Jr., Bethesda, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed Aug. 19, 1968, Ser. No. 753,371

Int. Cl. G06f 15/34; G06g 7/19; G02b 24/00

U.S. Cl. 235-181

2 Claims



In one type of optical correlator disclosed, a Raleigh surface wave coded in accordance with electrical signal information is propagated down a solid, light-conducting member and changes the boundary surface of this member so as to permit light which is normally being propagated therethrough in a substantially total internal reflected mode to emerge therefrom and impinge on a spaced correlation mask. If the coded surface wave and the mask codings are in agreement, a maximum amount of light will leave the solid member, pass through transparent sections of the mask and arrive at a photodetector.

3,560,725

BLEND OPTIMIZER COMPRISING AN ASSEMBLY OF VARIABLE FACTOR POTENTIOMETERS

William E. Claxton, Mogadore, and Harold C. Holden, Manchester, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Filed May 16, 1968, Ser. No. 729,601

Int. Cl. G06g 7/16

U.S. Cl. 235-193

9 Claims



A special purpose analogue computer designed for optimization of the ingredient levels of a rubber compound. The physical characteristics of a particular rubber blend may be closely approximated by a general empirical model equation expressed in second order terms of the ingredients. By analysis of raw experimental data relating to the physical characteristics of interest, a different set of influence coefficients for the general equation terms may be determined for each physical characteristic, whereby a number of special model equations are obtained. In the preferred embodiment of the invention an eight channel analogue system is provided for simultaneously evaluating eight special model equations, expressed in terms of five ingredients. The set of influence coefficients for the terms of each special model equation are scaled to values less than unity and are dialed upon a separate bank of potentiometers of the analogue computer. The desired values of the ingredients are set upon five variable factor dials which may be altered to simulate various combinations of ingredients. The analogue computer then instantly computes eight outputs which represent the values the eight physical characteristics would assume for the selected blend of ingredients. A four oscilloscope read out is provided utilizing the eight outputs and is programmed so that an ideal blend results in the convergence of the four oscilloscope beams toward the center of the readout array.

3,560,726

AC-DC FUNCTION GENERATORS USING STRAIGHT-LINE APPROXIMATION

Walter A. Platt, Fair Lawn, and Harold Moreines, Springfield, N.J., assignors to The Bendix Corporation, a corporation of Delaware

Filed Oct. 1, 1968, Ser. No. 764,246

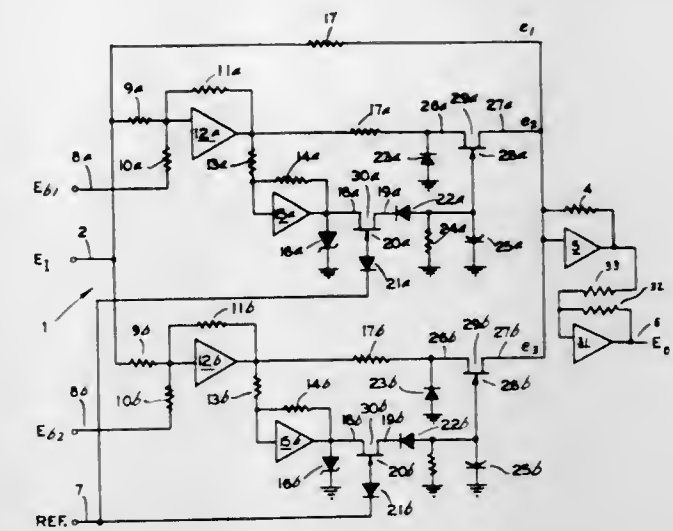
Int. Cl. G06g 7/28

U.S. Cl. 235-197

14 Claims

An electronic circuit, for generating an AC or DC output voltage, that is an approximation of a prescribed function of an input voltage. The prescribed function being approximated by adding straight line segments, each characterized by a gating point and a slope. The segments are generated by segment generators having high gain direct coupled opera-

tional amplifiers and field effect transistors for introducing the segments at the proper gating points and series gain re-



sistors to determine the slope of the segments. A summing amplifier adds the segments to form the prescribed function.

3,560,727

FUNCTION GENERATOR HAVING A MULTI-CHANNEL AMPLIFYING SYSTEM WITH EACH CHANNEL HAVING AN ADJUSTABLE SCOPE AND BREAK POINT

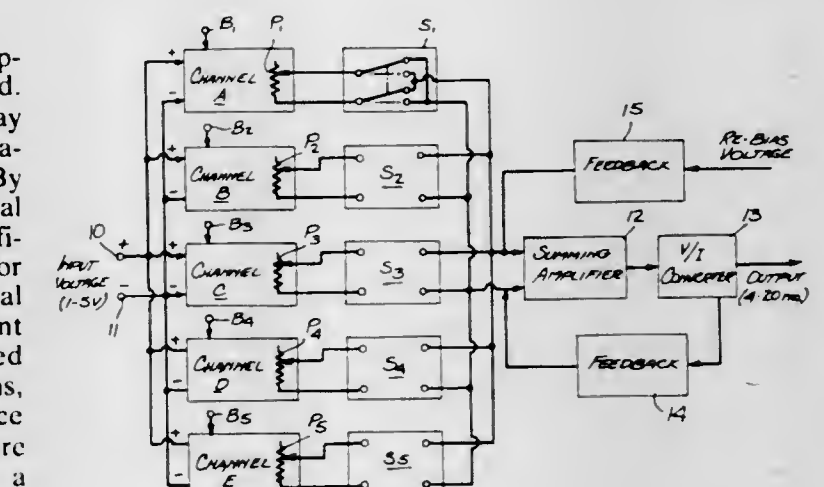
John E. Schussler, Trevose, Pa., assignor to Fischer & Porter Co., Warminster, Pa., a corporation of Pennsylvania

Filed Apr. 28, 1969, Ser. No. 819,810

Int. Cl. G06g 7/28

U.S. Cl. 235-197

6 Claims



A function generator for producing an output signal which varies as a prescribed mathematical function of an input signal. The generator comprises a bank of like amplifying channels whose inputs are connected in shunt relation, the input signal being applied concurrently to all channels. Each channel includes adjustable gain control means to vary the amplification slope thereof, and means to adjust the break-point thereof to vary the input level at which the channel is conductive. The output of each channel is fed through a separate polarity-reversing switch to a common summing amplifier whose output signal is functionally related to the input signal in accordance with the combined slopes of the amplifying channels as determined by their respective polarities.

3,560,728

FLOODLIGHT AND HEAT DISSIPATING DEVICE

Leonard Atkin, Springfield, N.J., assignor to Stonco Electric Products Company, Kenilworth, N.J., a corporation of New Jersey

Filed Mar. 23, 1967, Ser. No. 625,440

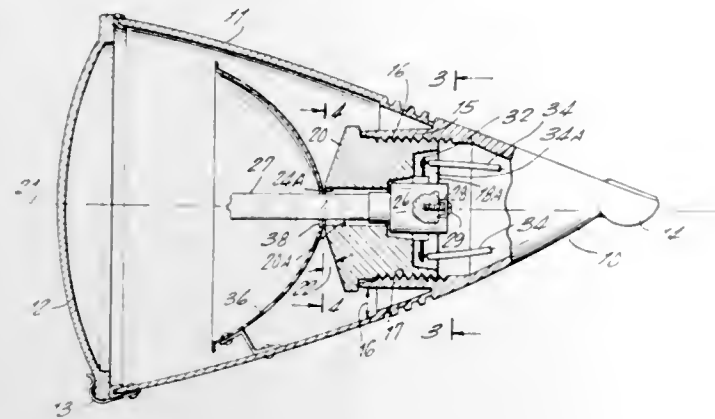
Int. Cl. F21p 5/00

U.S. Cl. 240-3

4 Claims

This invention is concerned with a floodlight assembly provided with an apparatus for dissipating heat from the vicinity

of a high wattage iodine quartz lamp enclosed therein; the floodlight housing being of relatively small dimensions in comparison to floodlight housings heretofore employed. The invention contemplates a mass of metal bored to receive a



high wattage iodine quartz lamp and provided with a shaped surface remote from the said lamp and means for dissipating heat from the vicinity of the said lamp by forming a heat dissipating mass adaptable to enclose the lamp without contacting it.

3,560,729 LIGHTING FIXTURE

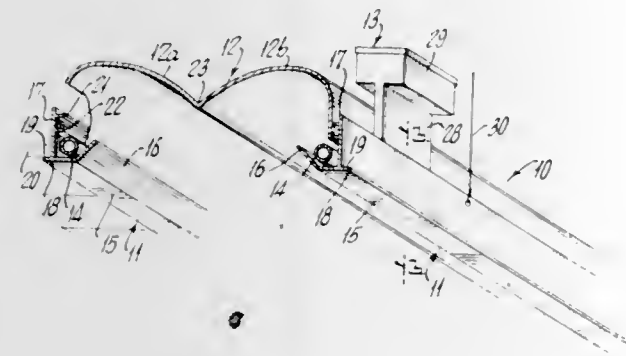
Milton Liberman, 65 Seawane Road, East Rockaway, N.Y.

Filed Feb. 18, 1969, Ser. No. 800,111

Int. Cl. F21s

U.S. Cl. 240—9

11 Claims



A lighting fixture for mounting within a ceiling recess including a pair of spaced elongated elements having recesses containing light sources disposed therein and shielded from direct view and light-reflecting means bridging said elements to reflect the light from the lighting means downwardly, the elements and reflectors being adapted to be placed in end-to-end relationship to form a lighting fixture of any desired length and the elements further include means for supporting adjacent ceiling elements when used in connection with hung ceilings and the reflectors may be integrated with air-conditioning means and auxiliary incandescent illumination.

3,560,730 ELECTRIC HAND LAMP

Harold Morton, Audenshaw, Manchester, England, assignor to Oldham & Son, Limited, Manchester, England, a corporation of Great Britain

Filed June 5, 1968, Ser. No. 734,803

Claims priority, application Great Britain, June 7, 1967, 26348/67

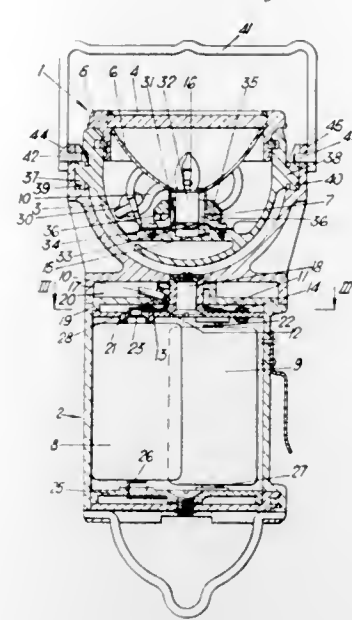
Int. Cl. F21l 9/00

U.S. Cl. 240—10.63

3 Claims

An electric handlamp comprises a headpiece which includes a shell housing a bulb holder and which is detachable from a battery housing to permit the headpiece to be used at

a position remote from the battery housing. To this end the bulb holder is connected with battery connections by a cable



which is contained in the battery housing in a manner such that it can be withdrawn from and drawn into the housing.

3,560,731 LUMINAIRE HOUSING

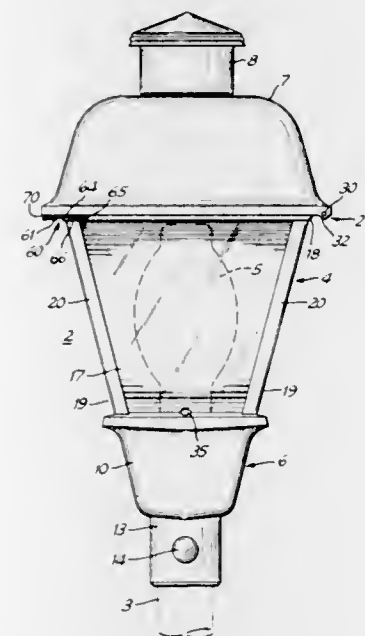
James R. Burton, Franklin, Wis., assignor to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware

Filed June 27, 1968, Ser. No. 740,618

Int. Cl. F21s 1/10; E05c 19/06

U.S. Cl. 240—11.2

5 Claims



A colonial styled outdoor post top luminaire assembly including a light source housing consisting of a bottom member, a cover and an intermediate light-transmitting portion. The light-transmitting portion comprises four light-transmitting panels removably mounted in a supporting frame to form a four-sided inverted frustopyramidal light-transmitting area. The cover is hingedly fastened to the frame and releasably fastened thereto by sliding resilient latch means.

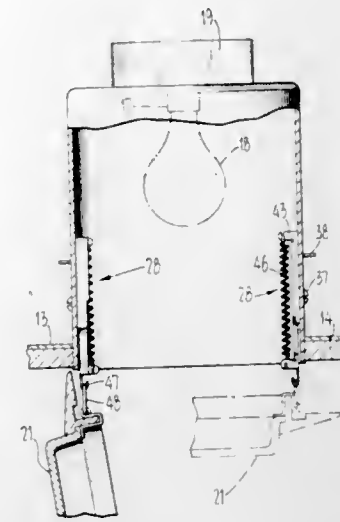
3,560,732 DIFFUSER MOUNTING ARRANGEMENT FOR LIGHTING FIXTURES

Frederic Lee Green, El Cerrito, Calif., assignor to U. S. Industries, Inc., New York, N.Y., a corporation of Delaware

Filed May 23, 1968, Ser. No. 731,603

Int. Cl. F21v 17/00

U.S. Cl. 240—147



A mounting arrangement for the diffuser of a recessed lighting fixture which enables the diffuser to be selectively securely retained in a normal position closing the open end of a light housing, and an actuated position outwardly spaced from the open end of the housing wherein access to the housing interior for servicing, or the like is facilitated. The arrangement is such as to continuously support the diffuser during movement between the normal and actuated positions and to positively lock the diffuser in the actuated as well as the normal position. Inadvertent return of the diffuser from actuated to normal position is thereby prevented.

3,560,733 TAKE-APART LAMP HARP

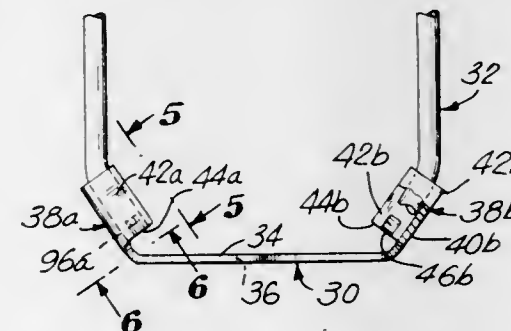
Herman Bergman, Searingtown, N.Y., assignor to Berger Industries, Inc., Maspeth, N.Y., a corporation of New York

Filed June 17, 1968, Ser. No. 737,674

Int. Cl. F21v 17/00

U.S. Cl. 240—148

10 Claims



A take-apart lamp harp to be mounted on a lamp for supporting a shade thereon. The lamp harp has components which can readily be connected together and disassembled from each other. The lamp harp consists only of a bracket and a resilient bail. The bracket has a base provided with a pair of facing upwardly extending channels which flare upwardly away from one another. The channels having their interiors directed toward each other with each channel having an outer base wall extending upwardly from the base and a pair of opposed sidewalls extending inwardly from the outer base wall and respectively terminating in bottom edges which are spaced from and directed toward the base. At least one of the sidewalls of each channel is formed at its inner surface with an inner groove extending upwardly from its bottom edge, having an open bottom end, and having distant from its open bottom end an upper closed end. The resilient bail terminates in a pair of opposed elongated free end portions which flare upwardly away from one another to match the

flare of the channels and are laterally movable into the channels. These free end portions of the bail are respectively provided with projections which are received in the grooves, entering into the latter through the open bottom ends thereof.

3,560,734 QUADRUPOLE MASS FILTER WITH FRINGING-FIELD PENETRATING STRUCTURE

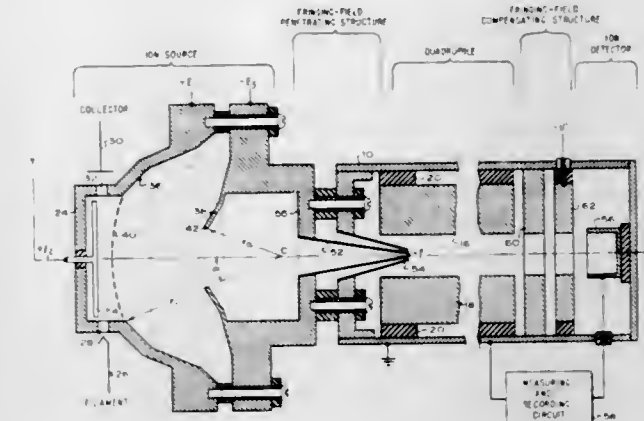
Edward F. Barnett, 15833 Stonebrook Ave., Los Altos Hills, Calif.; William S. W. Tandler, 562 Kendall Ave., and Wilson R. Turner, 753 La Para Ave., Palo Alto, Calif. 94306

Filed June 26, 1968, Ser. No. 740,243

Int. Cl. H01j 39/34

U.S. Cl. 250—41.9

13 Claims



An ion source positioned near the entrance of a quadrupole mass filter focuses a beam of positive ions at a point inside the quadrupole where the defocusing effect of the fringing field is substantially reduced. This beam of ions passes into the quadrupole through two concentric conical electrodes operated at different potentials and positioned with their larger ends outside the quadrupole near the ion source and their smaller ends inside the quadrupole near the focal point of the ion beam. An ion detector positioned near the exit of the quadrupole receives ions transmitted by the quadrupole. These ions pass through two concentric cylindrical electrodes operated at different potentials and positioned between the exit of the quadrupole and the ion detector.

3,560,735 FLOW RESPONSIVE DETECTOR FOR INFRARED GAS ANALYZERS

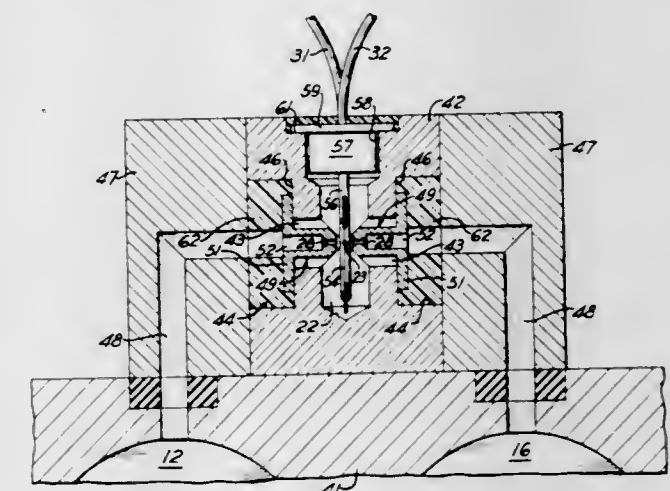
John P. Strange, Murrysville; Ray S. Freilino, and Earl M. Becker, Pittsburgh, Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 9, 1968, Ser. No. 766,194

Int. Cl. G01n 21/26, 21/34

U.S. Cl. 250—43.5

6 Claims



A flow responsive detector for use in an infrared gas analyzer includes a pair of gas chambers, at least one of

which is adapted to be irradiated by a pulsed beam of infrared energy to produce alternate heating and cooling, and concomitant expansion and contraction, of the gas therein when that gas contains a radiation absorbing component. A sensor responsive to gas flow in the form of a thermistor that has a negative temperature coefficient of resistance and a rate of change of resistance that varies inversely with temperature is mounted in a flow chamber, which is connected by a separate passage with each gas chamber. Where these passages enter the flow chamber, they are provided with jet orifices for directing a high velocity stream or jet flow of gas on the sensor in response to the expansion and contraction of gas in at least one of the gas chambers, thereby greatly enhancing the favorable nonlinear response characteristics of the sensor.

3,560,736

NON-DISPERSIVE INFRARED GAS ANALYZER WITH UNBALANCED OPERATION

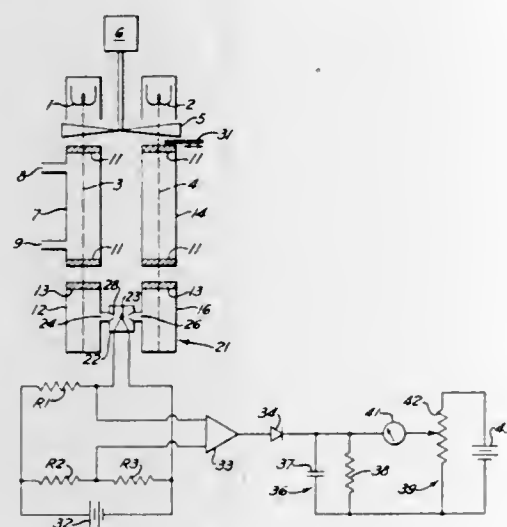
Adrian C. Billetdeaux, Pittsburgh, and John P. Strange, Murrysville, Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 9, 1968, Ser. No. 766,226

Int. Cl. G01n 21/26, 21/34

U.S. Cl. 250-43.5

6 Claims



Separate pulsed sample and reference beams of infrared energy are passed, respectively, through sample and reference gases to separate chambers in a detector unit for measuring the absorption of the sample beam by a component of interest in the sample gas. In the detector unit, the relative absorption of the two beams is measured by a flow responsive sensor in a passage connecting the two chambers, the sensor having a rate of change of resistance that varies inversely with temperature. By substantially unbalancing the two beams, in the absence of a component of interest in the sample gas, so that the sample beam is the stronger before the beams enter the detector unit, the sensitivity of the instrument is greatly increased because of the nonlinear response of the sensor. The greater the initial unbalance, the greater the sensitivity. In the extreme case, the unbalance amounts to complete suppression of the reference beam, so that the analyzer becomes a single beam instrument.

3,560,737

COMBUSTION PRODUCTS DETECTOR USING A RADIOACTIVE SOURCE AND DETECTOR

John D. Skildum, St. Paul, Minn., assignor to Honeywell, Inc., Minneapolis, Minn., a corporation of Delaware

Filed Aug. 2, 1967, Ser. No. 657,826

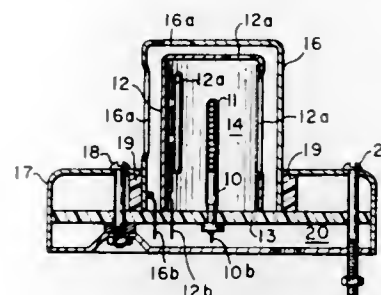
Int. Cl. G01n 23/12

U.S. Cl. 250-43.5

11 Claims

A combustion detector of the ionization chamber type having a pair of spaced anode and cathode electrodes wherein the anode carries a radioactive source of beta particles for causing an ionization current in the interelectrode space. The electrodes are supported and positioned to provide an interelectrode space large enough to prevent most of the beta particles, emitted at the one electrode, from traversing the interelectrode space and reaching the other electrode while allowing some of the particles to do so. An electrostatic shield

is provided by means of a third electrode surrounding the first two electrodes.



3,560,738

FLOW-RESPONSIVE DETECTOR UNIT AND ITS APPLICATIONS TO INFRARED GAS ANALYZERS

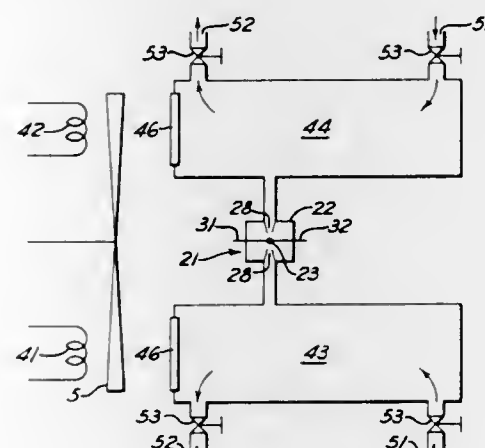
John P. Strange, Murrysville, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 9, 1968, Ser. No. 766,227

Int. Cl. G01n 21/26, 21/34

U.S. Cl. 250-43.5

18 Claims



A flow responsive detector for use in an infrared gas analyzer includes a pair of gas chambers, at least one of which is adapted to be irradiated by a pulsed beam of infrared energy to produce alternate heating and cooling, and concomitant expansion and contraction, of the gas therein when that gas contains a radiation absorbing component. A sensor responsive to gas flow in the form of a thermistor that has a negative temperature coefficient of resistance and a rate of change of resistance that varies inversely with temperature is mounted in a flow chamber which is connected by a separate passage with each gas chamber. Where these passages enter the flow chamber, they are provided with jet orifices for directing a high velocity stream or jet flow of gas on the sensor in response to the expansion and contraction of gas in at least one of the gas chambers, thereby greatly enhancing the favorable nonlinear response characteristics of the sensor. The use of this detector unit in infrared analyzer systems permits many advantageous modifications of those systems, including the elimination of a separate sample cell.

3,560,739

PARTICLE BEAM APPARATUS FOR SELECTIVELY FORMING AN IMAGE OF A SPECIMEN OR ITS DIFFRACTION DIAGRAM

Otto Wolff, Alt-Pichelsdorf 11, 1000 Berlin 20, Germany

Filed Mar. 26, 1969, Ser. No. 810,698

Claims priority, application Switzerland, Mar. 26, 1968, 4451/68

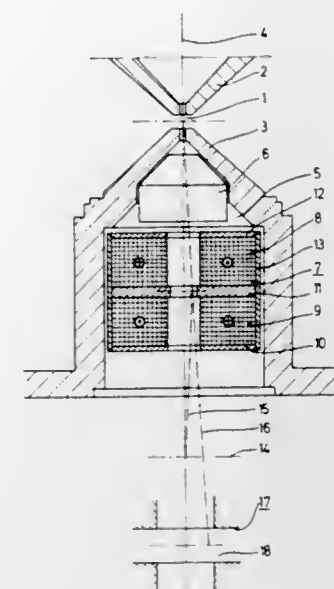
Int. Cl. G01n 23/04; H01j 37/14; H01i 37/26

U.S. Cl. 250-49.5

24 Claims

Particle beam device for selectively imaging a specimen or a specimen diffraction diagram having a separately energiza-

ble electromagnetic diffraction lens located coaxially of the beam axis between the lens gap of objective lens and the projection lens. The diffraction lens is mounted in magnetically insulating relation within the bore of the objective lens which



reduces the axial space of the device. The diffraction lens comprises two component lenses that develop opposing magnetic fluxes along the beam axis so that image rotations within the diffraction lens are avoided.

3,560,740

DEPTH-PERCEPTION RADIOGRAPHY

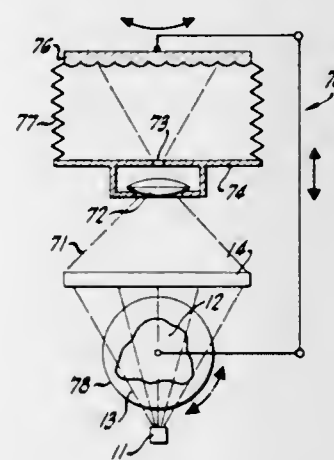
Russell Maurice Tripp, Saratoga, Calif., assignor to Tripp Research Corporation, Saratoga, Calif., a corporation of Delaware

Filed July 14, 1966, Ser. No. 565,227

Int. Cl. G01n 23/04; H01j 37/22

U.S. Cl. 250-61

14 Claims



The invention described and claimed herein is a method and apparatus for producing a picture of an opaque three-dimensional subject in which the picture conveys to the unaided eyes of the observer the true spatial relationship of the internal and external elements of the subject. Specifically, the invention provides for relative rotation between a subject and the combination of a radiation source and plane transducer to produce photographic light that is scanned through a narrow aperture across a displacement grid in front of a film plane. The foregoing produces a photograph that upon direct viewing through the displacement grid conveys full internal as well as external depth perception.

3,560,741

DEVICE FOR DETECTING PRESENCE OF FISSION PRODUCTS IN THE COOLANT LIQUID OF A NUCLEAR REACTOR

Ove Magnus Strindhag, Nykoping, Sweden, assignor to Aktiebolaget Atomenergi, Stockholm, Sweden, a company of Sweden

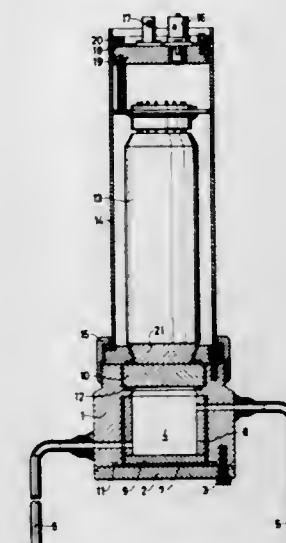
Continuation of application Ser. No. 641,884, May 29, 1967.

This application Nov. 8, 1968, Ser. No. 774,544

Int. Cl. G01t 1/22

U.S. Cl. 250-71.5

2 Claims



A device for measuring radioactive radiation in a liquid, comprising a measuring chamber with inlet and outlet for the liquid, and a photomultiplier connected to the measuring chamber for the purpose of measuring the Cerenkov radiation generated in the liquid in which the walls of the measuring chamber are provided with a relatively thick layer of an optically transparent material, resulting in the energy resolution of the device being increased.

3,560,742

PORTABLE BETA BACKSCATTER MEASURING INSTRUMENT ASSEMBLY

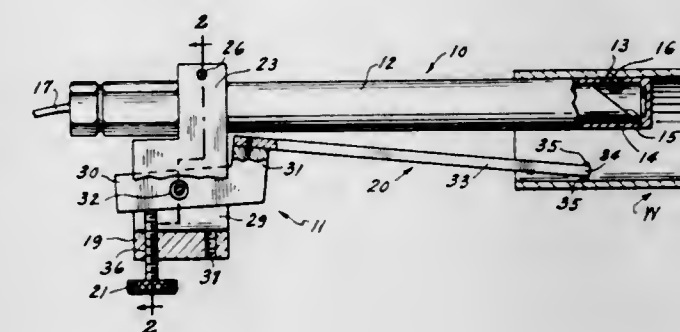
Jacques J. Weinstock, Flushing, and William D. Hay, Peekskill, N.Y., assignors to Unit Process Assemblies, Inc., Woodside, N.Y., a corporation of New York

Filed Jan. 17, 1967, Ser. No. 609,941

Int. Cl. G01t 1/16

U.S. Cl. 250-83

7 Claims



A portable beta backscatter measuring instrument assembly to effect measurements of the thickness of coatings on workpieces, including a jig mounted portable probe member incorporating means adjustable relative thereto to engage a workpiece, or an abutment fixed relative to a workpiece, to hold the probe member in firm engagement with a surface of the workpiece in proper position for measuring the thickness of a coating on the surface.

3,560,743

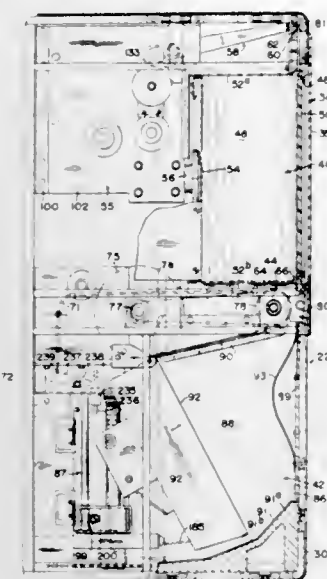
X-RAY FILM CHANGER HAVING A STORAGE CHAMBER WITH A WALL WHICH PIVOTS AS CASSETTES ARE FED THERETO

John W. Smit, Rexdale, and William R. Salt, Kleinburg, Ontario, Canada, assignors to Picker X-Ray Mfg., Limited, Rexdale, Canada

Filed Oct. 9, 1967, Ser. No. 673,625
Int. Cl. G03h 41/16

U.S. Cl. 250-66

11 Claims



Device moving X-ray film cassettes from supply, to exposure, to exposed positions in controlled time sequence as a series of X-ray exposures are made.

3,560,744

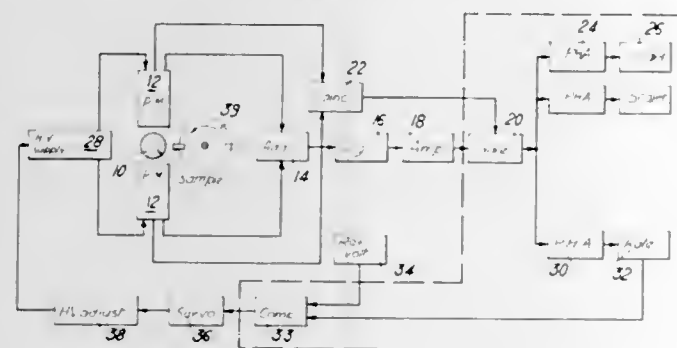
METHOD AND APPARATUS FOR COMPENSATING OF QUENCHING IN LIQUID SCINTILLATION COUNTING

Pierre Jordan, Zurich, Switzerland, assignor to Picker Corporation, White Plains, N.Y., a corporation of New York

Continuation of application Ser. No. 563,941, June 17, 1966, now abandoned. This application June 9, 1969, Ser. No. 871,725

Int. Cl. G01n 23/10; G01t 1/20, 1/36
U.S. Cl. 250-71.5

20 Claims



A method and apparatus for automatically counting the activity induced in a test sample containing a radioactive isotope while compensating for the amount of quenching in said test sample by adjusting the photomultiplier excitation or the gain of the amplifier in the detection system.

3,560,745

METHOD AND APPARATUS FOR MARKING CASED CONTAINERS BY RADIATION OF SENSITIVE EMULSIONS

Russell E. Petersen, 2607 Graceland Ave., San Carlos, Calif., and John W. Crowe, 3 Conolly Road, Huntington, N.Y. 11743

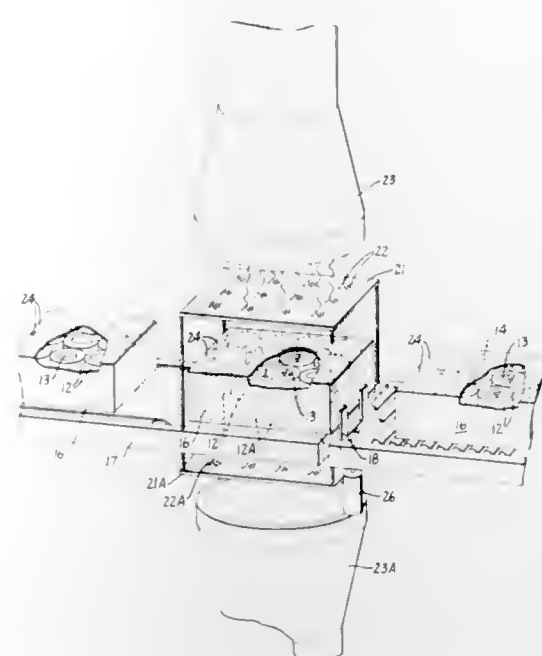
Filed Apr. 26, 1966, Ser. No. 545,458
Int. Cl. G01n 23/04

U.S. Cl. 250-83

4 Claims

A radiation-sensitive emulsion is applied to an end of each container prior to packing in a shipping carton. After storage

and without removing the containers from the carton, X-rays or gamma rays are passed through a shield formed with apertures to expose on the emulsion of each container desired indicia, such as price symbols. Thus canned goods may be



warehoused in shipping cartons and then price marked prior to shipment from the warehouse without uncasing the cans and without the necessity of the retail clerk price marking individual cans.

3,560,746

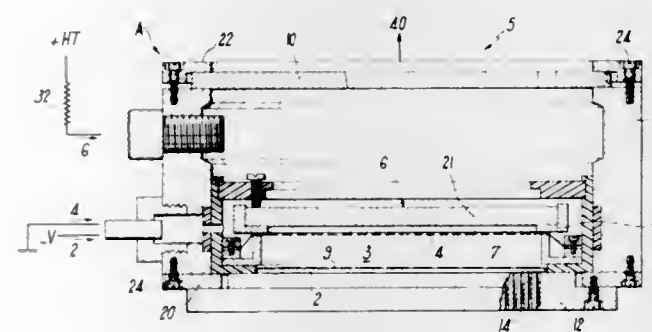
GAS-FILLED SPARK CHAMBER RADIATION DETECTOR

Alain Lansiart, Orsay; Jean Leloup, Gif-Sur-Yvette, and Jean Lequais, Orsay, France, assignors to Commissariat A L'Energie Atomique, Paris, France

Continuation-in-part of application Ser. No. 447,675, Apr. 13, 1965, now abandoned. This application Aug. 14, 1968, Ser. No. 752,637

Int. Cl. G01t 1/16; H01j 39/26
U.S. Cl. 250-83.6

8 Claims



The invention proposes a particle detector comprising a gas-filled chamber in which are disposed an anode and a cathode separated by a grid, these three electrodes being parallel and the gap between the grid and the cathode being of sufficient width for the type of incident radiation. The filling gas is selected in order to ensure that a high proportion of the β radiation which constitutes the incident particles or which is induced by incident particles at the cathode and/or within said gap loses the larger part of its energy by the usual ionization process which results in the release of electrons, said detector further comprising means for establishing between the anode and the grid a potential difference which is slightly smaller than the breakdown voltage and between the cathode and the grid a voltage for collecting said electrons towards the grid-anode gap, said collection voltage being sufficiently low and the mesh of the grid being sufficiently large to ensure that only a negligible proportion of electrons is collected by the grid as said electrons pass through said grid.

3,560,747

RADIOACTIVE MATERIAL HANDLING AND STORAGE APPARATUS

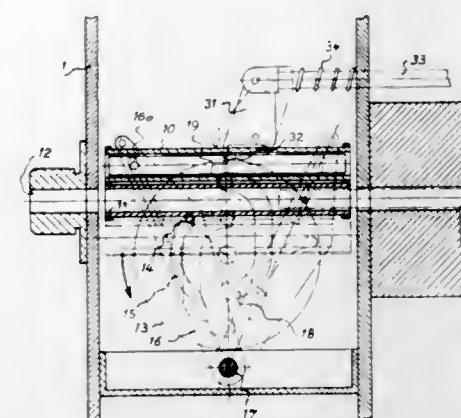
Daniel Lecuyer, Domaine De Grandchamps, France, assignor to Societe A.G.S., Societe Anonyme, Paris, France

Filed Dec. 1, 1967, Ser. No. 687,346

Claims priority, application France, Dec. 20, 1966, 88,113/66
Int. Cl. G21h 5/00; G21p 5/02

U.S. Cl. 250-106

9 Claims



Radioactive material handling and storage apparatus, including a storage block containing a bore for receiving a holder of a source of radioactive energy. The invention is characterized by the provision of means automatically operable upon insertion of the source holder in the bore to effect insertion of a protective closure member in the bore into engagement with the source holder, whereby the holder is shielded to prevent the escape of radiation from the bore.

3,560,748

NUCLEONIC MEASURING APPARATUS WITH AUTOMATIC FIRE SAFETY RADIATION SOURCE SHUTTER CLOSING AND LOCKING MEANS RESPONSIVE TO HIGH TEMPERATURES FOR BLOCKING THE PATH OF THE SHUTTER MOVEMENT TO OPEN POSITION

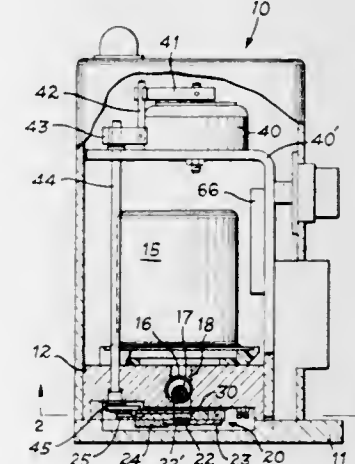
Bernard W. Hatten, Columbus, Ohio, assignor to Industrial Nucleonics Corporation, a corporation of Ohio

Filed Apr. 27, 1967, Ser. No. 634,365

Int. Cl. G01t 1/17

U.S. Cl. 250-106

7 Claims



A nucleonic measuring gauge for cigarette tubing in which a housing contains a radiation source and has an aperture controlled by a sliding shutter, in which a U-shaped spring steel shutter lock is positioned in the path of shutter movement and has leaves which are held in an open position by a quantity of meltable material permitting the shutter to move between the leaves, and in which the spring leaves are stressed to close together behind the shutter blocking the shutter in a closed position upon occurrence of an abnormally high ambient temperature with the melting of the material.

3,560,749

CONTAINER MEANS FOR A RADIOACTIVE ELEMENT

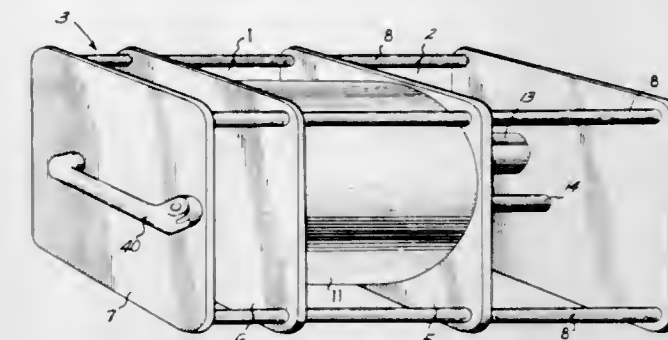
Daniel Lecuyer, Le Pecq, France, assignor to Societe A.G.S., Societe Anonyme, Paris, France

Filed July 16, 1968, Ser. No. 745,211

Int. Cl. G21h 5/00

U.S. Cl. 250-108

7 Claims



A storage container for a radioactive element, including a housing having a central compartment arranged between a pair of end compartments, said central compartment being adapted to interchangeably receive one of a plurality of different sized shielding bodies into which a radioactive element is protectively stored. The storage body is supported within a tubular housing the opposite ends of which are mounted in corresponding counterbored recesses contained in the end walls of the central compartment.

3,560,750

OPTOELECTRONIC AMPLIFIER

Minoru Nagata, Kodaira-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

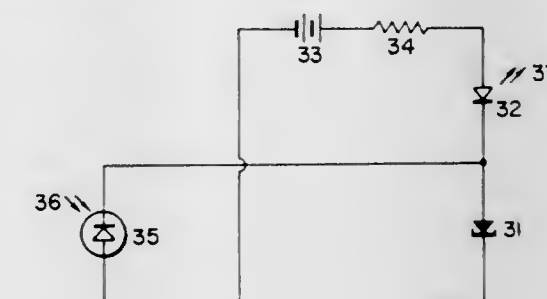
Filed Oct. 30, 1967, Ser. No. 679,021

Claims priority, application Japan, Oct. 31, 1966, 41/71,372

Int. Cl. H04n 5/74

U.S. Cl. 250-199

14 Claims



An optoelectronic amplifier in which a light-receiving element, such as a photoconductive element, a light-emissive element, such as a PN junction light emitter, and a negative resistance element, such as tunnel diode, are suitably combined to form a system wherein an input light signal is received and converted into an electrical signal by the light-receiving element, and the negative resistance element is controlled by the converted electrical signal to switch the light-emissive element on and off whereby an amplified light signal is emitted from the light-emissive element.

3,560,751

OPTICAL MARK SENSING DEVICE

Donald L. Buettner, Subiaco, Australia; John R. Burchfiel, Jr.; Norman D. Kline; Michael J. Sheehan, and Kenneth L. Thompson, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Feb. 7, 1969, Ser. No. 797,544

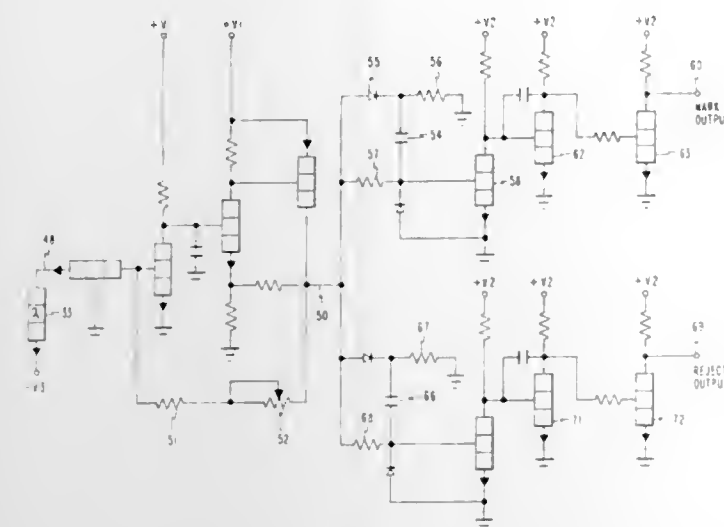
Int. Cl. H01j 39/12

U.S. Cl. 250-214

7 Claims

The invention pertains to an optical mark reading device which uses collimated light directed toward a document path with light reflected to and intercepted by a phototransistor array to yield signal currents. The current signal is converted to a voltage in the amplifier which is sensed by a comparator

circuit that stores a voltage level representative of background illumination and emits the signal upon the occur-



rence of a proportional reduction of light level indicative of a mark in the sensing area.

3,560,752

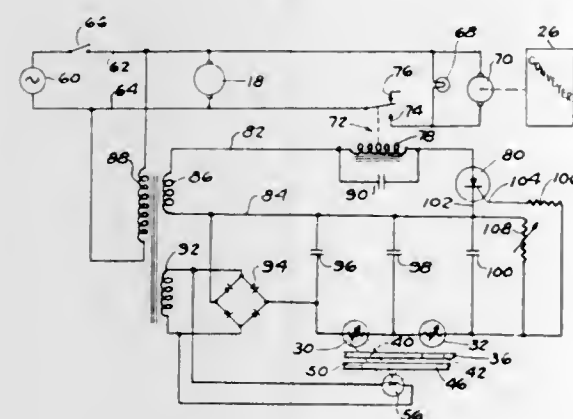
ELECTRICAL-OPTICAL MOTION DETECTOR

Yee Lee, Lexington, and Robert W. Rauth, Port Huron, Mich., assignors to The Bin-Dicator Company, Detroit, Mich., a corporation of Michigan, by mesne assignment
Original application Apr. 8, 1966, Ser. No. 541,340, now Patent No. 3,412,877, dated Nov. 19, 1968. Divided and this application Apr. 15, 1968, Ser. No. 755,473

Int. Cl. H01j 39/12

U.S. Cl. 250-214

10 Claims



Motion detection apparatus wherein the rotation of a motor shaft in a material level control causes sequential energization of a pair of photocell switches via a suitable light mask carried on the shaft and at a rate related to the velocity of the shaft. A first capacitor is connected to a power supply through one of the photocell switches and a second capacitor is connected to the first capacitor by the other photocell switch. The photocell switches progressively transfer electrical energy from a power supply to the first capacitor and then to the second capacitor which serves as the input for a silicon controlled rectifier controlling energization of the motor. When the motor shaft stops rotating or deviates from a predetermined rotational velocity, the progressive energy transfer ceases to thereby stop the motor.

3,560,753
METHOD AND APPARATUS FOR DETERMINING THE DISPLACEMENT OF A CONSTRUCTION EQUIPMENT GUIDED ALONG A DESIRED COURSE BY A LASER BEAM

Lorenz Beug, Munich, and Rolf Maier, Grafing, Germany, assignors to Messerschmitt-Bolkow GmbH, Munich, Germany
Filed Dec. 4, 1968, Ser. No. 781,118

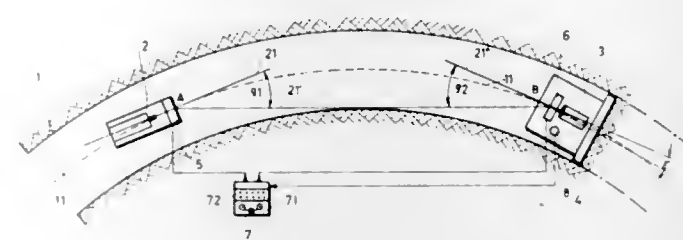
Claims priority, application Germany, Dec. 16, 1967,

1,658,721

Int. Cl. E21c 29/00

U.S. Cl. 250-215

17 Claims



In a method for determining the displacement of a construction equipment, to be guided along a desired course by a laser beam, the laser beam is so deflected, depending upon the route to be constructed, that the respective location of the construction equipment transversely of the route is determined, in elevation and traverse, on a projection surface on the construction equipment. The laser beam is transmitted from a determined transmitting point on the route, and is received at a receiving point on the construction equipment in advance of the projection surface. The laser beam is optically deflected, relative to the desired course, at the transmitting point, and along the desired course, at the receiving point, in accordance with a set program based on the desired course and the respective location of the construction equipment. This determines any deviation of the receiving point, and thus of the construction equipment, relative to the desired course. The direction of the beam, as deflected at the receiving point, is compared with the direction of the line of action of the construction equipment to determine any angular deviation of the line of action relative to the desired course.

3,560,754

PHOTOELECTRIC PARTICLE SEPARATOR USING TIME DELAY

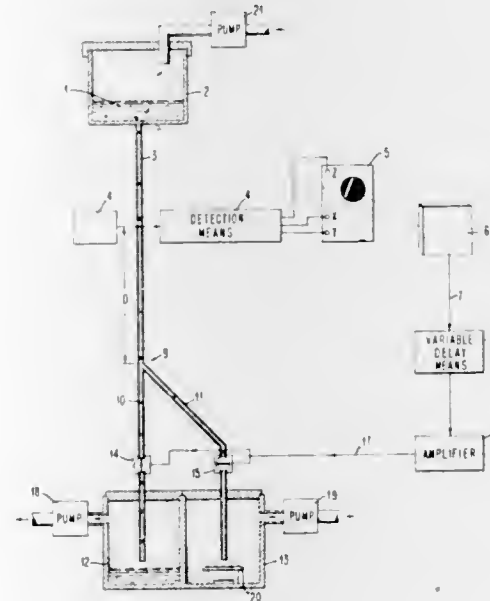
Louis A. Kamensky, Briarcliff Manor, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Nov. 17, 1965, Ser. No. 508,307

Int. Cl. G01n 21/26

U.S. Cl. 250-218

19 Claims



This disclosure relates to apparatus for discriminating between cancer and normal cells by measuring the absorp-

tion by nucleic acids per unit volume of each cell in a sample and separating the cancer cells from the sample by shunting the cancer cells from a main flow channel into a shunting junction. Upon being presented at the junction, after a suitable delay, a force is applied at the junction to the cancer cell and the cell is passed into the shunting junction for subsequent collection. The force applied to the cell may be hydraulic, pneumatic, electrostatic or some combination of these forces.

3,560,755

HIGH SENSITIVITY RADIATION DETECTOR

Roger Blaise, Massy, and Gerard Peres, Villepreux, France, assignors to Campagne Generale D'Electricite, Paris, France, a corporation of France

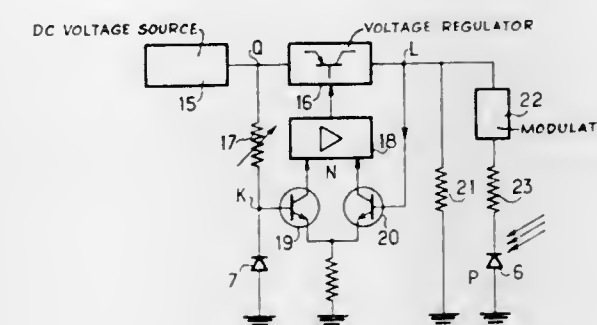
Filed Apr. 1, 1969, Ser. No. 812,169

Claims priority, application France, Mar. 29, 1968, 146,583

Int. Cl. H01l 15/00

U.S. Cl. 250-214

15 Claims



A photodetector diode operating with avalanche characteristics is energized through a regulator which, when the temperature of this diode varies, compensates for this variation by acting upon the energizing voltage to the diode. A reference diode having electrical characteristics equivalent to those of the detector diode and being thermally coupled to this detector diode furnishes for this purpose a reference signal to which the energizing voltage of the detector diode is coordinated by means of a differential amplifier and by means of the regulator.

3,560,756

OPTICAL STORAGE DEVICE WITH SOLID STATE LIGHT ACTUATED SCANNING MEANS FOR SOLID STATE OUTPUT MEANS

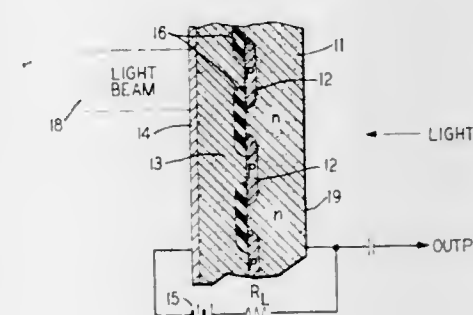
Edward F. Labuda, New Providence, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Aug. 28, 1968, Ser. No. 755,990

Int. Cl. H04n 3/14; H01l 3/12

U.S. Cl. 250-217

5 Claims



One surface of the target of a television camera device is scanned by a light beam, with light to be recorded being imaged on the opposite surface. The target comprises a substrate having a diode array on one side with a photoconductive layer being sandwiched between a transparent conductive film and the diode array. A voltage on the conductive film reverse biases the diodes. During one frame time, the diodes discharge as a function of light intensity imaged on the substrate. The scanning light beam recharges the diodes

by increasing the localized conductivity of the photoconductive layer, and thus generates a video signal output.

3,560,757

CIRCUIT FOR GENERATING BLACK-PRINTER SIGNAL IN COLOR PRINTING APPARATUS

Peter C. Pugsley, Pinner, Middlesex, England, assignor to Crosfield Electronics Limited, London, England, a British company

Filed July 18, 1969, Ser. No. 843,131

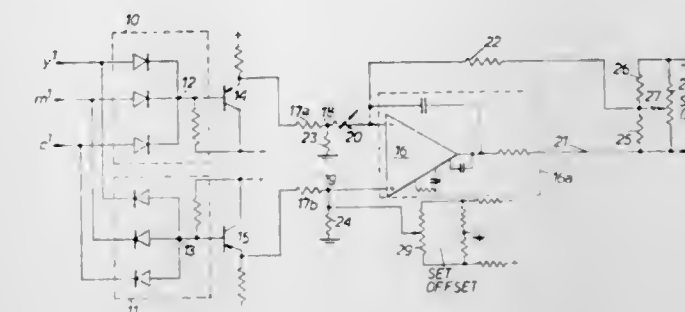
Claims priority, application Great Britain, July 22, 1968,

34792/68

Int. Cl. G01n 21/18

U.S. Cl. 250-219

4 Claims



In color printing, a circuit for generating a black printer signal has means for varying a selectivity factor which permits adjustment of the amount of black in colored areas while leaving it substantially unchanged in neutral areas. This variation is accomplished without substantial alteration of the scale factor of the black printer signal. The circuit includes maximum and minimum signal selector circuits receiving the color component signals and supplying the maximum and minimum signals to the two inputs of a differential amplifier having a feedback path to a first of the two inputs. The selectivity factor depends on the ratio of resistances in the feedback path and in the first input path.

3,560,758

COLOR IDENTIFICATION SYSTEM TAKING INTO ACCOUNT THE COLOR AND REFLECTING OF THE BASE MATERIAL

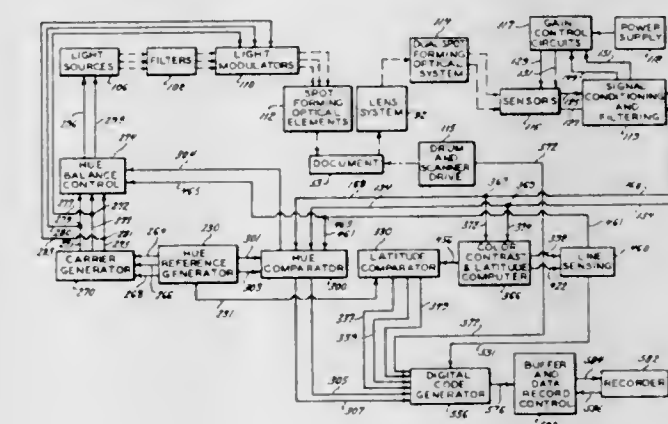
Melvin E. Swanberg, Claremont, Calif., assignor to Conduccion Corporation, St. Charles, Mo., a corporation of Delaware

Filed Jan. 8, 1968, Ser. No. 696,409

Int. Cl. G01j 3/34

U.S. Cl. 250-226

34 Claims



The color identification system takes the color and the reflectivity of the base material of a printed or drawn colored document into account as it identifies the pigments which define the various differently colored areas of that document, and thus is a relative color identification system; and that color identification system can accurately identify the pigments which define the various differently-colored areas on that document by classification of each color, which is de-

tected, as being within a range of colors, which includes all colors that can be expected to result from one pigment.

3,560,759

WHEEL SLIP PROTECTION DEVICE

Hansrudi Buehler, Ciona Di Carona; Alfred Ernst, and Beat Steiner, Zurich, Switzerland, assignors to Maschinenfabrik Oerlikon, Zurich, Switzerland

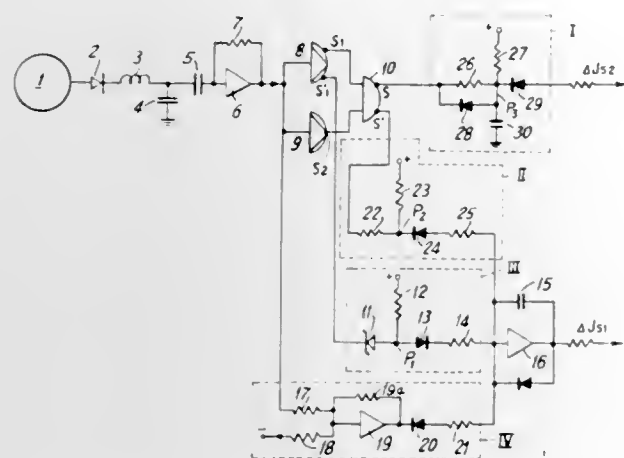
Filed Nov. 22, 1967, Ser. No. 685,104

Claims priority, application Switzerland, Nov. 24, 1966, 17,014/66

Int. Cl. B61c 15/12

U.S. Cl. 290—17

10 Claims



A device for protecting against slipping of a drive or traction wheel includes means deriving a first traction reduction component which is largely variable during slipping of a traction wheel, and additional means deriving a second traction reduction component which is nearly constant during slipping of a traction wheel. These components are combined to control the current of a driving motor to reduce the slipping of the traction wheel to zero.

3,560,760

LOGIC NAND GATE CIRCUITS

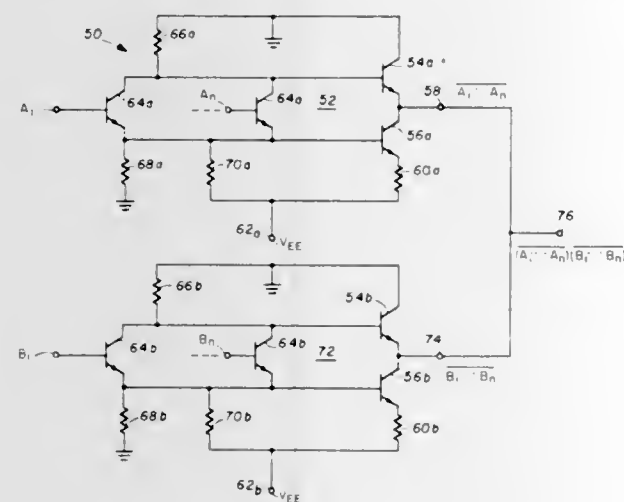
David H. Chung, and Bill H. Terrell, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Continuation of application Ser. No. 602,805, Dec. 19, 1966, now abandoned. This application Feb. 2, 1970, Ser. No. 7,356

Int. Cl. H03k 19/36

U.S. Cl. 307—215

6 Claims



Disclosed are logic NAND gate circuits of the type capable of driving a low impedance or a high capacitance load while maintaining relatively fast propagation speed which include a pair of output transistors of one type respectively connected to bias voltage supplies and connected in common to an output circuit, and a plurality of input transistors connected between the bases of the output transistors. A logic 1 input

signal at any one of the input transistors produces a logic 0 output signal.

3,560,761

TRANSISTOR LOGIC CIRCUIT

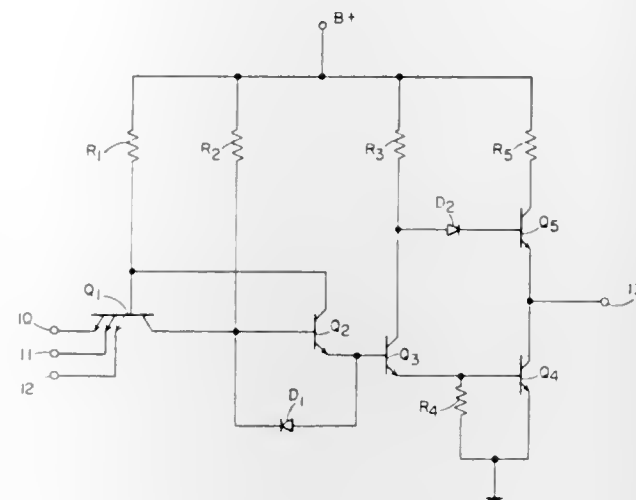
John J. Kardash, Acton, Mass., assignor to Sylvania Electric Products Inc., a corporation of Delaware

Filed July 25, 1968, Ser. No. 747,537

Int. Cl. H03k 19/34

U.S. Cl. 307—215

3 Claims



A transistor-transistor NAND logic circuit including a switching transistor between the input transistor and the final transistor at the output of the circuit. The switching transistor is regeneratively coupled to the input transistor and arranged so as to establish relatively high noise margins which must be exceeded by signals at the input connections to the input transistor in order to change the operating state of the circuit.

3,560,762

RING COUNTER

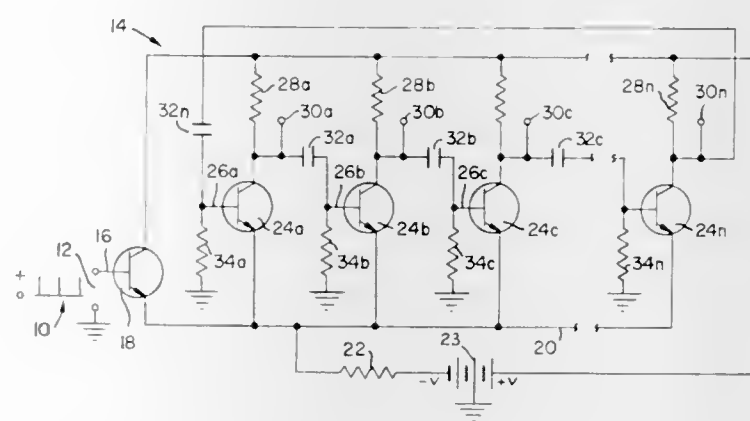
Frederik Nordling, Sausalito, Calif., assignor to Lynch Communications Systems, Inc., San Francisco, Calif., a corporation of Delaware

Filed Feb. 12, 1968, Ser. No. 707,915

Int. Cl. H03k 23/22

U.S. Cl. 307—223

1 Claim



This ring counter uses the emitters of the counting stage transistors as the drive signal input. Consequently, the counter is simple in construction and can be easily switched by current interruptions; is self-stabilizing to avoid spurious counting modes; and requires power for only one stage regardless of the number of stages in the ring.

3,560,763

ZERO-CROSSING DETECTOR

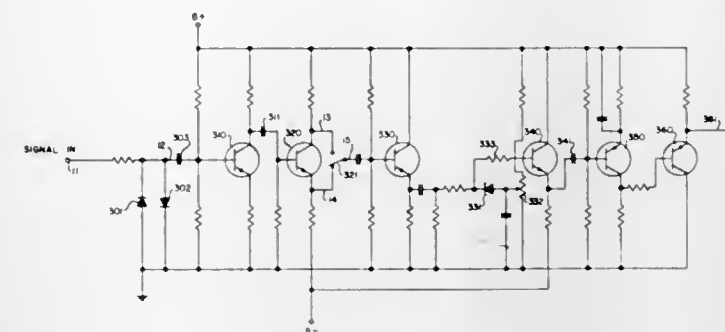
Francis X. Downey, Annandale, and Alick H. Frank, Springfield, Va., assignors to the United States of America as represented by the Secretary of the Navy

Filed Nov. 29, 1967, Ser. No. 686,400

Int. Cl. H03k 5/20

U.S. Cl. 307—235

1 Claim



A zero-crossing detector which has a large dynamic range and includes a tunnel diode. The input signal is first clipped in both positive and negative amplitudes, and then the clipped signal is amplified and applied to a variably biased tunnel diode which produces a sharp voltage step at the zero-crossing point. By using a paraphase amplifier in front of the tunnel diode it is possible to choose either positive going or negative going crossing points.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

3,560,764

PULSE-POWERED DATA STORAGE CELL

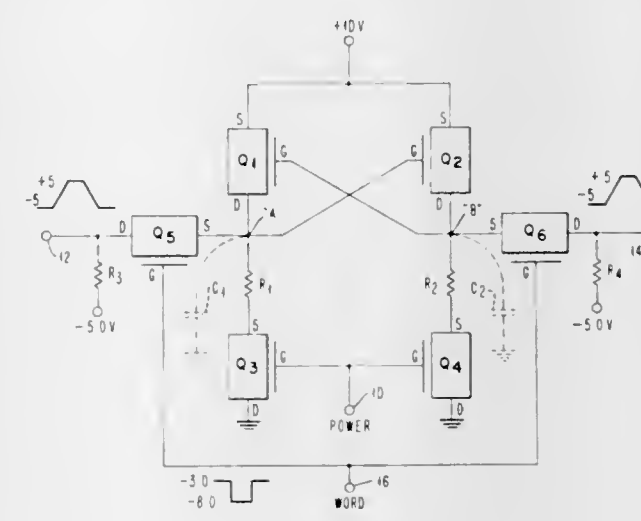
Joseph J. McDowell, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Continuation of application Ser. No. 641,223, May 25, 1967, now abandoned. This application Mar. 2, 1970, Ser. No. 14,787

Int. Cl. H03k 3/286

U.S. Cl. 307—238

10 Claims



This specification describes semiconductor storage cells for use in monolithic memories that perform storage and/or associative storage functions. These cells each comprise a pair of semiconductor devices which are coupled together to form a bistable circuit. The loads for the bistable circuits are other semiconductor devices which can be biased to regulate current drawn by the bistable circuit from a source for powering the bistable circuit. These current-regulating semiconductor devices are gated on and off to intermittently power the bistable circuit. During the periods in which power is gated-off, the bistable circuit is maintained in the proper operating state by charge stored in the elements of the bistable circuit.

3,560,765

HIGH SPEED MOS READ-ONLY MEMORY

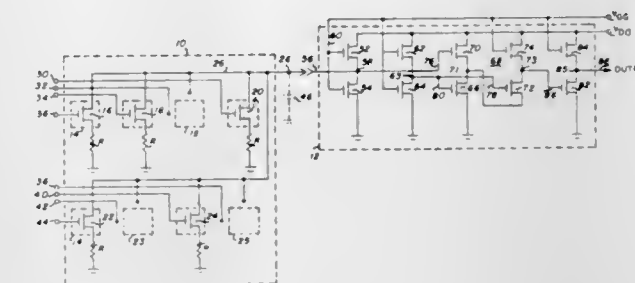
James J. Kubinec, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif., a corporation of Delaware

Filed Dec. 4, 1968, Ser. No. 781,017

Int. Cl. H03k 17/60

U.S. Cl. 307—246

12 Claims



A sense-amplifier for use with a read-only memory apparatus and having means for limiting to less than six volts the voltage to which the memory elements are subjected. An all FET amplifier structure is provided having an input stage which clamps the output voltage of the memory device to a predetermined potential and prevents the output of the memory from causing this potential to swing more than a predetermined value when a storage element is gated ON. The amplifier of the present invention has an input impedance which is at least 20 times smaller than similar prior art devices and thus enables a 20 to 1 or better reduction in the time constant associated with the data readout operation. As a result, substantially higher readout speeds can be obtained.

3,560,766

HIGH SPEED LOGIC ELEMENT

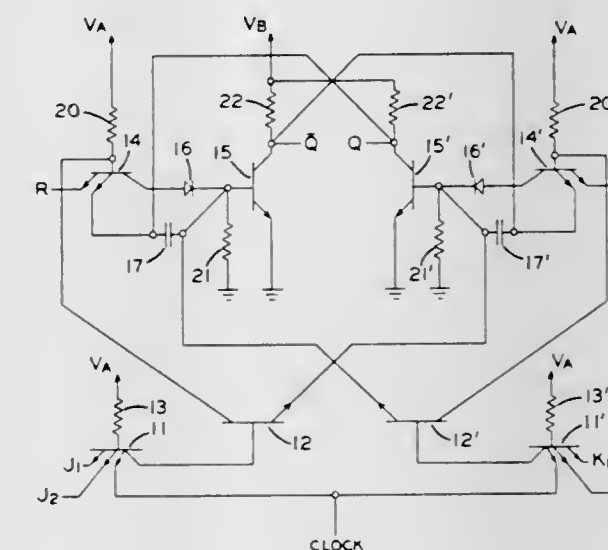
James O. Moore, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts

Filed Jan. 21, 1969, Ser. No. 792,461

Int. Cl. H03k 3/26

U.S. Cl. 307—291

5 Claims



A JK flip-flop circuit is provided which has been optimized for high counting or toggle rates and low differential delay. A unique bilateral triggering circuit is used to steer current between node pairs rather than unilaterally from a single node thereby eliminating multigate feedback paths which retard counting or toggle rates and increase differential delay.

3,560,767

DELAY CIRCUIT ARRANGEMENT

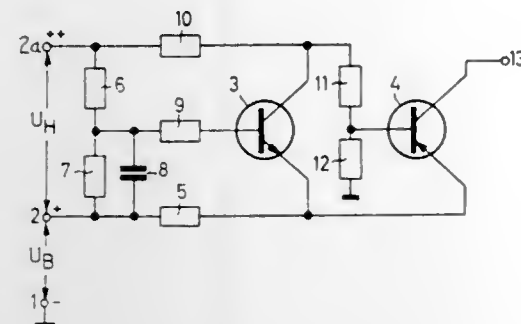
Karl Traub, Furth, Bayern, Germany, assignor to Grundig Elektro-Mechanische Versuchsanstalt INH Max Grundig, Furth, Bayern, Kurgartenstrasse, Germany
Filed Mar. 19, 1969, Ser. No. 808,446

Claims priority, application Germany, Mar. 23, 1968, P 17 66 026.3

Int. Cl. H03k 17/26

U.S. Cl. 307—293

12 Claims



An arrangement for delaying the application of a voltage supply for a predetermined time interval. An auxiliary voltage supply of identical polarity and with one terminal at a level exceeding the level of the terminal which is common to the supplies, is applied across a voltage divider. A first transistor is connected to a tap or junction of the voltage divider through its base. The emitter-collector path of this first transistor is connected across the voltage divider and the auxiliary power supply. A second transistor of opposite conductivity type relative to the first transistor is connected with its emitter to the terminal common to the two power supplies, as well as the emitter of the first transistor. The base of the second transistor is connected to a second voltage divider connected to the collector of the first transistor. Through a capacitor connected in parallel with a portion of the first voltage divider connected across the auxiliary power supply, an RC network is realized which delays the application of the voltage appearing at the collector of the second transistor, for a selected predetermined time interval.

3,560,768

CONTROL CIRCUIT FOR A LOW-FREQUENCY AMPLIFIER

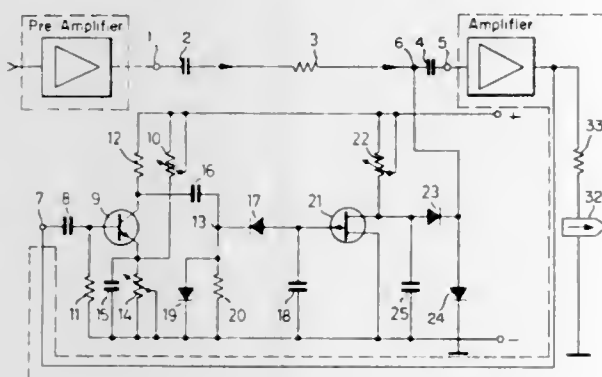
Hans-Georg Rimkus, Nuremberg, Germany, Assignor to Grundig E.M.V. Elektro-Mechanische Versuchsanstalt Inh., Max Grundig Fuerth (Bayer), Germany

Filed Apr. 11, 1968, Ser. No. 720,577

Int. Cl. H03b 3/02

U.S. Cl. 307—264

7 Claims



A low-frequency input voltage is fed to a voltage divider consisting of a fixed resistor and a pair of diodes connected in parallel but with opposite polarity with respect to AC but series-connected with respect to DC. The output voltage is derived from the DC common point of the two diodes and is thus a function of the impedance of said diodes. The impedance of the diodes is controlled as follows:

A voltage proportional to the input voltage, after passing a threshold stage, is used to charge a capacitor. The capacitor circuit has a short charging time and a long discharge time. The capacitor voltage constitutes the voltage at the gate of a field effect transistor, the voltage at whose drain electrode is used to control the impedance of the diodes. A circuit for compensating for temperature effects on the impedance of the diodes by inserting a DC voltage in the diode circuit is also shown.

3,560,769

SEQUENTIAL FLASHER

Tetsuji Shimizu, and Susumu Usami, Nagoya, Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Nishikasugai-gun, Aichi-Prefecture, Japan

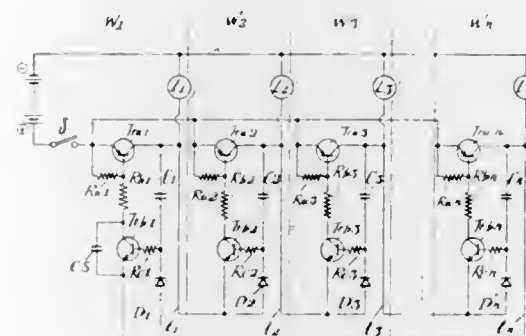
Filed Apr. 30, 1968, Ser. No. 725,396

Claims priority, application Japan, May 9, 1967, 42/39022

Int. Cl. H03k 17/28, 23/08

U.S. Cl. 307—293

4 Claims



A sequential flasher includes a plurality of successive stages connected in cascade and each including a PNP transistor, having its emitter connected to the positive terminal of a source of potential, and an NPN transistor. Each stage includes a first loop constituted by the emitter of the PNP transistor, a resistor connecting the base thereof to the collector of the NPN transistor, and a resistor and a condenser connected in series between the base of the NPN transistor and the collector of the PNP transistor. A second loop is constituted by a resistance connecting the emitter of the NPN transistor to the junction of the resistor and the condenser. Each stage has a respective load connected between the collector of its PNP transistor and the negative terminal of the source. The collector of each PNP transistor, except that of the last stage, is connected to the emitter of the NPN transistor of the next succeeding stage, with the collector of the last PNP transistor being connected to the emitter of the NPN transistor. The resistance may be a resistor or may be a diode. A starting condenser is connected in at least the first stage.

3,560,770

TEMPERATURE CORRECTION OF A LOGIC CIRCUIT ARRANGEMENT

Joannes Paulus Maria Gieles, Emmasingel, Eindhoven, Netherlands, assignors by mesne assignment to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed Dec. 27, 1967, Ser. No. 693,945

Claims priority, application Netherlands, Jan. 5, 1967, 6700144

Int. Cl. H03f 1/30

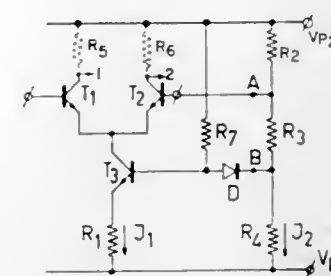
U.S. Cl. 307—310

3 Claims

A temperature compensated logic circuit having two transistors with commonly connected emitters and a third transistor, the collector-emitter path of which connects the emitters of the two transistors through a resistance to one terminal of a two terminal source of supply. A voltage divider having two taps is connected between the terminals, one tap being connected to the base electrode of one of the two emitter-connected transistors. The temperature compensa-

tion is through a barrier layer connecting the base electrode of the third transistor to the other divider tap, while a re-

trode means of said resonator to effect electrical contact, and a second nonconductive part for support, thereby minimizing



distance further connects the base electrode of the third transistor to the other supply terminal.

3,560,771

ACOUSTICALLY ACTIVE RESONATOR

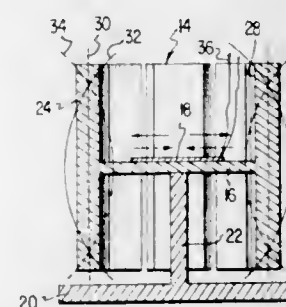
Hugh M. Baker, Jr., Washington, D.C., assignor to HB Engineering Corporation, Montgomery County, Md., a corporation of Maryland

Continuation-in-part of application Ser. No. 714,221, Mar. 19, 1968, now Patent No. 3,453,462. This application May 7, 1969, Ser. No. 822,639

Int. Cl. H04r 17/00

U.S. Cl. 310—8.2

15 Claims



An acoustically active resonator is provided having relatively large surface area parts in order to efficiently couple the movement of the oscillating parts to the surrounding atmosphere. In most of the disclosed embodiments, the oscillating parts are disposed about the periphery of the resonator in order to maximize the surface area producing the air compression and rarefaction. A web interconnects the midpoint of the oscillating elements to transmit motion of the web into predictable motion of the oscillating elements. Means are also provided for moving the web at the resonant frequency of the resonator.

3,560,772

PIEZOELECTRIC CRYSTAL MOUNTING EMPLOYING RESILIENT PARTIALLY CONDUCTIVE SUPPORT PADS

Antonio Lungo, Middleburg Heights, and Gordon J. Conley, Macedonia, Ohio, assignors to Clevite Corporation, a corporation of Ohio

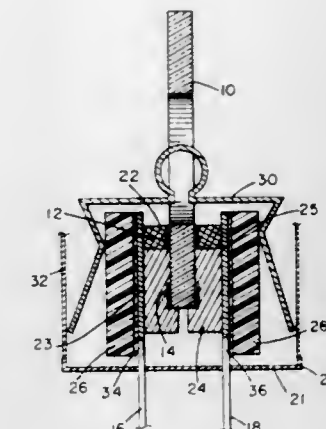
Filed Sept. 9, 1969, Ser. No. 856,265

Int. Cl. H01v 7/00

U.S. Cl. 310—9.4

5 Claims

There is provided a novel mounting means for a piezoelectric resonator within a filter assembly, said mounting means comprise a conductor backing support on both sides of the resonator element connected thereto by means of wedge-shaped resilient pads secured on said conductor backing each pad having a first conductive part resting on the elec-



3,560,773

SUPERCONDUCTING DYNAMOELECTRIC MACHINE

Ian Duncan McFarlane, Lancaster, England, assignor to National Research Development Corporation, a corporation of Great Britain

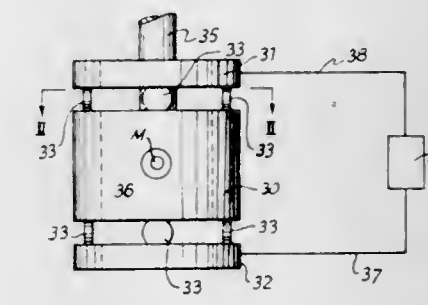
Filed June 14, 1967, Ser. No. 645,919

Claims priority, application Great Britain, June 16, 1966, 26,819/66

Int. Cl. H02k 9/10

U.S. Cl. 310—10

6 Claims



Disclosed are method and apparatus for generating a current in a superconducting circuit in the form of a loop by moving a bundle of magnetic flux in such a manner that it threads the superconducting loop while being moved in regions containing no magnetically irreversible material, with the superconducting properties of the loop being maintained throughout.

3,560,774

ROTARY STEPPING MOTOR WITH ECCENTRIC ROTOR

Raymond R. Reeves, 33 Grove Park, London, SE. 5, England

Filed Dec. 16, 1968, Ser. No. 783,789

Int. Cl. H02k 29/02, 37/00

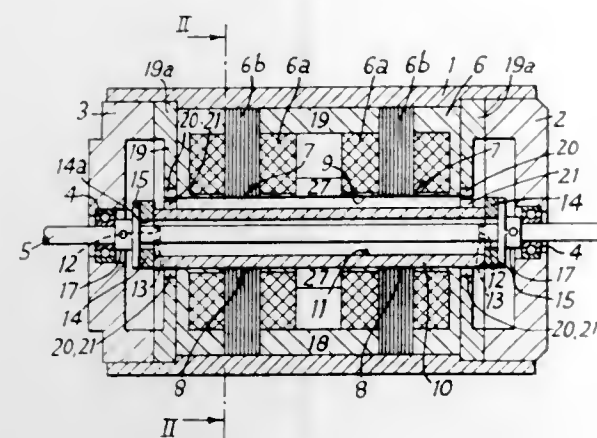
U.S. Cl. 310—49

17 Claims

An electric stepping motor comprising a stator with three or more circumferentially displaced poles and provided with a rotor (inside or outside) which is arranged to transmit angular drive in discrete steps, the rotor moving eccentrically in relation to the axis of the stator. Both the rotor and stator may carry cooperating gears. Permanent magnet detents are

provided on the stator. The drive coupling may be a slide arrangement, a flexible bellows, or an eccentric cam. The con-

securing the bars in the slots. The cylinder may be constituted by a plurality of separate rings in which case separate



trol circuitry includes a pulsing arrangement, ring counter, inductive pickoffs, and a coincidence detector.

3,560,775

ROTARY MAGNETOELECTRIC DEVICE

Otto Welter, Orselina-Logarno, Switzerland, assignor to Elektro-Motoren A.G., Zug, Switzerland

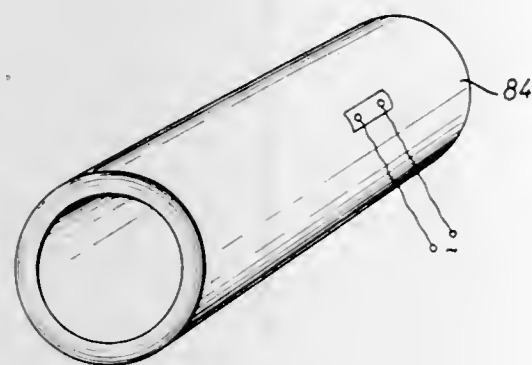
Filed Mar. 10, 1966, Ser. No. 533,329

Claims priority, application Germany, Mar. 10, 1965, E28,846

Int. Cl. H02k 21/10

U.S. Cl. 310-126

17 Claims



A rotary magnetoelectric device of small diameter and great length having a stator assembly comprising at least two pairs of U-shaped members. The outer legs of the U-shaped members are in abutment whereas the inner legs are spaced to provide a central air gap, thus forming at least two pairs of stator poles. A cylindrical permanent magnet rotor is disposed between the stator poles. A cylindrical coil provides an alternating field to the stator poles.

3,560,776

SLOT CLOSERS FOR AN ELECTRICAL MACHINE

Vasily Semenovitch Kildishev, Ulitsa Plekhanovskays, 41/43, kv. 55, and Vadim Borisovich Kaplunov, Ulitsa Bairona, 140/34, kv. 45, Kharkov, U.S.S.R.

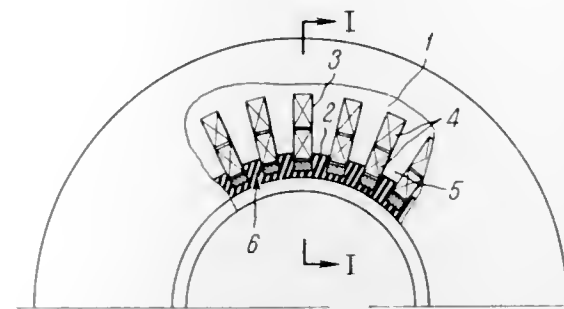
Filed Apr. 25, 1969, Ser. No. 819,152

Int. Cl. H02k 3/48

U.S. Cl. 310-214

5 Claims

A stator for an electrical machine is composed of a core with slots containing winding bars completely filling the entire spaces of the core slots and projecting therefrom into slots formed in an insulating cylinder accommodated within the bore of the core. Rigid connectors such as wedges are interposed between the cylinder and the winding bars for



wedges are employed for each ring in each of the slots thereof.

3,560,777

ELECTRIC MOTOR COIL BANDAGE

Werner Moeller, Dubendorf, and Walter Dreher, Hegnau, Switzerland, assignors to Maschinenfabrik Oerlikon, Zurich, Switzerland

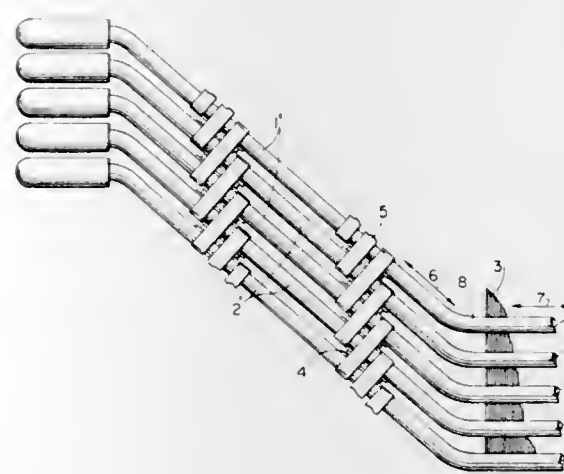
Filed Aug. 12, 1969, Ser. No. 849,424

Claims priority, application Switzerland, Aug. 19, 1968, 12580/68

Int. Cl. H02k 3/46

U.S. Cl. 310-270

11 Claims



An electric motor coil bandage has at least two or more independent coil legs of a rotor or a stator each having a face connection which includes a coil rod connected to the individual coil leg. A bandage extends around a plurality of sets of the coil rods of identical coils and a rubber elastic compressible cushion is disposed between adjacent rods and is adapted to glide relatively to the insulation surface of these rods.

3,560,778

COOLING SYSTEM FOR AN ELECTRON TUBE

RELEASED ON A TRAJECTORY

Auguste H. Raye, Paris, France, assignor to CSF-Compagnie Generale De Telegraphie Sans Fil, a corporation of France

Filed July 5, 1968, Ser. No. 742,943

Claims priority, application France, July 10, 1967, 113,737

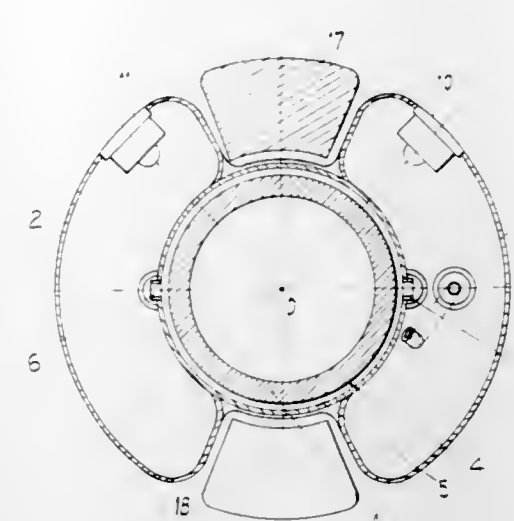
Int. Cl. H01j 7/28, 61/52

U.S. Cl. 313-18

2 Claims

A cooling device for electron tubes, exploiting the vaporization of a liquid contained in sealed tanks, surround-

ing the tube anode. The vaporization of the liquid is controlled by a valve associated with the tanks. The blowoff



pressure of this valve is equal to the vaporization pressure at the selected temperature of operation.

3,560,779

SHADOW MASK TYPE COLOR PICTURE TUBE WITH A FINE MESH FLEXIBLE PARTICLE SHIELD BETWEEN THE GUN AND TARGET PORTIONS

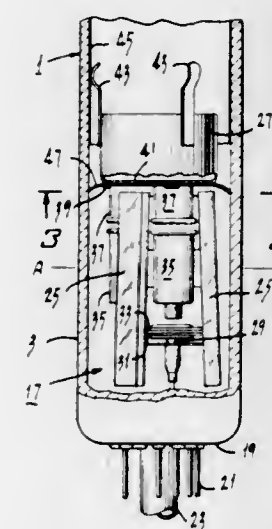
Homer L. May, Lancaster, Pa., assignor to RCA Corporation, a corporation of Delaware

Filed May 2, 1968, Ser. No. 726,143

Int. Cl. H01j 29/50, 19/50

U.S. Cl. 313-70

1 Claim



A shadow-mask-type color picture tube, comprising a glass envelope including neck, funnel and target portions, a triple-beam electron gun structure mounted in the neck portion, a mosaic three-color phosphor screen on the inner wall of the target portion, and a multiapertured shadow mask mounted adjacent to the screen, is provided with a fine mesh flexible annular particle shield, e.g. of stainless steel mesh, attached to the gun and extending into continuous contact with the wall of the neck portion.

3,560,780

VACUUM TUBE WITH COAXIAL ASSEMBLY OF ELECTROSTATIC FOCUSING MEANS AND ELECTRON GUN MOUNT

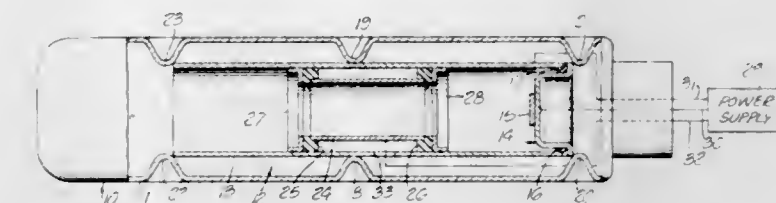
Johann B. Beeli, Sylmar, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Delaware

Filed May 27, 1968, Ser. No. 732,218

Int. Cl. H01j 1/88, 19/46, 31/00

U.S. Cl. 313-82

1 Claim



The invention comprises an electron gun having an outer cylindrical tube, inside of which a shorter cylindrical tube is positioned. The inner tube is maintained at a different direct-current potential than the outer tube. The inner tube is positioned inside the outer tube spaced from the ends of the outer tube. Symmetrical electron lenses are then produced at the ends of the inner tube. The use of the outer tube as a mechanical support for the inner tube makes the construction mechanically strong, yet inexpensive.

3,560,781

CORPUSCULAR BEAM MICROSCOPE APPARATUS

Wolfgang Dieter Riecke, Berlin, Germany, assignor to Max-Planck-Gesellschaft Zur Forderung Der Wissenschaften e.V., Göttingen, Germany, a corporation of Germany

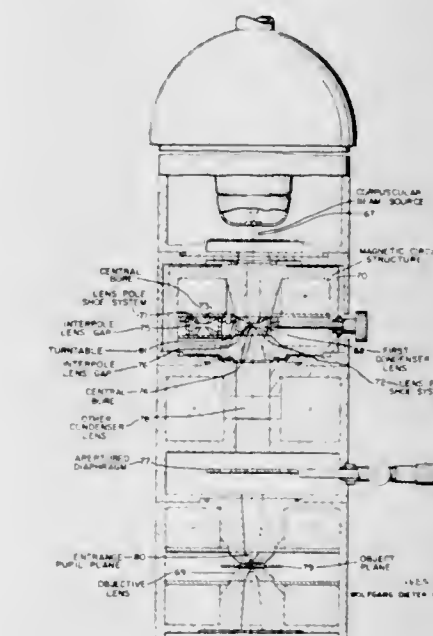
Filed July 27, 1967, Ser. No. 656,400

Claims priority, application Germany, Feb. 24, 1967, M72885

Int. Cl. H01j 29/46, 37/16

U.S. Cl. 313-84

17 Claims



The beam condenser located in an electron or ion microscope between the beam source and the objective lens comprises at least two lenses, namely a first condenser lens which produces a reduced image of the beam source, and a last condenser lens which produces a reduced image of an aperture diaphragm upon the object plane defined by the objective lens. Within such an arrangement, the first condenser lens comprises a plurality of lens pole shoe systems that can be selectively placed into active position of axial alignment with the beam source and the objective lens. The pole shoe systems have respectively different imaging lengths but have the diameter of their lens bore as well as the width and axial

position of their lens gap, so adapted to one another as to maintain an invariable axial position of the source image produced by the first condenser lens, regardless of which one of the pole shoe systems is placed into active position at a time. This affords selecting different radiation (illumination) apertures for one and the same illuminated area of the object without the necessity of changing the focal lengths of the other lenses; and it permits adjusting the size of the illuminated area of the object independently of the magnitude of the illumination aperture of the object.

3,560,782

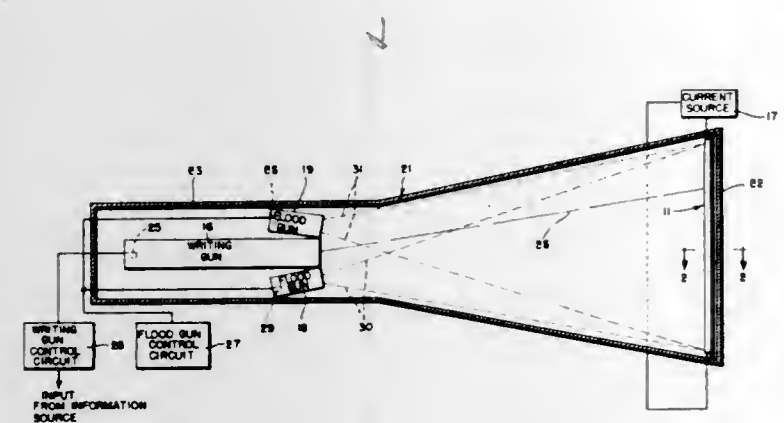
CATHODE RAY TUBE WITH PHOSPHOR AND SCOTOPHOR LAYERS IN SCREEN

Omer F. Hamann, La Jolla, Calif., assignor to Stromberg Datagraphix, Inc., San Diego, Calif., a corporation of Delaware

Filed Aug. 28, 1968, Ser. No. 755,956
Int. Cl. H01j 29/14, 29/50

U.S. Cl. 313-91

12 Claims



A cathode ray tube is described comprising a target screen including a transparent conductive layer, a scotophor layer, and a luminescent layer. A first electron beam is directed at the target screen with sufficient energy to darken preselected areas of the scotophor layer. Such areas are made visible by flooding the luminescent layer with a second electron beam of lower energy. Selected areas also may be further brightened by selectively operating the first beam at an energy level insufficient to darken the scotophor.

3,560,783

COLOR DISPLAY SYSTEM UTILIZING PHOSPHORS HAVING AN ELECTRON RETARDING SURFACE LAYER

Samuel Ray Shortes, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Original application June 30, 1966, Ser. No. 561,815, now Patent No. 3,449,148, which is a continuation-in-part of application Ser. No. 459,582, May 28, 1965, now Patent No. 3,408,223. Divided and this application Mar. 3, 1969, Ser. No. 813,388

Int. Cl. H01j 29/20

U.S. Cl. 313-92

2 Claims

Zinc sulfide containing phosphors are formed having a surface layer that retards electron penetration. The surface layer consists essentially of either zinc oxide or zinc sulfide formed in situ on the phosphor particles by chemical reaction. These phosphors are utilized in color display systems.

3,560,784

DARK FIELD, HIGH CONTRAST LIGHT EMITTING DISPLAY

Gordon N. Steele, Santa Barbara, and Edwin J. Soxman, Goleta, Calif., assignors to Sigmatron, Inc., a corporation of California

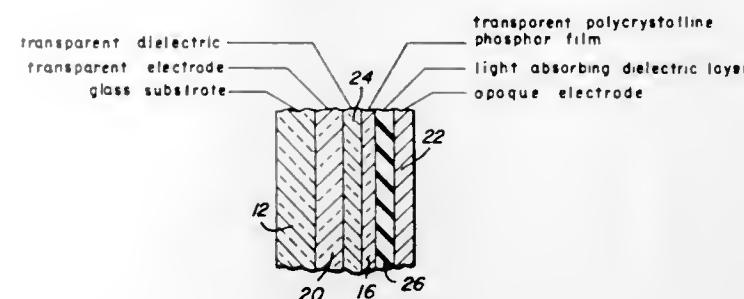
Filed July 26, 1968, Ser. No. 748,046
Int. Cl. H01j 29/18, 29/28

U.S. Cl. 313-92

13 Claims

A light-emitting phosphor display device having a high contrast ratio is provided having a light-absorbing dielectric layer on the side of the phosphor layer opposite the viewing

side to absorb the incident ambient light. Polycrystalline layers with matching refractive indices are selected for the



phosphor and light-absorbing dielectric layers to reduce interface reflectance, light scattering and halation.

3,560,785

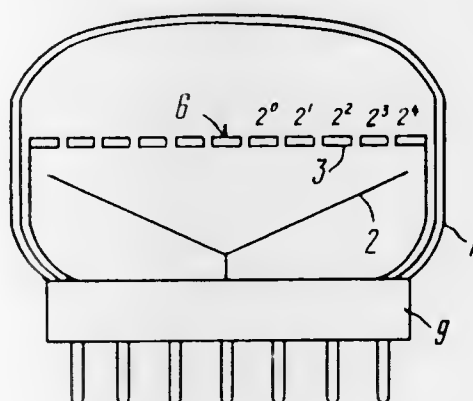
GAS DISCHARGE DISPLAY INSTRUMENT

Fedor Evgenievich Temnikov, Lefortovskiy, 7/6, korpus 3, kv. 41; Vyacheslav Dmitriyevich Savin, Gospitalny val, 3, korpus 1, kv. 10u, and Jury Alexeevich Ivashkin, prospekt Mira, 118, kv. 214, Moscow, U.S.S.R.

Filed Nov. 7, 1968, Ser. No. 773,993
Int. Cl. H01j 7/42

U.S. Cl. 313-109.5

7 Claims



A gas-discharge display instrument for indicating digital magnitudes includes a common electrode and a group of electrodes spaced therefrom and operatively associated therewith. The group of electrodes are concentrically arranged. Each electrode in the group successively corresponds to a respective digit in a series of a succession of digits and is adapted to illuminate over the periphery thereof to indicate the digit corresponding thereto.

3,560,786

FLUORESCENT LAMP WITH VARIABLE DEFORMATION IN ENVELOPE

Joel Shurgan, Washington Township, Bergen County, N.J., assignor to Duro-Test Corporation, Bergen, N.J., a corporation of New York

Continuation of application Ser. No. 660,152, July 20, 1967, which is a continuation-in-part of application Ser. No. 453,643, May 6, 1965, now abandoned. This application Oct. 15, 1968, Ser. No. 768,618

Int. Cl. H01j 61/30, 61/35

U.S. Cl. 313-109

21 Claims



A fluorescent lamp having at least one groove therein which is rotated on a curved path around and along the longitudinal axis of the lamp and which varies in depth.

3,560,787

FLASH LAMP

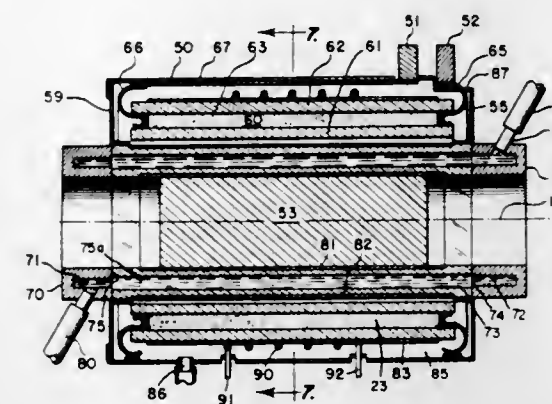
Burton R. Clay, Wayland, and Theodore A. Haddad, Lexington, Mass.

Original application Mar. 18, 1964, Ser. No. 353,009. Patent No. 3,454,900, dated July 8, 1969. Divided and this application Aug. 21, 1967, Ser. No. 671,181

Int. Cl. H01j 5/16

U.S. Cl. 313-112

5 Claims



The invention disclosed herein provides for an improved flash lamp having an extremely high intensity which incorporates cylindrical inner and outer walls and has end members for sealing the walls and defining the space therebetween to confine the gas, and includes a coating on the outer walls specifically passing portions of the radiation so that the flash lamp generates a flash inwardly directed which contains desired bands of radiation.

3,560,788

R-F ENERGIZABLE, PAN-SHAPED GETTER FOR TELEVISION TUBE

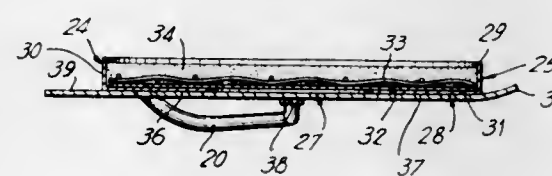
Clair Reash, Fairview Park, and Vincent Pietrasz, Cleveland, Ohio, assignors to Union Carbide Corporation, New York, N.Y., a corporation of New York

Filed Dec. 11, 1968, Ser. No. 782,862

Int. Cl. H01j 19/70

U.S. Cl. 313-174

6 Claims



A getter device for mounting in an electron tube to be flashed by induction heating from a circular coil positioned externally of the tube, the getter being a pan-shaped container having a vertical sidewall formed around a circular floor member, with an annular portion of the floor member adjacent the sidewall having a greater thickness than the central core portion of the floor member.

3,560,789

GASEOUS ELECTRIC DISCHARGE TUBE INCLUDING A PLURALITY OF PUNCTURABLE GAS STORAGE CELLS

Karl G. Hernqvist, Princeton, and James Robert Fendley, Jr., Trenton, N.J., assignors to RCA Corporation, a corporation of Delaware

Filed Jan. 31, 1969, Ser. No. 795,576

Int. Cl. H01j 17/26

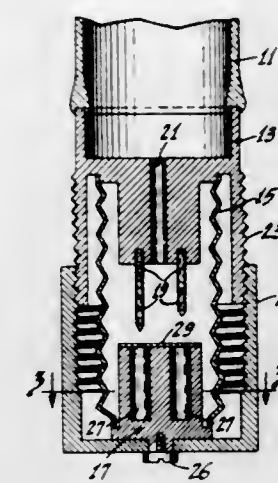
U.S. Cl. 313-177

4 Claims

A replenishable gas discharge tube comprises a plurality of closed cells within the tube envelope, each cell containing a quantity of the ionizable gas, and means operable from outside the tube envelope for successively opening the cells to release the gas within the envelope.

In one form of the invention, a plurality of pins are appropriately arranged within the tube envelope, which com-

prises a gas-tight bellows. The pins are caused to successively puncture the covers of the closed cells by increasing the en-



3,560,790

ALKALI METAL CATHODE LAMPS

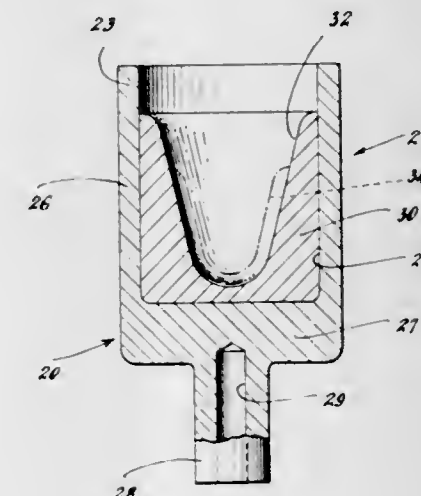
John W. Vollmer, Norwalk, and Laurence Pellier, Westport, Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn., a corporation of New York

Filed July 27, 1967, Ser. No. 656,564

Int. Cl. H01j 17/04

U.S. Cl. 313-218

5 Claims



The radiation emitting cathode of spectral source lamps often is a hollow cup, the interior of which contains a coating of the spectrally emitting element or elements. The forming of such a coating of an alloy of an alkali metal (or metals) with, say, tin in the presence of some boron is proposed, resulting in higher melting points and lower vapor pressures, thereby allowing higher operating lamp currents and consequent spectral radiation intensity. The coating material is formed, say, directly on the interior of the cathode cup (say, of titanium) by fusing an alkali metal borohydride with tin, thereby avoiding the need to handle pure alkali metal. The hydrogen gas liberated during alloy formation removes some of the contaminants (e.g., oxides). A boron-containing, glassy slag may be readily separated from the alkali metal alloys. Specific examples in which the alkali metal component is sodium, potassium, or a mixture of sodium and potassium are disclosed. The other metal may be, for example, tin or lead.

3,560,791

MESH CATHODE FOR ELECTRON TUBES

Wilhelm Bertelsmann, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany, a corporation of Germany

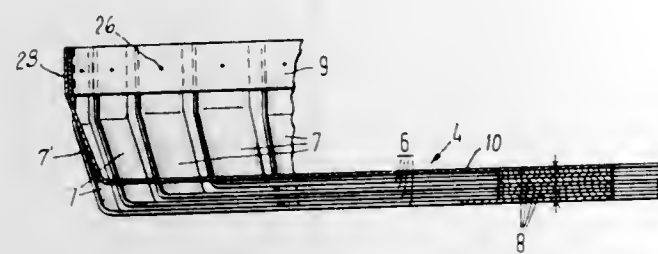
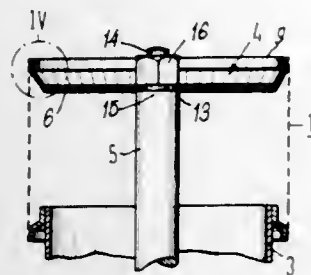
Filed Sept. 6, 1968, Ser. No. 758,059

Claims priority, application Germany, Sept. 8, 1967, P 16 14 598.5

Int. Cl. H01j 1/15, 19/08

U.S. Cl. 313-341

9 Claims



A mesh cathode comprising a tubular mesh grid formed of electron-emitting wires; the tubular grid having one end portion thereof fastened to an annular heating current supply terminal and having the other end portion thereof attached to a cap which is supported on a rod disposed coaxially of the tubular grid. The rod and the cap cooperate to form a second heating current supply terminal. The cap comprises a plurality of laminar members each having a plurality of arms extending radially outwardly from a centrally disposed hub having an aperture therethrough for fittingly engaging the supporting rod. The laminar members are arranged with the arms in a staggered pattern relative to each other.

3,560,792

APPARATUS FOR OBSERVING DISPLAY SCREENS OF INSTRUMENTS USING PARTICLE BEAMS

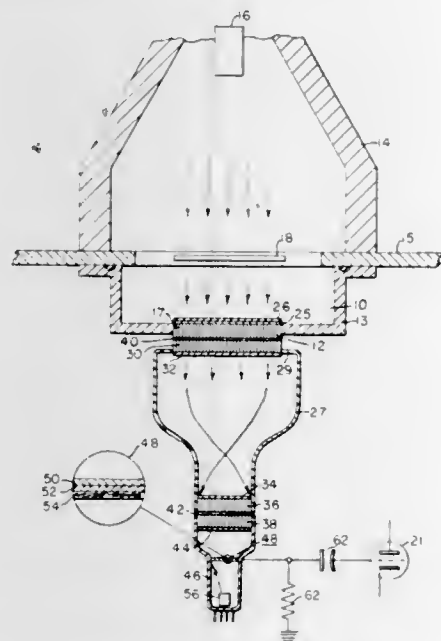
Gerhard W. Goetze, Elmira, N.Y.; Karl-Heinz Herrmann, and Dieter Krahle, Berlin, Germany, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania and Siemens Aktiengesellschaft, Berlin & Munich, Germany, a corporation of Germany

Filed Mar. 26, 1969, Ser. No. 811,283

Int. Cl. H01j 31/08

U.S. Cl. 315-11

6 Claims



Apparatus associated with a device, such as an electron microscope, in which fiber optic coupling is utilized in com-

bination with a secondary electron conduction type camera tube for deriving an electrical signal representative of low light level emitted from the phosphor within an electron microscope.

3,560,793

COLOR TELEVISION CONVERGENCE SYSTEM

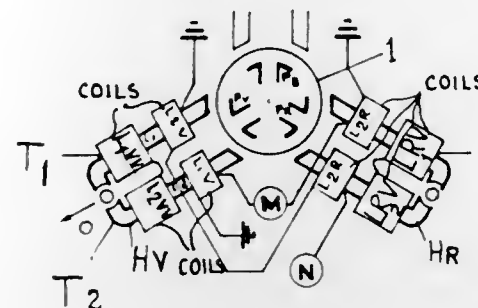
Michel Payen, Vincennes, France, assignor to Societe Orega Electronique & Mecanique, a corporation of France

Continuation of application Ser. No. 647,564, June 20, 1967, now abandoned. This application Apr. 10, 1969, Ser. No. 815,009

Int. Cl. H01j 29/50

U.S. Cl. 315-13

11 Claims



The convergence correction device for three-gun tubes according to the invention is of the type comprising, for corrections at line and field period, for each red or green gun, a single magnetic circuit around which are wound coils carrying currents which generate the magnetic correction fields, these currents being of line and field frequencies. It is essentially characterized in that each of the windings corresponding respectively to red and to green is divided into a first and a second element: the first red and green elements receive in parallel a correction current whose purpose is to bring the two points of impact corresponding to the same signal on the same vertical line on the screen. The second red and green elements are coupled so as to generate two fields of the same amplitude but of opposite sign to bring these two points on the same horizontal line on the screen.

3,560,794

LIGHTNING ARRESTER WITH A RUPTURABLE DIAPHRAGM FOR GAS PRESSURE RELEASE

Hanspeter Christener, Schofflisdorf, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland, a joint stock company

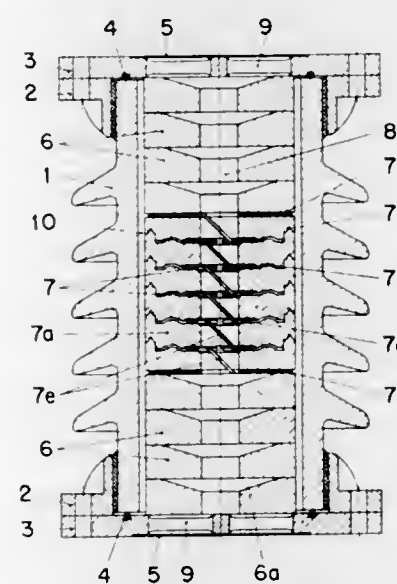
Filed June 11, 1969, Ser. No. 832,286

Claims priority, application Switzerland, June 12, 1968, 8745/68

Int. Cl. H02h 3/22, 7/24, 9/06

U.S. Cl. 315-36

5 Claims



A voltage surge arrester comprises one or more columns of stacked spark gaps and resistors located within a closed cas-

ing and which are connected electrically in series. In order to prevent the casing from fracturing as a result of the high thermal and mechanical stresses which are created by arcing within the casing, the spark gaps and resistors are given an annular configuration thereby to establish a continuous and approximately central channel through them and a pressure relief device is situated in the immediate vicinity of each end of the channel.

3,560,795

HIGH INTENSITY SHORT DURATION HIGH REPETITION RATE LIGHT SOURCE

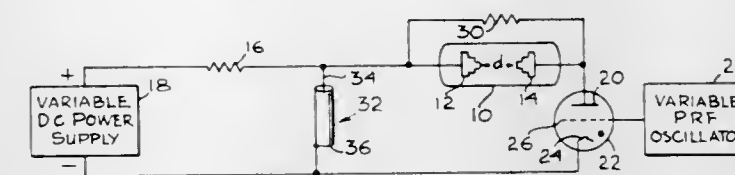
Slava A. Pollack, 350 Palos Verdes Blvd, Redondo Beach, and Richard C. Mackey, 6228 Belmar Ave., Reseda, Calif. 91335

Continuation of application Ser. No. 505,500, Oct. 28, 1965, now abandoned. This application Sept. 29, 1969, Ser. No. 864,272

Int. Cl. H05b 37/00

U.S. Cl. 315-240

15 Claims



A light source having a lamp envelope with electrodes positioned therein a predetermined distance apart. A gaseous medium is provided within the envelope which has a predetermined pressure for providing a minimum duration maximum intensity output light pulse characteristic of the gaseous medium when a voltage pulse of comparable duration is applied across the electrodes to ionize the gaseous medium. The voltage pulse is provided by a pulse-forming circuit which is adapted to be changed to a predetermined voltage from a source of electrical energy to generate the voltage pulse having a time duration comparable to the duration of the output light pulse. A circuit is also provided for periodically connecting the pulse-forming circuit to the electrodes to discharge the voltage pulse through the gaseous medium.

3,560,796

RELAY CONTROL SYSTEM FOR PREVENTION OF CONTACT EROSION

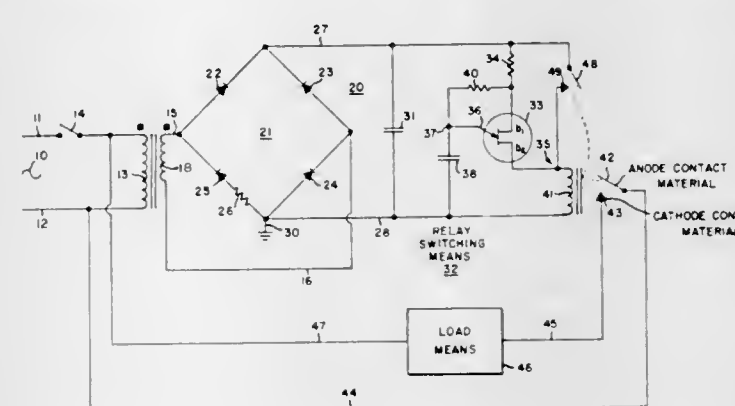
William R. Landis, Richfield, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Dec. 11, 1969, Ser. No. 884,211

Int. Cl. H01h 47/32

U.S. Cl. 317-11

10 Claims



A control system for energizing an electrical relay and electrical load from a source of alternating current so that any relay contact bounce occurs during a portion of the applied alternating current source in a fashion to eliminate contact erosion. The control of the relay is accomplished by a synchronous switching means that is responsive to a voltage ripple superimposed on a direct current voltage from a

bridge. The bridge contains an impedance which unbalances the voltage ripple in such a manner as to provide for a predictable mode of synchronous switching. The relay contacts are selected of dissimilar materials and operate with the predictable mode of synchronous switching so that there is little or no erosion of the contacts themselves.

3,560,797

ELECTRIC MOTOR PROTECTION DEVICES

Jean Pineau, Suresnes, and Francois Peroy, Bourg-La-Reine, France, assignors to Regie Nationale Des Usines Renault, Billancourt (Hauts de Seine), France

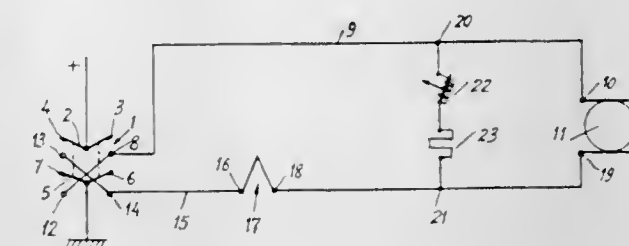
Filed Sept. 12, 1968, Ser. No. 759,392

Claims priority, application France, Sept. 15, 1967, 121,165

Int. Cl. H02h 7/085, 5/04

U.S. Cl. 317-13

4 Claims



An auxiliary overload breaker circuit parallel to the motor circuit comprises a member enabling said circuit to receive a considerable current in relation to the maximum current flowing through the motor and to which it is added when flowing through the breaker, thus reducing to a substantial proportion the opening time of the breaker.

3,560,798

BREAKER RECLOSING AND LOCKOUT RELAY

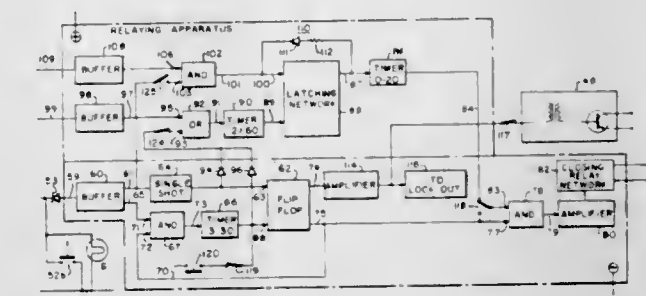
Nathaniel D. Tenebaum, Plainfield, and Walter A. Elmore, Millington, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Apr. 24, 1969, Ser. No. 819,022

Int. Cl. H02h 3/08; H01h 47/18

U.S. Cl. 317-22

26 Claims



A reclosing solid state relaying network which eliminates the necessity for the usual 52x breaker contact (a contact that closes during the closing movement of a power circuit breaker) and utilizes an existing 52b contact (which is a contact closed solely when the breaker is in wide open condition) associated with the usual green lamp used to indicate an open circuit condition of the breaker thereby eliminating the cost of the additional wiring from the switch yard to the control house and enabling the use of breakers having no 52x contact. The solid state relaying network may be arranged to control the operation of a single breaker or in its more complete form arranged to control a plurality of breakers in a "breaker-and-a-half or ring bus arrangement" to lockout upon the second reclosure of a breaker into a faulted power line thereby eliminating further breaker reclosures upon a faulted line as occurred in prior art systems.

3,560,799

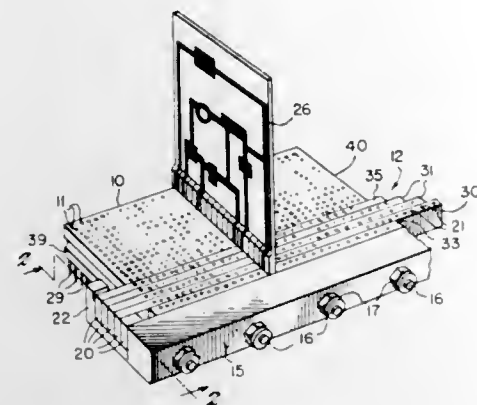
BUS BAR BUILDING BLOCK ASSEMBLY

Philip J. Bochicchio, Ellicott, Md., assignor to the United States of America as represented by the Secretary of the Army

Filed Oct. 22, 1968, Ser. No. 769,589
Int. Cl. H02b 1/02

U.S. Cl. 317-101

10 Claims



An apparatus for removably retaining preformed circuit cards in prearranged circuit configuration, wherein a panelboard bus bar, building block assembly comprises a plurality of bus bars, with apertures therethrough, affixed to a switchboard, having similar apertures therein, situated so that the preformed circuit cards can be removably plugged into the panelboard and bus bar assembly simultaneously.

3,560,800

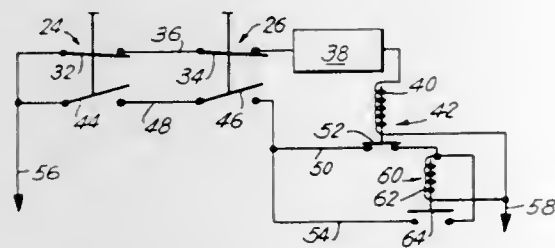
ELECTRICAL SAFETY STRUCTURE

Morris Weidenfeld, Bayside, N.Y., assignor to Morris Weidenfeld, a part interest and Abraham Weidenfeld, New York, N.Y., a part interest

Filed Dec. 28, 1967, Ser. No. 694,182
Int. Cl. H01h 47/00

U.S. Cl. 317-135

4 Claims



An electrical safety structure designed to prevent injury to an operator of a machine. This safety structure includes a safety circuit and an operating circuit for operating a machine when this latter circuit is closed. A pair of series-connected normally closed switches are located in the safety circuit and a pair of series-connected normally open switches are located in the control circuit and are respectively coupled with the normally open switches to form with the latter a pair of switch units spaced from each other by a distance too great to be operated by one hand of the operator. A control switch means maintains part of the operating circuit closed as long as the normally closed switches of the safety circuit remain in their closed positions and operates to enable the operator to actuate both of the switch units simultaneously to provide for simultaneous closing of both normally open switches along with simultaneous opening of both normally closed switches so that the operating circuit will be closed by the pair of series-connected normally open switches only by simultaneous actuation of both switch units. Because the operator must use both hands for simultaneous operation of the switch units, the operator's hands cannot be located at a part of the machine where the operator can be injured when the machine is actuated by closing the operating circuit.

3,560,801

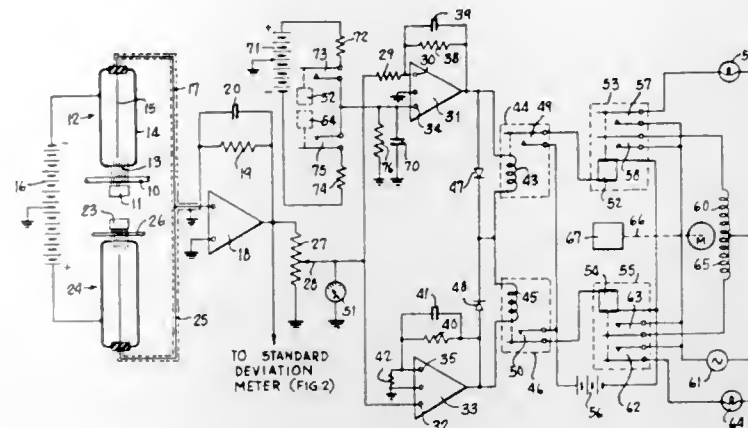
SYSTEM AND METHOD FOR ELECTRICALLY CONTROLLING A CHARACTERISTIC OF A MANUFACTURING FLOW PROCESS

Colin S. McArthur, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C., a corporation of New Jersey

Filed Feb. 14, 1968, Ser. No. 707,021
Int. Cl. A24b 7/14; E01f 1/16; H03f 21/00

U.S. Cl. 317-137

9 Claims



Apparatus and method for controlling a characteristic of a stream of moving material, specifically for controlling the density of a rod of cigarette stock, including means for measuring the characteristic at a predetermined point in the flow of the material, means for converting said measurement into an electrical input signal having an amplitude and a polarity respectively indicative of the magnitude and sense of deviation of the characteristic from a predetermined value, and means for controlling the characteristic located upstream from the deviation measuring means and controlled in response to the signal.

Means is provided for producing an anticipation signal concurrently with the actuation of the deviation-correcting control means and for introducing the anticipation signal into the control means in opposition to the effect of the input signal, so as to compensate for the timelag between the instant when a correction is made by the control means and the instant when the corrected stream of moving material reaches the deviation-measuring means. The anticipation signal increases in amplitude as a function of time. It is effective to stop operation of the control means before the measured characteristic has returned to its preselected value, and hence to prevent establishment of an oscillating or hunting condition of the control means.

3,560,802

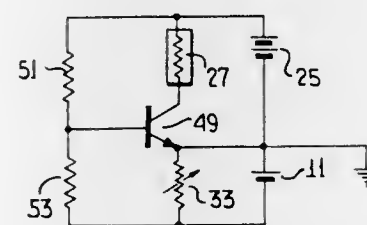
TIMER EMPLOYING CURRENT DRAIN CHARACTERISTIC OF BATTERY

Garrard Mountjoy, and John D. Reid, Little Rock, Ark., assignors to Baldwin Electronics, Inc., Little Rock, Ark., a corporation of Arkansas

Filed Aug. 18, 1967, Ser. No. 661,633
Int. Cl. H01h 47/18

U.S. Cl. 317-142

4 Claims



A timer comprising a battery, an impedance connected in circuit with the battery for progressively draining the battery, and a device actuatable when the battery has been drained to a sufficiently low level.

3,560,803

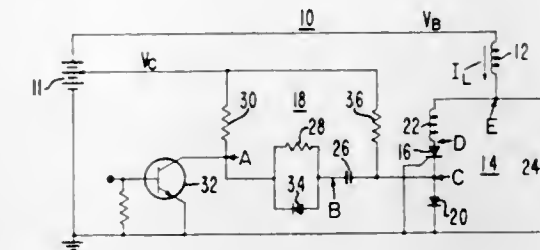
ACTUATOR SYSTEM

Kelvin Shih, Detroit, Mich., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed July 5, 1968, Ser. No. 742,764
Int. Cl. H01h 47/32

U.S. Cl. 317-151

3 Claims



An actuator system having a parallel inductor-capacitor circuit connected in electrical series with the actuator coil. The capacitor follows a positive half cycle oscillation and thereby becomes reversed charged. A silicon controlled rectifier, responsive to the negative half cycle of oscillation, electrically connects the reversed charged capacitor in series with the supply voltage and thereby providing an increased operating voltage to the actuator coil. The capacitor is recharged through the actuator coil completing the operation of the actuator.

3,560,804

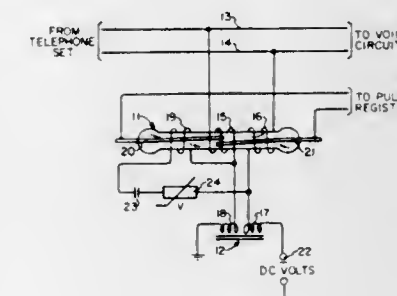
BATTERY-FEED AND IMPULSING CIRCUIT USING A FAST-OPERATING RELAY

Emiel Goossens, Aartselaar, and Herman Labedz, Risensart, Belgium, assignors to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware

Filed July 14, 1969, Ser. No. 841,373
Int. Cl. H01h 47/02

U.S. Cl. 317-155.5

6 Claims



A reed relay has an operating winding connected in series with an audiofrequency choke coil and an auxiliary winding coupled to the choke coil to aid fast operation and release of the contacts of the relay. The choke coil provides high impedance to voice signals, and its coupling to the auxiliary winding compensates for the tendency of the relay to operate more slowly than usual as a result of the inclusion of the high inductance of the choke coil in the operating circuit of the relay. Also, the auxiliary winding causes release of the contacts even though line leakage current is excessive. A varistor effectively functions to disconnect the auxiliary winding during transmission of voice signals.

3,560,805

Everett A. Gilbert, Denville, and Channing S. Williams, Rockaway, N.J., assignors to RFL Industries, Inc., Boonton, N.J., a corporation of New Jersey

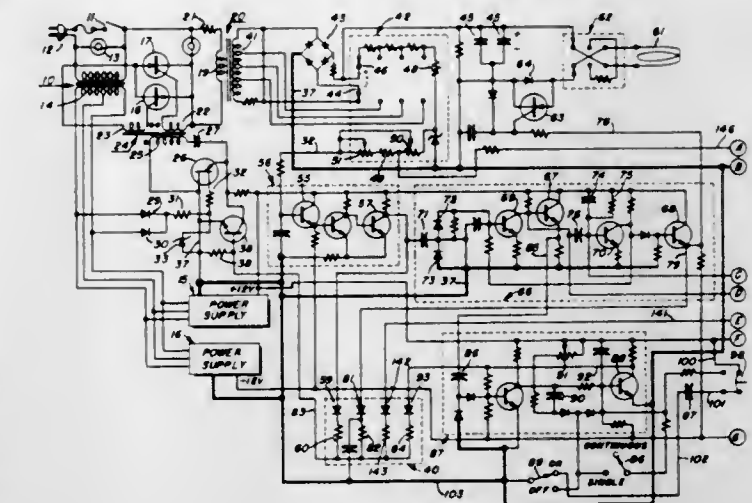
Filed July 12, 1968, Ser. No. 744,439
Int. Cl. H01f 13/00

U.S. Cl. 317-157.5

19 Claims

Apparatus for selectively decreasing the magnetic intensity of a permanent magnet by passing current pulses of decaying waveform through a pulldown coil. A capacitor is alternately charge to a predetermined voltage level and discharged through the pulldown coil. Control means are provided to

pass through the pulldown coil either a single current pulse of predetermined maximum amplitude, or a continuous series



of such pulses or a train of current pulses of increasing initial amplitude.

3,560,806

MAGNETIC INDUCTIVE SEMICONDUCTOR DEVICE

Shoei Kataoka; Hideo Yamada; Shosan Iida, and Hiroyuki Fujisada, Tokyo, Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan, a corporation of Japan

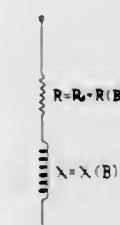
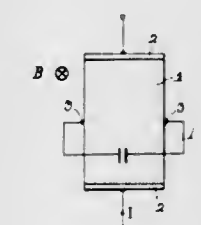
Filed Jan. 16, 1968, Ser. No. 698,234

Claims priority, application Japan, Jan. 21, 1967, Mar. 15, 1967, June 2, 1967, July 4, 1967, July 4, 1967, Aug. 3, 1967, Aug. 12, 1967, Dec. 4, 1967, Dec. 12, 1967, Dec. 12, 1967, 42/3872; U.M. 42/21180; 42/34888; 42/42552; 42/42553; 42/49499; 42/51470; 42/77370; 42/79260; 42/79261

Int. Cl. H01l 15/00

U.S. Cl. 317-231

14 Claims



A solid state inductive device comprises either a sandwich of a N-type and a P-type semiconductor with an insulating layer therebetween, or a semiconductor and a plurality of metal strips with a dielectric layer therebetween. A current electrode is connected to the opposite ends of the semiconductor and interconnect the semiconductors in the first embodiment, the metal strips being angular to the direction of the electrodes in the second embodiment. The device forms an inductive reactance between the electrodes upon application of a magnetic field in an angular direction to a side of the device.

3,560,807

MULTI-SHOT VOLTAGE SENSITIVE SWITCH ASSEMBLY

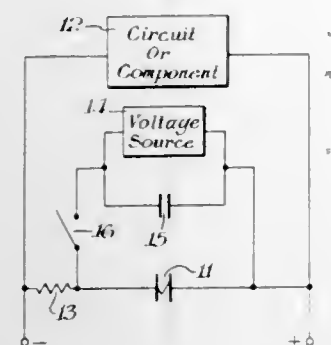
Ernest N. Urfer, and Henry F. Puppolo, North Adams, Mass., assignors to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts

Filed Feb. 25, 1969, Ser. No. 802,016

Int. Cl. H01g 1/16

U.S. Cl. 317—231

4 Claims



A multishot voltage-sensitive switch is provided by a solid state device consisting of a thin film dielectric sandwiched between an electrode and a thin film counterelectrode. The switch closes upon the application of a voltage in excess of a rated voltage and is cleared by application to the switch of a high current, low voltage pulse.

3,560,808

PLASTIC ENCAPSULATED SEMICONDUCTOR ASSEMBLIES

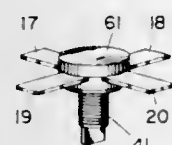
Eugene E. Segerson, Tempe, Ariz., assignor to Motorola Inc., Franklin Park, Ill., a corporation of Illinois

Filed Apr. 18, 1968, Ser. No. 722,471

Int. Cl. H01l 1/06

U.S. Cl. 317—235

6 Claims



A plastic encapsulated, high-frequency power transistor assembly having a metallized ceramic base and a metallic heat sink is fabricated by a method which includes the use of a thin, substantially flat lead frame member having at least four inwardly projecting, substantially coplanar electroconductive leads and a bridging portion integral therewith connecting the ends of two of said leads. The lead ends are bonded to corresponding metallized areas of the ceramic base, one of said metallized areas having a centrally extended configuration adapted for die bonding of the semiconductor unit. The assembly is then completed by the attachment of a metallic stud to the opposite side of the ceramic base, wire bonding of the emitter region to the bridging portion of the lead frame, wire bonding of the base region to the remaining lead, and a final step of plastic encapsulation.

3,560,809

VARIABLE CAPACITANCE RECTIFYING JUNCTION DIODE

Hajime Terakado, Kodaira-Shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan

Filed Feb. 27, 1969, Ser. No. 802,845

Claims priority, application Japan, Mar. 4, 1968, 43/13623

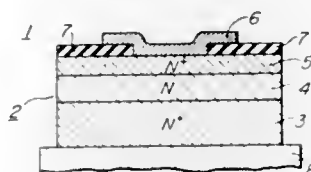
Int. Cl. H01l 9/00

U.S. Cl. 317—234

4 Claims

A variable capacitance diode comprising a super abrupt junction therein, said diode comprising a semiconductor

wafer including a semiconductor region having a graded impurity concentration, and a metal layer deposited on one sur-



face of said semiconductor region to form a surface barrier at said one surface of the semiconductor region.

3,560,810

FIELD EFFECT TRANSISTOR HAVING PASSIVATED GATE INSULATOR

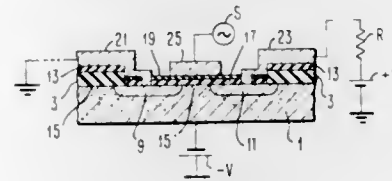
Pieter Balk, Katonah; David W. Dong, Peekskill, and Jerome M. Eldrige, Mahopac, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Aug. 15, 1968, Ser. No. 752,897

Int. Cl. H01l 1/14

U.S. Cl. 317—235

12 Claims



An insulated-gate field effect transistor is described which includes a gate insulator defined as a laminate structure comprising a phosphosilicate glass (PSG) layer and a silicon dioxide (SiO₂) layer, the ratio of the thicknesses of such layers and, also, the P₂O₅ concentration in the PSG layer being properly chosen to insure stable device characteristics over extended periods under operation conditions.

3,560,811

VARIABLE CAPACITORS

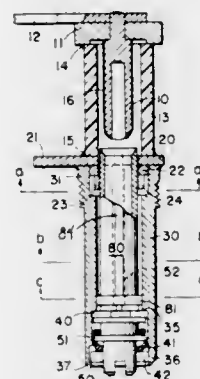
George Farago, 206 E. 37th St., Brooklyn, N.Y. 11203

Filed May 29, 1969, Ser. No. 828,971

Int. Cl. H01g 5/04

U.S. Cl. 317—249

5 Claims



In the variable capacitors of the coaxial type where a tubular electrode is moved by screw or similar action to engage more or less a stationary electrode, and dielectric is between the electrodes, a spring-stressed means is provided to establish direct contact between the movable electrode and a circuit, which said spring-stressed means can be also the rotation restraining element and the positive stop for the movable electrode.

3,560,812

HIGH SELECTIVELY ELECTROMAGNETIC RADIATION DETECTING DEVICES

Robert N. Hall, Schenectady; Richard D. Baertsch, Scotia, and John R. Richardson, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

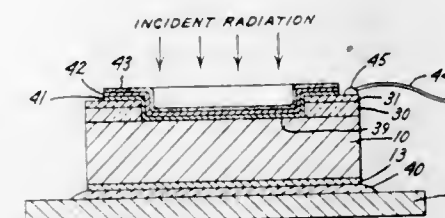
Filed July 5, 1968, Ser. No. 742,655

Int. Cl. H01l 15/00, 5/00

U.S. Cl. 317—234

4 Claims

U.S. Cl. 317—235



A high selectivity solid-state radiation detector having a Schottky barrier-type junction is fabricated by depositing a thin silver film of prescribed thickness atop a semiconductor crystal to form a sharp silver-to-semiconductor interface. The film allows a narrow band of the electromagnetic radiation incident thereon to pass therethrough into the semiconductor. Such radiation band is at an energy which is greater than the energy gap of the semiconductor and is thereby strongly absorbed, producing electron-hole pairs within the space-charge region of the barrier and giving rise to a photoelectromotive force or photoconductivity that peaks at an energy of radiation greater than the energy gap. If the radiation transmitted by the silver film is of energy less than the band gap of the semiconductor it is only weakly absorbed in the semiconductor, and therefore produces negligible response. By varying the film thickness, the selectivity and peak sensitivity may be further controlled.

3,560,813

HYBRIDIZED MONOLITHIC ARRAY PACKAGE

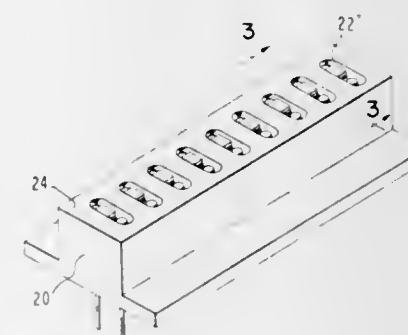
William S. Phy, Los Altos, Calif., assignor to Fairchild Camera and Instrument Corporation, Syoset, Long Island, N.Y., a corporation of Delaware

Filed Mar. 13, 1969, Ser. No. 807,633

Int. Cl. H01l 1/16

U.S. Cl. 317—234

10 Claims



Prior to packaging, support and interconnect leads are bonded to a semiconductor die containing light-sensitive components, enabling the photoresponse of each component to be tested. A plurality of similar semiconductor dice are then selected according to a desired photoresponse, and can be assembled into a package. The need for additional bonding with respect to the die is eliminated. Unwanted variations in photoresponse during the packaging process are prevented from occurring, and the similarity in photoresponse between components is maintained.

3,560,814

TRANSISTOR WITH STRIP SHAPED EMITTER

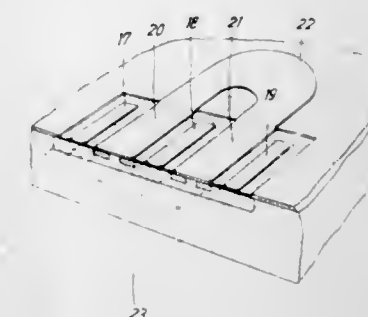
Reiner Engbert, Talheim, and Reinhold Kaiser, Heilbronn, Germany, assignors to Telefunken Patentverwertungsgesellschaft m. b. H., Ulm, Danube, Germany

Filed Apr. 8, 1968, Ser. No. 719,641

Claims priority, application Germany, Apr. 8, 1967, T33623

Int. Cl. H01l 11/00, 19/00

5 Claims



A semiconductor arrangement of the type having a collector zone of a first conductivity type, a base zone of a second conductivity type and an emitter zone of the first conductivity type. Part of the base zone is arranged to extend through an opening in the emitter zone and is short-circuited to the emitter zone.

3,560,815

VOLTAGE-VARIABLE CAPACITOR WITH EXTENDIBLE PN JUNCTION REGION

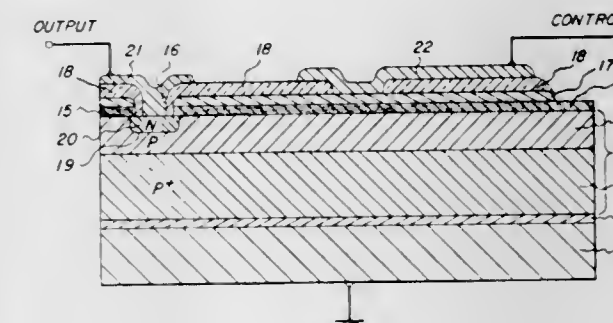
Raymond A. Sigsbee, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

Filed Oct. 10, 1968, Ser. No. 766,605

Int. Cl. H01l 5/02

U.S. Cl. 317—235

16 Claims



A PN junction region formed in a portion of a semiconductor wafer extends beneath the edge of a conductor overlaid on an insulating layer atop the wafer, in absence of voltage above a threshold amplitude across the conductor and wafer. As this voltage is increased to exceed the threshold amplitude, majority carriers are repelled from the wafer surface beneath the conductor and sufficient minority carriers are accumulated near the surface to invert the surface. This extends the PN junction beneath the entire conductor, with an attendant increase in junction capacitance.

3,560,816

DRIVING SYSTEM FOR TRACTION PURPOSES

Sigfrid Franzen, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a Swedish corporation

Filed Oct. 14, 1968, Ser. No. 767,395

Claims priority, application Sweden, Oct. 17, 1967,

14,171/67

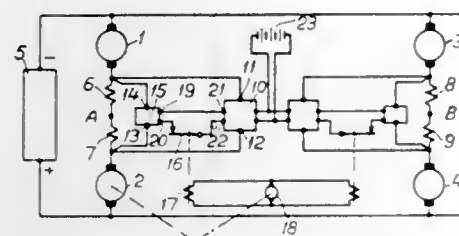
Int. Cl. H02p 7/70

U.S. Cl. 318—52

4 Claims

An electrical traction system with parallel-connected

groups of series motors is provided with means for switching



over to a condition with a constant number of field ampere turns when maximal adhesion is desired.

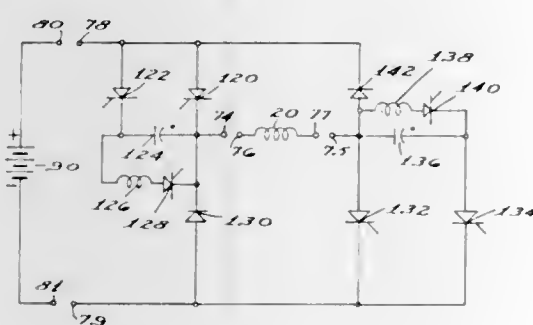
3,560,817

RELUCTANCE MOTOR POWER CIRCUIT

Carmelo J. Amato, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Jan. 31, 1969, Ser. No. 795,410
Int. Cl. H02k 29/02

U.S. Cl. 318-138

12 Claims



Conventional SCRs and diodes are used to apply DC electric power from a storage battery to a winding of a reluctance-type motor. The circuit provides full and partial motoring and regenerative braking, freewheels the winding current at low speeds to improve motor torque, and returns winding current to the storage battery at the end of the motoring cycle to improve efficiency. Electrically powered automotive vehicles use the circuit to great advantage and the circuit also can be used in stationary industrial applications.

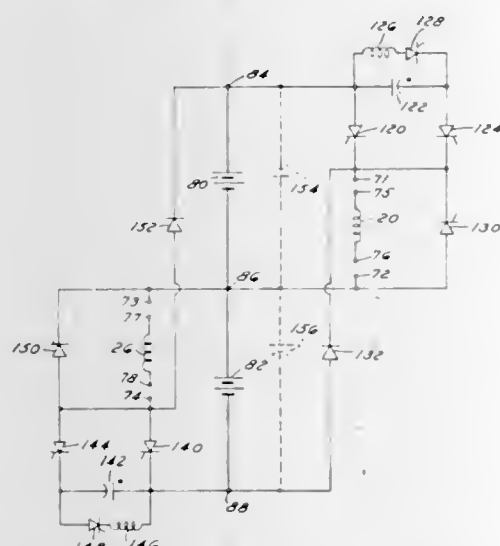
3,560,818

RELUCTANCE MOTOR POWER CIRCUIT USING DUAL ENERGY SOURCES

Carmelo J. Amato, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Feb. 3, 1969, Ser. No. 795,792
Int. Cl. H02k 29/02

U.S. Cl. 318-138

11 Claims



Power is supplied to pairs of motor windings having varying inductances during motor operation from two batteries

connected in series. Conventional SCRs and diodes shape winding current to achieve highly efficient motor operation, provide full and partial motoring and regenerative braking, and return winding current to the batteries at the ends of the motoring cycle to improve efficiency. One battery supplies operating current to one motor winding and the residual current from that winding is returned to the second battery, which supplies operating current to the second winding. Residual current from the second winding is returned to the first battery.

3,560,819

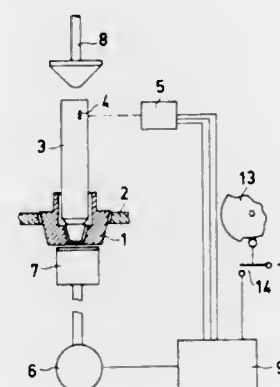
MACHINE FOR FILLING AND CLOSING OF COLLAPSIBLE TUBES, AMPOULES AND SIMILAR CONTAINERS

Rudolf Overa, Jakobsberg, Sweden, assignor to Arencio Aktiebolag

Filed Dec. 24, 1968, Ser. No. 786,707
Claims priority, application Sweden, Jan. 12, 1968, 445/1968
Int. Cl. H02k 37/00

U.S. Cl. 318-138

5 Claims



The invention relates to a device for rotating collapsible tubes or similar containers into a predetermined position for closing the open end of each tube. The device comprises a spindle driven by an electric multipolar electric step motor having a number of poles corresponding to the desired angular movement of each step. The motor is driven one step for each pulse in a pulse train from an oscillator with variable pulse frequency, said pulse train during a first time interval (t_1 to t_2) having a relatively low pulse frequency which during a second time interval (t_2 to t_3) is increased to a maximum value, said first time interval corresponding to the time consumed by the spindle cause it without any substantial slip relative the container to accelerate the same from zero to the predetermined rotational speed, which is determined by the frequency of the pulses emitted from the oscillator during said second time interval.

3,560,820

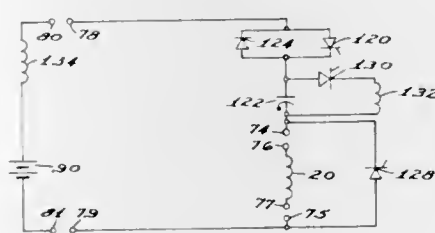
RELUCTANCE MOTOR POWER CIRCUIT CONTAINING SERIES CAPACITANCE

Lewis E. Unnewehr, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Feb. 3, 1969, Ser. No. 795,793
Int. Cl. H02k 29/02

U.S. Cl. 318-138

9 Claims



A commutating capacitor is coupled in series with a DC battery and the winding of a reluctance-type motor. In series with the capacitor is a circuit consisting of an SCR in parallel

with a reverse biased diode or a second SCR. An SCR is coupled in parallel with the winding to freewheel winding current. Another SCR in series with an inductor can be coupled in parallel with the capacitor to reverse the capacitor charge.

3,560,821

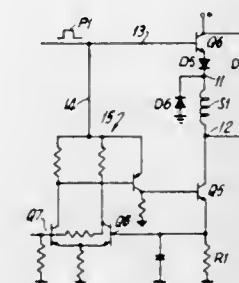
PULSE TYPE DRIVE CIRCUIT FOR AN INDUCTIVE LOAD

Thomas E. Beling, Framingham, Mass., assignor to Sigma Instruments, Inc., South Braintree, Mass., a corporation of Massachusetts

Filed Apr. 21, 1969, Ser. No. 817,880
Int. Cl. H02k 29/04

U.S. Cl. 318-138

12 Claims



A pulse-type drive circuit, for an inductive load such as a winding of a stepping motor, comprises a power supply having one terminal connected, through a first transistor, to a first terminal of the inductive load. The second terminal of the inductive load is connected through a transistor switch, and in series with a current-sensing resistor, to ground. A Schmitt trigger controls conductivity of the transistor switch. A trigger pulse is applied to the first transistor and to the Schmitt trigger, whereby the first transistor and the transistor switch are made conductive to energize the inductive load. When the current in the inductive load reaches a certain level, the current-sensing resistor actuates the Schmitt trigger to block the transistor switch. The first terminal of the inductive load is connected to ground through a blocking diode, and the second terminal is connected to the power supply through a back biased diode. When the load current is interrupted by blocking of the transistor switch, the power in the inductive load is transferred back to the power supply.

The power supply may include a high voltage source connected to the first transistor and a low voltage source connected to the first terminal of the inductive load, with the first transistor being triggered by a "turn on" pulse. The drive circuit may be modified to energize a winding of a stepping motor in opposite directions throughout its entire length and a constant current feedback circuit may be included in the drive circuit.

3,560,822

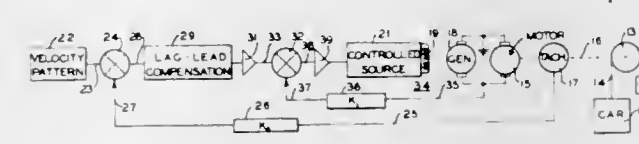
MOTOR CONTROL HAVING A FEEDBACK STABILIZED GENERATOR

Richard C. Loshbough, Toledo, Ohio, assignor to Reliance Electric Company, Euclid, Ohio, a corporation of Delaware

Filed Sept. 6, 1968, Ser. No. 757,929
Int. Cl. H02p 5/22

U.S. Cl. 318-146

1 Claim

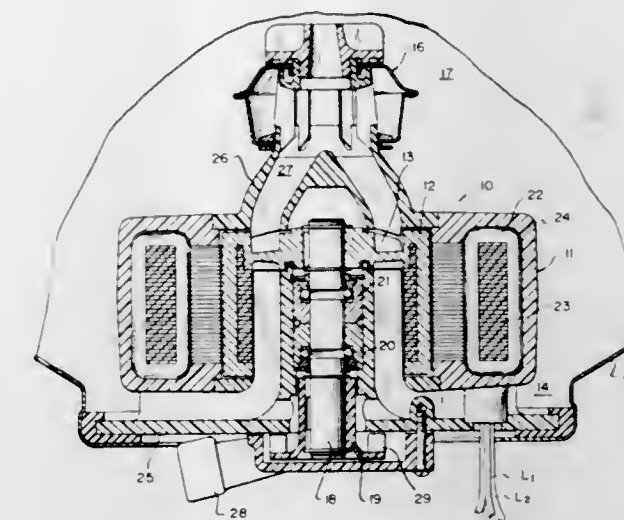


A variable voltage motor control wherein the hoist motor armature is supplied from a dynamoelectric machine having its characteristics linearized by a closed negative feedback loop including a controlled supply for its shunt field. The effective constant gain of the generator enhances operation particularly in elevator hoist motor controls.

3,560,823
LOW PROFILE MOTOR PUMP STRUCTURE
Arne M. Nystuen, Stevensville, Mich., assignor to Whirlpool Corporation, a corporation of Delaware
Filed Nov. 7, 1968, Ser. No. 774,050
Int. Cl. H02p 1/44

U.S. Cl. 318-221

6 Claims



A yoke wound motor structure. The motor is adapted, as a result of its low profile, for facilitated installation such as in dishwasher applications. A pump is provided within the housing to form a compact motor-pump assembly. The toroidal yoke winding includes a portion arranged to provide a flux differing in phase from the flux generated by the main portion of the yoke winding during starting of the motor. The rotor may be a conventional squirrel cage rotor.

3,560,824

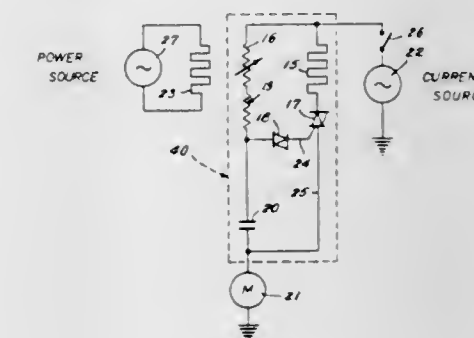
SPEED CONTROL OF AN ELECTRIC MOTOR EMPLOYING THERMALLY SENSITIVE RESISTANCE

Thomas F. Burke, North Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Dec. 5, 1968, Ser. No. 781,316
Int. Cl. H02p 5/40

U.S. Cl. 318-227

14 Claims



Control apparatus comprising a triac, serially connected to a load such as a motor, is gated through a diac. The diac conducts and turns on the triac during each half cycle of triac current when a capacitor has reached a predetermined charge through a charging resistor having a negative temperature coefficient of resistance. The NTC charging resistor gradually heats up (additional heat can also be supplied) with concomitant decrease in resistance and charge time of the capacitor so that the pulse of current seen by the motor gradually increases until a steady state condition is reached. A heating-cooling system is shown in which the above control is employed with a plurality of thermostats and a safety bypass circuit.

3,560,830

POSITIONAL CONTROL SYSTEM WITH BACKLASH COMPENSATION

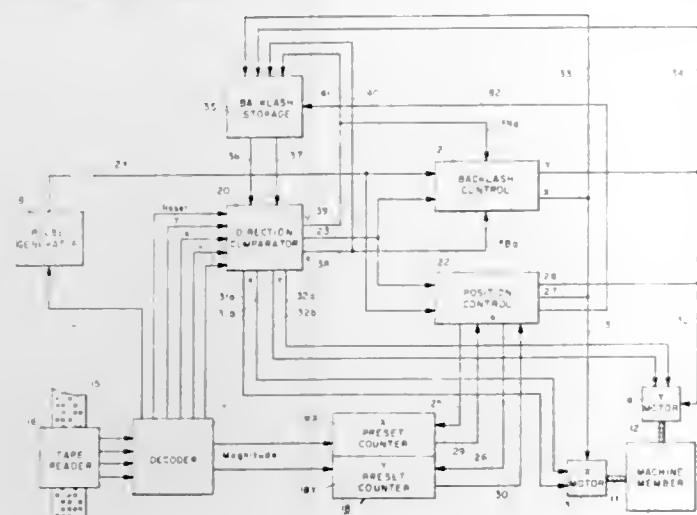
Walter A. Steinberg, Huntington Station, N.Y., assignor to Autonumerics, Inc., Westbury, N.Y., a corporation of New York

Filed Mar. 19, 1969, Ser. No. 808,526

Int. Cl. G05b 11/01

U.S. Cl. 318—630

10 Claims



A positional control system is disclosed which includes means for automatically compensating for backlash in the feed screws coupling the drive motors to the driven machine member. When the displacement of the machine member along a given axis is to be in the same direction as the preceding displacement along that axis, a direction comparator routes control pulses to the drive motor through a position control. The number of pulses transmitted to the motor is determined by a counter which has been set to cut off the position control when the number of transmitted pulses corresponds to the magnitude of the desired displacement. When the displacement of the machine member is in the opposite direction from the preceding displacement along a given axis, the direction comparator routes the control pulses to the drive motor through a backlash control. The number of pulses transmitted to the motor is controlled by a backlash storage unit which is preset to cut off the backlash control through the direction comparator and switch the pulses to the position control when the motor rotation is equal to the feed screw backlash.

3,560,831

BATTERY LOAD BANK

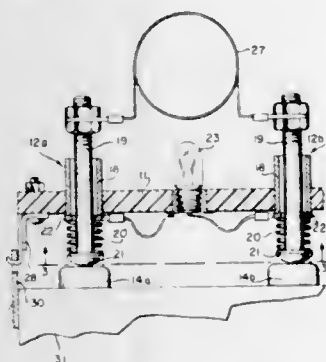
Wendell T. Anderson, Canton, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Oct. 24, 1967, Ser. No. 677,689

Int. Cl. H02j 7/00

U.S. Cl. 320—48

10 Claims



A load bank for independently discharging each cell of a multiple cell battery. A separate resistive load is provided for each cell, and a lamp corresponding to each cell indicates the completion of the discharge of a particular cell. The apparatus can be readily attached to or removed from a battery to be discharged.

3,560,832

BATTERY CHARGING SYSTEM FOR VEHICLES HAVING PROPULSION AND ACCESSORY BATTERIES

Thomas E. Kirk, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed May 5, 1969, Ser. No. 821,694

Int. Cl. H01m 45/05

U.S. Cl. 320—56

7 Claims



A battery charging system for the batteries of an electrically powered motor vehicle. The motor vehicle has a bank of storage batteries which are utilized to energize a propulsion motor and at least one accessory battery which is utilized to energize accessories on a motor vehicle. The battery charging system is capable of charging both the propulsion batteries and the accessory battery from a household source of alternating current. The batteries are supplied with charging current from a bridge rectifier through control circuits that include controlled rectifiers that are periodically switched on and off to control the amount of power applied to the batteries. The charging cycle of the battery consists of an initial constant power mode, a constant voltage mode and finally a timed shut-off mode of operation all of which are controlled automatically by the battery charging system. The battery charging system is arranged such that the controlled rectifier which controls the charging current to the main propulsion batteries is also operative to connect the accessory battery to the main propulsion batteries when the vehicle is running so as to allow the accessory battery to float across the main propulsion batteries whenever the charge level of the accessory battery drops to some predetermined value.

3,560,833

IGNITION DEVICE WITH LOW SOURCE VOLTAGE COMPENSATING CIRCUIT

Kazuo Oishi and Tokuhiko Kurebayashi, Kariya-shi, Japan, assignors to Nippon Denso Company Limited, Kariya-shi, Japan, a corporation of Japan

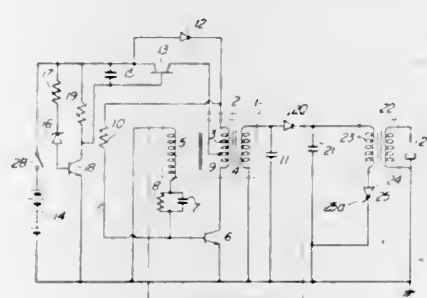
Filed Dec. 3, 1968, Ser. No. 780,854

Claims priority, application Japan, Nov. 30, 1968, 43/5,551

Int. Cl. F02p 3/06, 17/00; H02m 3/22

U.S. Cl. 321—2

8 Claims



A capacitor discharge type ignition device, wherein an intermediate tap is provided on a primary winding of an oscillator transformer incorporated in a DC-DC converter adapted for boosting the voltage of a storage battery, said

intermediate tap and that one of the terminals of said primary winding which is on the power source side are connected with the storage battery through a switching means which are under the control of a voltage control element adapted to detect the terminal voltage of said storage battery, and when the voltage of the storage battery is lower than a predetermined value, the battery is switched to said intermediate tap thereby to prevent the drop of the output voltage from said transformer, while a reverse current from said primary winding to the storage battery being stopped by a diode.

3,560,834

CONSTANT VOLTS-PER-HERTZ REGULATING SYSTEM

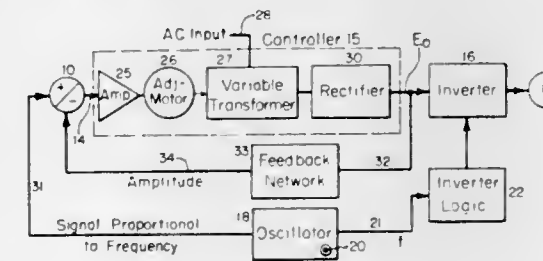
George H. Studtmann, Mount Prospect, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Delaware

Filed Dec. 26, 1968, Ser. No. 786,908

Int. Cl. H02p 5/40

U.S. Cl. 321—4

14 Claims



An oscillator applies timing signals to an inverter logic arrangement for governing the frequency of the inverter output A-C voltage supplied to a motor. The amplitude of the A-C voltage applied to the motor is adjusted by suitable control means which receives a regulating signal from a comparator. A first signal channel includes a feedback network, and applies to the comparator a first control signal which indicates the effective amplitude of the inverter voltage. A second signal channel is connected between the oscillator and the comparator to provide a second control signal related to the frequency of the oscillator output. The comparator output signal is a function of both amplitude and frequency, and drives the control means to maintain a preset ratio between amplitude and frequency of the A-C voltage passed to the motor.

3,560,835

MEANS FOR PROTECTING ELECTRIC POWER CONVERTER FROM COMMUTATION FAILURE

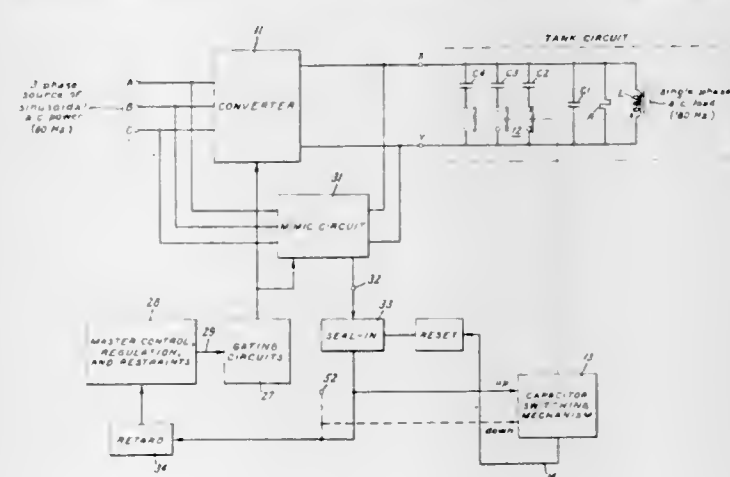
Charles E. Rettig, Brookfield, Wis., assignor to General Electric Company, a corporation of New York

Filed Jan. 3, 1969, Ser. No. 788,790

Int. Cl. H02m 5/14

U.S. Cl. 321—7

10 Claims



Power conversion apparatus using electric valves to control the power delivered from a source of electricity

to a load circuit is protected from commutation failure by providing means responsive to the apparatus operating with a margin angle that is smaller than a desired minimum for activating means for adding capacitance to the load circuit. In one form of the invention, a reduced-scale, increased-sensitivity mimic conversion apparatus is used to detect incipient commutation failure.

3,560,836

MEANS FOR PROTECTING ELECTRIC POWER CONVERTERS FROM COMMUTATION FAILURE

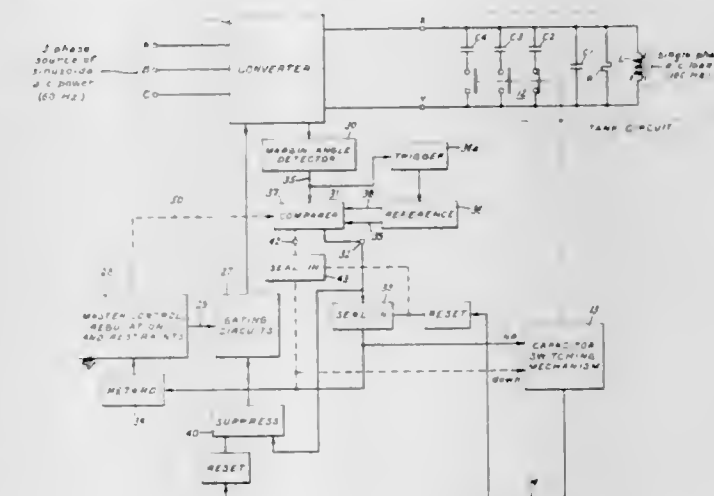
Georges R. E. Lezan, Cherry Hill, N.J., assignor to General Electric Company, a corporation of New York

Filed Jan. 3, 1969, Ser. No. 788,718

Int. Cl. H02m 1/08, 5/00

U.S. Cl. 321—7

8 Claims



In this improved circuit for protecting electric power converters from commutation failure, suitable means is provided for directly detecting the actual margin of an electric power converter and for comparing the detected angle with a given reference in order to initiate margin angle increasing measures if the detected angle is undersize.

3,560,837

SHUNT REGULATED POWER SUPPLY WITH LIMITED OVER-VOLTAGE AND SHORT-CIRCUIT CURRENT

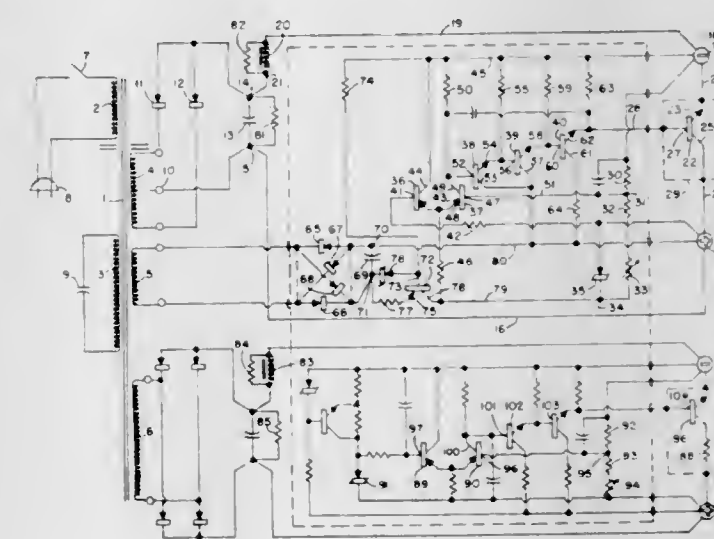
Joseph R. Gately, Woodside, N.Y., assignor to Forbore Design Corp., New York, N.Y., a corporation of New York

Filed Sept. 20, 1968, Ser. No. 761,147

Int. Cl. H02m 1/18, 7/22

U.S. Cl. 321—14

7 Claims



Shunt regulated power supplies are provided with low voltage drop in the unregulated supply and a small bleeder

current to minimize over-voltage even on opening of the regulating circuit and low short-circuit current provided by flux-oscillating line regulating power transformer.

3,560,838

DIRECT CURRENT OR ALTERNATE CURRENT CONVERTER HAVING VARIABLE PULSE WIDTH AND FREQUENCY

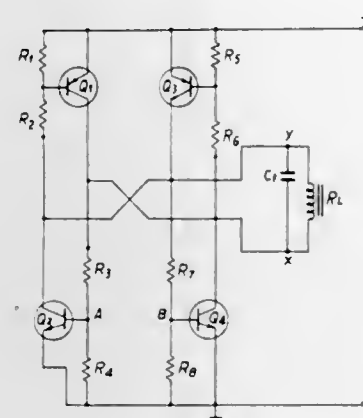
Lawrence M. Weixelman, Wichita, Kans., assignor to Electronic Communications, Inc., St. Petersburg, Fla., a corporation of New Jersey

Filed Sept. 26, 1968, Ser. No. 762,733

Int. Cl. H02p 13/18; H02m 1/08

U.S. Cl. 321—16

14 Claims



A DC to AC inverter includes a first pair of complementary transistors having their respective collector-emitter circuits coupled in series with an inductive load. The second pair of complementary transistors similarly have their collector-emitter circuits coupled in series with the load. Of the respective pair, both first type transistors have their collector-emitter circuits coupled to a DC source terminal and both second type transistors have their collector-emitter circuits coupled to the other DC source terminal. The bases of the first type transistors are now simultaneously driven by an independent oscillator circuit to effect the conversion.

Two types of oscillator circuits are shown. The first includes an RC coupled oscillator of variable frequency, and the second a relaxation oscillator in tandem with a typical oscillator circuit to form a variable pulse width oscillator.

3,560,839

RECTIFIER CIRCUIT

Camillo Manansala Tabalba, Basildon, Essex, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

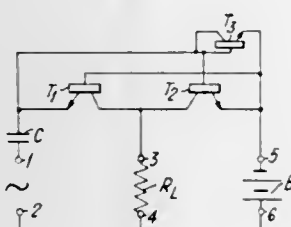
Filed Aug. 26, 1969, Ser. No. 853,179

Claims priority, application Great Britain, Sept. 11, 1968, 43,142/68

Int. Cl. H02m 7/12

U.S. Cl. 321—47

4 Claims



This invention provides a full wave rectifier circuit supplying an unbalanced load from an unbalanced source without the use of a transformer. One terminal of the source and the load is common. Two transistors, one in a

common base and the other in a common emitter configuration, supply the load during alternate halfwaves. The circuit can be used either for unmodulated signals or as an envelope detector for amplitude modulated signals.

3,560,840

VOLTAGE REGULATOR FOR A GENERATOR WITH FILTERED FEEDBACK MEANS

Rudi Stalp, Korntal, Germany, assignor to Robert Bosch G.m.b.H., Stuttgart, Germany, a limited-liability company of Germany

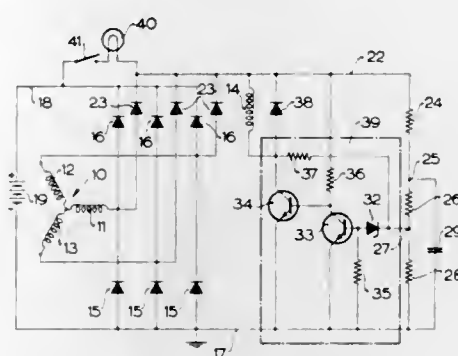
Filed June 4, 1968, Ser. No. 734,459

Claims priority, application Germany, June 9, 1967, B 92,925

Int. Cl. H02p 9/30

U.S. Cl. 322—28

3 Claims



To enable use of integrated circuits, a field current transistor, being switched between conductive and blocked condition, controls the total supply of energy to the generator field; a control transistor is connected to the field current transistor to control its conduction, and a positive feedback circuit interconnects the two transistors for rapid on-off switching. The extent of conduction, as determined by the control transistor, depends on deviation of generator output voltage from a reference, for example a Zener diode. To prevent response of the control transistor to harmonics, a voltage divider with two taps is connected across the output, a capacitor being connected from one tap across the voltage divider to span another tap, and the reference voltage being taken off the other tap, so that the capacitor can act as a smoothing, or filtering capacitor, the resistance between the taps isolating the capacitor and the reference point of the voltage, and hence the feedback circuit, to provide for rapid response to output voltage variations.

3,560,841

EXCITER DEVICE TO TRANSFER HIGH EXCITATION CURRENTS BY MEANS OF BRANCH CIRCUITS AND PLURAL SLIP RINGS

Egon Pannen and Gerhard Lanz, Mulheim (Ruhr), Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

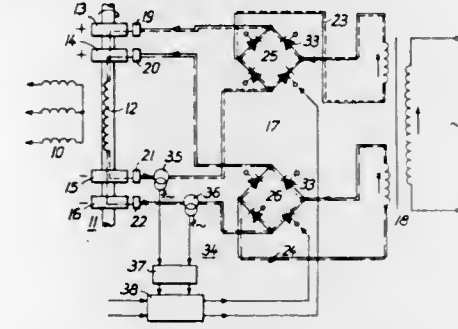
Filed June 17, 1968, Ser. No. 737,485

Claims priority, application Germany, June 20, 1967, L 56,772

Int. Cl. H02k 13/02; H02p 9/30

U.S. Cl. 322—73

4 Claims



An exciter device for large alternators wherein direct excitation current is supplied from a stationary rectifier

means having a plurality of separate current branch circuits to the inductor or field winding of the alternator, having opposite poles at its ends and provided with at least two slip rings at each pole. The slip rings at each pole are each electrically connected to a separate current branch circuit via their respective brushes and to each other via the inductor and all of the branch circuits are electrically connected to a current regulating device so that the current in each branch circuit is equalized.

3,560,842

SOLID STATE REGULATED POWER SUPPLY FOR INTERMITTENT LOADS WITH PLURAL CHARGING PATHS FOR A CAPACITOR

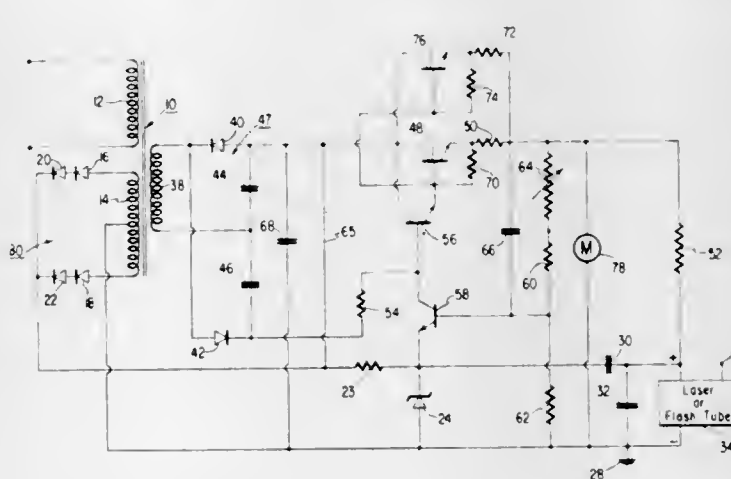
Fausto Caprari, Jersey City, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Dec. 26, 1968, Ser. No. 786,965

Int. Cl. G05f 1/64; H02m 7/24

U.S. Cl. 323—22

6 Claims



A voltage regulator for use with intermittent loads such as flash lamps which require high voltage pulses. The regulator supplies voltages which vary from a regulated maximum between flashes to substantially zero at the end of a flash. Since the voltage of the regulator goes substantially to zero at the end of the flash, rapid repetition of the flash is made possible.

3,560,843

TAPPED AUTOTRANSFORMER VOLTAGE REGULATOR WHEREIN AN AUXILIARY TRANSFORMER COMPENSATES FOR FLUCTUATING VOLTAGE

Kiyoshi Nakagawa, Yoshitake Kashima, and Teruo Fukuda, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan

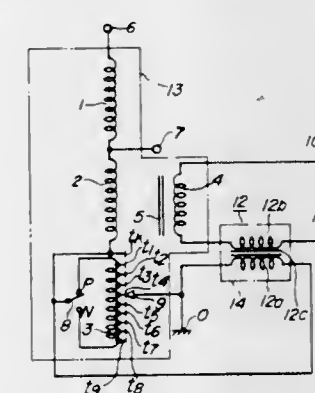
Filed July 11, 1969, Ser. No. 840,951

Claims priority, application Japan, July 12, 1968, 43/48,491

Int. Cl. G05f 1/10; H02p 13/06

U.S. Cl. 323—43.5

7 Claims



In an autotransformer having a tertiary winding and a tap winding, voltage regulation by means of the tap winding results in a wide variation of the voltage of the tertiary

winding. In the present invention, a compensating transformer is provided on the side of the tertiary winding so as to thereby statically and automatically compensate for the variation in the voltage of the tertiary winding due to tap changing on the tap winding.

3,560,844

METHOD AND APPARATUS FOR MEASURING THE OPERATING-TIME OF AN ELECTROMAGNET, UTILIZING A PIEZOELECTRIC DEVICE

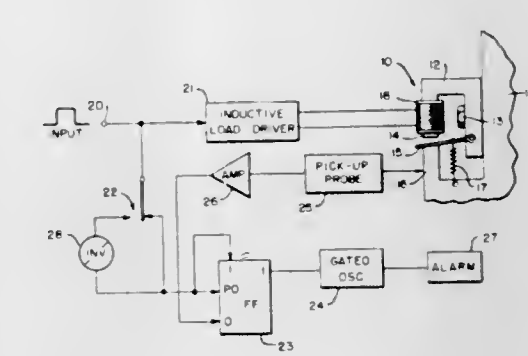
Vernon E. Brown, Cabot, Ark., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware

Filed Oct. 14, 1968, Ser. No. 767,329

Int. Cl. G01r 31/02

U.S. Cl. 324—28

3 Claims



An operating-time measuring device for electromagnets of the type that drive an armature into engagement with a fixed stop includes a flip-flop that is set upon actuation of the magnet, a piezoelectric pickup probe responsive to vibrations caused by engagement of the armature of the electromagnet with the stop for producing a flip-flop resetting pulse, and a gated oscillator that is operated whenever the flip-flop is set for producing an alarm output if the flip-flop is not reset by the output of the piezoelectric probe within a predetermined time.

3,560,845

MEASURING DEVICES

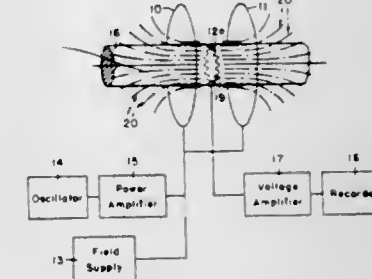
Harold D. Goldberg, King St., Port Chester, N.Y. 10573, and Milton I. Goldberg, Barrett Road, Katonah, N.Y. 10536

Continuation-in-part of application Ser. No. 4,766, Jan. 26, 1960, which is a continuation-in-part of applications Ser. No. 374,782, Aug. 17, 1953, and Ser. No. 374,868, Aug. 18, 1953, which in turn are continuations-in-part of application Ser. No. 66,523, Dec. 21, 1948. This application May 3, 1965, Ser. No. 456,885

Int. Cl. G01r 33/00

U.S. Cl. 324—34

74 Claims



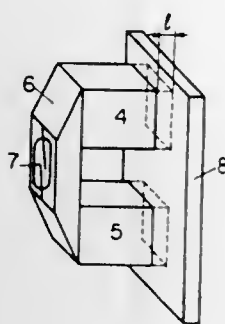
A pickup device is disclosed which may be used with a magnetic field in a measuring system. The pickup device takes the form of a coil which, in use, is capable of conforming to a variety of shapes, and in certain forms is capable of following changes in said shapes without resistive force. This conformability of the coil is achieved

by a variety of coil arrangements including forms which allow the coil to deform without resistance and/or by mounting the coil on elastic or flexible supports, which supports conform to the various shapes. When the coil is positioned in a magnetic field it generates a signal which is a function of the particular shape or change in shape of the coil.

3,560,846
MAGNETIC PROXIMITY DETECTOR
Csaba Z. Bessko, 5806 Hobart St.,
Pittsburgh, Pa. 15217
Filed Oct. 8, 1968, Ser. No. 767,587
Int. Cl. G01r 33/00

U.S. Cl. 324-41

1 Claim

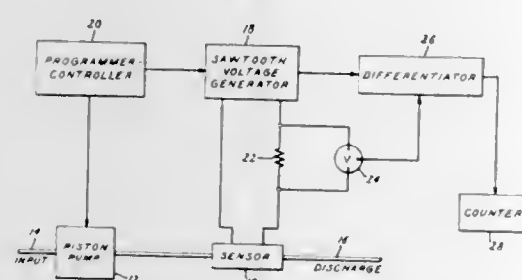


A device for detecting objects of magnetic permeable material or external magnetic flux is provided wherein one or more flux sources have opposite poles shunted by a yoke, of high permeability, which is not placed in saturation solely by those flux sources. An external object or flux source can saturate the yoke with resulting force on the device or flux surrounding the saturated yoke may be picked up by a sensor. Where two flux sources are shunted by a yoke and an air gap is between the other set of poles, a flux sensor near the yoke responds only to flux (such as due to a ferrous object) that effectively shortens the air gap and exceeds that which saturates the yoke. The sharply saturable yoke gives the device definite pull-in and drop-out characteristics. The air gap configuration provides directional sensitivity.

3,560,847
APPARATUS AND PROCESS FOR DETECTING LIVE BACTERIA
Joseph W. Boyd, Devon, and Myron H. Bengson, King of Prussia, Pa., assignors to General Electric Company, a corporation of New York
Filed Apr. 19, 1968, Ser. No. 722,780
Int. Cl. G01n 27/00

U.S. Cl. 324-71

8 Claims

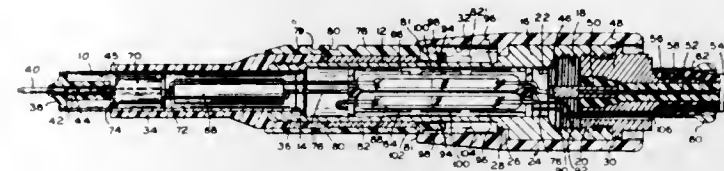


Process and apparatus for detecting the presence of live bacteria in a fluid involves establishing, in a non-moving portion of the fluid, a current path, at least a segment of which is restricted in cross sectional area, increasing the electrical potential along the restricted cur-

rent path and measuring any sudden resistance change in the restricted current path responsive to the presence therein of live bacteria.

3,560,848
SWITCHABLE COAXIAL PROBE MEMBER UTILIZING A REED SWITCH
Marlow D. Butler, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon
Filed May 20, 1968, Ser. No. 730,538
Int. Cl. G01r 31/02
U.S. Cl. 324-72.5

11 Claims

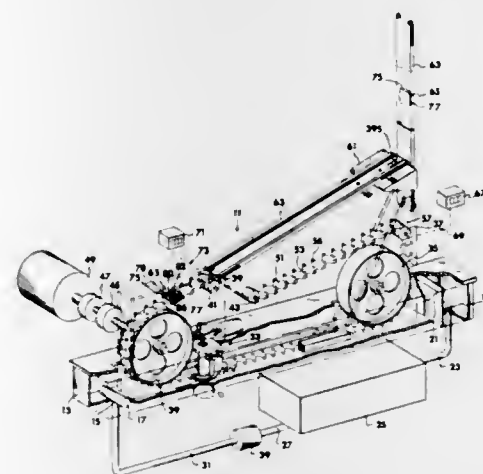


A coaxial cable in the form of a probe includes an outer enclosing conductor substantially concentric with a central conducting means. The central conducting means includes a reed switch, e.g. for closing and opening the probe circuit or for connecting a resistance in series therewith. An actuator, axially slidable on the outer conductor, includes a magnet for operating the reed switch whereby switching may be accomplished within the probe without an intervening mechanical linkage.

3,560,849
LIQUID TEMPERATURE CONTROLLED TEST CHAMBER AND TRANSPORT APPARATUS FOR ELECTRICAL CIRCUIT ASSEMBLIES
Robert B. Ryan, Timonium, August A. Zachmeier, Joppa, and Hans D. Heyck, Phoenix, Md., and Robert E. Garman, York, Pa., assignors to AAI Corporation, Cockeysville, Md., a corporation of Maryland
Filed Aug. 15, 1967, Ser. No. 660,673
Int. Cl. G01r 15/12

U.S. Cl. 324-73

27 Claims



An environmental test chamber and transport apparatus is disclosed for automatically testing a plurality of packaged integrated circuits. A plurality of packaged integrated circuits are fed from a loaded input magazine onto a transport tape which moves into a non-conductive, temperature controlled, liquid bath and then into a test assembly which is submerged in the bath. As each packaged integrated circuit moves into the test assembly, its presence is detected and, when it is properly positioned, movement of the transport tape is stopped. Next, the particular

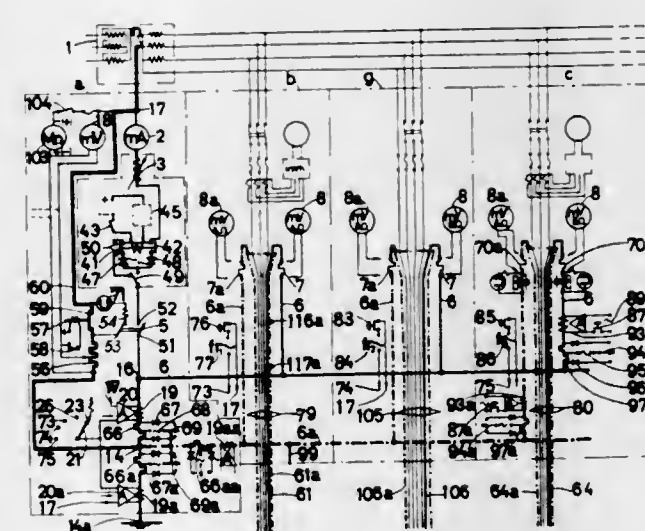
packaged integrated circuit in the test assembly is removed from the transport tape and pressed against a test socket having a plurality of protruding contacts which engage the exposed terminals of the packaged integrated circuit whereupon a series of programmed tests are performed to determine the electrical characteristics of the packaged integrated circuits. When the tests are completed, the packaged integrated circuit is placed back on the transport tape whereupon movement of the transport tape again commences which carries the packaged integrated circuits out of the bath and feeds them into an output magazine.

3,560,850
SYSTEMS FOR DETECTING AND LOCATING BEGINNING FAULTS IN ENERGIZED ELECTRICAL NETWORKS

Elof A. B. Hojding, Vapengatan 9, S-12652, Hagersten, Stockholm, Sweden
Filed June 26, 1968, Ser. No. 740,332
Int. Cl. G01r 31/08

U.S. Cl. 324-52

10 Claims



Ground fault or insulation fault and joint continuity faults electrical detecting devices for large, extended plants and installations. Detecting localizing and continuously supervising devices extending over both ungrounded and grounded A.C. as well as D.C. systems having further current carrying zero wires. A system for detecting and locating disturbance sources or faults in the running of a plant and in the surroundings before the faults have grown or advanced into injuries, by making use of protective conductor circuits of the live electric networks of the plant.

3,560,851
PHASE-SENSITIVE DETECTOR HAVING MEANS FOR SYNTHESIZING A SINE WAVE PLUS HARMONICS

Brian Ronald Gaines, Colchester, and Raymond Allan Shemer, Harlow, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Sept. 10, 1968, Ser. No. 758,909
Claims priority, application Great Britain, Sept. 21, 1967, 42,931/67

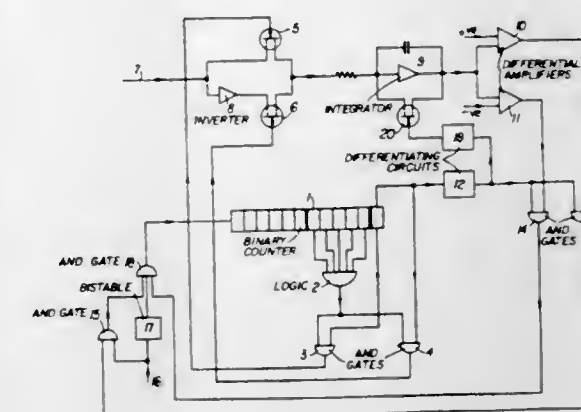
Int. Cl. G01r 23/16

U.S. Cl. 324-77

5 Claims

There is provided a phase-sensitive detector for a simple harmonic waveform including means for synthesizing a sine-wave plus harmonics by generating a pulse train in which the pulses are effectively weighted —E, O+E and in which the pulse clock rate, number of pulses and pulse distribution are so arranged that the amplitudes of selected harmonics in the synthesized sine-

wave are minimized, means for multiplying the incoming sine-wave with the synthesized sine-wave, means for integrating the resultant and means responsive to the value

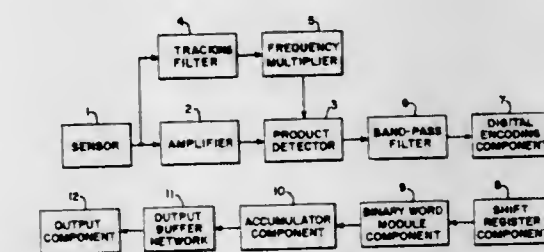


of the integrated resultant for adjusting the phase of the synthesized sine-wave relative to the phase of the incoming sine-wave.

3,560,852
ELECTRICAL WAVEFORM ANALYZER AND DATA TABULATION SYSTEM COMBINING DIGITAL AND MULTIPLEXING TECHNIQUES
Lawrence B. Haskin and Joseph P. Hesler, Liverpool, N.Y., and Larry R. Last, Cincinnati, and Charles J. Smith, West Chester, Ohio, assignors to General Electric Company, a corporation of New York
Filed Sept. 30, 1968, Ser. No. 763,902
Int. Cl. G01r 23/16

U.S. Cl. 324-77

9 Claims



A system for analyzing analog electrical waveforms of relatively high complexity in amplitude and frequency employing digital techniques for tabulating certain data derived from the waveforms, which data can be employed to categorize said waveforms. Within selected bands of the input frequency spectrum, the input analog signal is digitally encoded and through multiplexing a tabulation is made of particular binary word characteristics. By means of further multiplexing, the tabulated data is read out to suitable output means. An important application of the system is to rotating machinery noise and vibration analysis.

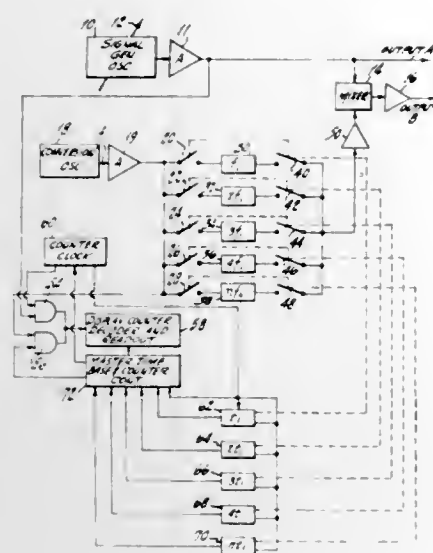
3,560,853
SIGNAL GENERATORS HAVING EXTENDED DISPLAYABLE SIGNAL FREQUENCY RANGES
Edmund I. Schwartz, Fair Lawn, N.J., assignor to Slant/Fin Corporation, a corporation of New York
Filed Sept. 26, 1968, Ser. No. 762,800
Int. Cl. G01r 23/14

U.S. Cl. 324-79

11 Claims

A signal generator capable of being tuned over a wide range of frequencies, has this effective range shifted to a higher range by means of a mixer and a conversion oscillator, for providing a sum frequency at the mixer output equal to that of the signal generator frequency and the

conversion oscillator signal frequency. A frequency counting circuit, having a limited input frequency response characteristic, is controlled by selectable timing circuitry, which sequentially applies the generator frequency signal to the counting circuit to cause the counting circuit to provide a code representative of the generator frequency.



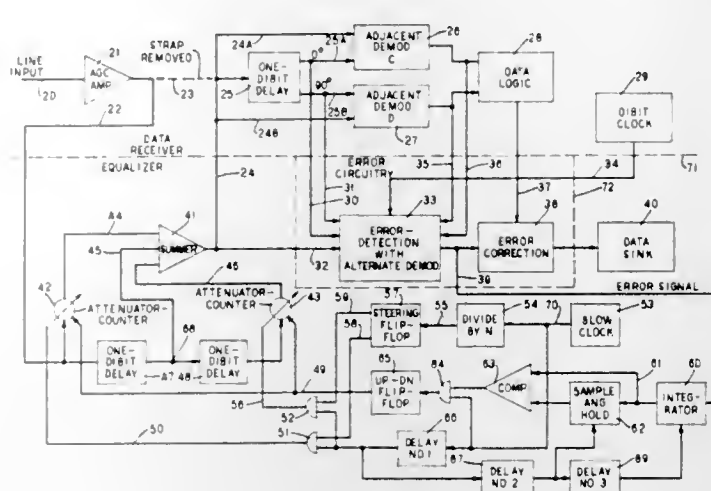
The timing circuitry then applies the conversion oscillator signal to the counting circuit to cause the counter to accumulate a second code which with the first code represents the sum frequency provided at the mixer output and which frequency exceeds the limited input frequency response of the counting circuit.

3,560,854
PULSE ACTUATED SPEED RESPONSIVE SYSTEM
John I. Moss and Fred R. Wright, Skokie, and Walter Jaskiewicz, Chicago, Ill., assignors to John I. Moss, Inc., a corporation of Illinois
Filed Oct. 16, 1967, Ser. No. 675,511
Int. Cl. G01p 3/48
U.S. Cl. 324-174
6 Claims



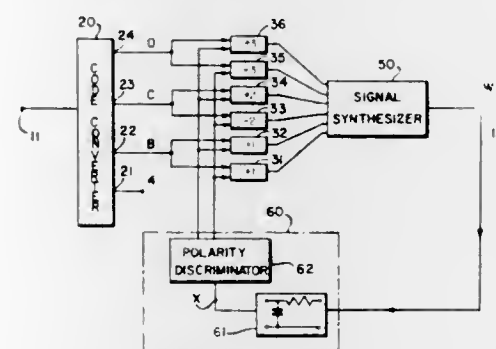
A system which converts speed related pulses developed in a magnetic pickup to a variable amplitude DC voltage to control speed responsive functions. A noise filter, trigger and monostable multivibrator eliminate interference and produce pulses of uniform shape and at a frequency the same as (or directly related to) the frequency of pulses from the pickup. The produced pulses are rectified to establish a DC voltage having an amplitude directly related to speed. Function detectors respond to different levels of the DC voltage to operate relays indicative of the measured speed. The DC voltage controls the timing ratio of a variable rectangular wave generator, the output of which operates the control valve of a hydraulic speed regulator.

3,560,855
AUTOMATIC EQUALIZER UTILIZING ERROR CONTROL INFORMATION
Henry C. Schroeder, East Brunswick, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed June 7, 1968, Ser. No. 735,444
Int. Cl. H04b 3/14
U.S. Cl. 325-30
9 Claims



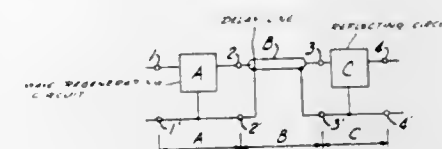
An automatic passband equalizer for differentially coherent phase-modulation data transmission systems is made adaptive to error information derived by correlating phase differences between successive adjacent signaling intervals with phase differences between nonadjacent signaling intervals spanning such adjacent intervals. The error information is periodically integrated and quenched. Differences between successive maximum integration levels yield a distortion index by the aid of which incremental adjustments of tap attenuators in a transversal equalizer in series with a data demodulator are directed to minimize such distortion.

3,560,856
MULTILEVEL SIGNAL TRANSMISSION SYSTEM
Hisashi Kaneko, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan, a corporation of Japan
Filed Dec. 26, 1967, Ser. No. 693,499
Claims priority, application Japan, Dec. 29, 1966, 42/964
Int. Cl. H03k 7/00
U.S. Cl. 325-38
5 Claims



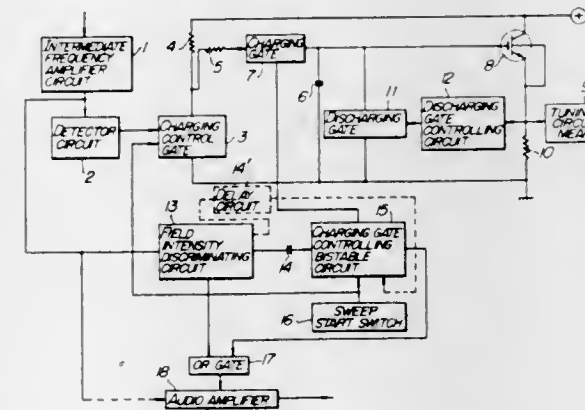
A system for transmitting a multilevel signal representative of a binary signal input including a converter for changing the input to a quaternary output code, pulse generator means for the respective quaternary code elements which feed their outputs to a signal synthesizer, and a switching pulse generator connected between the output of the signal synthesizer and the inputs of the pulse generators.

3,560,857
PULSE REGENERATING REPEATER
Tsuneo Nakahara, Yasuo Shimizu, and Yuji Kosaka, Nishinomiya, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan, a company of Japan
Filed Aug. 24, 1966, Ser. No. 574,764
Claims priority, application Japan, Aug. 25, 1965, 40/51,792
Int. Cl. H04b 3/58
U.S. Cl. 325-38
12 Claims



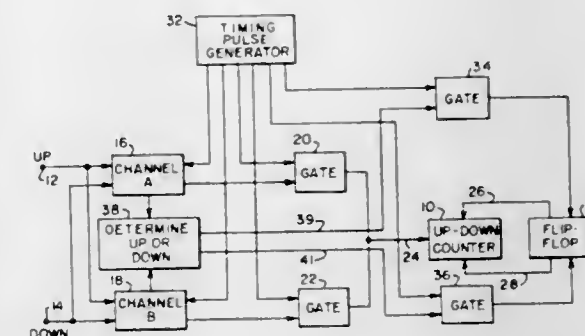
A pulse regenerating repeater to be installed in cascade in a transmission line to regenerate attenuated pulses wherein the repeater consists of a series connection of a wave regenerating circuit, a delay line and a reflecting circuit respectively. An attenuated and phase jittered input pulse is regenerated by the wave regenerating circuit and then propagated on the delay line and the portion of the regenerated pulse which is above a preselected critical value of the reflecting circuit is passed therethrough for transmission and the remaining portion below this critical value is reflected to form a timing pulse which is shuttled back and forth on the delay line. The simultaneous presence of an input pulse and a timing pulse at the wave regenerating circuit triggers a negative resistance device therein, whereby the pulse is regenerated such that the retiming of the regenerated pulse is controlled at the original fundamental frequency by the timing pulse.

3,560,858
AUTOMATIC TUNING TYPE RECEIVER WITH FREQUENCY HOLDING CIRCUIT
Yasuhide Sakai, Kawasaki-shi, and Yoshinori Takagi and Masahiro Watanabe, Yokohama, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan
Filed July 5, 1968, Ser. No. 742,673
Claims priority, application Japan, July 11, 1967, 42/45,171; July 14, 1967, 42/46,000; July 24, 1967, 42/48,046; Dec. 15, 1967, 42/81,347; Apr. 9, 1968, 43/24,178
Int. Cl. H04b 1/32
U.S. Cl. 325-470
7 Claims



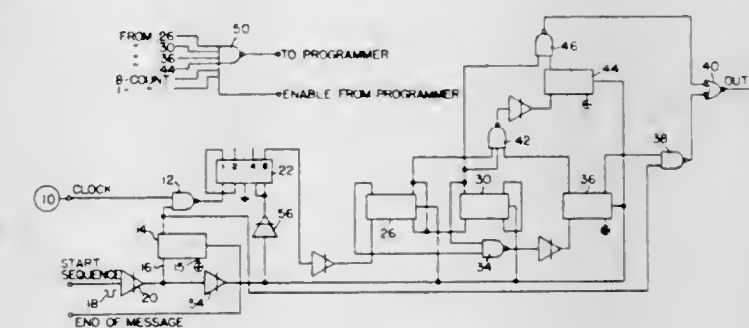
An automatic tuning type receiver using variable reactance elements of which the reactance value is electronically varied in accordance with a voltage or current supplied thereto, thereby making it possible to positively effect the frequency sweep and sustain the tuned state.

3,560,859
SYNCHRONOUS ANTICOINCIDENCE GATE
Francis T. Thompson, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 19, 1968, Ser. No. 738,236
Int. Cl. H03k 21/06
U.S. Cl. 328-44
10 Claims



Described is an anticoincidence gate for application with up-down counters and the like and which cancels overlapping input signals of opposite direction (i.e., up and down count pulses occurring at the same time). This is accomplished by the use of two channels employing NAND logic elements, one of said channels acting to receive and store a pulse while the other feeds a pulse to the counter or other device and vice versa.

3,560,860
PULSE GENERATOR OF SPECIAL SIGNAL FOR SYNCHRONIZING RECEIVERS OF MASTER-REMOTE SYSTEM
Klaus Gueldenpfennig, Rochester, N.Y., assignor to Stromberg-Carlson Corporation, Rochester, N.Y., a corporation of Delaware
Filed Feb. 20, 1969, Ser. No. 801,068
Int. Cl. H03k 1/00
U.S. Cl. 328-63
1 Claim



A circuit for generating a special signal for synchronizing the receivers of a master-remote system of the kind used for the supervision and control of apparatus from a remote location, and in which the information signals used for supervision and control consist of trains of electrical pulses, all the pulses of each train being of the same length. Two special pulses are transmitted for synchronization just prior to the start of each train of information pulses. The special pulses are of predetermined polarity, and are each one and one-half times as long as the information pulses. The circuit uses a counter and a series of flip-flops and gates to produce the desired synchronizing signals, and also to define the proper durations of the information pulses. In addition, a gate arrangement is used to produce a special START DATA pulse at a predetermined time after the synchronizing pulses are completed.

3,560,861

ELECTRONIC SENSING SYSTEM FOR SELECTIVELY ENERGIZING AND DE-ENERGIZING APPARATUS

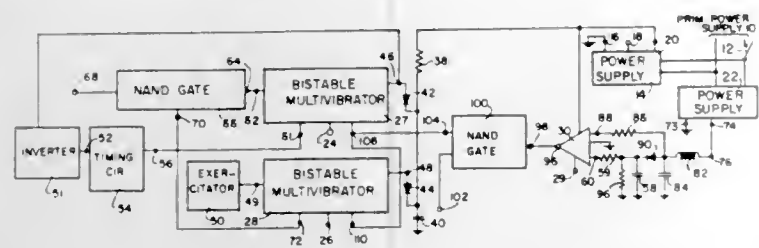
William Milleker and Ronald J. Sekula, Chicago, Ill., assignors to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Jan. 16, 1969, Ser. No. 791,555

Int. Cl. H03k 17/28

U.S. Cl. 328—74

6 Claims



The electronic sensing system selectively energizes an electrical apparatus a predetermined time after the electrical power is applied to the system and in synchronism with a signal indicating the apparatus is ready to be energized. The electrical apparatus is de-energized in response to both a sudden decrease in amplitude of a monitored voltage which activates a trigger circuit, and in synchronism with a subsequent signal indicating the apparatus is ready to be de-energized. A sensing circuit compares the voltage being monitored with a reference derived from this voltage to activate the trigger circuit.

3,560,862

SYSTEM FOR DETECTING THE MALFUNCTION IN A DETECTING DEVICE OF A DISPLACEMENT

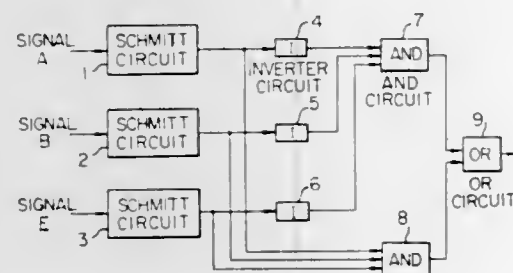
Shin-Ichi Kamachi, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Nov. 25, 1968, Ser. No. 778,622

Int. Cl. H03b 3/04

U.S. Cl. 328—92

5 Claims



System for detecting the malfunction in a measuring device of a displacement utilizing at least one cyclically varying signal having a first and second sign in each cycle thereof and produced in response to the displacement to be measured comprising the steps of detecting three cyclically varying signals including the first mentioned at least one cyclically varying signal each having the same cyclic period but their phases shifted relatively from each other, and detecting two conditions among the eight conditions in the combination of the first or second sign in the three signals.

The above described two conditions will never appear in the normal function of the three signals in response to the displacement while the six other conditions in the combination will necessarily take place during the normal function of the signals, thereby permitting the malfunction of the signals to be positively detected by inspecting the occurrence of the above described two conditions.

3,560,863

SETTABLE TIMER FOR SELECTIVELY DETERMINING THE DELAY EXHIBITED BY A TIME DELAY UNIT HAVING A CHARACTERISTIC DELAY SUBJECT TO VARIATION

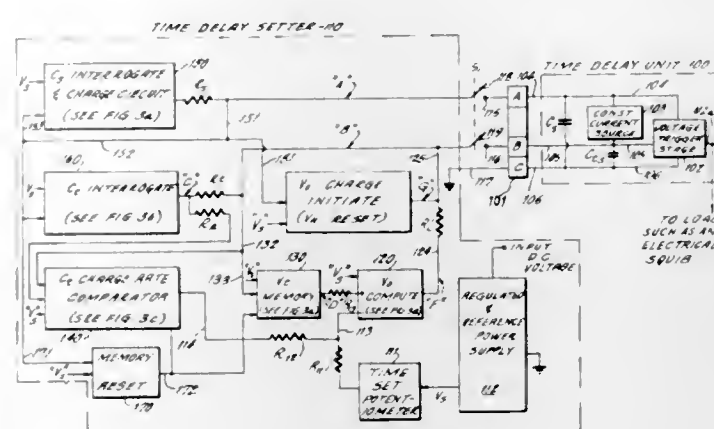
Joseph Baumel, Jericho, N.Y., assignor to Controlotron Corporation, Farmingdale, N.Y., a corporation of New York

Filed Apr. 10, 1968, Ser. No. 720,110

Int. Cl. G01r 29/02; H03k 5/00

U.S. Cl. 328—129

12 Claims



An electronic time delay device is combined with a time delay setter in a manner such that the time delay period begins upon the physical separation of the time delay device from the setter. The time delay setter includes means for automatically determining the parameters of the electrical elements of the time delay device and means for compensating for the variations in the electronic time delay device from predetermined reference characteristics.

3,560,864

VOLTAGE TO PULSE FREQUENCY CONVERTER

Hendrikus J. Nihof, Amsterdam, Netherlands, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

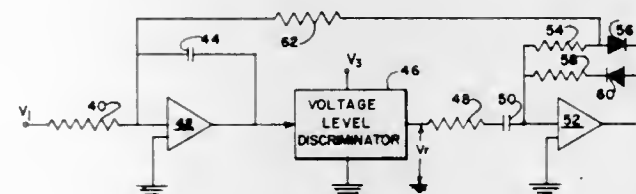
Filed Nov. 24, 1967, Ser. No. 685,595

Claims priority, application Netherlands, Dec. 12, 1966, 6617415

Int. Cl. G06g 7/16

U.S. Cl. 328—161

3 Claims



A method and apparatus for generating a pulse frequency proportional to the ratio of the amplitude of two input signals consisting of an integrator, Schmitt trigger, capacitor and non-loading feedback circuit through which the capacitor may be discharged into the integrator.

3,560,865

DIRECT COUPLED AM DETECTOR

Jack R. Harford, Three Bridges, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Mar. 3, 1969, Ser. No. 803,920

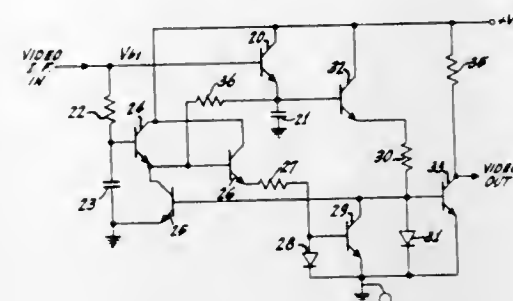
Int. Cl. H03d 1/18; H04b 1/16; H04n 5/44

U.S. Cl. 329—101

12 Claims

An amplitude modulation detector circuit employs a rectifier coupled to a source of signal modulated carrier waves containing a direct voltage component not related

to the modulation components of the carrier wave. The direct voltage component is monitored by a circuit, which also includes a rectifier, to derive a voltage for maintaining a stable low current bias through the detector ampli-



fier. The rectifier in the monitoring circuit is returned to a point of reference potential by a transistor whose impedance is controlled as an inverse function of the detected signal.

3,560,866

IF AMPLIFIER WITH COMPENSATED TRANSISTOR UNIT

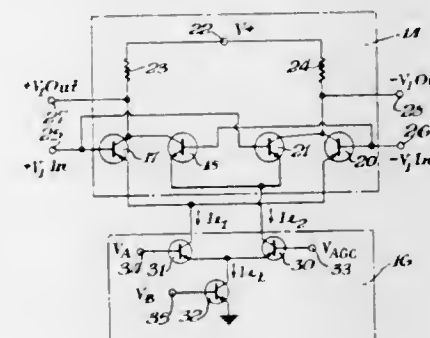
George W. Haines, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts

Continuation-in-part of application Ser. No. 551,341, May 19, 1966. This application Aug. 20, 1968, Ser. No. 753,940

Int. Cl. H03b 1/14

U.S. Cl. 330—27

5 Claims



An integrated bridge network of two transistor pairs is used as the active device in a tuned differential IF amplifier stage. The transistors are so fabricated and interconnected as to provide neutralization of the internal collector-to-base capacitive feedback. Variations of the relative bias current levels of the transistor pair produce automatic gain control for the stage with minimal frequency response variations.

3,560,867

SELF-MODULATING, PARTIALLY REENRANT CROSSED FIELD AMPLIFIER

Phillip N. Hess, Los Altos, Calif., assignor to Litton Precision Products, Inc., San Carlos, Calif., a corporation of Delaware

Filed Apr. 22, 1969, Ser. No. 818,279

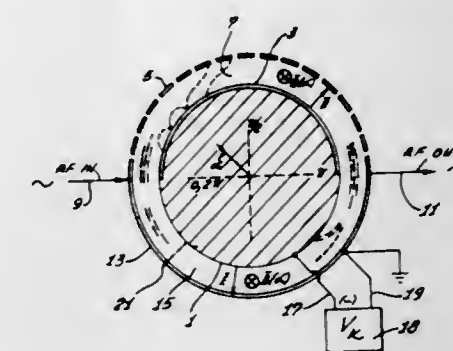
Int. Cl. H03f 3/58

U.S. Cl. 330—43

6 Claims

A cold cathode distributed emission reentrant type crossed field amplifier is provided which possesses electrical efficiencies approaching that available in the reentrant type crossed field amplifiers of the prior art but which features the simplicity of the non-reentrant type crossed field amplifier. A circular configuration is used for the tube; one in which the beginning and end of the interaction region is connected with the drift space region, so as to form a complete annular passage about the sole

and cathode. The magnetic structure produces a magnetic field at the programmed level, which may be constant, in the interaction region and in addition provides a variation in the drift space. At the entrance to the drift space the magnetic intensity decreases as a function of position along the length of the drift space from the programmed level, gradually, over a predetermined length of the drift space to a second lower predetermined intensity. Along the remaining length of the drift space the field intensity increases in level until at the end of the drift space, coincident with the beginning of the inter-



action region, the magnetic field intensity is again at the programmed level. The tapering of the magnetic field in the drift space region is designed so that it diverts significant amounts of those electrons that pass through the interaction region and enter the drift space region. Hence, the remaining electrons which reenter the interaction region are insufficient in quantity or energy to cause self-oscillation after the RF drive signal has been removed.

3,560,868

HIGH RESOLUTION TUNING OVER A WIDE FREQUENCY RANGE

Helmut Oberbeck, Backnang, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm, Danube, Germany

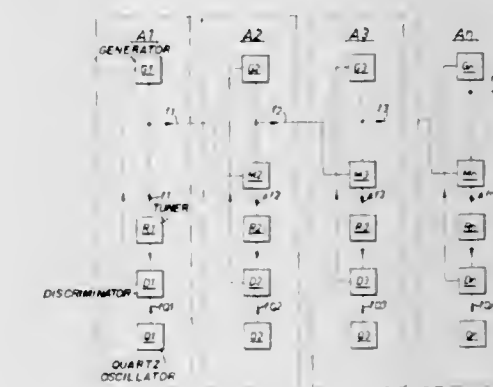
Filed Sept. 19, 1968, Ser. No. 760,846

Claims priority, application Germany, Sept. 22, 1967, P 15 91 722.3

Int. Cl. H03b 3/04

U.S. Cl. 331—2

5 Claims



A method and apparatus for accurately tuning the frequency of a generated signal by coarse tuning the output of a generator in a first stage and providing a plurality of further tuning stages each arranged to effect a finer tuning than the preceding stage, each further stage being arranged to generate a signal, to mix that signal with the signal from the preceding stage to produce an output whose frequency is equal to the difference between the frequencies of the two mixed signals. Frequency dividing the difference signal by means of a variable digital counter which is controlled to have any one of a plurality of frequency division ratios, comparing the frequency of the counter output with a reference frequency derived from a quartz oscillator, producing a control signal which

is proportional to the difference between the compared frequencies, and applying this control signal to the generator of the associated stage to bring the output frequency of the generator to a value which will cause the counter output frequency to be equal to the reference frequency, the output from the system being taken from the generator of the last further stage.

3,560,869

FREQUENCY CONTROL OF OSCILLATORS
Michael Robert Miller, Watford, England, assignor to Her Majesty's Postmaster General of The General Post Office, London, England

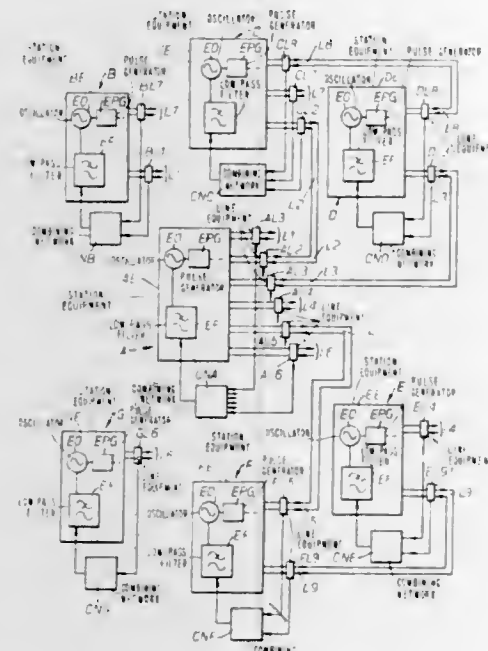
Filed Mar. 11, 1968, Ser. No. 712,130

Claims priority, application Great Britain, Mar. 14, 1967, 11,842/67

Int. Cl. H04j 3/06

U.S. Cl. 331—2

9 Claims



A means for controlling the operating frequencies of an interconnected system of oscillators. Frequency control of each oscillator is effected by application of D.C. signals derived from comparison between the operating frequencies of the oscillator concerned and the respective oscillators to which it is directly connected. The comparison is used to produce D.C. error signals from which the D.C. frequency shifting signal is derived, the latter having a magnitude dependent on the algebraic sum of the error signals divided by a factor dependent on the number of other oscillators to which the oscillator concerned is directly connected. Thus, the degree of control exercised on the system by any particular oscillator increases with the number of connections between that oscillator and other oscillators in the system. The invention is described with reference to a P.C.M. communications system and has other applications.

3,560,870

FREQUENCY SYNTHESIZER

Lucien Babany, Blanc-Memil, and Michel Marchal, Paris, France, assignors to C.I.T.-Compagnie Industrielle des Telecommunications, Paris, France, a corporation of France

Filed Dec. 2, 1968, Ser. No. 787,290

Claims priority, application France, Nov. 30, 1967, 130,483

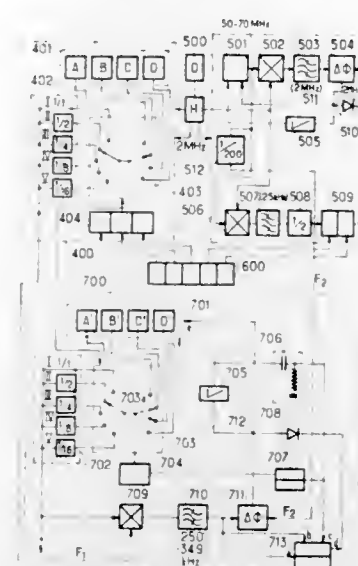
Int. Cl. H03b 3/04

U.S. Cl. 331—4

14 Claims

Device for frequency interpolation with fine quantization steps (for example 1 kc.) in the output spectrum of a first wide band wide-stepped synthesizer (for example

100 kc.), essentially comprising a second low-frequency synthesizer controlled by the lowest order decades of the control box serving to indicate the desired frequency, and



an auxiliary high-frequency synthesizer supplying a frequency which is the sum of the frequencies supplied by the first and second synthesizers.

3,560,871

FIELD RESPONSIVE ABSORBER FOR Q-SPOILING A LASER

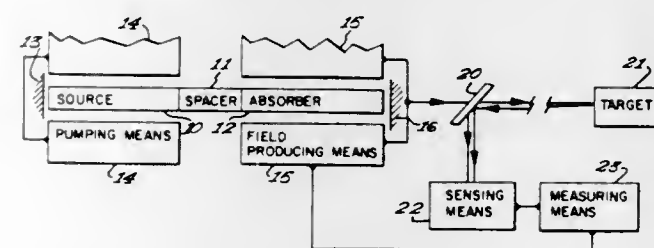
Di Chen, Hopkins, Minn., assignor to Honeywell, Inc., a corporation of Delaware

Filed Feb. 27, 1964, Ser. No. 347,934

Int. Cl. H01s 3/10

U.S. Cl. 331—94.5

6 Claims



Apparatus for Q-spoiling a maser utilizing either the Zeeman or Stark effect. Included within an optical cavity defined by two reflective surfaces are a maser region, an absorber region and a reflection eliminating spacer between the maser and absorber regions. A high population inversion is achieved by applying a varying field to the absorber region, whereby the absorption spectrum of the absorber region is super-imposed on the emission spectrum of the maser region. After a high population inversion is achieved, the absorption spectrum of the absorber region is shifted by either the Zeeman or Stark effect. The absorber region is then transparent to the maser region's emission frequency, whereby the optical cavity defined by the two reflective surfaces resonates producing a large output pulse.

3,560,872

OPTICAL SOLID BODY LIGHT AMPLIFIER

Conrad Heimann, Bad Godesberg, Germany, assignor to Ringsdorf-Werke G.m.b.H., Bad Godesberg-Mehlem, Germany, a corporation of Germany

Filed Feb. 10, 1966, Ser. No. 526,552

Claims priority, application Germany, May 7, 1965, R 40,568

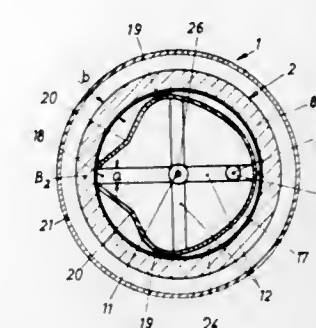
Int. Cl. H01s 3/00

U.S. Cl. 331—94.5

17 Claims

A solid-state laser having a plurality of closely spaced and successive elongate portions of selectively fluorescent

material defining a body element with polished and reflective opposite longitudinal ends. Means are provided for supporting the body element for rotation about an axis of rotation past a source of excitation light so that



an internal reflection between the reflective longitudinal ends is initiated to thereby result in the production of a monochromatic coherent light in a direction longitudinally of the successive elongate portions.

3,560,873

LASER HAVING A POPULATION INVERSION BETWEEN STATES OF A MERCURY DOPANT IN A GERMANIUM SAMPLE

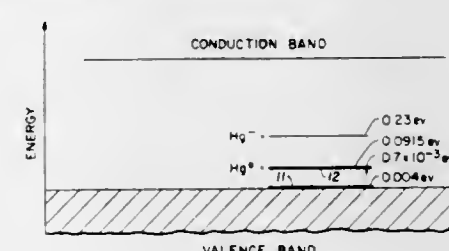
Richard A. Chapman, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed July 5, 1967, Ser. No. 651,259

Int. Cl. H01s 3/18

U.S. Cl. 331—94.5

4 Claims



A mercury-doped germanium sample is mounted in close thermal contact with the bottom of a liquid helium filled Dewar. Infrared transmitting windows such as potassium bromide are provided in the Dewar to permit pumping and lasing radiation to pass into and out of said Dewar. The mercury-doped germanium has a split ground state with the upper split off state being depopulated by cooling the sample to about 5° K. A population inversion between the split off ground state and the effective mass excited states of the mercury-doped germanium sample can be obtained by infrared pumping using a CO₂ laser beam which has a wavelength of about 10.6 microns and photon energies of 117 millielectron volts. Since ground states binding energy of the mercury impurity is about 91.5 millielectron volts, thermal heating of the sample is minimized by using a CO₂ laser since the excess kinetic energy of the photo-generated carrier is on the order of 26 millielectron volts.

3,560,874

VARIABLE OPTICAL FREQUENCY SHIFTER

Michel A. Duguay, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Oct. 12, 1966, Ser. No. 586,153

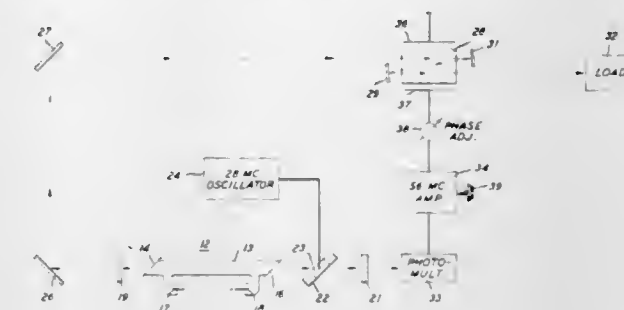
Int. Cl. H01s 3/10

U.S. Cl. 331—94.5

6 Claims

The optical frequency of a coherent optical pulse train is shifted by means of an electro-optic crystal to which is applied a sinusoidal electric field synchronized in frequency (with the pulse repetition rate) and phase with

the pulse train. The phase is adjusted such that refraction index of the crystal is changing at its fastest rate when a pulse transverses the crystal. The change in index of refraction of the crystal is directly proportional to the



3,560,875

BEAM ANGLE LIMITER

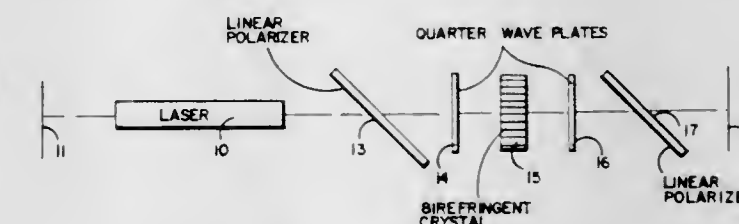
John A. Macken, Orange, Calif., assignor to North American Rockwell Corporation

Filed Sept. 11, 1967, Ser. No. 66,629

Int. Cl. H01s 3/00; G02b 5/30

U.S. Cl. 331—94.5

5 Claims



The light emitted from a laser is first passed through a linear polarizer and then through a quarter-wave plate to produce circularly polarized light. The circularly polarized light is then transmitted through a birefringent crystal, which may be either uniaxial or biaxial, with the optic axis of the crystal positioned substantially parallel to the light beam. The light emergent from the crystal passes through a second quarter-wave plate and through a second polarizer and is then reflected back through the system.

3,560,876

SUPERSONIC FLOW GASEOUS CHEMICAL LASER

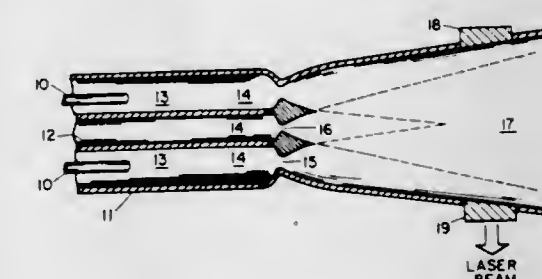
John R. Airey, Woburn, Mass., assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware

Filed May 31, 1968, Ser. No. 733,714

Int. Cl. H01s 3/22

U.S. Cl. 331—94.5

6 Claims



A CW gaseous chemical laser wherein a plurality of suitable gases are expanded from a high pressure high temperature reservoir and mixed at supersonic velocities. Mixing and reaction take place in the supersonic flow to produce laser action.

3,560,877 TRANSISTORIZED BLOCKING OSCILLATOR WITH BRIDGE RC TIME SETTING CIRCUITS

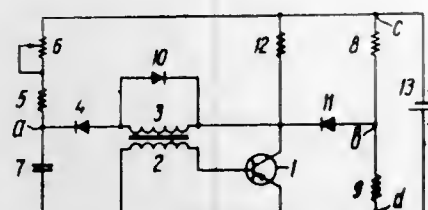
Viktor Alexandrovich Ilin, Ulitsa Gorkogo 6, korpus 5, kv. 330; Vladimir Alexandrovich Shpolyansky, Ulitsa Litzy chaikinoi 6, kv. 113; and Boris Nicolaevich Konshin, Volzhsky bulvar 46, korpus 1, kv. 23, all of Moscow, U.S.S.R.

Filed Sept. 23, 1968, Ser. No. 761,619

Int. Cl. H03k 3/30

U.S. Cl. 331-110

4 Claims



A blocking oscillator is provided with a transformer having a primary and secondary winding, a transistor having a base, emitter and collector, a frequency-dependent bridge having a first and a second branch, and first and second diodes. The first branch includes a capacitor and a resistor, and the second branch includes two resistors. The primary winding of the transformer is connected to the base and emitter of the transistor. The secondary winding of the transformer is connected at one end to the collector of the transistor, the first diode and the first branch of the frequency-dependent bridge, and is connected at its other end to the collector of the transistor, the second diode and the second branch of the frequency-dependent bridge. A power source is also coupled with the second branch.

3,560,878 CONSTANT FREQUENCY AMPLITUDE-TO-PULSE WIDTH CONVERTER

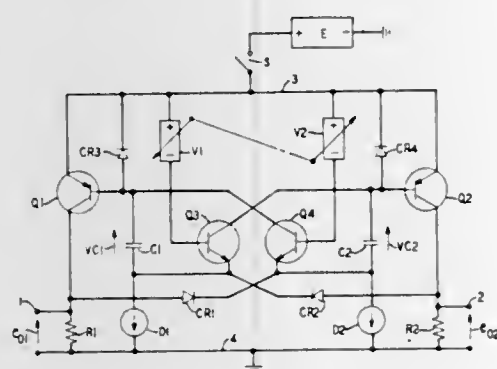
Noble E. Wickliff, Winston-Salem, N.C., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed June 27, 1968, Ser. No. 740,747

Int. Cl. H03k 3/282

U.S. Cl. 331-113

5 Claims



A pair of capacitors are caused to alternately charge at a constant rate through the base-emitter paths of a pair of transistors until their voltages reach first and second variable threshold voltages, respectively. At the instant each capacitor reaches its threshold voltage, it is abruptly discharged and the other capacitor starts to charge. Rectangular voltage waveforms of opposite phase appear across resistors in the collector circuits of the transistors. The widths of the pulses in the waveforms are controlled by the threshold voltages. By maintaining the sum of the threshold voltages constant, the frequency of the waveforms will be constant regardless of pulse width.

3,560,879 LINEAR VOLTAGE CONTROLLED CRYSTAL OSCILLATORS

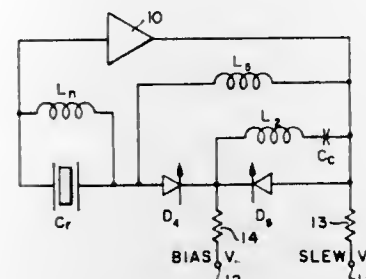
James A. Fuchs, Palo Alto, Calif., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Mar. 12, 1969, Ser. No. 806,641

Int. Cl. H03b 5/36

U.S. Cl. 331-116

5 Claims



A linear voltage controlled crystal oscillator having an amplifier variable voltage feedback circuit with inductors, capacitors, and varactors producing a varactor network in series with a crystal and inductance network that provide circuit oscillation where the phase shift through the feedback circuit is zero, or at a frequency where the reactance of the inductance-capacitance network cancels the reactance of the crystal network, which varactor network is easy to align to provide a linear reactance-voltage relation.

3,560,880 CRYSTAL OSCILLATOR WITH AUTOMATIC COM- PENSATION FOR FREQUENCY DRIFT DUE TO AGING

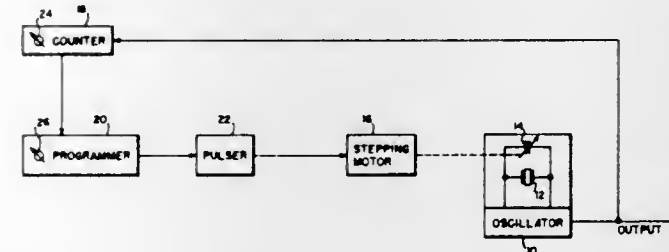
Roger L. Easton and Charles A. Bartholomew, Oxon Hill, Md., assignors to the United States of America as represented by the Secretary of the Navy

Filed Dec. 23, 1968, Ser. No. 785,883

Int. Cl. H03b 3/04, 5/32

U.S. Cl. 331-158

6 Claims



A highly stable crystal oscillator for keeping time precisely wherein the frequency drift due to aging of a quartz crystal is compensated by a programmed electro-mechanical tuning device.

3,560,881 TRANSISTOR-KEYED CIRCUIT FOR TRANSIENT- FREE FREQUENCY SHIFT KEYING

Bo G. Fredricsson, San Francisco, Calif., assignor to Lynch Communication Systems, Inc., San Francisco, Calif., a corporation of Delaware

Filed Nov. 18, 1968, Ser. No. 776,670

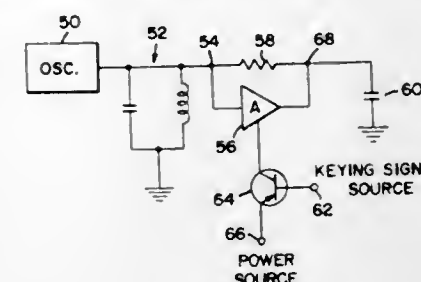
Int. Cl. H03b 3/00

U.S. Cl. 331-179

1 Claim

In frequency-shift keying a signal with a transistor keying device, phase shift at the instant of keying is avoided by connecting, in parallel with the oscillator tank circuit, a reactance in series with a parallel-connected resistor-

and-unity-gain-amplifier combination so that energization of the unity gain amplifier prevents current flow through



the resistor without physically disconnecting it from the circuit.

3,560,882 PARAMETRIC ACOUSTIC WAVE SENSOR

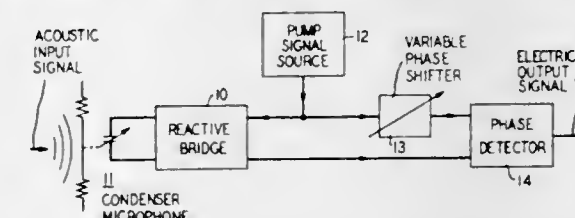
Henry R. Beurrier, Chester Township, Morris County, and Harold Seidel, Warren, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Aug. 25, 1969, Ser. No. 852,795

Int. Cl. H03c 1/46

U.S. Cl. 332-2

6 Claims



An electromagnetic parametric acoustic wave sensor comprising a reactive bridge which is energized by means of a high frequency pump signal. In the absence of an acoustic wave, the bridge is balanced, producing no output signal. In the presence of an acoustic wave the bridge is unbalanced, producing a double sideband, suppressed carrier output signal. The latter is coupled to a phase detector, along with a component of pump signal, wherein an electrical replica of the acoustic input signal is produced.

3,560,883 FREQUENCY CONTROL OF A MICROWAVE DE- VICE USING A TRANSMISSION LINE AS A FRE- QUENCY DETERMINING ELEMENT

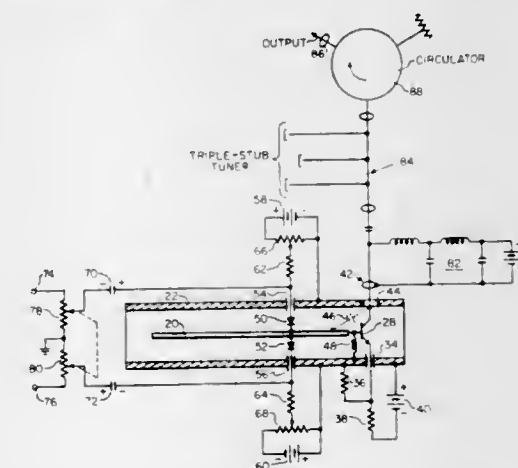
Robert G. Rogers, Los Altos, Calif., assignor to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware

Filed Aug. 13, 1968, Ser. No. 752,339

Int. Cl. H03b 7/14; H03c 3/22

U.S. Cl. 332-16

18 Claims



A transistorized microwave oscillator having a distributed constant transmission line as its primary frequency determining element, is electrically tuned by varying the resistance of at least one variable conductance

device positioned near a voltage null on the transmission line. The disclosed null tuning has particular application in oscillators because of its capability of producing substantially linear frequency modulation, but may be used in other applications, for example in electrically tuned filters, in which it is desired to vary as a function of signal voltage or current the reactance of a length of transmission line.

3,560,884 MULTIPLEXING DEVICE HAVING TUNABLE FER- ROMAGNETIC RESONATORS INTERPOSED BE- TWEEN TWO OUT-OF-PHASE TRANSMISSION LINES

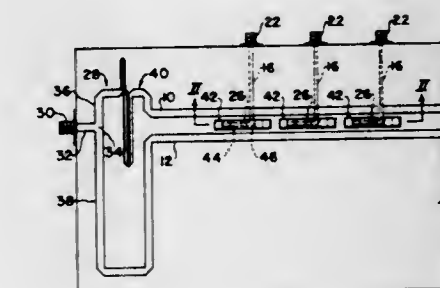
Robert A. Moore, Severna Park, and Daniel C. Buck, Hanover, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Apr. 16, 1969, Ser. No. 816,753

Int. Cl. H03h 7/10; H01p 5/12

U.S. Cl. 333-6

5 Claims



A multiplexing device is disclosed employing a plurality of ferromagnetic resonators which couple all wave energy within their respective operating bands from a broad band of wave energy propagating along a pair of parallel wave energy transmission lines and transmit the coupled energy to associated secondary wave energy transmission lines positioned adjacent each of the resonators.

3,560,885 VARIABLE RADIO-FREQUENCY COUPLER

Gene Chao, Menlo Park, Calif., assignor to Textron Inc., Belmont, Calif., a corporation of Rhode Island

Filed Nov. 18, 1968, Ser. No. 776,372

Int. Cl. H01p 5/14

U.S. Cl. 333-10

6 Claims



The invention is a variable radio-frequency, quarter-wave, TEM mode coupler with parallel ground planes and center conductors of any conventional shape. Variable coupling is accomplished by varying the ground-plane spacing in the coupling section.

3,560,886 VARIABLE COUPLING MICROSTRIP PARALLEL- LINE DIRECTIONAL COUPLER

Herbert Warren Cooper, Hyattsville, and Robert Q. Macleay, Severna Park, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Mar. 24, 1969, Ser. No. 809,669

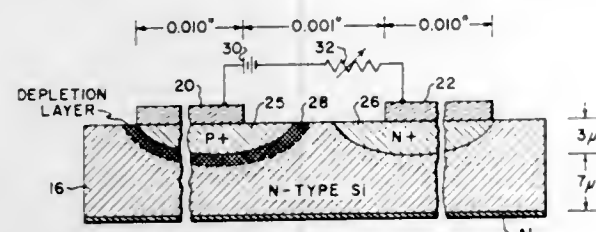
Int. Cl. H01l 3/00; H01p 5/14

U.S. Cl. 333-10

7 Claims

Described is a novel variable coupling, directional coupler employing microstrip transmission lines on a

semiconductive substrate. Variable coupling is achieved by the provision of a distributed P-N junction in the coupling region of the semiconductive substrate of a microstrip quarter-wavelength parallel-line directional coupler. By proper variation of a bias potential across the P-N



junction, the depletion-layer capacitance of the junction can be altered. This variation in capacitance with variation in bias alters the total coupling capacitance between the parallel microstrip transmission lines and, hence, alters the electromagnetic energy coupled.

3,560,887

DIRECTIONAL FILTER COMPRISING A RESONANT LOOP COUPLED TO A TRANSMISSION LINE PAIR

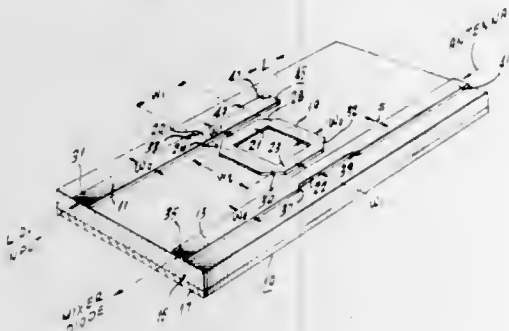
Louis Sebastian Napoli, Trenton, and John Joseph Hughes, Spotswood, N.J., assignors to RCA Corporation, a corporation of Delaware

Filed Aug. 21, 1969, Ser. No. 851,860

Int. Cl. H01h 7/04; H01p 3/08, 5/14

U.S. Cl. 333—10

4 Claims



A directional filter includes a resonant loop between a pair of narrow microstrip transmission lines. An open circuit stub at the end of one of the lines extends a particular distance beyond the immediate coupling region between that line and the resonant loop.

3,560,888

MICROWAVE ENERGY TERMINATION DEVICE

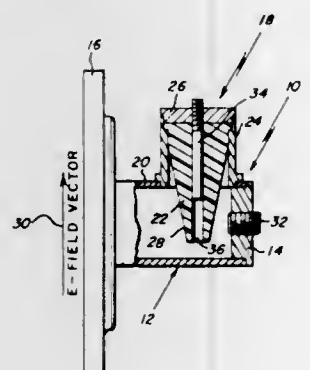
Henry W. Perreault, Chelmsford, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware

Filed July 31, 1969, Ser. No. 846,397

Int. Cl. H01p 1/26

U.S. Cl. 333—22

7 Claims



A matched impedance transmission line termination load having electromagnetic energy absorbing means positioned parallel to the electric field vectors of the propa-

gated energy and extending perpendicularly to the longitudinal axis of the line at a point spaced a frequency dependent distance from an energy reflecting terminal end wall. Coarse as well as fine tuning means are provided for refinement of the impedance matching. Heat dissipation means in combination with the absorption means are also disclosed.

3,560,889

TERMINATION FOR ULTRA-HIGH-FREQUENCY AND MICROWAVE TRANSMISSION LINES

Kunihiro Suetake, 11 10-ban, Minami 3-chome, Meguro-ku, Tokyo, Japan, and Yasutaka Shimizu, 2969 Oaza, Iiyama-shi, Nagano-ken, Japan

Filed Aug. 25, 1969, Ser. No. 852,536

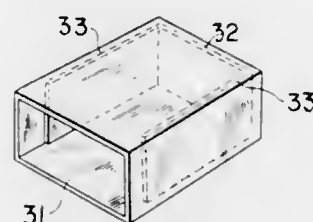
Claims priority, application Japan, Aug. 30, 1968,

43/61,753, 43/61,754, 43/61,755

Int. Cl. H01p 1/26

U.S. Cl. 333—22

7 Claims



A termination for ultra-high-frequency and microwave transmission lines comprising magnetic material. For coaxial transmission lines, the termination comprises a toroidal magnetic member adjacent the shunt end-plate and cylindrical magnetic members disposed between the inner and outer conductors. For waveguides, magnetic material is disposed adjacent to both the walls of the waveguide and terminating end-plate. The termination for waveguides may also include a tapered resistive film or a V-shaped resistive film.

3,560,890

ROTARY LINE STRETCHER

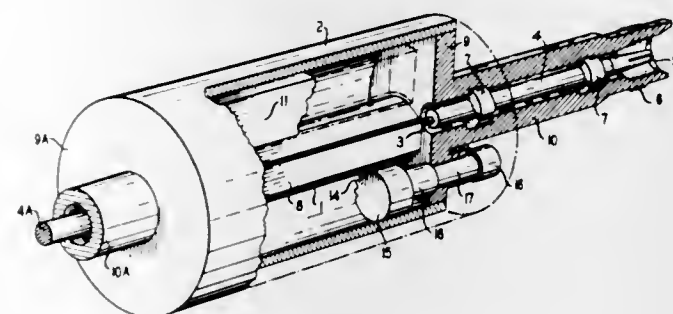
John I. Smith, Morris Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Nov. 22, 1968, Ser. No. 778,149

Int. Cl. H03h 7/30

U.S. Cl. 333—31

9 Claims



A compact, constant impedance line stretcher is capable of producing a large, continuous change in electrical length. An electrode, secured to the surface of a body of dielectric material, is movable with reference to a stationary electrode. In one extreme position of the movable electrode, air comprises virtually the only dielectric between the electrodes. In an opposite extreme position, a large part of the electric field flux between the electrodes passes through the dielectric body. Throughout intermediate positions, there is a gradual change in the proportion of the flux passing through the dielectric body.

3,560,891

REFLECTION PHASE SHIFTER UTILIZING MICROSTRIP DIRECTIONAL COUPLER

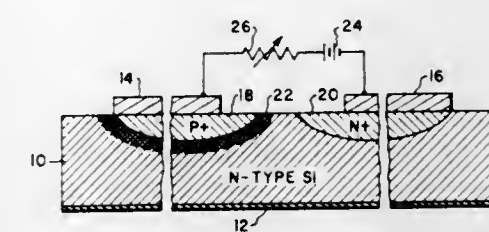
Robert Q. Macleay, Severna Park, and Lawrence R. Whicker, Arnold, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Mar. 24, 1969, Ser. No. 809,670

Int. Cl. H01p 1/18, 5/14

U.S. Cl. 333—31

7 Claims



Described is a reflective phase shifter, utilizing microstrip transmission lines, which allows for a continuously variable differential phase shift over a given range. The basic elements of the device are (1) a microstrip quarter-wavelength parallel-line directional coupler formed on a semiconductive substrate and having three of its four arms of specific length and either open-ended or terminated in shorts, (2) a distributed P-N junction formed in the semiconductive substrate in the coupling region between the two parallel microstrips of the coupler and (3) an external direct current voltage source for biasing the P-N junction to change the coupling capacitance between the parallel microstrips.

3,560,892

MICROSTRIP DEVICES HAVING STRIP CONDUCTOR COATED ON FERRITE SUBSTRATE

Bernard Chiron, Paris, France, assignor to Societe Lignes Telegraphiques et Telephoniques, Paris, France, a joint-stock company of France

Filed Nov. 29, 1968, Ser. No. 780,120

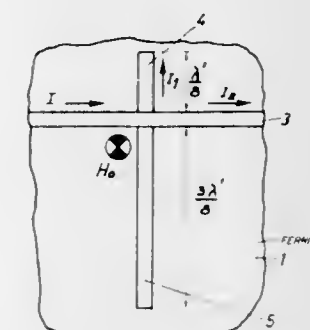
Claims priority, application France, Dec. 6, 1967,

131,090

Int. Cl. H01p 5/12, 1/32

U.S. Cl. 333—1.1

3 Claims



Wide band microstrip devices are designed as conductive films deposited on a ferrite substrate material chosen such that the real component of the permeability is a decreasing function of the frequency in the operating frequency range.

3,560,893

SURFACE STRIP TRANSMISSION LINE AND MICROWAVE DEVICES USING SAME

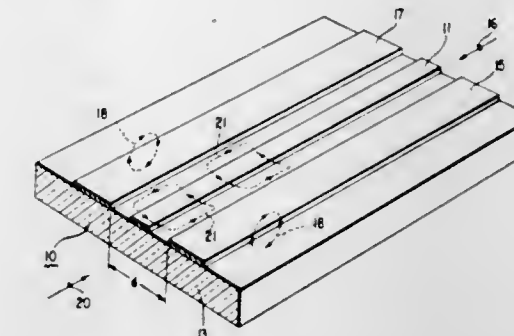
Cheng Paul Wen, Trenton, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Dec. 27, 1968, Ser. No. 787,349

Int. Cl. H01p 3/08

U.S. Cl. 333—24.1

18 Claims



A desirable transmission line configuration is described wherein a narrow strip-like conductor and a wider ground conductor are arranged in an adjacent, parallel and coplanar relationship on one surface of a dielectric substrate. Also described herein are many new types of microwave devices such as isolators, phase shifters, couplers, etc. which use this type of transmission line configuration.

3,560,894

BANDPASS FILTER

Alfred L. M. Fettweis, Bochum, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

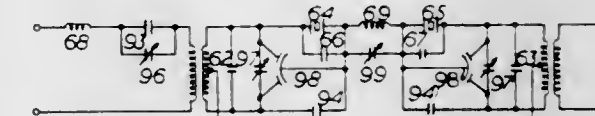
Original application Oct. 22, 1962, Ser. No. 232,180, now Patent No. 3,344,368, dated Sept. 26, 1967. Divided and this application July 27, 1967, Ser. No. 656,561

Claims priority, application Netherlands, Oct. 27, 1961, 270,714

Int. Cl. H03h 7/04

U.S. Cl. 333—72

3 Claims



A crystal filter provides an extremely sharp bandpass or cut-off characteristic. To overcome the crystal and the filters inherent internal characteristic limitations, it is isolated between two inductor and capacitor circuits, preferably having unequal impedances. On the input side, the capacitor is in shunt and the inductor is in series with the input terminals. On the output side, the capacitor is in series and the inductor is in shunt with the output terminals. This configuration provides a flexibility which enables a filter designer to provide many species of the invention.

3,560,895

TUNED TRANSFORMER WITHOUT TUNING CAPACITOR

Hiromi Matsumoto, Tokyo-to, Japan, assignor to Toko Kabushiki Kaisha, Higashiyukigaya, Ota-ku, Tokyo-to, Japan, a joint-stock company of Japan

Filed July 10, 1967, Ser. No. 652,085

Claims priority, application Japan, July 14, 1966, 41/46,118; Dec. 20, 1966, 41/115,902, 41/115,903; Dec. 21, 1966, 41/116,452

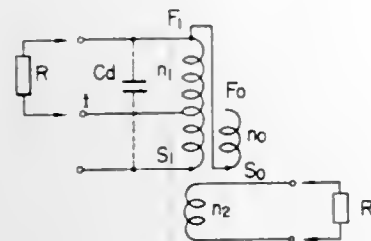
Int. Cl. H03h 7/08

U.S. Cl. 333—76

2 Claims

A winding for creating capacitance is wound parallelly together with a part of a tuning coil of a tuned transformer

to produce a distributed capacitance between the terminals of the tuning coil, and points in the winding and coil of respectively different potential are connected to increase the distributed capacitance, which in suitable com-



bination with the inductance of the tuning coil produces a desired resonance frequency without the use of an external tuning capacitor. Consistently constant distributed capacitance is obtained in production.

3,560,896

INNER CONDUCTOR SUPPORT FOR SHIELDED MICROWAVE STRIP LINES

Roland Essinger, Backnang, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany

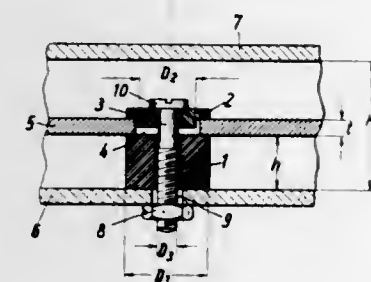
Filed July 8, 1968, Ser. No. 743,116

Claims priority, application Germany, July 6, 1967, P 15 91 696.8

Int. Cl. H01p 3/06

U.S. Cl. 333—96

6 Claims



A shield microwave strip line having an inner conductor between two outer conductors. The inner conductor is maintained in a fixed, spaced relationship with respect to the outer conductors by a supporting means which connects such inner conductor to one of the outer conductors. The supporting means is in the form of a dielectric screw which is inserted through an opening provided in the inner conductor and a dielectric spacer sleeve provided between the inner and the one outer conductor. A metallic lock nut is also provided which fastens the screw in place. The screw is formed to occupy only that portion of the inner conductor opening necessary for compensating the transverse conductance of the supporting means over a wide microwave frequency band.

3,560,897

ANTENNA SWITCH

Herbert D. Steinback, Chicago, Ill., assignor to Magnecraft Electric Co., Chicago, Ill., a corporation of Illinois

Filed Apr. 17, 1969, Ser. No. 816,897

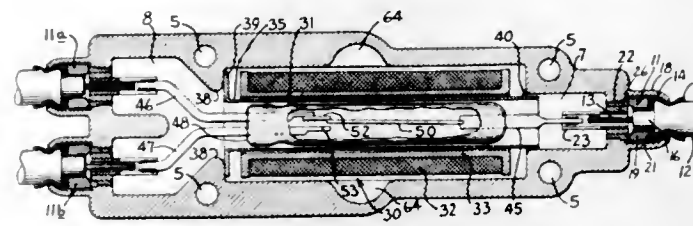
Int. Cl. H01h 53/01

U.S. Cl. 335—5

7 Claims

An antenna switch that includes an electro-magnetic relay within a housing. The relay includes a reed switch that has contacts sealed in a longitudinally extending glass capsule, with the switch leads extending from opposite longitudinal ends of the capsule for connection to the

inner conductors of coaxial cables that are terminated at the housing, the coaxial cable termination being a part of the housing. A cylindrical conducting shield which is



electrically connected to the housing surrounds the switching capsule and is approximately coaxial with the leads between the switch terminals.

3,560,898

COAXIAL REED RELAY

Herbert D. Steinback, Glencoe, Ill.

(5575 N. Lynch Ave., Chicago, Ill. 60630)

Continuation-in-part of application Ser. No. 816,897,

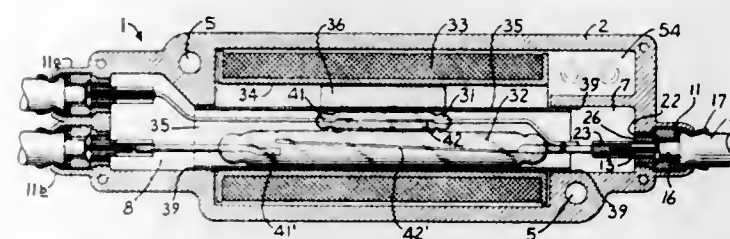
Apr. 17, 1969. This application Nov. 13, 1969, Ser.

No. 876,459

Int. Cl. H01h 53/01

U.S. Cl. 335—5

10 Claims



The relay includes two sealed reed switches, for selectively connecting a radio antenna to a receiver or to a transmitter. The receiver switch, since it carries much less voltage is the smaller of the two and is designed to minimize introduction of side effects in the minute signals that it carries. A permanent magnet maintains the receiver switch closed. The switches are inside an electromagnetic coil, which when energized closes the larger switch, and by opposing the flux of the permanent magnet, causes the smaller switch to open under its natural bias. This assembly is mounted in a metallic grounded housing that terminates three coaxial cables or their connectors.

3,560,899

ELECTRICAL CIRCUIT BREAKER WITH MULTI-CURRENT RATING AND IMPROVED OPERATING MEANS

Ferdinand E. Chabot, Cedar Rapids, Iowa, assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan

Filed Nov. 18, 1968, Ser. No. 776,317

Int. Cl. H01h 77/02

U.S. Cl. 335—35

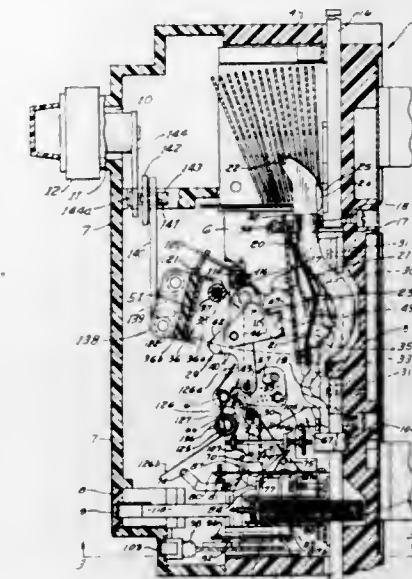
15 Claims

This circuit breaker is a molded case, multi-pole circuit breaker of which each pole has its individual toggle mechanism for closure and release. These mechanisms are operable by a common operating handle so as to cause all of the poles to close simultaneously. Each toggle mechanism is spring biased in the opening direction, but is latched in pole closing position by a high magnetic release which releases instantaneously in event of a high current short circuit, by a low magnetic release which releases at the end of a slightly longer interval, such as in event of a temporary heavy overload, and by a thermal release which releases at the end of a somewhat longer interval due to thermal effects created by longer sustained, but lesser, overloads.

The high magnetic release of each pole operates in bypassing relation to parts of the associated toggle mecha-

nism and to the other releases for quicker releasing action. The low magnetic release is adjustable for releasing in response to preselected flux intensities.

Transformers supply secondary current for operating the thermal releases for the poles, respectively. The air gaps in the magnetic flux path of each transformer can be changed readily by removable rating columns to assure substantially the same secondary current for any selected primary current within the rated capacity of the circuit breaker.



The terminal strap of each pole acts as the primary for creating the operating fluxes.

Means common to all of the pole mechanisms assure concurrent release of all toggle mechanisms instantly upon release of any one of them.

Specific safety features are also present.

3,560,900

MACHINE CONTROLS

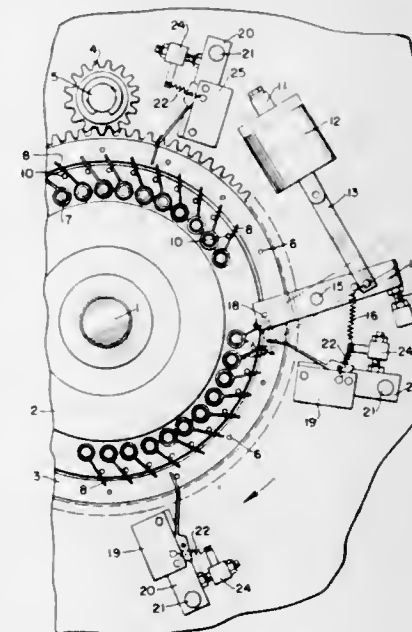
Arndt Jentzsch, Heidenau, Germany, assignor to VEB Druckmaschinen-Werk Victoria, Heidenau, Germany

Filed Dec. 18, 1968, Ser. No. 784,670

Int. Cl. H01h 67/06

U.S. Cl. 335—122

1 Claim



A control assembly for controlling a machine such as a printing press. The control assembly includes an input means for introducing into the assembly a movement whose speed has a predetermined relation to the speed of operation of the structure which is to be controlled. An impulse-transmitting means normally has a non-transmitting position but also has a transmitting position where it coacts with the input means for transmitting an

impulse along a predetermined path at the speed of movement of the input means. An impulse-delivering means delivers an impulse to the impulse-transmitting means to displace the latter to its impulse-transmitting position in response to a signal received by the impulse-delivering means from the structure which is to be controlled. An impulse-receiving means is situated at a predetermined location along the impulse-transmission path to receive the impulse at a given period of time after the impulse is delivered to the impulse-transmitting means by the impulse-delivering means, so that the impulse-receiving means can introduce a controlling influence upon the structure which is to be controlled at a precisely determined time after the impulse was initially delivered by the impulse-delivering means to the impulse-transmitting means.

3,560,901

ELECTROMAGNETIC RELAY

Shizuka Horii and Fumiyoshi Inada, Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan, a company of Japan

Filed Mar. 12, 1969, Ser. No. 806,665

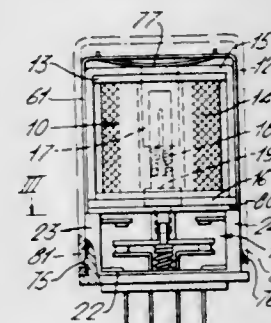
Claims priority, application Japan, Mar. 26, 1968,

43/23,784

Int. Cl. H01h 45/00

U.S. Cl. 335—132

9 Claims



An electromagnetic relay assembly of the plunger type consisting of separate electromagnet and switch structures, with a snap-on type binding member mounted on the electromagnet structure and gripping the switch structure to hold the two together in a simplified manner so that the electromagnet plunger bears accurately on the movable actuator of the switch assembly. Both the electromagnet and the switch portions of the unit are of conveniently simple construction for ease of assembly, eliminating the need for fastening elements such as screws and the like. The entire assembly is fitted within a housing, and a separate mounting element is provided for securing the relay to a wall structure.

3,560,902

METHOD OF PROVIDING STATIC SHIELDING OF TRANSFORMER WINDINGS

Kenichi Okuyama, Hitachi-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed June 14, 1967, Ser. No. 645,980

Int. Cl. H01f 15/14

U.S. Cl. 336—70

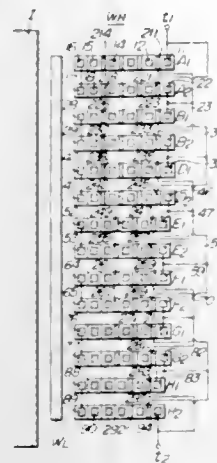
9 Claims

The present disclosure relates to a method and apparatus for providing improved static shielding of transformer windings. The improved static shielding is comprised by inserting series capacitance between the winding turns in a manner such that the value of a first series capacitance C_{s1} on the line side of the transformer is related to the value of a last series capacitance C_{sn} on the earth side of the transformer in accordance with the expression

$$\sqrt{\frac{C_{s1}}{C_{s1}}} = k \frac{C_{s1}}{C_{s1}}$$

wherein k is a constant having a value below 0.05 and C_{s1} is the capacitance to earth of all the turns the values

of series capacitance of the intermediate turns between opposite sides of the opening is wound in opposite directions so that the flux produced by current in the conductor said series capacitance C_{s1} and C_{sn} and are related in a



manner such that said intermediate values vary approximately linearly between the values of said series capacitances C_{s1} and C_{sn} .

3,560,903

ELECTROMAGNETIC COIL CONSTRUCTION

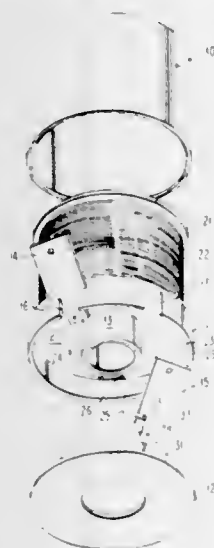
Stephen Foldes, 38 Front St. 13905, and Louis A. Jimenez, 524 Midvale Road 13903, both of Binghamton, N.Y.

Filed Jan. 30, 1969, Ser. No. 795,151

Int. Cl. H01f 15/10, 27/30

U.S. Cl. 336—92

6 Claims



An electromagnetic coil construction is described in which the component elements comprise a bobbin of thermoplastic material around which the wire is wound. The base flange of the bobbin has a hollow portion, the wall of which supports terminal inserts. A thermoplastic cover over this portion locks the inserts in place. A tubular shell placed over the bobbin envelops the winding. The rim of the shell, as well as the rim of the flange, are tapered at the edge for sonic welding of the shell and the cover to the base flange.

3,560,904
ELECTRIC COILS

Donald F. Wilkes, Albuquerque, N. Mex., assignor to Rolamite Technology, Incorporated, San Francisco, Calif., a corporation of California

Filed Apr. 19, 1968, Ser. No. 722,615

Int. Cl. H01f 27/28, 41/04

U.S. Cl. 336—180

14 Claims

An electric coil in which the turns of the conductor are wound in multiples, rather than in single strands. The conductor is printed or otherwise provided on a web of insulating material. The conductor is arranged in a spiral pattern around a central opening in the web. The web on

tor is additive when the windings have a common central axis.

3,560,905

RESISTOR STRUCTURE FOR OIL CIRCUIT BREAKER INTERRUPTER

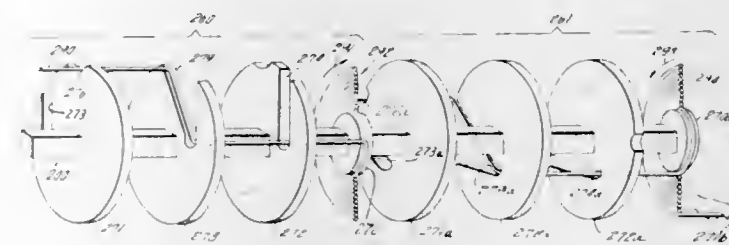
Earl B. Rietz, La Canada, James R. McCloud, Burbank, Hubert J. Koenn, Alhambra, and David A. Wall, Pasadena, Calif., assignors, by mesne assignments, to I-T-E Imperial Corporation, Philadelphia, Pa., a corporation of Delaware

Original application Mar. 12, 1965, Ser. No. 439,304, now Patent No. 3,392,248. Divided and this application June 7, 1968, Ser. No. 764,975

Int. Cl. H01c 3/02

U.S. Cl. 338—62

3 Claims



A non-inductive resistor structure for the parallel resistor in an oil circuit breaker in which individual resistor coil layers are wound above one another and are clamped together by a central insulation rod. Each coil layer is disposed between spacer plates which are slotted to permit passage of a continuous resistance wire from coil to coil with adjacent wire coil layers being wound in opposite directions.

3,560,906

INFINITELY VARIABLE ELECTRONIC DEVICE

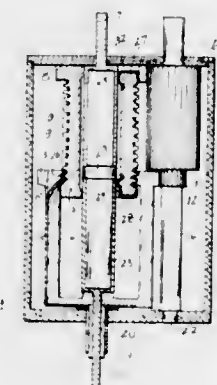
Eric C. Wahlberg, 32 8th St., Stamford, Conn. 06905

Filed Oct. 28, 1968, Ser. No. 771,126

Int. Cl. H01c 5/02, 1/02

U.S. Cl. 338—145

6 Claims



Two electrical elements are mounted for independent rotation in the same direction about a common axis and, as a result of the rotation, a longitudinal displacement

with respect to each other, said elements being in electrically coactive relationship whereby electrical values depend upon the longitudinal displacement caused by the rotation of the two elements.

3,560,907

TEST CONNECTOR FOR MICROMINIATURE CIRCUITS

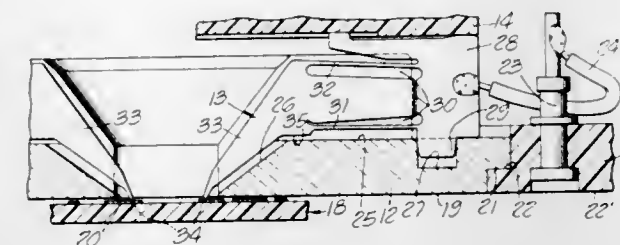
Peter V. N. Heller, Orange, Calif.
(213 Esplanade, San Clemente, Calif. 92672)

Filed May 17, 1968, Ser. No. 729,971

Int. Cl. H01r 13/24

U.S. Cl. 339—17

11 Claims



A predetermined number of thin, spring-like, metallic connection members are received within slots in an annular insulative base. The major planes of the members are disposed normally to the plane of the annular base with the member edges each having a pointed end located in the opening of the base. The members are configured such that on moving the base toward a circuit to be tested sufficiently to bring the pointed members ends into contact with predetermined circuit points all resilient motion of the members is normal to the circuit.

3,560,908

ELECTRICAL CONNECTOR HAVING IMPROVED MOUNTING MEANS

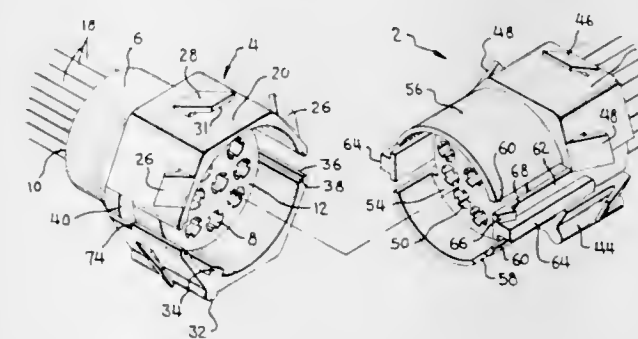
Harry John Dell, Mechanicsburg, and Earl Earnest Folkenroth, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Continuation of application Ser. No. 569,946, Aug. 3, 1966. This application Nov. 25, 1968, Ser. No. 778,864

Int. Cl. H01r 13/54

U.S. Cl. 339—91

5 Claims



Electrical connector comprises first and second connector parts which are matable with each other. Each part has a body portion and a hood portion, the hood portion of the first one of the parts being telescopically receivable in the hood portion of the second part. The body portion of the first part and the hood portion of the second part have the same outside dimensions and cross-sectional configuration so that the body portion and the hood portion of the first and second parts respectively can be inserted into a panel opening of one size. Securing means, in the form of integral divergently extending ears, are provided on the body portion of the first part and the hood portion of the second part so that either part can be mounted in a panel.

3,560,909

TERMINAL CONNECTOR

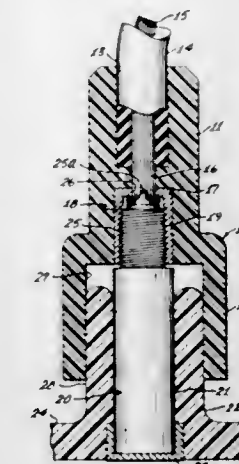
James R. Wyatt, 2553 W. Rose Lane, Apt. 219, and Alan N. Wright, 3208 W. Glenrosa, both of Phoenix, Ariz. 85017

Filed July 10, 1968, Ser. No. 743,655

Int. Cl. H01r 11/20

U.S. Cl. 339—100

3 Claims



A terminal connector having a contact which is positively engaged with the wire conductor in a manner to effect low resistance electrical contact while preventing the disconnection of the conductor from the terminal connector under severe operating conditions.

3,560,910

MODULE

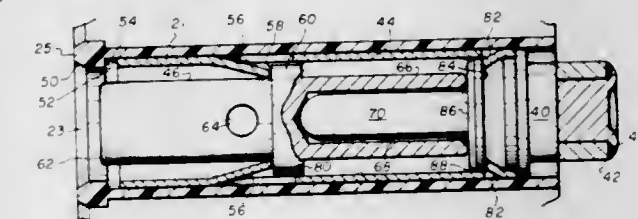
Charles William Sosinski, Linden, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J., a corporation of New Jersey

Filed Aug. 5, 1968, Ser. No. 750,265

Int. Cl. H01r 9/08

U.S. Cl. 339—217

10 Claims



The disclosure is directed to the construction of a module employed in a rear release type of connection system. More particularly the disclosure is directed to the manner of mounting and electrically and mechanically interconnecting metallic spring retaining sleeves with the male connector pin to retain the spring sleeve within the bore of an insulating module block and to retain the entire assembly comprising the spring retaining sleeve, the male connector and the various bus bars within the overall module. Various methods are described and disclosed for providing the mechanical and electrical connection between the male connector pin and the spring retaining sleeve to retain both within the module.

3,560,911

DISENGAGEABLE ELECTRICAL CONNECTIONS HAVING IMPROVED CONTACT SPRING MEANS

John Aaron Zimmerman, Jr., Hershey, and Clarence Leonard Paulus, Camp Hill, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Continuation-in-part of application Ser. No. 640,649,

May 23, 1967. This application Sept. 24, 1968, Ser.

No. 762,088

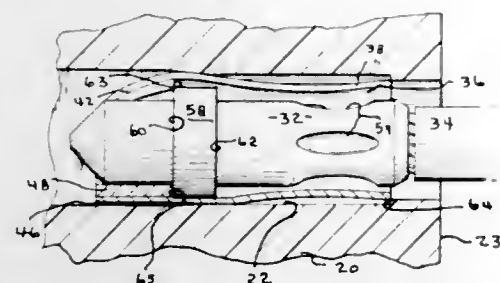
Int. Cl. H01r 13/12

U.S. Cl. 339—258

8 Claims

Pin and socket connecting means in which the socket comprises a stamped and formed cylindrical body portion which is adapted to receive the pin at one end thereof and

which has ears extending from its other end obliquely inwardly with respect to the axis of the body portion. The body portion of the socket has an axially extending open seam and is contained relatively snugly within a cylindrical cavity in an insulating housing. The ears are relatively rigid and are rigidly connected to the body portion so that when the pin is inserted into the socket, the ears are moved relatively outwardly, however, because of the fact

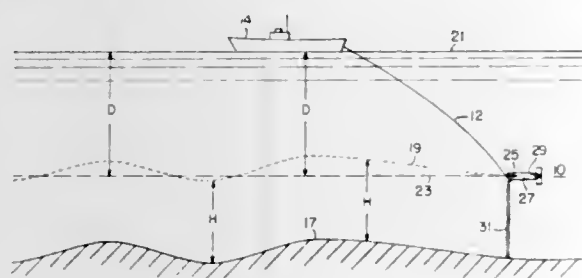


that the ears are rigid and nonflexible, the body portion of the socket is forced to elastically deform to accommodate the movement of the ears. Because of the fact that the body portion of the socket is circumferentially confined in the cavity, the body portion deforms along its length and functions as a spring means maintaining electrical contact between the socket and the leading end of the inserted pin.

3,560,912

CONTROL SYSTEM FOR A TOWED VEHICLE

Paul G. Spink, Severna Park, and James T. Malone, Arnold, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Feb. 3, 1969, Ser. No. 795,913
Int. Cl. B63b 21/00; B64d 3/00; G01s 9/68
U.S. Cl. 340—3 6 Claims

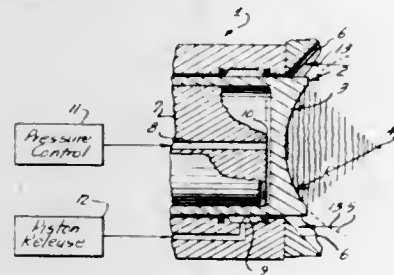


A towed underwater vehicle having rotatable wing and tail surfaces is maintained in a predetermined orientation at a constant height above the ocean bottom, or at a constant depth below the surface, by commanding a rate of rotation of the wing or tail surfaces when a deviation from the desired attitude occurs.

3,560,913

ACOUSTIC PULSE FOCUSING MEANS

Lawrence G. Copley, Cambridge, Mass., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Oct. 9, 1968, Ser. No. 766,083
Int. Cl. H04r 23/00
U.S. Cl. 340—8 2 Claims

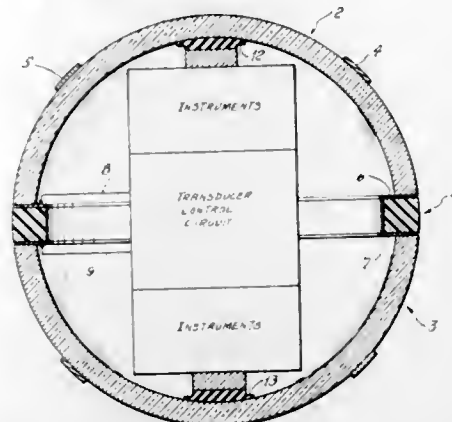


An acoustic impulse generator is provided with a concave piston head for focusing the pulse generated by the head to a point ahead of the generating surface.

3,560,914

TRANSDUCER VESSEL

Douglas C. Webb, Falmouth, Mass., assignor to the United States of America as represented by the Secretary of the Navy
Filed July 3, 1968, Ser. No. 744,614
Int. Cl. H04r 17/10
U.S. Cl. 340—10 3 Claims

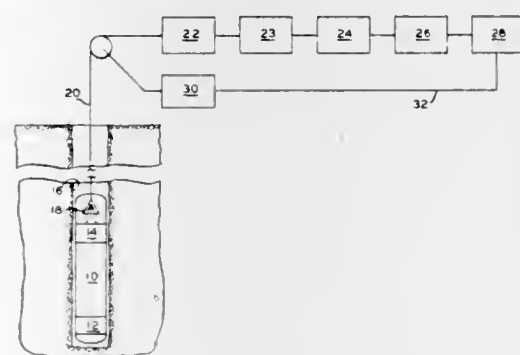


A combined pressure vessel and electroacoustical transducer is disclosed wherein the transducer unit serves as a portion of the casing. In one construction, the transducer is an annular member positioned between a pair of hemispheres. All transducer electrical connections are internal and the apparatus consequently can withstand maximum hydrostatic pressures.

3,560,915

SONIC AMPLITUDE LOGGING

Sheldon E. Elliott and Joe P. Lindsey, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Dec. 12, 1966, Ser. No. 601,081
Int. Cl. H03k 13/02
U.S. Cl. 340—18 6 Claims



A sonic signal generator and receiver are placed in vertical spaced relationship in a well bore. The receiver establishes an analog output signal. This signal is converted to a corresponding digital signal by dividing the analog signal into successive increments at a first rate. The resulting increments are passed to individual signal storage devices. The increments are subsequently removed from the storage devices in sequence at a preselected second rate which is slower than the first rate, and the removed increments are converted into corresponding digitized signals.

3,560,916

LOCATOR SIGNAL SYSTEM FOR VEHICLE TRANSPORTABLE SIGNAL GENERATORS

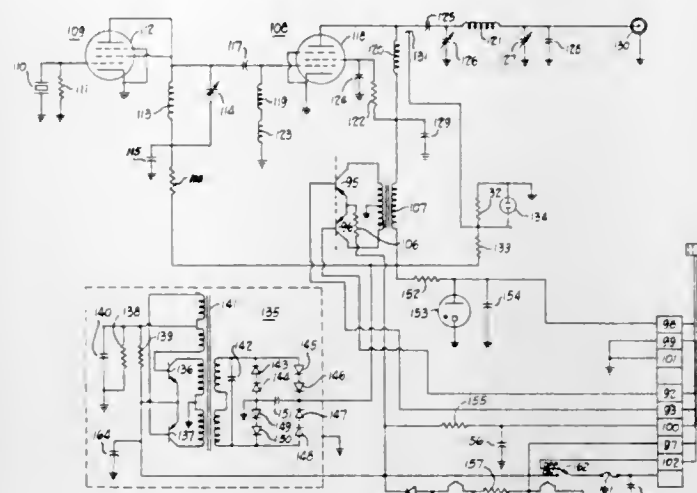
William T. Buckingham, 2580 Africa Road, Box 125B, Galena, Ohio 43021, and Gordon R. Hammon, Fairview Park, Ohio (Windsor Drive, Amherst, N.H. 03031)
Filed Dec. 12, 1966, Ser. No. 601,036
Int. Cl. G08g 1/12
U.S. Cl. 340—23 2 Claims

A transportable electronic signalling equipment carried by a vehicle with means for activation through mechanical linkage with the distance measuring equipment of the vehicle, and comprising a mechanical switching assembly causing it to advance modulating the radio frequency of the transmitted signal at predetermined locations, the modulation occurring in such a manner as to indicate upon multiple receivers the one mile segment of proximity

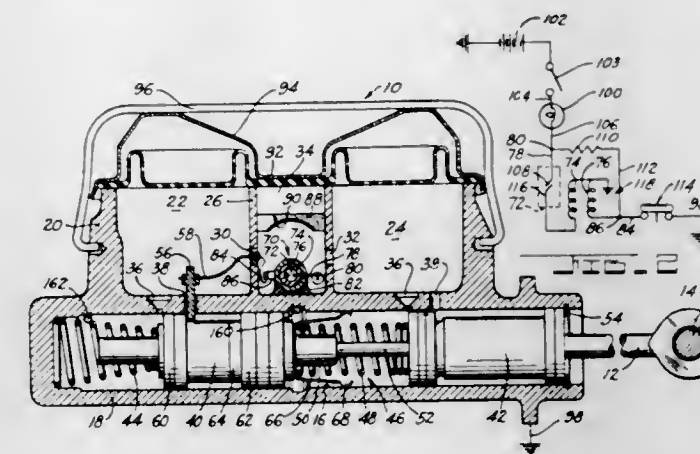
3,560,918

INDICATOR MEANS FOR FLUID PRESSURE AND FLUID SUPPLY

Richard L. Lewis, George M. Tam, and Raymond A. Reznicek, St. Joseph, Mich., and Winford Boyd Caruth and Ralph Wolf Carp, Baltimore, Md., assignors to The Bendix Corporation, a corporation of Delaware
Filed Dec. 8, 1967, Ser. No. 689,088
Int. Cl. B60t 17/22
U.S. Cl. 340—52 12 Claims



separating the transmitter and receivers through upward shifts of the frequency of oscillation of approximately one hundred cycles per second, the receivers being tuned to receive and be activated by only the desired segment of transmitter frequency of oscillation, amplified, relayed to visual or audible warning system to give the desired proximity information of the vehicular approach.

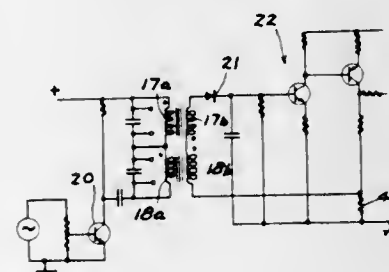


Magnetic switch means within a fluid actuator having a closed electrical circuit means operative on failure to develop pressure and/or low fluid supply to warn an operator of such problems.

3,560,917

MAGNETIC SIGNAL SENSING DEVICE FOR SELF-PROPELLED VEHICLES AND THE LIKE

Kenneth A. Wilson, Locust Valley, N.Y., assignor, by mesne assignments, to American Chain & Cable Company, Inc., New York, N.Y., a corporation of New York
Filed Nov. 2, 1967, Ser. No. 680,116
Int. Cl. G08g 1/01
U.S. Cl. 340—23 24 Claims

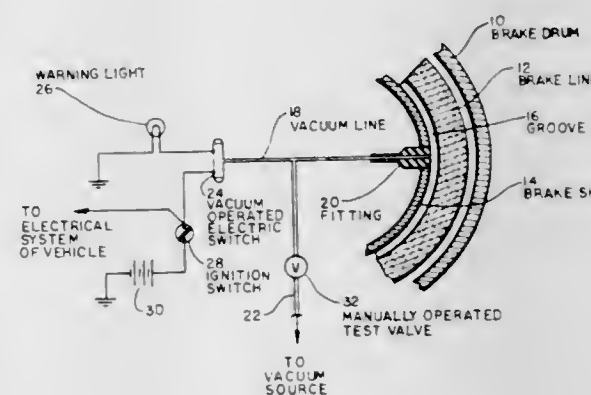


This specification discloses a vehicle which is adapted to follow a predetermined path defined by a wire or the like embedded in the floor. The vehicles support a plurality of pickup devices which are responsive to magnetic field devices embedded in the floor past which the vehicles move. Each signal device is associated with two transformers. Each transformer comprises a primary coil associated with a high frequency source of alternating current and a secondary coil. One of the transformers is oriented with respect to the other so that it is more sensitive to the presence of a magnetic field along the path than the other transformer. Circuitry is provided for rectifying and amplifying any signal produced by the sensing of a magnetic field by said transformer pairs.

3,560,919

WEAR INDICATING SIGNALLING SYSTEM FOR A BRAKE LINING, OR THE LIKE

Armando R. Uribe, P.O. 16978, 11744 Hatteras, North Hollywood, Calif. 91607
Filed Nov. 12, 1968, Ser. No. 775,089
Int. Cl. B60t 17/22; B60q 1/00
U.S. Cl. 340—52 4 Claims



A pneumatic system is provided for indicating excessive wear of a normally unobservable wearing surface, such as a brake lining. The system of the invention includes air lines coupled to a pressure tight groove in the brake lining and to a vacuum pressure or positive pressure source, so as to maintain the system in a nonoperative state so long as the pressure tight integrity of the aforesaid groove is maintained. When the wear of the brake lining reaches a critical state, the groove is exposed, and the resulting pressure change in the system is utilized to activate a visual or audible alarm unit.

3,560,934

ARRANGEMENT FOR EFFECTING VECTOR MODE OPERATION IN MULTIPROCESSING SYSTEMS

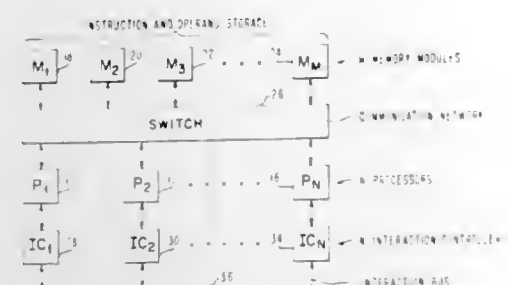
Henry A. Ernst, Pleasantville, Meir M. Lehman, Bronx, Jack L. Rosenfeld, Tarrytown, and Hans P. Schlaeppli, Chappaqua, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed June 10, 1969, Ser. No. 831,897

Int. Cl. G06f 9/18, 9/19

U.S. Cl. 340—172.5

20 Claims



A program controlled transition of the mode of operation of a multiprocessor system, from the normal multiprocessor mode (independent execution of distinct instruction sequences or tasks by a plurality of processors) to the vector mode (synchronous execution of identical instruction sequences or vector task by a plurality of processors) is effected by the execution of a special instruction by one of the processors engaged in a multiprocessor task, which thereby becomes the so-called originating processor of a vector task. In executing this special instruction, the originating processor acquires control over a specified number of the other processors that have so far been executing independent task, causing them to interrupt the tasks they are engaged in, and then to participate in the incipient vector task. In a set of processors participating in a vector task, the originating processor alone fetches instructions from storage, distributing them to the other participating processors. The instruction sequencing mechanism of each one of the other participating processors, while required in the normal multiprocessor mode, is disabled for as long as that processor continues in the vector mode. The addressing and indexing mechanisms of all participating processors remain effective in the vector mode, so that each of the processors can fetch data words from storage for its own use. However, data fetching by all participating processors is synchronized by the originating processor. In addition, special instructions intended for use in vector tasks only enable the originating processor to fetch individual data words, copies of which then being distributed to all participating processors. Another special instruction in the vector tasks effects the termination of the vector mode of operation, causing the originating processor to relinquish control over the other participating processors, which thereby become available for reassignment to independent tasks as may currently be on record on the task queue. Thereafter, the originating processor continues the execution of its program in the normal mode of operation.

3,560,935

INTERRUPT APPARATUS FOR A MODULAR DATA PROCESSING SYSTEM

Leroy W. Beers, Downingtown, Pa., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Mar. 15, 1968, Ser. No. 713,426

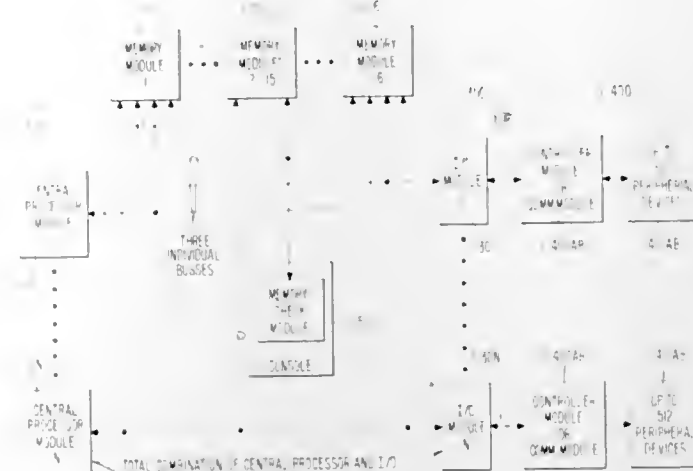
Int. Cl. G06f 9/18

U.S. Cl. 340—172.5

22 Claims

The present application discloses an interrupt system capable of use in a fully modular data processing system. It provides apparatus means for enabling not only recordation and immediate responsive recognition of a comprehensive set of interrupt conditions but also for recordation

without immediate responsive recognition of such conditions. In addition, it provides an interrupt system which is operative in its interrupted or control mode to execute



3,560,936

MESSAGE BUFFERING COMMUNICATION SYSTEM

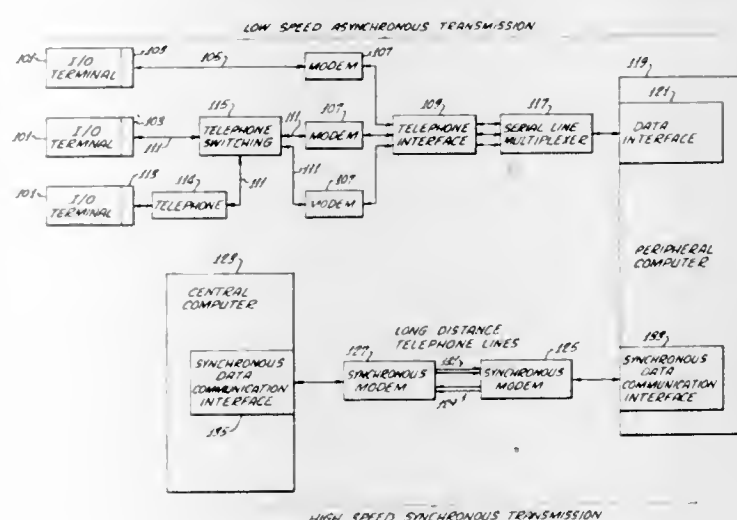
Michael D. Busch, Corona del Mar, Calif., assignor to Pillsbury-Occidental Co., a corporation of Delaware

Filed Oct. 8, 1968, Ser. No. 766,384

Int. Cl. G06f 3/00, 5/06, 16/11

U.S. Cl. 340—172.5

9 Claims



Apparatus and method for transmitting data on a time-shared basis between a plurality of low-speed sources and a high-speed source over a communication circuit. Byte-serial data is initially transmitted at a relatively low rate from a plurality of remote sources (terminals) to a nearby peripheral computer which temporarily stores the incoming data in a memory unit and arranges it into strings of data blocks. The stored data is later transmitted as messages of one or more data blocks at a much faster rate over a communication circuit to a central computer. These data blocks may be either text blocks containing the temporarily stored data or control blocks containing information regarding the status of remote terminals. In addition, each message contains an acknowledge block

whose purpose is to facilitate the detection and correction of data transmission errors. The central computer checks all incoming blocks for errors and acknowledges only those that have been correctly received. Blocks received in error by the central computer are not acknowledged, and are retransmitted by the peripheral computer until they are correctly received. Conversely, messages consisting of acknowledge, text, and control blocks are transmitted from the central computer to the peripheral computer over the communication circuit at high speed, the data is temporarily stored in the peripheral computer's memory and is later transmitted to the correct remote destination (terminal) at low speed. Error detection and correction performed on these messages is similar to those performed on messages traveling in the opposite direction.

3,560,937

APPARATUS FOR INDEPENDENTLY ASSIGNING TIME SLOT INTERVALS AND READ-WRITE CIRCUITS IN A MULTIPROCESSOR SYSTEM

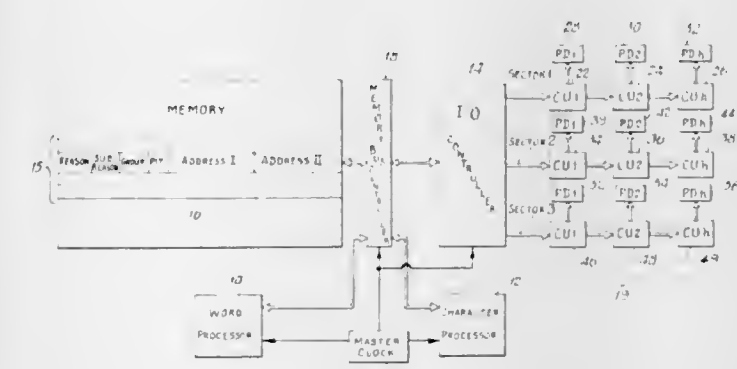
Robert P. Fischer, Norfolk County, Mass., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Oct. 28, 1968, Ser. No. 771,147

Int. Cl. G06f 15/16, 15/40

U.S. Cl. 340—172.5

13 Claims



Data processing apparatus responds on a freely assignable basis to each peripheral transfer instruction received from any one of a plurality of processors, and establishes communication between the system memory and the specified peripheral device. The apparatus assigns a read-write control circuit and assigns a plurality of time slot intervals, collectively or independently, to process each request in accordance with the transfer rate of the peripheral device.

3,560,938

DATA STEERING CIRCUIT

John J. Collins, Richard D. Hutchinson, Charles T. Keys, and Winard L. Wilhoite, Columbus, Ohio, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed May 15, 1969, Ser. No. 824,785

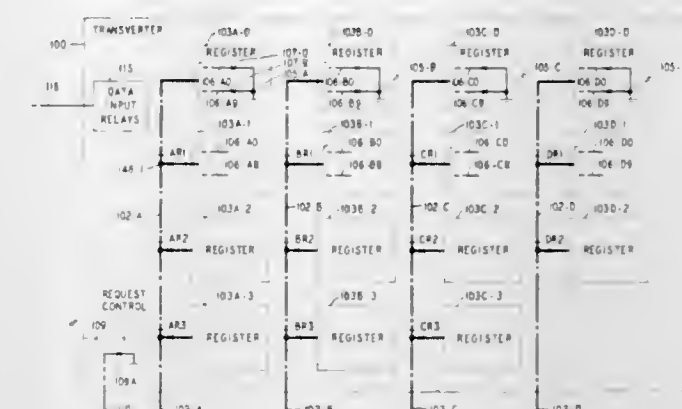
Int. Cl. G11c 9/00

U.S. Cl. 340—172.5

21 Claims

The invention comprises a steering and distribution circuit which permits data to be transferred over a plurality of busses from registers to an electronic type data receiving circuit, such as a tape recorder, at a relatively high rate via the contacts of steering relays associated with each bus. The improvements reside in (1) circuitry for operating the steering relays of each bus prior to the time that data is to be applied via the contacts of an operated

relay to the recorder, and (2) circuitry in both the register and the recorder which provides an indication that



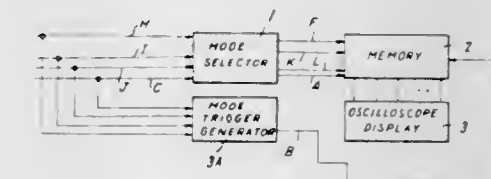
3,560,939

József Lukács, Budapest, Hungary, assignor to Kozponti Fizikai Kutató Intézet, Budapest, Hungary, a firm Continuation-in-part of application Ser. No. 541,731, Apr. 11, 1966. This application July 5, 1968, Ser. No. 743,272

Int. Cl. G06f 9/00; H03k 17/00

U.S. Cl. 340—172.5

4 Claims



A selection circuit for exciting one of M digital channels (including one monitoring channel and M-1 operating channels) automatically excites the monitoring channel upon the de-excitation of any of the operating channels. Each selected operating channel is energized, and the monitoring channel deenergized, by an associated unique one of M-1 switching pulses. The de-excitation of an operating channel and the simultaneous energizing of the monitoring channel is accomplished by the application of a stop pulse to the last-mentioned operating channel.

3,560,940

TIME SHARED INTERCONNECTION APPARATUS Fritz H. Gaensslen, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed July 15, 1968, Ser. No. 745,026

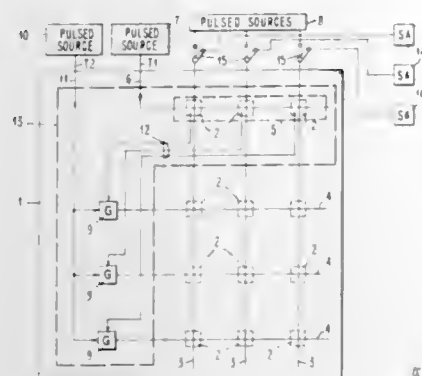
Int. Cl. G11c 11/40; H03k 3/286

U.S. Cl. 340—173

26 Claims

An array of actuatable devices each requiring two inputs for actuation is disclosed. During a first time period, one row of the array is separately actuatable via common interconnections to columns of actuatable devices and a common row connection and stores information in binary form. Each of the devices in the row is connected to a column of actuatable devices and to an actuatable gate which is actuated or not actuated depending on the state of the actuatable devices of the separately actuated row. Each gate is also connected to a separate row of the array. During a second time period, the columns of actuatable de-

vices, are actuated from pulsed sources via their common interconnection and from a pulsed source connected in common to all the gates. Since only one gate connected to a row is actuated and all columns of devices are actuated, only those devices in that row are actuated. In a memory environment, the foregoing operation is characterized as writing. To detect the condition of selected of the actuated devices, an actuable gate is selected during a first time period and, during a second time period, sensing devices are connected to the columns of actuable de-

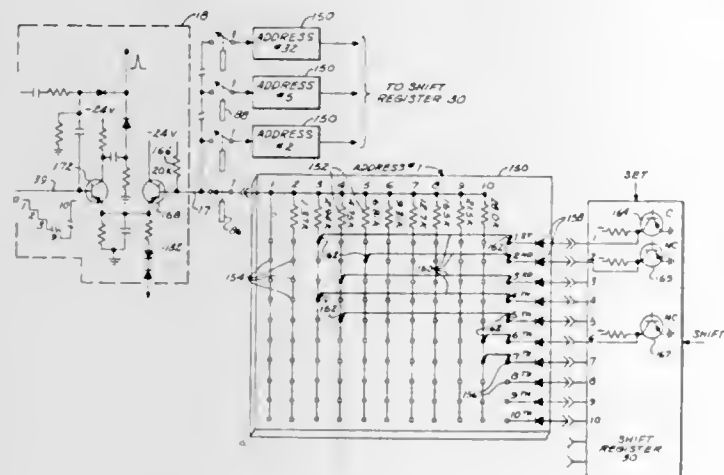


vices and, the common interconnection to a row of actuable devices is activated from a pulsed source. In a memory environment, the foregoing operation is characterized as reading. The actuable devices may be memory cells, bistable circuits or the like. The arrangement shown is particularly adapted to the semiconductor chip environment where reduction of interconnections is a significant design factor. Other arrangements showing decoding on the chip and more than two time periods are also disclosed.

3,560,941 MEMORY UNIT

Jacob L. Wallace, Jr., Springfield, Va., assignor to The Susquehanna Corporation, a corporation of Delaware
Original application May 28, 1964, Ser. No. 370,780, now Patent No. 3,341,666, dated Sept. 12, 1967. Divided and this application Aug. 29, 1967, Ser. No. 664,084
Int. Cl. G11c 17/00
U.S. Cl. 340—173

7 Claims



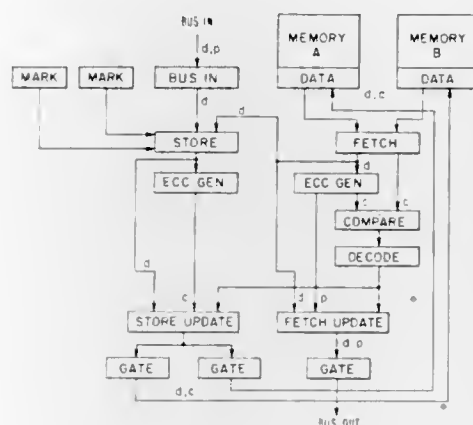
An embodiment of the present invention shows a circuit board used in the memory of a repertory dialer. The board has ten columns of electrically-connected sockets, each column being headed by a resistor weighted in value according to the column in which it is located. Each column corresponds to a digit value in an address. Ten rows, having a socket in each row, are also provided and correspond to the digit positions in an address. To program the circuit board, a wire lead is connected from the socket in each row to a socket in the column corresponding to

the digit value. This board therefore permits the programming of information directly in analog form. The memory, comprising a plurality of boards, stores three-dimensional information in a two-dimensional matrix. The weighted resistors provide the third-dimensional information.

3,560,942 CLOCK FOR OVERLAPPED MEMORIES WITH ERROR CORRECTION

Cornelius J. Enright, Jr., La Grangeville, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed July 15, 1968, Ser. No. 745,010
Int. Cl. G11c 7/00
U.S. Cl. 340—173

7 Claims

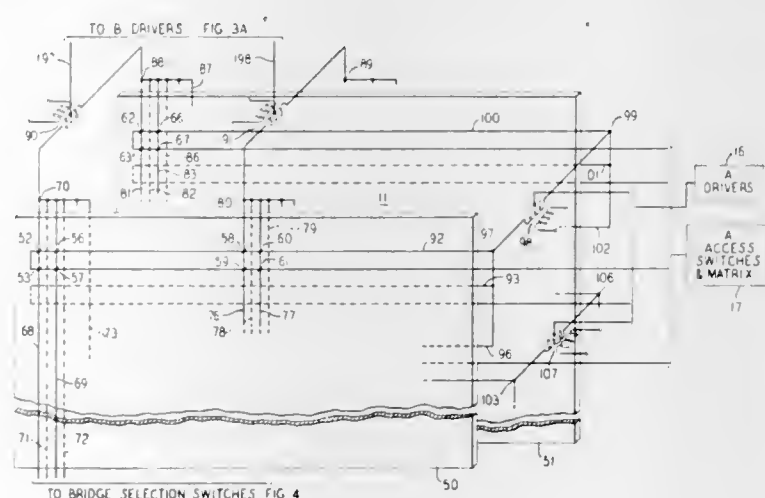


This disclosure teaches a clock circuit that can be shared by several memories. The clock controls the memories to operate in an overlapping mode and to share error correction circuitry and other common circuits.

3,560,943 MEMORY ORGANIZATION FOR TWO-WAY ACCESS

Philip A. Harding, Aurora, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Jan. 29, 1968, Ser. No. 701,172
Int. Cl. G11c 5/04, 7/00, 11/06
U.S. Cl. 340—174

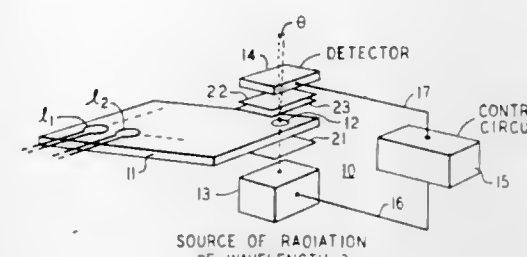
21 Claims



A magnetic store system is organized on a 2-wire single-storage-element-per-bit basis for coincident current read and write. Sensing circuits are coupled to the memory along two different coordinates so that readout is realized along either of such two coordinates.

3,560,944
FARADAY ROTATION DEVICE
Arjeh J. Kurtzig, Short Hills, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Aug. 14, 1969, Ser. No. 850,066
Int. Cl. G02f 1/22, 1/24; G11c 11/14
U.S. Cl. 340—174

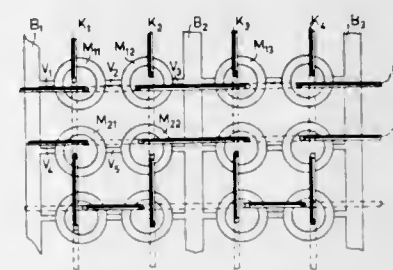
9 Claims



Useful Faraday rotation in magnetic birefringent crystals is shown to be increased if incident radiation propagates in the plane defined by the magnetization and the optic axis of the crystal in a direction nonparallel to the magnetization.

3,560,945
MAGNETIC STORAGE DEVICE
Hermanus Johannus Maria de Haan, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Sept. 2, 1969, Ser. No. 854,380
Claims priority, application Netherlands, Sept. 18, 1968, 6813303
Int. Cl. G11c 5/04, 11/06
U.S. Cl. 340—174

2 Claims



Magnetic storage device comprising a plurality of apertured storage elements of magnetic material connected by parts of the same material to form a mechanically integral body, control-conductors being passed through the apertures of the elements so that currents through the conductors can affect only the elements coupled with the conductors due to the arrangement of the connecting parts whereby no magnetic flux can occur along the connecting parts.

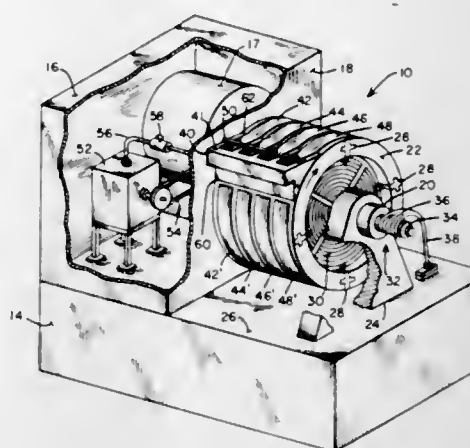
3,560,946 ROTATING-HEAD MEMORY SYSTEM UTILIZING NON-CONTACTING FLEXIBLE RECORD MEMBER

Gregory J. Ehalt, Long Lake, George D. Bukovich, Minneapolis, and Willard C. Neuman, St. Paul Park Village, Minn., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Jan. 3, 1968, Ser. No. 695,500
Int. Cl. G11b 21/02, 5/60
U.S. Cl. 340—174.1

16 Claims

A memory system having magnetic transducers mounted in a rotatable support member for cooperating with flexible record members is described. A system for mounting the transducer selection circuits within the rotatable support member is also described. The rotatable support mem-

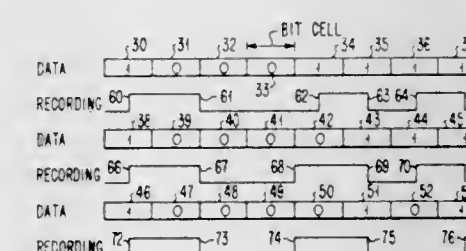
ber supports the flexible record members on a boundary layer of air, and a record member profile correction sys-



tem ensures that the flexible record members are uniformly positioned to cooperate with the moving transducers.

3,560,947
METHOD AND APPARATUS FOR COMMUNICATION AND STORAGE OF BINARY INFORMATION
Robert Chester Franchini, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed May 31, 1968, Ser. No. 733,475
Int. Cl. G11b 5/04, 5/44
U.S. Cl. 340—174.1

8 Claims



Method and apparatus for communication and storage of binary information on a medium having two separately identifiable waveforms or states and having a plurality of nearly uniform bit cells. Binary "ones" are transmitted in selected bit cells by writing a transition between the two states at the center of each such bit cell. Binary "zeroes" are transmitted in all other bit cells by writing a transition between the two states at the leading edge of only those of the "zero" bit cells not immediately following a bit cell having a transition therein. Separation of data is accomplished by viewing each bit cell and separating any transition detected at the center of a bit cell as a "one" and considering any other bit cell as a "zero."

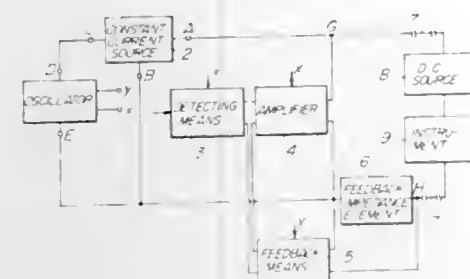
3,560,948
SIGNAL TELEMETERING SYSTEM USING PAIR TRANSMISSION LINES
Fumiyuki Inose, Hachioji-shi, and Kazuo Takasugi, Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Dec. 17, 1968, Ser. No. 784,363
Claims priority, application Japan, Dec. 22, 1967, 42/81,872; Dec. 27, 1967, 43/83,224; Jan. 10, 1968, 43/1,088, 43/1,089, 43/1,090; Feb. 5, 1968, 43/6,694; Mar. 8, 1968, 43/14,661
Int. Cl. G08c 19/02

U.S. Cl. 340—186

8 Claims

A system for telemetering input data such as temperature which comprises: a detector operatively converting the input data into electric signal; an amplifier for

amplifying and transmitting the electric signal through negative feedback means, and a pair of transmission lines to a measuring instrument; a D.C. power source for supplying D.C. voltage through the transmission lines to a constant current circuit; and an oscillator for gen-

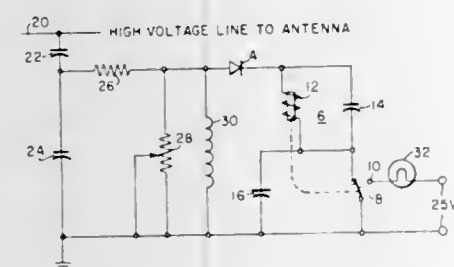


erating a rectangular wave to control the detector, amplifier and the feedback means so that a spike voltage involved in the rectangular wave produced by the oscillator is prevented from being transmitted to the instrument through the transmission lines.

3,560,949
THRESHOLD CIRCUIT FOR DETECTING AND INDICATING AN OVERVOLTAGE
Harvey M. Masters, Ellicott City, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed June 27, 1968, Ser. No. 740,756
Int. Cl. G08b 21/00
U.S. Cl. 340—248

8 Claims

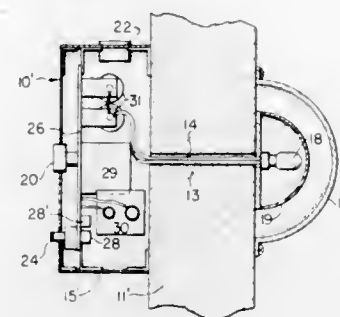


A threshold circuit for detecting and indicating an overvoltage. An example being to sense the voltage at an antenna being fed from a transmitter through an antenna coupler. A switching contact and an operating coil therefore are connected in a series circuit combination with a first capacitor connected across the operating coil. After the first capacitor charges to approximately the peak of the voltage being monitored, current through the operating coil will be sufficient to actuate the switching contact, the operating coil and first capacitor are disconnected from the voltage to be sensed whereupon the first capacitor discharges through the operating coil to maintain the switching contact in its actuated position until the discharge current is less than the hold-in current requirement of the operating coil. The switching contact will then return to its normal position and as long as the voltage to be sensed remains above the threshold level, the operating coil will be alternately energized and deenergized through the action of the switching contact.

A second capacitor may be advantageously connected across the switching contact to momentarily draw current through the operating coil from the overvoltage source to allow the switching contact to complete its switching cycle without chattering.

3,560,950
WARNING SIGNAL FOR SWINGING DOORS
Duane Peters, Minneapolis, Minn., assignor of one-half to Merrill L. Peters, Rockford, Ill.
Filed Mar. 2, 1967, Ser. No. 620,125
Int. Cl. G08b 13/18
U.S. Cl. 340—258

4 Claims



A warning signal provided on one side of a swingable door is operable by automatic means provided on the other side of the door, to warn a person on the signal side of the presence of a person near enough to the other side for opening the same even before the door is actually being opened, whereby to prevent accidental forcible contact with the door, operation of the signal being either by casting a shadow on a light sensitive photo-electric cell or by a thermal responsive switch on a door knob or door plate.

3,560,951
SWITCH FOR SIGNALLING VIBRATIONS AND WHEEL BALANCE TESTER INCORPORATING SAME
David E. Rigall, Pontiac, Mich., and Daniel Eaton, Wentzville, Mo., assignors to The Metalife Company, Wentzville, Mo., a corporation of Missouri

Filed Dec. 11, 1968, Ser. No. 783,080
Int. Cl. G08b 19/00, 21/00
U.S. Cl. 340—261

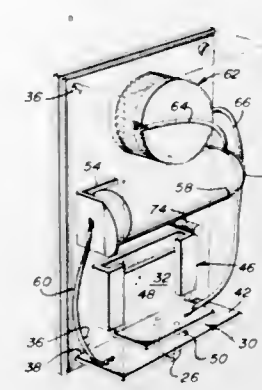
10 Claims



A switch signals small amplitude vibrations of a mechanical element movable over a much greater range. A magnet element of the switch grasps a slide surface of the movable mechanical element to vibrate with it within closely confined limits, but if the mechanical element moves through a greater amplitude, it slides relative to the magnet switch element. As applied to apparatus for detecting the unbalance of the vehicle wheels, the magnet switch element slidably grasps onto the side surface of a spring-suspended shaft which may be depressed to fit against the under side of a vehicle at any convenient height.

3,560,952
DOOR NIGHT CHAIN WITH ALARM
Robert D. Wilson, 1040 N. Juniper, Coquille, Oreg. 97423
Filed Mar. 8, 1968, Ser. No. 711,650
Int. Cl. G08b 13/08
U.S. Cl. 340—274

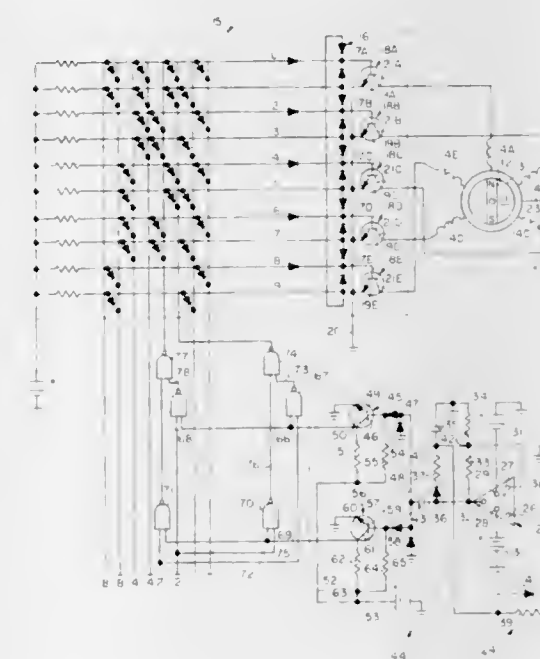
2 Claims



A guide assembly to be supported from a door and having a slide member supported therefrom for limit rectilinear reciprocation and engageable with a stop for defining one limit position of movement, the stop and the slide being interposed in an electrical signalling device circuit for closing the circuit when in contact with each other and the slide comprising an anchored end of a door night chain.

3,560,953
CONTROL MEANS FOR AN ELECTROMAGNETIC INDICATOR DEVICE
Frederick B. Sylvander, Rutherford, N.J., assignor to The Bendix Corporation, a corporation of Delaware
Filed Sept. 5, 1968, Ser. No. 757,717
Int. Cl. G08b 5/14, 29/00; H01b 47/20
U.S. Cl. 340—319

10 Claims

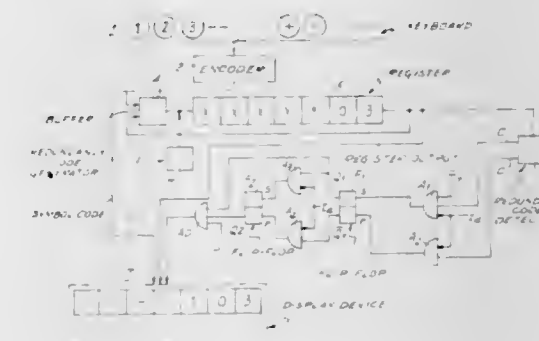


Control means for an electromagnetic indicator device of a type including an electrically actuated magnetic indicator wheel for positioning discrete numbers or symbols on a rotating drum by electrical signals selectively applied to energize controlling electromagnet windings and including in the control of the energization thereof a means to prevent intermittent "hang-up" in selectively positioning indicia on the drum so that the drum may be angularly displaced one hundred and eighty degrees

upon the application of a controlled energization of the electromagnetic windings effecting a disturbing torque for introducing a momentum into the magnetic wheel which will have negligible noticeable effect on the wheel when angularly turned to its command position, but which will cause the magnetic wheel when in a false null angular position to be efficaciously disturbed so as to cause the wheel to be displaced from the false null to the true null angular command position.

3,560,954
NUMBER AND SYMBOL DISPLAY SYSTEM
Yuzuru Yanagisawa, Kanagawa-ken, and Shinji Kusunoki, Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan, a corporation of Japan
Filed Oct. 30, 1968, Ser. No. 771,717
Claims priority, application Japan, Nov. 2, 1967, 42/70,427
Int. Cl. G06k 15/18
U.S. Cl. 340—324

15 Claims



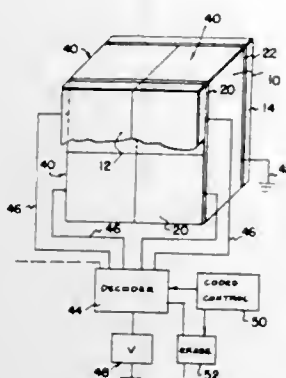
In a number and symbol display system for a computer, the digit portions of a register are sequentially supplied with codes respectively representing the digits of an effective number to be displayed with the codes representing any futile "0's" being distinctive in respect to the codes representing any "0's" in such effective number, a display device responds to the sequentially supplied output of the register to display at its respective digit portions the digits of the effective number represented by their respective codes in the register output and avoids the display of any futile "0's" represented by their distinctive codes, the distinctive code in the register output is detected and, in response to such detection, a control output signal is supplied to a display device at a digit time position that is one or two digit times later than that of the most significant digit of the effective number as determined by the detected distinctive code to cause the display device to display the symbol represented by a supplied symbol code in the digit portion of the display device that is one or two digit positions higher than that of the digit portion displaying the most significant digit of the displayed effective number.

3,560,955
BIREFRINGENT DISPLAY SYSTEMS
Robert W. Hallman, St. Clair Shores, Mich., assignor to Teeg Research, Inc., Detroit, Mich., a corporation of Delaware
Continuation of application Ser. No. 611,101, Jan. 23, 1967. This application Dec. 30, 1968, Ser. No. 787,952
Int. Cl. G02f 1/24
U.S. Cl. 340—324

33 Claims

Optical elements for display systems and the like, utilizing a material capable of exhibiting optical birefringence when placed under stress or strain, provided with different arrangements for locally placing the material under stress by means of electrostriction, magnetostriction, heat distortion, etc., such that the stressed

portions of the material acts as variable retardation plate or variable polarizer and display a different color from



3,560,956

IMAGE FORMING APPARATUS

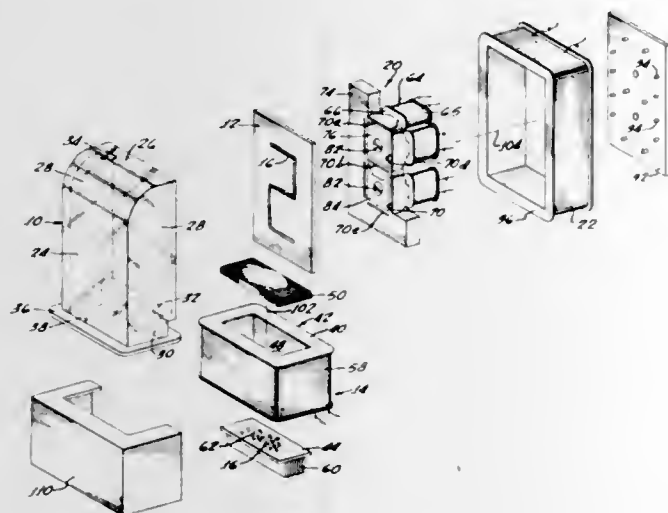
Richard C. Sinnott, Menlo Park, Calif., assignor to Sinnott Company, San Mateo, Calif., a California limited partnership

Continuation-in-part of application Ser. No. 565,353, July 11, 1966, which is a continuation-in-part of application Ser. No. 511,707, Dec. 6, 1965, both now abandoned. This application July 5, 1967, Ser. No. 651,240

Int. Cl. G09h 9/30

U.S. Cl. 340—324

33 Claims



An image forming device such as a display device includes a particle accelerator which forms a transparent cloud of particles adjacent a display surface. The particles are attracted from the cloud to the display surface in a desired pattern by a unidirectional field of force. The particle accelerator includes an alternating electromagnet and a screen dividing the enclosure into two chambers. Particles too large to pass through the screen are retained in the chamber away from the display surface, and are accelerated by the alternating field. Smaller particles cling to the larger ones and are jarred loose when the larger particles strike the screen. The smaller particles then pass through the screen at a high velocity to form the transparent cloud adjacent the display surface.

In one embodiment the unidirectional field is created by D.C. electromagnets. In another embodiment the particles are electrostatically charged and the display surface is oppositely charged by an electron gun to attract the particles to the surface in the desired pattern.

3,560,957 SIGNAL CONVERSION SYSTEMS WITH STORAGE AND CORRECTION OF QUANTIZATION ERROR

Takeo Miura, Kokubunji-shi, and Junzo Iwata, Kodaira-shi, Japan, assignors to Hitachi, Ltd., and Hitachi Electronics Company, Ltd., both of Tokyo, Japan, both corporations of Japan

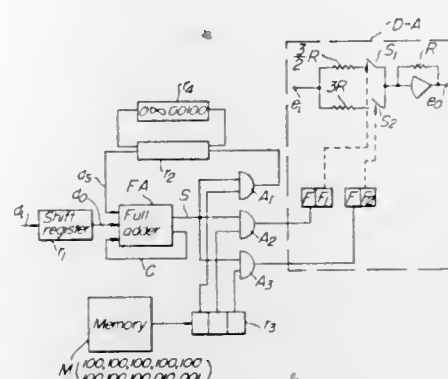
Filed Jan. 23, 1967, Ser. No. 611,030

Claims priority, application Japan, Jan. 26, 1966, 41/4,050, 41/4,051; Mar. 16, 1966, 41/15,794; May 2, 1966, 41/27,589

Int. Cl. H03k 13/04, 13/17

U.S. Cl. 340—347

6 Claims



Digital to analog and sample-and-hold circuits in which conversion or quantization error generated in each sampling or conversion interval is stored and added to the next consecutive input signal for conversion therewith. The digital to analog converter includes a conventional converter having a capacity of n bits, for conversion of the n most significant bits of an $n+i$ bit input signal. The i unconverted bits are added in a full adder to the next digital input. The sample-and-hold device includes apparatus for measuring and integrating the difference between the sampled output and the analog input signal during a first sampling interval. The integrated value is then added to the analog input signal during the next sampling interval.

3,560,958

ELECTRICAL SWITCHING SYSTEM

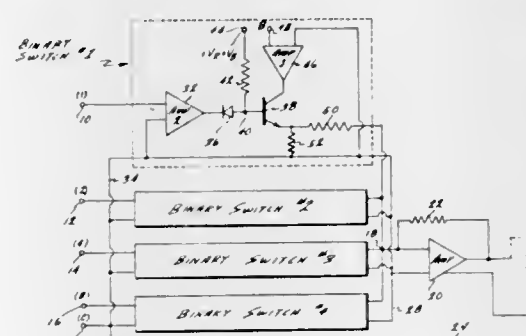
Noel B. Braymer, Costa Mesa, Calif., assignor to Dana Laboratories, Inc., Irvine, Calif., a corporation of California

Filed Jan. 30, 1967, Ser. No. 612,609

Int. Cl. H03k 13/02

U.S. Cl. 340—347

2 Claims



This application discloses the use of a single transistor of either the NPN or the PNP type interconnected and biased for use as a switch in a digital-to-analog converter. A plurality of such transistor switches are used in conjunction with individual logic amplifiers to control the state, "off" or "on," of the transistor switch so as to cause the transistor switch to apply a representative current signal (through variation in gain of each transistor) to a summing junction or to isolate the summing junction from the current source. Where representative currents are from several switches and are summed to develop a composite analog signal, the point of summation is held at

"virtual ground" through the use of an "operational amplifier." Each of the transistor switches are operated in the inverted mode, that is, the collector of the transistor is operated as the dominant emitter.

3,560,959 READOUT DEVICE FOR ALTITUDE REPORTING ENCODER

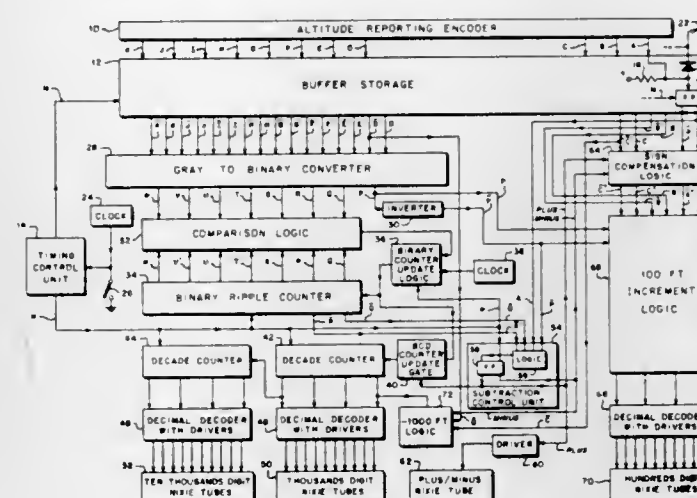
John M. K. Bergey, Ann Arbor, Mich., assignor to the United States of America as represented by the Secretary of the Navy

Filed Mar. 22, 1967, Ser. No. 625,921

Int. Cl. H03k 13/02

U.S. Cl. 340—347

8 Claims



A readout device for visually displaying in decimal form the output of an altitude reporting encoder whose eleven parallel digital output signals are coded in the Moa-Gilham code and are indicative of a particular altitude increment within a range extending to levels above and below sea level. The readout device includes special logic circuitry, having an essentially asynchronous mode of operation, for decoding the three least significant output signals of the encoder into a signal for activating the visual display of a hundreds digit for the particular altitude increment being reported. The device also includes a Gray to binary converter, having an essentially asynchronous mode of operation, for converting the eight most significant output signals of the encoder into a binary signal. Circuitry, which operates basically in a synchronous mode, is provided for decoding a more significant portion of the binary signal of the converter and providing an output signal for the activation of a visual display of a thousands digit and a ten thousands digit for the altitude increment being reported by the encoder. Special subtraction control circuitry and logic circuitry are included in the converter decoding circuitry to insure that the proper thousands digit will be displayed. Other circuits are provided for updating the visual display at a flickerless rate, for testing the encoder to see that it is operating and for selectively holding a given visual display when the encoder reported altitude is changing rapidly.

3,560,960

NONLINEAR TERNARY DECODER

Michel L. Avignon, Neuilly-sur-Seine, France, and Joseph L. Mader, Dietlikon, Switzerland, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Dec. 22, 1967, Ser. No. 692,929

Claims priority, application France, Dec. 29, 1966, 89,324

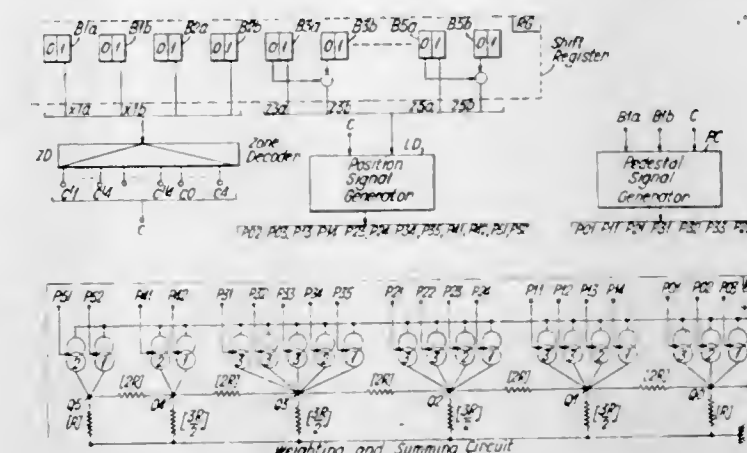
Int. Cl. H03k 13/02

U.S. Cl. 340—347

10 Claims

The nonlinear characteristic of the decoder is approximated by a plurality of differently sloped straight line segments and each ternary condition is represented by

a different pair of binary digits. A first signal, produced by the most significant ternary digits of a code group, indicates the minimum voltage of the segment containing the code group. A second signal, produced in response



to at least the least significant digits of the code group, indicates the position of the code group along said segments. A weighting and summing circuit responds to these two signals to produce the decoder output.

3,560,961 HIGH ACCURACY MULTITURN DIGITAL ENCODER

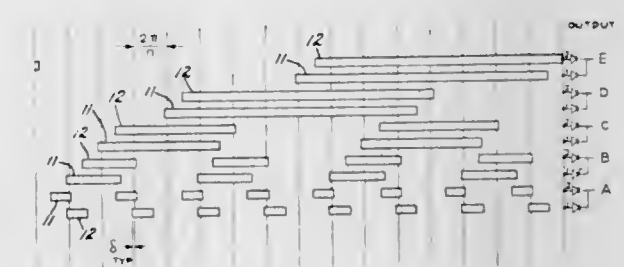
John L. Mueller, New York, N.Y., assignor to Collectron Corporation, New York, N.Y.

Filed July 3, 1967, Ser. No. 650,881

Int. Cl. H03k 13/00; G08c 9/00

U.S. Cl. 340—347

2 Claims



A multiturn digital encoder of the type in which a first drum or disc is rotated n integer revolutions for each revolution of a second drum or disc, in which the accuracy of the code pattern on the faster moving directly driven drum is superimposed upon that of the slower moving drum to eliminate ambiguity and the need for electronic circuitry to correct the same.

3,560,962 ANALOG-TO-DIGITAL ENCODER

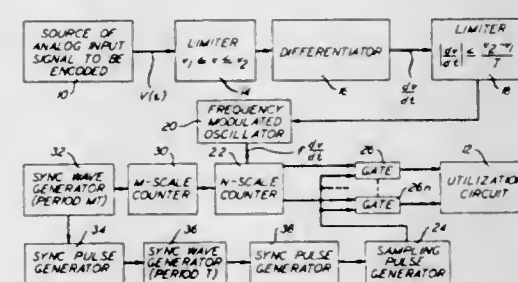
William C. G. Ortel, New York, N.Y., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 6, 1968, Ser. No. 710,959

Int. Cl. H03k 13/20

U.S. Cl. 340—347

5 Claims



The modulated output of a variable-frequency oscillator included in an analog-to-digital encoder is processed to

abstract therefrom signals for synchronizing the operation of a sampling pulse generator included in the encoder.

3,560,963

FIELD EFFECT A/D CONVERTER

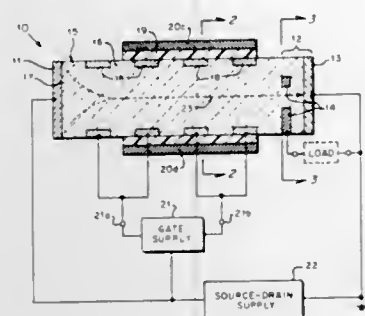
Theodore R. Trilling, Berkshire Road, R.D. 3,
Doylestown, Pa. 18901

Continuation-in-part of application Ser. No. 361,916,
Apr. 22, 1964. This application June 27, 1968,
Ser. No. 740,609

Int. Cl. G08c 9/00

U.S. Cl. 340—347

12 Claims



A unipolar, field effect, solid state device of either the junction gate or MOS type is configured as an analog-to-digital converter. Each device comprises an elongated cylindrical channel having a source and drain at opposite ends thereof and a plurality of annular gates circumscribing the channel at spaced intervals along its length to finely constrain a beam of charged carriers. Horizontal and vertical deflection plates are positioned to modulate the beam and cause it to scan a metallized matrix for digital readout in accordance with an applied analog signal.

3,560,964

KEYBOARD UNIT

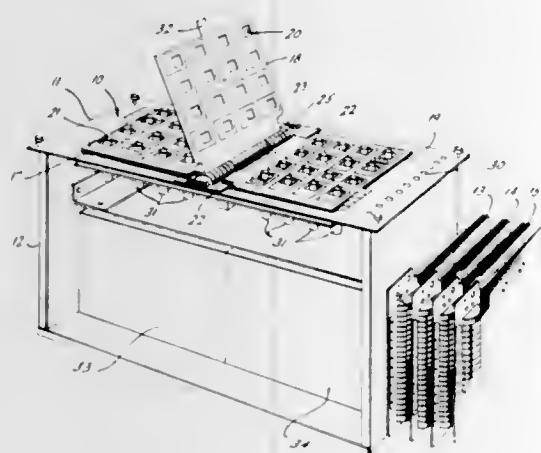
Stuart W. Bedell and Robert L. Clenner, Houston, Tex.,
assignors to Philco-Ford Corporation, Philadelphia, Pa.,
a corporation of Delaware

Filed Dec. 31, 1968, Ser. No. 788,193

Int. Cl. G08c 9/00

U.S. Cl. 340—365

10 Claims



A multiple page keyboard unit used in computer oriented display terminals for control, switching, and similar purposes. A keyboard is covered by the pages of any one of a plurality of special books, the keys of the keyboard protruding through apertures in the pages. The function of a given key is determined both by the book which is in place on the keyboard, and by the page to which that book is opened. This is accomplished by an arrangement of switch means which senses both the identity of the book and the page to which the book is opened.

3,560,965
**SEQUENCING COMMAND ENCODING
GENERATOR**

Russell P. White, Jr., and J M Gregory, Dallas, Tex.,
assignors to Taylor Publishing Company, Dallas, Tex.,
a corporation of Texas

Filed Oct. 28, 1968, Ser. No. 771,144

Int. Cl. H04g 3/00

U.S. Cl. 340—365

11 Claims



An encoding system into which parameters used in computerized type setting such as style of type, size of type, line spacing, line length, and in the case of photo composition, the amount of space between lines of type, may be preset and punched into a tape by a single key-stroke.

3,560,966

**ELECTROMAGNETICALLY OPERATED
DISPLAY DEVICE**

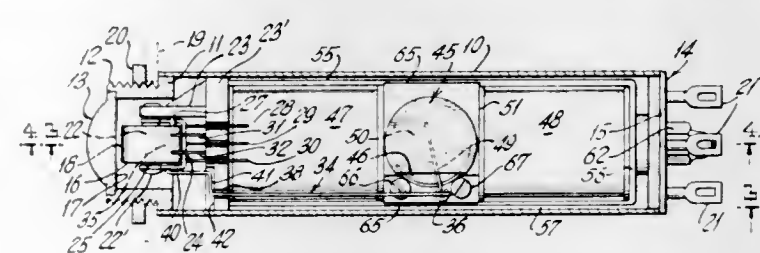
Norman D. Deshler, Belvedere, N.J., and Gerold L.
Tawney, Los Altos Hills, Calif., assignors to Nytronics,
Inc., Pelham, Manor, N.Y., a corporation of Delaware

Filed Jan. 29, 1969, Ser. No. 826,033

Int. Cl. G08b 5/24

U.S. Cl. 340—373

21 Claims



The invention contemplates a display device in which a display member and a permanent-magnet drive member are independently mounted for pivotal oscillation on spaced frame-based axes. Frame-based magnetic core and excitation windings are pulse-actuated to shift the drive member to one or to the other of its two angularly spaced at-rest positions. The polarity of permanent magnetism is such, in terms of the angularly spaced limits of drive-member movement, that the drive member is self-retained at its limit position, without need for excitation. A switch device tracks drive-member movement to reverse the winding excitation connections, thus conditioning the display device for response to the next excitation pulse. For any given actuation, starting resistance is minimized by using lost-motion connection techniques to link the driven member in operative relation with the display member and with the switch device, the arrangement being such that, whatever the direction of actuation, the lost-motion must first be traversed before effective driving torques are imparted to the display member or to the switch device.

3,560,967

LAMP FILTER AND LAMPHOLDER ASSEMBLY

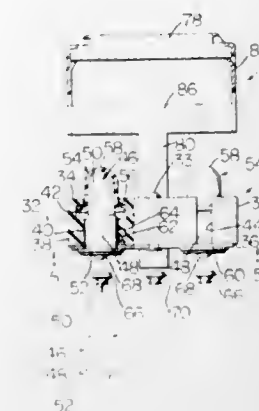
Anthony A. Di Pilla, Philadelphia, Pa., assignor to Robert-
shaw Controls Company, Richmond, Va., a corpora-
tion of Delaware

Filed Jan. 4, 1968, Ser. No. 695,639

Int. Cl. G09f 9/00

U.S. Cl. 340—381

20 Claims



An illuminated signal unit has an insulative lamp base with opposite upper and lower faces and a side wall construction. A plurality of lamp receiving cylindrical openings in the lamp base extend through said lamp base. Each cylindrical opening has a radially outward lamp filter flange receiving groove between said upper and lower faces. A lamp filter inserting and removing slot extends from said groove to said side wall construction. Each opening receives a lamp with a neutral sleeve in said opening, an illuminating lamp bulb extending out of one of said faces, and a live contact flange extending out of the other of said faces. Each of such grooves and cylindrical openings receives a flexible lamp filter with a filter flange in such groove and a filter bulb extending along said cylindrical opening and over the lamp bulb. Each filter can be flexed to be insertable in and removable from such groove through an adjacent slot.

3,560,968

LIGHTED PUSHBUTTON

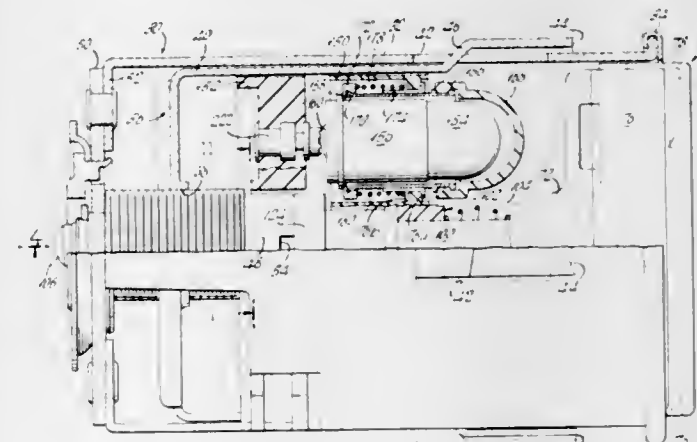
James H. Andersen, Cheshire, Conn., and Anthony R.
Ford, Covina, and Alvin Franklin, Whittier, Calif., and
Howard M. Siegel, Long Beach, N.Y., assignors, by
mesne assignments, to Unimax Switch Corporation, a
corporation of Connecticut

Filed May 4, 1967, Ser. No. 636,214

Int. Cl. G09f 9/00

U.S. Cl. 340—381

24 Claims



A pushbutton, adapted to provide a signal upon depression of the frontwardly extending lens assembly, is mounted on a panel by means of a multilegged clamping

member. To mount the device, the clamp is axially displaced toward the rear panel surface by single lead screw disposed within the pushbutton housing. The screw is accessible from the front of the panel. The lamp and lens assembly contain individually spring biased lamps and is removed as a single unit by a series of separate steps including first pulling out the lens assembly until a stop is reached, pushing in the lens assembly until a second stop is reached and then pulling the lens and lamp assembly out of the housing. Internal bussing provides electrical connection between selected lamp terminals.

3,560,969

**COMBINED FISHING ROD HOLDER AND
SIGNAL DEVICE**

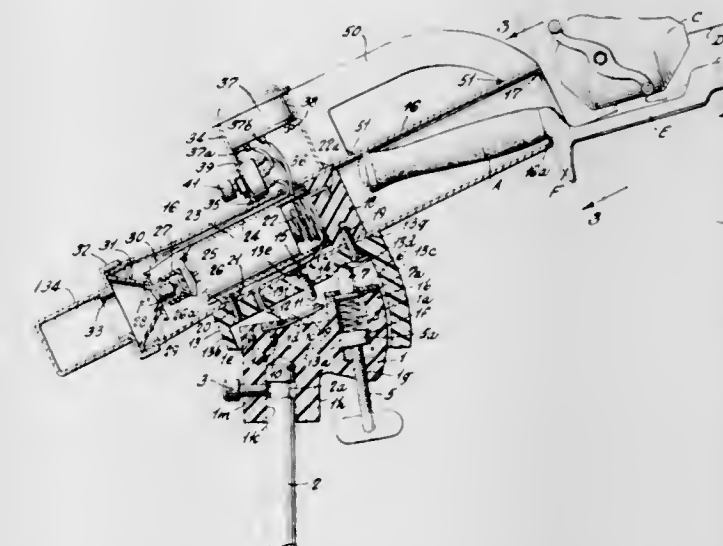
Darell W. Fleeman, Rte. 1, Fair Play, Mo. 65649

Filed Aug. 23, 1968, Ser. No. 754,813

Int. Cl. A01k 97/10, 97/12; G08b 71/00

U.S. Cl. 340—421

18 Claims



A novel combined fishing rod holder and signal means which will provide the fisherman with a device which will hold his fishing rod for him, the device being swivelly mounted on a stake or the like driven into the bank close to the water, or mounted on a boat while fishing from a boat, the device having means which will signal the fisherman that a fish is biting or is caught on the hook and line by a visible light signal, an audible sound signal, or by both at the same time, the device being positioned so as to swivel on the support stake, allowing the fisherman at night to determine the direction in which the fish is biting on the line so that the fisherman can manipulate his rod and set the hook in the fish's mouth. Alternatively, the support stake can be fitted into a bracket or clamp fastened to a boat.

3,560,970

OBSTACLE DETECTOR UTILIZING WAVEGUIDE

Masao Kamimura and Mitsuru Watanabe, Tokyo-to,
Japan, assignors to Kabushiki Kaisha Hitachi Seisaku-
kusho, Tokyo-to, Japan, a joint-stock company of Japan

Continuation-in-part of application Ser. No. 449,556,

Apr. 20, 1965. This application Sept. 13, 1968,

Ser. No. 759,712

Claims priority, application Japan, Apr. 30, 1964,

39/24,227, 39/24,228

Int. Cl. H01q 13/22; B61l 23/00; G01s 9/02

U.S. Cl. 343—5

9 Claims

An obstacle detecting apparatus comprising a leaky waveguide having beam directivity and leakage aperture installed along one side of the path, electromagnetic waves being supplied through the waveguide, caused to leak out

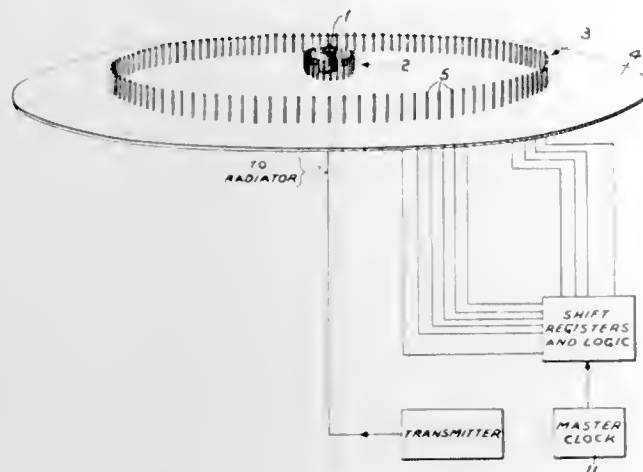
3,560,978 ELECTRONICALLY CONTROLLED ANTENNA SYSTEM

Leon Himmel, Upper Montclair, Sven H. Dodington, Mountain Lakes, and Ernest G. Parker, Convent Station, N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J., a corporation of Delaware

Filed Nov. 1, 1968, Ser. No. 772,686
Int. Cl. G01s 1/48

U.S. Cl. 343—106

3 Claims



In a TACAN beacon antenna, a monopole radiator surrounded by two or more concentric circular arrays of parasitic elements, which elements are digitally inhibited in sequence in a predetermined manner, is used to produce a rotating radiation pattern capable of producing 15 and 135 cycle-per-second signals at a receiver. Parasitic elements are inhibited by being open circuited by digitally controlled switching diodes. Recirculating shift registers are used to inhibit parasitic elements in the circular arrays to produce the required modulation radiation pattern. A common clock is used to step said registers along to produce the desired rotating pattern.

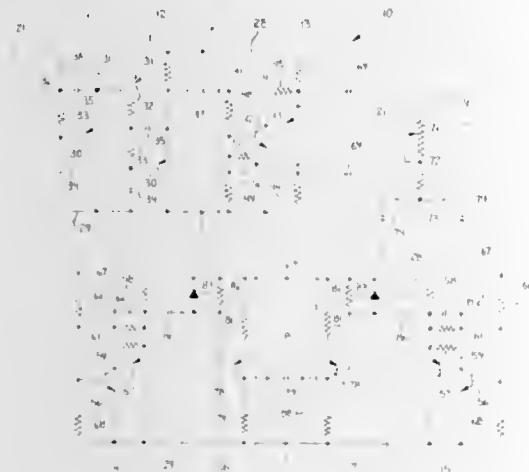
3,560,979 METHOD AND ELECTRICAL CIRCUIT FOR PROCESSING AIRPORT RUNWAY LOCAL- IZER AND GLIDESLOPE INFORMATION

Donald A. Boelter, Indianapolis, Ind., assignor to General Aviation Electronics, Inc., Indianapolis, Ind., a corporation of Indiana

Filed Dec. 2, 1968, Ser. No. 780,491
Int. Cl. G01s 1/16

U.S. Cl. 343—109

6 Claims



An electrical circuit for processing airport runway localizer or glideslope information having first and second active RC low pass filters connected in series and phase-shifting the demodulated output of a radio receiver to provide the input to a 180° phase splitter having two outputs 180° out of phase, a pair of summing amplifiers,

each for summing one of the phase splitter outputs with the demodulated output of the radio receiver, a pair of detectors, one connected to the output of each summing amplifier and an indicator connected between the outputs of the detectors.

3,560,980 POSITION FINDING SYSTEM

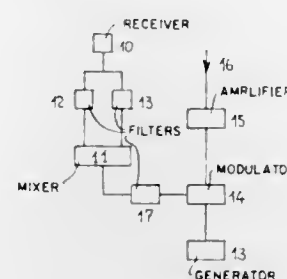
Pierre Laurent, Fontenay-aux-Roses, France, assignor to Sercel Societe d'Etudes, Recherches et Constructions Electroniques, Carquefou, France, a French company

Filed Apr. 4, 1969, Ser. No. 813,433
Claims priority, application France, Apr. 11, 1968, 147,733

Int. Cl. G01s 1/34

U.S. Cl. 343—105

1 Claim



A position finding system is provided which comprises four transmitting stations, a first pair of which produces a first hyperbolic position line system and a second pair of which produces a second intersecting hyperbolic position line system. First transmitters of each pair transmit unmodulated high frequency waves in first and second channels respectively and second transmitters of each pair transmit high frequency carrier waves in the first and second channels respectively, each carrier wave being modulated with a degree of modulation less than 1 by a different low frequency. The modulation of the second transmitter of the first pair is equal to the beat frequency of the high frequency unmodulated and carrier waves of the second channel and the modulation of the second transmitter of the second pair is equal to the beat frequency of the high frequency unmodulated and carrier waves of the first channel.

3,560,981 CLIP FOR ANTENNA BALL PORTION

John A. Pestka, Park Ridge, Ill.
(8501 W. Higgins Road, Chicago, Ill. 60631)

Filed Aug. 21, 1969, Ser. No. 851,827

Int. Cl. H01q 1/24

U.S. Cl. 343—702

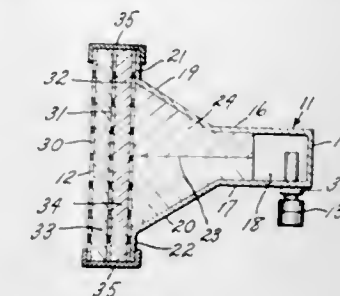
7 Claims



An antenna mounting assembly for attaching the antenna ball portion to an apertured support panel in resiliently retained but universally mounted position, and for this purpose there is provided a snap-in two-part mounting clip—one part providing a semi-spherical dome portion engaging the antenna ball portion at a first side

of the panel and including a sleeve portion to pass through the panel aperture and having locking ears to snap behind the panel at the opposite side thereof; and the other part being in the form of a spring tension ferrule flanged to engage the first side of the panel in opposition to the locking ears, and including spring tension arms interfitting with slots in the sleeve portion with the antenna ball portion in opposition to the semi-spherical dome portion. Adjuncts may include a washer carried by the sleeve portion remote from the ball dome portion with electrical terminal elements, and a ring type spring carried by the tension arms to increase the spring tension thereof against the antenna ball portion.

vice features a larger effective radiating or receiving aperture than comparable rectangular array of circularly polarized spirals due to the use of virtually lossless radiating



3,560,982

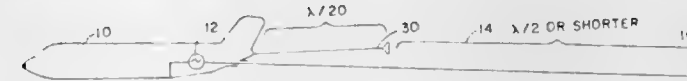
VLF-LF AIRCRAFT TRAILING ANTENNA
Richard C. Fenwick, Richardson, Tex., assignor to Collins Radio Company, Dallas, Tex., a corporation of Iowa

Filed Oct. 1, 1968, Ser. No. 764,197

Int. Cl. H01q 1/30

U.S. Cl. 343—707

7 Claims



A VLF-LF aircraft antenna which can accommodate a high power transmitter including a first wire of approximately one-half the operating frequency wavelength in length and at least one other wire of approximately one-twentieth the operating frequency wavelength in length.

3,560,983

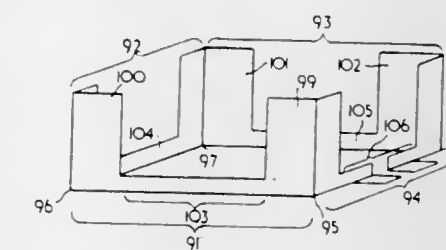
OMNIDIRECTIONAL LOOP ANTENNA
Edward N. Willie, Locust Valley, N.Y., and Walter K. Volkers, deceased, late of Sand Point, N.Y., by Daphne Volkers, executor, Sand Point, N.Y., assignors to Volkers Research Corp., Port Washington, N.Y., a corporation of New York

Filed Sept. 12, 1967, Ser. No. 667,881

Int. Cl. H01q 7/00

U.S. Cl. 343—744

8 Claims



A single turn loop antenna having a circumference of less than one-half of the wavelength of the electromagnetic energy to be transmitted or received, and an axial dimension from 1/2 to 1/100 of its circumference.

3,560,984 BROADBAND CIRCULARLY POLARIZED ANTENNA HAVING A CONTINUOUS RECTANGULAR APERTURE

Tsze K. Lee, New Rochelle, Arthur Winkler, Bronx, and Wai Wong, Plainview, N.Y., assignors to Loral Corporation, Scarsdale, N.Y., a corporation of New York

Filed Dec. 11, 1968, Ser. No. 783,047

Int. Cl. H01q 15/24, 21/08, 13/02

U.S. Cl. 343—756

3 Claims

A broadband circularly polarized antenna having a continuous rectangular aperture to obtain circular polarization, having uniform phase and tapered amplitude illumination over the broad dimension of the aperture. The de-

elements to provide higher gain. Linearly polarized radiating elements are utilized to feed an aperture with linearly polarized energy which is then transformed into circularly polarized energy by means of a polarizer grid.

3,560,985

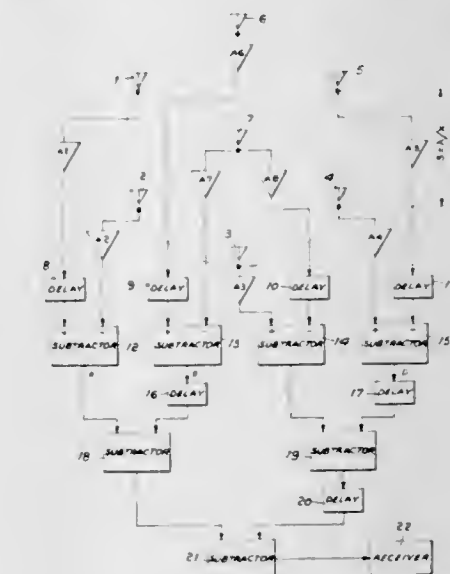
COMPACT STEERABLE ANTENNA ARRAY
Zeno G. Lyon, Scotch Plains, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J., a corporation of Maryland

Filed Aug. 4, 1967, Ser. No. 658,426

Int. Cl. H01q 21/00; G01s 3/74

U.S. Cl. 343—853

15 Claims



A compact, steerable, broad bandwidth antenna array which is capable of providing multiple independent outputs which are utilizable by a plurality of independent receiving systems. The array includes a plurality of relatively closely spaced (i.e., less than one wavelength) antenna elements which are coupled together into groups of antenna elements, each group providing a radiation pattern which is substantially invariant with wavelength above a predetermined value of wavelength. The outputs of these groups are then selectively combined to provide a directive radiation pattern.

3,560,986

RADAR ANTENNA RADOME CONSTRUCTION
Leonard C. Hoots and Dallas L. Addis, Marion, Va., assignors to Brunswick Corporation, a corporation of Delaware

Filed Feb. 24, 1969, Ser. No. 801,404

Int. Cl. H01q 1/42

U.S. Cl. 343—872

17 Claims

A radar antenna radome construction defining an electromagnetic window for transmitting preselected microwave electromagnetic energy. The construction is defined by a wall structure having at least three spaced high dielectric layers, a low dielectric layer between each pair of

matched with its companion stylus, thereby reducing the incidence of phasing problems in the operation of the facsimile receiver.

3,560,994

VAPORIZABLE RECORDING MEDIUM

Karin Wolff and Hansjoachim Hamisch, Berlin, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany

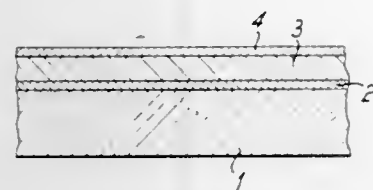
Filed Feb. 4, 1969, Ser. No. 796,531

Claims priority, application Germany, Feb. 6, 1968, P 15 74 687.9

Int. Cl. G01d 15/34

U.S. Cl. 346—135

8 Claims



Vaporization of selected portions of a thin film of bismuth by exposure to a focused laser beam is used to record information. The bismuth film, carried on an appropriate substrate, is sandwiched between a supporting layer of an easily vaporizable substance, and a superposed layer of a substance which decreases the reflectivity of the bismuth film.

ERRATA

For Classes 307—229 thru 340—379 see:
Patent Nos. 3,560,995 thru 3,561,008

3,560,995

VOLTAGE CONTROLLED MONOLITHIC AUTOMATIC GAIN CONTROL ATTENUATOR DEVICE

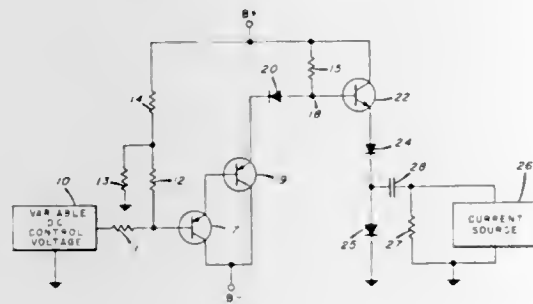
Frederick C. Zielinski, Glen Burnie, and William Jones, Jr., Baltimore, Md., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed June 29, 1967, Ser. No. 650,138

Int. Cl. G06g 7/12

U.S. Cl. 307—229

2 Claims



A DC voltage controlled temperature compensated diode attenuator having two diodes connected in series and operated in a range in which the dynamic impedance of the diodes varies exponentially with respect to the DC control voltage applied across them. A voltage application transistor connected in series with the diodes and three semiconductor components serially arranged and connected across the diode attenuator circuit by way of the voltage application transistor to cause the effective impedance in the attenuator circuit to remain constant regardless of change in temperature by varying the DC voltage applied to the voltage application transistor in response to temperature changes affecting the attenuator.

3,560,996

CHECK BARRIER MECHANISM

Bernard Berl, Paris, France, assignor to Etablissements Georges Klein, Paris, France, a society of France

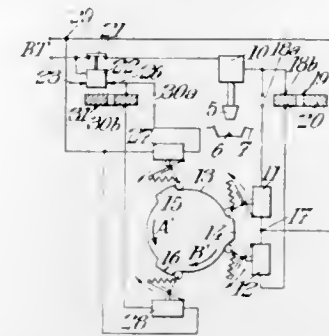
Filed Oct. 2, 1969, Ser. No. 863,242

Claims priority, application France, Oct. 2, 1968, 168,519

Int. Cl. E06b 11/08; E05b 65/00

U.S. Cl. 49—35

9 Claims



A check barrier mechanism for supervising the passage therethrough of a person or inanimate object comprises a mechanical barrier element which, in its normal resting position is unlocked and which, when an unauthorized person or object attempts to pass said barrier element, is automatically locked upon initial displacement of said barrier element by said unauthorized object. The mode of operation of the mechanism may be readily varied to suit any one of several applications which include the provision of free passage in one or each direction, prohibited passage in one or each direction and passage subject to the establishment of right of way, by for example payment, in one or each direction.

3,560,997

CABLE SHAFT

Helmut Goldschmidt, Schepsdorf, and Heinrich Baunemann, Munster, Westphalia, Germany, assignors to Industrie Onderneming Wavin N.V., Zwolle, Netherlands

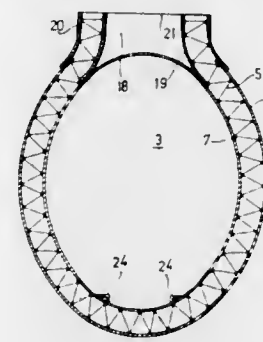
Filed Mar. 5, 1969, Ser. No. 804,617

Claims priority, application Germany, Mar. 12, 1968, P 16 90 537.6

Int. Cl. E04h 5/06; H02g 9/10

U.S. Cl. 52—20

10 Claims



A cable shaft for accommodating branchings of a cable consisting of two concentric thin walled plastic bodies one being disposed in the other. The intermediate space between both bodies contains a reinforcement and a filling mass such as concrete or a foam plastic.

3,560,998

ELECTRONICALLY CONTROLLED TIME-PIECE USING LOW POWER MOS TRANSISTOR CIRCUITRY

Richard S. Walton, Lancaster, Pa., assignor to Hamilton Watch Company, Lancaster, Pa., a corporation of Pennsylvania

Filed Oct. 16, 1968, Ser. No. 768,076

Int. Cl. G04c 3/00

U.S. Cl. 58—23

14 Claims

There is disclosed herein an electronically controlled timepiece suitable for use as a wrist watch employing an

electronic oscillator operating at a frequency substantially in excess of the desired timekeeping rate, frequency reduction circuitry formed of a series of transistor stages operative in response to changes in voltage rather than cur-



rent or power level changes to produce timing signal of the required frequency, actuating means responsive to the timing signal and a time display operated by the actuating means.

3,560,999

CIRCULAR KNITTING MACHINES

Frederick Edward Deans, Leicester, and Richard James Carter, Wigston, England, assignors to The Bentley Engineering Company Limited

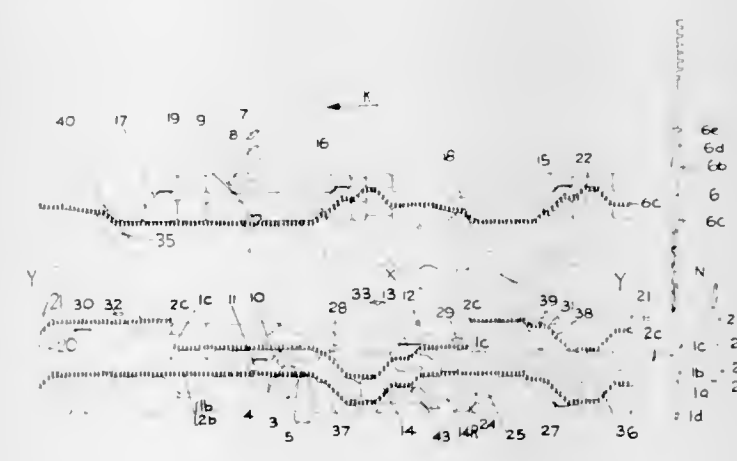
Filed Apr. 5, 1966, Ser. No. 540,260

Claims priority, application Great Britain, Apr. 10, 1965, 15,325/65

Int. Cl. D04b 9/10, 9/20

U.S. Cl. 66—14

7 Claims



A circular knitting machine, primarily for knitting sleeve-forming fabric contiguous to tubular body-forming fabric, having at least two circumferentially-spaced yarn feeding and knitting stations and means for knitting simultaneously, in reciprocation, diametrically-opposed sutured pouches forming a portion of the sleeve-forming fabric. Selection butts and cams divide the needles into two diametrically-opposed groups whereby, during reciprocatory knitting, one group knits one pouch at one station while the other group knits the other pouch at another station.

3,561,000

KNITTED GARMENT AND METHOD

Harry Wignall, Leicester, England, assignor to The Bentley Engineering Company Limited

Continuation of application Ser. No. 433,334, Feb. 17, 1965. This application July 22, 1968, Ser. No. 752,116

Claims priority, application Great Britain, Feb. 28, 1964, 8,362/64

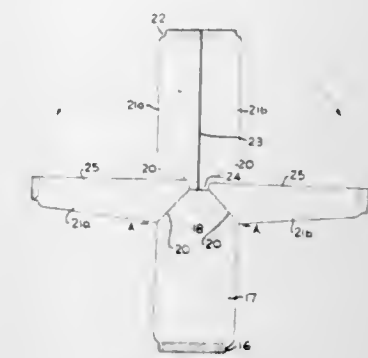
Int. Cl. D04b 9/20

U.S. Cl. 66—51

17 Claims

A novel garment is produced by knitting a body encircling tubular member having selected enlarged areas,

slitting the tubular member from one end to a point proximate the enlarged areas to define half-courses in the sec-



tions on both sides of the slit and then seaming the two sections along the slit line to define limb encircling portions.

3,561,001

MACHINE TOOL IN PARTICULAR FOR DRILLING METAL BEAMS

Renato Giuliani, Milan, Italy, assignor to Fabbrica Italiana Cesio e Punzonatrici Colombo-Giuliani di Colombo & C.S.a.S., Milan, Italy

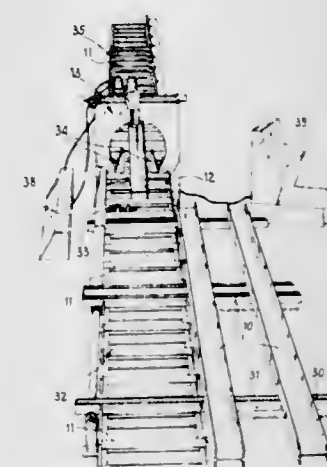
Filed Sept. 5, 1968, Ser. No. 757,540

Claims priority, application Italy, Sept. 7, 1967, 20,234/67

Int. Cl. B23b 39/14

U.S. Cl. 77—31

8 Claims



A method and machine tool for drilling the surfaces of metal beams, wherein a single work head is moved around the beam by a suitable supporting and adjustable frame. In such a manner, the tool or tools of the work head can be readily positioned in front of the different beam surfaces to be machined without any need to turn the beam.

3,561,002

THREAD TAKEUP LEVER ARRANGEMENT FOR A SEWING MACHINE

Ramon Casas Robert, Geneva, Switzerland, assignor to Mefina S.A., Fribourg, Switzerland, a company of Switzerland

Filed Dec. 9, 1968, Ser. No. 782,332

Claims priority, application Switzerland, Dec. 22, 1967, 18,114

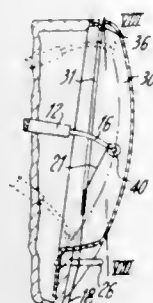
Int. Cl. D05b 49/00, 73/02

U.S. Cl. 112—241

8 Claims

A cover entirely encloses the free end of the takeup

lever. Two slits in the cover permit the sewing thread to be inserted into the cover and left to hang freely over



the end of the takeup lever, which has means to prevent the thread from slipping off the lever end.

3,561,003

SPRAY DRYING PROCESS

Bernard J. Lanham, Chessington, and Vladimir C. Hykel, London, England, assignors to The Magnavox Company, Ft. Wayne, Ind., a corporation of Delaware
No Drawing. Filed Nov. 21, 1967, Ser. No. 684,606
Claims priority, application Great Britain, Nov. 23, 1966, 52,372/66

Int. Cl. C08j 1/07; C08g 53/02

U.S. Cl. 106—22

11 Claims

Particulate resins of particle size no more than 30 microns are produced by spray-drying a mixture comprising a solution of the resin and a non-solvent for the resin. Particulate inks may be prepared by incorporating in the mixture before spray-drying a colorant and/or a filler. The amount of non-solvent in the mixture depends on the particular non-solvent, resin and resin solution used, but it does not exceed the amount required to cause incipient precipitation of the resin from solution. Resins such as polymeric fatty acid amides, epoxy resins or polystyrene are most advantageously treated in this process.

3,561,004

TRAY FOR TAPE CARTRIDGE CHANGER

Isao Kozu and Hidetoshi Kurihara, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

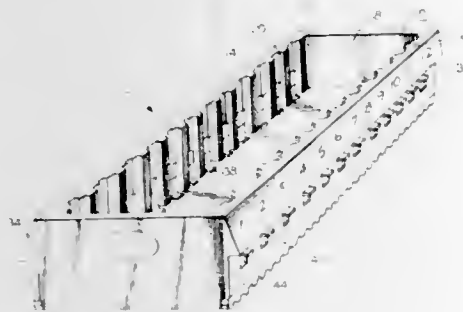
Filed May 8, 1969, Ser. No. 822,925

Claims priority, application Japan, May 10, 1968, 43/31,771; May 13, 1968, 43/32,705, 43/32,706

Int. Cl. A47f 1/10; B65d 83/00

U.S. Cl. 206—1

5 Claims



A tray for a tape cartridge changer. The tray is provided with a frame which is capable of receiving a plurality of tape cartridges arranged side by side in a line, and has supporting means which are mounted on the frame for engaging the side faces of the cartridges to hold them in the frame. The supporting means are movable so that at least one of the cartridges can freely move through the tray when the tray is loaded on a tape cartridge changer.

3,561,005 PROCESS FOR THE PRODUCTION OF 2,4-DICHLOROPYRIMIDINE-5-CARBOXYLIC ACID CHLORIDE

Tibor Somlo and Alain Claude Rochat, Birsfelden, near Basel, Switzerland, assignors to J. R. Geigy A.G., Basel, Switzerland

No Drawing. Filed Sept. 10, 1968, Ser. No. 758,690

Claims priority, application Switzerland, Sept. 20, 1967, 13,165/67

Int. Cl. C07d 51/36

U.S. Cl. 260—251

7 Claims

Process for producing 2,4-dichloropyrimidine-5-carboxylic acid chloride by reacting uracil-5-carboxylic acid with a chlorinating agent which may be either phosphorous trichloride and chlorine or phosphorous pentachloride in a reaction medium containing phosphorus oxychloride, the objective compound being recovered in yields above 90% of the theoretical value. The 2,4-dichloropyrimidine-5-carboxylic acid chloride so obtained is sufficiently pure so that it can be further used as acylating agent, e.g. for the production of reactive dyestuffs.

3,561,006

ELECTROMAGNETIC ACTUATORS WITH DEFLECTIBLE ROTOR

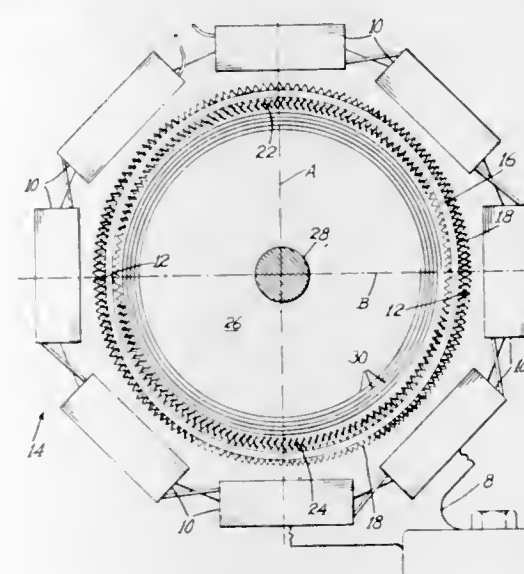
Donald R. Humphreys, Topsfield, Mass., assignor to USM Corporation, Flemington, N.J., a corporation of New Jersey

Filed May 22, 1969, Ser. No. 826,878

Int. Cl. H02k 7/06

U.S. Cl. 310—82

3 Claims



A high-response stepping motor incorporates in coaxial relation an open-ended flexspline having inner and outer teeth which cooperate, respectively, with inner and outer, oppositely disposed, circular spline teeth, the meshing occurring simultaneously upon stator energization at spaced circumferential localities rotationally out of phase with each other. The outer circular spline teeth may be formed on stator pole faces, and the inner circular splines may be formed externally on a rotary output member.

3,561,007

METHODS AND APPARATUS FOR INVESTIGATING EARTH FORMATIONS UTILIZING ROTATING ELECTROMAGNETIC FIELDS

Michel Marie Albert Gouilloud, Houston, Tex., and Julien M. Loeb, Saint-Cloud, France, assignors, by mesne assignments, to Schlumberger Technology Corporation, New York, N.Y., a corporation of Texas

Filed Sept. 11, 1968, Ser. No. 758,941

Claims priority, application France, Sept. 12, 1967, 120,779

Int. Cl. G01v 3/08, 3/18

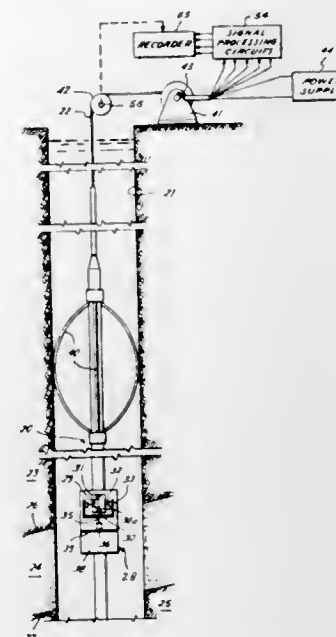
U.S. Cl. 324—5

26 Claims

In accordance with illustrative embodiments of the present invention, methods and apparatus for determin-

ing the positioning of formation bedding planes by rotating one or more electromagnetic fields through formations surrounding a borehole are illustrated. In one embodiment, a solenoid-type coil is energized with current and rotated at a substantially constant velocity about an adjustable axis. An amplitude modulated signal will then be produced in the coil if there is a conductivity contrast or gradient in the formation plane which defines the sweep

magnetic fields are rotated around a borehole at spaced apart depth levels by sequentially coupling a plurality of circumferentially spaced coil pairs to the adjoining formations. The signals from each coil of the coil pairs are combined in selected relationships to produce a composite signal for each coil pair. These composite signals are then used to adjust the relationship with which the individual coil signals are combined until each composite signal has substantially the same amplitude thus indicating the positioning of the low conductivity gradient formation plane.



of the electromagnetic field. This amplitude modulated signal is then demodulated and the resulting modulation signal is synchronously detected by the signal which causes the coil rotation. This produces phase components which are used for bringing the axis of rotation of the coil into a substantially perpendicular direction to the low gradient formation plane and indicating the positioning of this plane. In another embodiment, two electro-

3,561,008

REMOTE CONTROLLED ILLUMINATED DISPLAYS

Edgard Nazare, 129 Rue de l'Universite, Paris 7, France

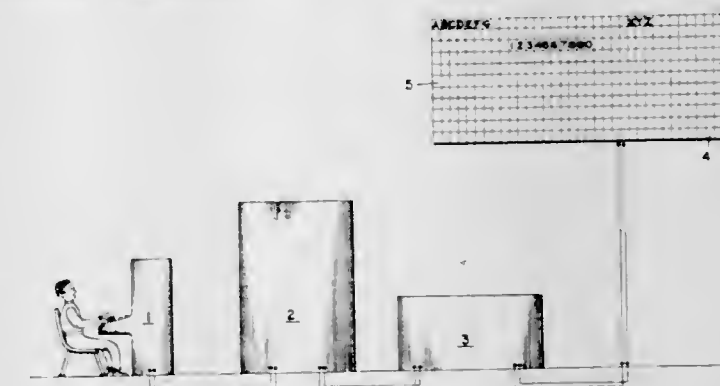
Continuation of application Ser. No. 564,669, July 12, 1966. This application July 16, 1969, Ser. No. 846,639

Claims priority, application France, July 12, 1965, 24,352; Sept. 17, 1965, 31,706; Nov. 26, 1965, 39,917; July 6, 1966, 68,405

Int. Cl. G08b 5/24

U.S. Cl. 340—379

4 Claims



This invention relates to a remotely-controlled display system and, more particularly, to such a system wherein the elements of display are mounted on movable elements operated by pulse-energized actuators.

DESIGNS

FEBRUARY 2, 1971

219,801

CEREAL FOOD PRODUCT

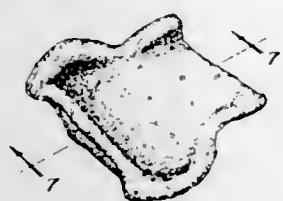
Charles C. Harwood, Elgin, and Raleigh J. Wilkinson, Arlington Heights, Ill., assignors to The Quaker Oats Company

Filed Sept. 25, 1969, Ser. No. 19,293

Term of patent 14 years

Int. Cl. D1—01

U.S. Cl. D1—1



219,802

FOOD PRODUCT OR THE LIKE

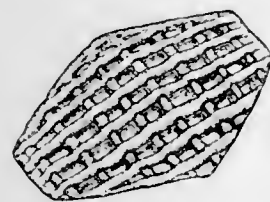
Clifford L. Talbot, Chester L. Philip, and Robert R. Kareckas, London, Ontario, Canada, assignors to Kellogg Company, Battle Creek, Mich.

Filed Feb. 9, 1970, Ser. No. 21,330

Term of patent 14 years

Int. Cl. D1—01

U.S. Cl. D1—1



219,803

SHOE SOLE

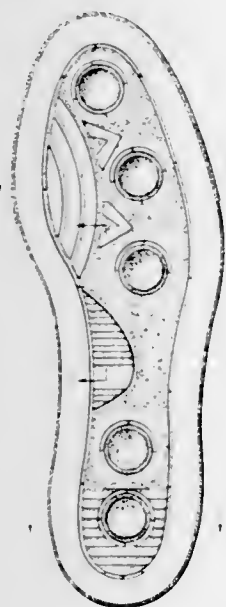
Clarence E. Phillips, Taneytown, Md., assignor to Cambridge Rubber Company, Taneytown, Md.

Filed Oct. 27, 1969, Ser. No. 19,739

Term of patent 14 years

Int. Cl. D2—04

U.S. Cl. D2—320



219,804

DRAPERY MASTER CARRIER

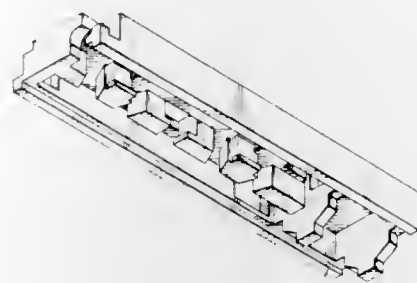
Ellis I. Toder, 9225 Grace Lane, Philadelphia, Pa. 19115

Filed Mar. 17, 1969, Ser. No. 16,271

Term of patent 14 years

Int. Cl. D8—03

U.S. Cl. D8—218



219,805

PACKAGING CONTAINER

André Courrèges, Neuilly, France, assignor to Courrèges Parfums, Paris, France

Filed Jan. 23, 1970, Ser. No. 21,043

Term of patent 14 years

Int. Cl. D9—04

U.S. Cl. D9—237



219,806

CHAMPAGNE BOTTLE STOPPER

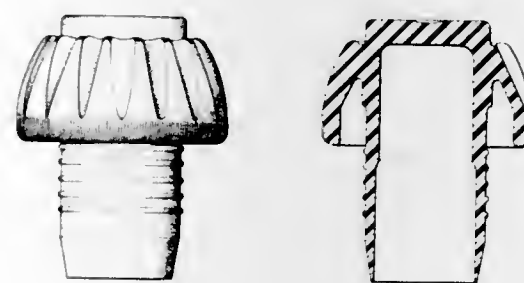
James E. Coleman and Jay M. Doyle, Modesto, Calif., assignors to United Packaging Co., Modesto, Calif.

Filed Sept. 12, 1969, Ser. No. 19,126

Term of patent 14 years

Int. Cl. D9—02

U.S. Cl. D9—285



FEBRUARY 2, 1971

U. S. PATENT OFFICE

437

219,807

ELECTRIC MEAT TENDERIZER

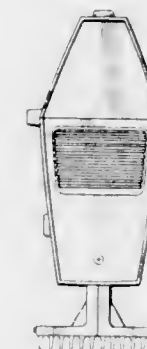
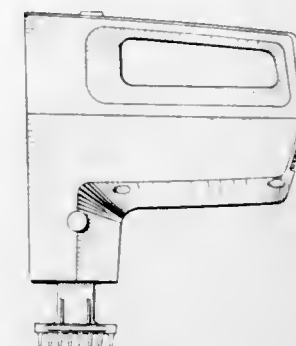
Frank J. Di Sesa, Jr., Columbus, Ind., assignor to Hamilton Cosco, Inc., Columbus, Ind.

Filed Jan. 19, 1970, Ser. No. 20,965

Term of patent 14 years

Int. Cl. D7—99

U.S. Cl. D11—1



219,809

MULTIPLE ADJUSTABLE BULLDOZER UNIT

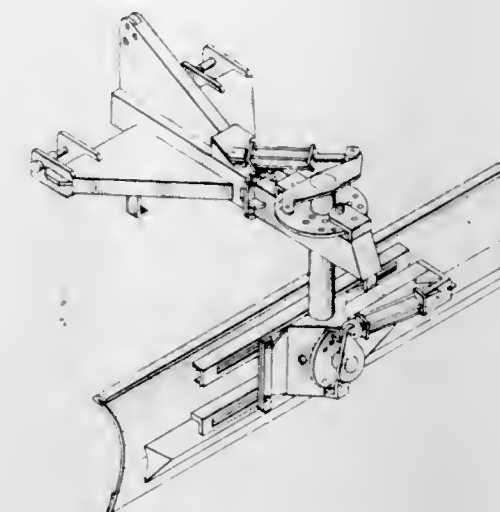
John G. Coontz, P.O. Box 104, Kiowa, Kans. 67070

Filed Feb. 3, 1969, Ser. No. 15,608

Term of patent 14 years

Int. Cl. D12—14

U.S. Cl. D14—3



219,810

CART FOR SPOOLS OF WIRE

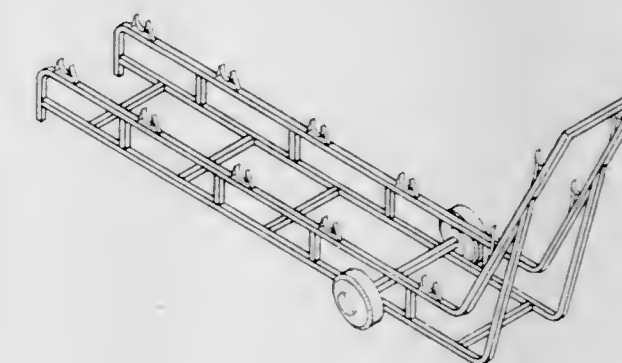
John I. Mitchell, Rte. 3, Box 577, Glendale, Ariz. 85301

Filed Jan. 22, 1970, Ser. No. 21,033

Term of patent 14 years

Int. Cl. D12—02

U.S. Cl. D14—3



219,808

PLASTIC COVER FOR A DOORWAY

Martin Wilfred Crowley, 31 St. Paul's St., London, N.1, England; Michael Mitchell, 1 Fir Trees, Tidy's Lane, Epping, Essex, England; and Franz Ferdinand Levi, Flat 3, 26 Alexandra Grove, London, N.12, England

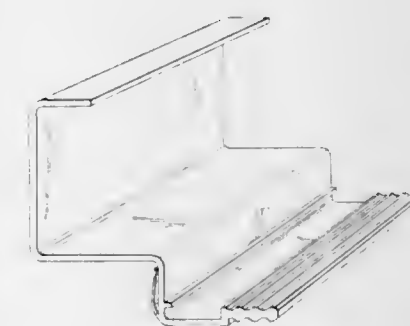
Filed Aug. 14, 1969, Ser. No. 18,690

Claims priority, application Great Britain Mar. 10, 1969

Term of patent 14 years

Int. Cl. D25—03

U.S. Cl. D13—6



219,811

AUTOMOBILE INSTRUMENT PANEL

Piergiorgio Tronville, Heilbronn, Germany, and Pio Manzu, Turin, Italy, assignors to Deutsche Fiat Aktiengesellschaft Heilbronn, Baden-Wurttemberg, Germany

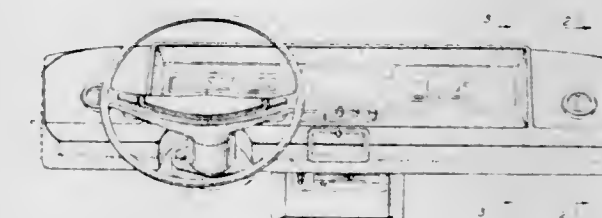
Filed Mar. 27, 1969, Ser. No. 16,489

Claims priority, application Germany Oct. 3, 1968

Term of patent 14 years

Int. Cl. D12—14

U.S. Cl. D14—6



219,812
CHAIR

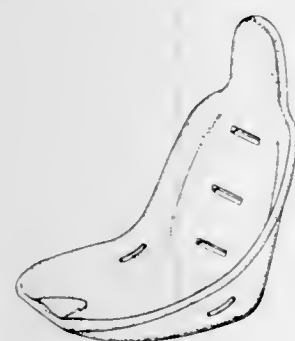
Judkins E. Wilkinson, Birmingham, Ala., assignor to
Atlanta Stove Works, Inc.
Filed July 14, 1969, Ser. No. 18,185
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D15—1

219,813
BUCKET SEAT SHELL

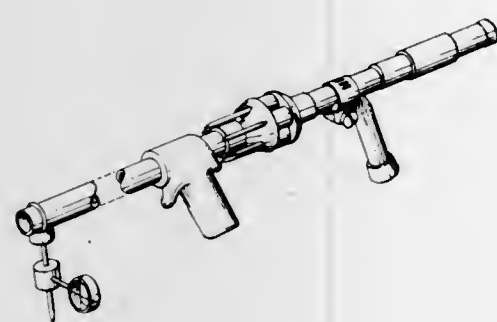
Steve T. McQueen, 14732 Oxnard St.,
Los Angeles, Calif. 91401
Filed Jan. 12, 1970, Ser. No. 20,900
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D15—8

219,814
BLOW GUN

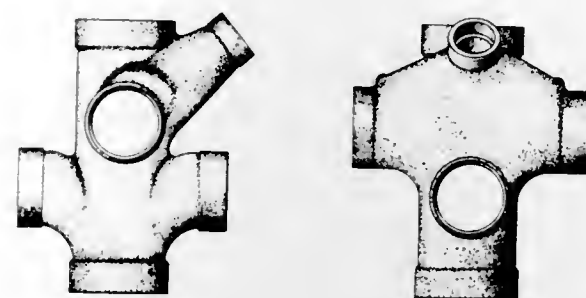
Paul E. Gaylord, 2504 NW. 22nd Court,
Miami, Fla. 33142
Filed Nov. 29, 1968, Ser. No. 14,725
Term of patent 14 years
Int. Cl. D22—02

U.S. Cl. D22—3

219,815
PLUMBING FITTING

Stanley R. Palowsky, 103 Somerset Drive,
Monroe, La. 71201
Filed Sept. 8, 1969, Ser. No. 19,056
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—40

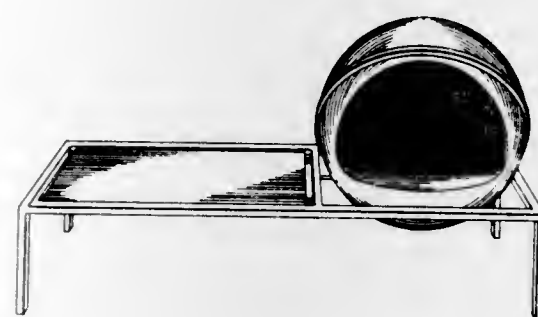


219,816

COMBINED FIREPLACE AND TABLE

William H. Punt, Prescott, Ontario, Canada, assignor to
Wallace-Murray Canada Limited
Filed Mar. 27, 1969, Ser. No. 16,476
Claims priority, application Canada Oct. 31, 1968
Term of patent 7 years
Int. Cl. D23—03; D6—01

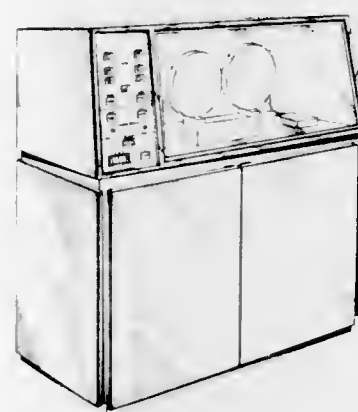
U.S. Cl. D23—97



219,817

MICROFILM RECORDER FOR COMPUTER DATA
Jay Sucre, Exton, Pa., William A. Hoffman, Collings-
wood, N.J., and Nazareno D. Marucci, Philadelphia,
Pa., assignors to Burroughs Corporation, Detroit, Mich.
Filed June 12, 1969, Ser. No. 17,673
Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D26—5

219,818
COMBINED TAPE RECORDER AND
REPRODUCER THEREFOR

Takemi Ebata, Kyoto, and Shinroku Tsutsumi, Nara,
Japan, assignors to Matsushita Electric Industrial Co.,
Ltd., Osaka, Japan

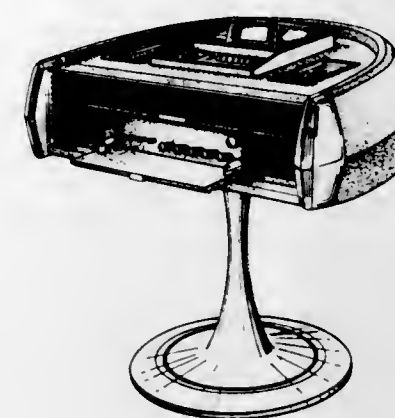
Filed Nov. 24, 1969, Ser. No. 20,256

Claims priority, application Japan June 10, 1969

Term of patent 14 years

Int. Cl. D14—01

U.S. Cl. D26—14



219,819

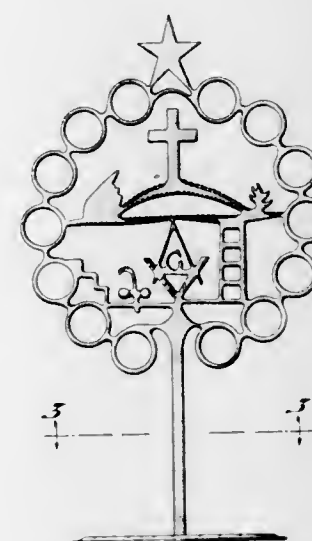
MASONIC ORNAMENT

George M. Wallace, 64 Clinton St., Paterson, N.J. 07501
Filed July 1, 1969, Ser. No. 18,036

Term of patent 14 years

Int. Cl. D11—02

U.S. Cl. D29—23



219,820

BASE SUPPORT FOR FURNITURE OR
SIMILAR ARTICLE

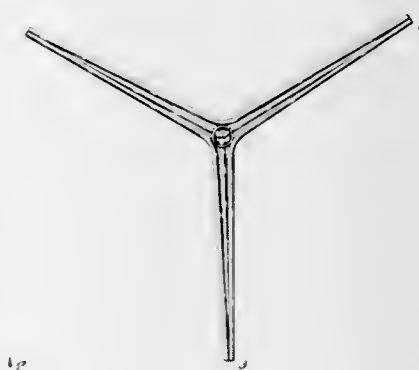
Dieter F. Wegner, 11628 W. Shorecliff,
Mequon, Wis. 53092

Filed May 13, 1969, Ser. No. 17,140

Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D33—14

219,821
TABLE

Judkins E. Wilkinson, Birmingham, Ala., assignor to
Atlanta Stove Works, Inc.
Filed July 18, 1969, Ser. No. 18,267
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D33—14



219,822

GAME PROJECTILE

John Rockaitis, 3920 W. 60th Place,
Chicago, Ill. 60629

Filed July 24, 1969, Ser. No. 18,384

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D34—5



219,823

GAME BOARD

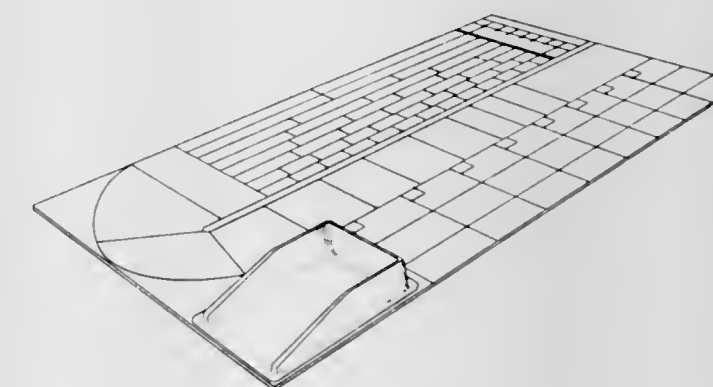
Joseph Imperato, Selden, N.Y., assignor to Riders Up,
Inc., Selden, N.Y.

Filed Aug. 11, 1969, Ser. No. 18,627

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D34—5



219,824

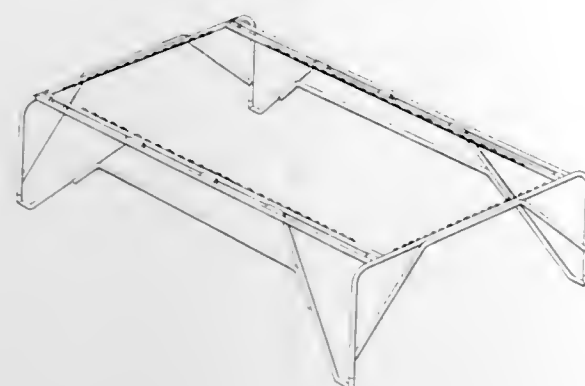
TRAMPOLINE FRAMERichard W. Swanson, 6374 S. Lafayette Place,
Littleton, Colo. 80120

Filed Aug. 28, 1969, Ser. No. 18,887

Term of patent 14 years

Int. Cl. D21-03

U.S. Cl. D34-5



219,825

PLAYGROUND CLIMBERRobert S. Wormser, Hillsdale, Mich., assignor to Game
Time, Inc., Litchfield, Mich.

Filed Feb. 9, 1970, Ser. No. 21,349

Term of patent 14 years

Int. Cl. D21-03

U.S. Cl. D34-5



219,826

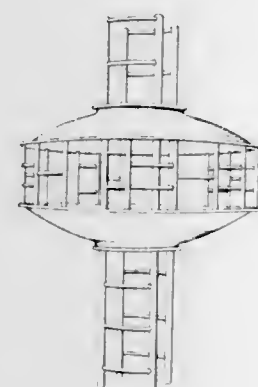
PLAYGROUND CLIMBERRobert S. Wormser, Hillsdale, Mich., assignor to Game
Time, Inc., Litchfield, Mich.

Filed Feb. 9, 1970, Ser. No. 21,354

Term of patent 14 years

Int. Cl. D21-03

U.S. Cl. D34-5



219,827

TOBOGGANArthur Mihalcheon, 14815 125th Ave.,
Edmonton, Alberta, Canada

Filed June 27, 1969, Ser. No. 17,912

Term of patent 14 years

Int. Cl. D21-03

U.S. Cl. D34-14



219,828

TUMBLER OR SIMILAR ARTICLEFrank J. Benes, Lancaster, Ohio, assignor to Anchor
Hocking Corporation, Lancaster, Ohio

Filed Jan. 26, 1970, Ser. No. 21,077

Term of patent 14 years

Int. Cl. D7-01

U.S. Cl. D36-8



219,829

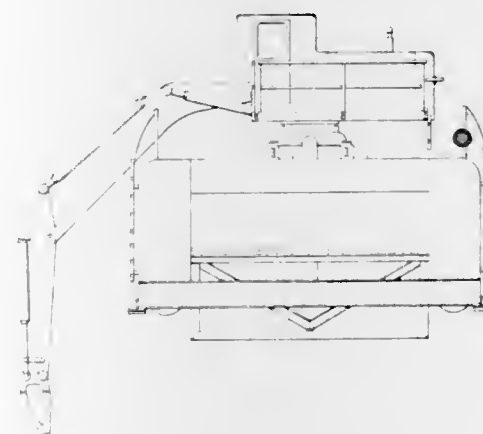
PULPWOOD GANTRY RAKEGeorge M. Meriwether, 1704 7th Ave. N.,
Birmingham, Ala. 35203

Filed July 2, 1969, Ser. No. 18,034

Term of patent 14 years

Int. Cl. D12-05

U.S. Cl. D41-1



219,830

COMBINED DIGITAL CLOCK AND TIMERKaoru Eguchi, 70-25 Yellowstone Blvd.,
Forest Hills, N.Y. 11375

Filed Jan. 29, 1970, Ser. No. 21,133

Term of patent 3 1/2 years

Int. Cl. D10-01

U.S. Cl. D42-7



219,831

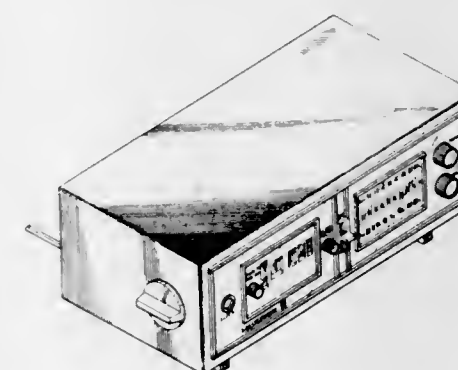
DIGITAL CLOCK RADIOKaoru Eguchi, 70-25 Yellowstone Blvd.,
Forest Hills, N.Y. 11375

Filed Jan. 29, 1970, Ser. No. 21,134

Term of patent 3 1/2 years

Int. Cl. D10-01

U.S. Cl. D42-7



219,832

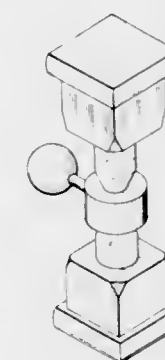
TIMERMel Appel, Livingston, and Martin Schnur, Fort Lee,
N.J., assignors to Gemco-Ware Inc., Freeport, N.Y.

Filed Apr. 15, 1970, Ser. No. 22,443

Term of patent 14 years

Int. Cl. D10-05

U.S. Cl. D42-7



219,833

Judkins E. Wilkinson and Clarence R. Smith, Birming-
ham, Ala., assignors to Atlanta Stove Works, Inc.

Filed July 24, 1969, Ser. No. 18,361

Term of patent 14 years

Int. Cl. D7-02

U.S. Cl. D44-1



219,834

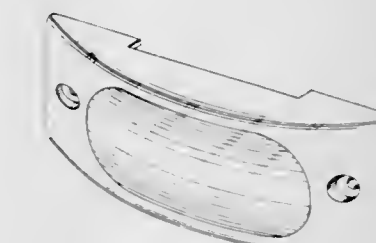
LENS FOR AUTOMOTIVE LIGHTCharles J. Newman, Madison, Ind., and Elbert J. Lucas,
Andalusia, Ala., assignors to The Grote Manufacturing
Company, Madison, Ind.

Filed May 8, 1969, Ser. No. 17,069

Term of patent 14 years

Int. Cl. D12-99

U.S. Cl. D48-32



219,835

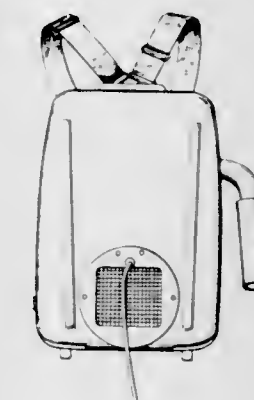
BACK PACK VACUUM CLEANERLouis L. Otto, North Muskegon, and Cecil B. Land,
Muskegon, Mich., assignors to Clarke Floor Machine
Division, Studebaker Corporation, Muskegon, Mich.

Filed Nov. 24, 1969, Ser. No. 20,233

Term of patent 14 years

Int. Cl. D15-06

U.S. Cl. D49-11

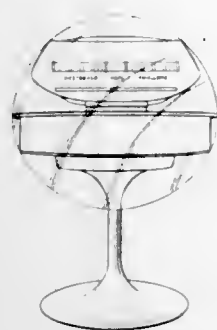


219,836

LIQUID METER UNIT

Raymond Loewy, Paris, France, assignor to Stanley Edward Matthews, London, England
 Filed July 17, 1969, Ser. No. 18,255
 Claims priority, application Great Britain Jan. 24, 1969
 Term of patent 14 years
 Int. Cl. D20—99

U.S. Cl. D52—2

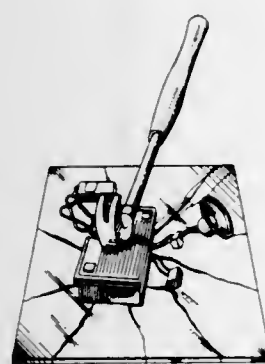


219,837

RADIO RECEIVER OR SIMILAR ARTICLE

Ralph K. Schwitzgebel, 5 Pelham Road, Waltham, Mass. 02154
 Filed Jan. 23, 1969, Ser. No. 15,464
 Term of patent 3½ years
 Int. Cl. D14—03

U.S. Cl. D56—4



219,838

OPHTHALMIC SPECTACLES

Luc Andre Marcel Tagnon, Paris, France, assignor to Société des Lunetiers, société en commandite simple, Paris, France
 Filed Aug. 7, 1969, Ser. No. 18,575
 Claims priority, application France June 17, 1969
 Term of patent 14 years
 Int. Cl. D16—08

U.S. Cl. D57—1



219,839

COMBINED RECORD PLAYER AND RADIO OR SIMILAR ARTICLE

Soji Takada, Kyoto, and Ikuro Nishimura, Kadoma, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
 Filed July 7, 1969, Ser. No. 18,078
 Claims priority, application Japan Jan. 24, 1969
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D56—4

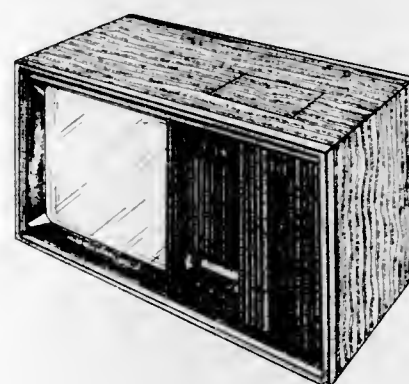


219,840

CASSETTE OPERATED AUDIO-VIDEO PROJECTION CABINET OR SIMILAR ARTICLE

Masayuki Sakuma, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh
 Filed May 20, 1969, Ser. No. 17,245
 Term of patent 7 years
 Int. Cl. D16—04

U.S. Cl. D61—1

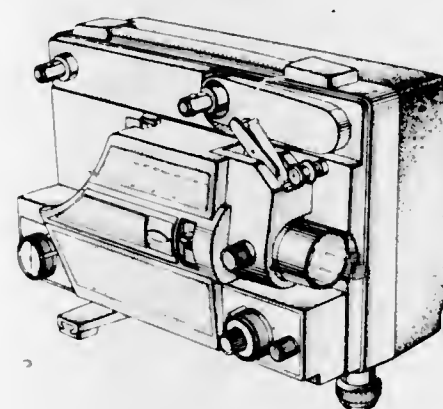


219,841

MOTION PICTURE PROJECTOR

Tadamasa Manome, Ohmiya-shi, and Yoh Tanaka, Tokyo, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa-ken, Japan
 Filed Aug. 27, 1969, Ser. No. 18,873
 Claims priority, application Japan Apr. 8, 1969
 Term of patent 14 years
 Int. Cl. D16—04

U.S. Cl. D61—1

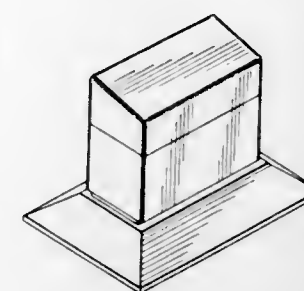


219,842

COMBINED RUBBER STAMP AND BASE THEREFOR

Harold L. Miller, 7730 Emerson Ave. N., Minneapolis, Minn. 55430
 Filed Nov. 17, 1969, Ser. No. 20,126
 Term of patent 14 years
 Int. Cl. D18—99

U.S. Cl. D64—10

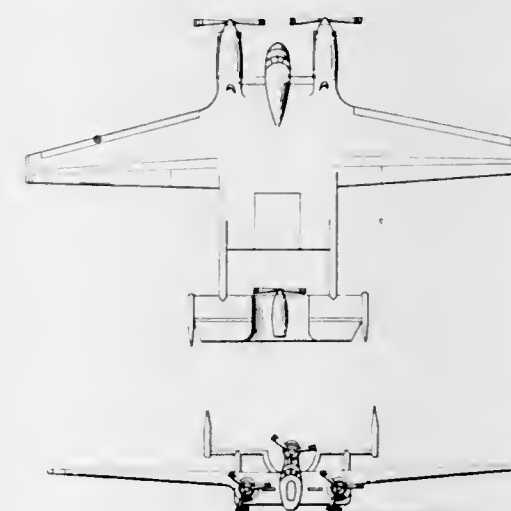


219,843

AIRCRAFT

Charles G. Fredericks, Silver Spring, Md., assignor to Occidental Aircraft Corporation, Washington, D.C.
 Filed June 12, 1969, Ser. No. 17,679
 Term of patent 14 years
 Int. Cl. D12—07

U.S. Cl. D71—1

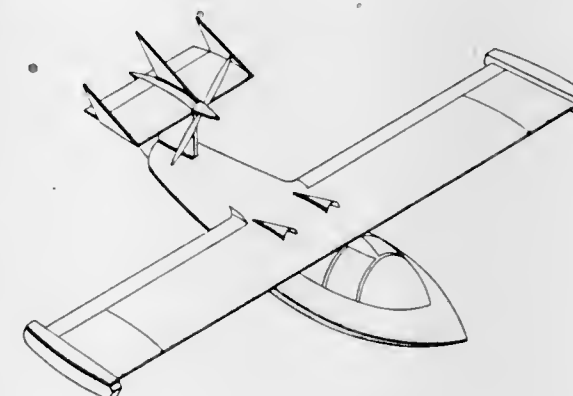


219,844

AMPHIBIOUS AIRCRAFT

Cornelius Biemond, 105 S. 14th St., Ord, Nebr. 68862
 Filed July 14, 1969, Ser. No. 18,196
 Term of patent 14 years
 Int. Cl. D12—07

U.S. Cl. D71—1

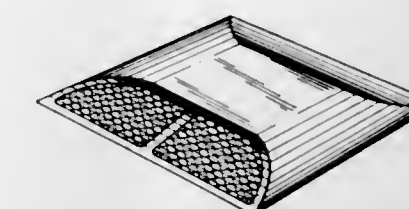


219,845

ROADWAY REFLECTOR

Peter Hedgewick, Windsor, Ontario, Canada, assignor to Reflex Corporation of Canada Limited, Amherstburg, Ontario, Canada
 Filed June 11, 1968, Ser. No. 12,299
 Term of patent 14 years
 Int. Cl. D29—99

U.S. Cl. D72—1



219,846

SIGNAL

Morton A. Sernovitz, 8642 Keystone, Skokie, Ill. 60076
 Filed Oct. 6, 1969, Ser. No. 19,421
 Term of patent 14 years
 Int. Cl. D29—99

U.S. Cl. D72—1

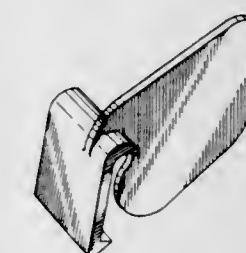


219,847

CARD DIVIDER CLIP

Charles H. Nervig, Berea, Ohio, assignor to American Greeting Corporation, Cleveland, Ohio
 Filed June 9, 1969, Ser. No. 17,580
 Term of patent 14 years
 Int. Cl. D19—99

U.S. Cl. D74—2



219,848
DISPLAY STAND

Raymond Loewy, Paris, France, assignor to Stanley
Edward Matthews, London, England
Filed July 17, 1969, Ser. No. 18,242
Claims priority, application Great Britain Feb. 21, 1969
Term of patent 14 years
Int. Cl. D6—01

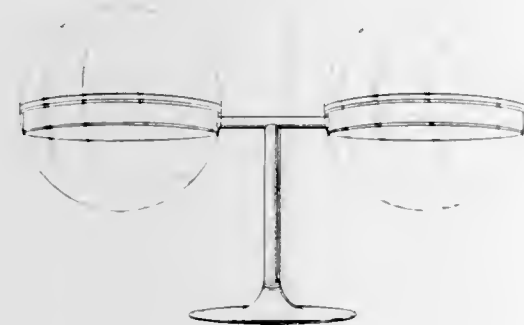
U.S. Cl. D80—9



219,849
DISPLAY STAND

Raymond Loewy, Paris, France, assignor to Stanley
Edward Matthews, London, England
Filed July 29, 1969, Ser. No. 18,452
Claims priority, application Great Britain Mar. 5, 1969
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D80—9



219,850
DISPLAY STAND

Raymond Loewy, Paris, France, assignor to Stanley
Edward Matthews, London, England
Filed July 29, 1969, Ser. No. 18,453
Claims priority, application Great Britain Mar. 5, 1969
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D80—9



219,851
DISPLAY STAND

Raymond Loewy, Paris, France, assignor to Stanley
Edward Matthews, London, England
Filed July 29, 1969, Ser. No. 18,457
Claims priority, application Great Britain Mar. 5, 1969
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D80—9

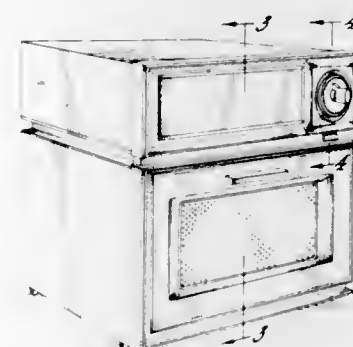


219,852
MICROWAVE OVEN

Alan W. Duncan, Itasca, and John L. Berman, Hickory
Hills, Ill., assignors to Roper Corporation, Kankakee,
Ill.

Filed Sept. 17, 1969, Ser. No. 19,195
Term of patent 14 years
Int. Cl. D7—04

U.S. Cl. D81—4



219,853
INFANT FEEDING BOTTLE

Gene H. Swanner, Paducah, Ky., assignor to Dolly Bottle,
Incorporated
Filed Jan. 8, 1970, Ser. No. 20,807
Term of patent 14 years
Int. Cl. D24—05; D9—01

U.S. Cl. D83—8



219,845
FALSE EYELASH APPLICATOR

Pearl Howard, 441 S. Barrington Ave.,
Los Angeles, Calif. 90049
Continuation-in-part of design application Ser. No. 15,009,
Nov. 19, 1968. This application Mar. 6, 1970, Ser. No.
21,773

Term of patent 14 years
Int. Cl. D3—99

U.S. Cl. D86—10

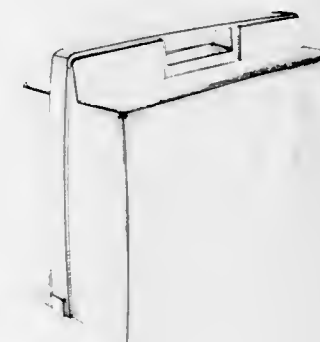


219,855
**CARRYING CASE COVER FOR A PORTABLE
SEWING MACHINE**

Henry Dreyfuss, South Pasadena, Calif., assignor to The
Singer Company, New York, N.Y.
Filed May 26, 1969, Ser. No. 17,341

Term of patent 14 years
Int. Cl. D3—01

U.S. Cl. D87—5

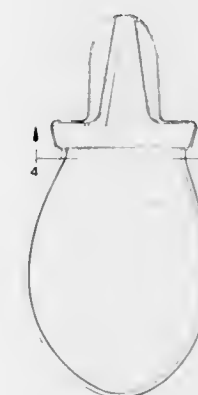


219,856
UMBRELLA HANDLE

Heinz Weber, Hilden, Germany, assignor to Telesco
Brophey Limited, Montreal, Quebec, Canada
Filed Oct. 20, 1969, Ser. No. 19,641

Term of patent 14 years
Int. Cl. D3—03

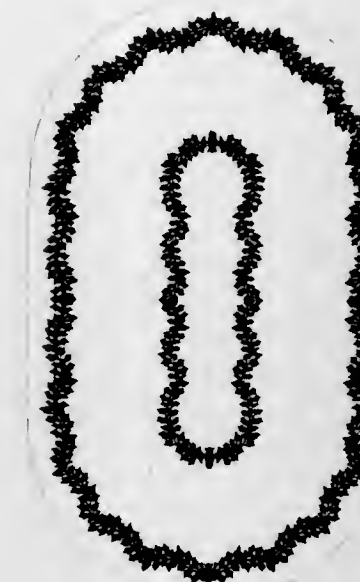
U.S. Cl. D88—3



219,857
TABLECLOTH

Carlos Mach Brosa, Barcelona, Spain, assignor to
Benjamin M. Jabara & Sons, New York, N.Y.
Filed Sept. 23, 1969, Ser. No. 19,265
Claims priority, application Spain May 26, 1969
Term of patent 7 years
Int. Cl. D6—09

U.S. Cl. D92—26



219,858
TABLE NAPKIN

Carlos Mach Brosa, Barcelona, Spain, assignor to
Benjamin M. Jabara & Sons, New York, N.Y.
Filed Sept. 23, 1969, Ser. No. 19,266
Claims priority, application Spain May 26, 1969
Term of patent 7 years
Int. Cl. D6—09

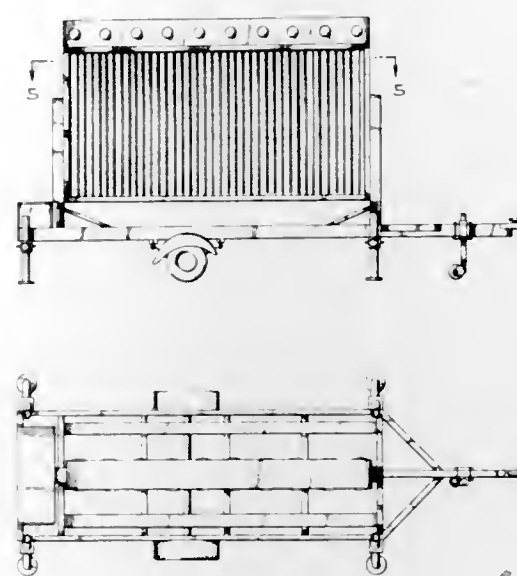
U.S. Cl. D92—26



219,859
KNIFE OR SIMILAR ARTICLE
 William J. Abel, Jackson, Tenn., assignor to Consolidated Aluminum Corporation, Jackson, Tenn.
 Filed Feb. 25, 1970, Ser. No. 21,602
 Term of patent 14 years
 Int. Cl. D7—03
 U.S. Cl. D95—3



219,860
PORTABLE ILLUMINATED SIGN
 Stephen L. Burts and Dennis G. Jones, both of 4306 Hamilton Road, Columbus, Ga. 31902
 Filed Oct. 30, 1969, Ser. No. 19,847
 Term of patent 14 years
 Int. Cl. D20—03
 U.S. Cl. D96—12



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 2D DAY OF FEBRUARY, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- AAI Corporation: *See—*
 Ryan, Robert B.; Zachmeier, August A.; Heyck, Hans D.; and Garman, Robert E., 3,560,849.
- Abbott, Colin E.; and Wray, Bingley J., to Mining & Chemical Products Limited. Method of making a thermoelectric device. 3,560,351. Cl. 204-15.
- Abraham, Charles E.: *See—*
 Lucas, Pierre M.; Duquesne, Jean F.; and Abraham, Charles E., 3,560,655.
- Abramoff, Charles, to Argus Chemical Corporation. Enhancement of resistance of olefin polymers to copper-catalyzed oxidative degradation. 3,560,434. Cl. 260-45.8.
- Abrams, Halle, to Western Electric Company, Incorporated. Combined thick and thin film circuits. 3,560,256. Cl. 117-212.
- Abromavage, John C.; and Ryden, James W., to Arcoa, Inc. Small ear hitch bar assembly. 3,560,024. Cl. 280-502.
- Abromavage, John C.; and Shattles, Henry S., to Arcoa, Incorporated. Automotive chassis. 3,559,826. Cl. 214-85.
- Abshcar, Harold R. Differential handling tool. 3,559,981. Cl. 269-130.
- Ackerman, Joseph F.: *See—*
 Bernardo, Joseph J.; and Ackerman, Joseph F., 3,560,412.
- Ackerman, Martin S., to Perfect Film & Chemical Corporation. Time delay means for rechargeable stroboscopic flash attachment. 3,559,548. Cl. 95-11.5.
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- Anderson, Robert H., to Tektronix, Inc.: Cathode ray tube with projection means, 3,560,649, Cl. 178-7.5.
- Anderson, Victor G., to Victor Anderson 3-D Studios Inc.: Method for preparing 3-dimensional pictures, 3,560,296, Cl. 156-308.
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- Bachar, John D.; and Selwitz, Charles M., to Gulf Research & Development Company: Process for preparing meta-halotoluene, 3,560,579, Cl. 260-650.
- Bachler, Sven, to Allmanna Svenska Elektriska Aktiebolaget: Contact means for electric circuit breakers, 3,550,688, Cl. 200-166.
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- Barenji, Bela, to Daimler-Benz Aktiengesellschaft: Temple protection, especially for passenger motor vehicles, 3,560,020, Cl. 280-150.
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- Battiwala, Furdoo; Sinnecker, Gunther; and Boerger, Stephan, to Siemens Aktiengesellschaft: Vent for liquid circuit breaker, 3,560,684, Cl. 200-150.
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- Baumann, Karl-Friedrich; Hoff, Hans; and Braumüller, Kurt, to Gottfried Bischoff, Bau Kompl. Gasreinigungs und Wasserrückkulanlagen KG: Gas-collecting hood for steel-making converter, 3,559,975, Cl. 266-35.
- Baumel, Joseph, to Controlotron Corporation: Settable timer for selectively determining the delay exhibited by a time delay unit having a characteristic delay subject to variation, 3,560,863, Cl. 328-129.
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- Becker, Earl M.: *See—*
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- Beeli, Johann B., to International Telephone and Telegraph Corporation. Vacuum tube with coaxial assembly of electrostatic focusing means and electron gun mount. 3,560,780, Cl. 313-82.
- Beelik, Andrew, to ITT Rayonier Incorporated. Pulping of wood with sulfite base digestion liquor containing acetic acid. 3,560,331, Cl. 162-76.
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- Beghi, Rene, to Societe des Grands Travaux de Marseille. Device for extruding an anchoring member on a reinforcing element. 3,559,270, Cl. 29-282.
- Beisel, George E., Jr.; and Mills, Edgar C., Jr., to Lockheed Aircraft Corporation. Station keeping, collision avoidance and position fixing system. 3,560,991, Cl. 343-75.
- Beisner, Lowell Edward. Musical sound recording system and method. 3,560,000, Cl. 274-11.
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- Beug, Lorenz; and Maier, Rolf, to Messerschmitt-Bolkow GmbH. Method and apparatus for determining the displacement of a construction equipment guided along a desired course by a laser beam. 3,560,753, Cl. 250-215.
- Beurrier, Henry R.; and Seidel, Harold, to Bell Telephone Laboratories, Incorporated. Parametric acoustic wave sensor. 3,560,882, Cl. 332-2.
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- Biddick, Royce E., to Union Oil Company of California, mesne. Fuel cell with electrolyte or fuel distributor. 3,560,264, Cl. 136-86.
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- Bonvicini, Alberto; and Cantatore, Giuseppe, to Montecatini Edison S.p.A. Dye-receptive polyolefin compositions. 3,560,594, Cl. 260-897.
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Briskin, Theodore S.; and Ward, Geoffrey R., to Sutton Research Corporation. Oxidized cellulose substitute smoking material and method of making same. 3,559,655, Cl. 131-2.

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British Petroleum Company Limited, The: *See—*
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Hambling, James Keith; Richards, Colin Temple; and Squire, John Mansel, 3,560,468.

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Britvin, Lev Nikolaevich. Device for controlling the delivery of a reciprocating pump. 3,560,112, Cl. 417-275.

Brock, James, to Imperial Chemical Industries Limited. Continuous winding of yarns. 3,559,902, Cl. 242-18.

Bronkhorst, Armand Francois, to Holvriera International N. V. Apparatus for draining curd in making cheese. 3,559,287, Cl. 31-46.

Brooks, William N., Jr.; Miller, George R.; and Radtke, Richard K., to Sperry Rand Corporation. Directional gyro turn error compensator. 3,559,493, Cl. 74-5.45

Brooks, William R.; and Heinzl, Irving C. Foam dispenser. 3,559,890, Cl. 239-304.

Brosk, Jeffrey Owen. Integral table and seating arrangement. 3,560,046, Cl. 297-157.

Broussard, M. Roy: *See—*
United States of America, National Aeronautics and Space Administration, Administrator, 3,559,937.

Brown and Williamson Tobacco Corporation: *See—*
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Brown, Donald: *See—*
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Brown, Gordon, to Atomic Power Constructors Limited. Gas-cooled nuclear reactors. 3,560,338, Cl. 176-59.

Brown, James R.; and Lusk, William F. Lead bending device. 3,559,433, Cl. 72-36.

Brown, John Johnston; Hardy, Robert Allis, Jr.; and Roth, Carol Nora, nee Carol Therese Nora, to American Cyanamid Company. Substituted 7-(1-alkoxy-1-alken-1-yl)-7,8-dihydro-6-methoxy-6,14-endo-(etheno or ethano) codides and morphides. 3,560,505, Cl. 260-285.

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Brown, Robert W.: *See—*
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Brown, Vernon E., to Teletype Corporation. Method and apparatus for measuring the operating time of an electromagnet, utilizing a piezoelectric device. 3,560,844, Cl. 324-28.

Brown, Wilburn Kelly, to Circle Tool & Mfg., Co. Remote control system for hydraulic cranes. 3,559,817, Cl. 212-35.

Brownfield, Russell. Reamers for electrical line conduits, and the like. 3,559,514, Cl. 77-73.

Browncombe, Philip J., to Dietzgen, Eugene, Co. Micro-image reader. 3,560,083, Cl. 353-22.

Bruch, Walter, to Telefunken Patentverwertungsgesellschaft m.b.H. System for transmitting a narrow-band line-sequential color television signal and for simultaneous reproduction of such signal. 3,560,635, Cl. 178-5.4

Buckel, Franz Xaver. Ski pole provided with hand loop. 3,560,014, Cl. 280-11.37

Bruckner, Charles J.; and White Edward A., to Air Products and Chemicals, Inc. Upflow catalytic reactor for fluid hydrocarbons. 3,560,167, Cl. 23-288.

Brunelle, Thomas T., to Precision Specialties, Inc. Spring clutch-brake with adjustable stop collar. 3,559,781, Cl. 192-12.

Brunois, Claude. Manure transport system. 3,559,797, Cl. 198-173.

Brunswick Corporation: *See—*
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Bruun, Herta: *See—*
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Bryant, Duane K.: *See—*
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Bublitz, Donald E.; and Rigerink, Raymond H., to Dow Chemical Company, The. Tetrasubstituted pyridazines. 3,560,498, Cl. 260-250.

Buc, George L., to Farrington Electronics Incorporated. Reading device employing an enclosure for a light source and the document to be read and having a highly light reflective internal surface. 3,560,646, Cl. 178-7.1

Buchanan, John E., to Precision Drill Pointing Incorporated. Drill splitting apparatus. 3,560,175, Cl. 51-96.

Buchner, Norbert; Domke, Klaus; Kohnlein, Rolf; and Zimmermann, Helmut, to Hesser, Fr., Maschinenfabrik, A.G. Machine for producing, filling, and closing packages. 3,559,369, Cl. 53-183.

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Buckingham, William T.; and Hammon, Gordon R. Locator signal system for vehicle transportable signal generators. 3,560,916, Cl. 340-23.

Budai, Zoltan; Pallos, Laszlo; and Komlos, Endre, to Egyesult Gyogyszer-es Tapszergyar. Alkylaminoalkyl ethers of cycloalkanol. 3,560,554, Cl. 260-471.

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Mattia, Michael, 3,560,350.

Buechner, Werner W. Automatic forwarding mechanism for photographic materials. 3,559,553, Cl. 95-89.

Buettner, Donald L.; Burchfiel, John R., Jr.; Kline, Norman D.; Sheehan, Michael J.; and Thompson, Kenneth L., to International Business Machines Corporation. Optical mark sensing device. 3,560,751, Cl. 250-214.

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Buhler, Hansrudi; Ernst, Alfred; and Steiner, Beat, to Maschinenfabrik Oerlikon. Wheel slip protection device. 3,560,759, Cl. 290-17.

Buiting, Francis P.; and Waseleski, Joseph W., Jr., to Texas Instruments, Incorporated. Temperature control. 3,559,883, Cl. 236-68.

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Bulen, William A., to Kettering, Charles F., Foundation. Reduction of gaseous nitrogen to ammonia. 3,560,344, Cl. 195-50.

Bundorf, Ronald T., to General Motors Corporation. Dirigible wheel suspension including means for inducing lateral acceleration response understeer. 3,560,016, Cl. 280-96.2

Buning, Robert; and Diessel, Karl-Heinz, to Dynamit Nobel Aktiengesellschaft. Process for the continuous polymerization and copolymerization of ethylenically unsaturated compounds. 3,560,454, Cl. 260-78.4

Bunting, William Wallar, Jr.; Evans, Franklin James; and Hook, David Ellis, to Du Pont de Nemours, E. I., and Company. Textile-like non-woven fabric. 3,560,326, Cl. 161-169.

Bureh, James Morris; and Gates, John William Charles, to National Research Development Corporation. Optical inverting systems. 3,560,082, Cl. 350-286.

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Burk, Emmett H., Jr.; and Carlos, Donald D., to Sinclair Research, Inc. Aromatic poly(nitrile carbonates). 3,560,518, Cl. 260-307.

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Burke, Thomas F., to Texas Instruments, Incorporated. Speed control of an electric motor employing thermally sensitive resistance. 3,560,824, Cl. 318-227.

Burkhardt, Paul J., to International Business Machines Corporation. Method for preparing thin unsupported films of silicon nitride. 3,560,364, Cl. 204-192.

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Burroughs Corporation: *See—*
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Burton, Charles D.; and Madison, Norman L., to Dow Chemical Company, The. Preparation of polybenzoxazoles and polybenzthiazoles. 3,560,438, Cl. 260-47.

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Busch, Werner; and Hufnagel, Paul, to Krauss-Maffei, Aktiengesellschaft. Fluid pump or motor. 3,560,119, Cl. 418-55.

Buschermohle, Gregor, to Ofenbau, Keller, G.m.b.H. Tunnel kilns. 3,559,968, Cl. 263-28.

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Butler, John Parkman; and Meekma, Harry, to American Can Company. Packaging material. 3,559,800, Cl. 206-46.

Butler, Marlow D., to Tektronix, Inc. Switchable coaxial probe member utilizing a reed switch. 3,560,848, Cl. 324-72.5

Butter, Otto, to Fendt, X., & Co., Firma. Process for fastening elastic bands to textiles. 3,560,292, Cl. 156-229.

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Cailliet, Rene Charles. Vertical guiding devices for containers in ships. 3,559,787, Cl. 193-33.

California Pellet Mill Company: *See—*
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Caprari, Fausto, to RCA Corporation. Solid state regulated power supply for intermittent loads with plural charging paths for a capacitor. 3,560,842, Cl. 323-22.

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Carlson, Herbert E.; and Black, Rodrick E., to Boise Cascade Corporation. Sulfur dioxide-releasing device. 3,559,562, Cl. 99-239.

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Carr, Ben W. Blender mixer attachments for use with household garbage disposer units. 3,559,897, Cl. 241-101.

Carreira, Leonard M.; Solodar, Warren E.; Kyriakakis, Basil M.; and Labana, Santokh S., to Xerox Corporation. Photoelectrophoretic imaging process using anthraquinones as the electrically photosensitive particles. 3,560,360, Cl. 204-181.

Carruth, Winford Boyd: *See—*
Lewis, Richard L.; Tam, George M.; Reznicek, Raymond A.; Caruth, Winford Boyd; and Carp, Ralph Wolf, 3,560,918.

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Casella, Luigi; and De Varda, Giorgio, to Societa Italiana Telecomunicazioni Siemens S.p.A. Time-sharing telecommunication system with logic circuitry for classifying line-voltage changes of different duration. 3,560,662, Cl. 179-18.

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- Cayzac, Jacques, to U.S. Philips Corporation. Aerial follower device. 3,560,977, Cl. 343-100.
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- Central Dynamics Ltd.: *See—*
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- Central Research Laboratories, Inc.: *See—*
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- Cereghetti, Marco; Furst, Andor; Vecchi, Max; and Vetter, Walter, to Hoffman-La Roche Inc. 3-Silyl-ether steroids. 3,560,532, Cl. 260-397.4
- Cerioni, Renzo Giuseppe. Apparatus for gripping and stretching the mouth of sacks and similar non-rigid containers in preparation for their sealing by sewing. 3,559,372, Cl. 53-393.
- Cekoslovenska Akademie ved: *See—*
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- Chambers, Henry B.; and Tellefson, Clair W., to Hydranautics. Hydraulic gripper and moving jack. 3,559,954, Cl. 254-106.
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- Chandra, Kailash Charles, to Borg-Warner Corporation. Fire-retardant cellulose compositions. 3,560,479, Cl. 260-212.
- Chang, Henry M., to First Dynamics, Inc. Combination beverage container and drinking straw. 3,559,868, Cl. 229-7.
- Chany, Charles; Falcoff, Ernesto; and Fournier, Francoise, to Center National de la Recherche Scientifique, and Institut National de la Sante et de la Recherche—Medicale, Process for the manufacture of preparations rich in interferon. 3,560,611, Cl. 428-85.
- Chao, Gene, to Textron Inc. Variable radio-frequency coupler. 3,560,885, Cl. 333-10.
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- Chenoweth, David V., to Baker Oil Tools, Inc. Differential pressure gas lift valve. 3,559,672, Cl. 137-155.
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- Childress, Scott J.; and Szabo, J. Lester, to American Home Products Corporation. 1-Amino-N-sulfonylcyclopentanecarboxamides. 3,560,565, Cl. 260-556.
- Chilton, Henry Thomas Joseph, to Monsanto Chemicals Limited. Process for concentrating silica aquasols. 3,560,400, Cl. 252-313.
- Chiron, Bernard, to Societe Lignes Telegraphiques et Telephoniques. Microstrip devices having strip conductor coated on ferrite substrate. 3,560,892, Cl. 333-1.1
- Chiu, Winton C. Bag with one-way entrance. 3,559,329, Cl. 43-55.
- Chmelir, Miroslav; and Marek, Miroslav. Method of polymerization of isobutylene utilizing $AlBr_3$ or AlI_3 with an activating compound. 3,560,474, Cl. 260-94.8
- Choquet, Lucien, G.: *See—*
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- Christener, Hanspeter, to Aktiengesellschaft Brown, Boveri & Cie. Lightning arrester with a rupturable diaphragm for gas pressure release. 3,560,794, Cl. 315-36.
- Christensen, James D. Sizer for draperies. 3,559,315, Cl. 38-102.3
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- Christopher, Bernard A., 25% to Baczynski, Chester, 25% to Bartoletti, James, and 25% to Featherstone, Chris. Fish warning device. 3,559,327, Cl. 43-17.
- Chu, Edward, to Du Pont de Nemours, E. I., and Company. Apparatus for producing a hollow strip of polymeric material. 3,559,241, Cl. 18-14.
- Chung, David H.; and Terrell, Bill H., to Texas Instruments, Incorporated. Nonsaturated high speed drive gate. 3,560,760, Cl. 307-215.
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- Cities Service Company: *See—*
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- Markey, Joseph W., 3,560,150.
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- Cities Service Research and Development Company: *See—*
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- Claeys, Daniel Alois: *See—*
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- Hammond, Evan; and Lapaich, Michael, 3,559,943.
- Clark, James: *See—*
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- Clark, Robert L.: *See—*
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- Clark, Victor Malcolm; Gregory, Gordon Ian; and Cocker, John Derek, to Glaxo Laboratories Limited. Production of azucarbazoles. 3,560,361, Cl. 204-158.
- Clarke Chapman & Co. Limited: *See—*
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- Clarke, Walter W. H., to C.B. Associates Limited. Inertia switch responsive to high and low level shocks. 3,560,680, Cl. 200-61.45
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- Claxton, William E.; and Holden, Harold C., to Firestone Tire & Rubber Company, The. Blend optimizer comprising an assembly of variable factor potentiometers. 3,560,725, Cl. 235-193.
- Clay, Burton R.; and Haddad, Theodore A., to United States of America, Navy, mesne. Flash lamp. 3,560,787, Cl. 313-112.
- Cleanometer Corporation: *See—*
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- Cleasson, Carl Olof; and Cleasson, Ella Marjory Helena, to Alfa-Laval AB Tumba. Method of making cheese. 3,560,224, Cl. 99-116.
- Cleasson, Ella Marjory Helena: *See—*
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- Closa, Jose, to Aurora Corporation. Extensible typewriter stand. 3,559,592, Cl. 108-102.
- Clough, Victor J. Means for constructing a hollowed wall concrete structure. 3,559,944, Cl. 249-36.
- Cluett, Peabody & Co., Inc.: *See—*
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- Costigan, Francis Joseph; and May, Charles William, to Hawker Siddeley Dynamics Limited. Undercarriages. 3,559,925, Cl. 244-50.
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- Cox, Henry P. Emergency elevator evacuation of tall buildings. 3,559,768, Cl. 187-20.
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DeNoyer, Donald B., to Allis-Chalmers Manufacturing Company. Doctor assembly. 3,559,229, Cl. 15-256.51

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- Fay, Edwin F. Apparatus for and method of comminuting solid materials. 3,559,895, Cl. 241-5.
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- Fekete, Frank; and Mc Nally, John S., to Koppers Company, Inc. High temperature unsaturated polyester. 3,560,445, Cl. 260-75.
- Fekete, Lajos F.; and Shanbrom, Edward, to Baxter Laboratories, Inc. Prothrombin complex prepared by precipitation with polyethylene glycol. 3,560,475, Cl. 260-112.
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- Fersterberg, Charles, to Tenneco Chemicals, Inc. Method of regulating the upper surface contour of polyurethane foam. 3,560,599, Cl. 264-41.
- Fesco, John J., to Studley Paper Company, Inc. Vacuum cleaner filter bag. 3,559,381, Cl. 55-357.
- Fettweis, Alfred L. M., to International Standard Electric Corporation. Bandpass filter. 3,560,894, Cl. 333-72.
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- Finneman, Erwin F. Flexible cover positioning apparatus. 3,560,045, Cl. 296-137.
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- Firestone Tire & Rubber Company, The: *See—*
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- Fischer, Alvin M.; and Warmkessel, Harry J., to Mack Trucks, Inc. Fluid pressure regulating valve. 3,559,688, Cl. 137-627.5
- Fischer, Robert P., to Honeywell Inc. Apparatus for independently assigning time slot intervals and read-write circuits in a multiprocessor system. 3,560,937, Cl. 340-172.5
- Fishbein, Harry. Star wheel music box. 3,559,525, Cl. 84-98.
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Kohler, Werner; and Grunefeld, Hans-Joachim, to Siemens-Schuckertwerke Aktiengesellschaft. Vacuum interrupter with shunting main contact structure and series disconnecting contact structure. 3,560,682, Cl. 200-144.

Kohn, Gustave K.; and Warnock, Robert E., to Chevron Research Company. Normally liquid mixtures of elemental phosphorus and sulfur as plant nutrients. 3,560,191, Cl. 71-32.

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Korden, Maria A., to Hercules Incorporated. Hair-setting composition. 3,560,610, Cl. 424-72.

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- Lecuyer, Daniel, to Societe A.G.S., Societe Anonyme. Radioactive material handling and storage apparatus. 3,560,747. Cl. 250-106.
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- Lee, Charles A., and Furbeck, Warren E., to Appleton Wire Works Corporation, mesne. Fabric including a filler of greater area than the fabric. 3,559,810. Cl. 210-493.
- Lee, Chi-Long, to Dow Corning Corporation. Method of polymerizing organosilicon compounds using a nitro catalyst. 3,560,435. Cl. 260-46.5.
- Lee, David K. K.; and Wong, Don N., to Automatic Electric Laboratories, Inc. Traffic control for modifying the routing plan in a network of switching centers. 3,560,663. Cl. 179-18.
- Lee, Lawrence J. Snowmobile-toboggan hitch kit. 3,560,013. Cl. 280-19.
- Lee, Tsze K.; Winkler, Arthur; and Wong, Wai, to Loral Corporation. Broadband circularly polarized antenna having a continuous rectangular aperture. 3,560,984. Cl. 343-756.
- Lee, Yee, and Rauth, Robert W., to Bin-Dicator Company, The, mesne. Electrical-optical motion detector. 3,560,752. Cl. 250-214.
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- Leibfritz, Kurt W.; and Malnowski, Lester W., to Parker-Hannifin Corporation. Speed control valve for a fluid motor. 3,559,531. Cl. 91-26.
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- Lezan, Georges R. E., to General Electric Company. Means for protecting electric power converters from commutation failure. 3,560,836. Cl. 321-7.
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- Littman, Fred E., to McDonnell Douglas Corporation. Modified cellulose ester semi-permeable membrane and its method of manufacture. 3,560,232. Cl. 106-169.
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- semiconductor bodies having power connections internal thereto. 3,560,277. Cl. 148-175.
- Lockheed Aircraft Corporation: *See—*
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- Lockwood, Lynn L. Support boom to attach planar array antenna to mast. 3,560,987. Cl. 343-880.
- Lockwood, Peter, to Greenside Machine Company Limited. Machines for removing worn road surfaces. 3,560,050. Cl. 299-39.
- Lodge, John Ewart, to Imperial Chemical Industries Limited. Synthetic polyamides. 3,560,448. Cl. 260-78.
- Loeb, Julien M.: *See—*
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- Loeffler, Herbert H., to Amicon Corporation. Apparatus and process for filtering fluids. 3,560,377. Cl. 210-23.
- Loewy Robertson Engineering Company Limited: *See—*
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- Lofthouse, Fred R., to Caterpillar Tractor Company. Pendulum damper. 3,559,502. Cl. 74-574.
- Loftus, Joseph F.: *See—*
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- Logetronics Inc.: *See—*
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- Logothetopoulos, Jean N.: *See—*
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- Lohman, Harry C.; and Cooley, Irvin, to Trane Company, The. Integral fan-heat exchanger. 3,559,635. Cl. 126-110.
- Lohmann, Jorg: *See—*
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- Lohse, Robert Vincent; and Fowler, David George, to Johns-Manville Corporation. Facing wall construction. 3,559,358. Cl. 52-379.
- Lomker, Franz; Schmieder, Felix; and Rieber, Martin, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Sensor for measuring humidity. 3,559,456. Cl. 73-29.
- Lonaheger, Robert F.; and Stickler, Charles W., Jr., to Gray Tech Industries, Inc., mesne. Grinding wheel control system and apparatus. 3,560,826. Cl. 318-306.
- Long, Paul J., Jr., to General Motors Corporation. Viscous fluid clutch with cooling passage means. 3,559,786. Cl. 192-58.
- Loomis, Russell M.: *See—*
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- Loral Corporation: *See—*
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- Losacker, Paul: *See—*
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- Loshbough, Richard C., to Reliance Electric Company. Motor control having a feedback stabilized generator. 3,560,822. Cl. 318-146.
- Loucks, Arthur F. Temperature-actuated overhead door. 3,559,716. Cl. 160-9.
- Love, Charles E., to Hughes Aircraft Company. Line scanning system. 3,560,643. Cl. 178-6.8.
- Love, John J.: *See—*
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- Lovens Kemiske Fabrik Produktionsaktieselskab: *See—*
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- Lowe, David A. Modular building system. 3,559,357. Cl. 52-282.
- LTV Ling Altec, Inc.: *See—*
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- Lubrizol Corporation, The: *See—*
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- Lucas, Joseph, (Industries) Limited: *See—*
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- Lucas, Pierre M.; Duquesne, Jean F.; and Abraham, Charles E. Telephone service request scan and dial pulse scan device. 3,560,655. Cl. 179-18.
- Lucas, Pierre M.; Sautel, Auguste A.; and Choupik, Serge M. Switches with selection by co-ordinates. 3,560,691. Cl. 200-177.
- Lucasey, Joseph A. Article mounting means. 3,559,942. Cl. 248-278.
- Luce, Edward J.; and Weremey, Frederick J., to United-Carr Incorporated. Electrical switch with louvered panel mounting means. 3,560,690. Cl. 200-168.
- Luciani, Luciano; and Corsi, Gianfranco, to Montecatini Edison S.P.A. Process for improving the stereospecificity of catalytic components comprising TiCl₃. 3,560,146. Cl. 23-87.
- Ludlum, Raymond W.; and Warner, David F., to Ledex, Inc. Guarded position selector switch with stop position means. 3,560,672. Cl. 200-11.
- Ludwig, Albert R., to Zagar, Inc. Gearless multiple spindle drive. 3,559,495. Cl. 74-63.
- Luebke, Robert W., to General Standard Company. Railway bogie with snubbed bolster. 3,559,588. Cl. 105-197.
- Lueders, Robert W.; and Phillips, Washington H., to Armstrong Cork Company. Vacuum mold with Kerf insertion system. 3,560,335. Cl. 162-387.
- Lukacs, Jozsef, to Kozponti Fizikai Kutato Intezet. Digital channel selection apparatus. 3,560,939. Cl. 340-172.5.
- Lummus Company, The: *See—*
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- Lungo, Antonio; and Conley, Gordon J., to Clevite Corporation. Piezoelectric crystal mounting employing resilient partially conductive support pads. 3,560,772. Cl. 310-9.4.
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- Lynch Communication Systems Inc.: *See—*
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- Lyon, Robert J., to United States of America, Navy. Flooder assembly. 3,559,580. Cl. 102-13.
- Lyon, Zeno G., to International Telephone and Telegraph Corporation. Compact steerable antenna array. 3,560,985. Cl. 343-853.
- Lytton, Kenneth G., to Fiber Controls Corporation. Fiber cleaner. 3,559,804. Cl. 209-3.
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- M & T Chemicals Inc.: *See—*
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- Macander, Aleksander B.; and Chatten, Clarence K., to United States of America, Navy. Multiple retrieval system for objects in submarine environment. 3,559,607. Cl. 114-51.
- MacDonald, Eric; Nam, Billie; and Price, David, to Ilford Limited. Processing of colour photographic materials in the presence of a competing coupler. 3,560,212. Cl. 96-55.
- Mac Donald, John M., to Essc Research and Engineering Company. Transvinylation using mercuric acetate/perchloric acid catalyst. 3,560,534. Cl. 260-410.9.
- MacDuff, Stanley L.; and Cripe, Maxwell L. Travel servomotor. 3,559,532. Cl. 91-33.
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- Mackie, James, & Sons Limited: *See—*
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- Mackie, John K., to Mackie, James, & Sons Limited. Wound package. 3,559,917. Cl. 242-159.
- Macks, Fred; and Gold, Harold. Closures. 3,560,030. Cl. 287-20.3.
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- Macleay, Robert O.; and Whicker, Lawrence R., to Westinghouse Electric Corporation. Reflection phase shifter utilizing microstrip directional coupler. 3,560,891. Cl. 333-31.
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- Magid, Eugene A. Fabric-simulating laminated sheet structure and method for manufacturing the same. 3,560,322. Cl. 161-120.
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Magrath, Francis V., and Selman, Thomas George, to Gestetner Limited. Clamp including adjustable abutment means for attaching a flexible plate to a printing cylinder. 3,559,575, Cl. 101-415.1

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Valbjorn, Knud V.; Leffers, Hans Ulrik; Mahncke, Heinz; and Romer, Bendt Wegge. 3,560,116.

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Manuali, Bertrand Claude Marcel Jean, to Centre National d'Etudes Spatiales. Aircraft antenna system for aerial navigation. 3,560,975, Cl. 343-100.

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Marienhakh, Lev Mikhailovich: *See—*
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Markey, Joseph W.; and Camp, Ernest C., Jr., to Cities Service Company. Process for treating phosphate rock. 3,560,149, Cl. 23-165.

Marks, Charles F.; Werking, Richard F.; and Resener, Bird E., to Amsted Industries Incorporated. Attachment for link chains. 3,559,796, Cl. 198-173.

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Marx, Arthur F.; and Van Der Sijde, Dirk, to Koninklijke Nderlandsche Gist-en Spiritusfabriek N.V. Pregnane derivatives. 3,560,486, Cl. 260-239.55

Marxer, Adrian, to Ciba Corporation. Diphenyl-ureas, -thioureas, -guanidines and -parabanic acids. 3,560,557, Cl. 260-501.14

Marxer, Adrian, to Ciba Corporation. Diphenyl-ureas, -thioureas, -guanidines and -parabanic acids. 3,560,566, Cl. 260-565.

Marzolf, Richard T.; and Meddaugh, Kenneth L., to Dow Chemical Company, The. Method of preparing chloroethylene polymer film having a permanent, non-transferable high slip surface and an opposed low slip surface. 3,560,602, Cl. 264-95.

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Mason, Stanley L., Jr., to American Can Company. Disposable diaper. 3,559,648, Cl. 128-287.

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Matson, Arthur H., to Tektronix, Inc. Push-button switch having cam actuated spring contacts also acting as resilient support for push-button. 3,560,689, Cl. 200-167.

Matsumoto, Hiromi, to Toko Kabushiki Kaisha. Tuned transformer without tuning capacitor. 3,560,895, Cl. 333-76.

Matsumoto, Hisayuki: *See—*
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Matsumoto, Kaname: *See—*
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Matsumura, Toshiharu; and Tsunemitsu, Akira, to Takeda Chemical Industries, Ltd. Method of alleviating hypercitrinemia. 3,560,612, Cl. 424-94.

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Mattia, Michael, to Budd Company, The. Irregular shaped tubing formed by electrodeposition. 3,560,350, Cl. 204-9.

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Maul, Robert V., and Swalley, Everett L., to Cities Service Oil Company. Fluid sample injector for gas chromatograph. 3,559,703, Cl. 141-329.

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May, Homer L., to RCA Corporation. Shadow mask type color picture tube with a fine mesh flexible particle shield between the gun and target portions. 3,560,779, Cl. 313-70.

Mayberry, Bobby A.; and Ozias, Albert E., Jr., to Motorola, Inc. Method of reclaiming processed semiconductor wafers. 3,559,281, Cl. 29-575.

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McArthur, Colin Shaw; Beard, Hoyt Sturdivant; and Everhart, John Raymond, to Reynolds, R. J., Tobacco Company. Paperless cigarette filter and apparatus for manufacture thereof. 3,560,298, Cl. 156-376.

McArthur, Colin S., to Reynolds, R. J., Tobacco Company. System and method for electrically controlling a characteristic of a manufacturing flow process. 3,560,801, Cl. 317-137.

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McCarthy, James F., to Free Winds, Inc. Travel trailer construction. 3,560,042, Cl. 296-23.

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McConnell, William M.; Bradley, William H.; Chappell, Howard E.; Whitfield, George P.; and Carey, Raymond L., to Taylor-Wilson Manufacturing Company. Method and apparatus for handling elongated workpieces through a process area. 3,559,794, Cl. 198-19.

McCormick, James C., to FMC Corporation. Method of making a catalyst coated with samarium oxide. 3,560,407, Cl. 252-462.

McDermott, Richard B., and Richter, Hans H., to Leesona Corporation. High speed winding machine. 3,559,903, Cl. 242-18.

McDonald, Bruce A. Electrically heated coffee pot. 3,560,714, Cl. 219-502.

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McDowell, Joseph J., to International Business Machines Corporation. Pulse powered data storage cell. 3,560,764, Cl. 307-238.

McEvoy, Francis Joseph; and Allen, George Rodger, Jr., to American Cyanamid Company. Trifluoromethyl oxazepines, thiazepines and diazepines as anti-inflammatory agents. 3,560,622, Cl. 424-267.

McFarlane, Ian Duncan, to National Research Development Corporation. Superconducting dynamoelectric machine. 3,560,773, Cl. 310-10.

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Menasoff, George N., to Anaconda Wire and Cable Company. Temperature monitor. 3,559,726, Cl. 165-11.

Mendenhall, Charles A., to General Motors Corporation. Cigarette lighter for domestic appliances. 3,560,705, Cl. 219-265.

Merat, Kathleen G., to Philco-Ford Corporation. Glass metal sealing technique. 3,560,180, Cl. 65-23.

Merek & Co., Inc.: *See—*
Milkowski, John D.; Veber, Daniel F.; and Hirschmann, Ralph F. 3,560,521.
Rogers, Edward F.; and Clark, Robert L. 3,560,624.
Tull, Roger J.; Weinstock, Leonard M.; and Davis, Paul. 3,560,488.

Meri, Ilmar; and Dorsey, Richard J. Percussion tool. 3,559,753, Cl. 173-137.

Merritt, James A., to Glass Reinforced Engineered Materials, Inc., mesne. Apparatus for molding plastic. 3,559,236, Cl. 18-5.

Merten, Rudolf: *See—*
Zecher, Wilfried; and Merten, Rudolf. 3,560,446.

Messerschmitt-Bolkow GmbH: *See—*
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Mesta Machine Company: *See—*
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Metalife Company, The: *See—*
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Metallgesellschaft Aktiengesellschaft: *See—*
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Metropolitan Sanitary District of Greater Chicago: *See—*
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Meyer, Arnold F.; Wieschel, John E.; and Hansen, Leslie F., to Heil Co., The. Refuse body loading mechanism. 3,559,825, Cl. 214-83.3

Meyer, Carl-Ludwig: *See—*
Durrwachter, Eugen; Meyer, Carl-Ludwig; Harmsen, Ulf; and Pottken, Wolfgang. 3,560,170.

Meyer, Gerhard: *See—*
Schopf, Albert; and Meyer, Gerhard. 3,560,453.
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Meyer, Larry P., to Nelson, L. R., Mfg. Co., Inc. Sprinkler head. 3,559,887, Cl. 239-233.

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Meyhr, Ernst; Grimm, Wolfgang; Grilach, Klaus; and Linhart, Helmut, to Glanzstoff AG. Process and apparatus for mixing a pigment dispersion into a polyamide melt. 3,560,430, Cl. 260-37.

Micro-Minature Paste Corporation: *See—*
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Middleton, Charles Gale, to Stromberg Hydraulic Brake and Coupling Company. Distribution valve. 3,560,058, Cl. 303-84.

Middleton, John C.: *See—*
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Midland Industries Limited: *See—*
Postins, John G.; and Stanley R. 3,559,520.

Miida, Itsuro: *See—*
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Miinch, Robert B.: *See—*
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Miklaszewski, Edwin P., to Sperry Rand Corporation. Method for bonding the flip-chip to a carrier substrate. 3,559,279, Cl. 29-493.

Miklos, Louis F. Lawn sprinkler with flexible nozzle. 3,559,888, Cl. 239-242.

Miles, Tony Frederick, to Newage Lyon Limited. 3,559,266, Cl. 29-203.

Milkowski, John D.; Veber, Daniel F.; and Hirschmann, Ralph F., to Merck & Co., Inc. Blocking groups for cysteine containing peptides. 3,560,521, Cl. 260-326.3

Mille, Edwin J., to General Motors Corporation. Hypoeutectic gay ion bake membe composition. 3,559,775, Cl. 188-251.

Milleker, William; and Sekula, Ronald J., to Motorola, Inc. Electronic sensing system for selectively energizing and de-energizing apparatus. 3,560,861, Cl. 328-74.

Miller, Donald L., to Bendix Corporation, The. Electric overload clutch. 3,559,784, Cl. 192-56.

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Miller, Harold E., to Curbmaster of America, Inc. Quick crown change for screeds and the like. 3,559,544, Cl. 94-45.

Miller, Lewis S., to Weyerhaeuser Company. Process of curing polymerizable resins having terminal vinyl ester groups using high energy electrons. 3,560,237, Cl. 117-93.31.

Miller, Max W., to Pfizer, Chas., & Co., Inc. 2-Phenyl-as-triazine-3,5-(2H,4H) diones. 3,560,497, Cl. 260-248.

Miller, Michael Robert, to Postmaster General, Her Majesty's. Frequency control of oscillators. 3,560,869, Cl. 331-2.

Miller, Walter A.; and Allen, Ivey, Jr., to Union Carbide Corporation. Fibrous pulp containing partially hydrolyzed polyvinyl acetate. 3,560,318, Cl. 161-82.

Miller, Walter N., to Schwab Safe Co., Inc. Fire resistant safe. 3,559,594, Cl. 109-84.

Millet, Jacques J. M.: *See—*
Tamise, Louis L. T.; and Millet, Jacques J. M., 3,560,148.

Millmaster Onyx Corporation: *See—*
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Mills, Edgar C., Jr.: *See—*
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Mills, Walter H., to Anchor Hocking Corporation. Laminate comprising a ceramic layer, a polytetrafluoroethylene coating layer and a bonding layer of low thermal expansion solder glass. 3,560,327, Cl. 161-189.

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Billetdeaux, Adrian C.; and Strange, John P., 3,560,736.

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Minkler, Jackson D., to PPG Industries, Inc. Fiber producing apparatus with break out control means. 3,560,178, Cl. 65-11.

Minnesota Mining and Manufacturing Company: *See—*
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Haas, Theodore A.; and Alexander, Collin H., 3,559,578.

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Sagawa, Burt K., 3,559,577.

Miranda, Michael P. Toothbrush with integral dentifrice container. 3,560,103, Cl. 401-278.

Mishkin, Sidney: *See—*
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Misik, Albert V., to Belco Engineering, Inc. Machine for packaging newspapers. 3,559,367, Cl. 53-74.

Miskus, Raymond P.; and Andrews, Theresa Litwin, to United States of America, Agriculture. Stabilization of pyrethroid compositions. 3,560,613, Cl. 424-174.

Missioux, Jean Leon. Shaping drum for the manufacture of tire casings. 3,560,302, Cl. 156-415.

Mitchell, Joseph L., to Texas Tag & Specialty Co. Tag for cotton bales. 3,559,323, Cl. 40-305.

Mitsubishi Chemical Industries Limited: *See—*
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Mitsubishi Electric Corporation: *See—*
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Mittelstadt, Gerald D.: *See—*
Lefler, Clarence Arthur; and Mittelstadt, Gerald D., 3,560,201.

Mittleman, Myron Budd, to Armour Pharmaceutical Company. Diagnostic device. 3,560,162, Cl. 23-253.

Mittleman, Myron Budd, to Armour Pharmaceutical Company. Diagnostic device. 3,560,163, Cl. 23-253.

Mitsche, Hans-Georg: *See—*
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Miura, Takeo; and Iwata, Junzo, to Hitachi, Ltd., and Hitachi Electronics Company, Ltd. Signal conversion systems with storage and correction of quantization error. 3,560,957, Cl. 340-347.

Miyake, Hideo, to Kabushiki Kaisha Komatsu Seisakusho (Komatsu Mfg., Ltd.). Sealing device for a hinge joint of endless track links. 3,560,059, Cl. 305-11.

Miyake, Shunji: *See—*
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Miyano, Masateru, to Searle, G. D., & Co. 3-Oxygenated 2-methyl-5-oxocyclopent-1-eneheptanoic acids and esters thereof. 3,560,552, Cl. 260-468.

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Mkami, Takeshi, to Fuji Photo Film Co., Ltd. PPG Industries, Inc. Method of making a laminated photographic light-sensitive element. 3,560,288, Cl. 156-229.

Moan, Richard D., to Ford Motor Company. Torque converter stator blade pitch control circuit. 3,559,404, Cl. 60-54.

Mobil Oil Corporation: *See—*
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Mod, William A.; Newport, John J., III; and Osborn, Oliver, to Dow Chemical Company, The. Separation of magnesium and carbon monoxide vapors. 3,560,198, Cl. 75-67.

Moffett, Robert B., to Upjohn Company, The. 0-(1-Adamantanecarbonyl)-scopolamine. 3,560,509, Cl. 260-292.

Moller, Werner; and Dreher, Walter, to Maschinenfabrik Oerlikon. Electric motor coil bandage. 3,560,777, Cl. 310-270.

Molloy, Peter E., deceased (by Molloy, Elizabeth A., executrix); Pienkowski, Edward C.; Shepard, James B.; and Swanson, Richard M., to Bell Telephone Laboratories, Incorporated. Trunk usage recording and call charging equipment. 3,560,658, Cl. 179-8.6.

Molt, Otto P. Bed frame with a built-in spring core. 3,559,219, Cl. 5-247.

Molt, Otto P. Flat spring arrangement for use on a spring wire mesh. 3,559,978, Cl. 267-144.

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Monsanto Chemicals Limited: *See—*
Chilton, Henry Thomas Joseph, 3,560,400.

Monsanto Company: *See—*
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Baker, Joseph W.; and Schumacher, Ignatius, 3,560,548.

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Bonvicini, Alberto; and Cantatore, Giuseppe, 3,560,594.

Luciani, Luciano; and Corsi, Gianfranco, 3,560,146.

Perri, Giovanni; Tubiello, Giuseppe; and Palombella, Gaetano, 3,559,377.

Montone, Liber J., to Western Electric Company, Incorporated. Superimposed common carrier mask inspection system. 3,560,093, Cl. 356-166.

Moore, Alvin Edward. Crashproof light-weight vehicle. 3,559,920, Cl. 244-5.

Moore, Alvin Edward. Crash-resistant helicopter. 3,559,923, Cl. 244-17.11.

Moore, Earl P., Jr., to Du Pont de Nemours, E. I., and Company. Preparation of foamed aluminum salt-fiber compositions. 3,560,231, Cl. 106-122.

Moore, James C., to Portland Wire & Iron Works. Shock cushioning mounting means for canopies on heavy equipment. 3,560,019, Cl. 280-150.

Moore, James O., to Sprague Electric Company. High speed logic element. 3,560,766, Cl. 307-291.

Moore, Robert A.; and Buck, Daniel C., to Westinghouse Electric Corporation. Multiplexing device having tunable ferromagnetic resonators interposed between two out-of-phase transmission lines. 3,560,884, Cl. 333-6.

Moore, Robert S., to Bell Telephone Laboratories, Incorporated. Method of reclaiming tantalum from tantalum substrates having oxides of tantalum thereon. 3,560,259, Cl. 134-41.

Morane Plastic Company Limited: *See—*
Bolton, Brian Albert, 3,560,310.

Moreines, Harold: *See—*
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Mori, Hirosaburo: *See—*
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Mori, Kazuo: *See—*
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Morin, Robert B., to Lilly, Eli, and Company. 7-a-Aminoacyl cephalosporins. 3,560,489, Cl. 260-243.

Morin, Theodore Joseph, Jr., to Industrial Magnetics, Inc. Magnetic welding and forming. 3,560,693, Cl. 219-9.5.

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Morita, Tadao, to Omron Tateisi Electronics Co. Automatic ticket examining system and gate control system. 3,560,932, Cl. 340-149.

Morkovin, Nikolai Viktorovich: *See—*
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Morley, George Sherman, to Dominion Road Machinery Co., Limited, The. Power clutch-operated ratio-changing mechanism for hydro-mechanical transmission system. 3,559,682, Cl. 137-596.15.

Morrill, Charles D., to Rockwell Manufacturing Company. Removable guide base. 3,559,754, Cl. 175-7.

Morris, Eugene B., Jr.: *See—*
Hull, Gerry G.; and Morris, Eugene B., Jr., 3,559,365.

Morris, Nate. Rod guide and centralizer. 3,560,060, Cl. 308-4.

Morton, Harold, to Oldham and Son Limited. Electric hand lamp. 3,560,730, Cl. 240-10.63.

Morvuc, Inc.: *See—*
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Mory, Rudolf; and Mueller, Willy, to Ciba Limited. Phenyl-az-naphthoic acid arylide pigments. 3,560,477, Cl. 260-203.

Mosinee Paper Mills Company: *See—*
Crandall, Henry C.; and Bowers, Alan R., 3,560,332.

Moss, David H. Body-worn all disposable urinal. 3,559,651, Cl. 128-295.

Moss, John I., Inc.: *See—*
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Moss, John I.; Wright, Fred R.; and Jaskiewicz, Walter, to Moss, John I., Inc. Pulse actuated speed responsive system. 3,560,854, Cl. 324-174.

Mossford, Eugene W., to ESB Incorporated. Battery safety filling device. 3,560,266, Cl. 136-177.

Motiva Ltd.: *See—*
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Motor Wheel Corporation: *See—*
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Motorola, Inc.: *See—*
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Mrkvička, Jaroslav, to Vyzkumny ustav matematickych stroju. Error checking circuit for digitally controlled printers. 3,560,926, Cl. 340-146.1.

M&T Chemicals Inc.: *See—*
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Mueckter, Heinrich: *See—*
Frankus, Ernst; Mueckter, Heinrich; Herrling, Siegfried; Otto, Franz; and Boehlke, Horst, 3,560,495.

Mueller, Curt: *See—*
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Mueller, Walter Adolf, to Pulp and Paper Research Institute of Canada. Corrosion protection of pipelines. 3,560,365, Cl. 204-196.

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Muller, Alf John, to Daimler-Benz Aktiengesellschaft. Rubber metal collar end-bearing. 3,559,979, Cl. 267-152.

Muller, Anton; and Witzel, Gunter, to Eisen-und Drahtwerk Erlau Aktiengesellschaft. Closure member for anti-skid tire chains. 3,559,713, Cl. 152-243.

Muller, Ernest. Gate valve. 3,559,949, Cl. 251-203.

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Muller, Hellmut. Movement braking means for a device operating on work pieces. 3,559,509, Cl. 77-1.

Multiple Access General Computer Corporation: *See—*
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Mundell, Clyde S. Grade averaging device. 3,559,305, Cl. 35-48.

Muno, Haison, to Pines Engineering Co., Inc. Hydraulic actuator control circuit. 3,559,534, Cl. 91-363.

Munson, William A., to Westinghouse Electric Corporation. System for automating blast furnace scale car. 3,559,820, Cl. 214-2.

Munton, Edward A.; and Acres, Alan Birt, to Vigil Security Limited. Security container. 3,559,593, Cl. 109-25.

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Murray, Gregory J.; and Tarrant, Frederick K., Sr., to Tarrant Manufacturing Company. Material spreading apparatus with interchangeable material conveyor assemblies. 3,559,894, Cl. 239-672.

Muskat, Josef, to Passavant Werke. Method and apparatus for treating water. 3,560,379, Cl. 210-49.

Muskopf, Billy J.; and Edwards, Arthur T., III, to Crown Zellerbach Corporation. Multi-ply container. 3,559,867, Cl. 229-14.

Myers, Charles Frank: *See—*
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Myers, Terrell C. Analogues of nucleoside phosphates. 3,560,478, Cl. 260-211.5.

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Webb, James E., Administrator of the National Aeronautics and Space Administration with respect to an invention of; Clark, James; Soffen, Gerald A.; and Stuart, Jerry L., 3,560,161.

Nagata, Masanori: *See—*
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Nagata, Minoru, to Hitachi, Ltd. Optoelectronic amplifier. 3,560,750, Cl. 250-199.

Nagus, Wilfred; and Bell, Steven A., to Puritan-Bennett Corporation. Spirometer monitoring device. 3,559,639, Cl. 128-2.08.

Nagy, Joseph, to S-P Manufacturing Corporation, The. Fluid actuator construction. 3,559,539, Cl. 92-128.

Naito, Ryochi; and Yamaji, Osamu, to Green Cross Corporation, The. Apparatus for blood plasma separation. 3,559,880, Cl. 233-26.

Nakagawa, Kiyoshi; Kashima, Yoshitake; and Fukuda, Teruo, to Hitachi, Ltd. Tapped autotransformer voltage regulator wherein an auxiliary transformer compensates for fluctuating voltage. 3,560,843, Cl. 323-43.5.

Nakahara, Tsuneo; Shimizu, Yasuo; and Kosaka, Yuji, to Sumitomo Electric Industries, Ltd. Pulse regenerating repeater. 3,560,857, Cl. 325-38.

Nakayama, Kiyoshi; and Tanaka, Haruo, to Kyowa Hakko Kogyo Co., Ltd. Process for producing orotidylic acid. 3,560,342, Cl. 195-28.

Nalle, George S., Jr. Apparatus for making overlapping ribbon mesh. 3,560,306, Cl. 156-500.

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Nanny, William C.; and Squire, Russell D., to Residential Lighting Sales Company. Luminous stretch panel. 3,560,317, Cl. 161-43.

Napoli, Louis Sebastian; and Hughes, John Joseph, to RCA Corporation. Directional filter comprising a resonant loop coupled to a transmission line pair. 3,560,887, Cl. 333-10.

Narsted, John, to Kennedy Van Saun Corporation. Floating pinion mounting for reduction gear units. 3,559,498, Cl. 74-410.

National Cash Register Company, The: *See—*
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National Research Development Corporation: *See—*
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National Semiconductor Corporation: *See—*
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Navarro, Bernard J. Turbo supercharger control mechanism. 3,559,397, Cl. 60-13.

Nazare, Edgar. Remote controlled illuminated displays. 3,561,008, Cl. 340-379.

Neale, Abas Beaucan. Two-stage, vortex-type centrifugal compressor or pump. 3,560,104, Cl. 415-83.

Neeff, Charles W. Process for making plastic multifocal lenses. 3,560,598, Cl. 264-1.

Neilson, Roger L. Self-bleeding, self-circulating braking system. 3,559,405, Cl. 60-54.4.

Nelson, Cecil R., to Owens-Illinois, Inc. Process for regenerating an acid bath. 3,560,281, Cl. 156-24.

Nelson, Donald R., to Goddard Industries, Inc. Valve. 3,559,950, Cl. 251-214.

Nelson, Hugh Wharton; and Bozzuto, Carl R., to Combustion Engineering, Inc. Process for low sulfide chemical recovery. 3,560,329, Cl. 162-30.

Nelson, L. R., Mfg., Co., Inc.: *See—*
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Nelson, Lloyd Alexander. Labelling machine for cylindrical containers. 3,560,303, Cl. 156-453.

Nelson, Marcus L., to King-Seeley Thermos Co. Ice making apparatus. 3,559,424, Cl. 62-347.

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Nesbitt, Ethan A.; Wernick, Jack H.; and Willens, Ronald H., to Bell Telephone Laboratories, Incorporated. Permanent magnetic materials. 3,560,200, Cl. 75-122.

Neuhaus, Hans Wilhelm, to U.S. Philips Corporation, mesne Method of manufacturing magnetic store arrangements. 3,559,284, Cl. 29-604.

Neuman, Walter G.: *See*—
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Neuman, Willard C.: *See*—
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Neumann, Gerhard Max, to Delbag Luftfilter G.m.b.H. Roller band air filter assembly, 3,559,380, Cl. 55-354.

Neumann, Gerhard Max, to Delbag Luftfilter G.m.b.H. Casing for the reception of air filters, 3,559,691, Cl. 138-92.

Neuroth, Charles G., to Stauffer Chemical Company, Method for bonding curable modified organopoly-siloxanes to a substrate and article produced thereby, 3,560,244, Cl. 117-71.

Neville, Richard G., to International Machines Corporation, Circuitry to improve resolution in character recognition, 3,560,931, Cl. 340-146.3

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Nichols, William M.: *See*—
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Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, S69 O. G. 687.

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33	: 3,559,618	171	: 3,560,275	128	: 3,559,752		: 3,560,679	413	: 3,560,711	159	: 3,559,917
104	: 3,559,619		: 3,560,276	137	: 3,559,753	.45	: 3,560,680	483	: 3,560,712	198	: 3,559,918
222	: 3,559,622	175	: 3,560,277	174-51	: 3,560,630		: 3,560,681	491	: 3,560,713	244-1	: 3,559,919
637	: 3,559,620	187	: 3,560,278	113	: 3,560,631	144	: 3,560,682	502	: 3,560,714	5	: 3,559,920
119-81	: 3,559,621	188	: 3,560,279	138	: 3,560,632		: 3,560,685	502	: 3,560,714	12	: 3,559,921
122-6.5	: 3,559,623	150-1	: 3,559,708	175-7	: 3,559,754	146	: 3,560,683	19	: 3,559,836	17.11	: 3,559,923
235	: 3,559,624	.5	: 3,559,709	176-38	: 3,560,636	150	: 3,560,684	32	: 3,559,837	.17	: 3,559,922
406	: 3,559,625	151-69	: 3,560,132	52	: 3,560,637	166	: 3,560,686	34	: 3,559,838	46	: 3,559,924
299	: 3,559,626	152-176	: 3,559,710	59	: 3,560,638		: 3,560,687	40	: 3,559,839	50	: 3,559,925
487	: 3,559,627	209	: 3,559,711	76	: 3,560,639		: 3,560,688	44	: 3,559,840	56	: 3,559,926
123-61	: 3,559,628		: 3,559,712	178-4	: 3,560,633	167	: 3,560,689	46	: 3,559,841	115	: 3,559,927
148	: 3,559,629	243	: 3,559,713	5.1	: Re.27.046	168	: 3,560,690	54	: 3,559,842	121	: 3,559,928
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126-38	: 3,559,633	69	: 3,560,282		: 3,560,637	141	: 3,560,348	222-55	: 3,559,846	151	: 3,559,932
110	: 3,559,635		: 3,560,283		: 3,560,638	204-9	: 3,560,349	107	: 3,559,847	248-59	: 3,559,930
299	: 3,559,636	72	: 3,560,284	6	: 3,560,639		: 3,560,350	135	: 3,559,848	74	: 3,559,933
128-2	: 3,559,637	79	: 3,560,285	.6	: 3,560,640	15	: 3,560,351	143	: 3,559,849	121	: 3,560,934
	: 3,559,638	132	: 3,560,286		: 3,560,641	32	: 3,560,352	146	: 3,559,850	125	: 3,559,935
	: 3,559,639	218	: 3,560,287	.8	: 3,560,642	68	: 3,560,353	402.2	: 3,559,851	179	: 3,559,936
66	: 3,559,634	219	: 3,560,289		: 3,560,643	80	: 3,560,354	80	: 3,559,852	183	: 3,559,937
94	: 3,559,640	227	: 3,560,290		: 3,560,644	99	: 3,560,355	99	: 3,559,853	188	: 3,559,938
130	: 3,559,641	229	: 3,560,288	7.1	: 3,560,645	141	: 3,560,356	28	: 3,559,854	210	: 3,559,939
142.5	: 3,559,642		: 3,560,291		: 3,560,646	143	: 3,560,357	225-2	: 3,559,855	216	: 3,559,940
214	: 3,559,644		: 3,560,292	.2	: 3,560,647		: 3,560,358	10	: 3,559,856	228	: 3,559,941
.4	: 3,559,643	245	: 3,560,293	.3	: 3,560,648	147	: 3,560,359	56	: 3,559,857	278	: 3,559,942
216	: 3,559,645	276	: 3,560,294	.5	: 3,560,649	158	: 3,560,361	102	: 3,559,858	361	: 3,559,943
270	: 3,559,646	287	: 3,560,295		: 3,560,650	159.22	: 3,560,362	19	: 3,559,859	249-36	: 3,559,944
276	: 3,559,647	306	: 3,560,297	.6	: 3,560,651	162	: 3,560,363	97	: 3,559,860	250-41.9	: 3,560,734
287	: 3,559,648	308	: 3,560,296	34	: 3,560,652	181	: 3,560,360	168	: 3,559,861	43.5	: 3,560,735
290	: 3,559,649	351	: 3,560,299	179-1	: 3,560,653	192	: 3,560,364	195	: 3,559,862		: 3,560,736
	: 3,559,650	376	: 3,560,298	5	: 3,560,657	196	: 3,560,365	227-152	: 3,559,863		: 3,560,737
295	: 3,559,651	382	: 3,560,300	7.1	: 3,560,658	212	: 3,560,366	228-56	: 3,559,864		: 3,560,738
334	: 3,559,652	401	: 3,560,301	15	: 3,560,653	206-1	: 3,561,004	229-2.5	: 3,559,865	49.5	: 3,560,739
498	: 3,559,653	415	: 3,560,302		: 3,560,654	5	: 3,559,798	7	: 3,559,866	61	: 3,560,740
519	: 3,559,654	453	: 3,560,303		: 3,560,659	45.34	: 3,559,799	14	: 3,559,866	66	: 3,560,741
131-2	: 3,559,655	470	: 3,560,304		: 3,560,660	46	: 3,559,800	31	: 3,559,869	71.5	: 3,560,742
17	: 3,559,656	498	: 3,560,305	18	: 3,560,655	51	: 3,559,801	38	: 3,559,870	83	: 3,560,744
132-5	: 3,559,657	500	: 3,560,306		: 3,560,661	56	: 3,559,802	31	: 3,559,871	4	: 3,560,745
33	: 3,559,658	516	: 3,560,307		: 3,560,662	66	: 3,559,803	39	: 3,559,872	.6	: 3,560,746
134-41	: 3,560,259	522	: 3,560,308		: 3,560,663	208-11	: 3,560,367	51	: 3,559,873	106	: 3,560,747
45	: 3,559,659	528	: 3,560,309		: 3,560,664		: 3,560,368	54	: 3,559,874		: 3,560,748
135-20	: 3,559,660	552	: 3,560,310	100.11	: 3,560,666		: 3,560,369	69	: 3,559,875	108	: 3,560,749
136-3	: 3,560,260	557	: 3,560,311	2	: 3,560,665		: 3,560,371		: 3,559,875	199	: 3,560,750
6	: 3,560,261	583	: 3,560,312		: 3,560,667	48	: 3,560,372	87	: 3,559,877	214	: 3,560,751
76	: 3,560,262	157-1	: 3,559,715		: 3,560,668	111	: 3,560,370	232-15	: 3,559,877		: 3,560,752
86	: 3,560,263	160-9	: 3,559,716		: 3,560,669	262	: 3,560,373	35	: 3,559,878		: 3,560,753
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137-1	: 3,559,662	41	: 3,560,316		: 3,559,758	74	: 3,559,806	74	: 3,559,882	219	: 3,560,757
5	: 3,559,663	43	: 3,560,317		: 3,559,759	210-7	: 3,560,376	23	: 3,560,377	226	: 3,560,758
13	: 3,559,664	82	: 3,560,318		: 3,559,760		: 3,560,378	23	: 3,560,378	251-61.2	: 3,559,945
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53	: 3,559,666	93	: 3,560,320		: 3,559,762	49	: 3,560,379	49	: 3,560,379	129	: 3,559,946
54	: 3,559,667	119	: 3,560,321		: 3,559,763	68	: 3,559,807	68	: 3,559,807	147	: 3,559,947
73	: 3,559,668	120	: 3,560,322	184-7	: 3,559,765	86	: 3,559,808	86	: 3,559,808	174	: 3,559,948
102	: 3,559,669	139	: 3,560,323	55	: 3,559,764	333	: 3,559,809	333	: 3,559,809	203	: 3,559,949
110	: 3,559,670	162	: 3,560,324	185-39	: 3,559,766	484	: 3,560,311	484	: 3,560,311	214	: 3,559,950
155	: 3,559,671	165	: 3,560,325	187-1	: 3,559,767	493	: 3,559,810	493	: 3,559,810	347	: 3,559,952
	: 3,559,672	189	: 3,560,327	188-1	: 3,559,769	512	: 3,559,811	512	: 3,559,811	352	: 3,559,953
218	: 3,559,673	251	: 3,560,328		: 3,559,770	197	: 3,560,326	197	: 3,560,326	357	: 3,559,954
375	: 3,559,674	162-30	: 3,560,329		: 3,559,771	211-60	: 3,559,812	211-60	: 3,559,812	361	: 3,560,381
436	: 3,559,675	66	: 3,560,330	71.8	: 3,559,772	89	: 3,559,813	89	: 3,559,813	8.1	: 3,560,382
489	: 3,559,676	76	: 3,560,331		: 3,559,773	135	: 3,559,814	135	: 3,559,814	9	: 3,560,382
505.13	: 3,559,677	161	: 3,560,332		: 3,559,774	184	: 3,559,815	184	: 3,559,815	34.7	: 3,560,383
535	: 3,559,678	206	: 3,560,333		: 3,559,775	212-21	: 3,559,816	80	: 3,559,884	46.7	: 3,560,384
554	: 3,559,679	266	: 3,560,334		: 3,559,776	35	: 3,559,817	93	: 3,559,885	49.6	: 3,560,385
563	: 3,559,680	387	: 3,560,335		: 3,559,777	213-8	: 3,559,818	93	: 3,559,885	56	: 3,560,386
594	: 3,559,681	164-114	: 3,559,718		: 3,559,778	233	: 3,559,887	233	: 3,559,887	62.54	: 3,560,387
596.15	: 3,559,682	273	: 3,559,719		: 3,559,779	242	: 3,559,888	242	: 3,559,888	95	: 3,560,388
612.1	: 3,559,683		: 3,559,720		: 3,559,780	251	: 3,559,889	251	: 3,559,889	107	: 3,560,390
625.17	: 3,559,684	304	: 3,559,721		: 3,559,781	304	: 3,559,890	304	: 3,559,890	135	: 3,560,391
.6	: 3,559,685	165-1	: 3,559,722		: 3,559,782	443	: 3,559,891	443	: 3,559,891	152	: 3,560,392
.64	: 3,559,686	2	: 3,559,723		: 3,559,783	533	: 3,559,892	533	: 3,559,892	186	: 3,560,394
69	: 3,559,687		: 3,559,724		: 3,559,785	664	: 3,559,893	664	: 3,559,893	187	: 3,560,395
627.5	: 3,559,688	7	: 3,559,725		: 3,559,786	672	: 3,559,894	672	: 3,559,894	187	: 3,560,395
	: 3,559,689	11	: 3,559,726		: 3,559,787	86	: 3,559,895	86	: 3,		

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219,802	D15- 1 : 219,812	D34- 5 : 219,822	D43- 7 : 219,832	D64- 10 : 219,842	D81- 4 : 219,852
D 2-320 : 219,803	8 : 219,813	219,823	D44- 1 : 219,833	D71- 1 : 219,843	D83- 8 : 219,853
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D 9-237 : 219,805	D23- 40 : 219,815	219,825	D49- 11 : 219,835	D72- 1 : 219,845	D87- 5 : 219,855
285 : 219,806	97 : 219,816	219,826	D52- 2 : 219,836	219,846	D88- 3 : 219,856
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CLASSIFICATION OF PLANTS

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3,559,858	3,559,481	3,560,064	3,560,765	3,560,396	3,559,764
2 : 3,559,328	3,559,492	3,560,077	3,560,780	3,560,443	3,559,782
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5 : 3,560,802	3,559,655	3,560,277	3,560,956	3,560,409	3,559,312
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3,559,238	3,559,739	3,560,381	3,560,986	3,560,610	3,559,383
3,559,246	3,559,756	3,560,388	3,560,986	3,560,616	3,559,414
3,559,251	3,559,762	3,560,428	3,560,986	3,560,610	3,559,383
3,559,246	3,559,756	3,560,388	3,560,986	3,560,616	3,559,414
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3,559,416	3,559,987	3,560,643	3,560,986	3,560,640	3,559,434
3,559,417	3,560,011	3,560,643	3,560,986	3,560,640	3,559,434
3,559,418	3,560,027	3,560,643	3,560,986	3,560,640	3,559,434

17 : 3,559,788 3,559,808 3,559,817 3,559,818 3,559,827 3,559,835 3,559,841 3,559,842 3,559,847 3,559,849 3,559,865 3,559,887 3,559,890 3,559,893 3,559,938 3,559,969 3,559,989 3,560,002 3,560,007 3,560,025 3,560,031 3,560,036 3,560,040 3,560,042 3,560,058 3,560,113 3,560,162 3,560,163 3,560,222 3,560,223 3,560,225 3,560,228 3,560,240 3,560,340 3,560,343 3,560,376 3,560,386 3,560,426 3,560,463 3,560,478 3,560,492 3,560,518 3,560,519 3,560,533 3,560,538 3,560,552 3,560,569 3,560,587 3,560,630 3,560,650 3,560,652 3,560,653 3,560,663 3,560,667 3,560,678 3,560,709 3,560,719 3,560,720 3,560,834 3,560,854 3,560,861 3,560,897 3,560,898 3,560,943 3,560,973 3,560,981 3,559,217 3,559,249 3,559,366 3,559,406 3,559,420 3,559,508 3,559,532 3,559,590 3,559,594 3,559,631 3,559,785 3,559,796 3,559,871 3,559,888 3,559,943 3,559,998 3,560,034 3,560,065 3,560,107 3,560,263 3,560,265 3,560,489 3,560,535 3,560,575 3,560,619 3,560,623 3,560,832 3,560,979 3,560,993 3,559,689 3,559,707 3,559,746 3,560,899 3,560,987 3,559,339 3,559,587 3,559,737 3,559,944 3,560,295 3,560,311	20 : 3,560,704 3,559,838 3,559,226 3,559,426 3,559,603 3,559,628 3,559,889 3,559,999 3,560,319 3,560,561 3,560,632 3,559,326 3,559,332 3,559,612 3,560,160 3,560,537 3,559,579 3,559,218 3,559,342 3,559,348 3,559,355 3,559,379 3,559,430 3,559,433 3,559,541 3,559,580 3,559,588 3,559,646 3,559,836 3,559,875 3,559,897 3,560,081 3,560,196 3,560,236 3,560,423 3,560,604 3,560,642 3,560,724 3,560,799 3,560,849 3,560,880 3,560,884 3,560,886 3,560,891 3,560,912 3,560,927 3,560,949 3,560,972 3,560,995 3,559,210 3,559,276 3,559,308 3,559,311 3,559,364 3,559,396 3,559,428 3,559,451 3,559,460 3,559,510 3,559,556 3,559,600 3,559,624 3,559,627 3,559,636 3,559,883 3,559,950 3,559,959 3,560,073 3,560,076 3,560,171 3,560,176 3,560,230 3,560,238 3,560,284 3,560,328 3,560,377 3,560,424 3,560,627 3,560,669 3,560,690 3,560,693 3,560,761 3,560,766 3,560,787 3,560,807 3,560,821 3,560,824 3,560,829 3,560,866 3,560,876 3,560,888 3,560,913 3,560,914 3,560,924 3,560,933 3,560,937 3,559,689 3,559,707 3,559,746 3,560,899 3,560,987 3,559,339 3,559,587 3,559,737 3,559,944 3,560,295 3,560,311	26 : 3,559,447 3,559,450 3,559,467 3,559,468 3,559,474 3,559,479 3,559,500 3,559,511 3,559,513 3,559,515 3,559,518 3,559,529 3,559,535 3,559,553 3,559,582 3,559,585 3,559,586 3,559,606 3,559,659 3,559,667 3,559,681 3,559,709 3,559,714 3,559,725 3,559,745 3,559,760 3,559,775 3,559,777 3,559,780 3,559,798 3,559,848 3,559,912 3,559,935 3,559,940 3,559,941 3,559,984 3,559,988 3,560,010 3,560,016 3,560,018 3,560,044 3,560,048 3,560,056 3,560,061 3,560,078 3,560,094 3,560,102 3,560,156 3,560,166 3,560,227 3,560,244 3,560,245 3,560,255 3,560,314 3,560,339 3,560,385 3,560,394 3,560,435 3,560,436 3,560,437 3,560,438 3,560,469 3,560,509 3,560,514 3,560,515 3,560,520 3,560,525 3,560,542 3,560,543 3,560,544 3,560,546 3,560,564 3,560,577 3,560,580 3,560,600 3,560,601 3,560,602 3,560,695 3,560,752 3,560,803 3,560,817 3,560,818 3,560,820 3,560,823 3,560,918 3,560,920 3,560,921 3,560,951 3,560,955 3,560,959 3,559,424 3,559,540 3,559,561 3,559,577 3,559,578 3,559,652 3,559,771 3,559,823 3,560,013 3,560,066 3,560,172 3,560,214 3,560,219 3,560,264 3,560,447 3,560,737	27 : 3,560,796 3,560,871 3,560,930 3,560,946 3,560,950 3,559,475 3,559,920 3,559,923 3,560,074 3,560,402 3,559,376 3,559,611 3,559,761 3,559,884 3,559,977 3,560,022 3,560,109 3,560,289 3,560,380 3,560,548 3,560,969 3,559,565 3,559,898 3,559,409 RE:27,047 RE:27,048 3,559,213 3,559,233 3,559,256 3,559,257 3,560,985 3,559,273 3,559,297 3,559,301 3,559,317 3,559,358 3,559,393 3,559,412 3,559,461 3,559,464 3,559,473 3,559,539 3,559,542 3,559,558 3,559,601 3,559,602 3,559,607 3,559,653 3,559,670 3,559,687 3,559,719 3,559,728 3,559,753 3,559,781 3,559,813 3,559,815 3,559,838 3,559,844 3,559,850 3,559,869 3,559,895 3,559,899 3,559,933 3,559,992 3,560,039 3,560,051 3,560,083 3,560,141 3,560,152 3,560,184 3,560,185 3,560,186 3,560,192 3,560,200 3,560,213 3,560,273 3,560,275 3,560,276 3,560,318 3,560,357 3,560,372 3,560,375 3,560,390 3,560,412 3,560,414 3,560,417 3,560,418 3,560,441 3,560,458 3,560,459 3,560,462 3,560,467 3,560,471 3,560,483 3,560,488 3,560,501 3,560,513 3,560,521 3,560,527 3,560,529 3,560,540 3,560,551 3,560,590 3,560,599 3,560,090 3,560,103	34 : 3,560,633 3,560,647 3,560,648 3,560,654 3,560,658 3,560,703 3,560,726 3,560,728 3,560,733 3,560,756 3,560,786 3,560,789 3,560,798 3,560,805 3,560,836 3,560,842 3,560,853 3,560,855 3,560,865 3,560,874 3,560,882 3,560,887 3,560,890 3,560,893 3,560,910 3,560,944 3,560,953 3,560,966 3,560,971 3,560,978 3,560,985 3,560,904 RE:27,045 3,559,222 3,559,227 3,559,253 3,559,283 3,559,289 3,559,292 3,559,307 3,559,309 3,559,316 3,559,343 3,559,346 3,559,350 3,559,381 3,559,405 3,559,419 3,559,487 3,559,523 3,559,525 3,559,546 3,559,548 3,559,549 3,559,550 3,559,563 3,559,570 3,559,571 3,559,573 3,559,642 3,559,647 3,559,702 3,559,717 3,559,720 3,559,721 3,559,726 3,559,778 3,559,779 3,559,784 3,559,790 3,559,801 3,559,802 3,559,805 3,559,820 3,559,833 3,559,834 3,559,852 3,559,853 3,559,855 3,559,863 3,559,868 3,559,870 3,559,873 3,559,876 3,559,877 3,559,886 3,560,417 3,559,894 3,559,906 3,559,936 3,559,953 3,559,966 3,559,996 3,560,026 3,560,032 3,560,037 3,560,038 3,560,046 3,560,062 3,560,063 3,560,070 3,560,080 3,560,085 3,560,088 3,560,089 3,560,090 3,560,103	36 : 3,560,125 3,560,127 3,560,130 3,560,134 3,560,174 3,560,204 3,560,205 3,560,206 3,560,207 3,560,208 3,560,209 3,560,210 3,560,218 3,560,220 3,560,221 3,560,229 3,560,241 3,560,243 3,560,257 3,560,259 3,560,261 3,560,279 3,560,290 3,560,291 3,560,299 3,560,304 3,560,320 3,560,353 3,560,360 3,560,364 3,560,366 3,560,383 3,560,395 3,560,397 3,560,401 3,560,403 3,560,407 3,560,425 3,560,434 3,560,465 3,560,479 3,560,499 3,560,500 3,560,505 3,560,506 3,560,556 3,560,620 3,560,622 3,560,625 3,560,639 3,560,645 3,560,651 3,560,656 3,560,666 3,560,673 3,560,675 3,560,705 3,560,716 3,560,729 3,560,742 3,560,754 3,560,764 3,560,792 3,560,800 3,560,810 3,560,811 3,560,812 3,560,815 3,560,830 3,560,837 3,560,845 3,560,852 3,560,860 3,560,863 3,560,903 3,560,917 3,560,922 3,560,928 3,560,931 3,560,934 3,560,940 3,560,942 3,560,961 3,560,962 3,560,983 3,560,984 3,559,391 3,559,466 3,559,499 3,559,656 3,559,695 3,559,706 3,559,804 3,559,859 3,560,105 3,560,178 3,560,298 3,560,382 3,560,421 3,560,801 3,560,878 3,560,003 3,560,045 3,559,313 3,559,354
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39 : 3,559,408 3,559,425 3,559,446 3,559,452 3,559,477 3,559,495 3,559,512 3,559,528 3,559,572 3,559,599 3,559,605 3,559,649 3,559,662 3,559,668 3,559,700 3,559,724 3,559,727 3,559,765 3,559,770 3,559,772 3,559,774 3,559,776 3,559,786 3,559,799 3,559,812 3,559,814 3,559,840 3,559,874 3,559,882 3,559,921 3,559,955 3,559,960 3,559,967 3,559,971 3,559,972 3,560,004 3,560,017 3,560,030 3,560,054 3,560,120 3,560,179 3,560,190 3,560,211 3,560,239 3,560,246 3,560,266 3,560,274 3,560,281 3,560,286 3,560,293 3,560,301 3,560,309 3,560,327 3,560,334 3,560,344 3,560,391 3,560,393	39 : 3,560,399 3,560,444 3,560,490 3,560,524 3,560,571 3,560,574 3,560,608 3,560,641 3,560,672 3,560,708 3,560,725 3,560,748 3,560,772 3,560,788 3,560,822 3,560,825 3,560,916 3,560,938 3,560,988 3,559,240 3,559,258 3,559,410 3,559,411 3,559,413 3,559,521 3,559,660 3,559,663 3,559,703 3,559,734 3,559,747 3,560,071 3,560,072 3,560,164 3,560,165 3,560,367 3,560,405 3,560,422 3,560,466 3,560,470 3,560,593 3,560,915 3,559,220 3,559,272 3,559,340 3,559,344 3,559,362 3,559,768 3,559,839 3,560,019 3,560,096 3,560,133 3,560,308 3,560,689 3,560,848 3,560,952 3,559,212 3,559,231	42 : 3,559,241 3,559,254 3,559,261 3,559,285 3,559,305 3,559,321 3,559,327 3,559,359 3,559,384 3,559,421 3,559,441 3,559,478 3,559,480 3,559,485 3,559,488 3,559,489 3,559,490 3,559,516 3,559,537 3,559,543 3,559,568 3,559,584 3,559,604 3,559,621 3,559,688 3,559,716 3,559,718 3,559,741 3,559,794 3,559,807 3,559,819 3,559,862 3,559,913 3,559,945 3,559,952 3,559,974 3,559,993 3,560,001 3,560,029 3,560,055 3,560,057 3,560,068 3,560,075 3,560,093 3,560,122 3,560,167 3,560,173 3,560,180 3,560,182 3,560,183 3,560,193 3,560,197 3,560,256 3,560,269 3,560,270 3,560,294	42 : 3,560,321 3,560,322 3,560,333 3,560,335 3,560,349 3,560,439 3,560,445 3,560,455 3,560,456 3,560,457 3,560,460 3,560,481 3,560,507 3,560,563 3,560,565 3,560,572 3,560,578 3,560,579 3,560,657 3,560,683 3,560,685 3,560,699 3,560,711 3,560,713 3,560,727 3,560,735 3,560,736 3,560,738 3,560,779 3,560,826 3,560,846 3,560,847 3,560,859 3,560,908 3,560,911 3,560,929 3,560,935 3,560,963 3,560,967 3,560,998 3,559,333 3,559,903 3,559,915 3,560,649 3,559,696 3,559,931 3,559,470 3,559,810 3,559,830 3,560,597 3,559,262 3,559,345 3,559,373 3,559,560 3,559,609 3,559,664 3,559,671	48 : 3,559,672 3,559,698 3,559,731 3,559,732 3,559,733 3,559,738 3,559,740 3,559,742 3,559,754 3,559,806 3,559,821 3,559,867 3,559,878 3,559,948 3,559,995 3,560,053 3,560,060 3,560,092 3,560,129 3,560,143 3,560,155 3,560,158 3,560,175 3,560,198 3,560,278 3,560,306 3,560,313 3,560,374 3,560,398 3,560,598 3,560,847 3,560,760 3,560,908 3,560,911 3,560,964 3,560,965 3,560,982 3,561,007 3,559,634 3,559,643 3,560,015 3,560,154 3,559,661 3,559,471 3,559,482 3,559,555 3,559,650 3,559,909 3,560,091 3,560,137 3,560,138 3,560,248 3,560,347 3,560,431 3,560,550	51 : 3,560,603 3,560,631 3,560,763 3,560,941 3,560,986 RE:27,044 3,559,269 3,559,304 3,559,491 3,559,614 3,559,743 3,559,744 3,560,043 3,560,237 3,560,331 3,560,536 3,560,677 3,560,549 3,560,560 3,560,588 3,559,221 3,559,228 3,559,229 3,559,239 3,559,286 3,559,310 3,559,322 3,559,328 3,559,544 3,559,619 3,559,635 3,559,677 3,559,722 3,559,773 3,559,793 3,559,800 3,559,825 3,559,857 3,559,928 3,559,994 3,560,021 3,560,069 3,560,226 3,560,282 3,560,312 3,560,332 3,560,368 3,560,369 3,560,510 3,560,512 3,560,664 3,560,731 3,560,835 3,560,646 3,559,937 3,559,209
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Design Patents

1 : 219,812 219,821 219,829 219,833 4 : 219,810 6 : 219,806 219,813	6 : 219,854 219,855 219,824 219,814 17 : 219,801 219,822 219,846	17 : 219,852 18 : 219,807 20 : 219,809 21 : 219,853 22 : 219,815 219,834 24 : 219,803	24 : 219,843 25 : 219,837 26 : 219,825 219,826 219,835 27 : 219,842 31 : 219,844	31 : 219,860 34 : 219,819 219,832 36 : 219,823 219,830 219,831	39 : 219,828 219,847 219,804 219,817 219,859 219,820
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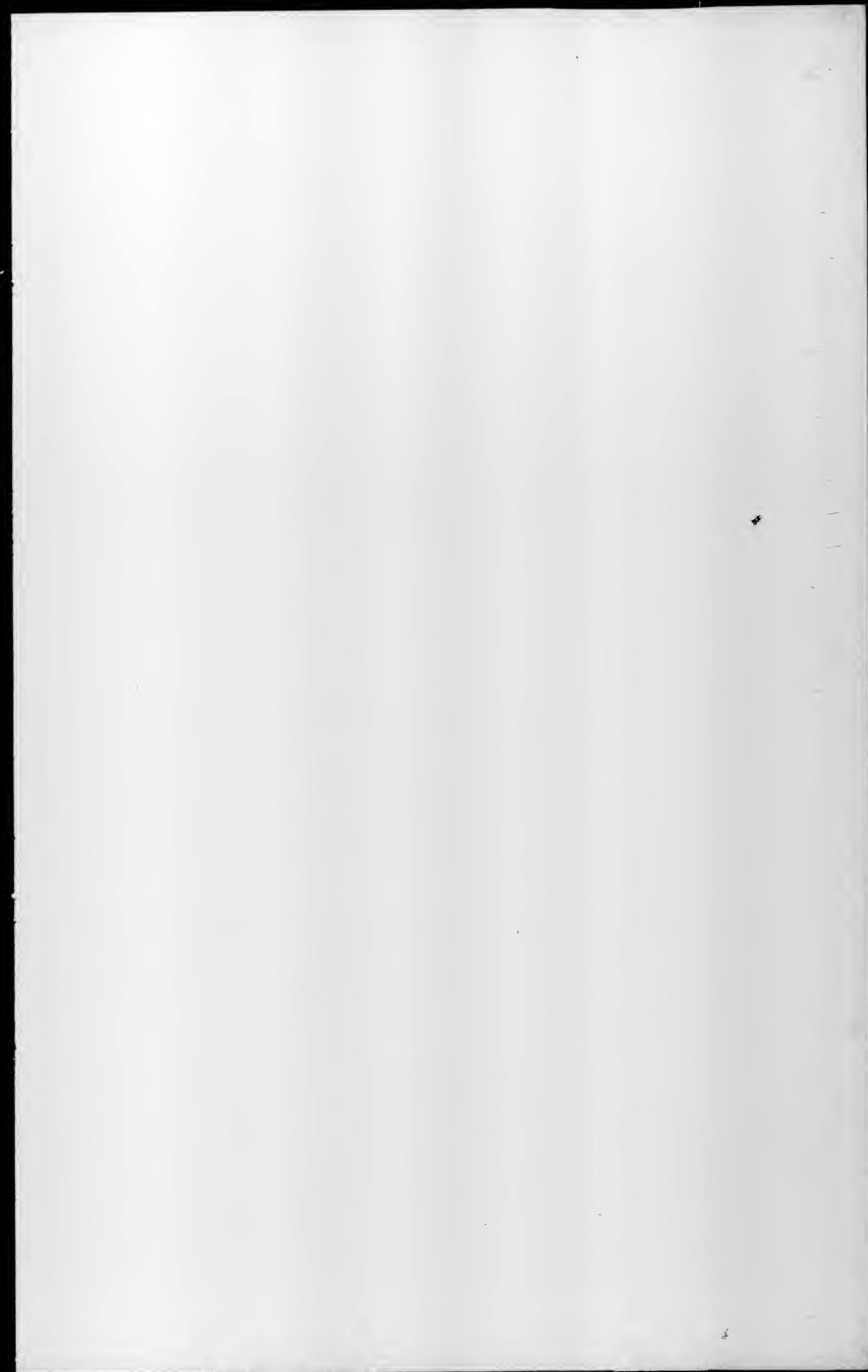
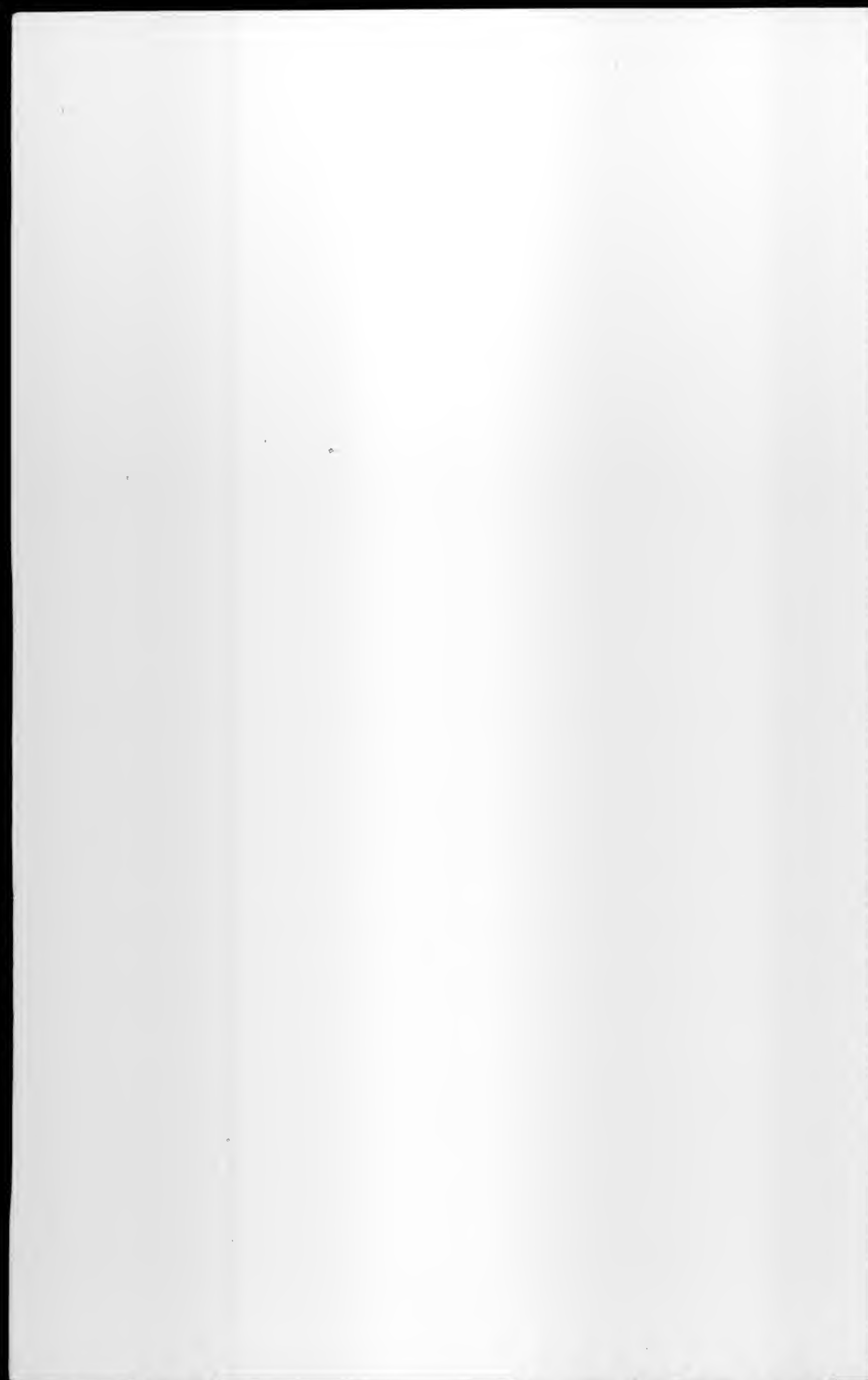
Plant Patents

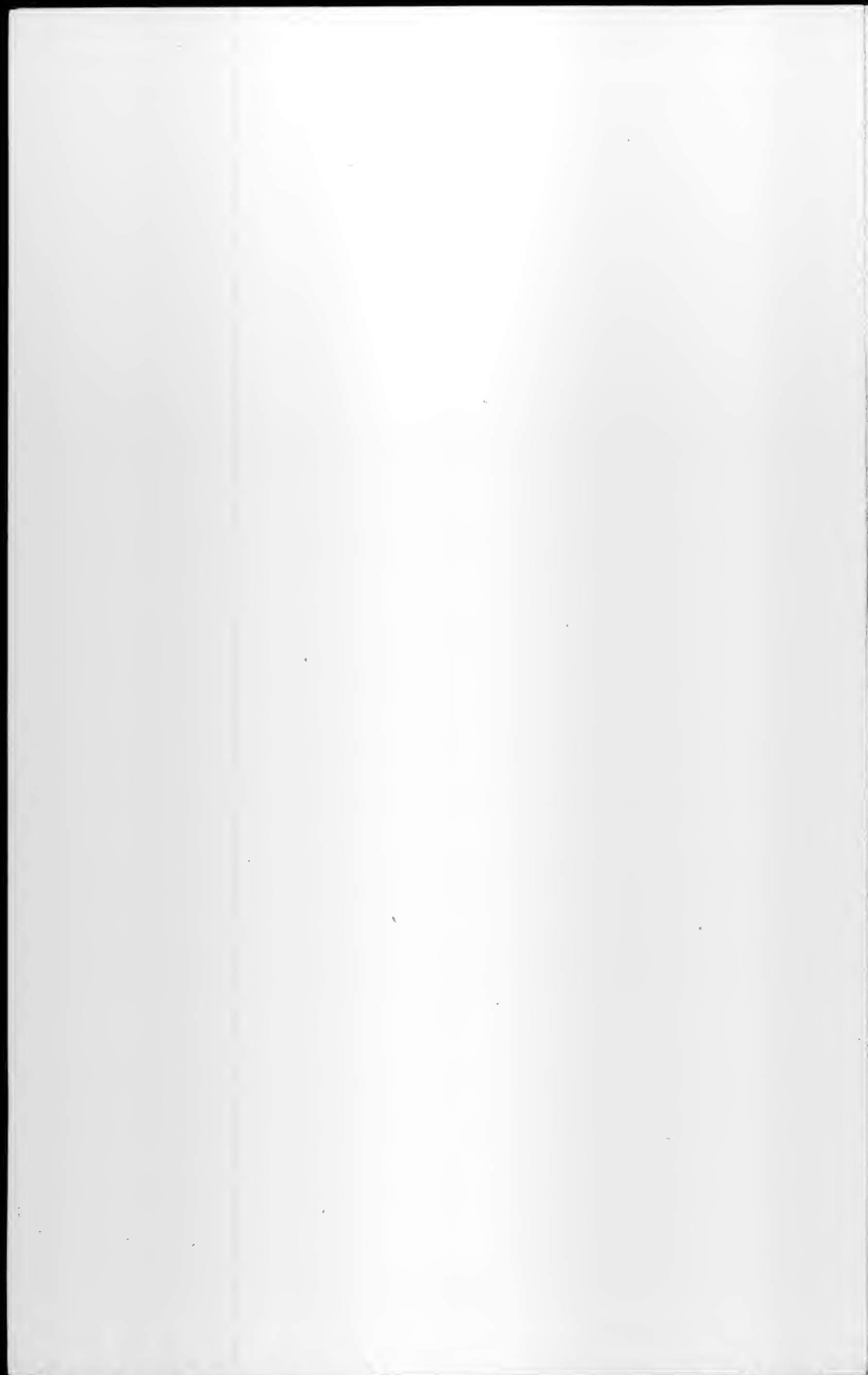
6 : 3,022	6 : 3,023	6 : 3,024	53 : 3,025
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DEFENSIVE PUBLICATIONS APPLICATIONS

(Notice of Dec. 16, 1969, 869 O.G. 687)

1 : T883,016 6 : T883,005 10 : T883,006 T883,019	26 : T883,011 36 : T883,002 T883,003	36 : T883,009 T883,013 T883,014	36 : T883,015 T883,017 T883,018	39 : T883,012 47 : T883,008 51 : T883,010	80 : T883,001 T883,004 103 : T883,007
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February 9, 1971

Volume 883

Number 2

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PATENT OFFICE NOTICES

Recognition of Attorneys and Agents and Standards of Conduct

[37 C.F.R. Parts 1 and 2]

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6) and section 31 of that Act (66 Stat. 795; 35 U.S.C. 31), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revoking §§ 1.35 and 1.61 and by amending §§ 1.14, 1.21, 1.33, 1.34, 1.36, 1.51, 1.52, 1.57, 1.76, 1.341, 1.343, 1.344, 1.346, 1.347, 2.13, and 2.15 as set forth below.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231, on or before March 23, 1971, on which date a hearing will be held at 9:00 a.m., e.s.t. in Room SC06, Building 2, 2011 Jefferson Davis Highway, Arlington, Virginia. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The proposed revocations and amendments eliminate present provision for the recognition and registration of firms of attorneys and agents for practice in patent and trademark cases, and would permit registered attorneys and agents to file papers in patent applications without the need for filing powers of attorney or authorizations. The proposed amendments to §§ 1.344 and 2.13 refer to the Code of Professional Responsibility of the American Bar Association as the standard of conduct for those practicing before the Patent Office insofar as not inconsistent with Patent Office rules. The revocation of § 1.61 and amendment of other sections referring to the petition eliminate the present requirement for a petition or other express request for a patent.

The amendments are intended to eliminate complications incident to the registration and recognition of firms and to emphasize individual professional responsibility in practice before the Patent Office. Acceptance of papers filed in patent applications by registered attorneys and agents upon a representation that the attorney or agent is authorized to act in a representative capacity is intended to facilitate responses on behalf of applicants in patent applications and, further, to obviate the need for filing powers of attorney or authorizations of agent in individual applications when there has been a change in composition of law firms or corporate patent staffs. Interviews with a registered attorney or agent not of record will, in view of 35 U.S.C. § 122, be conducted only on the basis of information and files supplied by the attorney or agent.

Provision is made for an applicant to supply an address to receive correspondence from the Patent Office concerning his application, in addition to his residence address, so that the Patent Office may direct mail to any address of applicant's selection, such as a corporate patent department or an attorney, agent, or other person. In connection with patent applications pending upon the effective date of the proposed changes in which a firm is the only representative of record (and in connection with divisions and continuations thereof not requiring execution by the applicant), the address of the firm will be considered to be the correspondence address for the application.

The amendments to §§ 1.344 and 2.13 are intended to provide a more definite and uniform standard of conduct for registered attorneys and agents than do the present rules. The elimination of the requirement for a petition is in the interest of simplification, inasmuch as a request for a patent is deemed implicit in the submission of the other application papers in compliance with the statute and rules.

Changes in the forms in Part 3, 37 C.F.R., consonant with the proposed revocations and amendments will be made as part of a general revision of that part now in preparation.

The text of the proposed amended sections is as follows:

§ 1.14. Patent applications preserved in secrecy.

(a) Except as provided in section 1.11(b) pending patent applications are preserved in secrecy. No information will be given by the Office respecting the filing by any particular person of an application for a patent, the pendency of any particular case before it, or the subject matter of any particular application, nor will access be given to or copies furnished of any pending application or papers relating thereto, without written authority in that particular application from the applicant or his assignee or attorney or agent of record, unless it shall be necessary to the proper conduct of business before the Office or as provided by this part.

§ 1.21. Patent and miscellaneous fees and charges.

(h) For registration of an attorney or agent:

For admission to examination for registration to practice, fee payable upon application	-----	\$35.00
On registration to practice	-----	25.00

§ 1.33. Correspondence respecting patent applications and Proceedings.

(a) The residence and post office address of the applicant must appear in the oath or declaration if not stated elsewhere in the application. The applicant may also specify a correspondence address to which communications about his application are to be directed. All notices, official letters, and other communications in the case will be sent to the correspondence address or, if no such correspondence address is specified, to the attorney or agent of record (see § 1.34(b)), or, if no attorney or agent is of record, to the applicant, or to the assignee of the entire interest if the applicant or such assignee so requests, or to the assignee of an undivided part if the applicant so requests, at the post office address of which the Office has been notified in the case. Amendments and other papers filed in the application must be signed by the applicant, or if there is an assignee of an undivided part interest, by the applicant and such assignee, or if there is an assignee of the entire interest, by such assignee, by an attorney or agent of record, or by a registered attorney or agent not of record who acts in a representative capacity under the provisions of § 1.34(a). Double correspondence with an applicant and his attorney or agent, or with two representatives, will not be undertaken. If more than one attorney or agent be made of record and a correspondence address has not been specified, correspondence will be held with the one last made of record.

(b) An applicant who has not made of record a registered attorney or agent may be required to state whether he received assistance in the preparation or prosecution of his application, for which any compensation or consideration was given or charged, and if so, to disclose the name or names of the person or persons providing such assistance. This includes the preparation for the applicant of the specification and amendments or other papers to be filed in the Patent Office, as well as other assistance in such matters, but does not include merely making drawings by draftsmen or stenographic services in typing papers.

§ 1.34. Recognition for representation.

(a) When a registered attorney or agent acting in a representative capacity appears in person or signs a paper in practice before the Patent Office in a patent case, his personal appearance or signature shall constitute a representation to the Patent Office that, under the provisions of this part and the law, he is authorized to represent the particular party in whose behalf he acts. In filing such a paper, the attorney or agent should specify his registration number with his signature. Further proof of authority to act in a representative capacity may be required. (b) Before any attorney or agent, original or associate, will be allowed to inspect papers in any application or proceeding, a written power of attorney or authorization from the person or persons entitled to grant access to the application under § 1.14(a) or from the principal attorney or agent of record in the case of an associate attorney or agent, must be filed in that particular application or proceeding. When an attorney or agent shall have filed his power

FEBRUARY 9, 1971

U. S. PATENT OFFICE

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of attorney, or authorization, duly executed by the person or persons entitled to grant access to the application under § 1.14(a), he is of record in the case.

§ 1.35. Correspondence held with attorney. [Revoked]

§ 1.36. Revocation of power of attorney or authorization; Withdrawal of attorney or agent.

A power of attorney or authorization of agent may be revoked at any stage in the proceedings of a case, and an attorney or agent may withdraw, upon application to and approval by the Commissioner. An attorney or agent, except an associate attorney or agent whose address is the same as that of the principal attorney or agent, will be notified of the revocation of his power of attorney or authorization and the applicant will be notified of the withdrawal of the attorney or agent. An assignment will not of itself operate as a revocation of a power or authorization previously given, but the assignee of the entire interest may revoke previous powers and be represented by an attorney or agent of his own selection.

§ 1.51. General requisites of an application.

Applications for patents must be made to the Commissioner of Patents. A complete application comprises:

- (a) A specification, including a claim or claims, see §§ 1.71 to 1.77.
- (b) An oath or declaration, see § 1.65.
- (c) Drawings, when necessary, see §§ 1.81 to 1.88.
- (d) The prescribed filing fee. (See § 1.21 for filing fees.)

§ 1.52. Language, paper, writing, margins.

(a) The specification and oath or declaration must be in the English language. All papers which are to become a part of the permanent records of the Patent Office must be legibly written or printed in permanent ink.

§ 1.57. Signature.

The application must be signed by the applicant in person. The signature to the oath or declaration will be accepted as the signature to the application provided the oath or declaration is attached to and refers to the specification and claim to which it applies. Full names must be given, including the full first name without abbreviation, and the middle initial or name if any.

§ 1.61. Petition. [Revoked]

§ 1.76. Signature to the specification.

When the oath or declaration is attached to and refers to the specification and claim to which it applies, the specification need not be signed. Otherwise it must be signed by the applicant in person.

§ 1.341. Registration of attorneys and agents.

(d) Registration of firms. [Revoked]

§ 1.343. Persons not registered or recognized.

No person not registered or given limited recognition as provided in § 1.342 will be permitted to prosecute applications of others before the Patent Office.

§ 1.344. Professional conduct.

Attorneys and agents appearing before the Patent Office must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association insofar as such Code is not inconsistent with this part.

§ 1.346. Signature and certificate of attorney.

Every paper filed by an attorney or agent representing an applicant or party to a proceeding in the Patent Office must bear the signature of such attorney or agent, except papers which are required to be signed by the applicant or party in person (such as the application itself and affidavits or declaration required of applicants). The signature of an attorney or agent to a paper filed by him, or the filing or presentation of any paper by him, constitutes a certificate that the paper has been read; that its filing is authorized; that to the best of his knowledge, information, and belief, there is good ground to support it; and that it is not interposed for delay.

§ 1.347. Removing names from registers.

Attorneys and agents, registered to practice before the Patent Office, should notify the Office of any change of address for entry on the register, by letter separate from any notice of change of address filed in individual applications. The Office may address a letter to any person on the registers, at the address of which separate notice for the register was last received, for the purpose of ascertaining whether such person desires to remain on the register. The name of any person failing to reply and give the information requested within a time limit specified will be removed from the register, and the names so removed published in the OFFICIAL GAZETTE. Any name so removed may be reinstated, either on the register of attorneys or the register of agents, as may be appropriate.

§ 2.13. Professional conduct.

Attorneys and other persons appearing before the Patent Office in trademark cases must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association insofar as such Code is not inconsistent with this part.

§ 2.15. Signature and certificate of attorney or agent.

Every paper filed by an attorney at law or other person representing an applicant or party to a proceeding in the Patent Office must bear the signature of such attorney at law or other person except those papers which are required to be signed by the applicant or party. The signature of an attorney at law or such other person to a paper filed by him, or the filing of any paper by him, constitutes a certificate that the paper has been read; that its filing is authorized; that to the best of his knowledge, information, and belief there is good ground to support it; and that it is not interposed for delay.

- (b) [Revoked].
- (c) [Revoked].

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: Jan. 12, 1971.

RICHARD O. SIMPSON,
Acting Assistant Secretary
for Science and Technology.

[P.R. Doc. 71-567; Filed 1-14-71; S: 49 a.m.]

Published in 36 F.R. 611, Jan. 15, 1971

Registers of Attorneys and Agents

In the October 20, 1970, issue of the OFFICIAL GAZETTE, volume 879, number 3, there was published a list of names and addresses of persons whose names were being removed from the Registers of Patent Attorneys and Patent Agents pursuant to the provisions of Rule 347 of the Rules of Practice of the United States Patent Office in Patent Cases.

The following persons, whose names appeared in that list have been retained on the active Register of Attorneys or Register of Agents in view of information which they have furnished the Committee on Enrollment.

ROBERT GOTTSCHALK,
Chairman, Committee on Enrollment.

Jan. 8, 1971.

Akers, Alan D., TRW Systems Group, TRW Inc., Bldg. E-2, Rm. 8015, One Space Park, Redondo Beach, Calif. 90278
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Washburn, R. S., The Goodyear Tire & Rubber Co., 1144 E. Market St., Akron, Ohio 44316

Wells, Charles C. Jr., NASA, George C. Marshall Space Flight Center, Marshall Space Flight Center, Ala. 35812

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,544,246, G. H. Butterfield, CORNEAL CONTACT LENS, filed Mar. 9, 1970, D.C., E.D. Mo. (St. Louis), Doc. 70C105(3), *George H. Butterfield, Sr. v. Alvin Contact Lens Corporation*. Transferred to the Northern Dist. of Illinois, Apr. 17, 1970. Same, filed Feb. 16, 1970, D.C., S.D.N.Y. Doc. 70C640, *George H. Butterfield, Sr. v. Tru Form Contact Lens*. Notice of voluntary dismissal, May 1, 1970. Same, filed Feb. 16, 1970, D.C., S.D.N.Y., Doc. 70C642, *George H. Butterfield, Sr. v. Rynco Scientific Corp.* Apr. 7, 1970, case transferred to U.S.D.C., Northern Dist. of Ill. for coordinated hearings. Stipulation of Northern Dist. of Ill., Eastern Div. dismissing action, June 17, 1970. Same, filed Feb. 16, 1970, D.C., S.D.N.Y., Doc. 70C633, *George H. Butterfield, Sr. v. Professional Contact Lens Service*. Apr. 10, 1970, case transferred to U.S.D.C. Northern Dist. of Ill., Chicago. Notice of voluntary dismissal, July 13, 1970.

2,703,579, Mercaney and Welsz, AUTO CAR WASHING MACHINE, filed Aug. 17, 1970, D.C., E.D. Ill. (Chicago), Doc. 70C2024, *California Car Wash Systems, Inc. v. Motor Valet Industries, Inc.* Same, filed Sept. 2, 1970, D.C., W.D.N.Y. (Buffalo), Doc. C-1970-390, *California Car Wash Systems, Inc. v. Motor Valet Industries, Inc.* Same, filed Sept. 29, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70-2204-EC, *California Car Wash Systems, Inc. v. Sherman Car Wash Equipment Co. et al.* Same, filed Oct. 30, 1970, D.C., M.D. Pa. (Scranton), Doc. C-70-538, *California Car Wash Systems, Inc. v. Bernardi Bros., Inc.* Same, filed Nov. 4, 1970, D.C., M.D.N.C. (Greensboro), Doc. C-244-WS-70, *California Car Wash Systems, Inc. v. Champion Dishwashing Machine Co.*

2,738,995, Risley and Hoke, PIPE COUPLING WITH MULTIPART CLAMP, filed Aug. 20, 1965, U.S. Ct. of Cl., Doc.

294-65, *Dresser Industries, Inc. v. The United States, Defendant; R. H. Baker & Company, Inc., Graver Tank and Manufacturing Co., and Western-Knapp Engineering Company, Third-Party Defendants*. Opinion, claims 1, 2 and 6 of said patent, which are the only claims now at issue in this case, are not infringed and the petition is dismissed, decided Oct. 16, 1970.

2,742,327, T. Marks, FULLY AUTOMATIC MACHINE FOR MAKING BRUSHES, filed Oct. 6, 1970, D.C., S.D.N.Y., Doc. 70-C-4312, *American Technical Industries, Inc. v. Premier Decorations, Inc. et al.*

2,790,978, J. B. Tigrett, COLLAPSIBLE PLAY PEN AND THE LIKE; 2,990,190, L. A. Ericksen, INFANT STROLLER AND CHAIR SUPPORT UNIT, filed Nov. 29, 1965, D.C. Del. (Wilmington), Doc. 3121, *Standard Industries Inc. v. Tigrett Industries Inc.* Order of dismissal, with prejudice, Nov. 3, 1970.

2,836,344, H. F. Gatward, CARRIER BAGS, filed Mar. 27, 1970, D.C., S.D.N.Y., Doc. 70-C-1247, *Imperial Packaging Corp. v. Bahamas Paper Co., Ltd.* Notice of voluntary dismissal, Sept. 23, 1970.

2,990,190. (See 2,790,978.)

3,172,289, S. N. Blackman, GLASS THERMOMETER; 3,316,076, same, METHOD OF MARKING MERCURY GLASS THERMOMETERS, filed Oct. 20, 1970, D.C., E.D.N.Y. (Brooklyn), Doc. 69-C-595 (Reinstated), *Seymour N. Blackman et al. v. Hadron Inc.*

3,203,670, W. A. Farris, deceased, by T. D. Farris, executrix, DOUBLE LINKAGE SUPPORTED TABLE, filed Oct. 30, 1970, D.C., W.D. Wash. (Seattle), Doc. 9305, *American Manufacturing Company, Inc. v. Nordick Manufacturing Co.*

3,250,571, R. Richter, NONFERROUS WHEEL HAVING STEEL INSERTS AND STEEL RIM WELDED THERETO; 3,250,572, J. A. Walker, same; 3,302,273, Benton and Bennett, METHOD OF MAKING COMPOSITE VEHICLE WHEEL; 3,399,930, J. C. Bennett, COMPOSITE VEHICLE WHEEL AND METHOD OF MAKING THE SAME; 3,410,606, Benton and Bennett, same, filed Oct. 28, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70-2428, *Roy Richter, Inc., doing business as Crager Industries v. Rocket Wheel Industries, Inc. et al.*

3,250,572. (See 3,250,571.)

3,251,234. (See Re. 25,834.)

3,302,273. (See 3,250,571.)

3,316,076. (See 3,172,289.)

3,331,184, G. Kraus, CASE PACKING APPARATUS, filed Nov. 12, 1968, D.C., N.D. Calif. (San Francisco), Doc. 50288, *Gustav Kraus, doing business as Condor Machine Works v. Emhart Corp. et al.* Plaintiff's patent is invalid and unenforceable; action and complaint dismissed, Oct. 22, 1970.

3,343,961, H. Truax, METHOD FOR TREATING SOYBEANS AND THE LIKE USING INFRARED HEAT; 3,368,475, same, MACHINE FOR TREATING SOYBEANS AND THE LIKE, filed Oct. 23, 1970, D.C., S.D. Iowa (Des Moines), Doc. 10-134-C-2, *Mix-Mill, Inc. and Harry Truax & Sons Company, Inc. v. Evans Systems and Stanley Evans*. Same, filed Oct. 26, 1970, D.C. Minn. (St. Paul), Doc. 2-70-296, *Mix-Mill, Inc. and Harry Truax & Sons Company, Inc. v. Rosoi Corporation and George Besse*. Same, filed Oct. 29, 1970, D.C., N.D. Ill. (Freeport), Doc. 70c63, *Mix-Mill, Inc. and Harry Truax & Sons Co., Inc. v. Agri-King, Inc.*

3,344,258, L. S. Michels, MATCHING IDENTIFICATION SYSTEM, filed Oct. 21, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70-2379-AAH, *TRW Data Systems v. Credit Systems, Inc.*

3,368,475. (See 3,343,961.)

3,399,930. (See 3,250,571.)

3,410,606. (See 3,250,571.)

3,417,587, G. L. Campbell, SPIRAL PIPE MACHINE, filed Sept. 11, 1970, D.C., N.D. Calif. (San Francisco), Doc. C70-1963-OJC, *Pacific Roller Die Co., Inc. v. Garland Steel Company*.

3,425,841, Handwerk and Allen, PINEAPPLE-GRAPEFRUIT FRUIT JUICE BLEND, filed Oct. 15, 1970, D.C., N.D. Calif. (San Francisco), Doc. C-70-2232, *Del Monte Corporation v. Castle & Cooke, Inc.*

3,428,194, F. C. Weiss, SHIP BARGE HANDLING CRANES AND BEAMS, filed Apr. 24, 1970, D.C., N.D. Ohio (Cleveland), Doc. C70-384, *United Industrial Syndicate, Inc. v. Alliance Machine Company*. Consent judgment; patent not infringed; counterclaim dismissed, Oct. 27, 1970.

3,473,251, R. D. Kahn, INSECT ELECTROCUTING DEVICE, filed Jan. 22, 1970, D.C., S.D.N.Y., Doc. 70-275, *Fedtro Inc. v. Chadwick-Miller et al.* Case transferred to U.S.D.C., District of Massachusetts, May 20, 1970.

3,495,629, Botsolas and Lionakis, METHOD AND DEVICE FOR COVERING PIPE FITTINGS, filed June 8, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70-1166-FW, *Chris J. Botsolas v. Schultz Laboratories et al.*

Re. 25,834, Gelzer and Reed, ADJUSTABLE INDUCTANCE UNIT; 3,251,234, A. A. Valdetaro, VHF-UHF TELEVISION TUNER, filed Jan. 7, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c22, *Sarkes Tarzian, Inc. v. ALPS Electric Co., Ltd. et al.* Agreement order, dismissed without prejudice, Oct. 19, 1970.

Certificates of Correction for the Week of Feb. 9, 1971

D. 219,322	3,513,517	3,535,903	3,540,499
3,357,969	3,516,933	3,536,460	3,540,595
3,393,088	3,521,596	3,536,647	3,540,668
3,409,017	3,522,147	3,536,816	3,541,140
3,441,324	3,522,158	3,536,925	3,541,289
3,469,529	3,525,780	3,537,298	3,541,324
3,469,671	3,526,562	3,537,525	3,542,417
3,469,691	3,526,578	3,537,574	3,542,530
3,476,606	3,527,084	3,537,642	3,542,656
3,482,493	3,527,808	3,537,700	3,542,769
3,485,869	3,528,186	3,538,056	3,542,946
3,488,394	3,529,458	3,538,157	3,542,976
3,488,502	3,530,330	3,538,387	3,543,068
3,489,589	3,531,101	3,538,583	3,543,154
3,493,662	3,531,724	3,538,714	3,543,551
3,498,540	3,533,353	3,538,788	3,543,815
3,503,156	3,533,939	3,538,896	3,544,308
3,504,010	3,534,074	3,539,558	3,544,315
3,507,803	3,534,127	3,539,563	3,544,751
3,508,312	3,534,410	3,539,596	3,544,811
3,510,363	3,534,953	3,539,955	3,545,007
3,512,039	3,535,682	3,540,103	

Dedication

3,376,868.—*Dimitri G. Mondiadis*, New York, N.Y. SURGICAL EVACUATOR DEVICE. Patent dated Apr. 9, 1968. Dedication filed Sept. 10, 1970, by the assignee, *Hormedica, Inc.*

Hereby dedicates the entire term of the patent to the Public.

Disclaimer

3,407,334.—*Oliver G. Attewell*, South Milwaukee, Wis. STARTING AND OPERATING CIRCUIT FOR ARC DISCHARGE LAMPS REQUIRING A HIGH STARTING VOLTAGE. Patent dated Oct. 22, 1968. Disclaimer filed Nov. 2, 1970, by the assignee, *McGraw-Edison Company*.

Hereby enters this disclaimer to claims 3, 4, 5 and 6 of said patent.

Patents Available for Licensing or Sale

3,241,172. CHANCE SELECTIVE RACING GAME. Walter Williams, 208-14 100th Ave., Bellmore, Queens, New York, N.Y., 11429.

3,432,935. INTERNAL THREAD GAUGE. Percy J. Reish, 1807 Fox St., #202, West Hyattsville, Md., 20783.

3,532,142. SCREWDRIVER GUIDE ASSEMBLY. Harold B. Ziegler, 8723 Magnetic, El Paso, Tex., 79904.

3,532,350. REINFORCING SEAL. Frank L. Kaufman. Correspondence to: Marechal, Biebel, French & Bugg, Winters Bank Bldg., Dayton, Ohio, 45402.

3,536,234. APPARATUS FOR EXPELLING THE CONTENTS OF COLLAPSIBLE TUBE CONTAINERS. Lelf Rise, 735 N. Eucalyptus Ave., Inglewood, Calif., 90302.

3,541,707. EDUCATIONAL DEVICE. Littleton C. Billingsley, Brookeland, Tex. Correspondence to: Bill B. Berryhill, P.O. Box 66026, Houston, Tex., 77066.

3,545,101. EDUCATIONAL GAME BOARD. Mary L. Fike, Lakeland, Fla. Correspondence to: Morton, Bernard, Brown, Roberts & Sutherland, 1054 31st St., NW., Washington, D.C., 20007.

3,548,437. MACHINE FOR WASHING MOTOR CARS. Charles T. Anderson, 2516 Woodford St., Shreveport, La., 71108.

3,556,307. DRAFTING MACHINE CADDY. D. M. Brownson, 10808 62nd St., Temple Terrace, Fla., 33617.

The following 2 patents are offered by: George C. Coverston, 1258 High St., Auburn, Calif., 95603.

3,225,539. EXPLOSION INERTIA TURBINE ENGINE.

3,325,975. CARBURETOR.

The following 3 patents are offered by John W. Barnd, 32 Hollybrook Road, Paramus, N.J.

3,351,128. MULTI-ZONE TEMPERATURE CONTROL.

3,496,991. FLUID TEMPERATURE REGULATING METHOD AND APPARATUS.

3,515,345. MULTI-ZONE TEMPERATURE CONTROL.

The following 5 patents are offered by: Theodore S. Miller, Trustee, 919 Blaustein Bldg., Baltimore, Md., 21201.

3,212,173. APPARATUS FOR APPLYING CURVED DIP TUBED CLOSURES TO CONTAINERS.

3,212,174. INLINE APPARATUS FOR ASSEMBLING FLEXIBLE CURVED DIP TUBED CLOSURES TO CONTAINERS.

3,212,175. ROTARY APPARATUS FOR CONTINUOUSLY ASSEMBLING FLEXIBLE CURVED DIP TUBED CLOSURE ASSEMBLIES TO CONTAINERS.

3,260,403. APPARATUS FOR SELECTING AND ALIGNING RANDOM ARTICLES.

3,360,844. APPLICATOR CLOSURE INSERTING MACHINE.

Otto Wöhr of Stuttgart, Germany, is prepared to grant exclusive or non-exclusive license on reasonable terms and conditions under the following patent.

Inquiries should be addressed to: George V. Caldwell & Associates, 236 Adelaide Drive, Santa Monica, Calif. 90402.

3,437,217. DOUBLE-TIER GARAGE.

Eastman Kodak Company announces that, in accordance with its policy, nonexclusive licenses upon reasonable terms (under the circumstances prevailing at the time) are available to responsible domestic applicants under the following U.S. patent.

3,165,038. COMPENSATING DEVICE FOR PHOTOGRAPHIC CAMERAS.

This offer is consistent with the present practice of Eastman Kodak Company to grant such nonexclusive licenses for any of its unexpired United States patents on photographic inventions issued prior to 1966 and on inventions made in the course of research or development work for the U.S. Government.

Applications for license may be addressed to the Director, Patent Department, Eastman Kodak Company, 343 State St., Rochester, N.Y., 14650.

General Motors Corporation is prepared to grant a non-exclusive license under the following patent upon reasonable terms.

Applications for license may be addressed to: The Director, Patent Section, General Motors Building, 3044 W. Grand Blvd., Detroit, Mich., 48202.

3,411,794. COOLED SEAL RING.

General Electric Company is prepared to grant non-exclusive licenses under the following 44 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patent may be addressed to: Patent Counsel, Apollo Systems, General Electric Company, P.O. Box 2500, Daytona Beach, Fla., 32015.

3,479,257. METHOD AND APPARATUS FOR MEASURING THE CONTENT OF HYDROGEN OR REDUCING GASES IN AN ATMOSPHERE.

Applications for license under the following patent may be addressed to: Division Patent Counsel, Space Division, General Electric Co., P.O. Box 8555, Philadelphia, Pa., 19101.

3,538,356. ENERGY CONVERTER.

Applications for license under the following 4 patents may be addressed to: Patent Counsel, Communication and Control Devices Department, General Electric Company, Waynesboro, Va., 22980.

2,780,752. SEMI-CONDUCTOR NETWORK.

2,820,152. SEMI-CONDUCTOR NETWORK.

2,977,523. CONTROL CIRCUIT.

3,404,327. CONVERSION SYSTEMS COMPRISING SCR'S WITH GATE CONTROL ARRANGEMENTS.

Applications for license under the following 4 patents may be addressed to: Division Patent Counsel, Power Transmission Div., General Electric Co., 6901 Elmwood Ave., Philadelphia, Pa., 19142.

3,176,212. DIRECT CURRENT POWER SUPPLIES.

3,450,928. GAS-FREE VACUUM GAP DEVICES AND METHOD OF PREPARATION THEREOF.

3,527,910. POLYPHASE VACUUM TYPE CIRCUIT BREAKER.

3,532,842. SWITCH ACTUATING AND CONTROL MECHANISM FOR VACUUM TYPE ELECTRIC CIRCUIT INTERRUPTERS WITH LOST MOTION AND BELLOWS BIASING MEANS.

Applications for license under the following 7 patents may be addressed to: Patent Counsel, LSTG-I & MT Divisions, General Electric Company, 1 River Road, Bldg. #28, Schenectady, N.Y., 12305.

3,244,601. DISTILLATION APPARATUS.

3,291,704. DISTILLATION APPARATUS.

3,403,891. FULL ARC/PARTIAL ARC ADMISSION USING CONTROL VALVES.

3,519,024. DEVICE FOR THE PREPATTERNED CONTROL OF FLOW DISTRIBUTION AND FLUID FLOW EXPERIENCING A CHANGE IN AREA AND/OR DIRECTION.

3,527,546. TIE PINS FOR TURBINE BUCKETS.

3,531,653. MULTIPHASE GENERATOR AND BUS SYSTEM.

3,531,667. LOW FREQUENCY STATOR FRAMES FOR DYNAMOELECTRIC MACHINES.

Applications for license under the following 27 patents may be addressed to: Manager—Patent and Technology Marketing Operation, General Electric Company, 1 River Road, Schenectady, N.Y., 12305.

3,124,719. SURFACE COMBUSTION APPARATUS FOR FLAME CHARGING.

3,149,936. ELECTROSTATIC PRECIPITATOR.

3,250,060. ELECTROSTATIC PRECIPITATOR.

3,330,960. FLAME SPECTROMETER USING IONIZATION CURRENT DETECTION.

3,366,564. ELECTROHYDRAULIC PROCESS.

3,411,123. PYROLYTIC GRAPHITE ELECTRICAL RESISTANCE ELEMENT.

3,412,324. OPTICAL MAGNETOMETER BASED ON THE PRINCIPLE OF FRUSTRATED TOTAL INTERNAL REFLECTION OF LIGHT.

3,417,328. IN-CIRCUIT INDUCTANCE MEASURING CIRCUIT.

3,432,292. METHOD OF PREPARING CHROMIUM-LITHIUM ALLOYS.

3,433,299. HEAT EXCHANGER OF POROUS METAL.

3,433,722. ELECTROLYTIC METHOD OF REMOVING WATER FROM A POLAR SOLVENT.

3,434,063. NEGATIVE RESISTANCE SUPERREGENERATIVE DIODE DETECTOR.

3,435,374. NEGATIVE RESISTANCE DEVICE OSCILLATOR CIRCUITS HAVING HARMONIC IMPEDANCE MEANS FOR MODIFYING THE OSCILLATOR FREQUENCY.

3,444,924. HEAT EXCHANGER.

3,458,309. COLOR TRANSPARENCIES PRODUCED BY ELECTROPHOTOGRAPHIC TECHNIQUES.

3,462,551. CHANNEL SYNCHRONIZER FOR MULTIPLEX PULSE COMMUNICATION RECEIVER.

3,481,852. ELECTROPHORETIC DEPOSITION OF BORON.

3,484,693. FREQUENCY SHIFTED SLIDING TONE SAMPLED DATA COMMUNICATION SYSTEM.

3,486,062. ELECTROHYDRAULIC SHOCK-WAVE GENERATING APPARATUS WITH DIRECTING AND SHAPING MEANS.

3,501,353. METHOD OF INHIBITING OXYGEN UPTAKE AND PRODUCTS FORMED THEREBY.

3,504,531. MECHANICAL IMPEDANCE TESTING USING RANDOM NOISE EXCITATION.

3,514,272. PROCESS FOR VANADIDING METALS.

3,517,238. SQUIRREL CAGE ROTOR AND METHOD OF BUILDING THE SAME.

3,517,674. RUPTURE OF ADHESIVE BONDS.

3,518,020. SPLIT SEAL RING ASSEMBLY FOR COMPRESSORS.

3,518,021. THRUST BEARING FOR COMPRESSORS.

3,522,021. PROCESS FOR METALLIZING ALUMINUM SURFACES.

Patents Withdrawn From Register

General Electric Company hereby withdraws the following patents from the Register of Patents Available for Licensing or Sale. The patents were listed as being available, in the OFFICIAL GAZETTE as indicated below:

2,680,156. MAGNETIC HEAD FOR PERPENDICULAR RECORDING. Apr. 26, 1955.

2,693,508. MAGNETIC RECORDING, REPRODUCING OR ERASING HEAD. Oct. 18, 1955.

2,723,353. NON-LINEAR RESONANT TRIGGER CIRCUITS. Mar. 27, 1956.

2,781,447. BINARY DIGITAL COMPUTING AND COUNTING APPARATUS. July 30, 1957.

2,808,202. CARRY UNIT FOR BINARY DIGITAL COMPUTING DEVICES. Feb. 11, 1958.

2,808,203. BINARY SHIFT REGISTER. May 20, 1958.

2,808,204. BINARY DIGITAL COMPUTING APPARATUS. May 20, 1958.

2,863,048. CLIPPER-AMPLIFIER AND PULSE GENERATOR CIRCUIT. Apr. 21, 1959.

2,863,136. SIGNAL TRANSLATING DEVICE. Apr. 21, 1959.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JANUARY 26, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	7-08-69
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	4-01-60
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director.....	10-09-69
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director....	11-03-69
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director....	4-29-69
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	3-18-70
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	
SECURITY, GROUP 220—R. L. CAMPBELL, Director.....	6-16-69
Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	11-24-70
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.....	12-17-69
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
PHYSICS, GROUP 280—R. L. EVANS, Director.....	9-29-69
Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	
DESIGNS, GROUP 290—R. L. CAMPBELL, Director.....	5-01-70
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.....	12-01-69
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	9-04-69
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director.....	10-02-69
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director.....	1-29-70
Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director.....	12-04-69
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	

Expiration of patents: The patents within the range of numbers indicated below expire during February, 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 263. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,667,637 to 2,670,467 inclusive
Plant Patents..... Numbers 1,248 to 1,259, inclusive

REISSUES

FEBRUARY 9, 1971

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,049

AUTOMOTIVE VEHICLE WASH SYSTEMS

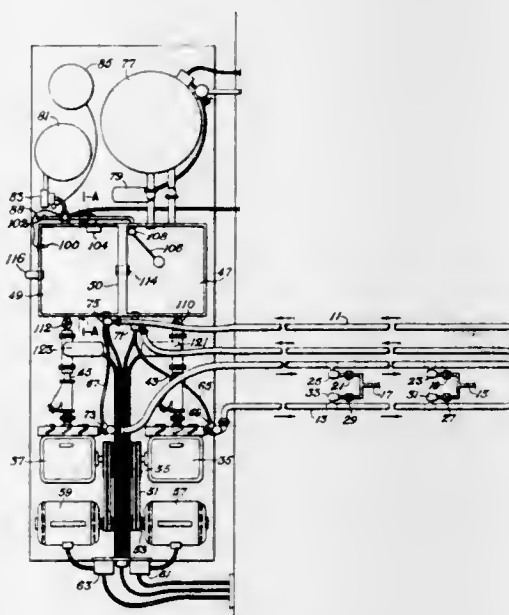
H. L. Null, 4004 Golden Oaks Drive,
Fort Worth, Tex. 76117

Original No. 3,389,860, dated June 25, 1968, Ser. No. 553,392, May 27, 1966. Application for reissue Dec. 24, 1968, Ser. No. 799,135

Int. Cl. B05b 9/00

U.S. Cl. 239—124

4 Claims



Following is disclosed an automotive vehicle wash system having separate rinse and wash water circulation loops. Control valves disposed in lines connected with the rinse and wash water circulation loops provide essential instantaneous change from rinse to wash water at each car wash location. Parallel electrical controls enable each car wash stall or location to energize common wash or rinse water primary motors, while preventing interference between the wash and rinse water solenoid control valves used at each location. A conductivity sensing element in a wash water storage tank controls a solenoid valve to intermittently add water to control cleaning compound concentration.

27,050

BOAT MOORING DEVICES

John P. Jorgenson, Fort Lauderdale, Fla., assignor, by direct and mesne assignments, to Tomlinson Industries, Inc., Cleveland, Ohio, a corporation of Ohio

Original No. 3,122,120, dated Feb. 25, 1964, Ser. No. 82,642, Jan. 13, 1961. Application for reissue Feb. 2, 1970, Ser. No. 13,145

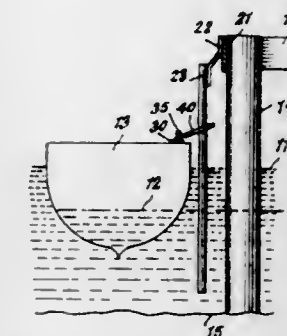
Int. Cl. B63b 21/00

U.S. Cl. 114—230

3 Claims

A force absorbing system adapted to be used with a moored vessel includes a base affixed to the dock, a pair of yielding elements extending from the base and a pair of

vertically disposed bumper sections attached to respective yielding elements. The bumper sections are suspended in



the water with clearance from the bottom and receive support from the dock from above the water line.

27,051

MOTION SIMULATOR

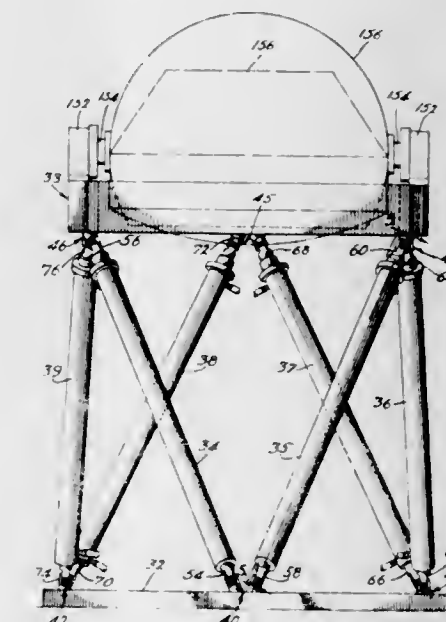
Klaus L. Cappel, Cherry Hill, N.J., assignor to The Franklin Institute, Philadelphia, Pa., a corporation of Pennsylvania

Original No. 3,295,224, dated Jan. 3, 1967, Ser. No. 416,371, Dec. 7, 1964. Application for reissue Nov. 28, 1967, Ser. No. 689,736

Int. Cl. G09b 9/08

U.S. Cl. 35—12

10 Claims



A motion simulator capable of motion in all six degrees of freedom is provided having a platform providing three points in a plane and a support base providing three points in another plane. Six extensible members are employed each connected at one end to the support base and at the other end to the platform and connecting adjacent points of the support base and platform, the extensible members being powered and controlled for providing any of the motions of the platform by selective changes in length of the extensible members. Means on the platform is provided for experiencing motion produced by movement of the platform.

27,052

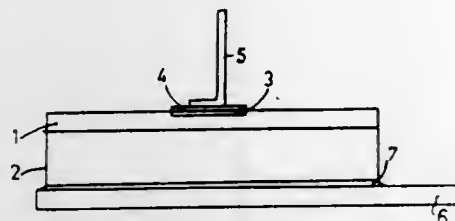
AVALANCHE INJECTION SEMICONDUCTOR DEVICE

Oscar Willem Memelink, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Original No. 3,324,358, dated June 6, 1967, Ser. No. 294,574, July 12, 1963. Application for reissue Sept. 11, 1968, Ser. No. 765,707
Claims priority, application Netherlands, July 19, 1962, 281,182

Int. Cl. H011 3/00, 5/00

U.S. Cl. 317—235

10 Claims



An avalanche injection diode or triode comprising a three-layer arrangement in which the middle layer, preferably epitaxially deposited, is very thin and has a low conductance, such that when voltages are applied across the layers, avalanche breakdown occurs producing avalanche injection in the middle layer and a negative resistance in its voltage current characteristic. The three layers may preferably be the same conductivity type, or the first and third layers may be of opposite conductivity types.

27,053

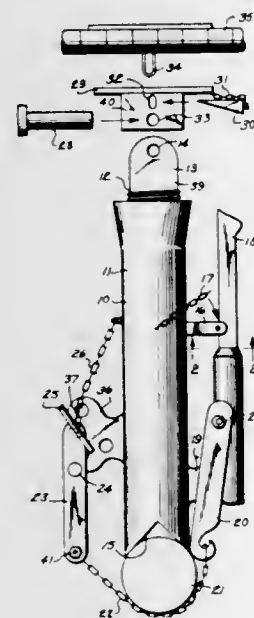
SCAFFOLD HOLDER

Joseph Capozzi, 129 Montvale Road, and Antonio Gatta, 12 Poole St., both of Woburn, Mass. 01801
Original No. 3,372,771, dated Mar. 12, 1968, Ser. No. 558,856, June 20, 1966. Application for reissue May 5, 1969, Ser. No. 835,854

Int. Cl. E04g 3/00

U.S. Cl. 182—87

13 Claims



A scaffold holder comprising a cylindrical housing having a threaded hollow opening therein, an adjustable support having a threaded portion on one end thereof and being adapted to longitudinally travel within the housing, means on the other end of the housing for securing the housing to a column of a scaffold, a holder insert adapted to be mounted in the wall of a structure and provided with means for attaching same to the adjustable threaded support member.

27,054

LOW TOXICITY POLYURETHANE COMPOSITION PRODUCED FROM LONG CHAIN ALIPHATIC DIISOCYANATES

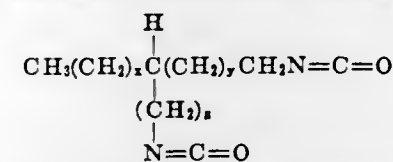
Anthony J. Castro, Oak Park, and Layton F. Kinney, Chicago, Ill., assignors to Armour Industrial Chemical Company, Chicago, Ill., a corporation of Delaware
No Drawing. Original No. 3,487,050, dated Dec. 30, 1969, Ser. No. 706,777, Feb. 20, 1968. Application for reissue Jan. 26, 1970, Ser. No. 10,669

Int. Cl. C08g 17/003, 22/18, 51/36

U.S. Cl. 260—75

8 Claims

Polyurethane compositions prepared by the reaction of a hydroxyl containing polyester free of reactive unsaturation and an aliphatic diisocyanate having the formula



wherein z is 0 to 2, x and y are integers from 0 to 19 and the sum of x and y is from 7 to 19. The polyurethanes produced provide hard, flexible, non-toxic coatings and castings.

27,055

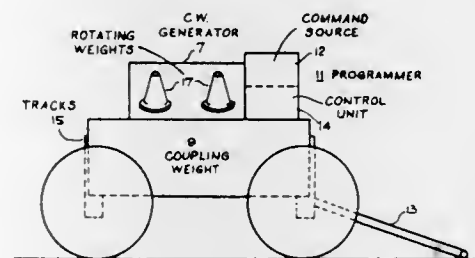
PROGRAMMING SYSTEM FOR A CONTINUOUS WAVE GENERATOR

James K. Lyons, Dallas, and Tom Prickett, Jr., Richardson, Tex., and John P. Woods, Anchorage, Alaska, assignors to Atlantic Richfield Company, a corporation of Pennsylvania
Original No. 3,229,784, dated Jan. 18, 1966, Ser. No. 66,548, Nov. 1, 1960. Application for reissue Oct. 27, 1967, Ser. No. 682,690

Int. Cl. G01v 1/00, 1/14, 1/22

U.S. Cl. 181—5

13 Claims



A continuous wave seismic generator and programmer for automatically governing the rate of the generator's acceleration to produce a frequency varying signal. A hydraulic motor is connected to a shaker device having a flow valve controlled by the programmer to vary the acceleration and the deceleration in the motor in a predetermined manner. As the programmer automatically repeats the steps of acceleration and deceleration, the motor drives weights in the shaker generating a cyclically varying continuous wave of a predetermined period.

27,056

VIBRATION-PROOF WEIGHING SCALE WITH FLEXURE PIVOTS

Robert H. Connors, Chicago, and King L. Klopfenstein, Prospect Heights, Ill., assignors to Triangle Package Machinery Company, Chicago, Ill., a corporation of Illinois
Original No. 3,371,731, dated Mar. 5, 1968, Ser. No. 536,215, Mar. 15, 1966. Application for reissue Apr. 11, 1969, Ser. No. 817,265

Int. Cl. G01g 23/18

U.S. Cl. 177—47

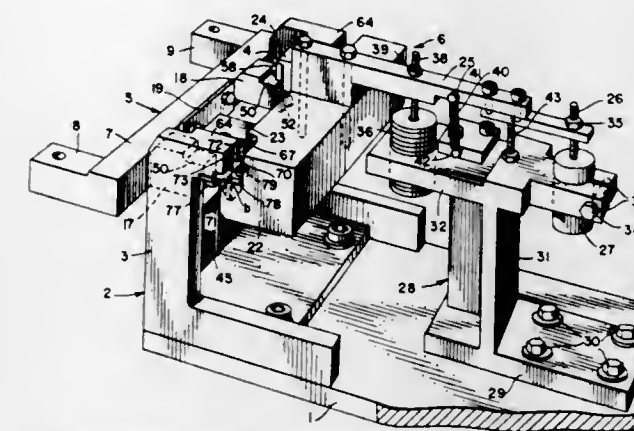
23 Claims

1. A weighing scale having a substantially equal mass moment system, comprising

- (a) a frame,
- (b) a first movable weighing element, including a load receiving member adapted to receive a quantity of a

product to be weighed and having a predetermined mass,

- (c) a second movable weighing element having a predetermined mass,
- (d) a substantially vertical flexible member connecting said first weighing element to said second weighing element,
- (e) guide means associated with said first weighing element to insure movement thereof in a substantially vertical path during the weighing operation,
- (f) a pivot system having the pivot axis thereof fixed,
 - (1) a part of said pivot system being supported by said frame, and



- (2) another part thereof being mounted on said second weighing element,
- (g) spring means acting upon said weighing elements to control the movement thereof when weight is added to said load receiving member, the torque of said spring means being substantially zero at the time the quantity of product to be weighed is on said load receiving member,
- (h) the mass of said first weighing element together with the product thereon being weighed, acting through said flexible member, multiplied by the distance from said flexible member to said fixed pivot axis, and the mass moment of said second weighing

element being substantially equal in a horizontal plane through said fixed pivot axis, whereby a substantially balanced mass moment system in said horizontal plane is achieved.

27,057

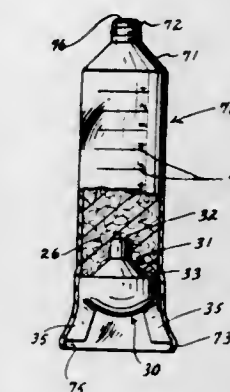
COLLAPSIBLE TUBES WITH FOLLOWER AND THE METHOD OF FILLING THEREOF

Gene Ballin, 3045 Shore Drive, Merrick, N.Y. 11566
Original No. 3,297,207, dated Jan. 10, 1967, Ser. No. 363,140, Apr. 28, 1964. Application for reissue Dec. 23, 1968, Ser. No. 799,133

Int. Cl. B65d 35/08

U.S. Cl. 222—107

18 Claims



A collapsible tube for dispensing a semi-fluid composition when the tube is squeezed has a follower slidably positioned within the tube. The follower has a body portion which compresses the semi-fluid composition when pressure is applied to the tube and a skirt which cooperates with the interior wall of the tube to retain the follower in coaxial alignment with the tube.

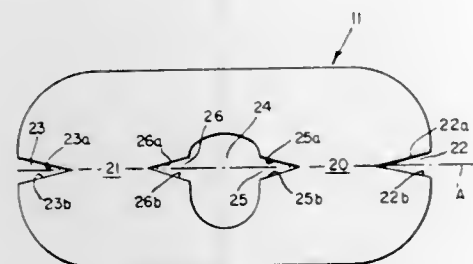
In a process for filling the collapsible tube, a flexible tapered member is inserted into the tube which is already filled with a predetermined amount of the composition and a follower is introduced into the tapered member thereby expanding the tube as the follower enters.

PATENTS

GRANTED FEBRUARY 9, 1971

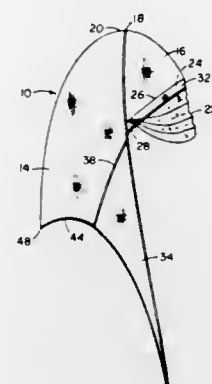
GENERAL AND MECHANICAL

3,561,009
ATHLETIC JERSEY
 Jack L. Huggins, Winston-Salem, N.C., assignor to Hanes Corporation, Winston-Salem, N.C., a corporation of North Carolina
 Filed Sept. 19, 1968, Ser. No. 760,949
 Int. Cl. A41d 1/04
 U.S. Cl. 2—90 8 Claims



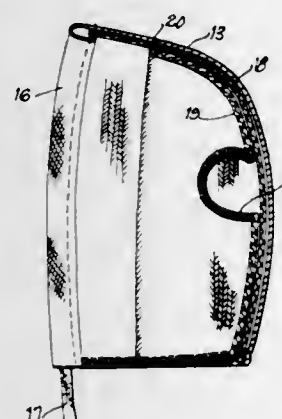
An athletic jersey having shoulders contoured to fit the convex shape of shoulder pads.

to cover the central portion of the head and a third panel which is transparent and pleated and adapted to be se-



lectively pulled down over the bangs and forehead for protection during wind or wind-driven rain.

3,561,010
CONVERTIBLE HEAD COVERING
 John W. Little, Hinsdale, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill., a corporation of New York
 Filed Jan. 13, 1969, Ser. No. 790,631
 Int. Cl. A42b 1/04
 U.S. Cl. 2—173 1 Claim

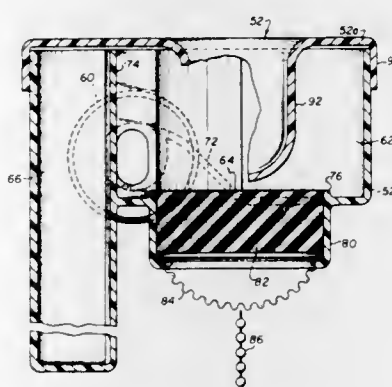
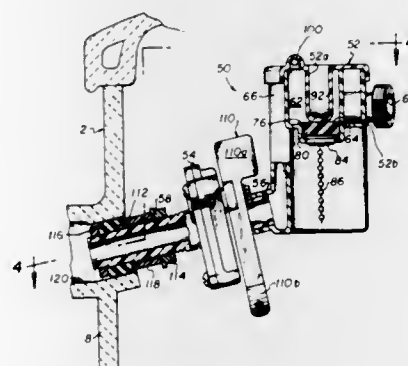


A hood type head covering having a face opening and a panel spaced rearwardly of the opening and stitched to the inner surface of the head covering. The head covering may be worn with the panel adjacent the rear portion of the hood, leaving the face of the wearer exposed, or the panel may be spaced from the rear portion to close the face opening and to cover the face of the wearer. The panel has one or more openings to expose limited areas of the wearer's face.

3,561,011
HEAD PROTECTOR
 Richard G. Gregg, 2410 Holmes Ave., Huntsville, Ala. 35805
 Filed Nov. 7, 1969, Ser. No. 874,863
 Int. Cl. A42b 1/06, 1/20
 U.S. Cl. 2—204 11 Claims

A head protector constructed of a first panel adapted to cover the rear half of the head and extending rearward to cover the collar of the wearer, a second panel attached to the front edge of the first panel and adapted

A refill unit positioned within a tank of a water closet, and consisting of a hollow housing defining a first



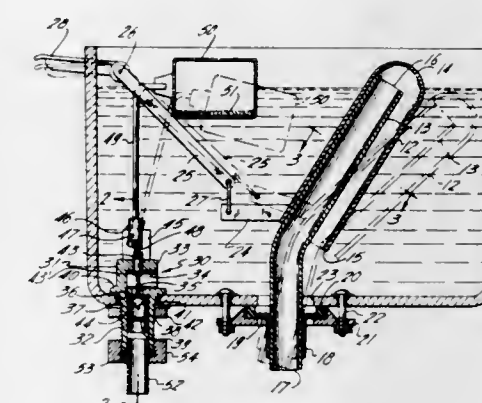
FEBRUARY 9, 1971

GENERAL AND MECHANICAL

459

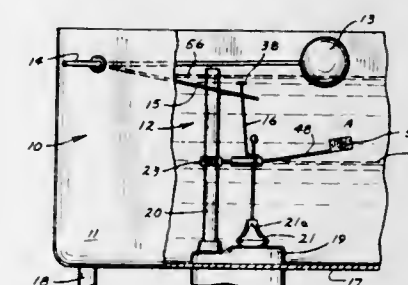
cylindrical swirl chamber having an inlet for receiving water from a water source and an outlet for supplying water to the tank, and a second cylindrical chamber having an outlet for supplying water to the water bowl. A passage connects the chambers and a dam is formed in the passage for preventing flow between the chambers during predetermined flow rates in the inner chamber.

3,561,013
WATER TANK FOR TOILET FLUSHING
 Emilio Fernandez Lopez, Uruguay, Mexico
 (249 W. 14th St., New York, N.Y. 10011)
 Filed Apr. 25, 1968, Ser. No. 732,474
 Int. Cl. E03d 1/07
 U.S. Cl. 4—42 9 Claims



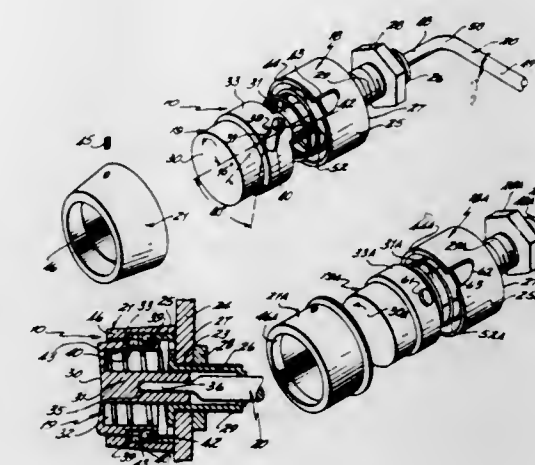
Water tank for toilets or similar installations where periodical flushing is needed, with an automatically operating filling valve and with a discharge device, operating according to the siphon principle under atmospheric pressure.

3,561,014
FLUSH VALVE CONTROL ASSEMBLY
 Berthold Thomas Johnson, 1551 97th St., North Battleford, Saskatchewan, Canada
 Filed Oct. 1, 1968, Ser. No. 764,229
 Int. Cl. E03d 1/34
 U.S. Cl. 4—53 10 Claims



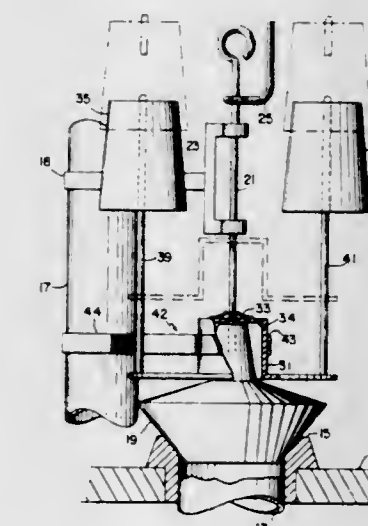
A flush valve control assembly for regulating the flushing operation by limiting the quantity of water flow out of a water closet that includes a float operated cam for retaining the valve stem of a ball valve in a flush position until the float lowers to a preselected level and then releases the ball valve stem. Adjustment mechanism is provided to retain the cam in a valve stem release position when the valve stem is in a non-flushing position and to limit the movement of the cam and thereby the maximum lowering of the float.

3,561,015
PUSH BUTTON OPERATED FLUSH MECHANISM
 Clarence T. Moore, Fort Recovery, Ohio, assignor to Fort Recovery Industries, Inc., Fort Recovery, Ohio, a corporation of Ohio
 Filed Apr. 23, 1969, Ser. No. 818,535
 Int. Cl. E03d 1/34
 U.S. Cl. 4—67 16 Claims



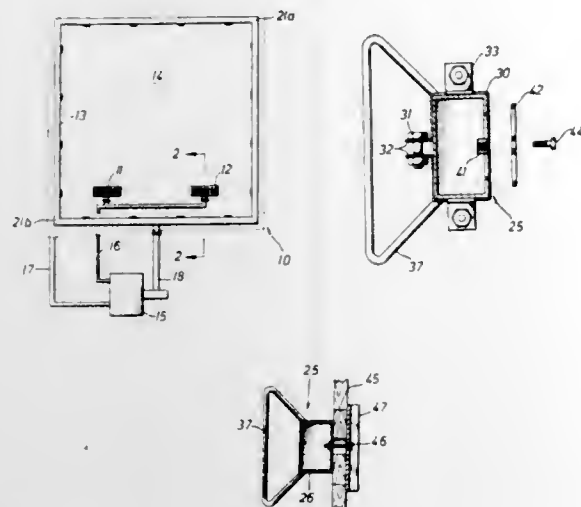
A push button operator for controlling opening and closing movements of a flush valve in a flush tank.

3,561,016
WATER-SAVING ACCESSORY FOR TOILET FLUSH TANKS
 Burton F. Reynolds, 46 Shepard St., Cambridge, Mass. 02138
 Filed Nov. 7, 1969, Ser. No. 874,873
 Int. Cl. E03d 1/22, 1/34, 5/02
 U.S. Cl. 4—67 10 Claims



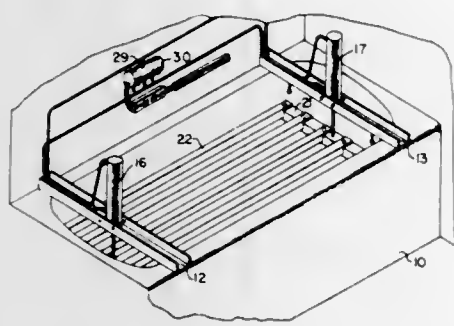
The flush tank accessory disclosed herein permits releasing either substantially all or a preselected portion of the water held in a toilet tank by means of a float which is held a predetermined distance above the valve member for selectively supporting that member. The falling water level within the tank will therefore reduce the support on the valve when the water level reaches the float thereby causing the valve to close unless it is manually held open throughout the emptying of the tank.

3,561,017
RECIRCULATION SYSTEM FOR SWIMMING POOLS
 Richard W. Holland, 13103 Conifer,
 Houston, Tex. 77024
 Filed Nov. 21, 1968, Ser. No. 777,835
 Int. Cl. E04h 3/16
 U.S. Cl. 4—172.17 **8 Claims**



Recirculating apparatus for use in a swimming pool which incorporates a water supply line integrally within the pool wall in the form of a conduit cavity or header having spaced water outlets opening into the pool substantially below the surface of the water, preferably completely encircling the pool to provide an adequate quantity of treated fresh water, and cooperative with an overflow return gutter thereby providing a pipeless water handling system for a swimming pool avoiding adjacent pipe tunnels and other equipment which is difficult to install, expensive, and difficult to service.

3,561,018
BATHTUB ASSIST
 Mitchell D. McVay, 213 N. 3rd St.,
 Bozeman, Mont. 59715
 Filed Oct. 7, 1968, Ser. No. 765,386
 Int. Cl. A47k 3/12
 U.S. Cl. 4—185 **5 Claims**

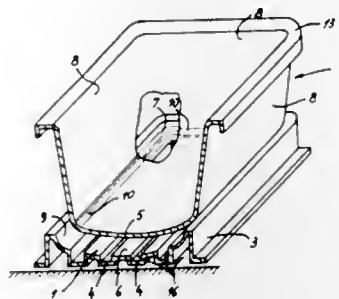


A platform for supporting a bather at the top of a bathtub and adapted to be lowered and raised by mechanical hydraulic force by means of a cylinder and piston at each end of the bathtub with the cylinders mounted on cross-members supported on the rim of the bathtub.

3,561,019
STAND FOR A SANITARY VESSEL
 Jacques Jean Olivier Raymond Roland, 2 Avenue Bel Air,
 Brussels, Belgium
 Filed June 26, 1969, Ser. No. 836,925
 Claims priority, application Luxembourg, July 1, 1968,
 56,384
 Int. Cl. A47k 3/00
 U.S. Cl. 4—186 **16 Claims**

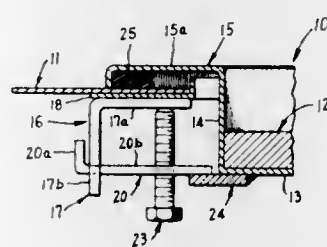
A bearer cradle for a sanitary vessel such as a bathtub comprising a one-piece ribbed element having alternate

lower and upper hollow ribs. The lower hollow ribs having bearing surfaces to rest on a base, and the upper hollow ribs have concave surfaces supporting the bottom



of the vessel and matching and fitting the rounded portions as well as the curvatures along at least a part of the periphery of the bottom.

3,561,020
WORK SURFACE CLAMPING MEANS FOR DROP-IN COOKING EQUIPMENT
 Donald E. Fritzsche, Chicago Heights, Ill., assignor to
 General Electric Company, a corporation of New York
 Filed June 24, 1969, Ser. No. 836,038
 Int. Cl. E03c 1/33; F24c 15/10
 U.S. Cl. 4—187 **6 Claims**

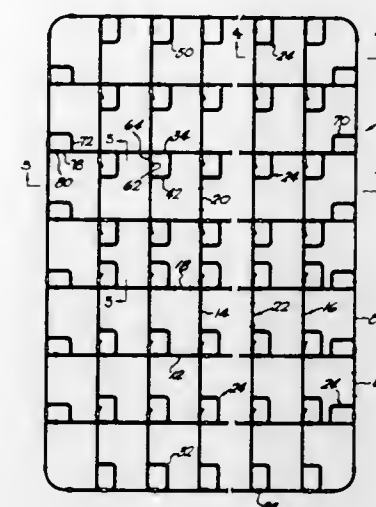


Clamping means for fastening a drop-in cooking equipment device to a work surface including a stiffening angle suitably secured to the under side of the work surface adjacent to an opening provided therein for receiving the drop-in device, one leg of the stiffening angle having at least one slot therein for receiving an end of at least one clamping member, the other end of the clamping member engaging an externally projecting flange of the drop-in device, and a screw suitably received by the portion of the clamping member extending between the end thereof passing through the slot in the stiffening angle and the end of the clamping member engaging the externally projecting drop-in device flange whereby rotation of the screw in a given direction causes the clamping member to move away from the work surface such that the trim surrounding and integral with the perimeter of the drop-in device is drawn down tightly upon the upper side of the work surface adjacent the opening therein.

3,561,021
WIRE SPRING ASSEMBLY FOR MATTRESSES
 Walter V. Slominski, Lexington, Ky., assignor to Hoover
 Ball and Bearing Company, Saline, Mich., a corpora-
 tion of Michigan
 Filed Nov. 19, 1968, Ser. No. 777,099
 Int. Cl. A47c 23/00
 U.S. Cl. 5—247 **18 Claims**

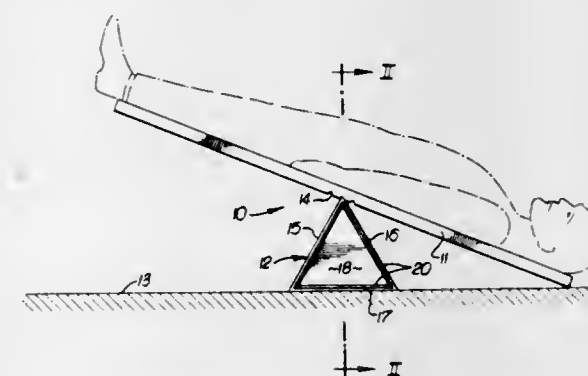
A wire spring assembly particularly adapted for mattresses for beds consisting of a plurality of springs each of which is formed from straight wire sections connected so as to form a pair of flat wire decks spaced apart a distance less than the desired thickness of the mattress

and connected by resilient springs which allow the decks to move resiliently toward each other under load. Each deck includes a rectangular border wire which encloses an area corresponding substantially to the desired area of the pocket in the flange spaced from the lug and a set screw through the base of the clamping fork engaging said keeper



mattress, and some of the springs which resist movement of the decks toward each other are connected between the border wires so as to impart firmness to the spring assembly.

3,561,022
HEALTH SLANT BOARD
 Eugene James, 31423 Coast Highway,
 South Laguna, Calif. 92677
 Filed Jan. 16, 1969, Ser. No. 791,643
 Int. Cl. A47c 22/00
 U.S. Cl. 5—327 **2 Claims**



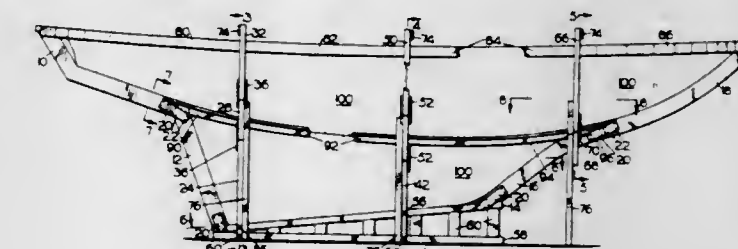
A board is provided on a support means to allow persons to selectively and optionally position themselves in semi-inverted and semi-upright positions, the support means being formed of a single sheet of metal bent into triangular configuration with triangular end pans positioned in the open ends of said sheet of metal. A retainer lip is provided on one end of the aforementioned sheet of metal to retain the support means in assembled position.

3,561,023
AX WITH REPLACEABLE TOOLS
 Frederick Shandel, Albion, Calif. 95410
 Filed Jan. 10, 1969, Ser. No. 790,276
 Int. Cl. B25f 1/02
 U.S. Cl. 7—14.55 **5 Claims**

An ax with a flat top on its poll, a narrow lug projecting from the top and having a recess in its edge facing toward the sharp edge of the ax, and a securing flange on each attachment tool having a slot slideable over the lug to rest flat on said poll top, and a clamping fork held in the recess and straddling the lug with limited play; a keeper

pocket to tightly clamp the flange of the attachment tool to the lug and to the top of the poll of the ax.

3,561,024
METHOD OF MAKING BOAT HULLS AND THE LIKE AND A STARTER SHELL KIT THEREFOR
 Allen D. Pratt, 6016 N. Burrage Ave.,
 Portland, Oreg. 97217
 Filed June 6, 1969, Ser. No. 831,128
 Int. Cl. B63b 3/02
 U.S. Cl. 9—6 **3 Claims**

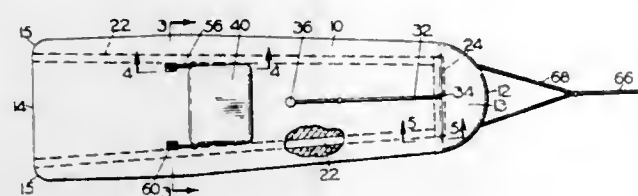


A plurality of longitudinally interconnected keel-defining frame members and a plurality of spaced side-defining frame members are secured to the inner side of longitudinally spaced transverse frame members to form an open framework defining the general shape of a boat hull. Thin pre-formed panels of glass fiber-reinforced synthetic plastic are secured to the inner sides of the keel- and side-defining frame members to form a starter shell for the boat. Glass fiber-reinforced synthetic plastic then is applied over the unobstructed inner surfaces of the panels to complete the boat hull, after which the external frame members are removed.

3,561,025
WATER SLED
 Virgil V. Teach, Portland, Oreg., assignor of ninety
 percent to Mrs. Gloria Ray
 Filed Oct. 31, 1968, Ser. No. 772,273
 Int. Cl. B63b 35/72
 U.S. Cl. 9—310 **3 Claims**

A buoyant water sled or board has means for fastening a tow rope thereon so that it can be pulled through the water. The sled has a seat for supporting a person in a sitting position and includes a hand line connected to a front portion of the sled which is grasped by the rider for steadying himself. The sled is sufficiently buoyant to

support the rider, and the seat is removable whereby the sled can be used as a float without the seat. The body of

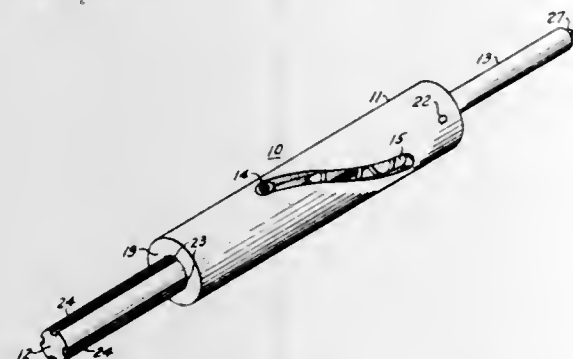


the sled is constructed of a suitable foamed plastic and a covering of glass fiber.

3,561,026

KNOCKOUT ASSEMBLY

Charles W. Schaeffer, Lebanon, Pa., assignor to Bethlehem Steel Corporation, a corporation of Delaware
Filed July 25, 1968, Ser. No. 747,523
Int. Cl. B23g 11/00; B21k 27/00; B21d 45/00
U.S. Cl. 10—11

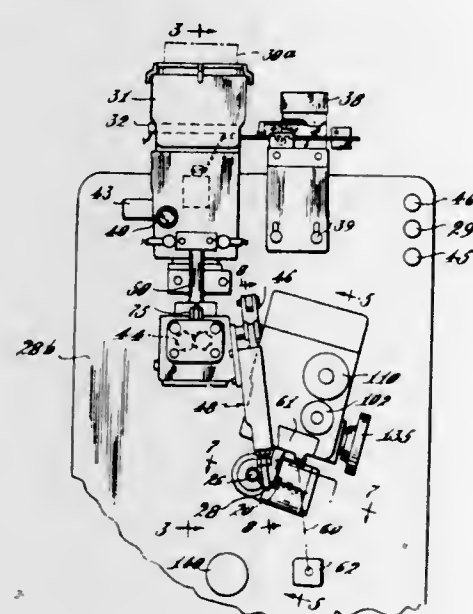


A knockout assembly for use in a forming machine has a rod with a tip shaped to form a desired indentation in a workpiece and a sleeve which surrounds the rod to eject the workpiece from the machine. The rod and sleeve are slidably mounted in a body. An arrangement of cams causes the sleeve to move a greater distance than the rod and thereby strip the workpiece from the tip of the rod and eject it from the machine.

3,561,027

LASTING MACHINE

Robert B. Dunlap, Medway, and Evald O. Peterson, Lynnfield Center, Mass., assignors to Compo Industries, Inc., Waltham, Mass., a corporation of Delaware
Filed Mar. 18, 1969, Ser. No. 808,286
Int. Cl. A43d 31/00
U.S. Cl. 12—8.3



In a lasting machine of the kind in which a pair of rolls turning in opposite directions apply lasting and

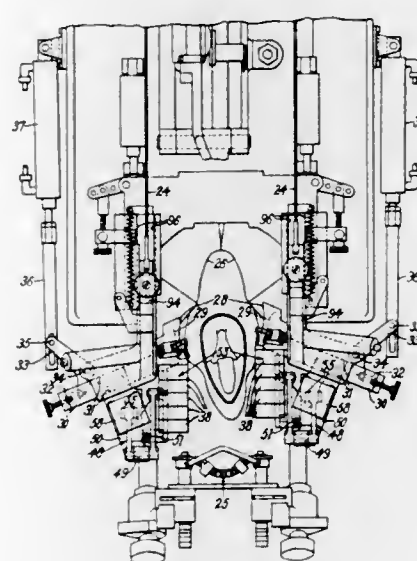
feeding stresses to the lasting margin of a shoe, improvements in means for adjusting the spacing between the axes of said rolls, means for controlling the adhesive flow from the adhesive nozzle, the adhesive delivery system, means for adjusting the position of the nozzle relative to the lasting margin, means for adjusting the axis of a rotary wiper at right angles to the axes of said rolls and means for resiliently urging the operative surface of a wiper blade towards the bite of said rolls whereby it is self-adjusting to accommodate different thicknesses of the last margin.

3,561,028

SHOE LASTING MACHINES

Raymond M. Bowler, 46 Lake St., Salem, N.H. 03079
Filed May 26, 1969, Ser. No. 827,697
Int. Cl. A43d 21/00, 23/00
U.S. Cl. 12—12

8 Claims



A shoe lasting machine having a plurality of wipers adjustably secured together as a unit to form a variably curved surface for wiping a shoe upper over the side of a last.

3,561,029

NONCONSUMABLE ELECTRODE FOR ELECTRIC ARC HEATING AND MELTING AND METHODS

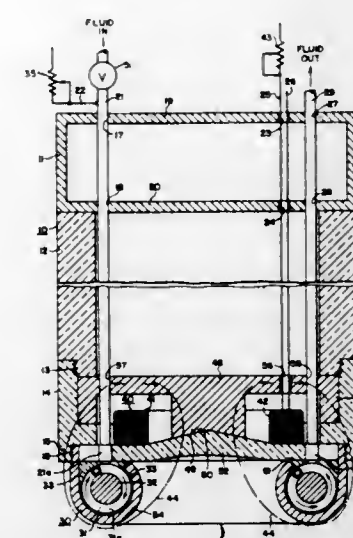
Armin M. Bruning, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Continuation-in-part of application Ser. No. 407,332, Oct. 29, 1964. This application Oct. 14, 1969, Ser. No. 866,274
Int. Cl. H05b 7/06

U.S. Cl. 13—18

19 Claims

An electrode especially suitable for use in an arc furnace where the arc current may be of the order of several thousand amperes includes a fluid cooled tip forming an arcing surface, a tip supporting structure including fluid passageways for bringing fluid to and conducting fluid from the tip, and magnetic field producing means mounted near the arcing surface for causing the arc to move substantially continuously over the arcing surface in repetitive paths in a closed track formed by an annular configuration of the tip. A sufficiently large surface area is cooled at a sufficient rate to remove heat flux resulting from integrated arc spot losses which are a function of arc current, as well as heat flux resulting from radiation and convection, and maintain a desired average arcing surface temperature, taking into consideration the wall thickness between arcing surface and water surface, and the thermal conductivity of the material. A sufficient force

which is a function of arc current and magnetic field strength is exerted on the arc to move the arc at a sufficient speed which produces an arc spot dwell time so short

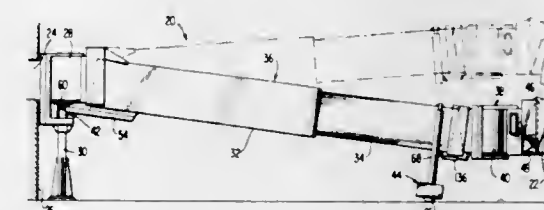


3,561,030

CONVEYANCE LOADER

Andrew G. Seipos, Miami, Fla., assignor to Wollard Aircraft Equipment, Inc., a corporation of Washington
Filed July 28, 1969, Ser. No. 845,387
Int. Cl. B65g 11/00
U.S. Cl. 14—71

20 Claims



Conveyance loader includes an elongated, articulated tunnel which is vertically swingable to accommodate conveyances having doorways at different elevations. The outer tunnel section is independently pivotally adjustable to a horizontal position irrespective of inclination of the main tunnel section, to avoid tripping hazards for passengers stepping between the conveyance and the loader. Automatic leveling of the outer tunnel section is effected by a pendulum, which indicates the horizontality of the outer tunnel section, and a power system which is responsive to the position of the pendulum to swing the outer tunnel section to horizontal disposition. Manual control can be effected by manipulation of electrical switches.

3,561,031

AUTOMOBILE TIRE WASHER

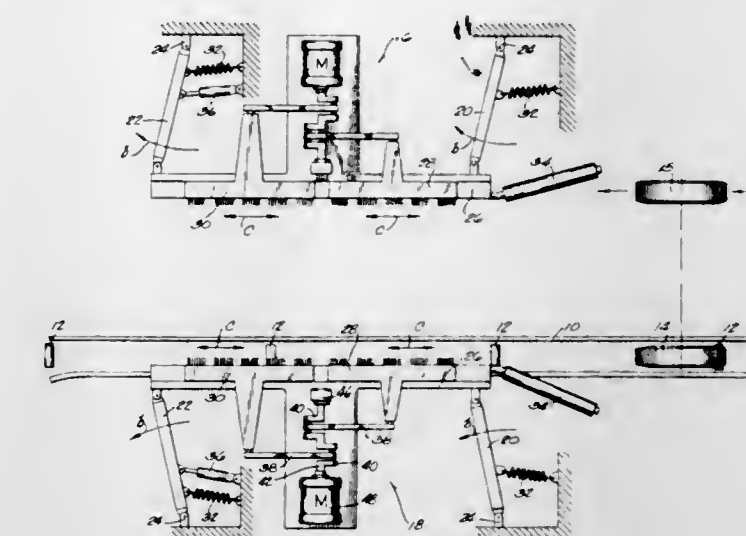
Myron M. Gusse, 353 17th St., and Melvin E. Gusse, Winnebago Heights, Malone, Rte. 1, both of Fond du Lac, Wis. 54935
Filed Apr. 29, 1969, Ser. No. 820,255
Int. Cl. B60s 3/04

U.S. Cl. 15—21

5 Claims

A tire washing mechanism adapted to wash the tires on one side of a vehicle as it moves past the mechanism. The mechanism is a spring biased and horizontally disposed parallelogram linkage, the cross-member of which

is parallel to the intended path of the vehicle and which carries two sets of horizontally reciprocating brush assemblies. The linkage is moved upon being engaged by a tire while maintaining the brush assemblies parallel to



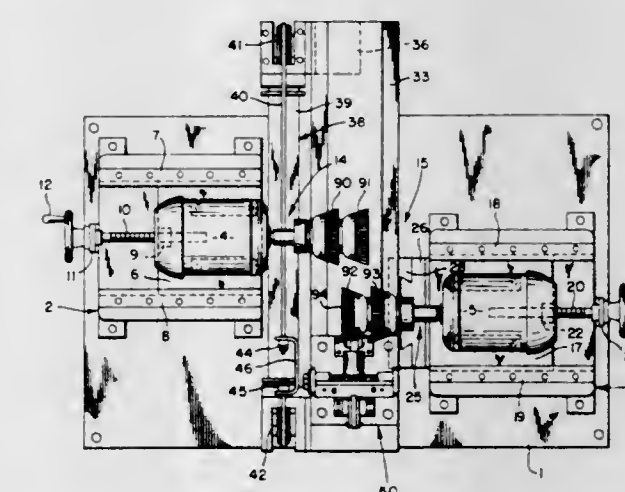
3,561,032

BRUSHING MACHINE

Joseph A. Kasnyik, Parma, and Vernon K. Charvat, Bay Village, Ohio, assignors to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio
Filed Oct. 18, 1968, Ser. No. 768,850
Int. Cl. A46b 13/02

U.S. Cl. 15—21

14 Claims



A brushing machine for finishing opposite parallel surfaces comprising a pair of oppositely directed brush spindles, each having a pair of brushes thereon, the inner brush on one cooperating with the outer brush on the other, and a work holding fixture gripping the work and moving the same past the brushes.

3,561,033

AUTOMATIC TOOTHBRUSH WITH MOTION SELECTOR

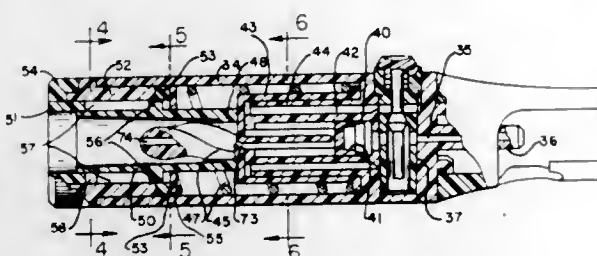
John M. Trenary, Fort Collins, and David W. Smith, Wellington, Colo., assignors to Aqua Tec Corporation, Fort Collins, Colo., a corporation of California
Filed May 6, 1969, Ser. No. 822,181
Int. Cl. A46b 13/06; A47k 7/04

U.S. Cl. 15—22

10 Claims

An automatic toothbrush comprises a handle provided with a detachable toothbrush element and a reciprocating

motor in the handle for driving the toothbrush. Reciprocating motion is effected by direct drive between the motor and the toothbrush and rotary oscillating motion is effected by a helical member connecting the reciprocating



ating motor and the rotatable drive for the toothbrush. A selector device is provided for alternatively connecting the motor and toothbrush to effect reciprocating movement of the brush in one position and rotary oscillating movement in the other.

3,561,034

SEWER RODDING MACHINE

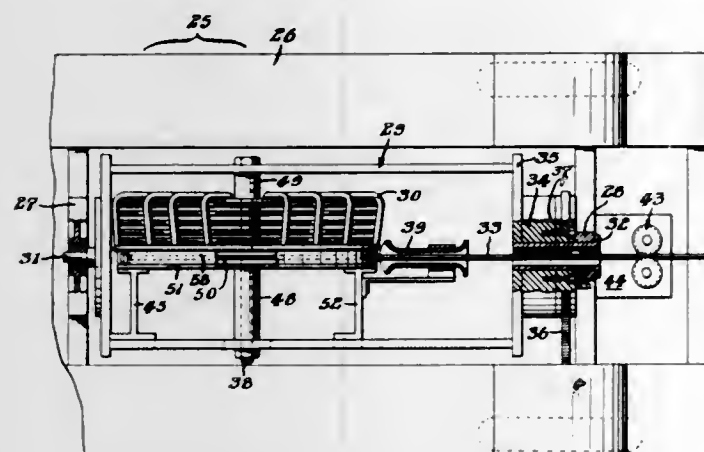
Charles B. Caperton, Montgomery Court Apts.,
Narberth, Pa. 19072

Original application Dec. 30, 1966, Ser. No. 613,703, now
Patent No. 3,469,273, dated Sept. 30, 1969. Divided
and this application Apr. 4, 1969, Ser. No. 835,278

Int. Cl. B08b 9/02

U.S. Cl. 15—104.3

4 Claims



A drive for a sewer rodding machine includes a torsion-taking wheel for preventing the twist of the rod from getting back into the storage reel. A fixed guard functions to confine the rod on the periphery of the wheel. Cross rollers in the guard facilitate movement of the rod in its axial direction while preventing movement of the rod in the radial direction of the wheel.

3,561,035

FLOOR MAINTENANCE HEAD

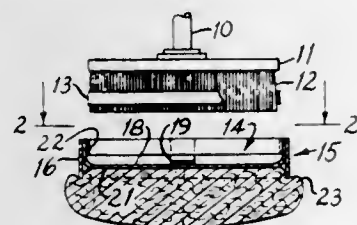
Michele Leonforte, 19 Juniper Road,
Kings Park, N.Y. 11754

Filed June 18, 1969, Ser. No. 834,348

Int. Cl. A47l 11/02, 13/16

U.S. Cl. 15—230.19

5 Claims



A floor pad is adhesively secured within a tube which is removably attached to the brush of a floor maintenance

machine, the floor pad being rotatable by the brush. Instead of thus adhesively securing the floor pad, another form of the invention permits the floor pad to be pivoted within the tube so as to allow exposure of opposing faces of the floor pad.

3,561,036

HOLD-OPEN APPARATUS FOR DOOR

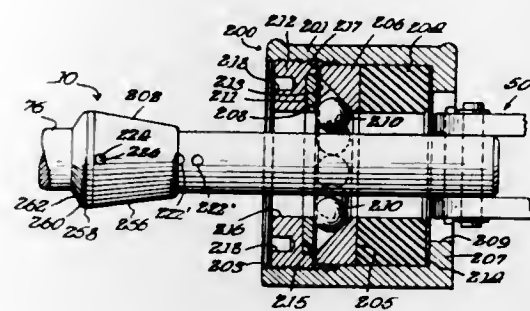
Burke J. Crane, Lombard, Ill., assignor to Rixson Inc.,
Franklin Park, Ill., a corporation of Illinois

Filed June 24, 1968, Ser. No. 739,239

Int. Cl. E05f 3/22

U.S. Cl. 16—49

3 Claims



The apparatus controls axial movement of a shaft longitudinally of its own axis, which shaft is arranged for axial movement in response, respectively, to opening and closing movement of a door upon a fixed hinge axis. A boss having a camming surface is mounted in a fixed axial position along the shaft. Owing to a holding arrangement of an expandable group or ring of balls encircling the shaft, which balls are acted upon by resilient means, an axial pulling force on the shaft is required to permit axial movement of its camming boss through the ring of balls, when the shaft moves in a door closing direction. Because of the configuration of the boss or cam, a lesser axial pulling force on the shaft suffices to permit axial movement of the cam through the ring of balls, when the shaft is moving in a door opening direction.

3,561,037

SAFETY CURTAIN HANGER

Wilhelm Hachtel, 6994 Niederstetten, Germany

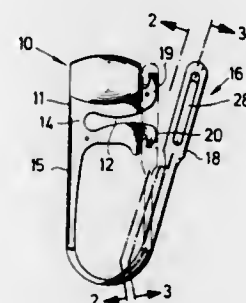
Filed July 16, 1968, Ser. No. 745,228

Claims priority, application Germany, July 25, 1967,
H 63,385

Int. Cl. A47h 13/04

U.S. Cl. 16—87.2

9 Claims



A resilient clip-type curtain hanger having a slot at its free clip end which engages at top and bottom a pair of oppositely directed hooks extending from the supporting portion of the hanger. The distance between the engaging faces of the hooks is greater than the length of the slot and the hooks can be flexed together somewhat to enter the slot.

3,561,038

REINFORCING PIVOT HINGE

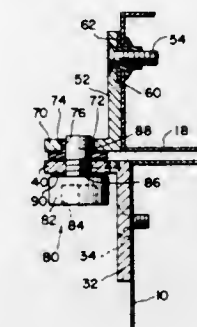
Thomas M. Bennett, 4157 Circle Court,
Williamsville, N.Y. 14221

Filed Aug. 28, 1968, Ser. No. 755,865

Int. Cl. E05d 9/00

U.S. Cl. 16—128

8 Claims



A first hinge portion includes a flat leaf portion which is attached to a surface of a door by suitable bolts and the like. A flange portion is provided at the upper edge of the first hinge portion and extends generally normal thereto. A second hinge portion includes a leaf portion attached to a face of a frame by suitable attaching members. A flange portion is provided at the lower edge of the second hinge portion and extends generally normally thereto. The flange portions of the two hinge portions are pivotally interconnected with one another by a pivot pin in alignment with the usual butt hinges supporting the door from the frame.

3,561,039

SPRING HINGE

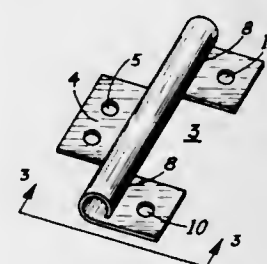
David L. Amrein, St. Charles, Mo., assignor to American
Air Filter Company, Inc., Louisville, Ky., a corporation
of Delaware

Filed June 24, 1969, Ser. No. 836,072

Int. Cl. E05f 1/12

U.S. Cl. 16—180

3 Claims



A single-piece spring hinge with spaced first strap means extending from a first edge of a rolled leaf spring element and second strap means extending from an opposite edge of the spring element through the opening formed between the first strap means, where the first and second strap means are connected to the adjoining elements to be pivotably fastened by the hinge.

3,561,040

SPRAYING APPARATUS AND METHOD FOR USE IN CONJUNCTION WITH FOWL DEFEATHERING APPARATUS

Folke K. Floden, Modesto, Calif., assignor to Food Equip-
ment Inc., Dallas, Tex., a corporation of Delaware

Filed Aug. 2, 1968, Ser. No. 749,804

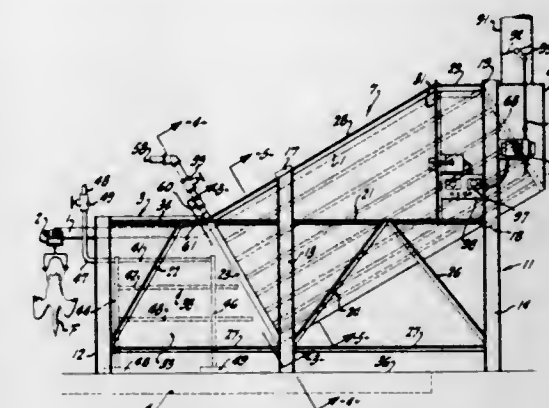
Int. Cl. A22c 21/04

U.S. Cl. 17—11.2

22 Claims

Sanitary apparatus and method for subjecting fowl, such as poultry, to a high temperature vaporized medium, such as steam, to replace the commonly employed procedure of immersing fowl in hot water scalding tanks, prior to defeathering. A compartmented housing, having spray jets on opposite sides of a U-shaped path of travel of the fowl,

is inclined at a predetermined angle relative to the horizontal. The housing interior is generally smooth and self-cleaning with only spray nozzles projecting from the inner surfaces thereof. An alternate apparatus embodiment in-



3,561,041

FISH HANDLING METHOD AND APPARATUS

Chester Szymanski and Albert J. Ballentine, San Jose,
Calif., assignors to FMC Corporation, San Jose, Calif.,
a corporation of Delaware

Filed May 24, 1968, Ser. No. 731,996

Int. Cl. A22c 25/08

U.S. Cl. 17—45

7 Claims



A fish handling method for feeding fish (e.g., anchovies, sardines, etc.) head first in single file and at a relatively high rate. The fish are deposited upon an upwardly faced rotating surface. By virtue of sliding frictional engagement between the fish and the rotating surface, the fish are accelerated in the direction of rotation and they are caused to move radially by centrifugal force toward the perimeter of the rotating surface. Fish are moved away from the periphery of the rotating surface and collected in a region from which they are discharged head first in single file. The apparatus includes a rotating tub-like device which is continuously rotated about an upright axis and into which the fish are fed. Means cooperates with the rotating device for removing and collecting the fish therefrom and for delivering the fish head first in single file.

3,561,042

HOG SKINNING IMPROVEMENT

Francis Glenn Connick, Downers Grove, Ill., assignor to
Swift & Company, Chicago, Ill., a corporation of Dela-
ware

No Drawing. Filed May 26, 1969, Ser. No. 827,971

Int. Cl. A22b 5/16

U.S. Cl. 17—50

6 Claims

An improved process for removing the skin from a hog carcass comprising the steps of hand skinning the

mid-ventral area and then subjecting the said carcass to a blast of chilled air until the fat layers beneath the skin become sufficiently firmed that the skin may be removed in a whole piece with little, if any, fat adhering to the said removed skin.

3,561,043

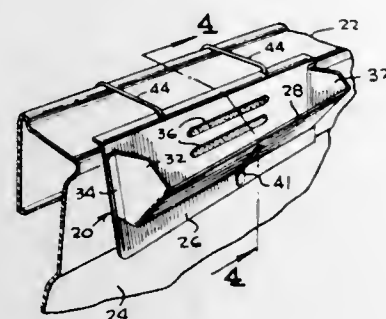
BOAT MOUNTED HOLDER FOR ENABLING CLEANING OF FISH

Jack D. Breckenridge, 519 S. Iron St., and David L. Schultz, 3204 Laurel Lane, both of Centralia, Wash. 98531

Filed Nov. 12, 1969, Ser. No. 875,783
Int. Cl. A22c 25/06

U.S. Cl. 17—53

5 Claims



A fish holder formed with a vertical plate and an inclined plate connected to provide a trough with an opening in the bottom and having cords extending from the top over the gunwale of a boat with hooks on the end of the cord to be engaged with the under edge of the inside of the gunwale and with adhesive means on the interior of the trough for preventing movement of a fish held in the trough for cleaning with a bumper means on the exterior of the trough for holding the holder in position against the exterior of the boat hull without marring the hull.

3,561,044

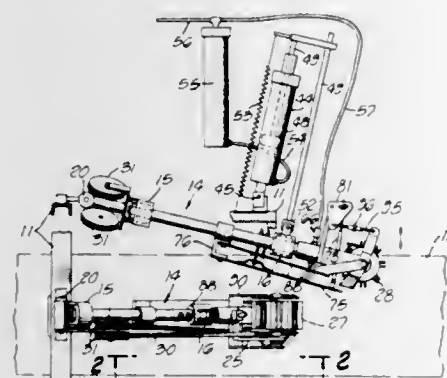
AUTOMATIC DRESSING APPARATUS

Vincent J. Evich, 1315 Leland St., San Pedro, Calif. 90731

Filed Feb. 17, 1969, Ser. No. 799,706
Int. Cl. A22c 25/14

U.S. Cl. 17—54

24 Claims



Fish dressing apparatus for removing skin to a predetermined depth as the fish is conveyed past a series of dressing rolls independently movable toward and away from the changing contour of the fish. Each roll is positioned by power means responsive to a master sensor subject to finer adjusting control by a more delicate servo sensor. The individual dressing rolls are also mounted for self-adjusting pivotal movement about an axis normal to the axis of rotation of the dressing roll thereby permitting the rolls to pivot as necessary to accommodate changes in the transverse contour of the fillet.

3,561,045
APPARATUS FOR MANUFACTURE OF FILAMENTS OF VARYING DENIER
Peter Heffernan, Carlisle, England, assignor to Courtaulds Limited, London, England, a British company
Filed June 27, 1969, Ser. No. 837,045
Claims priority, application Great Britain, July 5, 1968, 32,128/68
Int. Cl. D01d 5/20

U.S. Cl. 18—1

4 Claims

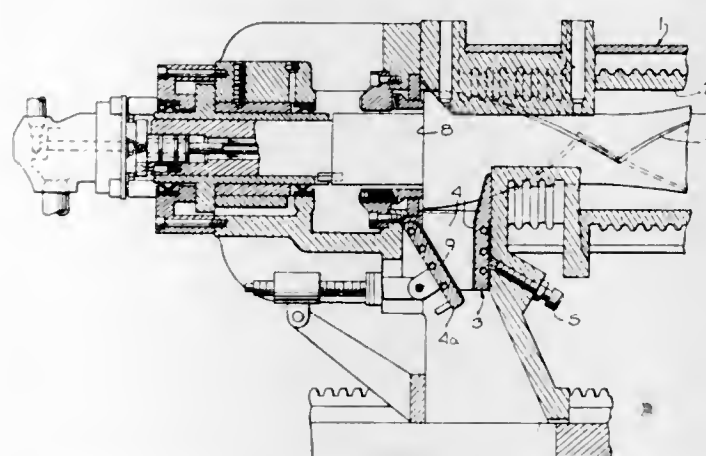


A filament-drawing apparatus for imparting to a thermoplastic filament a lengthwise variation of denier, comprising a feed roll, a draw roll, a matt circumferential band and a mirror-finish circumferential band on the cylindrical surface of the draw roll, a separator roll having a matt cylindrical surface and a filament deflector, for example a rotary cam, arranged to deflect intermittently the filament from contact with one band into contact with the other band.

3,561,046
LUBRICATED DISCHARGE ORIFICE FOR RESTRAINING PLASTIC FLOW
Richard N. Comes, Woodbridge, and Walter A. Rapetski, Orange, Conn., assignors, by mesne assignments, to USM Corporation, Boston, Mass., a corporation of New Jersey
Filed Mar. 5, 1968, Ser. No. 710,496
Int. Cl. B29h 5/00

U.S. Cl. 18—2

1 Claim

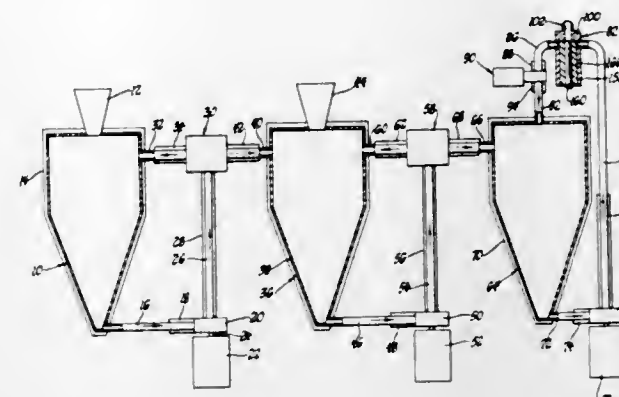


A lubricating layer is fixed on the wall of the discharge orifice of a continuous internal mixer of the kind wherein the internal pressure of the material being mixed is controlled by the choking effect of this orifice on the material discharged therethrough whenever new material is fed into the mixer. This provides a smoother restraint of the discharging material and therefore more uniform control of the pressure on the material while it is in the mixer.

3,561,047
PLASTIC MIXING AND INJECTION SYSTEM
Stirling A. McInnis, 661 Kenyon St., Troy, Mich. 48084
Filed Mar. 4, 1968, Ser. No. 710,150
Int. Cl. B29f 1/06

U.S. Cl. 18—4

19 Claims



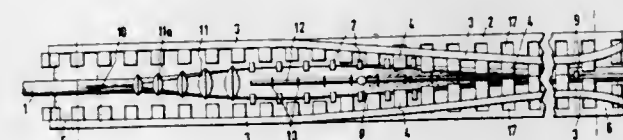
Method and apparatus for preparing for and directing a mixture of plastic material and filler material into molding dies to form an article of manufacture. Preparation includes the melting of a thermoplastic material in a heated receptacle and continuously circulating the melted plastic through the receptacle with temperature control. A transfer valve may be operated to divert the circulating plastic material to a heated mixing receptacle where filler material is added, the temperature being controlled to assure complete wetting and mixing of the filler material by and with the liquid plastic. Continuous circulation through the mixing receptacle maintains the filler material in mechanical suspension in the mixture. A second transfer valve may be operated to divert the mixture into a heated holding receptacle for continuous circulation therethrough and, as needed, for conveyance to molding dies. Suitable valve means are provided to divert flow to the dies through an injection gun. Upon filling the dies, a multiple cylindric injection machine pressurizes the mixture through the gun to eliminate voids in the molded article and to compensate for shrinkage as the mixture cools.

3,561,048
METHOD AND APPARATUS FOR PRODUCING HOLLOW BODIES BY MEANS OF FOAMABLE SUBSTANCES, PARTICULARLY WITH POLYURETHANE

Rudolf Ernst, Strasslach, near Munich, Germany, assignor to Maschinenfabrik Hennecke Gesellschaft mit beschränkter Haftung, Leverkusen, Germany
Filed July 31, 1968, Ser. No. 749,129
Claims priority, application Germany, July 31, 1967, P 17 04 842.9
Int. Cl. B29d 3/00, 23/00

U.S. Cl. 18—4

16 Claims

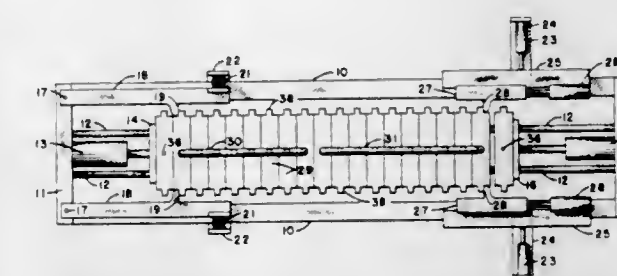


A method and apparatus for the continuous production of hollow bodies that are enclosed in foamable substances such as polyurethane, where a core tube (12) is coated with foamable material inside a covering tube (1) that is slit open in longitudinal direction, and the open covering tube is shaped around the foamed material to constitute a closed tubular body.

3,561,049
CONTINUOUS MULTI-PLATEN PRESS
Fernando V. Guerrero, Chagrin Falls, Ohio, assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Oct. 21, 1968, Ser. No. 769,098
Int. Cl. B30b 5/00, 15/34

U.S. Cl. 18—6

5 Claims

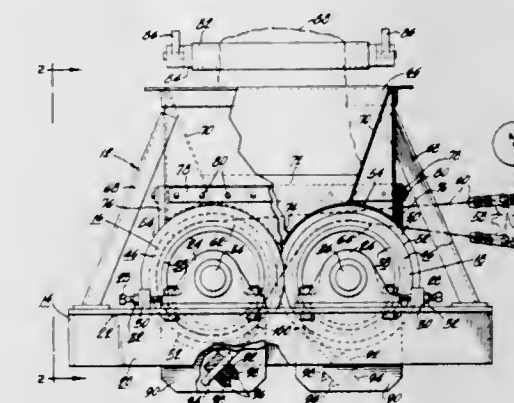


Continuous platen-type press wherein a plurality of mold platens are incrementally moved through a loading, heating, cooling and unloading sequence by e.g. hydraulic cylinders; the device is useful for molding a foamed plastic product.

3,561,050
PELLET MACHINE
Clifton A. Danforth, Orelan, Pa., assignor to G. & W. H. Corson, Inc., Plymouth Meeting, Pa., a corporation of Delaware
Filed May 3, 1968, Ser. No. 726,514
Int. Cl. B29d 7/14; B28b 3/12

U.S. Cl. 18—9

10 Claims



A pellet machine characterized by a pair of opposed pelletizing rolls mounted on horizontal parallel axes, each of the rolls having cylindrical resilient surfaces characterized by spaced continuous circumferential grooves forming annular lands therebetween. The rolls are disposed with the lands of each roll extending into the grooves of the adjacent roll and means are provided for rotating the rolls to provide a downward movement of the cooperatively engaged portions thereof. Suitable means are disposed above the rolls for introducing material to be pelletized into the nip of the rolls. The material passage between the interacting rolls provides a compaction and pelletizing of the material due to the elastic deformation of the resilient roll surfaces.

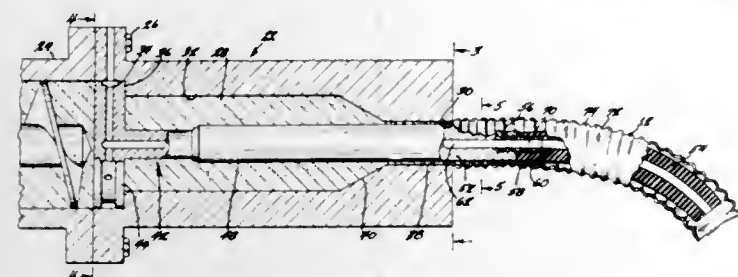
3,561,051
EXTRUSION APPARATUS
Richard D. Reinhart and Robert O. Straughn, Minneapolis, Minn., assignors to General Mills, Inc., a corporation of Delaware
Filed Feb. 1, 1967, Ser. No. 613,255
Int. Cl. B29d 23/04

U.S. Cl. 18—14

9 Claims

A device for continuously forming an elongated, tubular, corrugated product by forcing an extrudable material through an annular extrusion orifice. The flow of

material through the orifice is restrained or restricted in such a manner that the extruded product tends to fold



on itself as it emerges from the orifice, thus forming transverse corrugations.

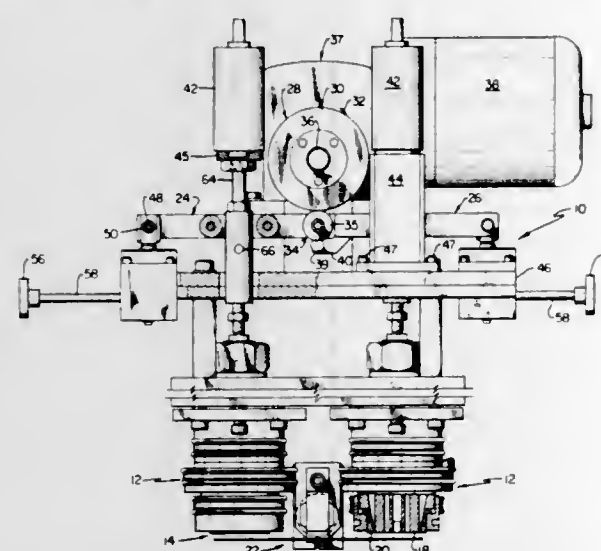
3,561,052

APPARATUS FOR FORMING PARISONS AND CONTROL MEANS THEREFOR

Roger C. Marolf, Boulder, William D. Hough, Arvada, and Clement V. Fogelberg, Boulder, Colo., assignors to Ball Corporation, a corporation of Indiana
Filed Jan. 12, 1968, Ser. No. 697,482
Int. Cl. B29d 23/04

U.S. Cl. 18—14

3 Claims



An apparatus for controlling the wall thickness and weight of a pair of simultaneously extruded plastic tubings. The apparatus includes a programmer for controlling the weight and wall thickness of each of a pair of simultaneously extruded tubings, said programmer being constructed for use with an extruder head having a pair of outlet orifices, each orifice being formed by first and second members, one of said members being mounted for relative movement with respect to the other member. The programmer comprises means for programming the wall thickness and weight of the plastic tubings to be formed, means controlled by said programming means and constructed for effecting, during the extruding of plastic tubings, simultaneous movement of both of the first members of the extruder relative to the second members in the same direction by the same amount to vary the wall thickness and weight of both of the plastic tubings to be extruded, and means constructed for positioning the first member of one of the orifices of the extruder in a predetermined manner with respect to the position of the first member of the other orifice.

3,561,053

EXTRUSION DEVICE

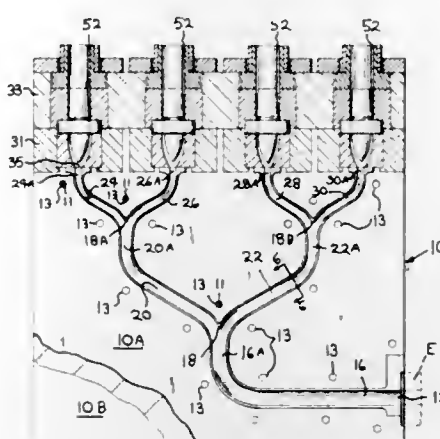
Roy Gerald Pearson, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed May 15, 1967, Ser. No. 638,490
Int. Cl. B29d 23/04

U.S. Cl. 18—14

1 Claim

An extrusion head is provided for distributing heat sensitive thermoplastic material to a plurality of outlet

orifices. An inlet passage branches symmetrically to a plurality of outlet passages which communicate with the respective outlet orifices. The flow path from the inlet orifice to any of the outlet orifices is substantially equal.



Balancing of flow through the respective outlet orifices is achieved solely by the design of the passageway network and temperature control of the thermoplastic material provided by heating elements at the outlet orifices.

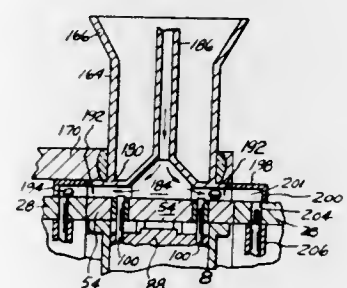
3,561,054

POWDER COMPACTING PRESS

Joseph E. Smith, Birmingham, Mich., assignor to Wolverine-Pentronix, Inc., a corporation of Michigan
Filed Oct. 31, 1968, Ser. No. 772,291
Int. Cl. B30b 11/02, 15/32

U.S. Cl. 18—16

26 Claims



A combined hopper and rotatable positioner assembly for a powder compacting press adapted to be pivotally positioned above a compression die provided with die cavities, the hopper being rotatable and provided with a base overlying said die, the base having alternating apertures, grooves and land sections in equal number corresponding to the number of die cavities and rotational drive means to rotate the hopper in timed sequence to alternately position the apertures, grooves and land sections over said die cavities.

3,561,055

DRIVE SYSTEM FOR THE MATRIX AND UPPER DIE OF A POWER PRESS

Christian Brinkmann, Dusseldorf, and Rolf Hermes, Rheydt-Giesenkirchen, Germany, assignors to Mannesmann-Meer Aktiengesellschaft, Monchen-Gladbach, Germany, a corporation of Germany

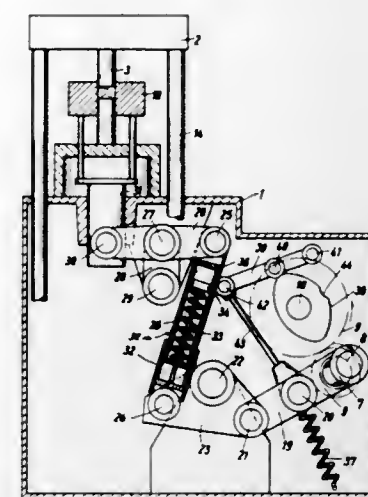
Filed Sept. 27, 1968, Ser. No. 763,239
Claims priority, application Germany, Sept. 27, 1967, P 16 27 942.8
Int. Cl. B30b 11/00

U.S. Cl. 18—16.5

3 Claims

A system for driving synchronously the matrix and upper die of a power press has a link system for controlling the matrix that includes a selectively foldable connecting rod that transmits power between two of the

links only when in the extended position, and a lost motion device permitting depression of the matrix during



pressing while the connecting rod is in the power transmitting position.

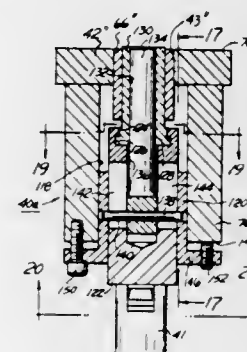
3,561,056

TOOL SET FOR POWDER COMPACTING PRESS

Joseph E. Smith, Birmingham, and Georges D. De Troyer, Detroit, Mich., assignors to Wolverine-Pentronix, Inc., a corporation of Michigan
Filed Oct. 15, 1968, Ser. No. 767,648
Int. Cl. B30b 11/02

U.S. Cl. 18—16.7

8 Claims



A tool set comprising a die plate having punch apertures and discharge apertures, punches for said punch apertures containing core rods held immovable in relation to said punches and lockable in position so as to be flush with the surface of said die plate.

3,561,057

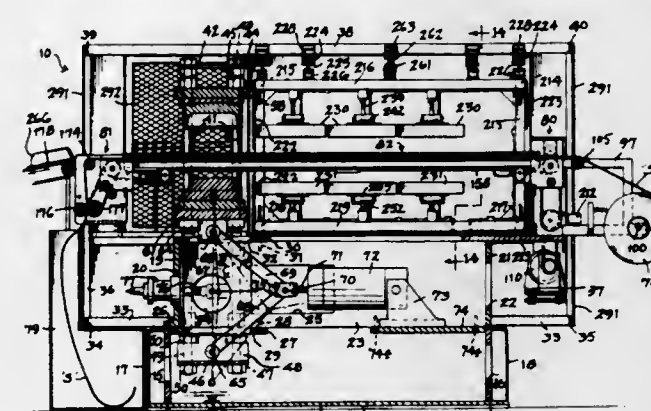
APPARATUS FOR THE PRODUCTION OF FORMED ARTICLES FROM PLASTIC SHEET MATERIAL

Robert L. Butzko, 165 Holland Ave., Fairfield, Conn. 06605

Filed June 5, 1967, Ser. No. 643,665
Int. Cl. B29d 17/00

U.S. Cl. 18—19

12 Claims



An apparatus for the production of formed articles from plastic sheet material, wherein feeding, heating,

forming and cutting operations upon a step-by-step advanced strip of the plastic sheet material are carried out in related stages, wherein the marginal edges of the strip are secured to the feeding means during its advance through the machine, and wherein the heating means is arranged in immediate juxtaposition to the forming means to present the material to the forming means at its optimum temperature for forming.

3,561,058

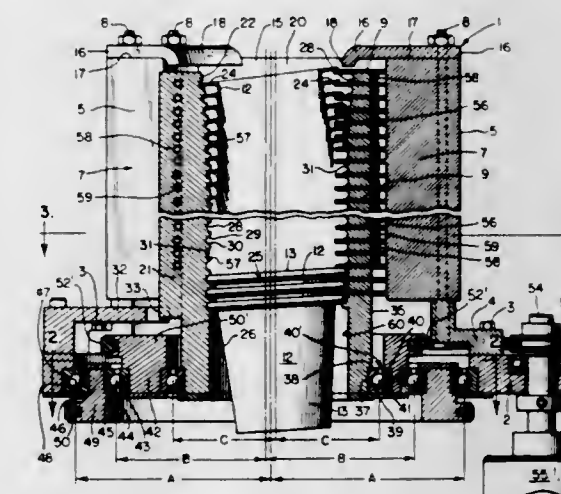
RIM SHAPING AND TRIMMING APPARATUS FOR PLASTIC CONTAINERS AND THE LIKE

Henry Komendowski, 2655 N. Mozart Ave., Chicago, Ill. 60647

Filed Apr. 4, 1968, Ser. No. 718,826
Int. Cl. B29c 17/00

U.S. Cl. 18—19

25 Claims



A knife assembly movable eccentrically about a plastic cup to trim the flash from the cup flange, the cup being guided into a bore of a nutating mold which has a progressive curl forming helical mold cavity about its interior engaging the flange, the cup being serially engaged by fingers which project into engagement with the cup to positively shift the cup through the bore by continuously wedging the flange into the encompassing cavity.

3,561,059

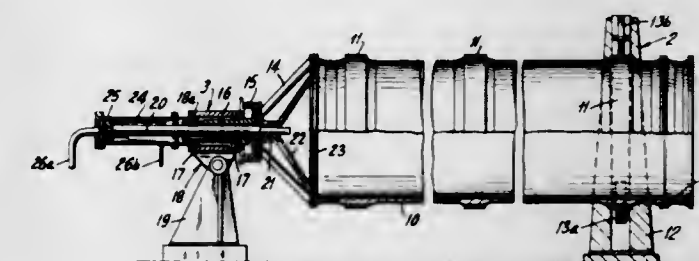
APPARATUS FOR CENTRIFUGALLY MOLDING TUBES OR REINFORCED PLASTIC MATERIAL

Willy Guldenfels, Neu-Allschwil, Switzerland, assignor to Basler Stuckfarberei A.G., Basel, Switzerland

Filed Oct. 10, 1967, Ser. No. 674,178
Claims priority, application Switzerland, Oct. 12, 1966, 14,823/66
Int. Cl. B29c 5/00

U.S. Cl. 18—26

9 Claims



Apparatus for centrifugally molding tubes of reinforced plastic material includes one or more rotatably mounted and driven centrifugal molds, arranged with their axes in spaced parallel relation, and a common feed device for the plastic material and the reinforcing material co-operable with each of the molds. The front or feed end of each mold is rotatably supported on roller bearings for

limited vertical displacement of the front end of the mold. The opposite or rear end of each mold is provided with a relatively small diameter axle journal supported on a pivotally mounted balance beam by means of ball bearings, the balance beam being pivotally supported on a fixed bearing block.

Means are provided adjacent the rear end of the mold for ejecting the molded product from the mold. The feed device is provided with conduits, connected to sources of the various materials, and with means for selectively mixing and applying the materials to the interior surface of each mold.

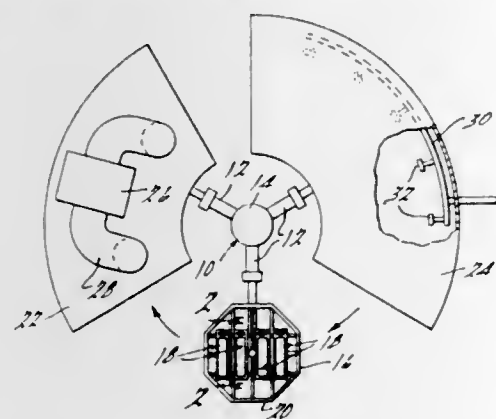
3,561,060

ROTATIONAL CASTING MOLD

Frederick J. Stephens, Warren, Mich., assignor to Allen Industries, Inc., a corporation of Delaware
Filed Mar. 8, 1968, Ser. No. 711,656
Int. Cl. B29c 5/04

U.S. Cl. 18—26

5 Claims



A method and a mold for rotationally casting hollow plastic articles formed with an opening for charging the plastic into the mold and for removing the finished article therefrom, and which opening is sealed during the casting operation by a magnetically mounted lid, which preferably additionally includes a vent therethrough and evaporative cooling means thereon.

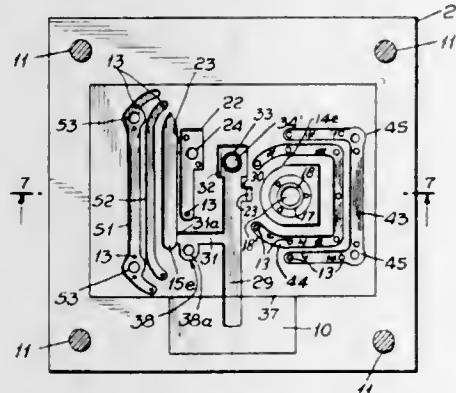
3,561,061

DIE CASTING AND SIMILAR MOLDS WITH ACCELERATED VENTING MEANS

Harry R. Bucy, 625 S. Glenwood Place,
Burbank, Calif. 91506
Filed Oct. 17, 1967, Ser. No. 675,852
Int. Cl. B29f 1/00

U.S. Cl. 18—30

21 Claims



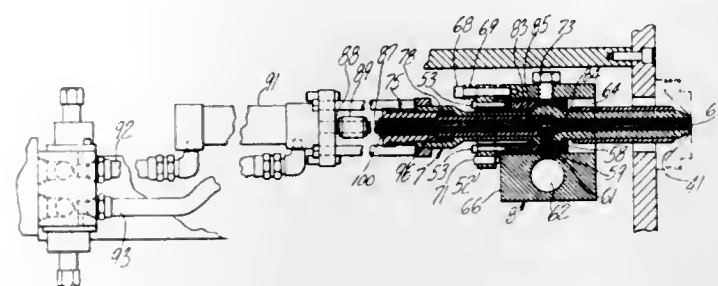
A mold for receiving pressure injected molten material characterized in part by the incorporation of air venting means associated with the runner system of the mold and including venting means disposed closely adjacent each gate between a runner and a cavity served by the runner.

3,561,062
INJECTION MOLDING NOZZLE WITH FLOW-CONTROL MECHANISM

John Goron, Cranford, N.J., assignor to Midland-Ross Corporation, a corporation of Ohio
Filed Nov. 12, 1968, Ser. No. 774,851
Int. Cl. B29f 1/00

U.S. Cl. 18—30

5 Claims



A manifold and nozzle assembly within injection-molding equipment which will normally comprise an extruder, an accumulator, a manifold, and a plurality of nozzles projecting through the manifold. This invention is especially directed to flow-control valve mechanism within each nozzle in addition to shutoff valve mechanism.

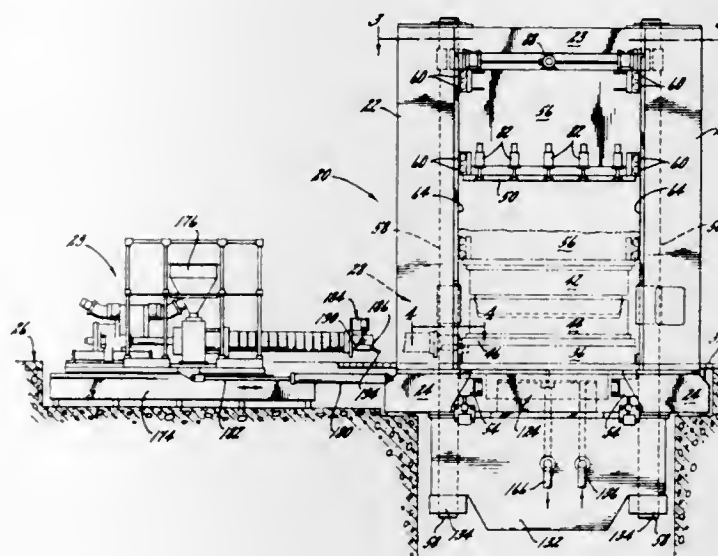
3,561,063

VERTICALLY ORIENTED INJECTION MOLDING MACHINE

William E. Sindelar, Westmont, Theodore F. Novak, La Grange, and Richard D. Froula, Brookfield, Ill., assignors to Danly Machine Corporation, Chicago, Ill., a corporation of Illinois
Filed June 24, 1968, Ser. No. 739,566
Int. Cl. B29f 1/00

U.S. Cl. 18—30

10 Claims



A vertically oriented injection molding machine capable of developing several thousand tons or more force to hold upper and lower mold parts defining a mold cavity together including an upright frame with a bed to receive the mold parts, an upper power slide carrying the upper mold part that is rapidly stroked downwardly to a predetermined position short of contact with the lower mold part at which time the power slide is retained at its downward extent and fluid pressure cooperates with a lower slide member to pull the upper mold part the additional distance down onto the lower mold part and clamping the mold parts together while plastic is injected into the mold cavity. Also included are limits for the amount of force developed in pulling the upper power slide down, providing auxiliary fluid pressure to strip and separate

the upper mold part from the lower mold part after the molding operation is complete and insuring that the upper power slide will not fall if a power or other failure occurs.

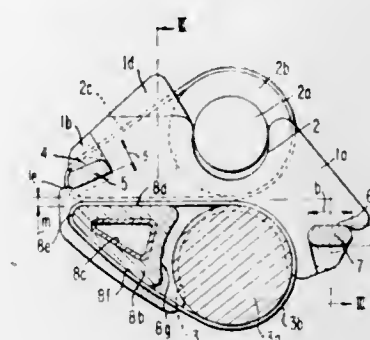
3,561,064

CAGE FOR THE BELTS OF A DRAWING MECHANISM

Sigmund Kemmler, Geislingen, Steige, Germany, assignor to Spindelfabrik Sussen, Schurr, Stahlecker & Grill G.m.b.H., Sussen, Wurttemberg, Germany
Filed Oct. 18, 1966, Ser. No. 587,601
Claims priority, application India, Apr. 22, 1966, 104,961; Germany, Sept. 29, 1966, S 58,547
Int. Cl. D01h 5/88

U.S. Cl. 19—255

15 Claims



A cage for the upper and lower belts of a drawing mechanism for a spinning machine or the like, wherein the cage is provided with undivided side walls removably secured together in spaced relationship in the direction of the axes of the drawing rollers by a spacing rail and guide rails for the belts mounted between the side walls. The spacing rail and the guide rail for the upper belt are constructed to be interchangeable so that characteristics of the belt tension, spacing and shape may be changed thereby because the guide rail and spacing rail are differently constructed with respect to each other and each symmetrical with respect to their longitudinal and transverse directions.

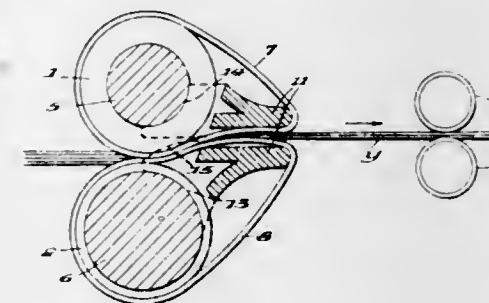
3,561,065

SPINNING CRADLES

Warren E. Macdonald, P.O. Box 116,
Seekonk, Mass. 02771
Filed Jan. 10, 1969, Ser. No. 790,353
Int. Cl. D01h 5/88

U.S. Cl. 19—255

7 Claims

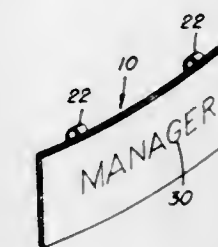


A cradle for long draft spinning apparatus to direct the guide belts between which the yarn is drawn in passing through the spinning frame. The cradle is made substantially in one piece, with no separable tensors, but the belts are guided over lip members disposed so as to offset the path of the yarn from direct alignment of the bite of the rolls, thereby to control the fibers of the drafted yarn. The lip members are formed in one piece with the side members of the cradle, while a slot is provided in one of the side members for insertion and removal of the belts.

3,561,066
BELT BUCKLE GUARD
Allen R. Osteen, P.O. Box 42, 1804 S. 30th,
Fort Pierce, Fla. 33450
Filed May 6, 1968, Ser. No. 726,966
Int. Cl. A44b 21/00, 11/00

U.S. Cl. 24—3

2 Claims



This is a belt buckle guard attachment that is to be secured over the belt buckie of a worker, particularly a gas station attendant or mechanic, so that the worker's belt buckle will not damage the surface of the work piece or automobile on which he is working. This guard includes a pair of spaced apart clips to be attached over the belt just beyond each end of the belt buckle, and it has a cushion surface that may contact the surface of the automobile without damaging it as the attendant may lean or rub thereagainst. The cushion surface may also serve as an information display surface such as an advertisement of the products sold, etc.

3,561,067

BUCKLE FOR SKI AND MOUNTAINEERING SHOES

Loris Baso, Corso Milano 19, Padua, Italy
Filed Feb. 17, 1969, Ser. No. 799,737
Claims priority, application Italy, May 25, 1968, 16,917/68
Int. Cl. A43c 11/00

U.S. Cl. 24—70

14 Claims



A buckle for ski and/or mountaineering shoes, wherein the tensioning lever or other critical parts thereof can be readily removed for replacement. Such critical part is fastened to a plate which is then independently fastened by any suitable but detachable means to a further plate which is permanently fastened to the boot or shoe.

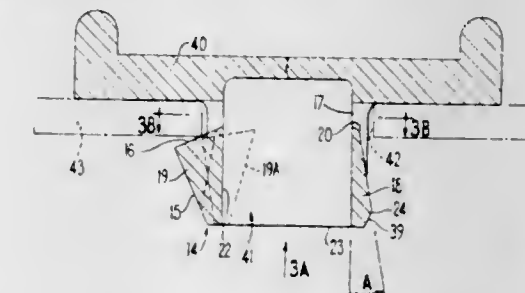
3,561,068

FASTENERS

Gordon Croxson, High Wycombe, England, assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed Mar. 14, 1969, Ser. No. 807,225
Claims priority, application Great Britain, Mar. 19, 1968, 13,274/68
Int. Cl. F16b 19/00; G12b 9/00

U.S. Cl. 24—73

5 Claims



This invention relates to a plastic snap fastener having a head for engaging one side of an apertured panel and

a shank carrying resilient shoulder members for engaging the opposite side of a panel. The resilient members include variable thickness webs which decrease in thickness from a maximum abreast the start of the entering face to a minimum abreast the retaining face of the resilient members. The webs control and provide a reliable snap action to the fastener.

3,561,069

RESILIENT FASTENING DEVICE

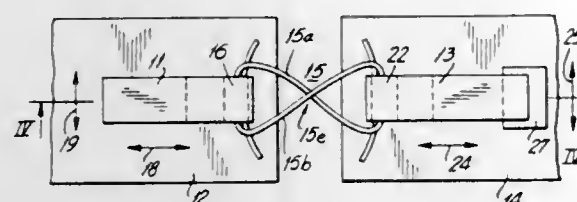
Albert Asseo, 26 Rue la Fontaine, Paris 16°, France, and René Neyman, 12-14 Rue Montcalm, Paris 18°, France

Filed May 5, 1969, Ser. No. 821,708

Int. Cl. A44b 21/00

U.S. Cl. 24-73

8 Claims



A resilient member coupling first and second end portions to each other extends between first and second portions of material to which the first and second end portions are affixed and passes through end loops formed in the first and second end portions. The resilient member comprises a pair of rubber strings each having two end areas and a central area. The end areas are interlocked and positioned in the end loops formed in the first and second end portions and the strings cross each other in the central area thereof to form a figure 8.

3,561,070

SAFETY BELT ADJUSTABLE ANCHOR DEVICE

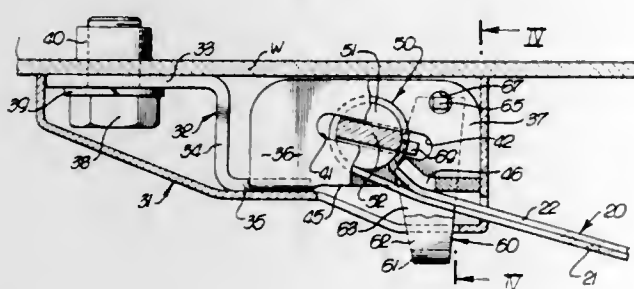
Richard F. Harmon, Gardena, Calif., assignor to American Safety Equipment Corporation, New York, N.Y., a corporation of New York

Filed Apr. 29, 1969, Ser. No. 820,141

Int. Cl. A44b 11/00

U.S. Cl. 24-196

4 Claims



An adjustable anchor device has an adjustment bar with a bight portion and two spaced legs having free ends pivoted to spaced sidewalls of a frame and having tabs engaging a slidable snubber bar extending between the sidewalls to slide the snubber bar away from an abutment extending between the sidewalls and thereby release a safety belt therebetween for adjustment.

3,561,071

GRIPPING DEVICE

Seymour N. Schlein, University Heights, Ohio, assignor to The Fanner Manufacturing Company, a Division of Textron Inc., Cleveland, Ohio, a corporation of Rhode Island

Filed May 16, 1968, Ser. No. 729,610

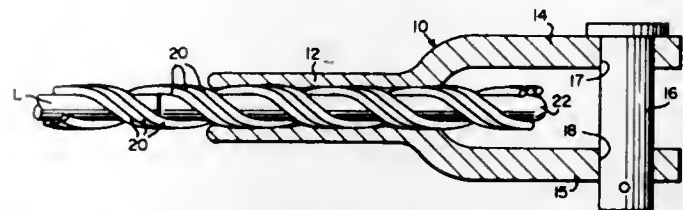
Int. Cl. F16g 11/03, 11/14

U.S. Cl. 24-123

16 Claims

A device, and method of making the same, for gripping a linear body wherein a plurality of helically preformed

resilient elements are secured in a socket member between a sleeve and a core by swaging or other mechanical action. The preformed elements project from the socket and are disposed to wrappingly engage a line.



3,561,072

MACHINE FOR DISASSEMBLING COMPONENTS FROM COMPOSITE PRODUCTS

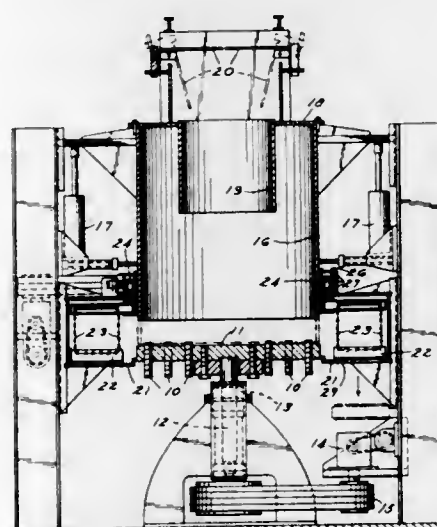
Earl A. Oster and Thomas H. Oster, Dearborn, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Dec. 30, 1968, Ser. No. 787,646

Int. Cl. B02c 13/00

U.S. Cl. 241-186

5 Claims



This invention is concerned with a fragmenting machine for the disintegration of solids and more particularly metallic objects. This fragmentization or disintegration permits the ready disassembling of components from composite products. The disintegration of these metallic objects is accomplished by accelerations imparted to the metallic objects by repeated collisions with rapidly moving blunt impact means driven by and secured to a rotating plate. This invention is especially concerned with apparatus for effecting the removal of the disintegrated or fragmentized material from the impact area.

3,561,073

IRON-IN-ZIPPER

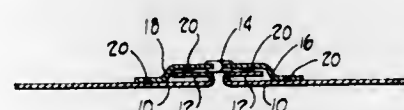
Corinne D. Rosser, 388 Fairwood Circle, Berea, Ohio 44017

Filed Sept. 3, 1968, Ser. No. 757,527

Int. Cl. A44b 19/32, 19/34

U.S. Cl. 24-205.1

3 Claims



A slide fastener is secured to the folded over edges of a garment opening by two rows of thermoplastic adhesive on each fastener tape. The adhesive is between each tape and the respective fold and also between each tape and the garment edge adjacent the edge.

3,561,074

METHOD OF MOUNTING FASTENER COMPONENTS AND CONSTRUCTION THEREOF

Walter W. Mosher, Jr., 738 Fairmount 95101, and Donald A. Long, 936 Uclan Drive 95104, both of Burbank, Calif.

Filed Aug. 16, 1968, Ser. No. 753,153

Int. Cl. A44b 17/00; G09f 3/14

U.S. Cl. 24-208

2 Claims

**3,561,076
ROTARY ENGAGEABLE LEVER ACTUATED FASTENER ASSEMBLY**

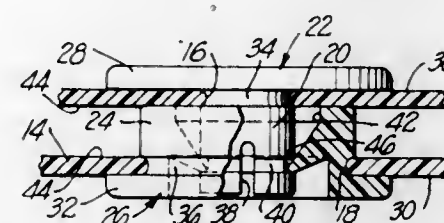
Conrad J. Gunther, Uniondale, N.Y., assignor to Dzus Fastener Co. Inc., West Islip, N.Y., a corporation of New York

Filed Mar. 21, 1969, Ser. No. 809,130

Int. Cl. A44b 17/00

U.S. Cl. 24-221

3 Claims



Material layer portions of a stretchable plastic material are formed with fastener holes therethrough. Plastic fasteners or fastener components are formed with enlarged heads and reduced shanks with a recess peripherally about each fastener shank adjacent the fastener head. The fastener shanks and the recesses thereof are proportioned relative to the material layer stretchability and the respective fastener holes such that the fastener shanks may be inserted through their respective holes with the stretchable material stretching and permitting such passage. When the material layer portions are positioned aligned with the fastener shank recesses, the material layer portions are received in the recesses with the fastener holes returning substantially to original size so that the material layer portions engage the fastener shanks and retain the fastener in assembly therewith. The material layer portions may be parts of strap-like portions of an identification-type member with the fastener shanks alignable and connectible together to retain the material layer portions adjacent each other.

3,561,075

THREADED FASTENER CAPTIVATING DEVICE

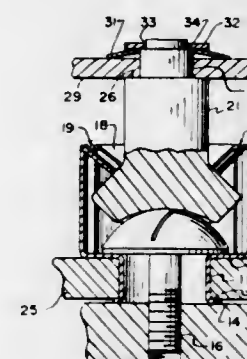
George J. Sellinko, Palatine, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed July 15, 1969, Ser. No. 841,775

Int. Cl. A44b 17/00; F16b 13/00

U.S. Cl. 24-217

9 Claims



A snap-in screw captivating device is inserted into a hole in sheet material to be secured by the screw and is formed of resilient material in the general configuration of a slotted cylinder having a screw head receiving chamber. The captivating device fits within the hole in the sheet material and expands to engage the edges of the hole. The upper edges of the chamber bend inwardly a short distance into the chamber to form a ledge; and the screw is pushed past this slotted ledge camming it outwardly to allow the head to pass, whereupon the chamber resumes its original position. The chamber may be extended to permit backing out of the screw from the thread and to provide space for a snap button to be placed on top of the screw head. When the button is in place, the button also is captivated by the action of the captivating device holding the button in place.

3,561,077

HANGER FOR LITTER BAGS AND THE LIKE

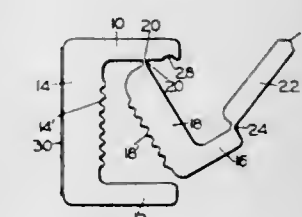
Ethan C. Grant, P.O. Box 2091, 4955 River Road N., Salem, Ore. 97308

Filed Feb. 18, 1970, Ser. No. 12,376

Int. Cl. A44b 21/00

U.S. Cl. 24-250

7 Claims



A base member, adapted to be secured to a support, has a clamping member hinged thereto for pivotal movement of a clamping surface section thereof relative to a cooperating clamping surface section of the base member, for releasably clamping between them a portion of the outer end of a litter bag or the like. Locking means releasably interengages the base and clamping members to secure the latter in clamping position.

3,561,078 BAND CLIPS

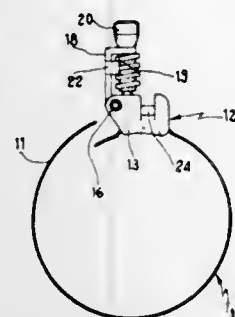
Guido Care, 10a Via Dossetto, Villanuova sul Clisi,
Brescia, Italy

Filed Dec. 5, 1968, Ser. No. 781,521
Claims priority, application Italy, Jan. 17, 1968,
11,661/68

Int. Cl. B65d 63/00

U.S. Cl. 24—274

3 Claims



A band clip adapted for securing a hose pipe or the like on to a tubular connection, of the type comprising a band having a suitably slotted end section and an opposite section carrying a stationary support, to which a worm screw bearing element is pivotally secured. Said bearing element which can be brought in an operative position wherein the worm screw gets engaged with said slotted section, carries a pair of sidewardly extending ears, adapted to co-operate with said stationary support in order to transfer to the latter the torque stress as caused by the tightening operation of said worm screw.

3,561,079

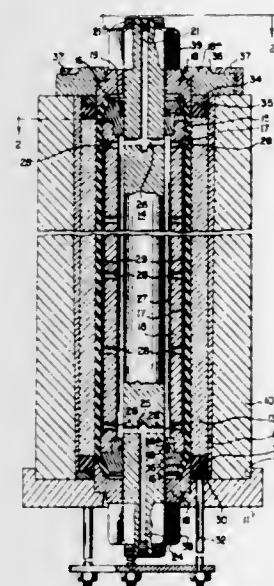
**APPARATUS FOR PRESSING OF CLAY PIPE
USING AN ELASTOMERIC MANDREL**
Richard H. Anderson, Dover, Ohio, assignor to The Robinson Clay Product Company, Akron, Ohio, a corporation of Maine

Filed Mar. 11, 1968, Ser. No. 712,152

Int. Cl. B28b 21/20

U.S. Cl. 25—31

7 Claims



A method is provided for forming a length of green clay pipe from granular clay particles wherein the particles are introduced between an elastomeric mandrel and a surrounding generally cylindrical wall of an outer housing, then the mandrel is uniformly expanded outwardly to compress the clay particles into a green clay pipe, which is then removed from the housing. The apparatus provides a thin metallic shell lining the inner face of the housing for the full length of the pipe to be formed, and removal of the formed pipe is facilitated either by (1) slitting the shell from end to end longitudinally along one or more lines extending for its full length and pushing the shell endwise outwardly by power

means after the pipe is formed, or (2) by holding the shell slightly compressed radially inward while forming the pipe and thereafter releasing the stress in the shell permitting it to expand and to release the pipe, or (3) by forming the pipe while the shell is cold and thereafter heating the shell electrically or by steam causing it to expand and release the pipe.

3,561,080

CERAMIC KILNS

Hans-Karl Weinlein, Ibbenburen, Germany, assignor to Keller Ofenbau G.m.b.H., Laggenbeck, Westphalia, Germany, a joint-stock company of Germany

Filed July 25, 1968, Ser. No. 747,580

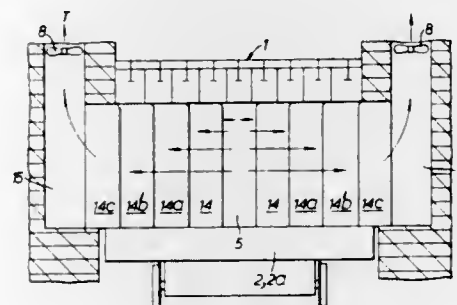
Claims priority, application Germany, Apr. 18, 1968,

P 17 58 180.5

Int. Cl. F27b 9/10

U.S. Cl. 25—142

2 Claims



A tunnel ceramics kiln has openings so arranged that when gaps between cars carrying ceramic ware to be fired are aligned with the openings, aprons are moved into the gaps to assist in deflecting hot gases into the openings. The aprons may be of differing lengths and in one embodiment a single apron is used with apertures therein.

3,561,081

NEEDLE PUNCHING MACHINE FOR MAKING ENDLESS WEBS FROM HAIR OR FIBERS

Ernst Fehrer, Auf der Gugl 28, Linz, Austria

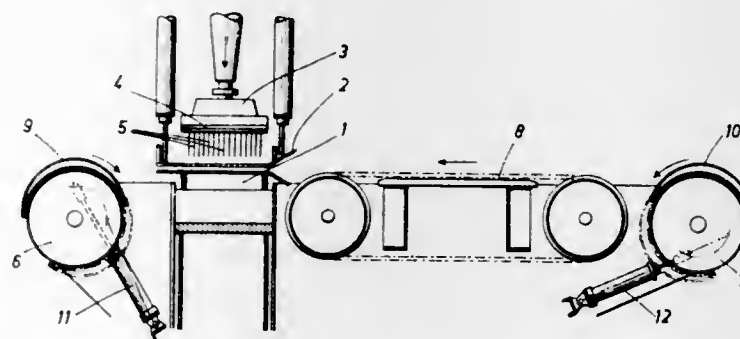
Filed Dec. 5, 1968, Ser. No. 781,538

Claims priority, application Austria, Jan. 11, 1968,
A 275/68

Int. Cl. D04h 18/00

U.S. Cl. 28—4

4 Claims



The machine comprises means for moving a web in a predetermined direction over a perforated table supporting said web. Two deflecting rollers having each a rough covering and respectively disposed before and behind the table in said predetermined direction. Two part-cylindrical cover shells have a smooth outside surface and extend each over part of the periphery of one of said rollers on the outside of said covering. Each of said shells is pivoted on the axis of the respective roller.

3,561,082

METHOD OF CRIMPING AND/OR STABILIZING TEXTILE STRANDS

Robert K. Stanley, Media, Pa., assignor to Techniservice Corporation, Lester, Pa., a corporation of Pennsylvania
Continuation-in-part of applications Ser. No. 112,374,
May 24, 1961, and Ser. No. 415,068, Dec. 1, 1964.
This application Sept. 12, 1967, Ser. No. 667,294

The portion of the term of the patent subsequent
to Dec. 7, 1982, has been disclaimed

Int. Cl. D02g 1/00

U.S. Cl. 28—72.1

13 Claims



A textile strand which has been subjected to crimping distortion strains is stabilized in configuration in an apparatus and by a process which includes heating the strand in a heating zone where its rate of travel through the zone is reduced in successive increments and cooling the strand in a cooling zone under processing conditions provided to avoid storage distortion of wound strand.

3,561,083

METHOD OF ASSEMBLING MULTIPLE ELEMENT TYPE ELECTRON GUNS

Shinichi Sawagata, Tokyo, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan, a corporation of Japan

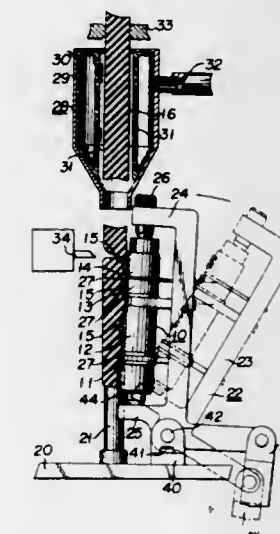
Original abandoned application Aug. 23, 1967, Ser. No. 662,741. Divided and this application July 24, 1969,
Ser. No. 861,526

Claims priority, application Japan, Aug. 31, 1966,
41/56,991

Int. Cl. H01j 9/18, 9/36

U.S. Cl. 29—25.16

9 Claims



A method of assembling a multiple element type electron gun wherein a number of electron gun units are each

respectively held by pivotally supported holding members which are assembled to form a polygonal space around a central axis. Consequently, the electron gun units are pressed against and contacted with a softened insulating support material which has been set at the central axis. The material is hardened, thereby securing the electrodes, and is then cut at a prescribed position thereon.

3,561,084

METHOD OF TERMINATING A LAMP FILAMENT

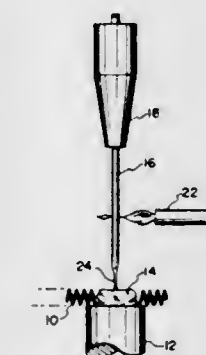
Richard E. Sims, Des Plaines, Ill., assignor to Chicago, Miniature Lamp Works, Chicago, Ill., a corporation of Illinois

Filed Oct. 4, 1968, Ser. No. 765,149

Int. Cl. H01j 9/18, 9/36

U.S. Cl. 29—25.15

8 Claims



A lamp filament is reliably and firmly connected both electrically and mechanically to a lead wire or mounting post by a body of metallic material intimately entrapping the filament and metallurgically bonded to the lead wire. In order to terminate the filament, the filament is placed on the lead wire and overlaid with a body of metal. The metal is heated to a plastic or semi-plastic and non-liquid state and is pressed against the filament and lead wire so that the filament is enveloped by the metal and the metal is diffusion bonded to the lead wire.

3,561,085

METHOD OF MAKING AN ALLOYED METAL OXIDE CAPACITOR

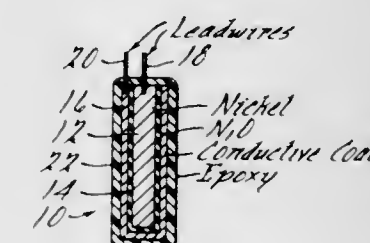
William W. Garstang, Belgium, Wis., assignor to Synco Corporation, Oxford, Mich., a corporation of Michigan

Filed June 13, 1968, Ser. No. 736,672

Int. Cl. H01g 3/07

U.S. Cl. 29—25.41

7 Claims

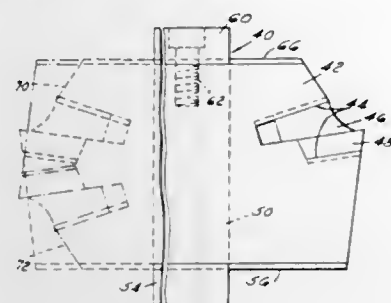


A novel construction for a nickel oxide capacitor including the use of a novel alloy and a novel method of manufacturing a nickel oxide capacitor.

3,561,086

CUT-OFF TOOLS AND SLOTTING CUTTERS
Victor Milewski, Birmingham, Jack O. Sullivan, Glen-
arden, and Michael K. Herden, Detroit, Mich., as-
signors to The Valeron Corporation, a corporation of
Michigan

Filed Mar. 20, 1968, Ser. No. 714,566
Int. Cl. B26d 1/00; B27b 33/02; B27g 13/00
U.S. Cl. 29—96 1 Claim



Cut-off tools and slotting cutters which include a wedge retained insert blade construction having arcuate holder seats and matching arcuate insert and wedge surfaces to establish transverse insert and wedge location on a relatively narrow holder.

3,561,087

METHOD OF MAKING PISTON RING

Max Koehler, Kastanienalle 2,
Witten-Bommern 581, Germany

Filed Oct. 6, 1967, Ser. No. 673,340
Claims priority, application Germany, Oct. 10, 1966,
K 60,420

Int. Cl. B23p 15/06
U.S. Cl. 29—156.6 5 Claims



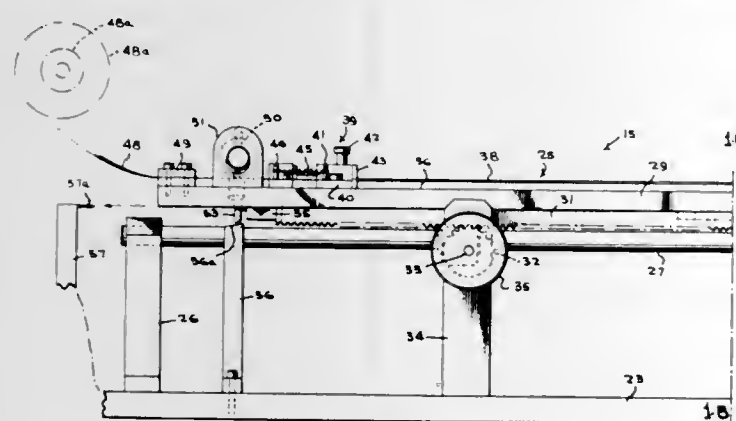
A split piston ring of pressed and sintered metal powder and method of making the same. The piston ring is characterized primarily in that it has a higher density on its inner periphery than on its outer periphery, while the same density and density distribution prevail on every radial cross-sectional plane.

3,561,088

MATRIX CORE THREADING APPARATUS

John A. Raickle, Hopewell Junction, N.Y., assignor to
Industrial Micronics, Incorporated, Leesburg, Va., a
corporation of New York

Filed Dec. 16, 1968, Ser. No. 783,966
Int. Cl. B23p 19/04; H05k 13/04
U.S. Cl. 29—203 23 Claims



A machine for threading wires through an array of magnetic cores on filler plates to form a memory matrix having a rectilinearly reciprocative carriage on which plural hollow needles are firmly held in tensioned condi-

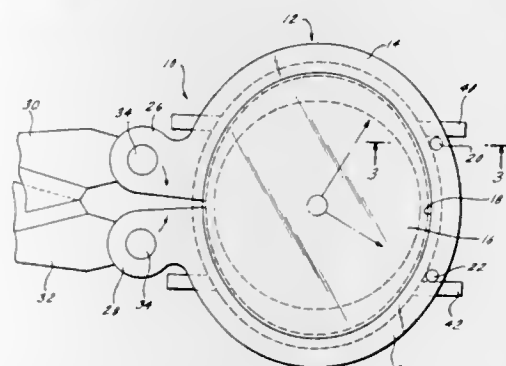
tion with portions of the needles adequate to span the filler plates projecting beyond the carriage. The wires extend through and protrude a short distance beyond the needles and are moved unitarily with the needles and carriage through an advance stroke feeding both the needles and wires through parallel rows of the cores, after which the wires are held in tension while the needles are retracted, leaving the wires threaded through the cores, and the wires are cut adjacent the proximal edge of the array. Means are provided for supporting the needles against deviation from their assigned paths during reciprocation, for automatically clamping and releasing the wires relative to the carriage, and for minute relative displacement of portions of the array transversely of the needle path and for angular and vertical adjustment of the array.

3,561,089

CRYSTAL APPLICATOR

Ludwig Fischer, Waterbury, Conn., assignor to Benrus
Watch Company, Inc., Ridgefield, Conn., a corporation
of New York

Filed July 5, 1968, Ser. No. 742,769
Int. Cl. B23p 19/04; B23g 17/00
U.S. Cl. 29—210 10 Claims



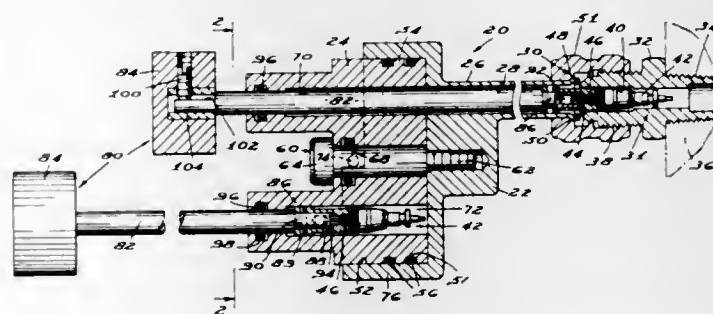
An applicator tool for placing a non-circular crystal into a correspondingly shaped bezel opening formed in a watch case comprises locating means adapted to cooperate with a portion of the watch case to properly and accurately locate the crystal relative to the bezel opening.

3,561,090

VALVE CORE CHANGING TOOL

Junior L. Fritch, Edgerton, Ohio, assignor to Robnair
Manufacturing Corporation, Montpelier, Ohio, a corpo-
ration of Ohio

Filed Nov. 22, 1968, Ser. No. 778,282
Int. Cl. B23p 19/04
U.S. Cl. 29—213 10 Claims



A pressure tight valve core changing tool, adapted to remove and replace a valve core without loss of pressure through the valve body. The valve core changing tool disclosed herein includes a first body member having a passage providing sealed communication with the valve, and a relatively rotatable body member having two sealed valve core receiving chambers, which may be alternatively indexed to communicate with the passage. A grappling means is provided within each of the chambers which may be manipulated through the first body member passage to remove and releasably retain the core of

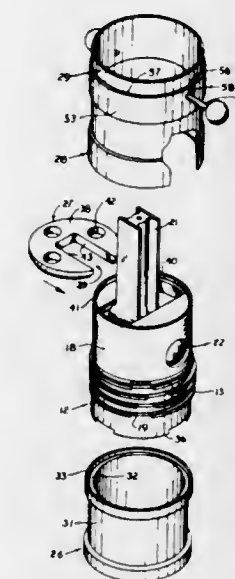
the valve. The valve core is then retracted to within the chamber, and the second body member is rotated, relative to the first body member, to align the other chamber with the passage. The grappling means is then extended to replace the valve core, without loss of pressure through the valve.

3,561,091

**METHOD AND APPARATUS FOR COMPRESSING
PISTON RINGS AND INSTALLING PISTONS IN
CYLINDER BORES**

Leo Pigozzi, 3215 Bardick Drive,
Oakland, Calif. 94602

Filed Apr. 19, 1968, Ser. No. 722,811
Int. Cl. B23p 15/08, 19/04; B23q 3/18
U.S. Cl. 29—222 1 Claim



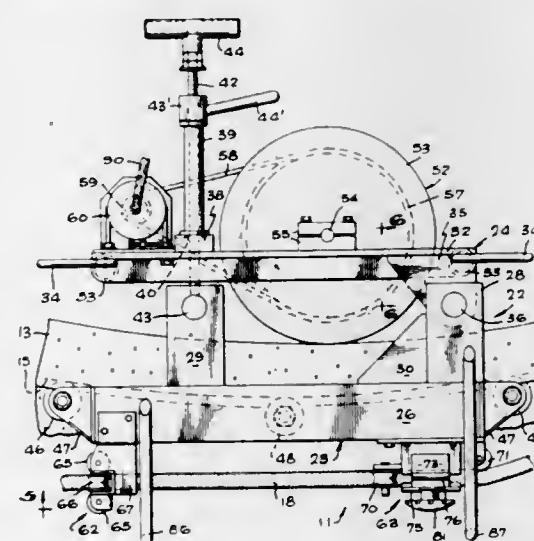
A system of compressing piston rings on a piston by passing a sleeve member with a tapered bore over the rings to gradually compress the same. The sleeve feeds the piston and the compressed rings to a second sleeve with a generally cylindrical bore which maintains the rings in a compressed state. This latter sleeve, with the piston therein is then placed over the bore in a cylinder and the piston forced out of the sleeve and into the cylinder.

3,561,092

GASKET TRACTOR

Francis M. Matheny, Lynwood, and Robert N. Failes,
Covina, Calif., assignors, by mesne assignments, to
Ameron, Inc., Monterey Park, Calif., a corporation of
California

Filed Mar. 21, 1969, Ser. No. 809,134
Int. Cl. B23p 19/02
U.S. Cl. 29—235 12 Claims



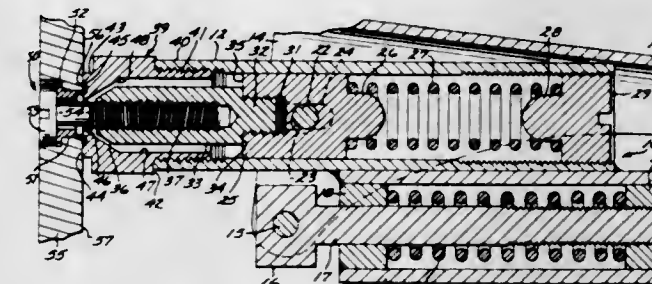
A device having a chassis with a motor-driven wheel adapted to engage the inner surface of a peripherally

3,561,093

**METHOD OF ATTACHING A SLEEVE TO
A WORKPIECE**

Bulent Gulistan, Malibu, Calif., assignor to Deutsch
Fastener Corp., Los Angeles, Calif., a corporation of
California

Continuation-in-part of application Ser. No. 744,260,
June 13, 1968, which is a continuation-in-part of
application Ser. No. 578,728, Sept. 12, 1966. This
application Nov. 29, 1968, Ser. No. 784,527
Int. Cl. B23p 17/00; B21d 39/00; B23b 11/00
U.S. Cl. 29—400 14 Claims



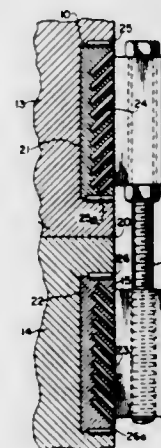
The method of securing a sleeve to a workpiece in which the sleeve is provided with a first abutment at one end and is inserted into an opening in the workpiece so as to bring the first abutment into adjacency with a surface of the workpiece. A gripping member having a second abutment and a shank is extended through the sleeve so that the second abutment engages the sleeve and the shank projects beyond the opposite sleeve end, a tension then being applied to the shank to hold the first abutment firmly against the workpiece surface, while simultaneously the opposite end of the sleeve is bent outwardly to form an overlapping flange cooperating with the first abutment to secure the sleeve to the workpiece.

3,561,094

METHOD OF JOINING CAST METAL PARTS

Cleon B. Harris, 1732 Sherwood Forest Blvd.,
Baton Rouge, La. 70815

Filed Nov. 18, 1968, Ser. No. 776,437
Int. Cl. B22d 19/10; B23p 7/00
U.S. Cl. 29—401 6 Claims



A method of securing together two cast metal pieces which comprises excavating a rectangularly shaped cavity in each cast metal piece, the cavities being opposite the other and adjacent the junction of the cast metal pieces, placing within each cavity a metal piece having the same dimension as the cavity, securing the piece therein, the metal piece having studs attached thereto, said

studs receiving a bolt extending, continuously, from one stud to the other, said bolt furnishing reinforcement for the cast metal junction when in place.

3,561,095

METHOD OF FORMING A COUPLING BETWEEN A FITTING AND TUBE

Wilhelm Bergmann, Hamburg, Germany, assignor to Eppendorf Gerätebau Netheler & Hinz GmbH, Hamburg, Germany, a corporation

Filed June 18, 1968, Ser. No. 744,274

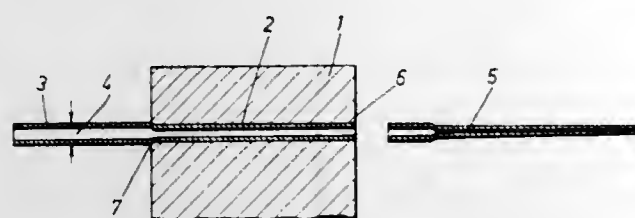
Claims priority, application Germany, June 20, 1967,

P 12 85 814.9-12

Int. Cl. B23p 11/02

U.S. Cl. 29—451

8 Claims



This coupling is formed between an undersized bore in a substantially rigid fitting and an elastic tube having an outside diameter larger than the bore. A portion of the tube is deformed to facilitate insertion into the bore, and the oversized portion is then pulled through.

3,561,096

METHOD OF CONTINUOUS TUBE FORMING AND GALVANIZING

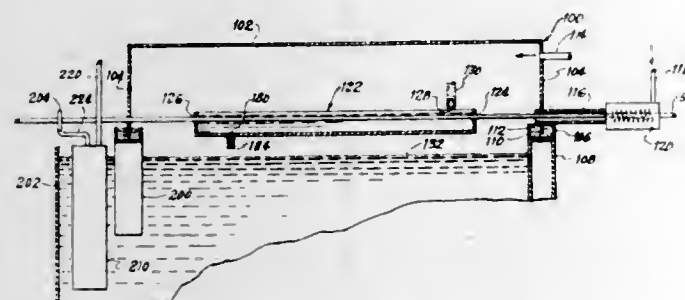
Theodore H. Kregel, Flossmoor, and Emil Wilk, Park Forest, Ill., assignors to Allied Tube & Conduit Corporation, Harvey, Ill., a corporation of Illinois

Continuation-in-part of application Ser. No. 341,043, Jan. 29, 1964, which is a continuation of application Ser. No. 106,699, May 1, 1961, now Patent No. 3,122,114. This application Nov. 7, 1968, Ser. No. 774,063

Int. Cl. B23p 3/00, 19/04

U.S. Cl. 29—460

4 Claims



A process for continuously forming and galvanizing tubing from strip in which the steel strip is formed to rounded shape while being advanced continuously in one direction to bring the lateral edges together, continuously welding the abutting edges of the strip to seal the formed tubing and scarfing the welded portion of the tubing to cut off the portions of the weld projecting beyond the periphery, cleaning the outer surfaces of the tubing with cleaning solutions and rinsing the cleaned tubing with water for removal of the cleaning solutions, advancing the cleaning tubing continuously through an enclosure maintained at elevated temperature to preheat the tubing, advancing the preheated tubing through a bath of molten zinc arranged in linear alignment with the formed tubing in a position so that the tubing enters and leaves the bath and passes through the bath at a level below the surface of the bath to avoid contact with oxides on the surface of the bath, continuously adding molten zinc to the bath in an amount in excess of that taken by the tubing to cause overflow from the edges of the bath beyond the

tubing to continuously flush oxides and slag from the bath, enclosing the bath within a housing which communicates with the enclosure for preheating and introducing non-oxidizing gas into the enclosure for maintaining a relatively non-oxidizing atmosphere during preheating and galvanizing, removing excess zinc from the surface of the tubing after leaving the bath by means of an air knife through which air at elevated temperature is projected angularly onto the surface of the tubing and then freezing the coating of molten zinc on the tubing surface.

3,561,097

EXPLOSIVE SPOT WELDING METHOD AND MEANS USING ANGULAR ORIENTATION AT THE WELDED JUNCTION

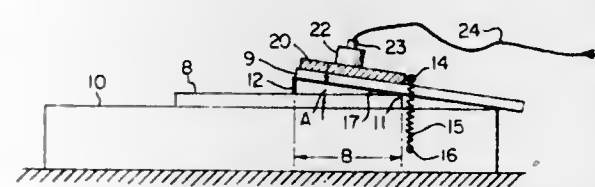
Harry J. Addison, Jr., Willingboro, N.J., assignor to the United States of America as represented by the Secretary of the Army

Filed May 6, 1968, Ser. No. 726,932

Int. Cl. B23k 21/00

U.S. Cl. 29—470.1

9 Claims



Explosive spot welding of relatively-thin metal alloy plates or sheets may be accomplished by using a very-narrow angle between the plates or sheets to be welded and with a short overlap in which one edge of one sheet intersects the contiguous face of the other sheet, before welding, and forming a line contact. The welding force is applied by an explosive charge which is provided by a relatively small-size pellet placed over the center of the overlap above the upper-most panel or sheet to be joined. Only slight holding force is applied to the parts to be joined and this is only sufficient to hold such parts in position one with respect to the other before the weld takes place.

3,561,098

METHOD OF MAKING JOINT ASSEMBLY BETWEEN A CARBON BODY AND AN ELECTRICAL CONDUCTOR

Marvin W. Voelker, Grand Island, N.Y., assignor to Great Lakes Carbon Corporation, New York, N.Y., a corporation of Delaware

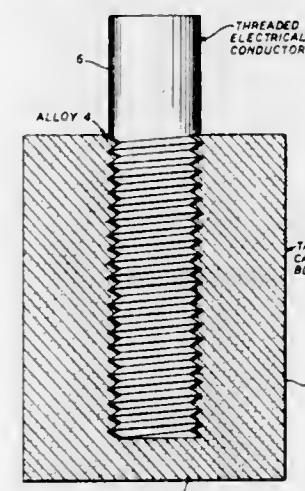
Original application Dec. 28, 1966, Ser. No. 605,285.

Divided and this application Dec. 2, 1969, Ser. No. 881,529

Int. Cl. B23k 31/02

U.S. Cl. 29—470.5

8 Claims



A method is provided for making a low electrical resistance joint assembly between a carbon body and an electrical conductor. One of these assembly members con-

ERRATUM

For Class 29—493 see:
Patent No. 3,561,320

3,561,101

BONDING BEARING ALLOY HAVING HIGH TIN CONTENT TO STEEL SUPPORT AND BEARING

Friedrich-Wilhelm Rabenau and Erich Jäger, Neckarsulm, Germany, assignors to Karl Schmidt G.m.b.H., Neckarsulm, Germany, a corporation of Germany

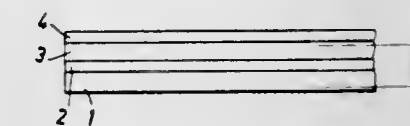
Filed Jan. 20, 1967, Ser. No. 610,669

Claims priority, application Germany, Jan. 25, 1966, Sch 38,374

Int. Cl. B23k 31/02

U.S. Cl. 29—497.5

8 Claims



Bearings having a laminar structure comprising a steel support layer and a bearing alloy layer are produced. Light metal heterogeneous bearing alloys containing in excess of about 7% tin are invested in a light metal impervious to molten tin, such as aluminum. The invested bearing alloy is then bonded to a steel support by heat and pressure without emergence of tin from the bearing alloy.

3,561,102

PROCESS OF FORMING A COLD DRIVEN RIVETED JOINT

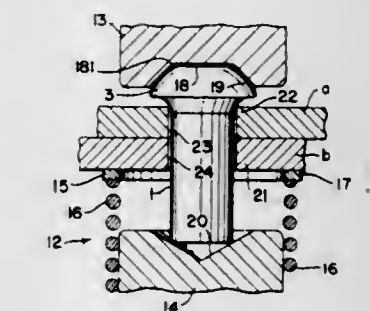
Joseph A. Dlemer, Flossmoor, Ill., assignor to Champlon Commercial Industries, Inc., Cuyahoga, Ohio, a corporation of Ohio

Filed Sept. 25, 1968, Ser. No. 762,412

Int. Cl. B21d 39/00; B23p 11/00

U.S. Cl. 29—509

15 Claims



A riveted joint formed by a cold-formed button-head rivet of low-carbon steel having a shank, a tapered neck, and a flattened semispheroidal head with a diameter about 1.6 to 1.8 times the diameter of the shank, the outer surface of said neck which engages the upper edge of the rivet hole being inclined about 20 to 25 degrees relative to the rivet axis. In forming such joint the rivet is driven cold without annealing by subjecting it to a clamping force of 20 to 100 tons to expand the shank about 4 to 10 percent and thereby expand the rivet holes at least 2 percent. The manufactured head of the rivet is deformed by a rivet-driving member having a tapered recess with a flattened bottom surface and a frusto-conical surface generated by rotating about an axis in a line inclined about 40 to 50 degrees relative to said axis.

tains an internally threaded recess and the other is externally threaded and the two members are in threaded engagement. An alloy is within the recess between threads of the carbon body and threads of the conductor. The alloy has been heated above its melting point, and is then cooled to solidify it between threads of the assembly members. Threaded engagement between the conductor and the carbon body is effected while the alloy is in a molten condition within the recess. The alloy expands or exhibits cumulative growth during and after solidification, thus adding to the mechanical bond and engagement between the threaded carbon body and the threaded electrical conductor and thus forming a connection of low electrical resistance and good strength. Typically the carbon body may be a graphite lead-in rod, the electrical conductor a copper rod, and the connections made are for use in electrolytic cells.

3,561,099

PROCESS OF MAKING A COMPOSITE BRAZING ALLOY OF TITANIUM, COPPER AND NICKEL

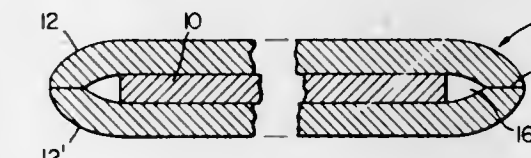
Howard Mizuhara, San Mateo, Calif., assignor to Western Gold & Platinum Company, Belmont, Calif., a corporation of California

Filed Mar. 27, 1968, Ser. No. 716,455

Int. Cl. B23k 31/02

U.S. Cl. 29—471.5

1 Claim



A process for producing a malleable composite product from at least two malleable metals in proportions that form brittle alloys, by arranging the metals in a pair of overlapping outer layers and at least one inner layer. The outer layers are hermetically sealed to each other around the inner layer(s) to provide an airtight enclosure thereabout during subsequent metal working operations. During such metal working to reduce the thickness of the composite product, plastic deformation of the inner layer(s) will be confined to the enclosure formed by the outer layers. Thus the cross-sectional weight ratio of metals will be maintained constant across the entire product.

3,561,100

BONDING BEARING ALLOY HAVING HIGH TIN CONTENT TO STEEL SUPPORT

Friedrich-Wilhelm Rabenau and Erich Jäger, Neckarsulm, Germany, assignors to Karl Schmidt GmbH, Neckarsulm, Germany, a corporation of Germany

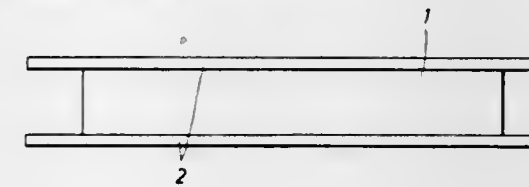
Filed Jan. 26, 1967, Ser. No. 611,894

Claims priority, application Germany, Feb. 11, 1966, Sch 38,468

Int. Cl. B23k 31/02

U.S. Cl. 29—492

1 Claim



Bearings having a laminar structure comprising a steel support layer and a bearing alloy layer are produced. Light metal heterogeneous bearing alloys containing tin are treated, e.g. etched, to detin the surface thereof, are then coated with a light metal substantially impervious to molten tin, such as aluminum. The coated bearing alloy is then bonded to a steel support by heat and pressure without emergence of tin from the bearing alloy.

3,561,103

METHOD OF PREPARING A ZINC DIE CASTING
Bernard K. Dent, Union City, Ind., assignor to Sheller-Globe Corporation

No Drawing. Continuation-in-part of application Ser. No. 778,366, Oct. 14, 1968. This application Dec. 1, 1969, Ser. No. 881,277

The portion of the term of the patent subsequent to Jan. 13, 1987, has been disclaimed
Int. Cl. B23k 19/00; B23p 17/00

U.S. Cl. 29—527.5 15 Claims

A method of preparing a zinc die casting with a simulated wood grained finish thereon comprising the steps of: (a) preparing a mold die for use in forming the zinc die casting, (b) texturing the interior face of the die to supply it with an inverse wood grained texture such that it will impart a simulated wood grained surface to the zinc, (c) die casting the zinc, (d) applying at least one or more wood colored paint compositions to the grained surface of the die cast zinc, and (e) drying the paint composition; and, the product formed by the above method.

3,561,104

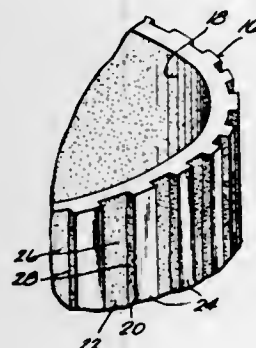
METHOD OF MANUFACTURING CYLINDER LINES

Maurice O. Holtan and William J. Holtan, Wauwatosa, Wis., assignors to Slinger Foundry Company, Inc., Slinger, Wis., a corporation of Wisconsin

Original application Jan. 10, 1966, Ser. No. 519,782, now Patent No. 3,439,586, dated Apr. 22, 1969. Divided and this application Dec. 9, 1968, Ser. No. 800,017

Int. Cl. B23p 17/00

U.S. Cl. 29—527.6 6 Claims



A rough surfaced sand cast sleeve of cylinder iron with a generally cylindrical interior periphery and an axially ribbed external periphery has the surfaces of its external ribs ground to true cylindrical form, preferably in a centerless grinder, to provide an accurately predetermined over-all form and dimension. The resulting external cylindrical surfaces are chucked and the central openings bored in true concentricity therewith for uniform wall thickness, the channels between the ribs being left with rough sand cast surfaces so that a cylinder casting will anchor itself mechanically to the liner without voids or air pockets.

3,561,105

METHOD OF PRODUCING A HOT-FORMED ALUMINUM BASE PRODUCTDaniel B. Cofer, Carrollton, Ga., assignor to Southwire Company, Carrollton, Ga., a corporation of Georgia
Continuation of application Ser. No. 649,658, June 28, 1967. This application Sept. 4, 1969, Ser. No. 866,410

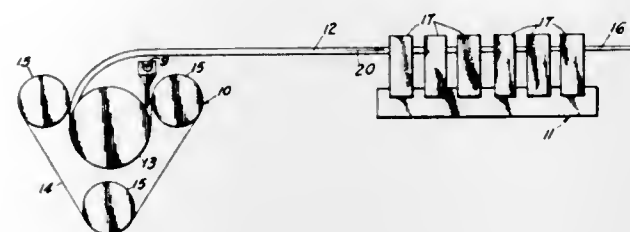
The portion of the term of the patent subsequent to Apr. 25, 1984, has been disclaimed

Int. Cl. B23p 17/00

U.S. Cl. 29—527.7 7 Claims

What is disclosed herein is a method of producing a hot-formed aluminum-base product from molten metal by solidifying a molten aluminum-base metal to obtain a cast

metal, initiating the hot-forming of the cast metal while the cast metal is in substantially that condition in which it solidified, and hot-forming the cast metal by deforming the cast metal a substantial number of times to cause the cast metal to elongate at least by a factor of twenty along an axis of elongation and to cause substantial movement of the cast metal along a plurality of axes substantially perpendicular to the axis of elongation. The method produces a hot-formed aluminum-base product in which the as-cast grain structure of the cast metal is substantially



completely destroyed and the method is disclosed as using a continuous casting machine in which molten aluminum-base metal is solidified to obtain a cast metal and a rolling mill to which the cast metal is passed at hot-forming temperature from the casting machine and which has a plurality of roll stands which alternatively change the transverse cross-sectional shape of the cast metal.

3,561,106

BARRIER LAYER CIRCUIT ELEMENT AND METHOD OF FORMING

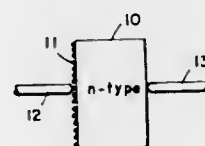
Thomas D. McGee, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa, a corporation of Iowa

Filed July 3, 1968, Ser. No. 742,242

Int. Cl. H01l 7/02

U.S. Cl. 29—576

1 Claim



A ferroelectric crystal such as barium titanate, is uniformly doped to produce an n-type semiconductor. Electron-acceptor ions are then added to the surface of the crystal to produce a surface barrier layer wherein the electron-donor ions of the original n-type semiconductor crystal are exactly compensated by the added electronic acceptor ions. The resistivity of the compensated layer is very high; and the layer defines a junction of high dielectric constant capable of storing a relatively large electric charge thus producing a capacitor. This barrier layer may also serve as a diode for rectification, or a temperature-sensitive resistor, or a current- or voltage-sensitive resistor. In one embodiment, the acceptor ions are provided in the form of a metallic oxide and silver electrodes contact the crystal. When the combination is fired in a suitable atmosphere, the oxide is reduced and the metal diffuses into the n-type crystal to produce the compensated layer. Thus, an electronic element is provided in a single process step with the silver electrodes alloying with the reduced oxide on the surface of the crystal.

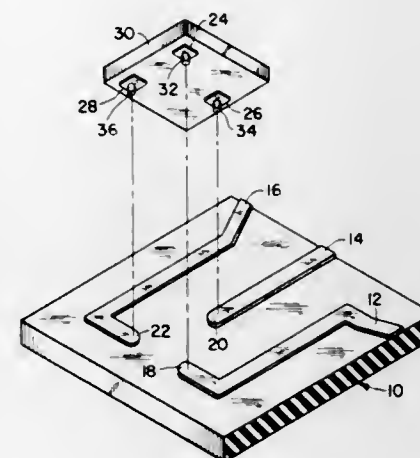
3,561,107

SEMICONDUCTOR PROCESS FOR JOINING A TRANSISTOR CHIP TO A PRINTED CIRCUITHoward S. Best, Horseheads, and Robert E. Bowser, Big Flats, N.Y., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 415,314, Dec. 2, 1964. This application Mar. 27, 1968, Ser. No. 716,568

The portion of the term of the patent subsequent to Oct. 1, 1985, has been disclaimed

Int. Cl. B01j 17/00; H01l 1/16, 1/24, 7/68

U.S. Cl. 29—577 4 Claims



A method of attaching transistors to printed circuits or microcircuits by employing conductive pillars bonded or welded to contact areas on each. The pillars are first attached to contact areas on the transistor chip.

3,561,108

ALTERNATED ORIENTATION OF CHIPS ON SEMICONDUCTOR WAFERS

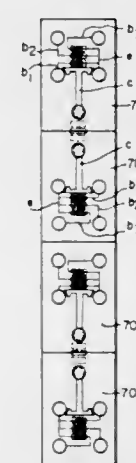
Charles E. Benjamin, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Aug. 2, 1967, Ser. No. 657,863

Int. Cl. H01l 7/64

U.S. Cl. 29—578

3 Claims



A process of fabricating semiconductor devices in which a master slice having a standard device configuration is utilized for obtaining a variety of finished device forms, in which the dimension for the frames of the master slice is designated a , and an array of device forms having a dimension of $a(n+1/2)$ is to be fabricated, which includes the essential step of fabricating the device forms so that there is 180° rotational symmetry about a center point for successive rows of device forms in said array.

3,561,109

METHOD OF MANUFACTURING THERMOELECTRIC DEVICES

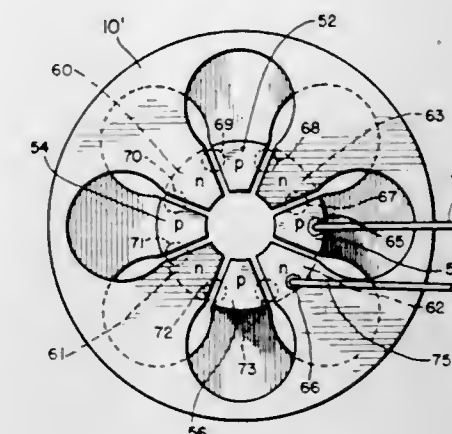
Allen T. Puder, Pasadena, Calif., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Delaware

Filed Nov. 7, 1968, Ser. No. 774,156

Int. Cl. B01j 17/00; H01l 15/00

U.S. Cl. 29—573

4 Claims



A method of forming a thermoelectric module includes shaping two pairs of electrically conductive plates, and placing a p-type layer of thermoelectric material between the first pair of plates and an n-type material between the second pair of plates. Each plate has openings placed so that cuts along predetermined lines result in separation of the plates from the sandwich, with each separated plate individually carrying conjugate mating segments of thermoelectric material. Appropriate sizing of the p-type and n-type layers of thermoelectric material affords ready control of the individual thermoelectric element cross-sectional area and the element length, to provide optimum performance of a multi-stage thermoelectric assembly. The separated plates are interfitted into a composite sandwich of p- and n-type materials to form a thermoelectric module.

3,561,110

METHOD OF MAKING CONNECTIONS AND CONDUCTIVE PATHS

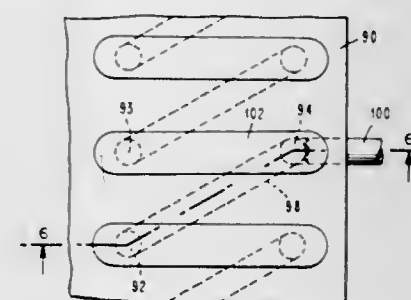
Richard A. Feulner, Hopewell Junction, Stephen A. Milkovich, M D Beacon, and Lewis F. Miller, La Grangeville, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Aug. 31, 1967, Ser. No. 664,809

Int. Cl. B41m 3/08

U.S. Cl. 29—602

3 Claims



Electrical and/or thermal connection between conductive layers in ceramic or other high temperature substrates, and internal or attached metallurgical structures, is obtained by filling via or transverse holes with dry metallic particles and sintering.

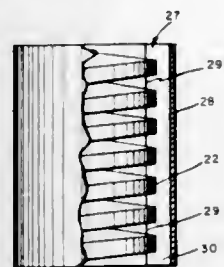
3,561,111

METHOD FOR MAKING PRECISION, SQUARE-WIRE AIR CORE COILS

Alfred B. Beck, Torrance, and Kenneth L. Schirmer, Gardena, Calif., assignors to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Aug. 7, 1968, Ser. No. 750,956
Int. Cl. H01f 7/06

U.S. Cl. 29—602

7 Claims



A method of making precision, square-wire air core coils by combining an electroforming technique with a precision machining technique. The manufacture includes the steps of copper plating an aluminum mandrel having a polished outside diameter the size of the desired inside diameter of the coil, machining the copper plating to the desired outside coil diameter, and cutting a helical groove through the copper plating to form a coil. The coil ends are then trimmed to the desired length and mounting apertures are formed at the ends of the coil. Finally, the mandrel is separated from the coil by dissolving the mandrel in a solution of lye. Additional optional steps include depositing a coating of silver on the coil, installing square cross-section Teflon combs inside the coil to prevent deformation, and enclosing the coil inside a cylindrical sleeve of heat shrinkable tubing to provide longitudinal rigidity.

3,561,112

METHOD OF MANUFACTURING A STORAGE MATRIX

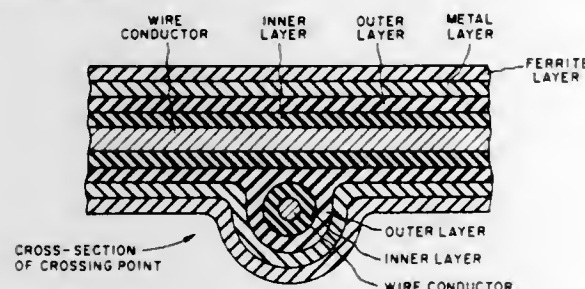
Theodoor Holtwijk, Willem Lems, and Antonius Gerardus Hendrikus Verhulst, Emmasingel, Eindhoven, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed Mar. 7, 1968, Ser. No. 711,350
Claims priority, application Netherlands, Mar. 16, 1967, 6703932

Int. Cl. H01f 7/06

U.S. Cl. 29—604

3 Claims



A magnetic matrix constructed with crossing conductors of dual insulation, heating the assembly to melt the outer insulation and cause same to flow to form smooth insulating bodies around the crossings, and coating the assembly with magnetic material.

3,561,113

METHOD FOR MAKING RHEOSTATS

Clarence A. Burke, Henrietta, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New York

Filed Jan. 30, 1969, Ser. No. 795,247

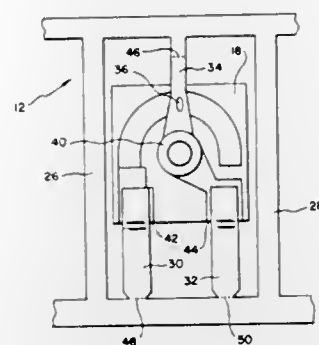
Int. Cl. H01c 1/14, 17/00

U.S. Cl. 29—621

6 Claims

The disclosure relates to a method for making rheostats. A substrate is prepared for supporting a re-

sistive pattern with a first conductive member at one end, the substrate including a second conductive member forming an electrically common connection. A conductive means is positioned over the substrate, the conductive means integrally supporting a wiper element and a terminal pair. The wiper element is rotatably secured to the substrate, so that one end makes adjustable



and contiguous contact with the resistive pattern, while the other end is electrically continuous with the electrically common connection. The terminal pairs are then secured to the first and second conductive members, and finally the terminal pairs and the wiper element are severed from the conductive means where they are integrally joined.

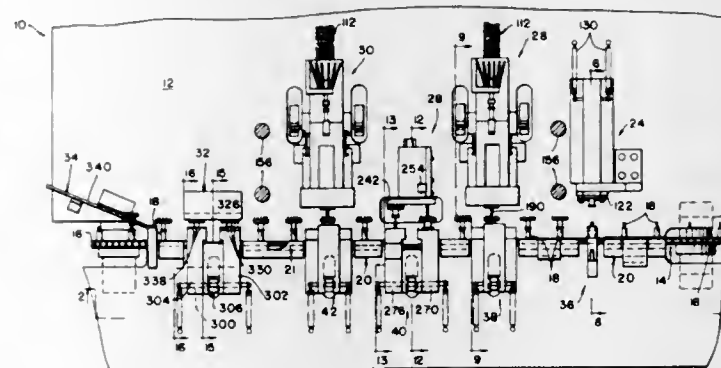
3,561,114

BOBBIN LUGGER AND METHOD

William C. Thoms, New Cumberland, Fransiscus C. Bakermans, Harrisburg, and Ronald B. Barnes, Camp Hill, Pa., assignors to Berg Electronics, Inc., New Cumberland, Pa., a corporation of Pennsylvania
Filed Sept. 18, 1968, Ser. No. 760,544
Int. Cl. H01r 9/00; H05k 13/04

U.S. Cl. 29—630

28 Claims



Apparatus and method for applying terminal lugs to a bobbin wherein the bobbin is positioned on an indexing mandrel and the mandrel is intermittently moved along a path to bring the bobbin adjacent a lug applicator where lugs are applied to the top of the bobbin. Further indexing of the mandrel along the path positions the bobbin adjacent a turn station where the bottom is removed from the mandrel, positioned on a pin, rotated through 180° about its axis, and repositioned on the indexing mandrel with the lugs positioned on the bottom of the bobbin. Continued indexing of the mandrel positions the bobbin adjacent a second lug applicator which applies lugs to the unlugged top of the bobbin. Further indexing of the mandrel positions the bobbin at a bending station where the lugs on both the top and the bottom of the bobbin are accurately bent to a desired configuration.

3,561,115

ELECTRIC HAIR CLIPPER

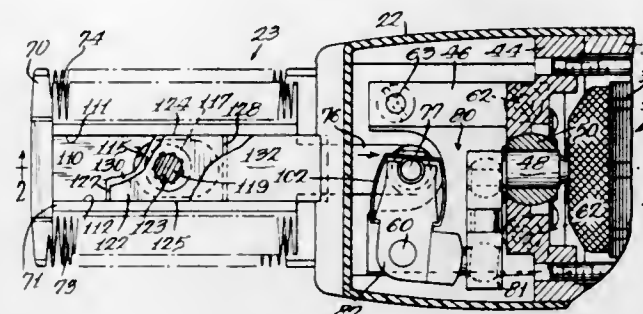
Bernhard Palm, Milwaukee, Wis., assignor to John Oster Manufacturing Co., Milwaukee, Wis., a corporation of Wisconsin

Filed Mar. 29, 1968, Ser. No. 717,347

Int. Cl. B26b 19/02

U.S. Cl. 30—218

22 Claims



Hair cutting device having the cutter assembly extending forwardly from the housing and the cutter assembly including two spaced rows of cutting teeth parallel to the housing. A linkage arrangement transmits the rotary power from a permanent magnet motor to reciprocate the cutter assembly comprising a reciprocal cutter and a stationary comb. The cutter is biased against the stationary comb by means of a leaf spring which is clamped in a manner to maintain a uniform tension therebetween.

3,561,116

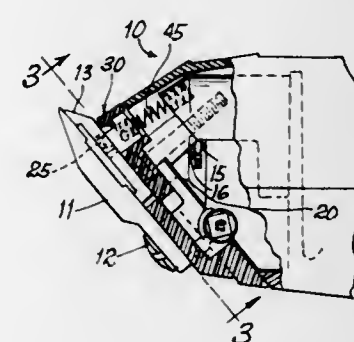
TRANSMISSION MEMBERS FOR ELECTRIC HAIR CLIPPER

John F. Wahl, Sterling, Ill., assignor to Wahl Clipper Corporation, Sterling, Ill., a corporation of Illinois
Filed Oct. 15, 1969, Ser. No. 866,499

Int. Cl. B26b 19/02

U.S. Cl. 30—220

5 Claims



The transmission mechanism in an electric hair clipper driven by a rotary motor includes two members located between the drive shaft and a reciprocating cutting blade which is detachable from the clipper. One member is a spring-biased follower member which is connected to the cutting blade and is driven directly or indirectly by a cam on the drive shaft, and the other is a guide member which has guide surfaces engaged by the follower member, the follower member being guided by the guide member for reciprocating straight line movement. The follower member and the guide member have first and second retaining means which cooperate with each other to hold the follower member in place when the cutting blade is detached from the clipper, thereby facilitating reassembly and preventing possible loss of parts. The guide member is resilient in the region of its retaining means so the latter may be displaced to permit intended removal of the follower member and replacement thereof.

3,561,117

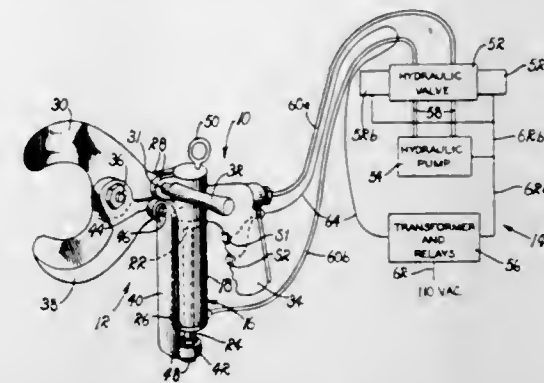
DEHORNER AND HOCK CUTTER

Edwin D. Murbach, Fresno, Calif., assignor to Sierra Meat Co., a corporation of California
Filed July 5, 1968, Ser. No. 742,623

Int. Cl. B26b 15/00

U.S. Cl. 30—228

1 Claim



A reliable device for cutting the horn and hock of a slaughtered animal by one person and consisting essentially of a pair of cutter blades relatively movable toward and away from each other, a double acting hydraulic ram operatively connected to the blades for effecting such relative movement in a positive manner, and electrical controls including selectively operable switch means for selectively actuating the hydraulic ram.

3,561,118

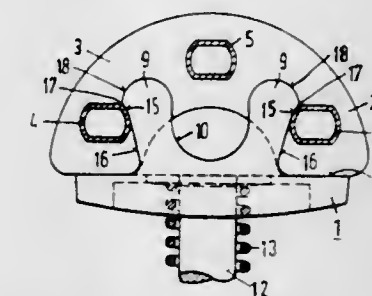
CUTTER HEAD FOR DRY SHAVER

Richard Antretter, 9 Kari Stielstr., 8031 Stockdorf, near Munich, Germany
Filed Jan. 17, 1969, Ser. No. 791,978
Claims priority, application Germany, July 25, 1968, P 17 03 893.6

Int. Cl. B26b 19/06

U.S. Cl. 30—346.51

8 Claims



Two lower carrying rods are spaced from an upper carrying rod on opposite sides thereof. A plurality of spaced apart knife blades are threaded on said carrying rods. A driver which is made of plastics material comprises a bottom part which is formed with an aperture adapted to receive a driver pin, and cheeks spaced apart in the longitudinal direction of said bottom part and extending upwardly from said bottom part and fitting each between adjacent ones of said knife blades. Said cheeks have outer narrow side faces formed with relieved surface portions in resilient engagement with confronting peripheral surface portions of said lower carrying rods.

3,561,119

PREFORMED ANTERIOR PONTIC PATTERNS
Harry Susman and Jon E. Susman, both of 6439 Preston-shire, Dallas, Tex. 75225

Continuation-in-part of application Ser. No. 566,157, July 18, 1966. This application Feb. 24, 1969, Ser. No. 801,512

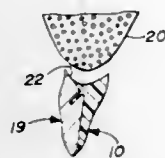
Int. Cl. A61c 13/00

U.S. Cl. 32—2

3 Claims

A preformed anterior pontic pattern made from a solid, nondeformable plastic material and shaped generally to

correspond to the lingual portion of an anterior tooth and having engaging means connected on the front section of the pattern for engaging and supporting a labial portion of an anterior pontic. The engaging means for the pre-



ferred pontic pattern of this invention is a bearing section positioned transversely to the lingual side thereof and carrying a pair of integral retaining pins which are angled toward the incisal tip of the pontic.

3,561,120

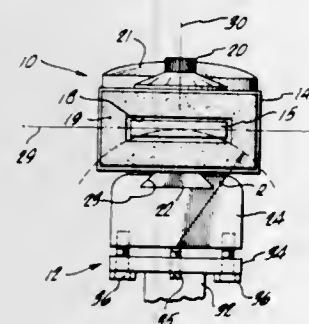
DISTANCE MEASUREMENT WITH FRICTION WHEEL DEVICES

Irven H. Culver, Playa del Rey, Calif., assignor to Primus Mfg., Inc., San Lorenzo, Puerto Rico, a corporation of California

Filed Jan. 24, 1969, Ser. No. 793,856
Int. Cl. G01b 3/12

U.S. Cl. 33—125

6 Claims



A method for mounting a friction wheel distance measuring device to a machine tool, such as to a lathe carriage, to enable precise measurement of the extent of movement of the carriage along the lathe bed, e.g., which includes mounting the device on the carriage so that, when the carriage is stationary, the metering wheel of the measuring device is mounted slightly skew to the line of movement of the carriage along the bed by an amount and in a direction which automatically compensates for repeatability errors generated by non-reciprocal deflections of the carriage and the supporting bracketry of the measuring device.

3,561,121

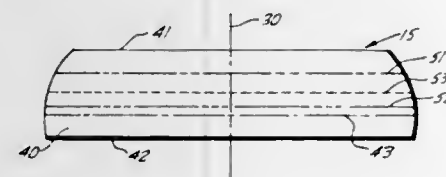
DISTANCE MEASUREMENT WITH FRICTION WHEEL DEVICES

Irven H. Culver, Playa del Rey, Calif., assignor to Primus Mfg., Inc., San Lorenzo, Puerto Rico, a corporation of California
Continuation-in-part of application Ser. No. 793,856, Jan. 24, 1969, This application Apr. 7, 1969, Ser. No. 813,851

Int. Cl. G01b 3/12

U.S. Cl. 33—125

4 Claims



The periphery of the metering wheel of a friction wheel distance measuring device has a parti-spherical

configuration and has its maximum diameter more proximate to one end face of the wheel than to the other end face to enable disposition of the wheel to compensate for measurement errors produced by metal elastic crawl in a measurement surface engaged by the wheel and to compensate for repeatability errors produced by non-reciprocal deflections in structure to which the device is mounted in use.

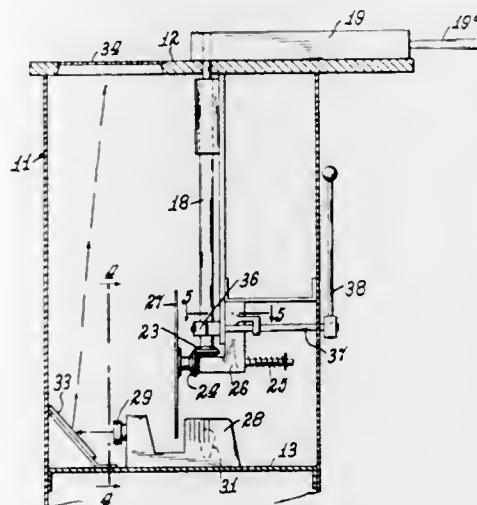
3,561,122

ANGLE OF BEND READER

George F. Beckwell, Aurora, Ill., assignor to Pines Engineering Co., Inc., Aurora, Ill., a corporation of Illinois
Continuation of application Ser. No. 654,541, July 19, 1967. This application Sept. 2, 1969, Ser. No. 854,803
Int. Cl. G01p 9/10

U.S. Cl. 33—75

2 Claims



Apparatus including a protractor disc and a lens system for visually recording on a screen the angle of bend present in a piece of tubular, rod or like stock.

3,561,123

HAND LEVEL

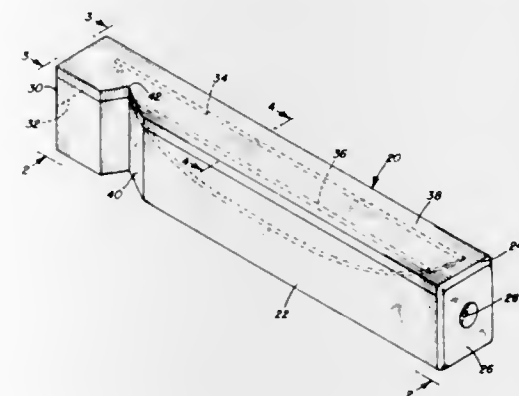
Clifford G. Bowman, 3527 Talbott St., San Diego, Calif., 92106, and Don C. Bowman, Box 41, Round Mountain, Nev. 89045

Filed Mar. 24, 1969, Ser. No. 809,797

Int. Cl. G01c 5/00, 9/32

U.S. Cl. 33—73

10 Claims



A hand level formed principally of an elongated, substantially transparent element, the front of which carries a peephole and the rear a peep sight. The element provides a generally flat, vertically disposed, horizontally elongated reservoir which extends substantially parallel and at one side of a straight line between the peephole

and peep sight. The reservoir contains a colored liquid. A light reflecting surface is positioned to reflect light from the liquid through the peephole.

3,561,124

ATTACHMENT MEANS FOR THE MEASURING HEAD OF AN EXTENSOMETER

Bernardus Josephus Brugman, Gumligen, Switzerland, assignor to Losinger & Co. A.G., Bern, Switzerland

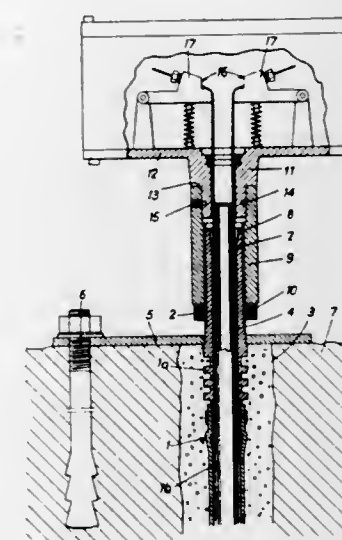
Filed July 12, 1968, Ser. No. 744,454

Claims priority, application Switzerland, July 27, 1967, 10,659/67

Int. Cl. E21b 49/00

U.S. Cl. 33—125

2 Claims



An attachment means for securing the measuring head of an extensometer at a stationary throughbored connecting piece arranged at an extension of the borehole cable which comprises a tensioning sleeve which has one end threaded onto the connecting piece and its other end rotatably supported at the measuring head.

3,561,125

THREE-DIMENSIONAL POSITION INDICATING SENSOR

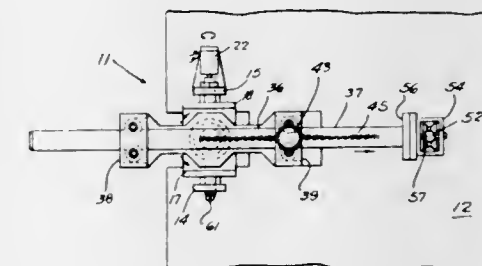
Herman R. Zeidler, Farmingdale, N.Y., assignor to Linear Motion Technology, Inc., Farmingdale, N.Y., a corporation of New York

Filed Feb. 23, 1968, Ser. No. 707,576

Int. Cl. G01b 7/00

U.S. Cl. 33—174

13 Claims



A three-dimensional caliper device for sensing the location of a point by spherical coordinates, wherein a typical example of the device consists of a horizontal supporting table on which a gimbal bracket is swivelled for rotation on a horizontal axis. The bracket carries a gimbal member swivelled thereon for rotation on an axis normal to the first-named axis. A range arm is slidably-mounted in the gimbal member and carries a contact sensor at its

end. The range arm is coupled to an electrical resolver giving an electrical "range" read-out corresponding to the amount of extension of the range arm in the gimbal member. The gimbal bracket and gimbal member are respectively coupled to electrical resolvers giving read-outs corresponding to the angular rotations of the gimbal bracket and gimbal member around their respective axes of rotation. The resolvers are connected in a computing circuit wherein an applied signal voltage controlled by the range resolver is inserted and the angle resolvers produce respective signal voltage drops which are also inserted in the circuit.

3,561,126

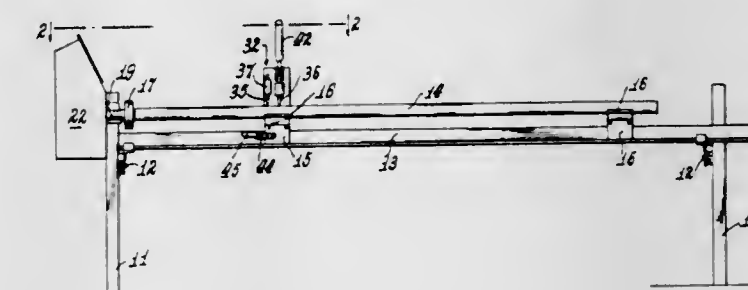
APPARATUS FOR MARKING BEND LOCATIONS ON TUBULAR STOCK

George F. Beckwell, Aurora, Ill., assignor to Pines Engineering Co., Inc., Aurora, Ill., a corporation of Illinois
Continuation of application Ser. No. 645,126, June 12, 1967. This application Aug. 6, 1969, Ser. No. 861,213

Int. Cl. B23b 49/02

U.S. Cl. 33—189

12 Claims



Apparatus for laying out reference points for bends to be made in tubular stock, which includes a support for such stock and a visual calibrated reader connected with said stock for indicating its rotational position on the support. The apparatus also includes means slidable along the length of the stock for facilitating marking of points of reference on said stock.

3,561,127

METHOD AND APPARATUS FOR DETERMINING REMOTE POINTS FROM REFERENCE POINT BY LIQUID LEVEL

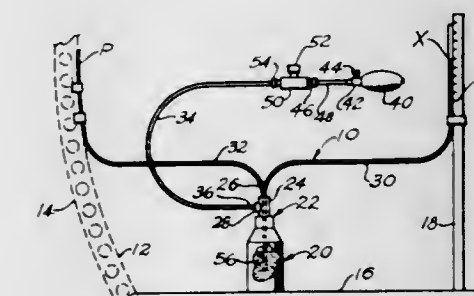
Ronald A. Du Bose, Atlanta, Ga.
(866 Parkway Drive, Smyrna, Ga. 30080)

Filed May 17, 1968, Ser. No. 730,008

Int. Cl. G01c 5/04

U.S. Cl. 33—209

12 Claims



To locate one or more points accurately from a base reference point such as locating positions on an aircraft structure during construction or repair where optical location is impractical, liquid in a tank that can be pressurized is piped and indexed at the base location and then one or more conduits such as flexible, clear plastic

tubing are run to the remote points and then the container is pressurized to bring the liquid to the reference point which also brings the liquid to the remote point to be located whereat it may be stopped by holding the pressure at that point. A typical apparatus for practicing the present method would include a pressure vessel such as a paint spray tank having a quick-connect-fitting on the top and contains a supply of liquid such as 80% dyed water and 20% alcohol. A Y fitting on the quick-connect-fitting leads by a plastic tube to the reference point from one branch of the Y into the remote point from the other branch of the Y. A hand operated rubber bulb squeeze pump with bleed valves and fine control needle valve is connected to the tank and is pumped by hand to pressurize the tank to drive the liquids into the respective lines and when the level of the liquid in the lines is approximately of the desired level, the fine control valve is operated to bring the reference point to exact level and the remote point will then be properly located and may be marked after which the equipment is removed.

3,561,128

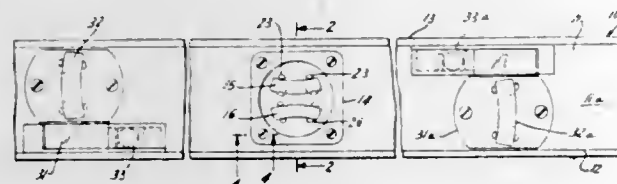
CHANNELED SPIRIT LEVEL HAVING SPIRIT VIALS ADJUSTABLY MOUNTED WITHIN THE CHANNEL THEREOF

Seymour A. Ostrager, Bronx, N.Y., assignor to Miracle Instrument Co., New York, N.Y., a corporation of Delaware

Filed June 30, 1969, Ser. No. 837,467
Int. Cl. G01c 9/28

U.S. Cl. 33—213

12 Claims



In a spirit level comprising an elongated channeled frame defined by a web and parallel side walls extending perpendicularly from one surface of said web, with one of said side walls extending beyond said web to provide a flange disposed perpendicularly to the opposed side of said web, means is provided for adjustably mounting spirit vials in connection with said web in a manner to be completely housed within the channel of said frame. The mounting means includes a base member of transparent plastic material detachably secured to the web portion of the frame and having a spirit vial receiving recess in the outer face thereof, and a transparent plastic cover member overlying said base member having resilient means for firmly supporting a spirit vial in connection therewith in a manner to be positioned in said recess and spaced from said base member. The cover member is detachably secured to said base member in a manner to provide limited rotation of the cover member for accurate alignment of the spirit vial. In one special adaptation of the invention a second spirit vial is mounted within the recess of said base member by resilient means securing the same to said base member and adjustably by limited rotation of the base member. In another special adaptation a second vial is adjustably mounted on an extension along one side of the base member and oriented perpendicularly to said web, and said extension supports an angled mirror so positioned that the first vial and the mirror image of said second vial are in substantial alignment.

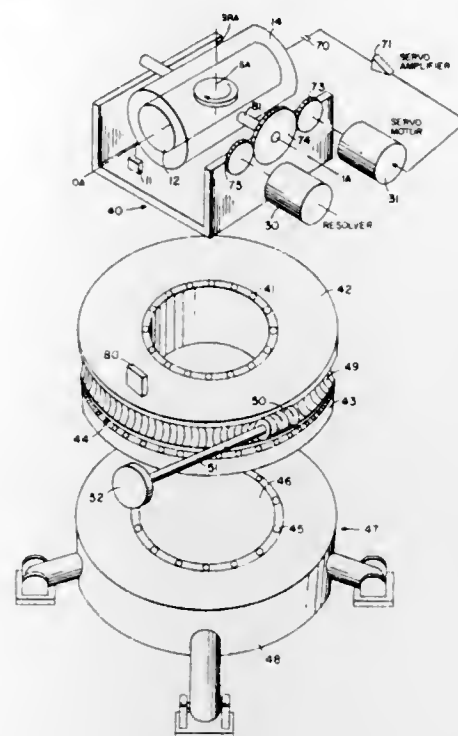
3,561,129 NORTH-SEEKING SYSTEM

James V. Johnston, Madison, Ala., assignor to the United States of America as represented by the Secretary of the Army

Filed Dec. 27, 1966, Ser. No. 605,110
Int. Cl. G01c 19/38

U.S. Cl. 33—226

3 Claims



A system using a pendulous, integrating, gyroscope accelerometer rotated about its gravity axis, in a level plane on the earth. The rotation velocity of the earth causes the pendulous mass to exert a varying precessional force on the gyroscope. The force is detected and correlated with the angular position of the accelerometer to determine north.

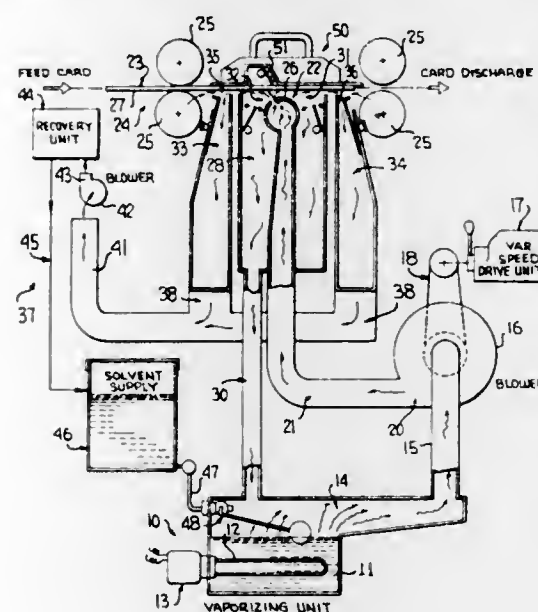
3,561,130 METHOD AND APPARATUS FOR FIXING DEPOSITED MEDIUM BY VAPOR APPLICATION

Raymond F. Galitz, La Grange, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed Aug. 28, 1968, Ser. No. 755,889
Int. Cl. F26b 13/00

U.S. Cl. 34—23

31 Claims



Method and apparatus for fuzing printing or coating material upon conveyed articles by the application of hot solvent vapors is disclosed herein. A vaporizing unit is

connected for the supply of solvent vapor to a vapor knife including a hollow tubular resilient member having an elongate vapor emission slot and contractible toward its longitudinal axis for varying the slot width. Recirculation provisions withdraw vapor from adjacent the knife for subsequent reapplication and reclaiming provisions withdraw vapor bi-passing the recirculation provisions to return a portion of the vapor to its liquid state for subsequent vaporization. The reclaiming provisions also draw in air to prevent passage of air into the recirculation path and cover provisions overlie the knife and include a pivotal gate movable by articles in transit past the knife. The gate diverts emitted vapors to the recirculation provisions absent the presence of an article proximate the knife, masks the leading edge of articles conveyed into proximity with the knife and contacts a surface of the articles during transit past the knife to aid in the proper positioning of such articles.

3,561,131

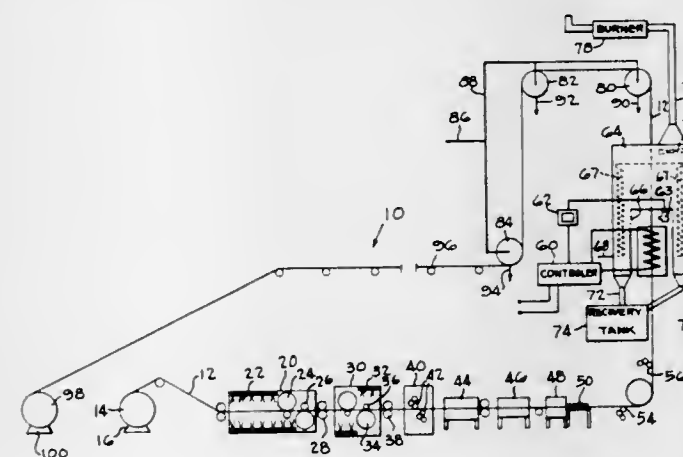
METHOD AND APPARATUS FOR COATING METAL STRIPS

LeRoy O. Swartz, Cornwells Heights, Pa., assignor to Cornwells Metal Finishing Company, Inc., Cornwells Heights, Pa., a corporation of Pennsylvania

Filed Sept. 10, 1968, Ser. No. 758,896
Int. Cl. F26b 21/06

U.S. Cl. 34—73

7 Claims



An apparatus for applying a coating to a metal strip whereby the metal strip is first pretreated to condition it for application of the coating, after which the coating is applied to either one or both sides of the strip. Thereafter, the coated strip passes through a heating station where it is heated by means of electromagnetic induction. A hood surrounds the induction heating means so that the vaporized solvents and other fumes are prevented from passing into the atmosphere and over the coated metal strip downstream of the heating station. A hood is provided with condensing means to condense the vaporized solvents and to permit recovery of the condensed solvents, and is also provided with an afterburner to burn up any uncondensed vapors or gases to prevent contamination of the atmosphere. A series of cooled rollers are provided downstream of the heating means to not only act as conveyors for the strip, but also as progressive cooling means to complete the cure of the coating.

3,561,132

CARBON BLACK DRYING APPARATUS

John W. La Grone, Borger, Tex., assignor to Phillips Petroleum Company, a corporation of Delaware

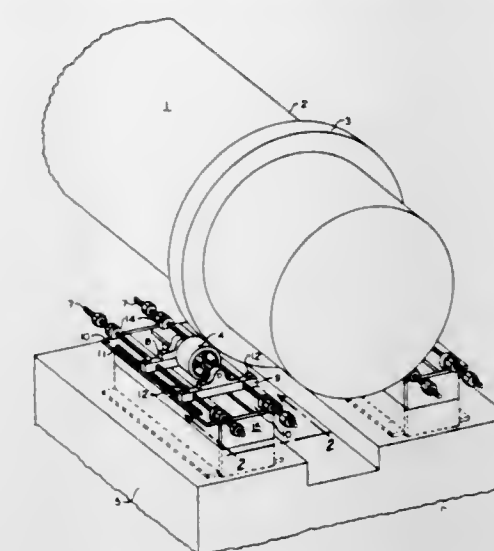
Filed Sept. 10, 1969, Ser. No. 856,751
Int. Cl. F26g 11/02

U.S. Cl. 34—108

5 Claims

Apparatus is disclosed which comprises a rotary carbon black drier, subjected to permanent elongation of its

metallic shell, in combination with trunnion supports positioned in relation to a flange extending circumferentially to, and outwardly from, the drier shell, the trunnions



being movably positionable along the length of the drier coincidental with the repositioning of the flange upon elongation of the drier shell.

3,561,133

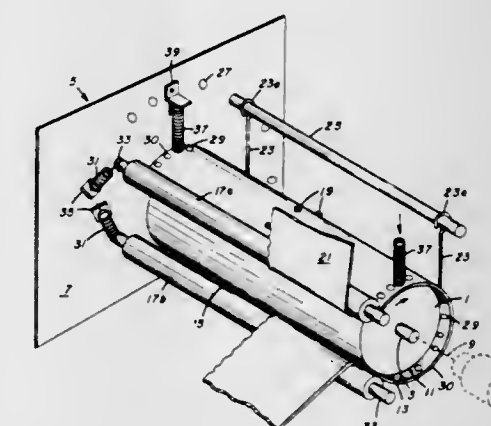
THERMAL PROCESSOR

Frederic D. Hauck, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Mar. 21, 1969, Ser. No. 809,074
Int. Cl. F26b 1/02

U.S. Cl. 34—110

8 Claims



A thermal processor for heating web material in a well-known manner between a rotating drum and a mating, non-rotating, semi-rigid resilient shell. A pivotally connected support means holds the shell in "floating" relationship with the drum. Such relationship is achieved by the use of links which pivotally connect the support means and shell which permit limited movement of any portion of the shell in a generally radial direction relative to the drum while preventing the shell, as a whole, from rotating with the drum.

3,561,134

DRIVE FOR DRYING CYLINDER ASSEMBLIES

Walter Krückels, Hausen im Wiesental, and Erich Gorissen, Mohrenblich, Germany, assignors to Maschinenfabrik Zell J. Krückels K.G., Zell (Wiesental), Germany, a firm

Filed Oct. 14, 1968, Ser. No. 767,400
Claims priority, application Germany, Oct. 14, 1967, P 17 29 422.3

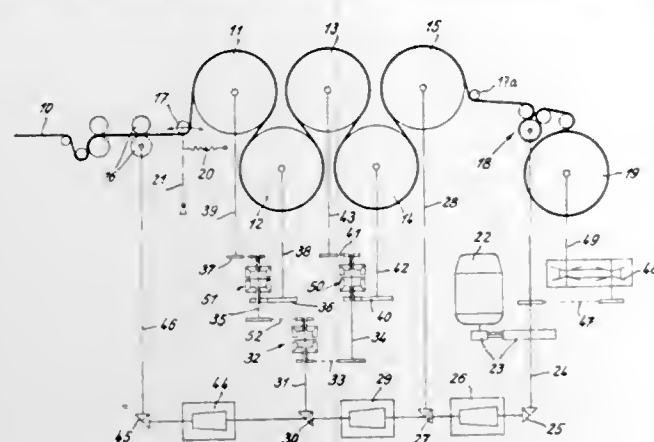
Int. Cl. F26b 11/04

U.S. Cl. 34—121

2 Claims

The invention provides a drive for drying cylinder assemblies upon which there can be dried a band material,

particularly textile webs or bands of filaments, that changes its length as it dries. This drive comprises a single motor for driving the several cylinders of a drying cylinder



assembly at different speeds by driving each pair of consecutive pairs of said cylinders through at least one differential gear.

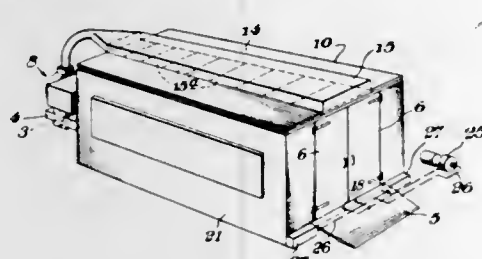
3,561,135

APPARATUS FOR PAINTING AND BAKING AN ARTICLE

Peter Fulford, 13 Liverpool Road, Kingston-on-Thames, Surrey, England
Continuation of application Ser. No. 456,635, May 18, 1965. This application Nov. 18, 1968, Ser. No. 778,008
Int. Cl. F26b 19/00, 25/06

U.S. Cl. 34-224

5 Claims



An improved apparatus for spray painting an article and baking the paint is disclosed. The article while supported on a grille platform in a substantially airtight booth is first spray painted while maintaining a flow of fresh filtered air downwardly which airflow passes through a flowing water screen before being exhausted from the booth. During the baking step, the air is recirculated and heated.

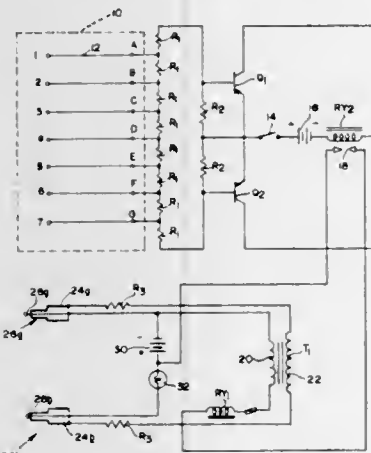
3,561,136

QUESTION AND ANSWER GAME

Andrew Lloyd Solow, 5743 Rhodes Ave., North Hollywood, Calif. 91607
Filed June 25, 1968, Ser. No. 739,787
Int. Cl. G09b 7/00

U.S. Cl. 35-9

8 Claims



A question and answer game in which the techniques of reinforced learning are employed to provide an educa-

tional and yet amusing game. Questions and multiple choice answers are arranged on a coded card which is connected to an electronic circuit having a pair of hand held probes connected thereto. The probes are used to match a question and an answer for the multiple choice group, the selection of a correct answer being operative to energize an appropriate indicator, while the selection of any erroneous answer is operative to shock the player by means of a shocking potential applied to the handles of the probes and/or a derogatory noise heard in conjunction with the shock.

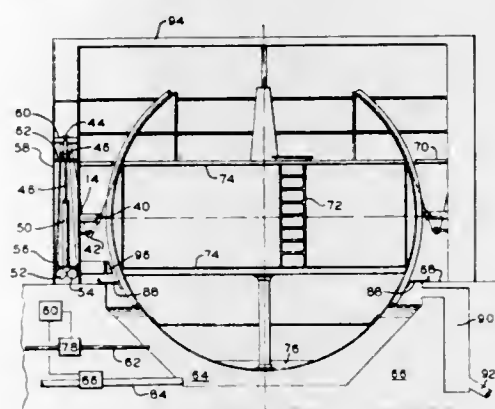
3,561,137

TRAINING APPARATUS WITH HYDROSTATIC MOTION SYSTEM

Andre J. Guyon and David O. Gorgol, Binghamton, N.Y., assignors to Singer-General Precision, Inc., Binghamton, N.Y., a corporation of Delaware
Filed Nov. 1, 1968, Ser. No. 772,734
Int. Cl. G09b 9/06

U.S. Cl. 35-11

3 Claims



Training apparatus in the form of a vehicle simulator, or the like, with a unique system for providing motion which realistically simulates that of an actual vehicle to the student station. An enclosure for the student or crew training compartment is floated in a container of water or other suitable liquid. The enclosure may be moved as desired upon the surface of the liquid by means of cables, or the like, and vertical motion may be imparted by raising or lowering the liquid level within the container.

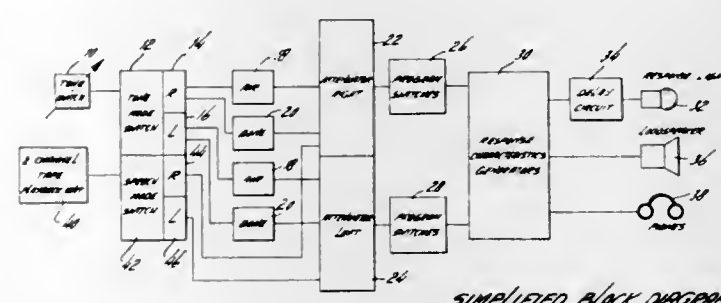
3,561,138

AUDIOMETRY TRAINING UNIT

Francis I. Catlin, Towson, and Robert N. Glackin, Jr., Cockeysville, Md., assignors to The Johns Hopkins University, Baltimore, Md., a corporation of Maryland
Filed Nov. 7, 1969, Ser. No. 874,806
Int. Cl. G09b 25/00

U.S. Cl. 35-13

11 Claims



Audiometry Training Unit primarily directed to a technician teaching machine using programmed instruction and/or simulation techniques to provide a trainee with experience in the theory and practicum of the evaluation of hearing, in the absence of live human test subjects. The unit facilitates practicing and following an actual testing procedure and contemplates different arrangements of simulation devices and/or techniques in

the methodology of hearing evaluation in human test subjects to selectively provide a variety of pre-programmed simulated test subject responses which can conform to actual live human test subject response characteristics. Instructor or programmer control of the simulated characteristics is incorporated. The unit is adaptable for, and useful in, testing of hearing by pure-tone techniques including pure-tone audiometry, hearing for speech, speech intensity, subject response measurements, speech reception threshold, speech discrimination tests, and other normal testing procedures. The system includes a variable patient response circuit to more precisely implement test procedures simulating actual audiometry testing.

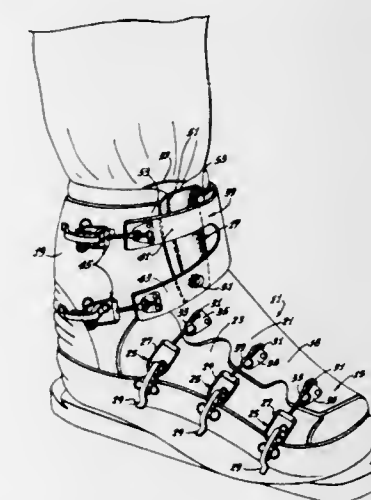
3,561,139

SKI BOOT AND STAY THEREFOR

Donald W. Stillman, 8215 Tuscany Ave., Playa Del Rey, Calif. 90291
Filed Aug. 25, 1969, Ser. No. 852,787
Int. Cl. A41b 00/00

U.S. Cl. 36-2.5

12 Claims



A ski boot including a sole and an upper attached to the sole and adapted to receive the foot of a wearer. The upper includes an ankle embracing portion, a foot embracing portion and at least one strap. A semi-rigid load distribution member is retained between the strap and the ankle of the wearer to distribute the load applied by the strap to the forward portion of the ankle.

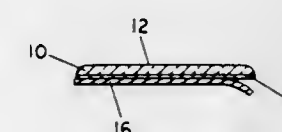
3,561,140

SHOE SOLE SAFETY DEVICE

Frederick T. Ludwig, 2574 Chester Road, Columbus, Ohio 43221
Filed June 16, 1969, Ser. No. 833,557
Int. Cl. A43b 23/28

U.S. Cl. 36-59

8 Claims



A thin, non-skid patch adhered to the bottom of a shoe sole and having a softness sufficient that it will wear away within a few days or a few weeks of use. The preferred patch is provided with a pressure-sensitive adhesive on one side which is covered by release paper. The release paper is pulled away from the adhesive so that the patch may be applied on the relatively smooth surface of the sole of a new shoe. The preferred patch is transparent so that it will not be noticeable on the sole of the shoe and may be provided with ridges to increase its non-skid characteristics. The patch may be made of a thermoplastic such as a flexible polyvinyl chloride film.

3,561,141

PRE-FORMED SHOE INSOLE

Jacob W. Brown, Cincinnati, Ohio, assignor to Vulcan Corporation, Cincinnati, Ohio, a corporation of Ohio
Filed Aug. 25, 1969, Ser. No. 852,577
Int. Cl. A43b 13/38

U.S. Cl. 36-44

4 Claims



An insole blank having a preformed plastic body with structurally joined heel seat and shank portions and which can be directly incorporated into a shoe structure by conventional lasting methods to produce an improved shoe.

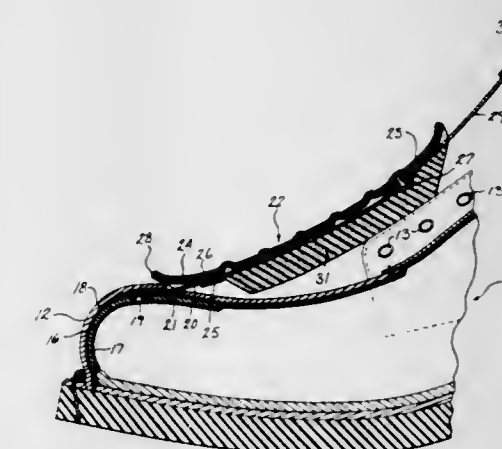
3,561,142

SAFETY SHOES

Henry W. Streit, Sr., Abingdon, Md., and Robert E. Becker, Merrill, Wis., assignors to The Weinbrenner Shoe Corporation, Merrill, Wis., a corporation of Wisconsin
Filed Aug. 11, 1969, Ser. No. 849,015
Int. Cl. A43b 13/22

U.S. Cl. 36-72

8 Claims



A strip of spring steel is connected at its forward end to the metal toe of a safety shoe, the strip projecting through a slit in the leather toe covering and upwardly through a metal guide on the underside of the lower portion of an instep guard, the guide being positioned to engage over the rear of the metal toe to provide a force-transmitting projection whereby a blow on the instep guard is transmitted to the metal toe, the spring steel strip forming a hinge connection for the instep guard.

3,561,143

DRAW LINE BUCKET WITH CORRUGATED BOTTOM

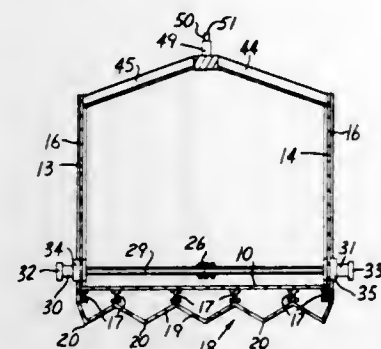
Joseph Lockhart, Rte. 2, Twisp, Wash. 98856
Filed Aug. 19, 1968, Ser. No. 753,457
Int. Cl. E02f 3/81

U.S. Cl. 37-135

4 Claims

A drag line bucket is arranged with a haul cable leading from the front end, a haul back cable leading from the rear end and a tilt control connected to a top frame on the bucket. The bucket has a rectangular back wall and a rectangular floor with a scraper blade at the front edge of the floor. Upright side walls extend up from the side edges of the floor and their front ends are provided with

rocker shaped runners to lift the blade above the ground when the bucket is tipped forward. Beneath the floor of the bucket is a corrugated ground engaging bottom that has a short upwardly inclined front end joining the floor at the scraper blade. This corrugated bottom is rounded upward at the back and the corrugations gradually di-



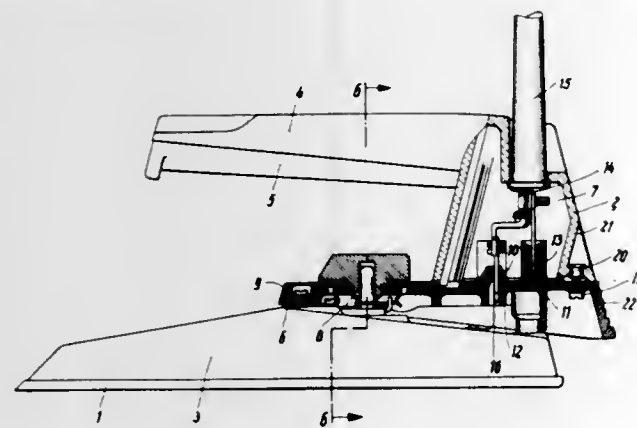
minish to nothing about midway up the back wall. The haul back cable is attached to the rear of the bucket by a bridle about midway between the top and the bottom of the bucket. The corrugated bottom and the floor are separated by beams which run from front to back and extend up the back wall.

3,561,144 ELECTRIC IRON

Heinz Pichl, Offenbach am Main, Germany, assignor to Rowenta-Werke Gesellschaft mit beschränkter Haftung, Offenbach am Main, Germany, a company of Germany
Filed July 9, 1969, Ser. No. 840,311
Claims priority, application Austria, July 16, 1968, A 6,847/68
Int. Cl. D06f 75/34

U.S. Cl. 38—92

4 Claims



The invention is concerned with electric irons and is directed primarily to the handle which has upper and lower portions which fit one within the other and are secured to a cover plate by a single screw and mating projection and recesses. Cavities are provided in the handle for electrical connections, the cavities being closed at the base of the handle by the cover plate.

3,561,145 LIGHT DISTRIBUTING LENS SYSTEM

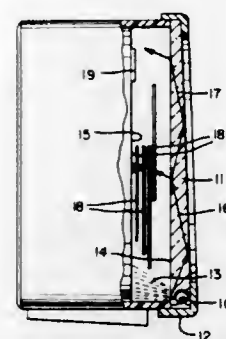
Henry E. Shotwell, Berwick, Pa., assignor to United States Radium Corporation, Morristown, N.J., a corporation of Delaware
Filed Mar. 5, 1968, Ser. No. 710,590
Int. Cl. G09f 13/18

U.S. Cl. 40—130

1 Claim

A light distributing lens system for illuminating a display which employs a tapered three dimensional wedge-shaped panel member of substantially transparent material having a first planar surface proximate to the display

and a second planar surface distal from the display so disposed in front of the display to be illuminated that the first planar surface is parallel to the display and the second planar surface is set at a slight angle to the display. The system also employs a light source encased in a recess in the thicker base portion of the tapered wedge-shaped panel member and an opaque frame intimately



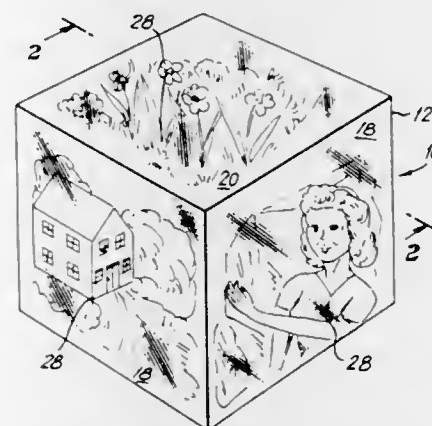
supporting the periphery of the tapered wedge-shaped panel member in a manner to obscure the light source from external view but to permit the projection of light rays from the light source onto the display directly as well as indirectly through internal reflection from the entire first planar surface of the tapered wedge-shaped panel member.

3,561,146 PHOTOGRAPH DISPLAY APPARATUS

Robert H. Dembar, Croton, N.Y., assignor to Graphicana Corp., Ossining, N.Y.
Filed Aug. 5, 1969, Ser. No. 847,696
Int. Cl. G09f 1/12

U.S. Cl. 40—152

5 Claims



The present invention pertains to a photograph display apparatus and more particularly to a device for mounting and displaying photographic prints and other desired pictorial representations. The apparatus comprises a translucent outer member preferably formed of plastic whose geometric configuration is that of a polyhedron and an inner opaque member preferably formed of resilient polyurethane foam and having a conformal configuration with that of the outer member and adapted to be removably inserted within said outer member with photographs positionally secured between the abutting surfaces of said complementary polyhedrons.

3,561,147 BOOK INDEX

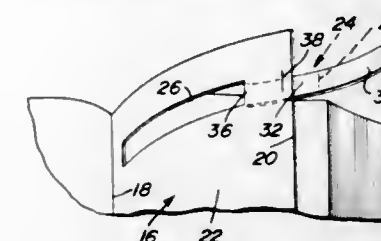
Jose Valencia, 1198 S. Van Ness Ave., San Francisco, Calif. 94110
Filed June 17, 1969, Ser. No. 834,053
Int. Cl. B42f 21/02

U.S. Cl. 40—360

9 Claims

A prefabricated insert-leaf, with or without printed matter and adapted to be mounted between the leaves of a telephone or similar directory, dictionary or the like and having an elongated flexible struck out ribbon-like tongue.

This tongue embodies like half-portions which can be folded and creased to provide several companion plies providing a finger-grippable suitably lettered book indexing tab. The outwardly folded tongue has reversely folded



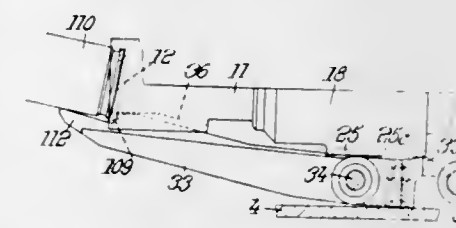
second and third plies, the second ply being threaded through an appropriate precut slit and the free or terminal ply being sandwiched between coordinating portions of the first and second plies to provide a triple ply tab.

3,561,148 EJECTION SYSTEM FOR A FIREARM

Bernard Maillard, Geneva, Switzerland, assignor to Brevets Aero-Mecaniques S.A., Geneva, Switzerland, a society of Switzerland
Original application Apr. 1, 1968, Ser. No. 717,524, now Patent No. 3,447,418, dated June 3, 1969. Divided and this application Oct. 21, 1968, Ser. No. 810,863
Claims priority, application Luxemburg, July 31, 1967, 54,210
Int. Cl. F41c 15/00

U.S. Cl. 42—25

1 Claim

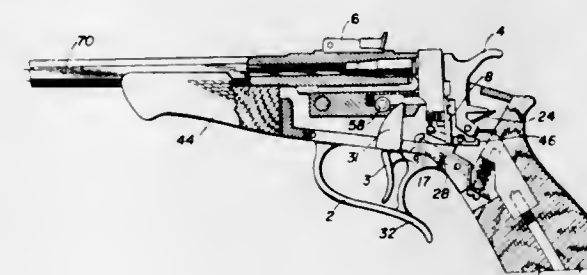


The injection system includes an extractor carried by the movable breech mechanism and, diametrically opposite, an ejector carried by the breechcase. The front of the ejector has a transverse striking surface for the rear edge of the cartridge case to be ejected. The ejector is controlled by the breech mechanism so as to present the striking surface against the rear edge during the recoil of the breech mechanism. At the front of the striking surface is a projection which strikes the lateral surface of the cartridge case transversely before the impact of the striking surface with the rear edge. This tips the cartridge case before the impact in the direction of the ejection passage, thus attenuating the violence of this impact.

3,561,149 PISTOL WITH MEANS ACTUATING THE BARREL LATCH AND SETTING THE TRIGGER MECHANISM AND SAFETY

Warren A. Center, Laurel Drive, Westminster, Mass. 01473
Filed Oct. 9, 1968, Ser. No. 766,156
Int. Cl. F41c 11/02, 17/00, 19/00
U.S. Cl. 42—41

9 Claims



A pistol having a horn associated with the trigger guard for opening the breech and having separate means for locking the trigger and cocking the hammer.

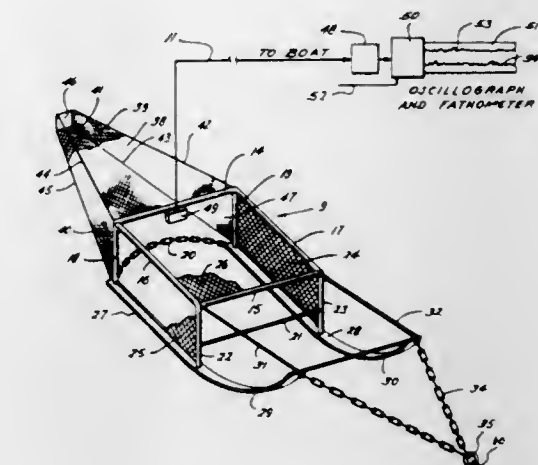
3,561,150 MEANS AND METHOD FOR LOCATING SHRIMP AND LIKE MARINE ANIMALS

Albert B. Silchenstedt, Box 255, Rockport, Tex. 78382
Continuation-in-part of application Ser. No. 767,781, Oct. 15, 1968. This application July 31, 1969, Ser. No. 846,545

Int. Cl. A01k 73/02

U.S. Cl. 43—4.5

5 Claims



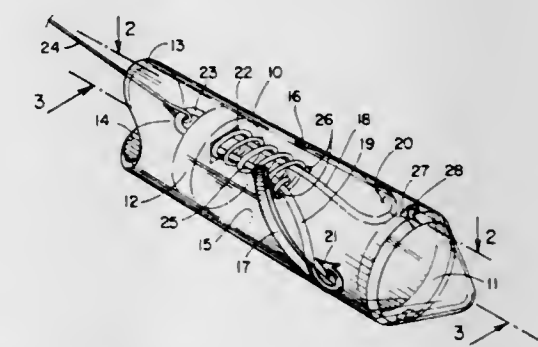
A trawl net is provided with an acoustic-electrotransducer which transmits electrical oscillations to a remote filter device. The filter device is tuned to isolate the characteristic vibrations produced by selected marine animals and the signals therefrom are transmitted to an indicator.

3,561,151 HOLLOW TRANSPARENT FISH LURE

Charles C. NeHoda, 127 San Benito, Ventura, Calif. 93001
Filed Apr. 25, 1969, Ser. No. 819,301
Int. Cl. A01k 83/02

U.S. Cl. 43—35

6 Claims



A fish lure in the form of an elongated cylindrical hollow member preferably transparent and provided with a removable nose piece for enabling bait to be inserted in the hollow interior of the member. Wall portions of the member include slots through which hooks disposed normally within the member are caused to pass through when a line passing into a rear partition in the member and attached to the hooks is pulled to move the hook means within the member. The hook means are thus normally encased within the member but when a fish bites on the lure, the line tension causes the hook means to be exteriorly exposed to snag the fish.

3,561,152 BIOCIDAL FUEL COMPOSITIONS

Roman W. Kulow, Cheshire, Conn., assignor to Olin Corporation, a corporation of Virginia
No Drawing. Filed Mar. 4, 1968, Ser. No. 709,958
Int. Cl. C10I 1/24

U.S. Cl. 44—63

8 Claims

Biocidal fuel compositions have been disclosed which comprise a liquid hydrocarbon fuel containing a biocidal-

ly effective amount of selected amine salts of 2-mercapto-pyridine-1-oxide.

as such, the toy having a high degree of play and educational value by stimulating the child's imagination to

3,561,153

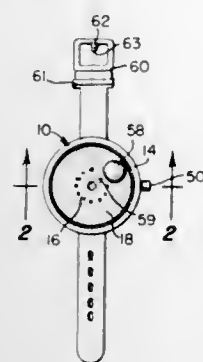
PICTORIAL TOY WRIST WATCH

David R. Harper, Nashville, Tenn., assignor to Kusan, Inc., Nashville, Tenn., a corporation of Kentucky
Filed Jan. 23, 1969, Ser. No. 793,331

Int. Cl. A63h 33/30

U.S. Cl. 46—1

9 Claims



A simulated wrist watch having a magnifying portion in the crystal which is manually rotatable over a fixed dial to successively uncover circumferentially spaced, display areas such as single pictures of a child's activities, the pictures and their subject matter being correlated physically and timewise with the twelve visible dial markings.

3,561,154

BUBBLE PIPE OR BLOWER

Riley Skinner, Paterson, N.J., assignor to Span Products, Inc., Paterson, N.J.

Filed Feb. 23, 1968, Ser. No. 707,609

Int. Cl. A63h 33/28

U.S. Cl. 46—6

2 Claims



A bubble pipe or blower which is provided at its working or forward end portion with a rewettable, concentrated bubble-forming solution or substance in substantially dry form or condition. The internal wall of the blower is impregnated with the concentrated bubble solution, which upon drying and when rewetted with water forms a film suitable for blowing bubbles.

3,561,155

TAKE-APART TOY

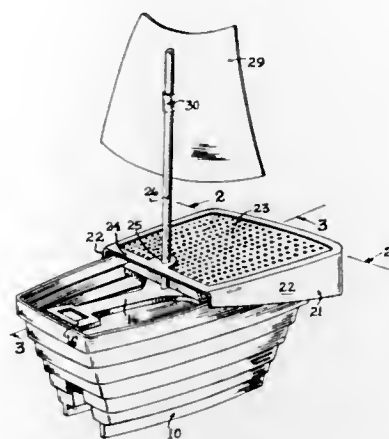
Sidney A. Tarrson, Chicago, Ill., assignor to Sidney A. Tarrson Co., Dowagiac, Mich., a corporation of Illinois
Filed Mar. 28, 1969, Ser. No. 811,546

Int. Cl. A63h 33/06

U.S. Cl. 46—17

6 Claims

A compact take-apart toy having a basic structure made up of a plurality of separate individual toys usable



assemble and disassemble the toy from and into the basic assembly.

3,561,156

AQUATIC TOY

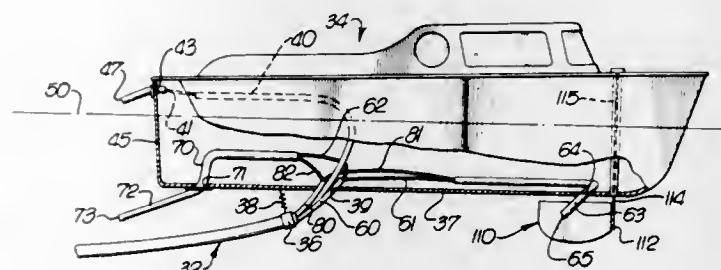
Myron Tobias, Woodland Hills, and Anthony J. Russo, Los Angeles, Calif., assignor of five percent to Jordan M. Wank, Hollywood, Calif.

Filed Apr. 4, 1969, Ser. No. 813,542

Int. Cl. A63h 23/06

U.S. Cl. 46—93

8 Claims



An aquatic toy including a small boat and on-shore means controlled by the user for supplying pressurized water to selected discharge orifices on the boat for propulsion and steering while floating on a body of water such as a swimming pool, and employing pressurized water from the pool recirculation system. The boat has a rudder pivotal about a forward vertical axis, and a pair of fore discharge orifices so oriented relative to the rudder as to cause the rudder to deflect away from its neutral position when only one of the discharge orifices is supplied with pressurized water; hydraulically paralleled with each fore orifice is an aft orifice directed at a lateral angle opposite that of its fore orifice, to provide a force couple when water issues from a paralleled set of fore and aft orifices. The stern of the boat includes also a pair of laterally spaced generally rearwardly directed orifices, desirably above the water line, and means are provided to selectively supply pressurized water simultaneously to them. The reactive force of water issuing from the latter orifices causes forward movement of the boat, and the impact of the discharged water on the water in the pool causes a realistic appearance of a wake immediately rearwardly of the boat. An on-shore control box includes valves for throttlingly supplying pressurized water through a flexible multi-conduit hose to the boat. The water supply to the control box, and thus to the various discharge orifices of the boat, is desirably taken from the pool recirculation system, thereby not only maintaining the proper amount of water in the pool, but also enabling the present invention to be energized without a separate source of power.

3,561,157

FROST PREVENTION METHOD AND APPARATUS

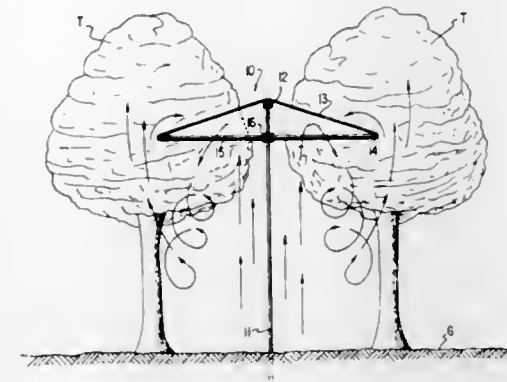
Gabriel V. de Miasoain, Rockville, Md., assignor to Tecnico, Inc., Washington, D.C., a corporation of the District of Columbia

Filed Sept. 29, 1967, Ser. No. 671,780

Int. Cl. A01g 13/06

U.S. Cl. 47—2

5 Claims



Heat radiated from the sun and absorbed by the air and ground within the confines of an orchard is utilized during periods of freeze by a "greenhouse" effect which keeps the ambient air within the orchard at a temperature that prevents frost damage.

3,561,158

SEED TRAYS

Betty Muriel Marcan, Burrough's Grove, Pump Lane, Little Marlow, Buckinghamshire, England

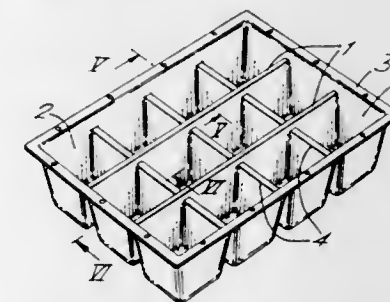
Filed Oct. 8, 1968, Ser. No. 765,835

Claims priority, application Great Britain, Oct. 9, 1967, 46,067/67

Int. Cl. A01g 9/02; B65d 21/02, 1/36

U.S. Cl. 47—34.13

5 Claims



A seed tray formed from synthetic plastics material and comprising a plurality of small containers joined together, the outside and intermediate dividing walls defining the containers being of different depths whereby flexing of the tray as a whole is inhibited or limited to a substantial degree.

3,561,159

SEED CAPSULE AND METHOD OF MAKING SAME

William J. Adams, Jr., San Jose, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed May 1, 1968, Ser. No. 725,688

Int. Cl. A01c 1/06

U.S. Cl. 47—57.6

5 Claims



Seed capsules are formed by preparing a charge of seed bed materials, such as vermiculite and binder, compressing the charge to form a base capsule segment having a recess therein, drying the base segment, placing a

seed in the recess, and closing the recess to form a seed-containing cavity by securing to the base a cover that has been prepared in the same manner as the base, or by securing a sheet or strip member of paper or plastic to the base.

3,561,160

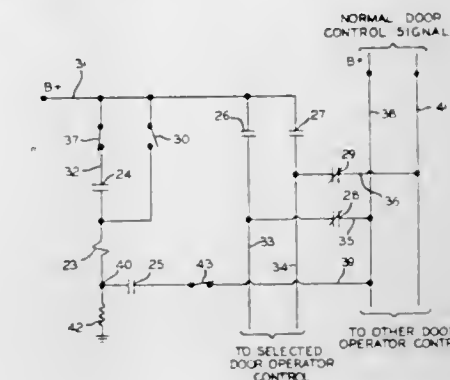
CREW SWITCH FOR CONTROLLING A DOOR OPERATOR

William Chan, Park Ridge, Ill., assignor to Vapor Corporation, Chicago, Ill., a corporation of Illinois
Filed June 24, 1969, Ser. No. 836,080

Int. Cl. E05c 13/08; E05f 11/54

U.S. Cl. 49—35

7 Claims



Crew switch for a train car to enable opening and closing of an individual door from either a key operated station located outside the car or a key operated station located inside the car, and closing of a door by the master door control following opening of that door at a remote key operated station, wherein a relay actuated switching circuit is provided.

3,561,161

SLIDING DOOR OR PANEL CLOSING MECHANISM

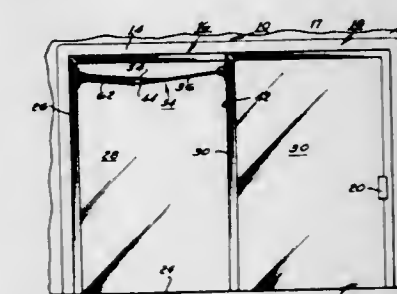
Donald C. Green, 21300 Sommerside Lane, Northville, Mich. 48167

Filed Mar. 5, 1969, Ser. No. 804,610

Int. Cl. E05f 1/08, 11/54

U.S. Cl. 49—359

5 Claims



An automatic closing mechanism for a sliding door or panel comprising a collapsible linkage connected between a stationary frame portion and the sliding door or panel, including an extendable link adapted to be loaded upon extension when the sliding door panel is opened to cause automatic contraction of said extendable link to reposition said collapsible linkage and thereby close the sliding door or panel when the opening force is removed.

3,561,162

DOOR OPENING APPARATUS

Maurice J. Goldman, 382 Massapoag Ave., Sharon, Mass. 02067

Filed June 16, 1969, Ser. No. 833,641

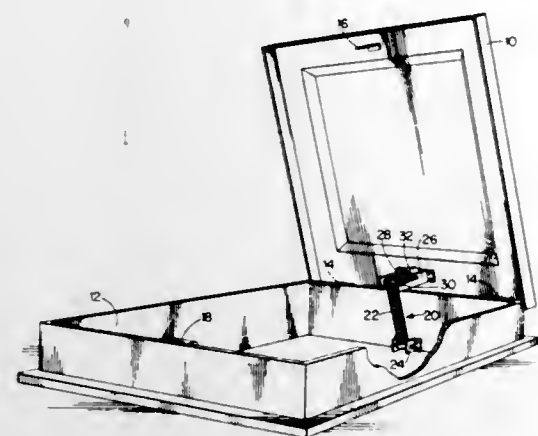
Int. Cl. E05f 1/14, 5/02

U.S. Cl. 49—386

5 Claims

A device for opening a hatch door or other closure in a safe and positive manner. A pair of spring assemblies are coupled between a hatch and its frame, one

spring assembly being cooperative with a viscous damping device. Upon release of the hatch, the first spring assembly causes the hatch to rapidly open by a prede-



termined amount, while the damped action of the second spring assembly causes the hatch to slowly and positively continue to a full open position.

3,561,163

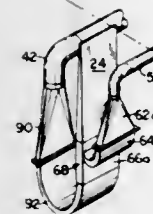
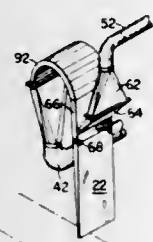
LOW PRESSURE ABRASIVE BLASTING SYSTEM
Ted A. Arnold, Palo Alto, Calif., assignor to Vacu-Blast Corporation, Belmont, Calif., a corporation of California

Filed Jan. 31, 1969, Ser. No. 795,544

Int. Cl. B24c 3/00

U.S. Cl. 51—8

12 Claims



An abrasive blasting apparatus comprising at least one nozzle for producing a relatively wide, sheet-like stream of abrasive particles includes an elongated nozzle having a constant width but a thickness that diminishes from its inlet to its outlet by either an abrupt or gradual taper. A source of relatively low pressure air is supplied to the nozzle and near its inlet a feed hopper constantly supplies abrasive material, by distributing it substantially uniformly across the width of the air stream that enters the nozzle. The low pressure air accelerates the abrasive particles to a velocity at the nozzle exit which is sufficient to accomplish the surface treatment of various materials. The nozzle may be oriented in different positions and articulated in different ways to accomplish treatment of different forms of workpieces.

ERRATUM

For Class 51—98.5 see:
Patent No. 3,561,096

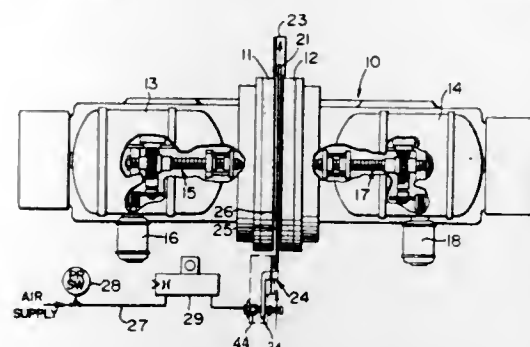
3,561,164 ABRASIVE ADJUSTMENT CONTROL FOR DOUBLE DISC GRINDER

Elman R. Dunn, Roscoe, Ill., assignor to Litton Industries, Inc., Wayneboro, Pa., a corporation of Delaware
Continuation-in-part of application Ser. No. 529,804, Feb. 24, 1966. This application June 18, 1968, Ser. No. 741,150

Int. Cl. B24b 7/00, 49/00

U.S. Cl. 51—116

10 Claims



The apparatus of this disclosure relates to disc grinders for grinding thin workpieces which must be held within close limits. As ground workpieces emerge from the machine, they are measured by a post process gaging device. When a change in size of the workpiece indicates the need for adjustment of the discs, the gage may operate a signal or an automatic correcting device to make the necessary change. For the purpose of illustration, the correcting function is initiated by means of a push button. Successive operation of the push button in response to the signal from the post process gage advances one of the discs toward the other by a series of single increments. After a predetermined number of such increments, a counter transfers the subsequent signal or push button contact to effect the advance of the other disc. Thereafter, said other disc is advanced in response to the push button until it engages a sensing device. The sensing device then initiates operation of the feed mechanism to retract the disc which actuated the sensing device, a predetermined distance and advances the other disc by the same amount. This movement of the two discs restores them to the initial position relative to the guide members which direct the workpieces between the discs.

3,561,165

UNIVERSAL GRINDING MACHINE FOR SCISSORS AND SHEARS

Ottorino Visconti, 11, V. Carducci, Milan, Italy

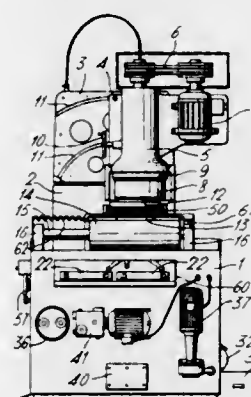
Filed June 28, 1967, Ser. No. 649,587

Claims priority, application Italy, Dec. 22, 1966, 31,407/66

Int. Cl. B24b 7/02, 9/00, 47/06

U.S. Cl. 51—122

10 Claims



A universal grinding machine having a cup grinding wheel carried upon an upright rotary shaft which is movable about a horizontal axis that passes through a working edge of the cup grinding wheel, a horizontally movable slide carrying a pivotal work holder, a driver within the

slide for guiding the work holder, and a reservoir for cooling liquid in the base of the machine with continuous filtering for performing flat or hollow grinding, particularly on the blades of scissors, shears, knives and the like.

3,561,166

APPARATUS FOR POLISHING SAMPLES

Kay A. Geels, Copenhagen-Valby, Denmark, assignor to H. Struers Chemiske Laboratorium, Copenhagen, Denmark

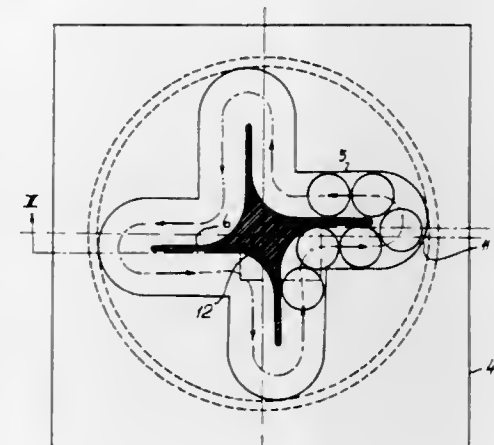
Filed June 18, 1968, Ser. No. 738,032

Claims priority, application Germany, June 19, 1967, St 27,023

Int. Cl. B24b 5/00

U.S. Cl. 51—129

1 Claim



In an apparatus for polishing metallographic samples mounted in cylindrical holders, a stationary disc is mounted above a rotating polishing wheel, which disc has a system of slots and guide rails forming a closed star-like path in which samples resting freely on the polishing surface are caused to roll alternately outwards and inwards by engagement of the sample holders with the guide rails and the walls of the slots.

3,561,167

MACHINE FOR LAPPING ELEMENTS OBTAINED FROM CRYSTALLINE MATERIALS, AND PARTICULARLY SEMICONDUCTOR CRYSTALS

Augusto Borganti, Merano, Bolzano, Italy, assignor to Montecatini Edison S.p.A., Milan, Italy, a corporation of Italy

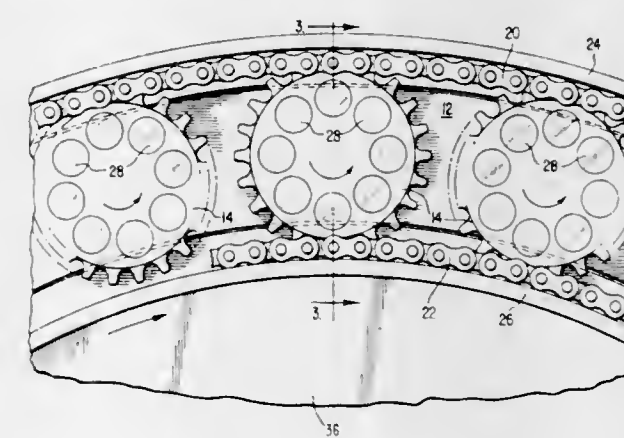
Filed July 29, 1968, Ser. No. 748,566

Claims priority, application Italy, Aug. 2, 1967, 19,147/67

Int. Cl. B24b 5/18

U.S. Cl. 51—161

8 Claims



A novel machine for lapping elements obtained from crystalline materials, and particularly semiconductor crystals, is provided which represents a substantial modification of a broadly known type of machine for that purpose employing planetary gears revolving between a

central sun gear and an outer ring gear with the elements to be lapped disposed in recesses in the planetary gears between annular lapping plates, the improvement of the present invention comprising the use of a roller or Galle's type chain to actuate the planetary gears instead of the sun and ring gears. In addition, means are provided for maintaining any desired separation of the annular lapping plates between which the planetary gears are disposed, and also a suction cup device for readily removing the finished lapped elements from their recesses in the planetary gears without scoring or damaging the delicate finish on the lapped surfaces of the lapped elements.

3,561,168

GRINDING MACHINE

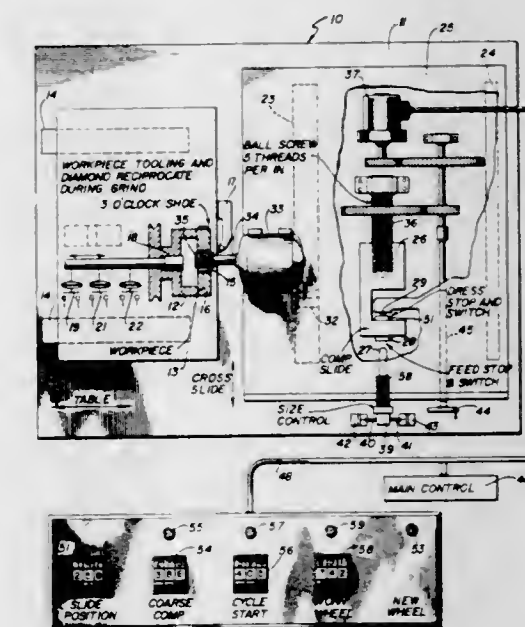
Edward G. Robillard, Leicester, Mass., assignor to The Heald Machine Company, Worcester, Mass., a corporation of Delaware

Filed Apr. 12, 1968, Ser. No. 720,912

Int. Cl. B24b 49/00

U.S. Cl. 51—165.75

7 Claims



This invention relates to a grinding machine and, more particularly, to apparatus having a grinding cycle regulated by the use of electrical pulses, the pulses serving to regulate not only the cross-feed position, but also operate a visual readout of that position.

3,561,169

SKI SHARPENER

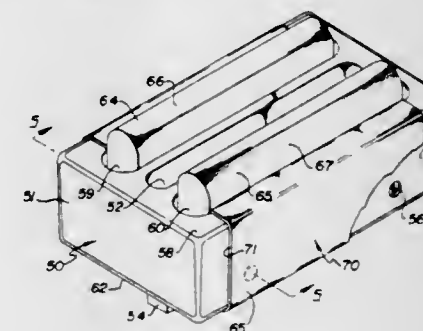
William Pirzek, 53 E. 6th Ave., Vancouver 10, British Columbia, Canada, and Niel J. Nielsen, 62 Morven Drive, West Vancouver, British Columbia, Canada

Filed Sept. 16, 1968, Ser. No. 759,905

Int. Cl. B24d 15/02

U.S. Cl. 51—205

2 Claims



A sharpening tool having a face to slidably engage a guiding surface of a ski and a sharpening element supported perpendicular to the face to remove metal from an adjacent metal edge of the ski.

3,561,170

METHOD OF MAKING INDEXABLE PRE-SPUN CUTTING INSERTS

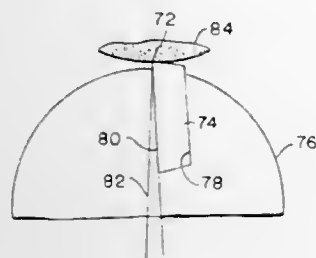
Hubert Dupuis, Warren, Mich., assignor, by mesne assignments, to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Apr. 30, 1968, Ser. No. 725,445

Int. Cl. B24b 1/00

U.S. Cl. 51—288

8 Claims



Indexable cutting inserts having a multiplicity of successively usable cutting edges, the inserts having pre-ground areas of circular cross-section formed by spin grinding directly in the rear of all of the cutting edges.

3,561,171

SWAGING TAPS WITH UNIFORM CREST WIDTH AND METHOD OF MANUFACTURE THEREOF

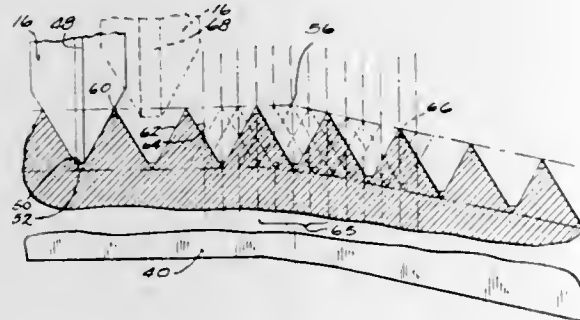
John M. Van Vleet, Hartland, and Daniel T. Dobrogowski, Elm Grove, Wis., assignors to Balax, Inc., North Lake, Wis., a corporation of Wisconsin

Filed Aug. 14, 1968, Ser. No. 752,669

Int. Cl. B24b 1/00; B23g 5/06, 7/00

U.S. Cl. 51—288

5 Claims



Swaging taps with tapered lead sections should be provided with thread crest of uniform width throughout the generally cylindrical portion, the lead portion and the transition from the tapered portion to the generally cylindrical portion of the tap. The method of achieving crests of uniform width involves the use of a different cam to control the cresting wheel from that used to grind the threads initially, the work being rotated 180° preliminary to engaging the cresting wheel with the threads.

3,561,172

METAL FINISHING TOOL

Wilfred M. Werner, Arcadia, and Herman P. Hommeron San Gabriel, Calif., assignors to Advance Honing Products, Inc., El Monte, Calif., a corporation of California

Filed Mar. 10, 1969, Ser. No. 805,478

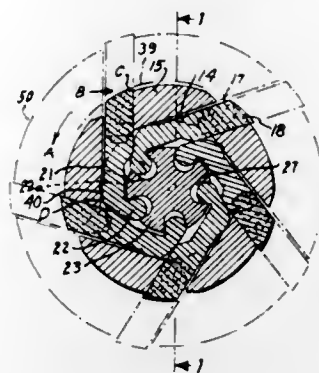
Int. Cl. B24b 9/02

U.S. Cl. 51—331

12 Claims

A metal finishing tool for honing or the like is disclosed and comprises a hollow mandrel having angularly spaced slots extending through the mandrel walls tangentially of the inner periphery thereof. Honing tool elements are slideable in the slots and have cylindrical portions thereon engaged in radial slots formed in an actuator

shaft which is rotatably supported in the mandrel. An actuator sleeve on the mandrel is slideably keyed to the shaft and has a pin therein extending through helical grooves formed in the mandrel whereby endwise movement of the sleeve will rotate the actuator shaft to expand the honing tool elements outwardly in unison. Other types of metal finishing tool elements may be substituted for the honing elements.



ment of the sleeve will rotate the actuator shaft to expand the honing tool elements outwardly in unison. Other types of metal finishing tool elements may be substituted for the honing elements.

3,561,173

QUICK CHANGE ABRASIVE FLAP WHEEL WITH SELF-CONTAINED COUPLING MEANS

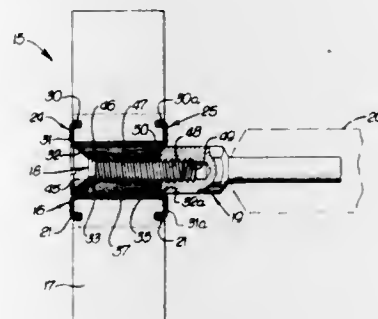
Aleck Block, West Los Angeles, Calif., assignor, by mesne assignments, to Merit Abrasive Products, Inc., a corporation of California

Filed June 20, 1968, Ser. No. 738,630

Int. Cl. B24b 9/02

U.S. Cl. 51—334

4 Claims



A wheel for grinding, polishing or buffing which is adapted for rapid installation on or removal from a power rotatable spindle or arbor without the use of tools, comprising a hub formed of axially spaced apart plates of thin but stiff metal or other suitable material, the plates cooperating with the inner end sections of abrasive leaves or polishing or buffing leaves to mount them in a radial circular pattern, and at least one of the plates being employed to mount a male threaded element adapted to be screwed on or off a complementary threaded end section of the spindle or arbor.

ERRATUM

For Class 51—358 see:
Patent No. 3,561,938

3,561,174

AIR-SUPPORTED STRUCTURE

Jon G. Schneider, 125 108th SE., Bellevue, Wash. 98004

Filed Feb. 19, 1968, Ser. No. 706,285

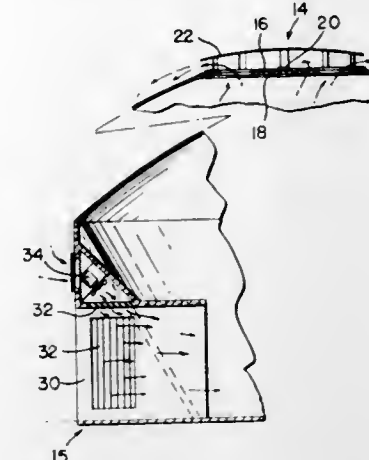
Int. Cl. E04g 11/04; F24f 7/06, 9/00

U.S. Cl. 52—2

9 Claims

The roof of an air-supported structure is provided with a lift-counteracting exhaust crown to counteract the tendency of high velocity winds across the roof to "fly" the

roof off its base anchor. An air structure is also provided with a dynamic air door which can remain open continuously for ingress and egress without loss of air pressure



within the structure. The air supported structure can be a circular dome-shaped configuration or it can be of rectangular vaulted configuration.

3,561,175

FROST PROOF SHALLOW FOOTINGS OR PIERS AND METHOD THEREFOR

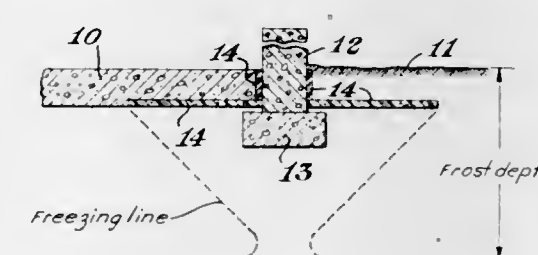
John S. Best, Midland, Mich., Gale L. Emlg, Lafayette, Ind., and Frank H. Justin, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Mar. 17, 1969, Ser. No. 807,592

Int. Cl. E02d 27/00, 31/00

U.S. Cl. 52—169

8 Claims



A footing or pier for a building foundation which is higher above the normal frost line than conventional building practices permit and a method for installing such a footing. Through utilization of the latent heat in the ground, the ground around the footings is prevented from freezing and heaving by providing insulation of the necessary thickness and at the necessary location and depth with respect to the footing.

3,561,176

BAY WINDOW STRUCTURE

Charles K. Sitterly, Dubuque, Iowa, assignor to Caradco Incorporated, a corporation of Iowa

Filed Oct. 22, 1968, Ser. No. 769,601

Int. Cl. E04b 1/38

U.S. Cl. 52—201

5 Claims



A bay window structure that may be either a bow bay, an angle bay or any other common bay structure comprising a plurality of window frames, each of which may be but is not necessarily a standard casement window unit, arranged side-by-side with adjacent edges on the inner side of the assembly of frames, at least one

bendable connecting strip such as of metal, plastic or the like attached to these frame edges and bridging the space therebetween with each strip being bent to the bay contour of the structure, a first cover strip attached to the frames to conceal the bridging connecting strip and a second cover strip interconnecting the frames on the outer side of the bay structure to give a continuous window appearance.

3,561,177

BUILDING COMPONENT

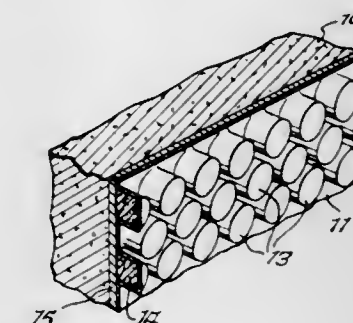
Ignatius T. Agro, Buffalo, and Louis L. Chiusolo, Amherst, N.Y., assignors of one-third to Charles A. Casaro, Buffalo, N.Y.

Filed July 16, 1968, Ser. No. 745,302

Int. Cl. B32b 3/12; E02d 19/18

U.S. Cl. 52—173

14 Claims



A laminated building panel for maintaining a water barrier compound in position against a structure which is to be waterproofed including a member providing a plurality of adjacent compartments extending in a plurality of directions, a water barrier compound in each of the compartments, a flexible backing layer covering the rear of said compartments and being water impervious and abrasion resistant, and a flexible facing layer for placement in contiguous relationship with a structure to be waterproofed, the facing layer being porous to permit penetration of water into the compartments for activating the water barrier compound.

3,561,178

BRIDGE SUPPORTING STRUCTURE HAVING REINFORCED CONCRETE ELEMENTS FORMED ALONG A CATENARY LINE

Ulrich Finsterwalder, Munich-Obermenzing, and Klemens Finsterwalder, Socking, near Starnberg, Germany, assignors to Dyckerhoff & Widmann Kommanditgesellschaft, Munich, Germany

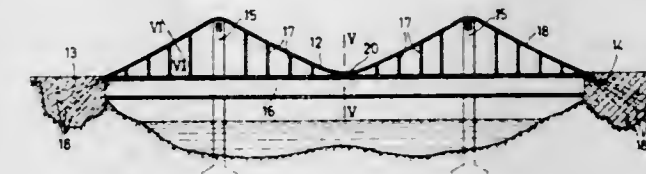
Filed Oct. 29, 1968, Ser. No. 771,505

Claims priority, application Germany, Nov. 2, 1967, P 16 58 588.9

Int. Cl. E04c 1/04, 3/10

U.S. Cl. 52—223

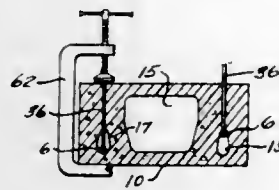
8 Claims



A multi-section bridge supporting structure having reinforced steel concrete elements extending along a catenary line and which are disposed between a pair of abutments or intermediate columns and whose reinforcing materials are anchored therein, where the steel concrete supporting elements constitute the supporting construction for a torsion resisting box girder anchored in the abutments which is of substantially constant structural height and which carries the runway.

3,561,179
SEGMENTED CONCRETE BEAM
 James M. Young, 3402 W. Wells St.,
 Milwaukee, Wis. 53208

Original application June 3, 1965, Ser. No. 460,904, now
 Patent No. 3,407,554, dated Oct. 29, 1968. Divided and
 this application Apr. 29, 1968, Ser. No. 724,980
 Int. Cl. E04b 5/08; E04c 3/10, 3/26
 U.S. Cl. 52—229 8 Claims

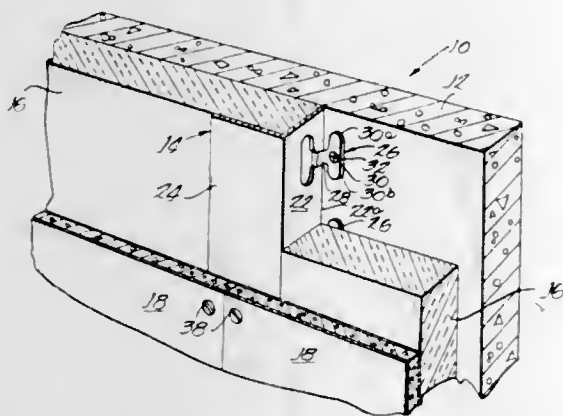


A prestressed, segmented concrete beam, has the tensile members so positioned and stressed as to effectively utilize the prestressing forces while preventing vertical shearing or splitting at the ends of the beam. A method of making such a beam is provided.

3,561,180
STRUCTURAL MEMBER AND WALL ASSEMBLY INCLUDING SAME

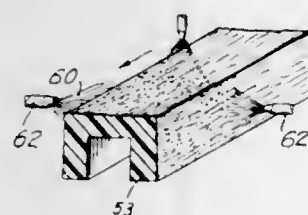
John K. Wise, Glenview, Ill., assignor to United States Gypsum Company, Chicago, Ill., a corporation of Delaware

Filed Oct. 11, 1968, Ser. No. 766,920
 Int. Cl. E04b 5/52; E04c 3/08
 U.S. Cl. 52—361 4 Claims



An elongated unitary L-shaped metal member has one flange provided with a series of strike-outs forming tabs which are integral with the flange along the distal edge portion of the flange and which are bendable to a position normal to such flange for securing the member to a wall. The resulting member serves as a furring member for retaining insulating panels and for supporting wallboard finishing panels on a masonry exterior wall.

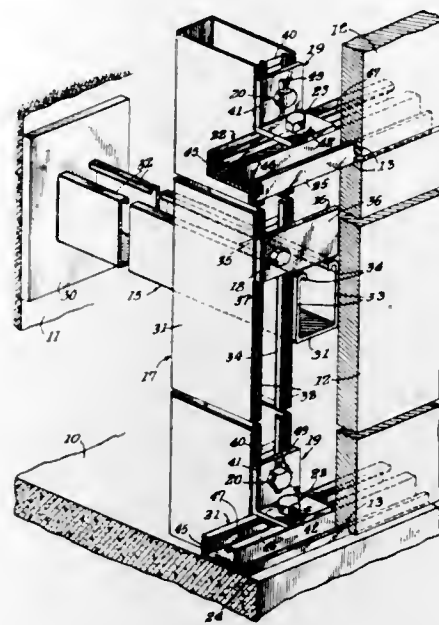
3,561,181
REPLICA WOODEN BEAMS
 Stephen H. Bassett, New York, N.Y., assignor to Paeco, Inc., a corporation of New Jersey
 Filed Aug. 16, 1968, Ser. No. 753,117
 Int. Cl. E04c 2/10, 19/02
 U.S. Cl. 52—309 5 Claims



Molded plastic articles, such as replica wooden beams and panels and methods and apparatus of manufacture thereof. The article comprises a foamed urethane stained to provide coloration corresponding to a wooden element.

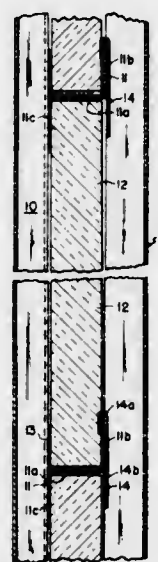
3,561,182
PANEL SUPPORT SYSTEM FOR BUILDING STRUCTURES

Joseph Madl, Jr., 990 Volante Drive,
 Arcadia, Calif. 91006
 Filed Mar. 11, 1969, Ser. No. 806,122
 Int. Cl. E04b 2/60, 2/88
 U.S. Cl. 52—479 6 Claims



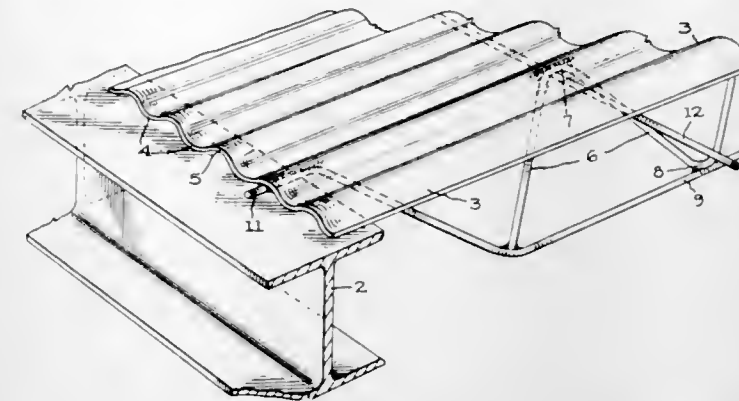
A rectangular grid comprising preferably uniformly spaced vertical columns, spacing brackets to support and connect said columns in adjustable spaced relation to a wall of a building structure, a set of vertically spaced, vertically adjustable mounting clips carried by each of said columns, a plurality of horizontal rails carried by horizontally aligned mounting clips, said rails being provided with horizontal portions having engagement in longitudinally horizontal grooves in panels or slabs to hold the latter in forwardly spaced relation to the mentioned structure wall.

3,561,183
WALL CONSTRUCTION
 Charles K. Keener, Mars, Pa., assignor to Hinchliffe & Keener, Pittsburgh, Pa., a Pennsylvania partnership
 Filed Feb. 20, 1969, Ser. No. 800,864
 Int. Cl. E04b 2/02, 2/72
 U.S. Cl. 52—488 6 Claims



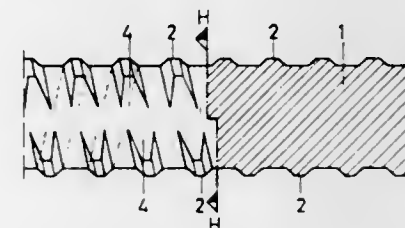
A wall construction and method of erection thereof which utilizes spaced parallel Z-bars affixed transversely of parallel buckstays and includes positioning insulation panels in single or double layers between the Z-bars where they are retained by special clip means attached to one of the Z-bars and insulation panels. Facing may be applied across the wall construction for additional rigidity weather protection or architectural purposes.

3,561,184
CORRUGATED DECK JOIST
 Van Rensselaer P. Saxe, 1701 St. Paul St.,
 Baltimore, Md. 21202
 Filed Feb. 3, 1969, Ser. No. 795,903
 Int. Cl. E04b 5/23; E04c 3/20
 U.S. Cl. 52—630 4 Claims



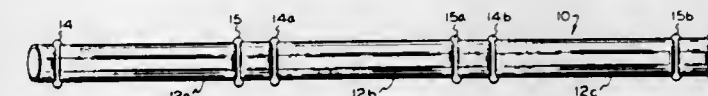
A deck joist assembly includes a corrugated panel serving as a top chord and a bar joist member having a sinuous web the peaks of which are welded to the under-surface of the panel. Resistance to lateral load deflection is provided by a plurality of transverse rods welded to the panel either to the top or bottom surface thereof at points adjacent the welded web peaks.

3,561,185
ARMORING AND STRESSING ROD FOR CONCRETE
 Ulrich Finsterwalder and Georg Kern, Munich, and Ernst Bock, Peine, Germany, assignors to Dyckerhoff & Widmann Kommanditgesellschaft, Munich, Germany, a firm
 Filed Sept. 6, 1968, Ser. No. 757,851
 Claims priority, application Germany, Feb. 12, 1968, D 55,306
 Int. Cl. E04c 3/30, 5/03
 U.S. Cl. 52—737 7 Claims



Armoring the stressing rod for reinforced and pre-stressed concrete which has an interrupted helical thread configuration with thread segments extending on opposite sides of the rod surface to full-height only over one-third of the rod circumference and with their ends merging with the surface of the rod.

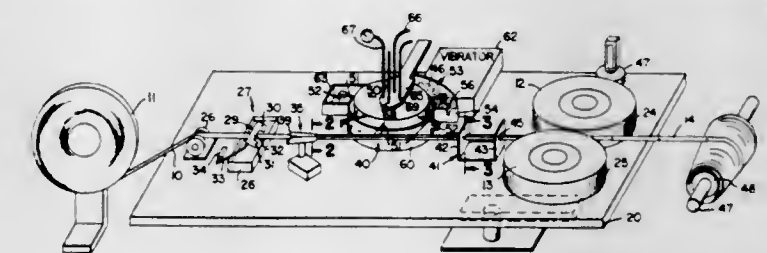
3,561,186
METHOD OF EVACUATING HOLLOW BODIES
 Donald E. Pickering, 830 NW. St. Helens Ave.,
 Portland, Ore. 97229
 Filed Apr. 17, 1968, Ser. No. 721,999
 Int. Cl. B65b 31/00
 U.S. Cl. 53—22 3 Claims



A method of creating a vacuum within a sealed, hollow body such as flexible plastic tubing which includes (1) purging the tubing of air by blowing a stream of helium through the open ends of the tubing, then (2) sealing the

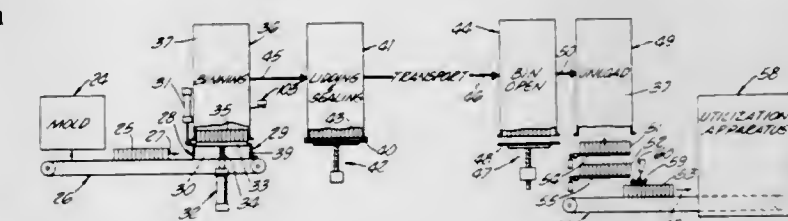
opposite ends of the tubing to entrap helium therein and then (3) storing the helium-filled, sealed tubing in an atmosphere of air so as to permit the helium to pass outwardly through the walls of the tubing without being replaced by air, thereby creating a vacuum condition within the interior of the tubing which remains until the seal is broken and which causes the sealed tubing to collapse.

3,561,187
METHOD AND APPARATUS FOR MAKING SEED TAPE
 Frederick W. Rohnert, Hollister, James William Chaney, Gilroy, Haruto Okita, Hollister, and Burnie M. Craig, Pasadena, Calif., assignors to Waldo Rohnert Co., Hollister, Calif., a corporation of California
 Continuation-in-part of application Ser. No. 605,251, Dec. 28, 1966. This application Mar. 20, 1968, Ser. No. 721,542
 Int. Cl. B65b 9/06
 U.S. Cl. 53—28 14 Claims



Water-soluble tape is moistened to make it tacky, is troughed, and is moved past a seed-dispensing station where at spaced intervals one seed at a time (or one group of seeds at a time) is deposited in the tape. The tape is then closed to encapsulate the seed and wound around a core. The seeds are dispensed by a rotary device with nozzles that pass over a seed tray, pick up one seed at each nozzle by vacuum, and drop the seed upon release of the vacuum.

3,561,188
METHOD OF LOADING ARTICLES INTO AND UNLOADING THEM FROM CELLULAR CONTAINERS
 Keith B. Cleland, Azusa, Calif., assignor, by direct and mesne assignments, to Hunter Industries, Inc., Santa Fe Springs, Calif.
 Application Dec. 27, 1966, Ser. No. 604,849, which is a continuation of application Ser. No. 824,717, Apr. 2, 1969. Divided and this application Mar. 20, 1969, Ser. No. 823,229
 Int. Cl. B65b 21/10
 U.S. Cl. 53—26 6 Claims



A method of and apparatus for positively holding, and loading and unloading articles such as large, empty, light weight, square, slippery plastic milk bottles into and out of a magazine so that they do not jam the handling apparatus. Typically the bottles, after molding may sometimes be made at the place of business of a plastic manufacturer and used at some other location. The light weight, resilience, and slippery surface of empty plastic milk bottles make them extremely difficult to handle. This difficulty is overcome through the use of the present invention in that movement of each bottle is positively guided and handled throughout the entire handling apparatus.

3,561,189

SHIFTING GRID

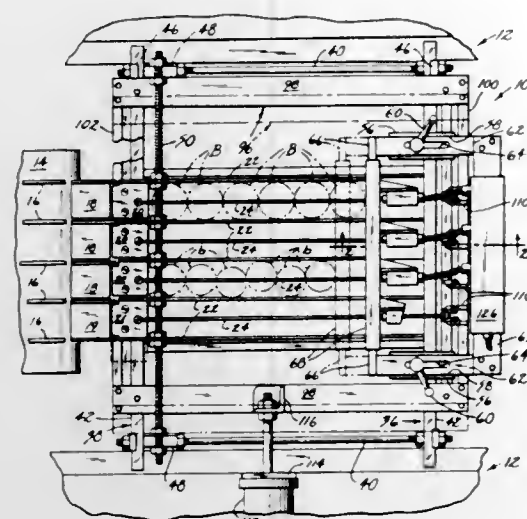
John L. Raudat, North Madison, Conn., assignor to Emhart Corporation, Bloomfield, Conn., a corporation of Connecticut

Filed Feb. 7, 1969, Ser. No. 797,463

Int. Cl. B65b 35/30, 57/10

U.S. Cl. 53—61

8 Claims



A shifting grid mechanism for receiving a row arranged charge of bottles from a bottle packing machine and directing and controlling the gravity fall of the charge into a container and having an adjustable barrier or stop for adapting the grid to accommodate charges of various size. Charge detecting means for controlling the operation of the grid and a portion of a chute for directing the gravity fall of the charge are associated with the barrier and adjustable therewith.

3,561,190

CARTON TAPING MACHINE

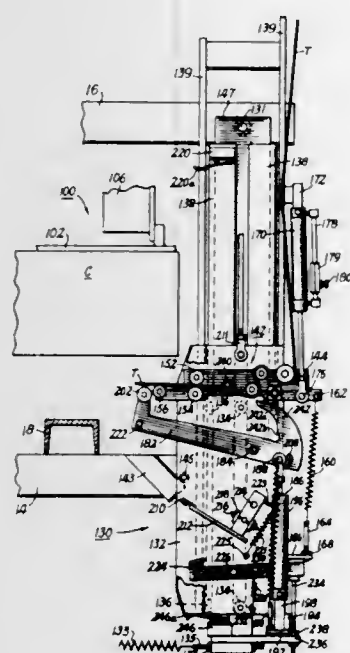
Jerome W. Derenthal, Succasunna, N.J., assignor to Stapling Machines Co., Rockaway, N.J., a corporation of Delaware

Filed Sept. 15, 1969, Ser. No. 857,742

Int. Cl. B65b 51/06, 57/08

U.S. Cl. 53—67

7 Claims



Machine for applying strips of adhesive tape around opposed lower corners of a carton to secure the top thereon, having a conveyor for moving the cartons to and from

a taping station, a presser plate to engage the carton in said station and press the top firmly into place, tape applying heads movable across the opposed lower corners of the carton, to press the leading end of a strand of tape against the bottom of the carton and around the corner to the adjacent side and cut the tape, and top-lifter members to engage the top and press it upwardly and stop the operation of the machine if the top is not securely taped on the carton.

3,561,191

METHOD AND APPARATUS FOR HANDLING AND PACKING TOBACCO

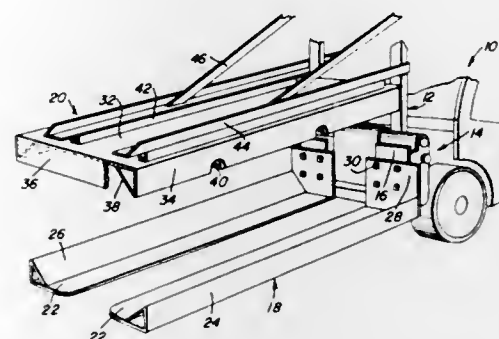
Namon A. Walsh, Rte. 4, Roxboro, N.C. 27573

Filed Jan. 26, 1968, Ser. No. 700,857

Int. Cl. B65b 1/24, 61/14; B31b 1/86

U.S. Cl. 53—124

1 Claim



A labor saving method of handling a tobacco crop by compressing a pile of tobacco leaves between a bottom tray and top cover forming a paperboard container, utilizing an industrial truck equipped with a power operated, load elevating mechanism. Laterally and vertically movable pick up arms support and elevate the bottom tray on the elevating mechanism to compress the tobacco pile by bringing the top cover into engagement with a stationary press mounted on the elevator frame. The tray and cover are tied to hold the tobacco pack and form a convenient container capable of being readily handled and transported.

3,561,192

SLEEVING DEVICE

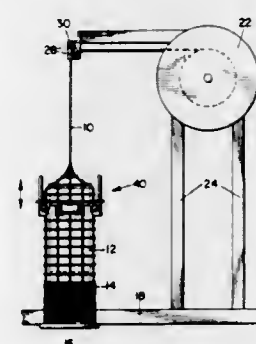
Arnold Soodalter, 134 Tanglewood Drive, Longmeadow, Mass. 01106

Filed Jan. 16, 1969, Ser. No. 791,596

Int. Cl. A22c 11/02, 13/00

U.S. Cl. 53—197

1 Claim



Apparatus for sleeving butcher's netting onto a cylindrical magazine comprising, a sleeving device having an opening therein, gripper wheels surrounding the opening and extending thereinto and adapted for functional engagement with the netting on the magazine, and uni-directional clutch means for permitting rotation of the wheels in one direction only.

3,561,193

PROCESS FOR THE PURIFICATION OF OILS AND THE LIKE

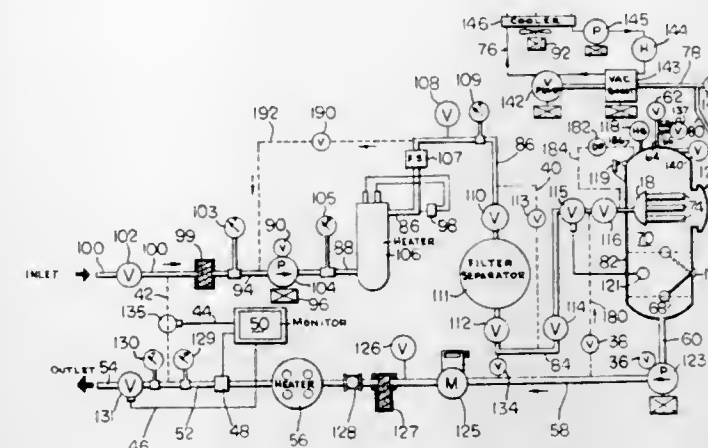
Leslie B. Baranowski, Wayne, Pa., assignor to Keene Corporation, New York, N.Y., a corporation of Delaware

Filed Jan. 8, 1969, Ser. No. 789,898

Int. Cl. B68c 1/20

U.S. Cl. 55—46

8 Claims



A process for the purification of electrical insulating liquids such as transformer oils, lubricating oils, and hydraulic oils containing water, air, and gases having the steps of transferring the oil to heater for raising the temperature of the oil approximately 40° F. above the inlet temperature, then passing the oil through a filter-separator for removing the free water and solid contaminant, then passing the oil through a vacuum degasifier for removing the remaining impurities such as gases, air, and water vapor, metering the purified oil and returning the oil to the place of intended use.

3,561,194

EXHAUST GAS CONDITIONER

Franklin Ernest Baldwin, 36 Cecil Ave., and Maurice Walter Baldwin, 61 Cecil Ave., both of Castle Hill, New South Wales, Australia

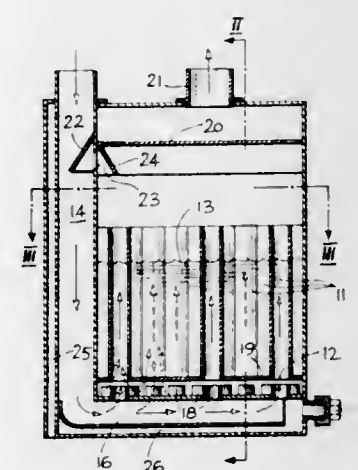
Filed Feb. 16, 1968, Ser. No. 705,986

Claims priority, application Australia, Feb. 17, 1967, 17,892/67

Int. Cl. B01d 47/02

U.S. Cl. 55—249

1 Claim



An exhaust gas conditioner for use with internal combustion engines, particularly diesel engines in confined and hazardous places such as coal mines. The conditioner which also acts as a flame trap has a gas inlet with anti-suck back means and the inlet gas passes into a water filled chamber where it is cooled and scrubbed by contact with the water and separated therefrom, some of the water being used to quench the incoming gas as it passes into a distributor and mixing tube associated with the chamber.

3,561,195

GAS PURIFYING DEVICE

Louis Léonard Bouru, Corbeil-Essonnes, France, assignor to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, Paris, France, a company of France

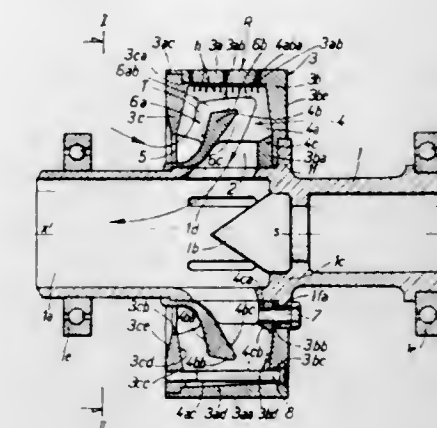
Filed Nov. 4, 1969, Ser. No. 873,990

Claims priority, application France, Nov. 6, 1968, 172,808

Int. Cl. B01d 45/14

U.S. Cl. 55—409

14 Claims



A device for purifying gas by separation therefrom of liquid or solid particles contained in the gas, comprising a hollow rotatable casing rotatable about its axis with means for the entry of impure gas at one end wall, passages for the exit of particles at its periphery and means for the exit of purified gas adjacent its axis, vanes, subdividing the casing into longitudinal ducts and baffle means in each duct causing the gas in each duct to flow through a centrifugal entry section, an axial convergent intermediate section and a centripetal divergent exit section, thereby to promote efficient purification with minimum pressure drop through the device.

3,561,196

DUST COLLECTOR APPARATUS

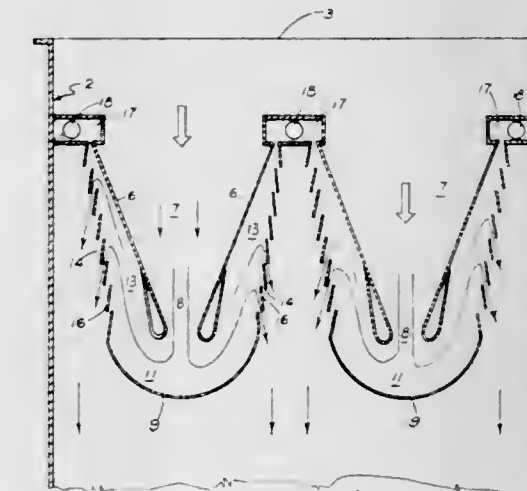
Karl L. Westlin, Louisville, Ky., assignor to American Air Filter Company, Inc., Jefferson, Ky., a corporation of Kentucky

Filed Mar. 25, 1969, Ser. No. 810,171

Int. Cl. B01d 45/06

U.S. Cl. 55—423

3 Claims



Dust collector apparatus of the louvered type wherein a dirty gas stream is originally passed through a converging dirty gas inlet plenum in a flow-through casing, reversed in its directional course in unitary fashion by deflector means to flow into a louvered dirty gas treating plenum and reversed again to its original course as a plurality of separate gas streams through louver passages in the walls of the dirty gas treating plenum.

3,561,197

SUGARCANE TOPPER

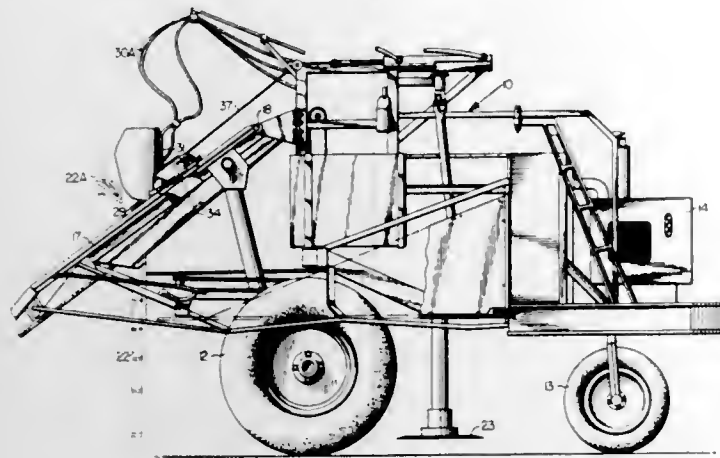
Harold A. Willett, Thibodaux, La., assignor to Cane Machinery & Engineering Company, Inc., Thibodaux, La., a corporation of Louisiana

Filed Apr. 14, 1969, Ser. No. 815,588

Int. Cl. A01d 45/02

U.S. Cl. 56—17

5 Claims



The apparatus of this disclosure is directed to topping of standing sugarcane prior to its being severed from the earth and provides a rotary hydraulic motor driving a cutter which assembly slides up and down on wear plates mounted on the harvester pickups. The cutter assembly has a lateral stabilizer which is captive with but slidable along the outer rails of each of the front end pickups.

3,561,198

ADJUSTABLE HARVESTER TABLE

Franz J. Herbsthofer, Kassel-Harleshausen, Germany, assignor to Massey-Ferguson G.m.b.H., Kassel-Standplatz, Germany, a corporation of Germany

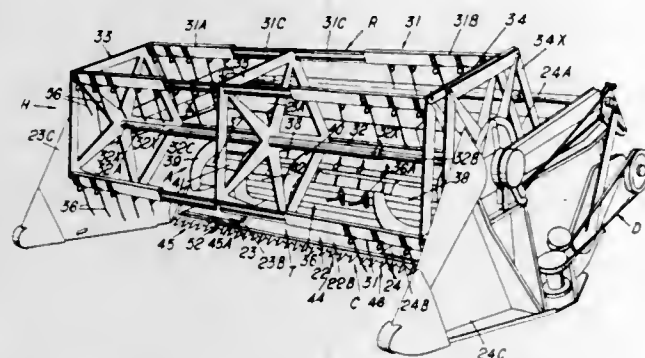
Filed Aug. 21, 1968, Ser. No. 756,732

Claim priority, application Great Britain, Aug. 31, 1967, 39,795/67; Nov. 10, 1967, 51,170/67; May 4, 1968, 21,249/68

Int. Cl. A01d 41/02

U.S. Cl. 56—20

23 Claims



An adjustable width combine header with a table, a cutter bar assembly, an auger to convey crop material and a reel. The table, the auger assembly and the reel have telescopic sections to allow lateral width-adjustment. Sections of the cutter bar assembly have to be added or removed to adjust the width of the cutter bar assembly.

3,561,199

SYSTEM FOR CONVERTING EDGER-TRIMMER DEVICE

Michael T. Lay, West Chicago, Ill., assignor to G. W. Murphy Industries, Inc., a corporation of Texas

Filed July 17, 1969, Ser. No. 842,598

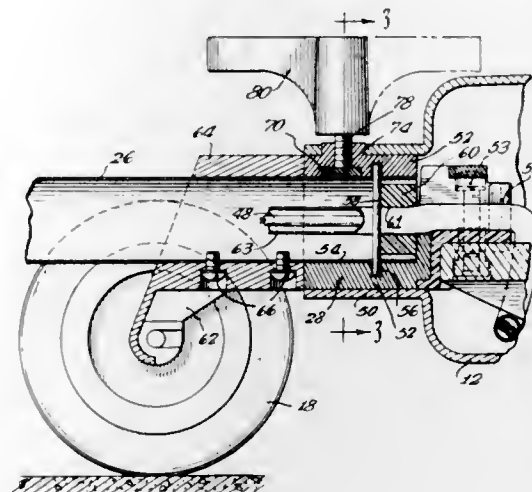
Int. Cl. A01d 35/26

U.S. Cl. 56—25.4

11 Claims

An edger-trimmer device which has a cutting blade mounted on a casing, a handle secured to a carriage and

in which the casing is pivotal relative to the handle and carriage combination. The interconnection between casing and carriage includes a tubular extension from the carriage pivotally received in a cylindrical receiver in the casing and restrained by a pin and groove arrangement from axial movement relative thereto. The casing can be pivoted 90° relative to the carriage to dispose the blade horizontally for trimming or vertically for edging. A lock-



ing device is provided for locking the casing in both positions as well as any intermediate position. The locking device includes a brake shoe engaging the tubular extension of the carriage and a handle with a threaded shank received in a threaded bore in the casing and having its inner end engaging the shoe for pressing the shoe against the tubular extension to lock the casing against pivotal movement. When the handle is loosened the shoe is released and the casing can be pivoted.

3,561,200

POWER OPERATED GRASS TRIMMER

Saverio Minunno, 4205 New Utrecht Ave.,

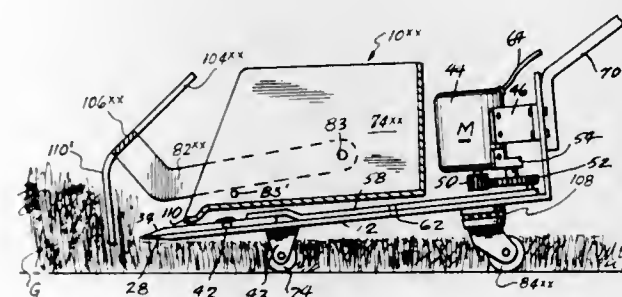
Brooklyn, N.Y. 11219

Filed June 11, 1968, Ser. No. 736,155

Int. Cl. A01d 53/06

U.S. Cl. 56—201

4 Claims



A power operated grass trimmer or lawn mower that is simple, compact and well balanced and capable of being operated with a minimum of fatigue. The trimmer is equipped with a rectangular shaped stationary comb plate with cutting teeth and with a movable cutter blade or plate reciprocable across the cutting teeth of the comb plate to provide a double cutting action during its back and forth movements. A removable box with a U-shaped handle is provided for receiving and disposing of the cut grass. The mower can be tilted upon one of its roller supports by depressing or lifting the handle to vary the height of cut of the grass. One of the supporting rollers can be driven by the motor that operates the cutter blade.

3,561,201

GRASS BAG CARRIER FOR LAWNMOWER

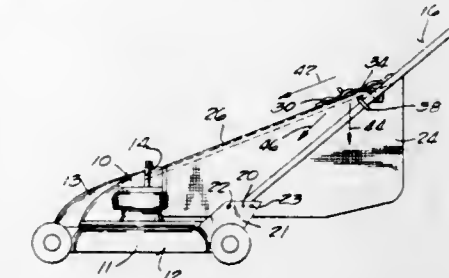
Einar S. Dahl, Galesburg, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill., a corporation of Delaware

Filed Nov. 4, 1968, Ser. No. 773,109

Int. Cl. A01d 35/22, 53/06

U.S. Cl. 56—202

8 Claims



Disclosed herein is a rotary mower provided with a grass clipping collection bag which is supported at the forward end by the mower housing and supported adjacent the rear end by an arm which is connected to a mower handle to form an acute angle between the upper edge of the bag and the handle. The supporting arm has a hook which is selectively engageable with a series of loops on a reinforced upper edge of the bag to maintain the edge taut to create a force component on the connection between the bag and handle along the upper edge of the bag. When the grass collection bag fills with clippings, the forward force component creates a resultant force on the handle because of connection between the mower handle and the bag, which force extends in a direction toward or forwardly of the pivotal connection of the handle to balance the downward forces on the handle.

3,561,202

SIDE SHARPENABLE CUTTERS

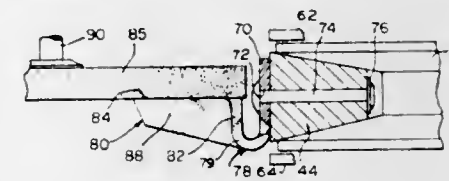
Myron D. Tupper, Portland, Ore., assignor to Omark Industries, Inc., Portland, Ore., a corporation of Oregon

Continuation of application Ser. No. 664,054, Aug. 29, 1967. This application Feb. 6, 1970, Ser. No. 7,409

Int. Cl. A01d 55/24

U.S. Cl. 56—291

15 Claims



Side sharpenable cutters mounted in a cutting chain and on a belt for a mower and a cloth cutting machine, and sharpenable by annular, self-dressing abrasive members pushed against a forward end surface of a side cutter plate of each cutter as the cutter is advanced past the abrasive member. One form of cutter has the side cutter plate twisted so that the forward end is offset from the body and another cutter has the body so tilted relative to the belt that the side cutter plate extends angularly relative to the belt. A cloth cutting cutter has a cupped plate with the cutting edge at the rim. One cutter is mounted on a belt by rivets securing a body thereof to the belt.

3,561,203

UNBALANCED WOBBLE DRIVE FLYWHEEL

Joseph C. Hurlburt, Leola, Pa., assignor to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware

Filed June 26, 1968, Ser. No. 740,315

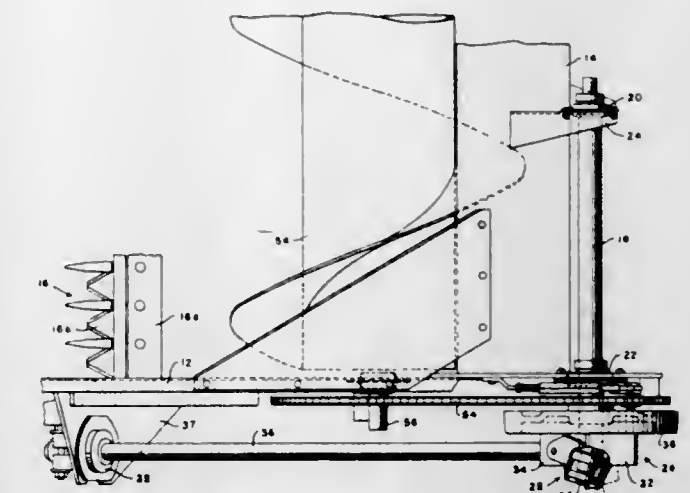
Int. Cl. A01g 55/02

U.S. Cl. 56—296

2 Claims

An unbalanced wobble drive for a harvesting machine sickle comprised of a drive shaft rotatably supported on a

machine header frame structure, a wobble drive unit connecting the drive shaft to a reciprocating sickle and an unbalanced flywheel mounted on the drive shaft rearward-



ly of the wobble drive unit, the unbalanced flywheel being adapted to counteract and dampen the vibrations transmitted to the machine header by the reciprocating sickle and the drive train.

3,561,204

FRUIT PICKER

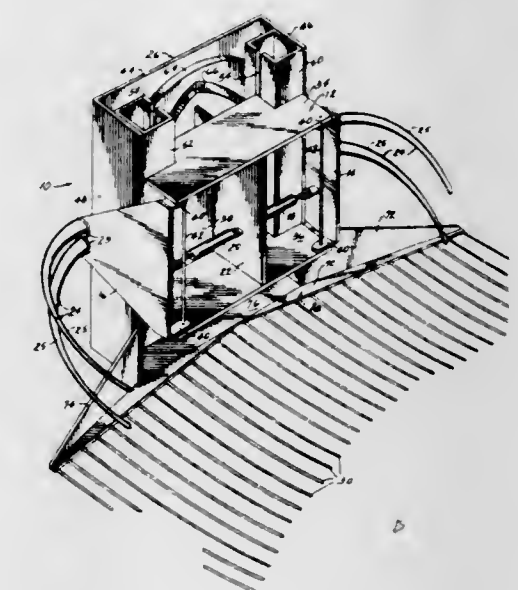
William S. Carson, Highland Park, Lake Wales, Fla., assignor of forty percent to Ashland Company of New Jersey, Inc., Newfoundland, N.J.

Filed June 20, 1967, Ser. No. 647,524

Int. Cl. A01g 19/00

U.S. Cl. 56—328

8 Claims



A shaker for harvesting fruit from a tree which includes, generally, prongs for engaging the fruit-bearing foliage of a tree. The prongs are moved with a snap-motion to cause ripened fruit to drop. A fruit catcher may be affixed to the shaker.

3,561,205

FRUIT HARVESTER

Alfred R. Baker, Wabasso, Fla.
(1408 1/2 Edmiston Court, Auburndale, Fla. 33823)

Filed June 6, 1968, Ser. No. 735,116

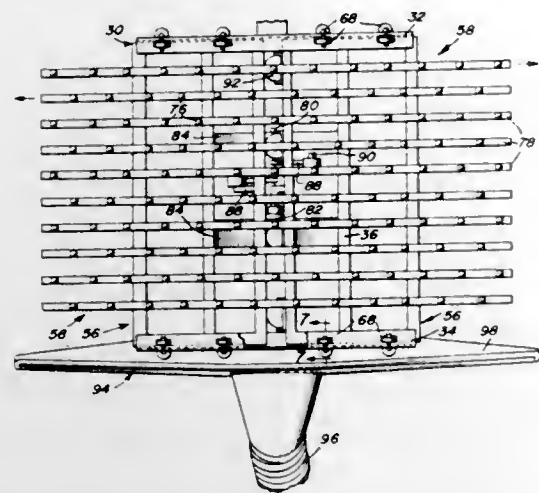
Int. Cl. A01g 19/04, 19/08

U.S. Cl. 56—328

11 Claims

A horizontally and vertically adjustable boom mounted picking head formed of a series of projecting rodlike

fingers which are progressively penetrated to increasing depths within a fruit tree and laterally reciprocated at the different depths of penetration in a manner so as to snap



the fruit stems and allow for a fall of the fruit through the pattern formed by the rods and into a fruit gathering apparatus.

3,561,206

HARVESTER TINE

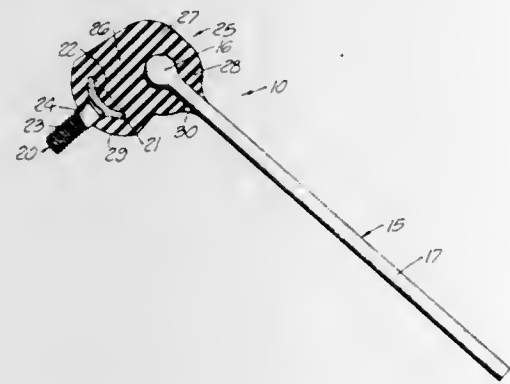
Lawrence E. Fuller, Whittier, and Stanley R. White, Paramount, Calif., assignors to Byron Jackson Inc., Long Beach, Calif., a corporation of Delaware

Filed Aug. 28, 1968, Ser. No. 756,041

Int. Cl. A01d 77/00

U.S. Cl. 56—400

12 Claims



A tine for use in hay balers and the like having a finger portion and an attachment portion, the two portions being joined by a flexible connection comprising elastomeric material so as to provide an elastic resistance to drag and shocks as the pick-up fingers convey the hay into the baling machine.

3,561,207

SYNTHETIC TEXTURED YARN

Yoshio Izuka, Noriyasu Mashimo, Masao Watanabe, Hiroshi Asami, Akishige Kitazawa, Hideyuki Tanaka, Akio Takegawa, Junnosuke Nagashima, Hideo Takai, and Shinro Inai, Otsu-shi Shiga-ken, Japan, assignors to Toray Industries, Inc., Tokyo, Japan, a Japanese company

Filed Aug. 16, 1968, Ser. No. 753,175
Claims priority, application Japan, Aug. 17, 1967, 42/52,418; Aug. 30, 1967, 42/55,158; Sept. 6, 1967, 42/56,749, 42/56,750; Oct. 9, 1967, 42/64,681; Oct. 12, 1967, 42/65,146; Oct. 18, 1967, 42/66,544; Sept. 4, 1967, 42/75,232; Feb. 2, 1968, 43/60,241

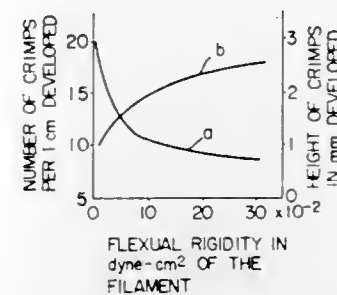
Int. Cl. D02g 3/04

U.S. Cl. 57—140

6 Claims

An improved synthetic textured yarn composed of more than two kinds of thermoplastic synthetic filaments having different flexural rigidities, torsional rigidities, fineness

and mixing ratios. Particular definitions in the relations among those factors assures remarkably enhanced bulkiness and crimp rigidity of the yarn composed of the fila-



ments. Difference in the cross sectional profiles of the component filaments provides additional deep colour effects to the textile fabric made of the textured yarn.

3,561,208

AMPLITUDE STABILIZER FOR TIMEPIECE
Siegbert Hils, Peterzell, Germany, assignor to Klenzle Uhrenfabriken G.m.b.H., Schwenningen am Neckar, Germany, a limited-liability company of Germany

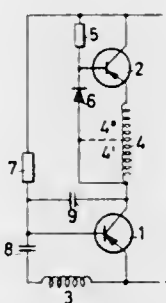
Filed Aug. 19, 1968, Ser. No. 753,458

Claims priority, application Germany, Aug. 22, 1967, P 16 73 765.8

Int. Cl. G04c 3/00

U.S. Cl. 58—23

3 Claims



A constant amplitude magnetically driven mechanical timepiece oscillator having a drive coil connected to a DC source through the emitter-collector line of a transistor. Current in the coil during drive is limited by having base potential dependent on voltage across the coil, potential being applied through a diode.

3,561,209

WRISTWATCH WRISTLET MOUNTING MEANS
Gérard Cachelin, Le Locle, Switzerland, assignor to Fabrique d'Horlogerie Ch. Tissot & Fils S.A., Le Locle, Switzerland, a Swiss company

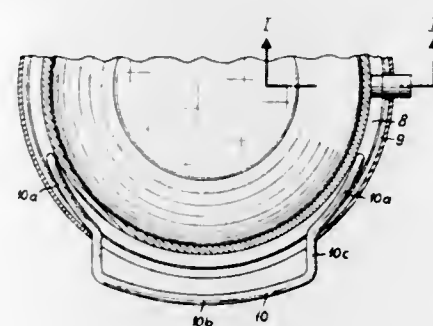
Filed Sept. 30, 1968, Ser. No. 763,813

Claims priority, application Switzerland, Oct. 4, 1967, 13,854/67; Mar. 28, 1968, 4,630/68

Int. Cl. G04b 37/00

U.S. Cl. 58—88

4 Claims



A wristwatch case having a side wall on which is engaged a removable outer ring, the adjacent faces of these members each having a groove in which fit the ends

of two spring elements serving to axially maintain the outer ring on the side wall, the middle part of these elements forming lugs or loops for fixing the wristlet.

3,561,210
METHOD AND APPARATUS FOR COOLING ENGINE EXHAUST PIPES

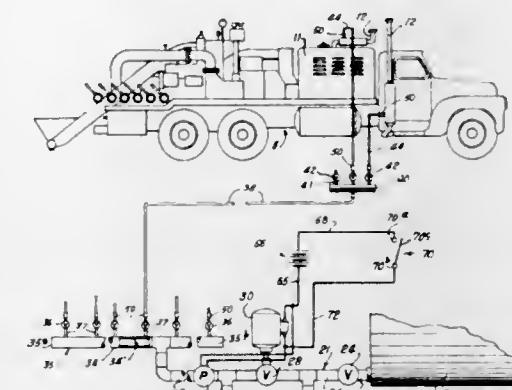
Ben W. Wiseman, Jr., 303 Wall Towers-West, Midland, Tex. 79701

Filed Jan. 24, 1969, Ser. No. 793,695

Int. Cl. A62c 3/00, 35/40

U.S. Cl. 60—31

17 Claims



A method and apparatus for cooling exhaust pipes of internal combustion engines wherein carbon dioxide, stored in liquid state, is dispensed through a network of conduits and released in or around each exhaust pipe to cool the pipe preventing fire when combustible fluid comes into contact therewith.

3,561,211

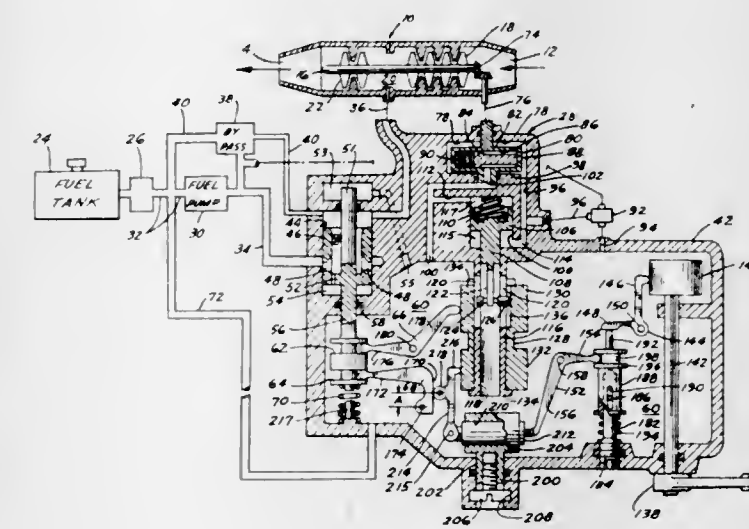
CONTROL WITH CONSTANT DROOP GOVERNOR
Warren H. Cowles, Birmingham, Mich., assignor to Holley Carburetor Company, Warren, Mich., a corporation of Michigan

Continuation-in-part of application Ser. No. 561,266, June 28, 1966. This application Sept. 6, 1968, Ser. No. 757,824

Int. Cl. F02c 9/08

U.S. Cl. 60—39.28

4 Claims



A gas turbine engine fuel control having a governor system providing a constant governor droop at all engine speeds, the governor including an engine speed sensing mechanism, an acceleration cam and a speed cam, mechanism for positioning the acceleration and speed cams in response to speed changes indicated by the speed sensing mechanism, lever means operatively connected between

the acceleration cam and the main fuel valve of the fuel control for regulating the fuel valve during acceleration of the engine, lever means operatively connected between the speed cam and the fuel valve for regulating the fuel valve during the governing of the engine, a manually adjusted governor cam, and an adjustable platform member between the manually adjusted governor cam linkage and the speed cam lever means.

3,561,212

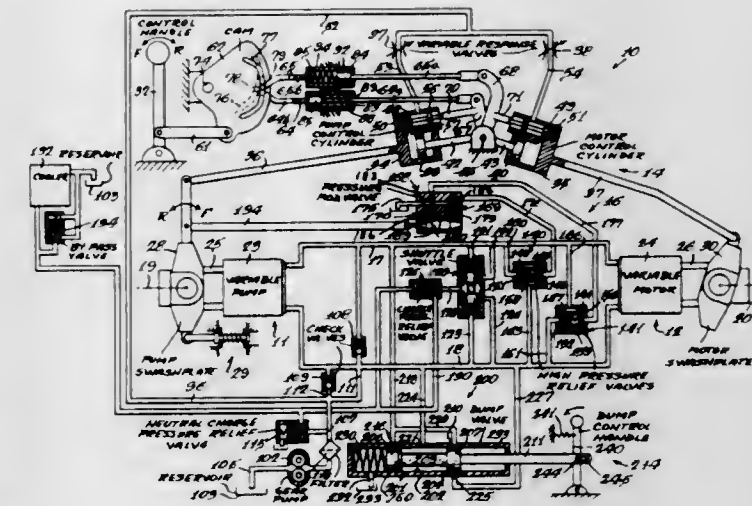
HYDROSTATIC TRANSMISSION
John W. Pinkerton and Lyle S. Martin, La Salle, Ill., assignors to Sundstrand Corporation, a corporation of Delaware

Filed Jan. 27, 1969, Ser. No. 794,078

Int. Cl. F16d 31/02

U.S. Cl. 60—53

8 Claims



A hydrostatic transmission for a vehicle including a variable displacement hydraulic pump and a variable displacement hydraulic motor interconnected in closed circuit by main fluid conduits, there being provided a dump valve for selectively interconnecting the conduits to permit free wheeling of the motor, with this dump valve being responsive to a pressure differential in the main conduits to hold the valve in its dump or free wheeling position so that the valve will automatically return to its inactive position only when the pressure in the main conduits is approximately equal preventing vehicular jerking which would occur otherwise if the dump valve could be manually deactivated when there was a pressure differential between the conduits.

3,561,213

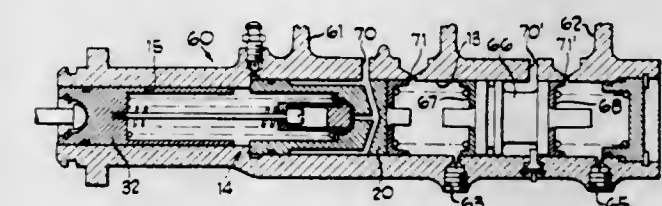
DUAL RATIO MASTER CYLINDER
Samuel Shiber, Chicago, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Delaware

Filed June 27, 1969, Ser. No. 837,081

Int. Cl. F15b 7/08

U.S. Cl. 60—54.5

12 Claims



A dual ratio master cylinder adapted to be connected to a hydraulic braking system, the master cylinder including a pair of pistons of different diameter operable within a bore and means disposed between the pistons adapted to exert a force to resist a compressive force up to a

predetermined value such that upon activation of the master cylinder, all "play" in the system is removed in a low pressure high volume operation until a predetermined pressure is built up within the system at which time a secondary hydraulic booster acts to build up additional pressure in a higher pressure lower volume phase of operation.

3,561,214

FLUSHING APPARATUS FOR REVERSIBLE HYDROSTATIC DRIVES

Gerhard Bobst, Oensingen, Switzerland, assignor to Von Roll AG, Gerlafingen, Switzerland, a corporation of Switzerland

Filed Apr. 26, 1968, Ser. No. 724,498

Claims priority, application Switzerland, May 2, 1967, 6,263/67

Int. Cl. F16d 31/00

U.S. Cl. 60—53

4 Claims

placed from one another and means disposed between the pistons adapted to exert a force to resist a compressive force up to a predetermined value such that upon activation of the master cylinder, all "play" in the system is removed in a low pressure high volume operation until a predetermined pressure is built up within the system at which time a secondary hydraulic booster acts to build up additional pressure in a higher pressure lower volume phase of operation.

3,561,216

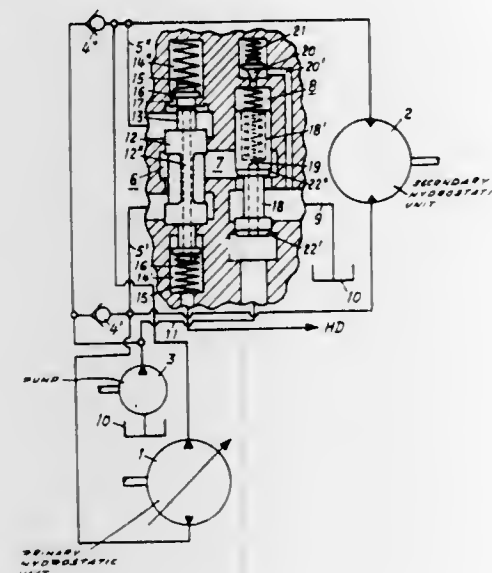
THERMAL STRESS CONTROLLED LOADING OF STEAM TURBINE-GENERATORS

James H. Moore, Jr., Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

Filed Mar. 19, 1969, Ser. No. 808,572

Int. Cl. F01k 7/24

7 Claims



A flushing device for reversible hydrostatic drives of the type embodying a flushing pump and a respective feed valve means for each pressure side of the drive. There is further provided a flushing valve means which is controlled by the momentary prevailing high pressure. A pressure limiting valve means which is connected after the flushing valve means incorporates a piston member which is impacted via a direct connection by the flushing pump means. This piston member is provided with two control edge portions, one of which is effective when the slide member of the flushing valve means is in its null or neutral position and the other of which is effective when such slide member has assumed an operating position.

3,561,215

DUAL RATIO MASTER CYLINDER

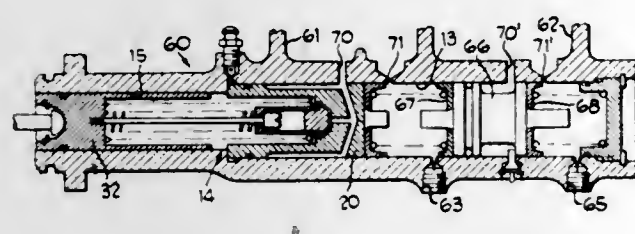
Frederick A. Krusemark, Maywood, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Delaware

Filed June 27, 1969, Ser. No. 837,080

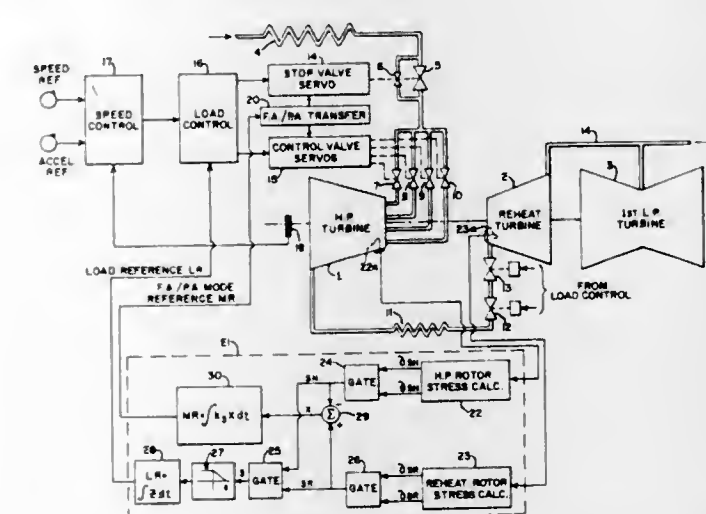
Int. Cl. F15b 7/08

U.S. Cl. 60—54.6

8 Claims



A dual ratio master cylinder adapted to be connected to a hydraulic braking system, the master cylinder including a pair of pistons of different diameter laterally dis-



In a steam turbine-generator with means for setting load in accordance with a load reference signal and with additional means for transferring between full arc and partial arc mode of steam admission, the rotor stresses are continuously calculated and set the rate of loading the steam turbine. The type of steam nozzle admission between full arc and partial arc is additionally controlled in accordance with a mode reference signal so as to minimize the thermal stress differences between high pressure and reheat rotors in order to reduce the turbine loading time.

3,561,217

LIQUID AIR ENGINE CYCLE WITH RELIQUEFACTION

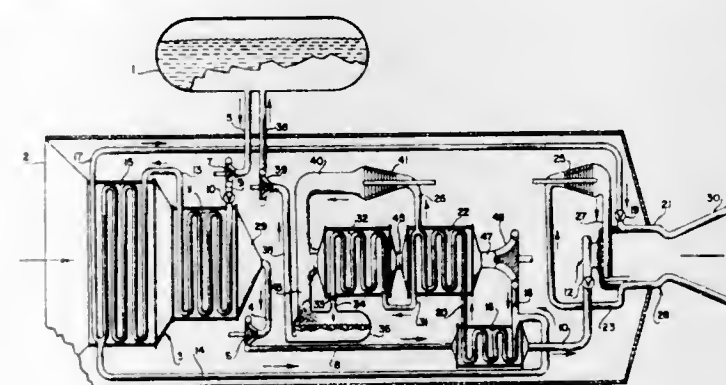
James R. Hall, Sepulveda, Calif., assignor to The Marquardt Corporation, Van Nuys, Calif., a corporation of California

Filed Jan. 25, 1961, Ser. No. 84,889

Int. Cl. B63h 11/00

U.S. Cl. 60—204

6 Claims



1. A method of operating a liquid air engine to obtain low specific fuel consumption comprising the steps of: storing low temperature liquid hydrogen as fuel;

passing said hydrogen under pressure through a heat exchanger in heat exchange relationship with incoming air to liquefy all the air while vaporizing the hydrogen; controlling the hydrogen-to-air ratio in the heat exchanger at a high enough value to always maintain the hydrogen at a lower temperature than the air passing through its point of incipient liquefaction; passing a portion of the hydrogen discharged from the heat exchanger to a propulsion means for combustion therein; controlling the magnitude of said portion to maintain the hydrogen-to-air ratio in the propulsion means of about stoichiometric; passing the remaining portion of hydrogen discharged from the heat exchanger through a reliquefaction cycle to reliquefy same for further use in the heat exchanger; and connecting the liquid air produced by the heat exchanger with the propulsion means for use as an oxidant for the hydrogen; the reliquefaction cycle including the steps of cooling the remaining portion of hydrogen with the liquid air passing to the propulsion means, and expanding the remaining portion after cooling to reliquefy a part thereof.

3,561,218

GAS GENERATOR TUBULAR CHARGE CONSTRUCTION AND METHOD OF OPERATION

Kurt Paackel and Heinz G. Langer, Ottobrunn, Germany, assignors to Messerschmitt-Bolkow Gesellschaft mit beschränkter Haftung, Ottobrunn, near Munich, Germany

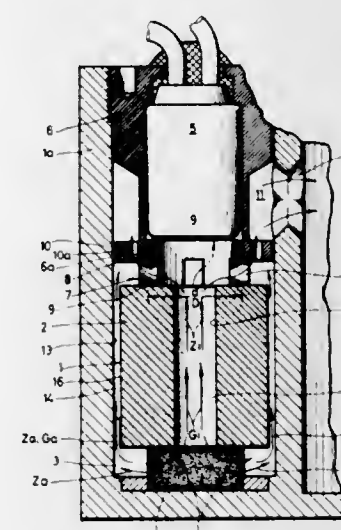
Filed Mar. 6, 1969, Ser. No. 804,782

Claims priority, application Germany, Mar. 21, 1968, P 17 51 016.6

Int. Cl. F02k 9/04

U.S. Cl. 60—204

17 Claims



A solid fuel gas generator such as a rocket engine includes a combustion chamber which is closed at one side by a cover containing a detonating cap and has an opposite closed side with a primer charge thereby. A main charge in a form of an annular burner is mounted between the detonator cap and the primer charge, and a throttle ring is interposed between one end of the charge and the detonator cap and it defines passages for the outflow of generated gases produced by the igniting gases and the burning of the interior of the main charge. The throttle ring permits gas to pass through a screen defined by one end of the cover which covers the detonating cap. The throttling action ensures that all of the gases which are generated in, or delivered to, the hollow

interior of the main charge do not pass directly outwardly through the combustion chamber discharge but a portion proceeds along and around the opposite end of the main charge to inflame the exterior wall of the main charge and to maintain it ignited.

3,561,219

TEXTILE MAT FOR INDUSTRIAL USE IN THE FIELD OF CIVIL ENGINEERING

Masazumi Nishizawa and Kaizo Kotera, Otsu-shi, and Michitsura Ohta, Takatsuki-shi, Japan, assignors to Toray Industries, Inc., Tokyo, Japan, a company of Japan

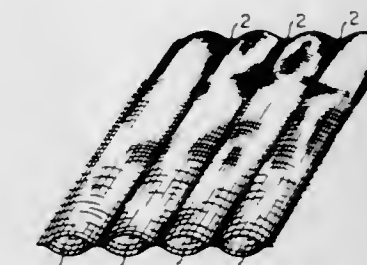
Filed Apr. 10, 1968, Ser. No. 720,234

Claims priority, application Japan, Oct. 13, 1967, 42/86,482; Dec. 18, 1967, 42/105,514

Int. Cl. E02b 3/12

U.S. Cl. 61—38

9 Claims



A fabric mat for soil stabilization has continuous bands of single ply fabric alternating with intervening continuous bands of two-ply fabric forming between the two plies continuous hollow tubelike containers which are filled with sand, gravel or the like. One end of the tubelike containers is closed before filling and the other after filling. The mats may have selvages along opposite side edges which are secured to selvages of like mats to connect a plurality of mats together.

3,561,220

METHOD AND APPARATUS FOR CONTAINING WELL POLLUTANTS

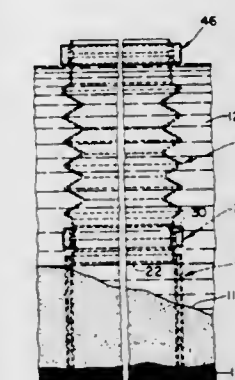
Chester George Riester, 10397 South Lake Blvd., Parma, Ohio 44130

Filed Mar. 26, 1969, Ser. No. 810,733

Int. Cl. E02b 1/00

U.S. Cl. 61—34

11 Claims



A well installation apparatus and method, particularly for offshore wells, utilizing a large coffer or caisson surrounding the well point, such coffer or caisson including a submerged caisson having secured to the top thereof an annular axially expandable substantially water impermeable extension secured at its lower end to the top of the submerged caisson and at its top to a floating ring.

3,561,221

ROOF-SUPPORTING ASSEMBLIES

Hans Büll, Wuppertal-Elberfeld, and Alfred Maykemper, Wuppertal-Barmen, Germany, assignors to Herman Hemscheidt Maschinenfabrik, Wuppertal-Elberfeld, Germany, a German body corporate

Filed Oct. 14, 1969, Ser. No. 866,277

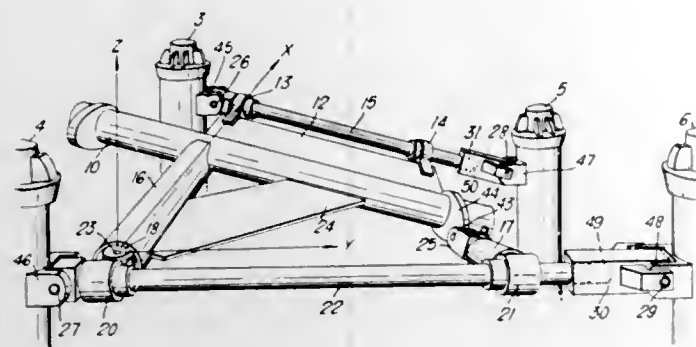
Claims priority, application Germany, Oct. 23, 1968,

P 18 04 611.2

Int. Cl. E21d 15/44

U.S. Cl. 61—45

4 Claims



An hydraulic self-advancing roof-supporting assembly for use in underground workings such as coal mines having a compensating device in its upper part. This compensating device comprises an hydraulic ram arranged to act longitudinally of the assembly and two transversely-arranged hydraulic aligning cylinders, the compensating device as a whole being so mounted on the assembly that it is pivotable in three different planes.

3,561,222

APPARATUS FOR LAYING UNDERGROUND CABLE, WIRE, PIPE, OR THE LIKE

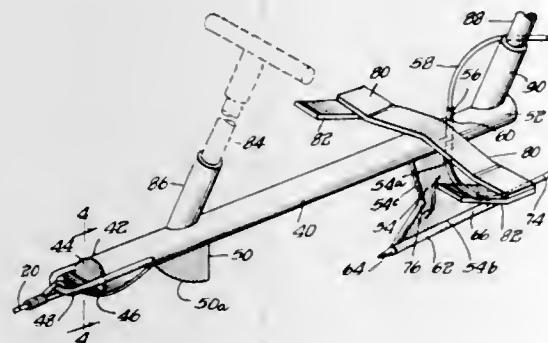
James C. Sweeton, 618 Myrtlewood Lane, Wheaton, Ill. 60187, and Frank G. Cain, 3662 Ingleside, Dallas, Tex. 75229

Filed Jan. 30, 1969, Ser. No. 795,319

Int. Cl. F16l 1/00; E02f 5/00

U.S. Cl. 61—72.6

6 Claims



Easily hand portable apparatus for laying underground cable, wire, pipe, or the like, which includes a hand controllable ground slitting or plowing unit adapted to be connected by a cable to a power driven winch and pulled along the ground thereby, said unit comprising an elongated body portion having power driven cable engaging means positioned at the forward end thereof and a plow blade positioned at the rear or trailing end thereof. A stationary ground penetrating pre-cutting blade or knife is secured to the body portion of the plowing unit rearwardly of the forward end thereof. Means is secured to the plow blade for laying, or pulling, cable, wire, pipe, or the like, into the narrow slit formed by the blade. Means also is provided on the plow blade for intercepting and deflecting loosened soil whereby the blade is maintained

at maximum depth in the soil, and the loosened soil is substantially prevented from exerting forces on other elements secured to the blade which would tend to lift the blade out of its normal path of travel through the soil. Laterally extending stabilizing arms, capable of supporting the full weight of an operator, are secured to the body portion adjacent the rear or trailing end thereof. A pair of removable handles are positioned on the upper surface of the body portion to provide leverage or support for an operator. The apparatus advantageously includes a portable winch which can be anchored at any preselected location and connected to the ground slitting or plowing unit by means of a retractable cable, or the like.

3,561,223

TUNNELING MACHINE WITH CONCRETE WALL FORMING MECHANISM

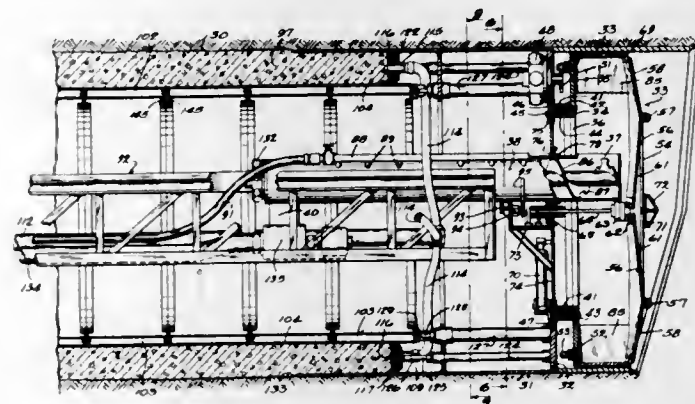
John R. Tabor, 3400 Spruce St., Racine, Wis. 53403

Filed July 9, 1968, Ser. No. 743,363

Int. Cl. E01g 3/04

U.S. Cl. 61—85

11 Claims



This disclosure relates to a tunneling machine which has a shield with a rotary excavating wheel to excavate a tunnel, and mechanism for forming a tubular concrete tunnel lining or wall against the tunnel sides. The machine has an elongated truss which trails behind the shield and which carries a spoil removing conveyor and a fluid concrete supplying conveyor. The truss also constitutes a track for a concrete form handler for transferring forms from the tail end of the truss to the head end and for lining the tunnel with such forms.

3,561,224

THERMOELECTRIC TEMPERATURE CONTROLLER

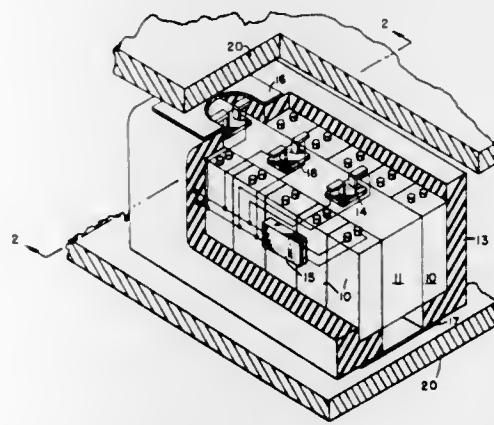
Hampden O. Banks, Westminster, and Kenneth K. Tang, Los Angeles, Calif., assignors to TRW Inc., Redondo Beach, Calif., a corporation of Ohio

Filed June 7, 1967, Ser. No. 644,327

Int. Cl. F25b 21/02

U.S. Cl. 62—3

7 Claims



A device such as a battery has its temperature maintained within a selective range by providing a source of

continuous heat, and a thermoelectric means is thermally connected between the continuous heat source and a heat sink. The thermoelectric means augments the heat source by adding heat to the battery when the ambient temperature is low and cools, or draws heat away from, the continuous heat source and the battery when the ambient temperature is high.

3,561,225

APPARATUS AND PROCESS FOR 4-STEP SEPARATION OF A CRYSTALLIZABLE COMPONENT OF A MIXED FEEDSTOCK

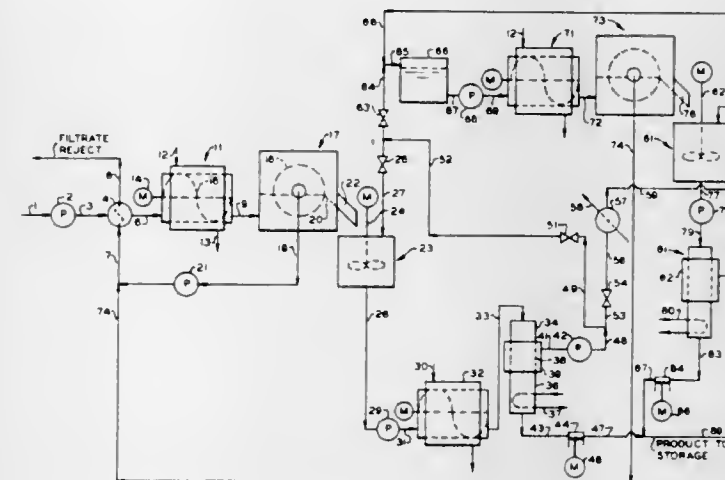
Robert A. Hinton, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Aug. 26, 1968, Ser. No. 755,088

Int. Cl. B01j 9/04

U.S. Cl. 62—58

10 Claims



This invention is a 4-step separation process. A feedstock is partially frozen, (1) the resulting crystals are separated from the remaining liquid, the crystals are purified by countercurrent contact with some of the melt obtained by melting the purified crystals, (2) the remaining melt is separated as product, the mother liquor from the purification is partially frozen, (3) the resulting crystals are separated from the remaining liquid, the crystals are purified as in (1), and (4) the remaining melt is separated as product. This saves refrigeration over the prior art.

A more complete abstract is given in the next two paragraphs.

A first feedstock containing a mixture of components is cooled in a first cooling step to at least partially crystallize at least one of said components from solution to form a first slurry of crystals in a first noncrystallized mother liquor. In a first separation step said first crystals are separated from said first mother liquor. Said first crystals from said first separation step are slurried with a second mother liquor to form a second slurry, cooled in a second cooling step and passed into a first crystal purification zone into contact with a first heating element at the end of said zone. Some of the resulting first melt from the end of said zone is taken off in a second separation step as the separated first component product, while some of said first melt is passed in countercurrent contact with said first crystals wherein it is refrozen and returned to the melt zone. The refreezing action displaces occluded mother liquid from the crystals, which is removed in a filter zone upstream of said melt zone as said second mother liquor. Some of said second mother liquor is mixed with a third mother liquor and cooled in a third cooling step to form a third slurry of second crystals of said first component in a fourth mother liquor. In a third separation step said second crystals are separated from said fourth mother liquor. Said second crystals from said third separation

step are slurried with some of said second mother liquor to form a fourth slurry and passed into a second crystal purification zone into contact with a second heating element at the end of said second zone. The resulting second melt from the end of said second zone is taken off in a fourth separation step as more of the separated first component product, while some of said second melt is passed back in countercurrent contact with said second crystals so as to purify said second crystals of occluded mother liquor which is removed from said second zone ahead of said second heating element as said third mother liquor and passed with some of said second mother liquor to said third cooling zone as described above. Said first and fourth mother liquors are heat exchanged with said first feedstock prior to said first cooling step in order to save refrigeration.

By not recycling the first and fourth mother liquors from the first and third separation steps, and by not recycling the second and third mother liquors to the feedstock prior to said first cooling and first separation step, and by heat exchanging said first and fourth mother liquors with said feedstock prior to said first cooling step, in Example 1 a savings of 429,000 B.t.u./hour in refrigeration is achieved over the prior art of Example 2.

3,561,226

REFRIGERATING SYSTEM FOR TRANSPORTABLE VEHICLES

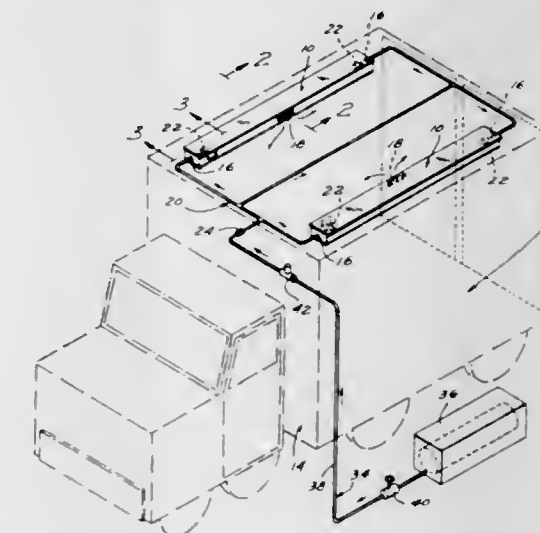
Julius Rubin, 54 Madison Ave., Franklin Square, N.Y. 11010

Filed Oct. 7, 1968, Ser. No. 765,502

Int. Cl. F25c 1/00

U.S. Cl. 62—66

8 Claims



A method and apparatus for refrigerating a chamber in trucks, rail cars and the like adapted for transporting products requiring refrigeration, in which the source of refrigeration is a container mounted in said chamber which container is filled by a block of solid refrigerant formed by flowing into said container a pressurized liquid refrigerant under a controlled pressure and velocity to produce solid refrigerant flakes which are caused to move through the length of the container and pack the refrigerant flakes densely therein to form said block of solid refrigerant.

3,561,227

ABSORPTION REFRIGERATION SYSTEM, METHOD AND APPARATUS FOR EXTERNAL CIRCULATION OF ABSORBENT

Judson S. Swearingen, Los Angeles, Calif., assignor to Judson S. Swearingen, trustee of Swearingen Trust D

Filed Aug. 5, 1968, Ser. No. 750,054

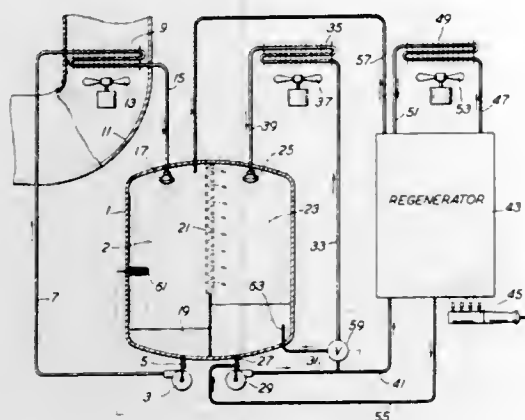
Int. Cl. F25b 15/06

U.S. Cl. 62—103

8 Claims

An absorption refrigeration method comprising passing a refrigerant through an evaporation zone having a pressure therein low enough to produce evaporation of at

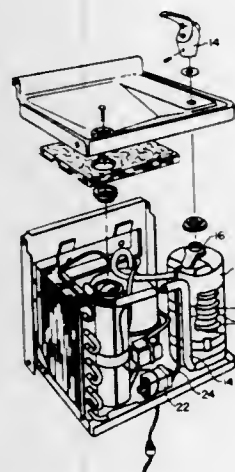
least a portion of the refrigerant and consequent cooling of the unvaporized portion thereof, heat exchanging the unvaporized refrigerant with a medium sought to be cooled, thereby warming the refrigerant, and returning the so warmed refrigerant to the evaporation zone, withdrawing at least a portion of the vaporized refrigerant through a mist eliminator into a closed absorption zone in communication with said evaporation zone, spraying a liquid absorbent into the absorption zone to absorb the vaporized refrigerant, circulating the partially spent liquid absorbent externally of the absorption zone in indirect heat exchange



relation with a cooling medium to extract the heat of condensation and absorption and spraying the cooled partially spent absorbent back into the vaporous refrigerant in the absorption zone to absorb additional refrigerant, the rate of partially spent absorbent sprayed back into the absorption zone is controlled as a function of evaporation zone temperature thus eliminating the time lag generally associated with most absorption refrigeration control schemes. The invention also provides a system whereby the above absorption refrigeration method may be carried out.

3,561,228
COOLING CHAMBER TEMPERATURE CONTROL WELL ARRANGEMENT
Eugene W. Scott, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Mar. 17, 1969, Ser. No. 807,713
Int. Cl. F25d 17/02
U.S. Cl. 62—201



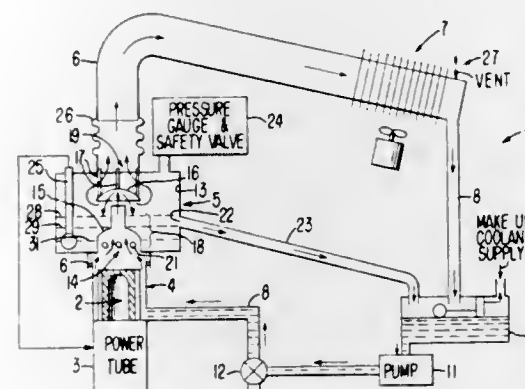
In a drinking water cooling chamber of the type having a series of refrigerant cooling coils wrapped about the cooling chamber, a temperature control well arrangement for receiving a capillary temperature sensing element in which the well takes the form of a tube extending for substantially the height of the chamber and has its

lower portion bonded to at least one of the cooling coils near the lower position of the chamber, and an upper portion of the well being bonded directly to the cooling chamber. A substantial portion of the well tube between the bonding locations is spaced out of contact from the coils along which the tube extends.

3,561,229
COMPOSITE IN-LINE WEIR AND SEPARATOR FOR VAPORIZATION COOLED POWER TUBES
Martin E. Levin, Burlingame, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California

Filed June 16, 1969, Ser. No. 833,654
Int. Cl. F25b 4/04
U.S. Cl. 62—218

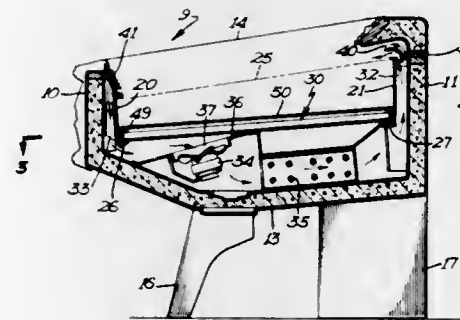
8 Claims



A vaporization cooling system for cooling the collector structure of a beam power tube is disclosed. The system includes a composite weir and vapor separator connected in-line between a beam collector boiler and a vapor condenser. The composite weir and separator includes a chamber with a reentrant conduit for directing emulsified coolant from the boiler against a deflector for separating the vapor from the liquid coolant. The vapor is directed to the condenser and the liquid is stored in a weir portion of the chamber and fed by gravity back to the boiler to maintain a safe liquid level in the boiler.

3,561,230
FLOOR PAN ARRANGEMENT FOR REFRIGERATED DISPLAY CASE
Robert P. Gatton, Kendallville, and Robert G. Reffner, Garrett, Ind., assignors to Streater Industries, Inc., Albert Lea, Minn., a company of Minnesota
Filed Mar. 17, 1969, Ser. No. 807,572
Int. Cl. A47f 3/04
U.S. Cl. 62—256

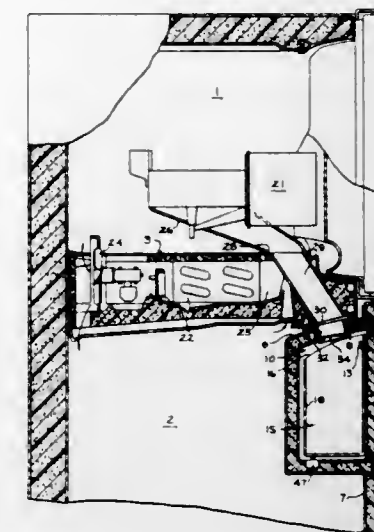
3 Claims



The invention relates to a floor pan arrangement for an air curtain type refrigerated display case. The floor pan arrangement provides (1) easy access for cleaning the space which houses the refrigeration apparatus and for repairing the apparatus, and (2) a drainage system for disposing of liquids created by undesired thawing of food products.

3,561,231
COMBINATION REFRIGERATOR WITH ICE SERV-ICE IN FRESH COMPARTMENT DOOR
William M. Webb, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed Apr. 3, 1969, Ser. No. 813,222
Int. Cl. F25d 17/08, 23/02
U.S. Cl. 62—344

11 Claims



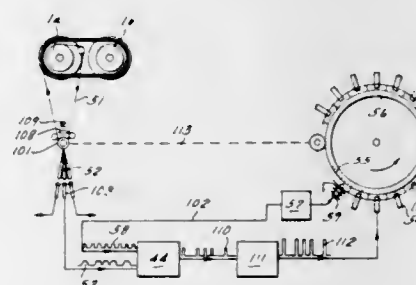
A combination refrigerator comprising a freezer compartment and a fresh food compartment separated by a partition includes an automatic ice maker in the freezer compartment and an insulated ice storage compartment containing an ice receptacle forming part of the fresh food compartment door structure. Passage means are provided for conducting both ice pieces produced by the ice maker and below freezing air to the ice storage compartment.

3,561,232
NEEDLE SELECTION SYNCHRONIZING APPARATUS FOR A CIRCULAR KNITTING MACHINE
Hans Joachim Stock, Freiburg im Breisgau, and Richard Schmidt, Stuttgart-Vaihingen, Germany, assignors to Franz Morat GmbH, Stuttgart-Vaihingen, Germany
Division of application Ser. No. 520,938, Jan. 17, 1966. Continuation-in-part of applications Ser. No. 543,455, Mar. 22, 1966, now Patent No. 3,327,499; Ser. No. 543,457, Mar. 22, 1966, now Patent No. 3,324,685; and Ser. No. 562,938, June 29, 1966, now Patent No. 3,313,128, which is a continuation-in-part of application Ser. No. 404,118, Oct. 15, 1964. This application Mar. 17, 1967, Ser. No. 624,681
Claims priority, application Germany, Mar. 6, 1965, M 64,421

The portion of the term of the patent subsequent to Apr. 11, 1984, has been disclaimed
Int. Cl. D04b 15/78

U.S. Cl. 66—50

9 Claims

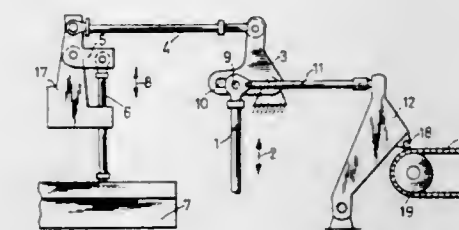


Timing impulses produced by the rotating needle cylinder of a circular knitting machine and program representing selecting impulses are superimposed and form during coincidence timed needle selecting impulses controlling electromagnetic actuating means of the cylinder needles so that selected needles are operated in accordance with the program in exact synchronism with the angular displacement of the rotating needle cylinder.

883 O.G.—20

3,561,233
FALL PLATE MECHANISM
Karl Kohl, Offenbacher Landstrasse 20, Hainstadt am Main, Germany
Filed July 15, 1969, Ser. No. 841,853
Claims priority, application Germany, July 25, 1968, P 17 60 964.2
Int. Cl. D04b 27/00
U.S. Cl. 66—86

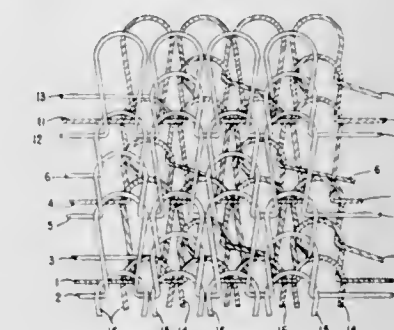
6 Claims



The fall plate of a Raschel knitting machine is moved toward and away from the needles by a hinged linkage driven by the main camshaft of the machine. One of the pivot pins in the linkage is radially slidable in an elongated slot arranged in such a manner that the stroke of the fall plate can be reduced and the fall plate held inoperative by shifting the pivot pin in the slot in synchronization with the cam action. A connecting rod actuated by the patterning mechanism shifts the pivot pin.

3,561,234
FINE GAUGE DOUBLE KNIT FABRIC
Lester Mishcon, Miami Beach, and Donald W. Reagan, Hialeah, Fla., assignors to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Sept. 19, 1969, Ser. No. 859,253
Int. Cl. D04b 9/08
U.S. Cl. 66—196

6 Claims



An improved fine gauge double knit fabric and its method of manufacture is disclosed, the fabric having long and short loops drawn to one side of the fabric and other long and short loops drawn to the other side of the fabric, the short loops on each side of the fabric being arranged in pairs in each of which the loops intermesh in wales of the fabric, the long loops and the pairs of short loops on each side of the fabric alternating in courses and wales, and intermeshing in the wales.

3,561,235
TEXTILE DYEING APPARATUS
Allan H. Crawford, Amsterdam, N.Y., assignor to Mohasco Industries, Inc., Amsterdam, N.Y., a corporation of New York
Filed Nov. 17, 1967, Ser. No. 684,055
Int. Cl. B05c 1/04, 1/06
U.S. Cl. 68—204

3 Claims

The invention relates to apparatus for printing a pattern on a plurality of yarns. The apparatus includes a plurality of printing means together with a plurality of feed means, feed means alternating with printing means, the apparatus

being constructed and arranged to carry the yarns in a substantially horizontal path through the printing means. Means are provided to print the yarns on opposed sides

as the yarns pass through the printing means. Means are provided for inserting an index yarn among the plurality of yarns and for printing a regularly recurring pattern on the index yarn.

3,561,236

LOCK FOR BOLTED-ON EQUIPMENT

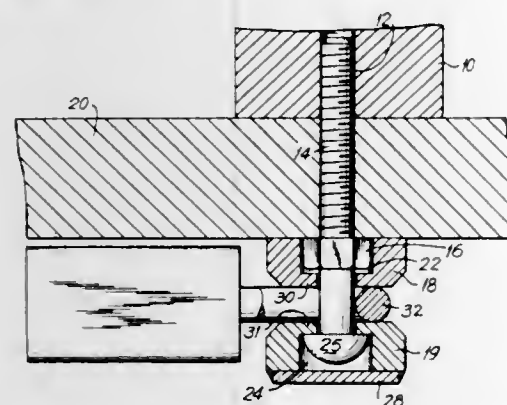
Vincent E. Loughlin, 83-17 124 Place,
Kew Gardens, N.Y. 11415

Filed July 24, 1969, Ser. No. 844,435

Int. Cl. E05b 73/00; F16b 41/00

U.S. Cl. 70-232

8 Claims



A mounting lock for typewriters and like equipment, to secure the equipment so effectively to a base structure on which it is mounted so that it cannot be readily removed by thieves and carried off. The device embodies a guard in which a removable fastening is enclosed and protected from turning tools, and provides for jamming the enclosure in place by the shackle of a padlock or the like.

3,561,237

PREDICTIVE GAUGE CONTROL METHOD AND APPARATUS FOR METAL ROLLING MILLS

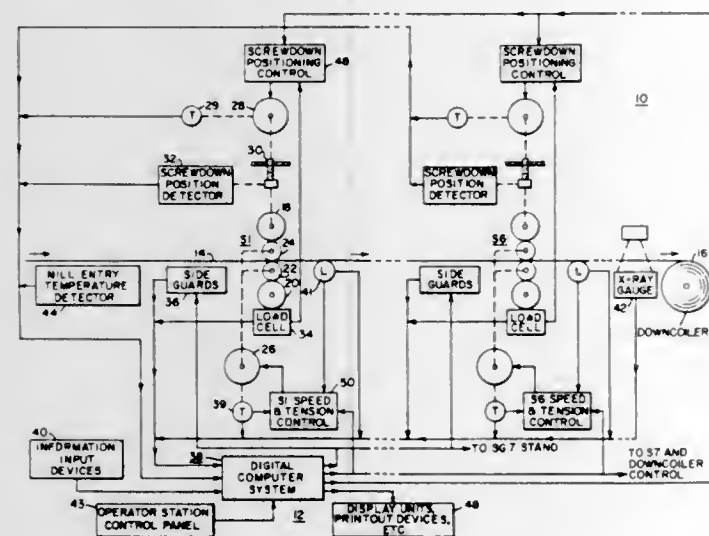
Calvin W. Eggers, Penn Hills, Pa., and John C. Csonka, deceased, late of Buffalo, N.Y., by Kornelia E. Csonka, administratrix, Buffalo, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Nov. 29, 1967, Ser. No. 686,783

Int. Cl. B21b 37/14

U.S. Cl. 72-7

47 Claims



A programmed computer control system provides on line predictive roll force gauge control for a tandem hot

steel strip mill. A gauge control program calculates screw-down movement predictively required for optimum or near optimum gain correction of roll force error on the basis of on line detected roll force and screwdown position values and on the basis of predetermined mill spring constant and workpiece plasticity values. To compensate for steady state gauge error conditions, a screwdown offset movement value is determined and combined with the roll force error correcting screwdown movement value to define the total amount of corrective screwdown movement required at any particular point in time. The control system operates the mill screwdowns in accordance with the program calculations.

3,561,238

AUTOMATIC DIE LUBRICATOR FOR DROP HAMMERS

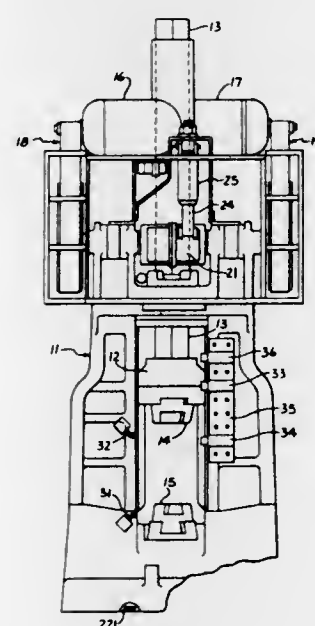
Lawrence R. Tetzloff, Calumet City, Ill., and Lowell L. Crom, Hammond, Ind., assignors to Indiana Forge and Machine Company, East Chicago, Ind., a corporation of Indiana

Filed May 22, 1968, Ser. No. 731,112

Int. Cl. B21j 3/00, 7/06

U.S. Cl. 72-23

18 Claims



An automatic die lubricator for drop-type hammers wherein nozzles are positioned to spray lubrication over the die faces and a control system is provided to actuate these nozzles after the delivery of each series of a predetermined number of working blows. The control system includes proximity switches which are responsive to the movement of the reciprocating upper die for providing a control signal upon the delivery of each blow, and a stepping switch which is advanced one station by each control signal until a final station is reached whereupon a circuit for actuating the lubricating nozzles is closed. The stepping switch is then reset and the cycle repeats without interruption.

To control the intensity of the working blows, the control system includes a timer which has an off-time circuit to govern the moment of initiation of each control signal and an on-time circuit to govern the duration of each. The timed control signals are then employed to actuate the upper die lifting mechanism. The timer may have a single on-time circuit so that each control signal is of the same duration whereby each blow is delivered from the same height, or a different on-time circuit for each blow of a predetermined blow pattern whereby such blows may be delivered from varying heights. In this latter case, the different on-time circuits are each connected to a respective station of a stepping switch which is advanced one station in response to the initiation of each control signal

and which is recycled to the first station by the reset means in response to the initiation of the control signal following the delivery of the complete pattern.

3,561,239

APPARATUS FOR FORMING METALS BY MEANS OF JET LIQUID

Hiroshi Tominaga and Masanobu Takamatsu, Yokohama-shi, Japan, assignors to Tokyu Sharyo Seizo Kabushiki Kaisha, Yokohama-shi, Japan

Continuation of application Ser. No. 533,024, Mar. 9, 1966. This application Aug. 28, 1969, Ser. No. 856,880

Claims priority, application Japan, Mar. 18, 1965,

40/15,335; Apr. 23, 1965, 40/23,682; June 17,

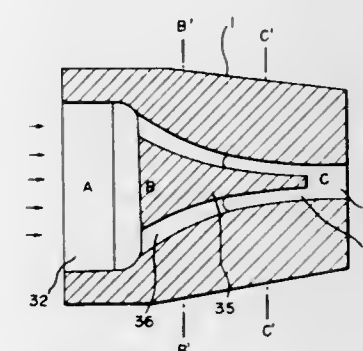
1965, 40/35,756; Aug. 27, 1965, 40/51,960,

40/51,961

Int. Cl. B21d 26/04

U.S. Cl. 72-60

1 Claim



A method of forming metal using a mold cavity member comprises placing the metal in association with the cavity member in a position such that it can be deformed into the cavity thereof and directing a liquid first through a narrowing passage to increase the velocity and impact force and thereafter directing the liquid at high impact force and velocity against the metal to shape it into the form of the mold cavity.

The apparatus for carrying out the invention includes a liquid pressure chamber and a plunger which is slidable in the chamber but which is exposed at the exterior of the chamber to permit it to be moved rapidly by striking it. The movement of the plunger causes the displacement of the liquid in the chamber through a narrowing passage to increase its velocity and impact force. The chamber for generating the high impact force of the liquid and increased velocity of the liquid is located adjacent a mold cavity member so that the liquid might be injected into the mold cavity member to deform the metal to be formed. Various embodiments for increasing the velocity of the liquid and its impact force are disclosed including a single narrowing passage and a double passage construction, as well as a divergent passage construction.

3,561,240

METHOD AND APPARATUS FOR TREATING MATERIALS

John A. Schey, Hinsdale, Ill., assignor to IIT Research Institute, Chicago, Ill., a not-for-profit corporation of Illinois

Continuation-in-part of application Ser. No. 587,358,

Sept. 16, 1966, which is a continuation-in-part of

application Ser. No. 444,637, Apr. 1, 1965. This

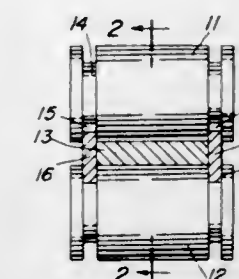
application Dec. 7, 1967, Ser. No. 691,109

Int. Cl. B21b 1/22, 39/00

U.S. Cl. 72-184

9 Claims

A method and apparatus is disclosed for forming materials into desired shapes by rolling or casting. The rolled



with the workpiece to prevent edge cracking in rolling or provide a moving wall die in casting.

3,561,241

ROLLING MILL FOR THIN STRIPS

Paul Blain, Saint-Germain-en-Laye, France, assignor to Institut de Recherches de la Siderurgie Francaise, Saint-Germain-en-Laye, France

Filed Mar. 11, 1969, Ser. No. 806,218

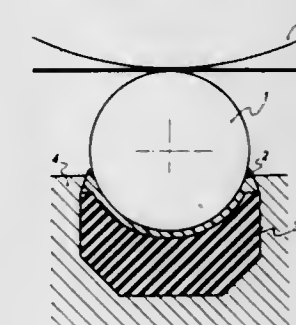
Claims priority, application France, Mar. 13, 1968,

143,520; Feb. 14, 1969, 6,903,583

Int. Cl. B21b 29/00

U.S. Cl. 72-201

8 Claims



Bending of a working roll in a rolling mill for metal strips is prevented by backing the working roll itself or a backing up roll for the working roll by means of a rubber cushion confined in a recess of a rigid receptacle by a pressure transmitting trough member movable inwardly and outwardly of the recess and blocking the open side of the same. The trough member conformingly receives the central portion of the working roll or backing-up roll over all or most of the axial length of the latter, and the rubber cushion distributes the rolling pressure uniformly over the axial length of the engaged roll portion.

3,561,242

PROCESS FOR FORMING BOTTOMED TUBULAR MEMBERS FROM METAL BLANKS

Oreste Bignelli, Rue Buffon, Clermont Ferrand,
Puy de Dome, France

Filed Nov. 20, 1967, Ser. No. 684,300

Claims priority, application France, May 12, 1967,

106,338

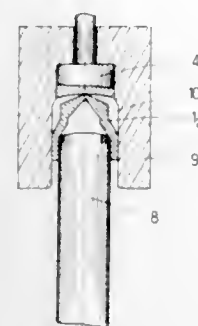
Int. Cl. B21c 23/00

U.S. Cl. 72-256

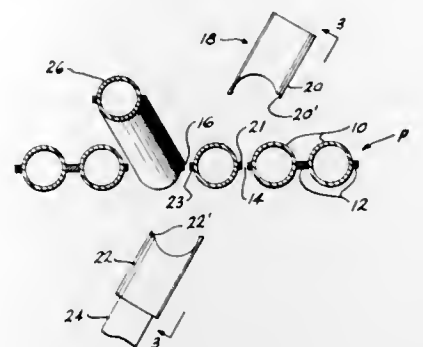
4 Claims

Metal blanks are punched into a stepped preliminary form having a circular cross-section. During the punching operation, metal flows both radially and longitudinally. The preliminary form is then subjected to another punching operation effecting a further flow of metal in both a radial and longitudinal direction thereby pro-

ducing the final shape of the bottomed tubular members. During both punching operations, the longitudinal flow



of steam generators. An adjustable guide arrangement is oriented with respect to the tubes in the tube panel between which the opening is to be formed so as to guide the tubes upon movement thereof out of the plane of the panel. Hydraulic jacks located on the opposite



of metal is in a direction opposite to the movement of the punch.

3,561,243

EXTRUSION PRESS

Robert Kenneth Valks, Penfield, N.Y., and Keith Ross, Sheffield, England, assignors to Davy and United Engineering Company Limited, Sheffield, England, a British company

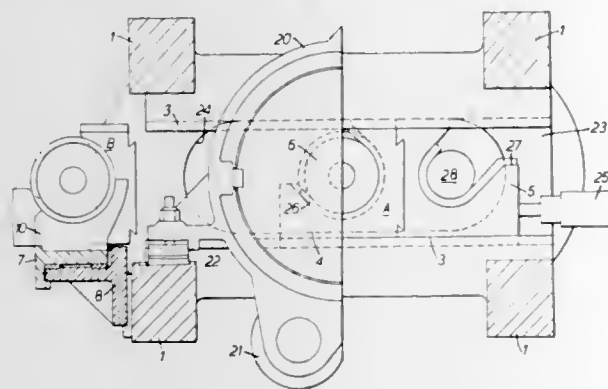
Filed May 3, 1968, Ser. No. 726,471

Claims priority, application Great Britain, May 4, 1967, 29,855/67

Int. Cl. B21c 23/00

U.S. Cl. 72—263

9 Claims



An extrusion press has its die supported in a holder which is releasably coupled to an anchor member to form an assembly. The assembly is displaceable relative to the platen in a direction normal to the longitudinal axis of the press and in order to remove the die and its holder, the assembly is slid across the face of the platen until the holder is in a position from which it can be displaced parallel to the axis of the press to release the die holder from the anchor member. Displacement of the die holder parallel to the axis of the press can cause a replacement die holder to be displaced into coupled relation with the anchor member.

3,561,244

APPARATUS FOR FORMING OPENINGS IN TUBULAR PANELS

Jack L. Woods and Kenneth B. Garner, Chattanooga, Tenn., assignors to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware

Filed Aug. 12, 1968, Ser. No. 751,808

Int. Cl. B21d 43/28, 53/02; B21k 21/00

U.S. Cl. 72—324

3 Claims

An apparatus for forming openings in tubular welded wall panels particularly used for lining furnace walls

side of the panel from the guide arrangement alternately force shaped dies against complementary shaped portions of the guide arrangement to stretch and bend therebetween the tubes of the panel to form the desired opening without deforming the displaced tubes.

3,561,245

KNOCK-OUT BAR FOR PRESSES

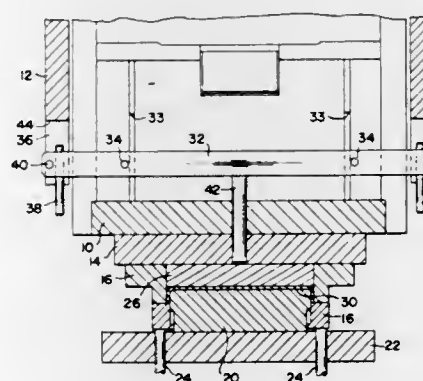
William Frank Hollenbeck, Hastings, Mich., assignor, by mesne assignments, to Gulf + Western Industrial Products Company, Grand Rapids, Mich., a corporation of Delaware

Filed Sept. 6, 1968, Ser. No. 757,936

Int. Cl. B21d 45/00

U.S. Cl. 72—345

2 Claims



A knock-out mechanism for a press comprising a knock-out bar extending through the slide with knock-out pins adjustably secured to the ends of the bar. The pins are adapted to engage a surface on the press frame. Pressure pins cooperate with the bar to eject the workpiece.

3,561,246

METHOD OF MANUFACTURING THIN-WALLED TUBES

Jacques Joseph Verdict, Malo-les-Bains, France, assignor to Societe Anonyme dite: Vallourec Usines a tubes de Lorraine-Escaut et Vallourec Reunies, Paris, France

Filed May 16, 1968, Ser. No. 729,790

Claims priority, application France, May 18, 1967, 106,854

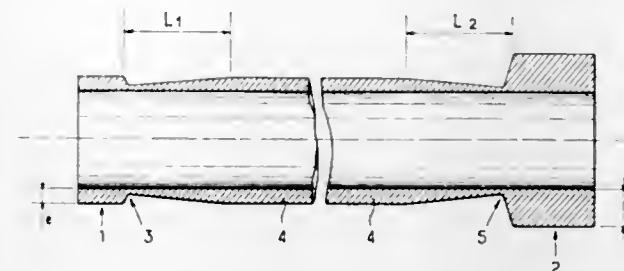
Int. Cl. B21b 23/00

U.S. Cl. 72—365

4 Claims

A new method of making thin-walled tubes according to which a tubular blank is rolled in such a manner as to form a short section of relatively large diameter at each end, each followed, as the center of the tube is approached

first by a neck, and then by a segment of gradually increasing diameter. The end sections of large diameter are



then cut off and the remainder of the blank rolled to the desired thickness in a reducing mill.

3,561,247

METHOD FOR BENDING TUBING

Louis A. Pfafman, 318 Yale Ave., Stratford, N.J. 08084; and Michael P. McNally, 128 E. Military Road, and Charles A. Freeberg, 315 Asbury Ave., both of National Park, N.J. 08063

No Drawing, Filed Aug. 27, 1968, Ser. No. 755,725

Int. Cl. B21d 9/01

U.S. Cl. 72—369

1 Claim

The subject invention relates to a unique method for bending rigid metallic tubing or other like tubular products. The process assures an effective internal support for the walls of the tubing during bending and generally comprises the steps of annealing, inserting a compressible mandrel, cold bending the tubing and removing the mandrel so that the tubing is ready for further fabrication and assembly steps.

3,561,248

APPARATUS FOR FORMING CURVED METAL BARS AS AUTOMOBILE BUMPERS

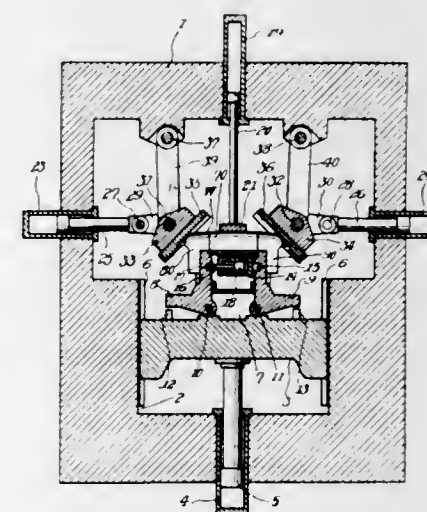
Michio Bessho, Himeji-shi, Japan, assignor to Kawasaki Yoko Kabushiki Kaisha, Takasago-shi, Japan

Filed May 21, 1968, Ser. No. 730,778

Int. Cl. B21d 7/04, 7/025, 7/028

U.S. Cl. 72—383

4 Claims



Forming apparatus employing a pair of rockable female die members and a split type male die assembly including a pair of side die members. The female die members serve to roll-bend the opposite end portions of the blank in cooperation with the side members of the male die as latter is forced to rise. Subsequently, upon expansion of the male die assembly, the intermediate portion of the blank with its end portions clamped against the side male die members is efficiently stretch-formed along the contoured surface of the male die assembly through plastic deformation of the material.

**3,561,249
BLIND RIVET TOOL WITH MODULATED FORCE LINKAGE**

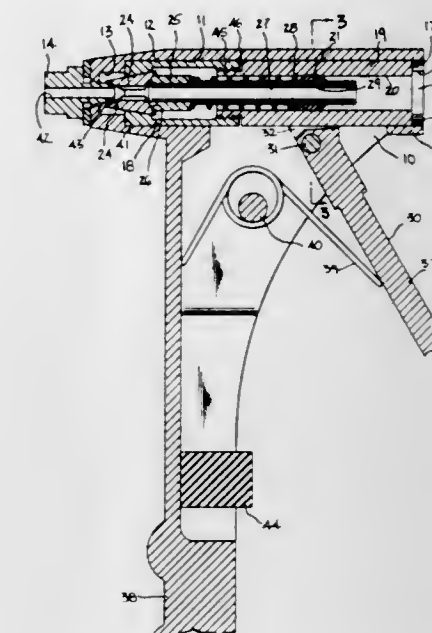
Richard B. Freeman, 3354 Dorchester Road, Shaker Heights, Ohio 44120

Filed Nov. 29, 1968, Ser. No. 779,935

Int. Cl. B21d 9/05; B23p 19/00

U.S. Cl. 72—391

7 Claims



A manually operated tool for setting blind rivets and having a pivoted handle whose short lever arm end is bifurcated and engages a cylindrical cross spin which is transversely mounted in a collet body. The collet body is mounted for reciprocal movement in the housing to which the operating handle is secured and is provided with mandrel-engaging jaws for gripping and exerting a pulling force on the mandrel or stem of a blind rivet which is mounted in the nose piece of the tool.

3,561,250

APPARATUS FOR PRESSING METAL SHEATHS ON THE ENDS OF OIL-FILLED ELECTRIC CABLES

Agostino Oriani, Milan, Italy, assignor to Pirelli Società per Azioni, Milan, Italy, a corporation of Italy

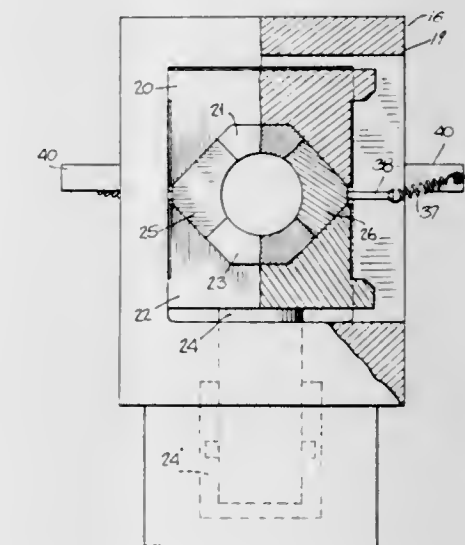
Filed Apr. 5, 1968, Ser. No. 719,104

Claims priority, application Italy, May 23, 1967, 16,391/67

Int. Cl. B21d 41/04

U.S. Cl. 72—402

5 Claims



An apparatus for sealing the ends of oil-filled electric cable having a metallic sheath the prevent leakage during

manufacturing process and including means for pressing the metallic sheath to a rigid closure member positioned at the cable end.

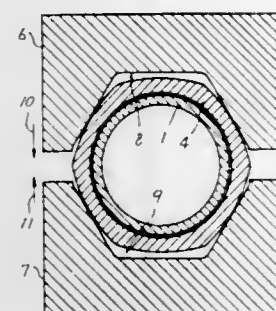
3,561,251 TOOLS FOR COUPLING PIPES WITH OTHER MEMBERS

Hisao Matsumoto, 406-1 Aza-Ishizuka, Misono, Amagasaki-shi, Hyogo-ken, Japan
Filed Jan. 26, 1968, Ser. No. 700,899
Claims priority, application Japan, Feb. 4, 1967, 42/7,368

Int. Cl. B21d 37/10

U.S. Cl. 72—416

8 Claims



This invention relates to tools for firmly joining pipes through the use of compression couplings.

3,561,252 PRESSES

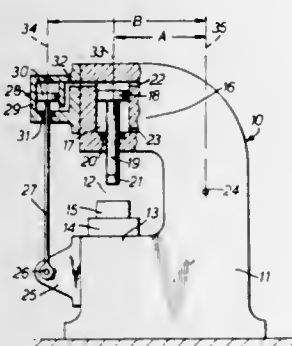
Hubert Veare Norton, Leslie Buckingham Norton, and Douglas Edwin Norton, Horley, Surrey, England, assignors to Norton Tool Company Limited, Horley, Surrey, England

Filed Feb. 5, 1969, Ser. No. 796,815
Claims priority, application Great Britain, Feb. 8, 1968, 6,269/68

Int. Cl. B21j 9/02

U.S. Cl. 72—455

9 Claims



A C-frame press in which gaping of the gap due to the pressing force is minimised by providing a tie-bar across the gap associated with tensioning means which apply to the tie-bar a tension substantially proportional to the pressing force.

3,561,253 APPARATUS AND METHOD OF MEASUREMENT OF PARTICULATE MASS

Frank D. Dorman, St. Paul, Minn., assignor to Thermo-Systems, Inc., St. Paul, Minn., a corporation of Minnesota

Filed Mar. 26, 1969, Ser. No. 810,659

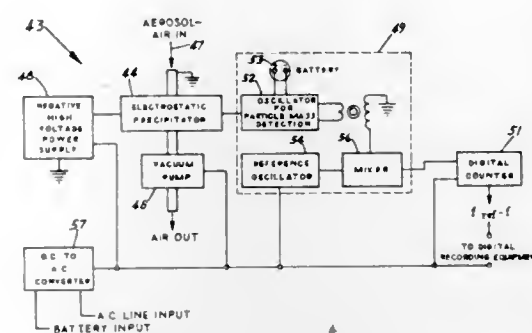
Int. Cl. G01n 15/06, 27/00

U.S. Cl. 73—28

33 Claims

A particle measurement apparatus having an oscillator circuit with a quartz crystal carrying electrode films to detect particle mass force-collected on a surface of a film by reading the change in the resonant frequency of

the quartz crystal. The oscillator circuit is combined with a device for force-collecting particles on the electrically-



driven film. The electrical signal of the oscillator circuit is monitored by a frequency-counting device.

3,561,254 APPARATUS FOR MEASURING THE PERMEABILITY OF POROUS WALLS

Henri Argaud, Serge Bienfait, and Charles Eyraud, Lyon, and Daniel Massignon, Paris, France, assignors to Commissariat à l'Energie Atomique, Paris, France

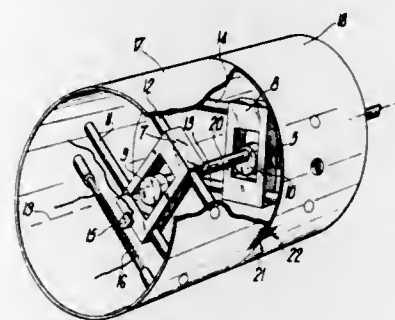
Filed Aug. 5, 1968, Ser. No. 750,197

Claims priority, application France, Aug. 10, 1967, 117,600

Int. Cl. G01n 15/08

U.S. Cl. 73—38

1 Claim



A device for measuring the permeability of porous walls, especially microporous barriers, and for measuring the distribution of pore radii. Two compartments of a sealed enclosure are separate by the porous wall. A sinusoidal pressure variation is produced within one of said compartments and the phase of the variation which is transmitted into the other compartment through said porous wall is compared with the phase of a sinusoidal current produced by a straight form potentiometer with a sliding contact to measure the phase shift produced by transmission through said porous wall and thereby give an indication of the permeability of said porous wall.

3,561,255 LEAK TESTING APPARATUS

Edward N. Kostielney, Jr., Taylor, Mich., assignor to Ajem Laboratories, Inc., Livonia, Mich.

Filed Feb. 14, 1969, Ser. No. 799,322

Int. Cl. G01m 3/26

U.S. Cl. 73—40

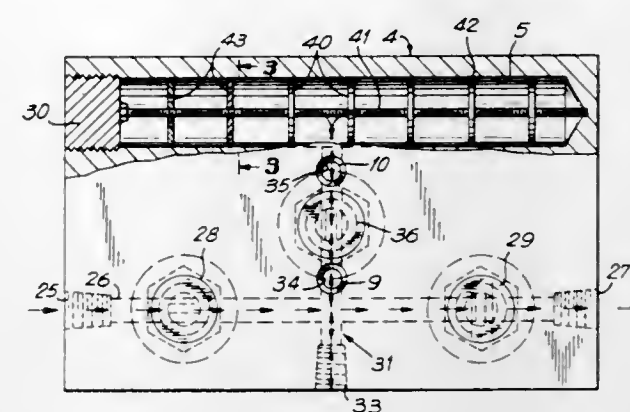
7 Claims

A leak testing device, commonly employed in testing automotive engine components and the like, which pressurizes the part to be tested and a standard chamber, separates the two, and then measures the difference in pressure over a given period of time between the part and the standard chamber.

The improvement in such a device reducing the time required for taking a reproducible useful reading by

incorporating baffles in the standard chamber which restrict the flow of testing fluid thereby reducing oscillation and hastening standard conditions, the baffles are preferably in the form of plates or discs spaced longitudinally

a second beam is transmitted. When utilized in ultrasonic holography, two ultrasonic beams are so combined to interfere at a suitable holographic detecting surface to allow more flexibility in the placement of an object under investigation.



3,561,258 APPARATUS FOR TESTING TUBES OR RODS BY ULTRASONICS

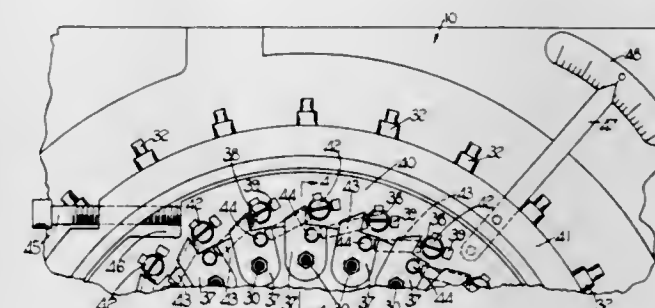
Roland Ashford, Pelsall, near Walsall, and Dennis Terry, Hayley Green, England, assignors to S.T.D. Services Limited, Edgbaston, Birmingham, England, a British company

Filed Mar. 1, 1968, Ser. No. 709,699
Claims priority, application Great Britain, Mar. 1, 1967, 9,694/67; Mar. 8, 1967, 10,899/67

Int. Cl. G01n 29/04

U.S. Cl. 73—71.5

8 Claims



of the ballast chamber with each having a space between its outer periphery and the wall of the chamber, or formed with perforations therein, or a combination of both.

3,561,256 PIPELINE LEAK DETECTOR

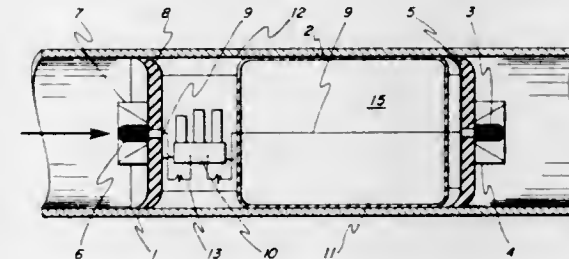
William M. Bustin, Summit, N.J., and Harry C. Cook, Genoa, Italy, assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed Mar. 28, 1969, Ser. No. 811,519

Int. Cl. G01m 3/24

U.S. Cl. 73—40.5

10 Claims



An apparatus for the detection of pipeline leaks, in which an apparatus comprising a sound absorbent canister between front and rear sound detectors designed to move through the pipeline, records the sound generated by the escaping fluid. The leak is located at the point wherein the recording traces, generated by the sound detectors, indicate a sudden change in sound intensity caused by the sound absorbent canister covering the leak.

3,561,257 ULTRASONIC BEAM COMBINER IN HOLOGRAPHY

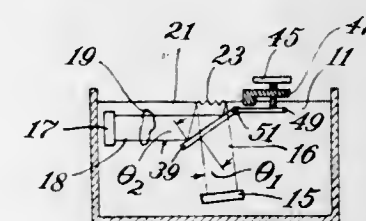
Byron B. Brenden, Richland, Wash., assignor to Holotron Corporation, Wilmington, Del., a corporation of Delaware

Filed Mar. 6, 1968, Ser. No. 710,892

Int. Cl. G01n 29/04

U.S. Cl. 73—67.5

14 Claims



A method and apparatus for combining two or more beams of ultrasonic energy, including a beam combining plate in an embodiment where one beam is reflected and

An ultrasonic tester for tubes has an array of angularly adjustable carriers arranged around a passage through which the test piece is passed. Each carrier has two transducers with their axes co-planar and inclined in opposite directions at equal angles to the carrier axes. One set of transducers is pulsed sequentially and the other set are connected in a synchronised sequence to a detector.

3,561,259 APPARATUS FOR DETERMINING THE SHEARING RESISTANCE OF THE SOIL

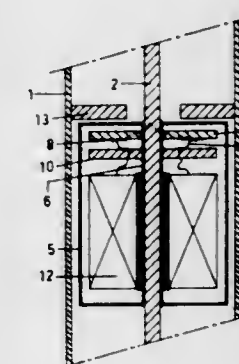
Diederik G. Barendse, Voorburg, Netherlands, assignor to Stichting Waterbouwkundig Laboratorium, Delft, Netherlands, a nonprofit institution of and under Dutch laws

Filed June 13, 1968, Ser. No. 736,853
Claims priority, application Netherlands, June 16, 1967, 6708390

Int. Cl. G01n 3/22, 33/24

U.S. Cl. 73—84

6 Claims



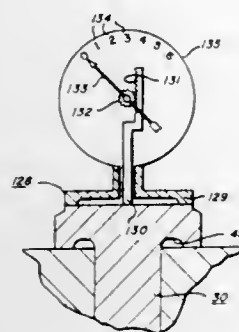
An apparatus for determining the shearing resistance of the soil is described, in which the rotation of vanes pressed into the soil and rotated by means of a rotation bar is determined by means of electric contacts disposed near said vanes in order to exclude the torsion angle of said bar from the measurement of the rotation of said vanes.

3,561,260 METHOD OF MEASURING TENSION IN A FASTENER

Harold C. Reynolds, Athens, Pa., assignor to Cooper Industries, Inc., a corporation of Ohio
Filed May 6, 1969, Ser. No. 822,261
Int. Cl. G011 5/00

U.S. Cl. 73—88

9 Claims



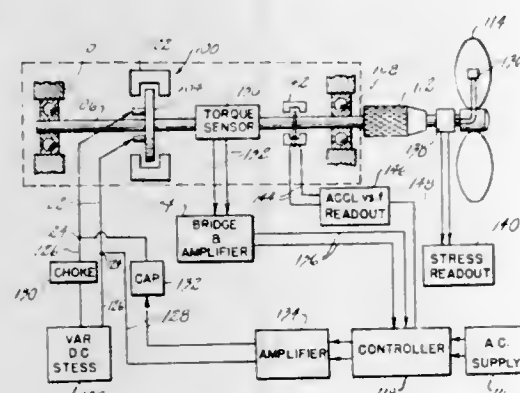
An apparatus and method for measuring tension in a threaded fastener such as a bolt. Tension is measured by detecting the deflection of the integrally formed top surface of the bolt in the direction of the axis of the bolt shank, between a first reference surface on the axis of the shank and a second reference surface radially removed from the axis. Pneumatic, electrical and mechanical methods and apparatus for sensing and measuring the tension in the fastener as a function of the movement of the central reference surface relative to the peripheral reference surface, are disclosed. Also disclosed is a servo-mechanism in combination with the apparatus for sensing the tension in the fastener which acts to initiate a secondary operation such as shutting off a motive power mechanism driving the fastener when a predetermined tension has been reached.

3,561,261 TORSIONAL EXCITER APPARATUS

Jay P. Conniff, Lynchburg, Va., and William F. Walker, Dundee, Ill., assignors to Torin Corporation, Torrington, Conn., a corporation of Connecticut
Application July 16, 1968, Ser. No. 745,297, now Patent No. 3,495,447, which is a continuation-in-part of application Ser. No. 601,925, Dec. 15, 1966. Divided and this application June 30, 1969, Ser. No. 844,723
Int. Cl. G01n 3/22, 3/26

U.S. Cl. 73—99

18 Claims



Torsional exciter apparatus comprising a DC motor with relatively fixed magnetic fields one of which is connected with an AC supply adjustable as to frequency and amplitude for providing torque pulsations of selected frequency and amplitude. The apparatus is usable as both a stationary and a rotary torsional shaker, as a preloading and torsional shaking device, and as an absorption dynamometer which transmits torsional pulsations to a driving device under test.

3,561,262 WATER SOLUBLE DEVELOPER

James S. Borucki, Chicago, and Bruce C. Graham, Arlington Heights, Ill., assignors to Magnaflex Corporation, Chicago, Ill., a corporation of Delaware
No Drawing. Filed Oct. 26, 1967, Ser. No. 678,176
Int. Cl. G01n 19/08

U.S. Cl. 73—104

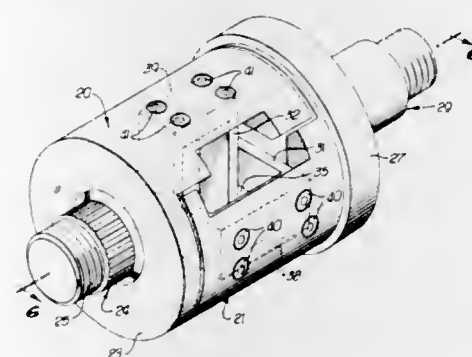
12 Claims

A method for detecting flaws and other surface discontinuities by the liquid penetrant technique wherein an aqueous solution of a water soluble crystalline substance and a water dispersible surfactant serves as the developer for enhancing the visibility of flaw indications generated by the liquid penetrant. Said penetrant preferably contains a visible or fluorescent dye dissolved therein and is of an oily type which itself is not self-emulsifying and is substantially free of any added emulsifying agent. The developer, upon the evaporation or driving off of the water, forms an adherent film, or lattice layer, that is permeable to the liquid penetrant residue entrapped in any surface discontinuity so as to cause the penetrant residue to be drawn by capillarity or otherwise into said film and form therein flaw indications of high fidelity and resolution that may be easily detected upon inspection. The aqueous developer of this invention can optionally include film forming ingredients that effectively control the size of crystals formed upon drying; sequestering agents for use with hard water; and corrosion inhibiting agents; but the resulting film or lattice layer in all cases is entirely water soluble so that the surface of the test piece can be adequately cleaned by the use of water alone at the completion of the inspection step.

3,561,263
FORCE AND MOMENT DYNAMOMETER
Howard E. Ward, Tustin, and Mari A. Wolf, Santa Ana, Calif., assignors to Task Corporation, Anaheim, Calif., a corporation of Pennsylvania
Filed Aug. 8, 1968, Ser. No. 751,173
Int. Cl. G011 5/22

U.S. Cl. 73—133

12 Claims



A force dynamometer of extreme simplicity and small size, employing crossed pairs of beams, and capable of measuring multiple force and moment components.

3,561,264
BALANCE FOR USE IN WIND TUNNELS
Ernest Frederick Needham, Highcliffe, and Kenneth Vincent Blanchard, Bottisham, Cambridge, England, assignors to Tracked Hovercraft Limited, London, England, a British company
Filed Mar. 12, 1969, Ser. No. 806,567
Claims priority, application Great Britain, Mar. 13, 1968, 12,269/68
Int. Cl. G011 5/16; G01m 9/00

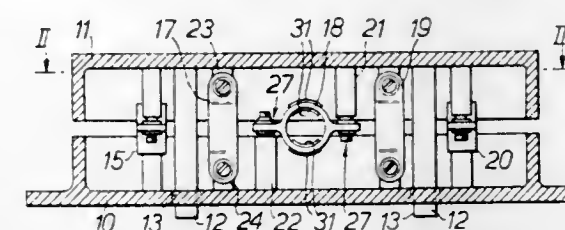
U.S. Cl. 73—147

7 Claims

A balance for testing models in a wind tunnel is located entirely within the model and includes a frame connected to the model and a sub-frame rigidly connected to ground. Interconnecting the frame and sub-frame are six separate links adapted together to sense the three forces

and three moments produced on the model in the normal three dimensions. The links sense only end-loading and

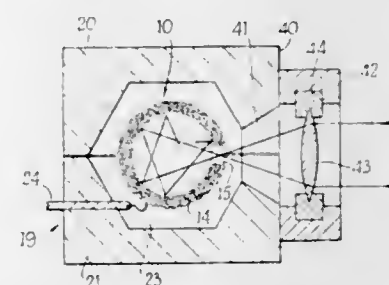
blood-serum mixture. An electromagnetic agitator is situated near the end of the second tube to improve the mixing of the blood and the serum.



3,561,265
MEANS FOR THE MEASUREMENT OF THE
ENERGY OF ELECTROMAGNETIC RADIATION
Arnold Johann Schmidt, 4 Spring Lane, Heslington,
York, Yorkshire, England
Filed Dec. 19, 1967, Ser. No. 691,798
Claims priority, application Great Britain, Dec. 19, 1966,
56,608/66
Int. Cl. G01k 17/00

U.S. Cl. 73—190

13 Claims

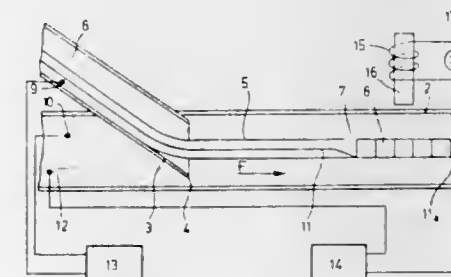


An apparatus for measuring the energy of electromagnetic radiation, such as a laser pulse, comprising a hollow body the wall of which is made up of a continuous length of wire which is tangled or wound so as to be opaque to the radiation, and means for measuring a change in the electrical resistance of the wire resulting from heating by an incident beam of the radiation entering through the inlet of the body.

3,561,266
DEVICE FOR MEASURING THE FLOW
VELOCITY OF A FLUID
Michel Auphan, D'Orleans-Neuilly, and Jean Perilhau,
Arnoux-Bourg la Reine, France, assignors, by mesne
assignments, to U.S. Philips Corporation, New York,
N.Y., a corporation of Delaware
Filed July 1, 1968, Ser. No. 741,664
Claims priority, application France, July 10, 1967,
113,761
Int. Cl. G01p 5/10

U.S. Cl. 73—204

9 Claims

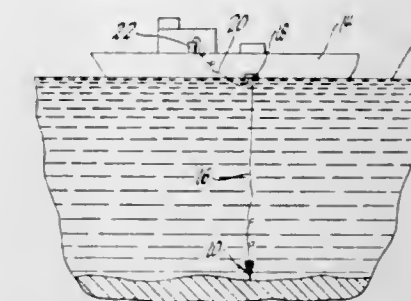


A device for measuring the rate of flow of blood in the human body comprising first and second paraxial tubes insertable into a blood channel for injecting therein a serum miscible with the blood and for removing a sample of the blood-serum mixture, respectively. Means are provided for measuring the velocity of the serum, and the temperature of the serum, the blood and the

3,561,267
BATHYTHERMOMETER
Robert B. Costello, Santa Barbara, Calif., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 10, 1964, Ser. No. 358,746
Int. Cl. G01k 13/00

U.S. Cl. 73—344

6 Claims

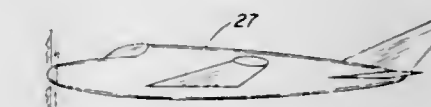


An aquatic probe to measure the temperature of a body of water is arranged to travel through the water from a moving ship in a free-fall descent. A coiled electrical conductor, connecting the probe to a recording station on the ship, is payed out from both the probe and the ship in such a manner so that the conductor will have practically no effect upon the descent characteristics of the probe.

3,561,268
EXPENDABLE BATHYTHERMOGRAPH
Frank Massa, Cohasset, Mass., assignor to Massa Division,
Dynamics Corporation of America, Hingham, Mass.
Filed Jan. 14, 1969, Ser. No. 790,965
Int. Cl. G01k 1/02; G011 19/08

U.S. Cl. 73—345

14 Claims



Free-falling underwater body which has a streamlined hull characteristic that causes a stable rate of fall through water. The body contains an oscillator connected to a piezoelectric transmitting transducer for radiating sound waves through the water at the oscillator output frequency. Two sensors alter the oscillator output frequency as a function of depth and temperature. A receiver on the surface of the water receives the radiated sound waves and prints out the temperature and depth of the water through which the falling body is then passing.

3,561,269
THERMOCHROMIC TEMPERATURE INDICATION
Joseph R. M. Seitz, Boston, Mass., assignor to Thermo-chromatic Systems, Inc., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 636,601, May 8, 1967. This application Dec. 15, 1969,
Ser. No. 885,373
Int. Cl. G01k 11/12

U.S. Cl. 73—356

17 Claims

Temperature sensing devices and thermometers such as solid flexible strips employ reversible solid thermochromic materials. Temperature sensing devices expose to view a continuous length of solid material which reversibly changes color while solid, the composition and hence the transition temperature gradually varying along the length. Compounds of the same ingredients with proportions varying along the length are disclosed, illustrated

by X_2HgI_4 where X_2 comprises more than one metal in varying proportions. The devices employing flexible substrates are affixable to numerous surfaces, including labels on merchandise and the human body. Methods for production employ float zone techniques, and deposition, e.g., by printing or vapor condensation.

3,561,270

AGE INDICATING DEVICE

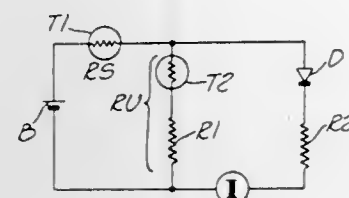
Donald R. Sessler, Temple City, Calif., assignor to Dynametric, Inc., Pasadena, Calif., a corporation of California

Filed June 26, 1968, Ser. No. 740,053

Int. Cl. G01k 3/04, 7/24

U.S. Cl. 73—362

12 Claims



An age indicator is provided for ascertaining the effect of exposure of articles, particularly unused photographic sheet material, to varying temperature conditions on the useful life of the article. A voltage is developed as a function of the temperature conditions to which the article is exposed at various times. This voltage is applied to a circuit that includes a diode for developing an electrical current proportional to the aging rate and this current is integrated as a function of time to produce the desired indication of the aging of the article.

3,561,271

THERMOMETERS

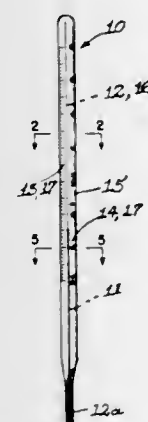
Luis Camejo, Union City, N.J., assignor of one-third each to Jose Bovantes, Fort Lee, and Orlando Martinez, Union City, N.J.

Filed May 19, 1969, Ser. No. 825,547

Int. Cl. G01k 1/06

U.S. Cl. 73—371

4 Claims



A mercury thermometer constructed to facilitate the reading of temperatures has the entire interior bore portion including the bulb coated with a fluorescent material. The empty bore portion under magnification will appear dull and it will appear more intense in color or brightness when the bore contains the mercury. The scale graduations and numerals may also have brightening elements associated therewith to read the mercury level more easily.

3,561,272
SPEED INDICATOR FOR CLUBS, BATS AND THE LIKE

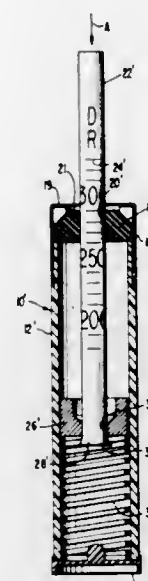
Grady B. Davis, 1769½ Old Shell Road, Mobile, Ala. 36604

Continuation-in-part of application Ser. No. 652,897, July 12, 1967. This application Dec. 20, 1968, Ser. No. 785,725

Int. Cl. G01l 5/02

U.S. Cl. 73—379

7 Claims



A speed indicator for attachment to golf clubs, baseball bats or the like to register the speed of movement of the club head or striking portion of the bat from which the distance and velocity of flight of the ball may be calculated. The device is lightweight to avoid influence on the swing of the club, and includes a support releasably attachable to the club or bat adjacent the striking portion thereof, and a movable indicator carried by and frictionally engaging said support to retain a position relative to said support to which position it is moved by a weight which is spring retracted immediately upon termination of centrifugal force due to the swing of the club to avoid further influence on the indicator.

3,561,273

METHOD FOR CONTINUOUS SAMPLING OF A SLURRY FLOW

Aimo Juhani Tanila, Pyhakumpu, Finland, assignor to Outokumpu Oy, Helsinki, Finland, a corporation of Finland

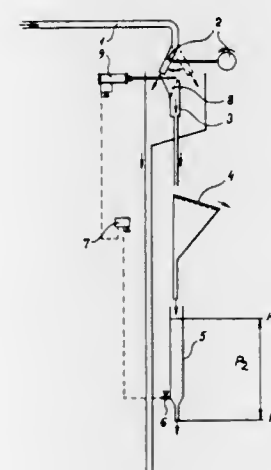
Filed Nov. 8, 1968, Ser. No. 774,408

Claims priority, application Finland, Apr. 17, 1968, 1,055/68

Int. Cl. G01n 1/20

U.S. Cl. 73—423

3 Claims



A continuous sample of a slurry flow to be analyzed is obtained by continuously swinging the slurry flow back and forth in order to change the direction of the slurry

flow so that the slurry flow only momentarily hits a sampling funnel. The portion of the slurry flow passing into and through the sampling funnel into a sample feeder for analysis is the sample flow. The level of the sample flow is maintained constant within the sample feeder by automatically regulating the opening of the inlet port of the sampling funnel by sensing the level in the sample feeder.

3,561,274

ROTATING DISK CATALYST SAMPLER

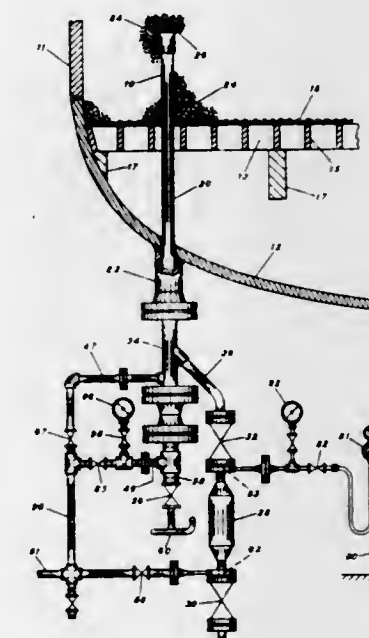
Willard M. Haunschild, Walnut Creek, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

Filed July 2, 1969, Ser. No. 838,581

Int. Cl. G01n 1/10

U.S. Cl. 73—424

5 Claims



The specification describes apparatus for withdrawing a catalyst sample during operation of a catalytic reactor through a sample tube extending to a desired sample point in the reactor. A rotatable member, preferably in the form of a plate or disk, is mounted on the end of a shaft extending through the tube and has a port formed in it that registers at one position with a port in the upper end of the sample tube. A handle turns the shaft so that the disk will mechanically agitate catalyst particles to prevent them from bridging across the ports when they are in register. This assures easy flow into the tube and through space formed by the shaft and tube to an exit port exterior to the vessel. The sample is then caught in a sample receiver. The sample receiver can be isolated from the catalytic reactor to permit the catalyst sample to be recovered without disturbing the catalytic reactor. The system is particularly useful in fixed bed reactors to sample non-spherical catalyst particles that have a relatively high angle of repose.

3,561,275

DRIVE MEANS FOR TUNERS

Rudolf Mayer and Helmut Storz, Rottweil, Germany, assignors to Messrs. R. & E. Hopt KG

Filed Feb. 12, 1969, Ser. No. 798,581

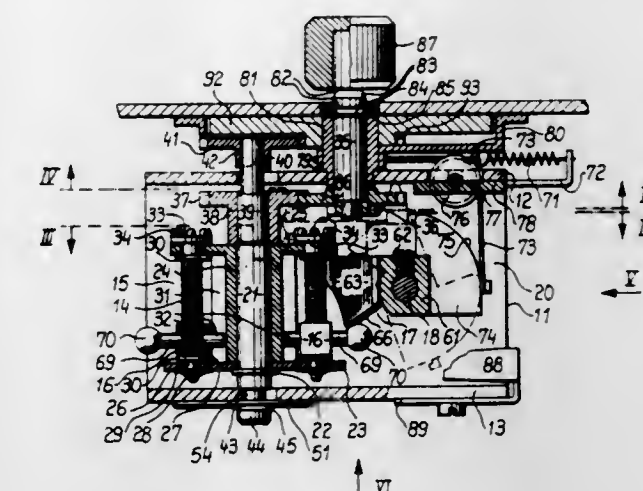
Claims priority, application Germany, Dec. 27, 1968, P 18 17 261.7

Int. Cl. F16h 35/18

U.S. Cl. 74—10.6

20 Claims

A drive means for tuners, especially tuners for television sets, having a drum supported in a housing so as to permit it to be rotated about its longitudinal center line. The drum is provided with a plurality of running nuts spaced along its circumference and arranged in a manner enabling them to be adjusted in the longitudinal direction of the



trol cams ensure the transition of the scanning member from one running nut to another when the drum is rotated.

3,561,276

ELECTRONIC TUNING APPARATUS

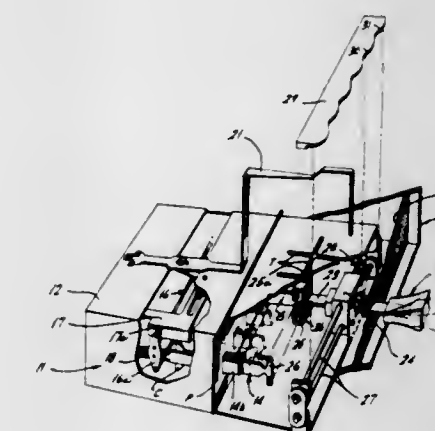
Glenn E. Gould, Rockledge, Fla., and Francis W. Van Benthem, Woodstock, N.Y., assignors to Philco-Ford Corporation, Philadelphia, Pa., a corporation of Delaware

Filed May 5, 1969, Ser. No. 821,831

Int. Cl. F16h 35/18

U.S. Cl. 74—10.37

8 Claims



Push-button operated tuning apparatus, including a plurality of elongated parallel slide members and a single manually operable push-button translatable laterally of said slide members to any one of a plurality of detented positions in which it may be depressed to actuate one of said slide members and tune the apparatus to a preselected frequency corresponding to that position.

3,561,277

MULTISPEED INDEPENDENT POWER TAKEOFF UNIT

Ralph C. Boyle, Hinsdale, and Leonard Paulius, Clarendon Hills, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware

Filed Oct. 6, 1969, Ser. No. 864,091

Int. Cl. F16h 37/02, 1/06

U.S. Cl. 74—15.4

12 Claims

A change speed power drive mechanism having a housing, an input member extending into the housing, and an

output member extending out of the housing and including a movable means carried by said housing and journaling one of said members such that in a first position said output member is coaxially aligned with the input member and in another position said output member is driven

tively displaced from its rest position into its working position where it engages with the driven element for stepwise displacement of the latter.

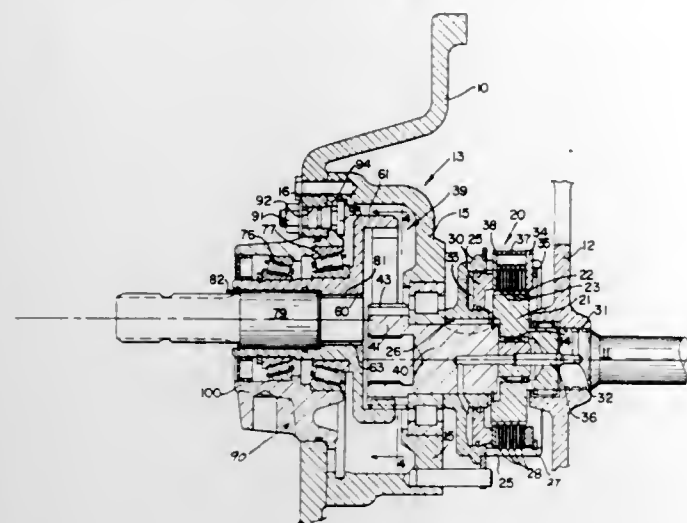
3,561,279
PLURAL SPEED TRANSMISSION SYSTEM
Jene Arnold Beneke, Dallas, Tex., assignor to Verson Manufacturing Company, Dallas, Tex., a corporation of Texas

Filed Nov. 4, 1968, Ser. No. 773,140

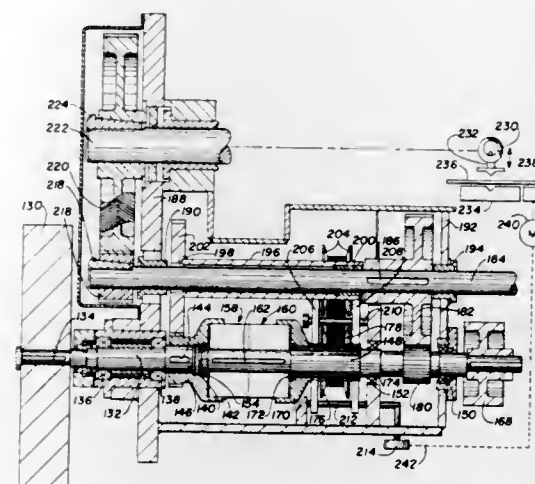
Int. Cl. F16h 3/08

U.S. Cl. 74—360

5 Claims



by said input member, with adaptor means being provided to take power directly from said input member when said output member is in coaxial alignment with said input member or to take power from said output member when such is in said second position.



The plural speed mechanical transmission system includes a driving shaft rotated at a first speed by a fly-wheel and a driven shaft coaxially lined with the driving shaft. Clutches having two energized states are disposed adjacent the ends of the shafts, with the clutches operable in a first state to connect ends of the shafts for rotation of the driven shaft at the first speed. An idler gear is disposed parallel to the driven shaft and is operable to transmit motion from the driving shaft to rotate the driven shaft at a second different speed when the clutches are in a second state. Structure is connected between the idler gear and one of the shafts for allowing selective variance of the magnitude of the second speed.

3,561,278
MALTESE-CROSS TRANSMISSION OR DRIVE ARRANGEMENT
Werner Mueller, Aarau, Switzerland, assignor to Contraves AG, Zurich, Switzerland, a corporation of Switzerland

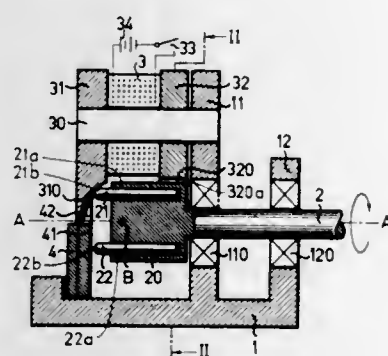
Filed Mar. 3, 1969, Ser. No. 803,679

Claims priority, application Switzerland, Mar. 5, 1968, 3,254/68

Int. Cl. F16h 27/00

U.S. Cl. 74—89

7 Claims



There is disclosed a Maltese-cross drive arrangement which can be switched in and out incorporating a continuously driven drive rotor having diametrically opposed bores in which there are arranged magnetic entrainment pin members engageable with a stepwise indexable driven element for stepwise displacement thereof. The entrainment pin members can be selectively controlled for movement from an ineffectual rest position into an operable working position where such operably engage with said driven element. According to the invention, the drive rotor and the axially displaceable entrainment pin members form components of a ferromagnetic work circuit which additionally includes first and second pole shoes, one of the pole shoes having a predetermined configured guide surface. Through appropriate operation of the ferromagnetic work circuit each entrainment pin member can be selec-

3,561,280
THREE AXIS STRAIN GAGE CONTROL DEVICE
John MacPhee, Rowayton, Conn., and Edgar R. Lodi, York, Pa., assignors to American Machine and Foundry Company, a corporation of New Jersey

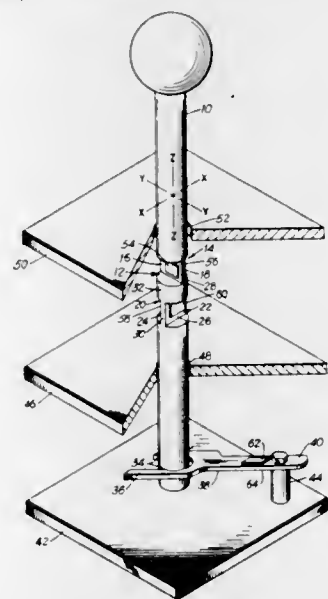
Filed Oct. 23, 1968, Ser. No. 769,831

Claims priority, application Great Britain, Aug. 22, 1968, 40,205/68

Int. Cl. G05g 9/00; B64c 13/04

U.S. Cl. 74—471

1 Claim



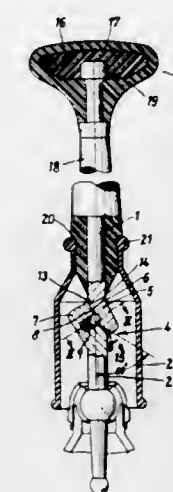
A control device which translates a force applied to a member into signals representative of the X, Y and Z

components of the force applied to the member, the signals being generated by strain gages coupled to sense the application of the force applied to the member along the various axes.

3,561,281
SAFETY CONTROL LEVER
Thomas Wilfert, 140 N. 15th St., Philadelphia, Pa. 19102
Filed Sept. 6, 1968, Ser. No. 757,846
Int. Cl. G05g 9/00, 25/00

U.S. Cl. 74—473

18 Claims



A safety control lever means adapted especially for a shift stick of motor vehicle transmissions. There are coupling means interconnecting adjacent end portions of first and second lever sections forming longitudinal extension relative to each other. The coupling means interconnection is operable automatically to yield for safety disengagement of the two lever sections in response to a shock-like load acting upon the first of the lever sections.

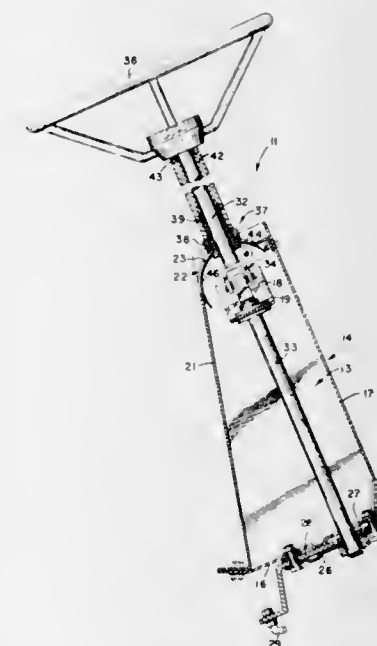
3,561,282
ADJUSTABLE ANGLE STEERING WHEEL MECHANISM FOR RIDING MOWER
Gordon L. Hershman, La Grange, and Gerald N. Borchardt, Clarendon Hills, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware

Continuation of application Ser. No. 743,737, July 10, 1968. This application Feb. 5, 1970, Ser. No. 7,404

Int. Cl. B62d 1/18

U.S. Cl. 74—493

11 Claims



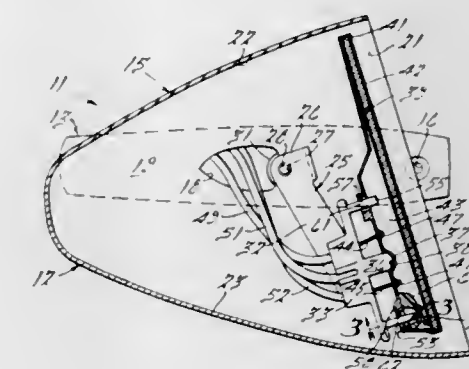
An adjustable steering assembly for a riding mower and having a pair of relatively movable steering shafts

interconnected by a flexible connector. Guide means restricts angular movement of the upper steering shaft to a plurality of positions which include (1) a collapsed, storage position; (2) a swung-away, access position; and (3) intermediate operating positions. A locking device operates to clamp the upper shaft to the guide in any one of said positions.

3,561,283
REMOTE CONTROL MIRROR
Robert J. Smith, Farmington, Mich., assignor to C. M. Hall Lamp Company, a corporation of Michigan
Filed Oct. 18, 1968, Ser. No. 768,724
Int. Cl. F16c 1/12; G02b 5/08

U.S. Cl. 74—501

10 Claims



A remote controlled, outside, automotive rear view mirror embodying a streamlined outer housing in which a mirror is pivotally supported about an asymmetric pivot pin. The mirror includes a backing plate to which the reflective portion is affixed by a snap flange arrangement and which defines a socket and spaced guides that coast with fixed pins to preclude any substantial rotation of the mirror while permitting its pivotal adjustment.

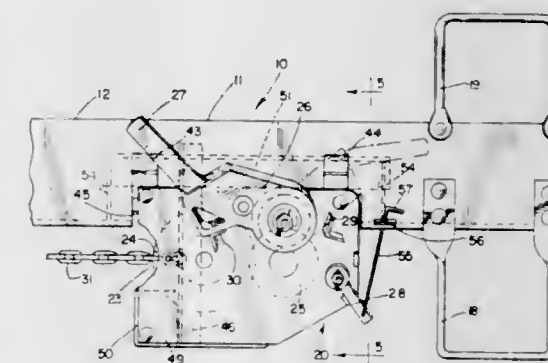
3,561,284
HANDBRAKE ARRANGEMENT FOR RAILWAY FLAT CARS
Donald B. Yates, Park Forest, Ill., assignor to Pullman Incorporated, Chicago, Ill., a corporation of Delaware

Filed Apr. 3, 1969, Ser. No. 813,217

Int. Cl. F16h 21/44; B65j 1/28

U.S. Cl. 74—506

4 Claims



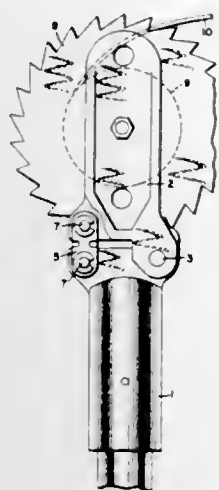
A handbrake arrangement for a flat deck railway car wherein the handbrake is positioned below the deck and within AAR clearance requirements, the side sill of the car having an aperture accommodating the brake housing, and said housing being so mounted and having provisions whereby the chain and rod mechanism which is connected to the foundation brake rigging and handbrake extends therebetween in a direct linear relation without the requirements of either pulleys or guides.

3,561,285

ACTUATING LEVER FOR WINCH HOIST
 Roland C. Hallen, North Grafton, Mass., assignor to
 Lincoln Precision Machining Company, Grafton, Mass.,
 a corporation of Massachusetts
 Filed June 23, 1969, Ser. No. 835,365
 Int. Cl. G05g 1/04

U.S. Cl. 74—524

2 Claims



An actuating lever for a ratchet operated winch hoist, the lever having a frangible link interposed between the handle and the pivot center, in parallel with another similar link which is not frangible but has lost motion at its end connections.

3,561,286

STEERING WHEELS

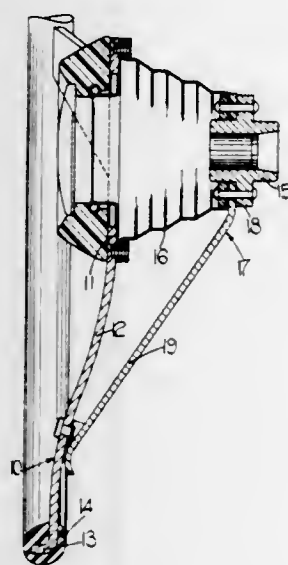
Stanley John Edge, Sutton Coldfield, and Trevor John Williams, Henley in Arden, Solihull, England, assignors to Clifford Covering Company Limited, Birmingham, England

Filed Jan. 7, 1969, Ser. No. 789,524
 Claims priority, application Great Britain, Jan. 17, 1968,
 2,487/68

Int. Cl. B62d 1/04

U.S. Cl. 74—552

5 Claims



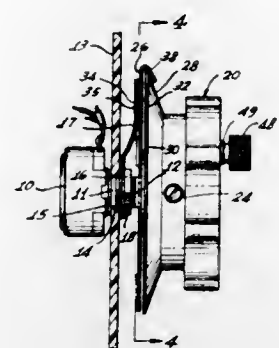
A steering wheel comprises a frame having a centre portion, spokes and a rim. The centre portion is mounted on a collapsible impact-absorbing press carried by a hub. The hub is also connected by arms to the spokes by means of connections which can detach on impact.

3,561,287

ADJUSTABLE DETENT CONTROL KNOB
 James F. Lawrence, Jr., 13161 Barrett Hill Circle,
 Santa Ana, Calif. 92705
 Filed June 13, 1969, Ser. No. 833,003
 Int. Cl. G05g 1/10

U.S. Cl. 74—553

6 Claims



An adjustable knob for application to control devices such as panel-mounted rheostats, potentiometers, tuning controls, etc., provided with an adjustable detent device which can be set in a selected position of the knob, and permits return of the knob to that position without need to observe or remember it.

3,561,288

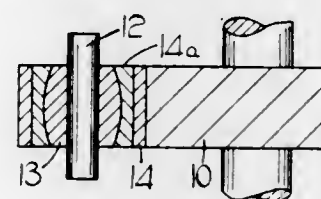
CAM AND TAPPET MECHANISM

Anil Kumar Mishra, Pittsburgh, Pa., assignor to C.A.V. Limited, London, England
 Filed Feb. 4, 1969, Ser. No. 796,380
 Claims priority, application Great Britain, Feb. 7, 1968,
 5,993/68

Int. Cl. F16h 53/00

U.S. Cl. 74—569

2 Claims



A cam and tappet mechanism including a cam and a roller rotatably mounted upon a tappet, with the tappet being mounted in a manner to permit of angular movement of the roller in a plane containing the axis of rotation of the cam.

3,561,289

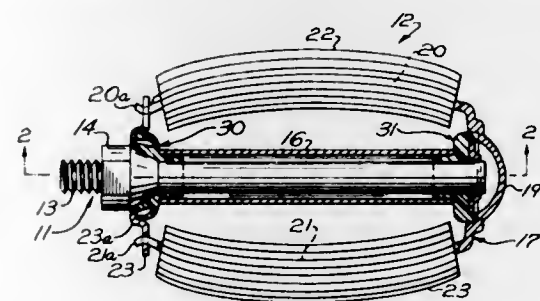
BICYCLE PEDAL

Martin R. Baginski, Austinberg Township, Ashtabula, Ohio, assignor to Ashtabula Bow Socket Company, Ashtabula County, Ohio, a corporation of Ohio

Filed Feb. 3, 1969, Ser. No. 796,071
 Int. Cl. G05g 1/14

U.S. Cl. 74—594.4

20 Claims



A bicycle pedal comprises a pedal axle and a pedal body. The pedal body includes pedal body members which

are supported on the pedal axle and a plastic bearing member which functions as a means for supporting the pedal body on the pedal axle. The plastic bearing member is a part of the pedal body and has a portion which is axially disposed between parts of the pedal body member.

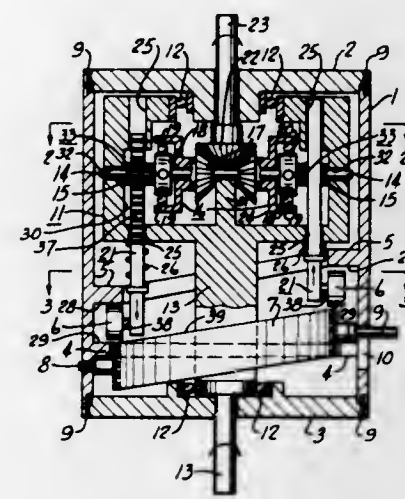
3,561,290

POSITIVE DRIVE LINEALLY VARIABLE SPEED DEVICE

George W. Ruck, 5435 Park Ave.,
 Bethel Park, Pa. 15102
 Filed Apr. 14, 1969, Ser. No. 815,871
 Int. Cl. F16h 35/02, 37/00

U.S. Cl. 74—679

15 Claims



An axial shaft planetary gear type, lineally variable speed device, the sun meshed planet gears of which are each independent and rotatably supported through a connecting clutch by their respective rack operated pinion, the stroke of the rack of which varies the speed of the output shaft over that of the input shaft. A shaft means transverse of the axial input and output shafts of the transmission is provided and is independently rotatably supporting the planet gears with their respective clutches and pinions, the latter driven by their respective racks movable parallel relative to the rotary aligned axis of the device and carrying antifriction followers engaged by a track means adjustably movable axially to obtain variable speeds over the one-to-one ratio of the speed device. The use of the transverse shaft in the rotary planetary system simplifies the structure by permitting the use of parallel aligned racks rotatable about the central axis of the device and having followers to engage the track means and produce a straight line speed variation. It is not a sinusoidal relation. This is important in many uses of this type of device in power transmission.

3,561,291

TRANSMISSION UNIT FOR A MOTOR VEHICLE
 Henry George Webster, George Arthur Jones, and John Payne, Canley, Coventry, England, assignors to The Standard Triumph Motor Company Limited, Coventry, England

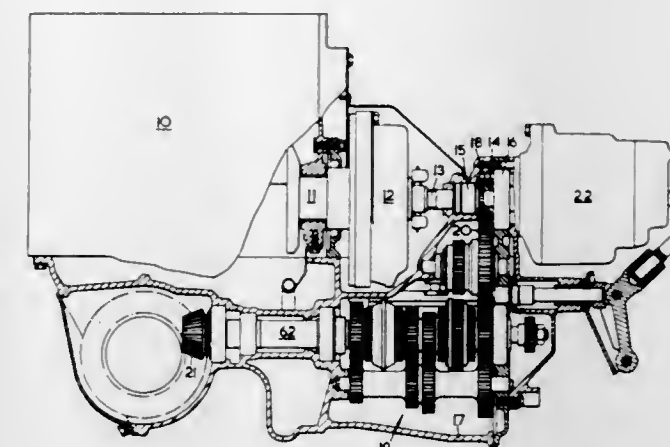
Filed June 19, 1969, Ser. No. 834,645
 Claims priority, application Great Britain, June 25, 1968,
 30,153/68

Int. Cl. F16h 37/06, 3/44, 57/10

U.S. Cl. 74—740

12 Claims

A transmission unit for a motor vehicle has a power input shaft, a coaxial driving gear connected to drive a parallel spaced power input gear of a main change-



having power input and power output members coaxial with the driving gear.

3,561,292

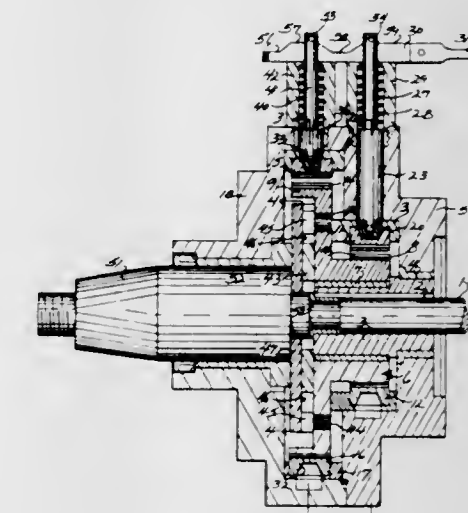
DRIVE MECHANISM

Ervin W. Lorence, Cedarburg, Wis., assignor to Lorence Manufacturing Corp., Milwaukee, Wis., a corporation of Wisconsin

Filed Feb. 11, 1969, Ser. No. 798,375
 Int. Cl. F16h 1/28

U.S. Cl. 74—804

9 Claims



A transmission which selectively provides multiple output speeds as well as free wheeling and a positive braking action for the output member. The transmission includes an input shaft driven by a hydraulic motor and the shaft drives an eccentric within an opening in a floating gear unit. The gear unit includes a small gear and a large gear, each of which meshes with a gear ring and both gears have a lesser number of teeth than the corresponding gear rings. The gear unit is connected to the output shaft by a member which converts the eccentric rotation of the gear unit to concentric rotation for the output shaft.

Each gear ring can be selectively changed between a fixed and a rotatable condition. When either of the gear rings is in a fixed condition, a speed reduction is provided for the output shaft. When both gear rings are in a rotatable condition a free wheeling condition is achieved in which the output shaft can rotate freely and if both gear rings are in a fixed or nonrotatable position a positive braking action is achieved.

3,561,293

HYDRAULIC CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION

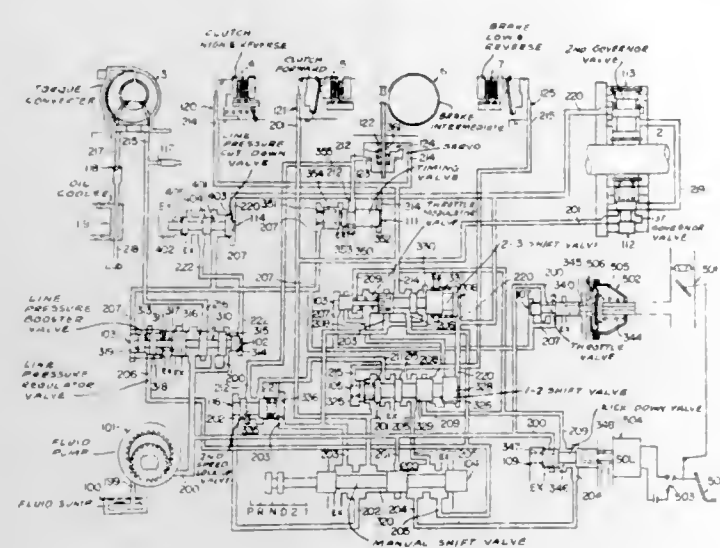
Shojiro Fujita, Fujisawa, and Toshio Miyazaki, Yokohama, Japan, assignors to Nissan Jidosha Kabushiki Kaisha, Yokohama, Japan

Filed Dec. 11, 1968, Ser. No. 782,990
Claims priority, application Japan, Dec. 22, 1967,
42/81,842

Int. Cl. B60k 21/10

U.S. Cl. 74—869

2 Claims



A hydraulic control system for an automatic transmission for vehicles to attain proper engagement and disengagement timing at upshifting, the system providing a timing valve means operating at low throttle pressure and to exhaust the engage side chamber of a servo only at an intermediate portion of displacement of the valve spool.

3,561,294

HYDRAULIC CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION

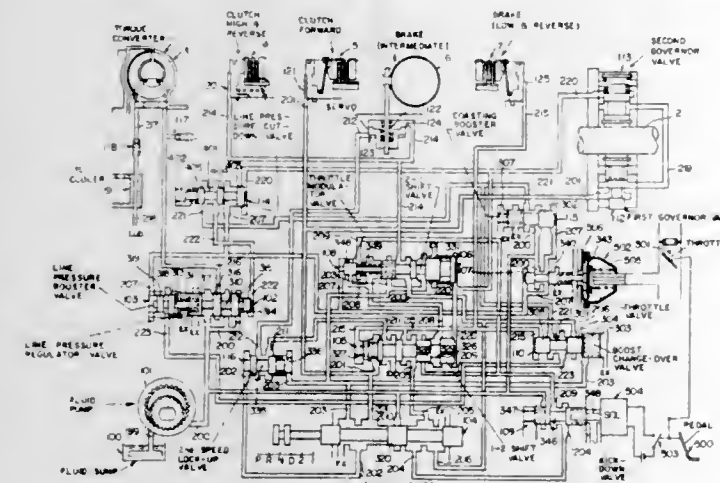
Tetsuya Iijima, Tokyo, Japan, assignor to Nissan Jidosha Kabushiki Kaisha, Yokohama, Japan

Filed Nov. 29, 1968, Ser. No. 779,917
Claims priority, application Japan, Dec. 19, 1967,
42/80,979

Int. Cl. B60k 21/10

U.S. Cl. 74—869

2 Claims



In a hydraulic control system for an automatic transmission of a vehicle, to control line pressure actuating friction clutches and brakes, two valves are provided to decrease line pressure stepwise at starting conditions all through the selected positions and to increase line pressure stepwise at low throttle high speed conditions only when a low gear ratio causing an engine braking condition is selected.

3,561,295

HYDRAULIC CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION

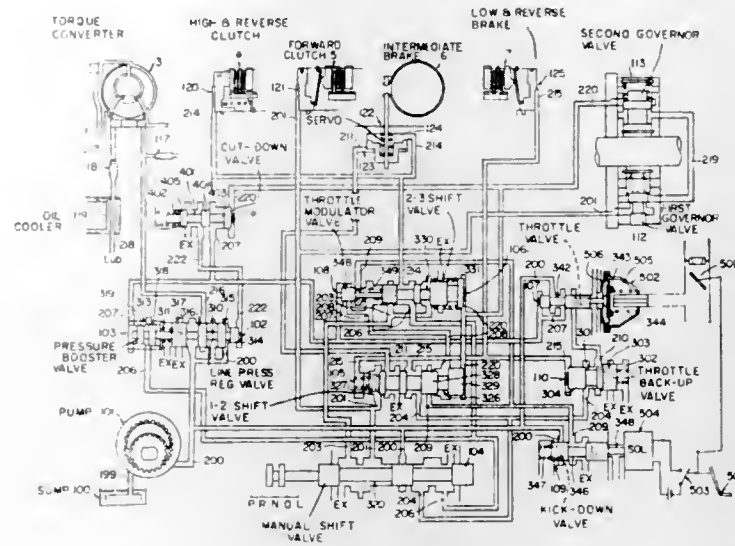
Tetsuya Iijima, Tokyo, Japan, assignor to Nissan Jidosha Kabushiki Kaisha, Yokohama, Japan

Filed Dec. 3, 1968, Ser. No. 780,790
Claims priority, application Japan, Dec. 19, 1967,
42/80,976, 42/80,977

Int. Cl. B60k 21/10

U.S. Cl. 74—869

6 Claims



A hydraulic control system for automatic transmission mechanisms for vehicles to provide high engaging torque capacity of friction elements at high speed low throttle condition, in which a throttle back-up valve is provided to produce high throttle pressure to increase line pressure. The valve is actuated only at a specified manually shifted low gear ratio position.

3,561,296

HYDRAULIC CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION

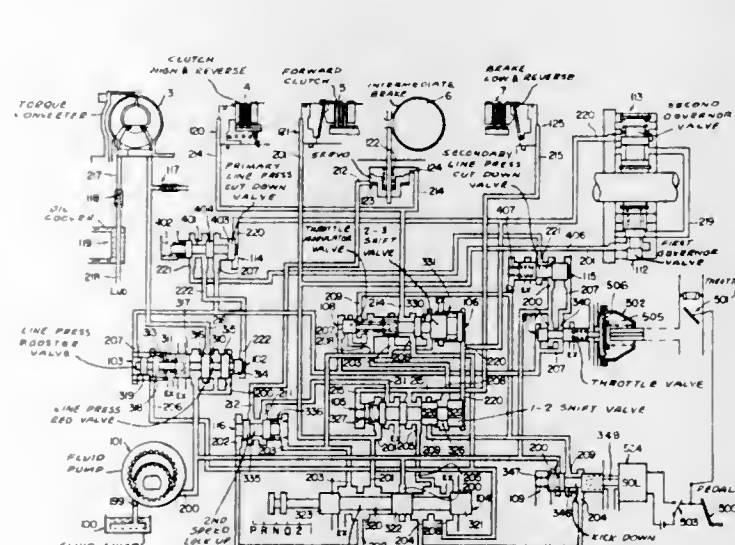
Tetsuya Iijima, Tokyo, Japan, assignor to Nissan Jidosha Kabushiki Kaisha, Yokohama, Japan

Filed Nov. 29, 1968, Ser. No. 779,927
Claims priority, application Japan, Dec. 19, 1967,
42/80,978

Int. Cl. B60k 21/10

U.S. Cl. 74—869

3 Claims



A hydraulic control system for automatic transmission mechanism for a vehicle to remedy shock engagement of the clutch or brake upon starting the vehicle which provides a valve means to introduce fluid pressure to pressure regulator valve to reduce line pressure which is only effective at low speed low engine torque conditions.

3,561,297

METHOD OF FORMING THREAD ROLLING DIE

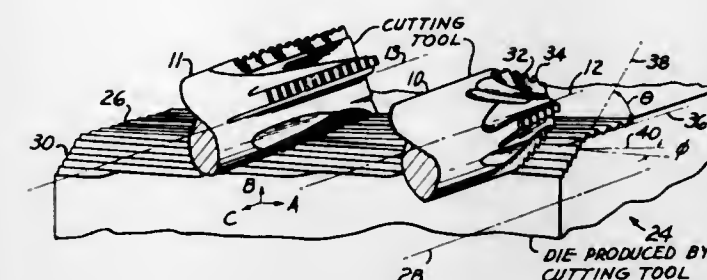
Oren C. Wilkins, Redondo Beach, Calif., assignor to Hi-Shear Corporation, Torrance, Calif., a corporation of California

Original application Apr. 10, 1967, Ser. No. 629,736, now Patent No. 3,481,178, dated Dec. 2, 1969. Divided and this application May 6, 1969, Ser. No. 842,049

Int. Cl. B21k 21/00

U.S. Cl. 76—101

2 Claims



According to the present invention a unique roll die is formed by cutting protrusions on the die, and the die produced may be either in the round or in the flat form. In the round form the protrusions are helical and in the flat form they are parallel, substantially straight, and slanted. The protrusions in the die are formed with first protrusion means disposed in a nominal face having a generator parallel to a die axis. The first protrusion means has leading and lagging flanks. Second protrusion means is also included, which is cut into the die and is disposed in a nominal face oblique to the die axis. The second protrusion means also has leading and lagging flanks, and they are parallel, respectively to the leading and lagging flanks of the first protrusion means. Thus, the first protrusion means is disposed generally parallel to the second protrusion means, and the second protrusion means recedes from the first protrusion means and toward the axis, but both are compatible with a thread which is formed by both of them.

3,561,298

REMOVABLE SEAL PLUG FOR CLOSING THE UPPER END OF SELF-PUNCHING T FITTINGS

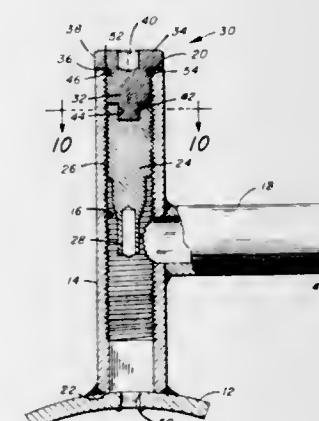
Howard T. De Graffenreid, Inola, and Judson C. Cole, Tulsa, Okla., assignors to Continental Industries, Inc., Tulsa, Okla., a corporation of Oklahoma

Filed Apr. 9, 1969, Ser. No. 814,641

Int. Cl. B23b 41/08

U.S. Cl. 77—42

16 Claims



This invention relates to a removable seal plug for closing the upper end of a self-punching T fitting. More particularly, the invention relates to a self-punching T fitting including a tubular body adapted to be welded to

a pipe, a punch threadably positioned within the tubular body adaptable for rotation to engage and punch a hole in the pipe, and an improved seal plug member for closing the upper end of the tubular body member, the plug member serving to accurately position and prevent the movement of the punch member in the body and to securely seal the body against fluid leakage.

3,561,299

PULSATING COOLANT ADAPTER

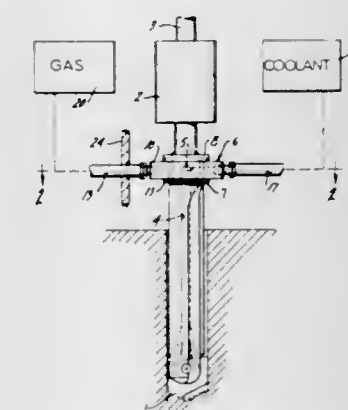
Clyde W. Brisk and Adam A. Schiller, Waukesha, Wis., assignors to Waukesha Cutting Tools, Inc., Waukesha, Wis., a corporation of Wisconsin

Filed May 6, 1969, Ser. No. 822,247

Int. Cl. B23b 51/06

U.S. Cl. 77—55

5 Claims



An adapter for use with a spade drill or the like which has a coolant passage extending therethrough. A bushing is mounted on the tool for rotation therewith, and a collector ring is concentrically mounted on the bushing. The collector ring is fixed against rotation. A plurality of valve openings alternately connect the drill passage with a source of coolant or air. The coolant flow is substantially continuous, interrupted by short bursts of air to provide a pulsing effect.

3,561,300

METHOD OF MACHINING AN ELONGATED SHAFT

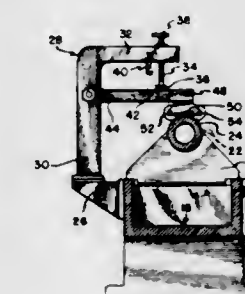
Douglas W. Peasley, 3114 S. Austin Road, Cicero, Ill. 60650

Filed Mar. 19, 1968, Ser. No. 714,235

Int. Cl. B23b 3/00

U.S. Cl. 82—1

11 Claims



A method and apparatus are provided for steadying an elongated horizontally disposed rotating shaft against oscillatory movement during a turning operation. In the apparatus disclosed, downward pressure is applied at spaced points along the shaft through sets of rollers formed of a vibration-damping material.

3,561,301

MACHINE TOOL CONTROL SYSTEMS

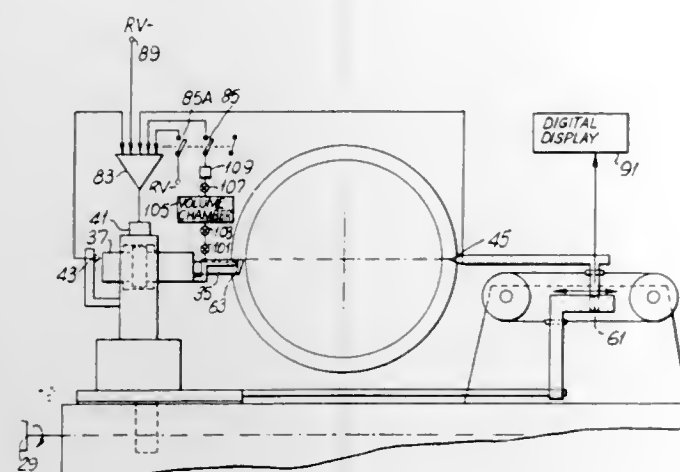
Royds Sharp and Malcolm Bath, Glasgow, Scotland, assignors to National Research Development Corporation, London, England, a corporation of Great Britain
Filed Jan. 19, 1968, Ser. No. 699,073

Claims priority, application Great Britain, Jan. 27, 1967, 4,241/67

Int. Cl. B23b 25/06

U.S. Cl. 82—2

9 Claims



A control system for a machine tool comprising a motor by which the tool can be moved radially towards and away from the axis of rotation of a workpiece at such a speed that in use the tool can maintain the circularity of the workpiece even if the workpiece is somewhat eccentric from the axis of rotation, the system including first and second measuring gauges and control means for the motor arranged to combine the outputs of the first and second gauges and to control the motor and so the radial position of the tool in such a manner that the diametrical distance between the part of the workpiece opposite the second gauge and the part of the workpiece acted on by the tool remains substantially constant.

3,561,302

METHOD AND APPARATUS FOR MACHINING TUBULAR MEMBERS

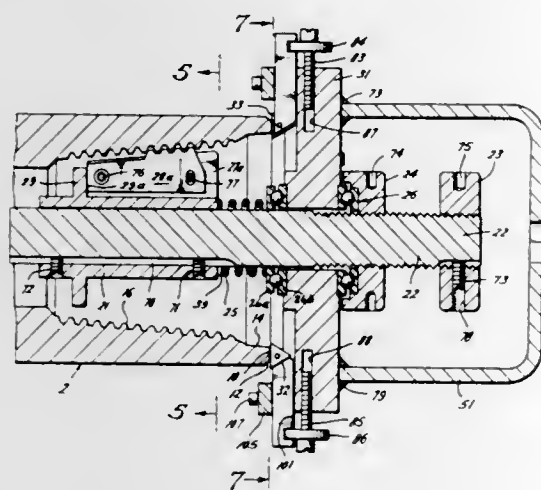
Howard N. Keener, Alamo, Tex., assignor to Texas Technical Enterprises, Inc., Houston, Tex., a corporation of Texas

Filed Apr. 24, 1968, Ser. No. 723,843

Int. Cl. B23b 3/22, 5/00

U.S. Cl. 82—1

17 Claims



Apparatus is provided for simultaneously machining plural faces of a threaded tubular member. The apparatus

includes an elongate longitudinal shaft adapted to be disposed into the threaded member and along the center line thereof. Onto this shaft is mounted a centering device which includes a plurality of radially extending fins being connected to snag sections, the snag sections being adapted to move into engagement with the threads of the tubular member to be machined. A generally disk-shaped cutting head is also disposed on the shaft such that it is capable of rotation about the shaft. The cutting head contains a number of individual cutting tools capable of machining the various faces of the tubular member. Means are also included for rotating the cutting head while maintaining the tubular member and centering device stationary, for moving the centering device into contact with the threads of the tubular member, and for precisely setting the cutting tools against the faces of the tubular member to achieve the desired depth of cut.

Methods are provided which allow a threaded tubular member to be machined without the necessity for cleaning the threads of the member, and which assure that the surfaces will be properly machined true to the center line of the tubular member.

3,561,303

FLOW CONTROL DEVICES FOR TURRET SLIDES

Hirofumi Tomiyama, 1000 Akiwa, Uedo-shi,

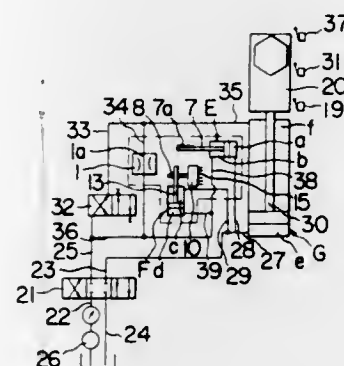
Nagano-ken, Japan

Original application Aug. 1, 1967, Ser. No. 657,605, now Patent No. 3,493,170. Divided and this application June 18, 1969, Ser. No. 842,767

Int. Cl. B23b 21/00

U.S. Cl. 82—21

1 Claim



Only one flow control valve including a rotary throttle valve stem is used, and the rotary valve stem is rotated by a rack and gear mechanism which is actuated by a rotary indexing member. The rotary indexing member carries a plurality of adjustable stops that limit the stroke of the rack.

The above described flow control device is utilized in a turret slide control system of an automatic turret device to control the feed speed of the tool as well as the speed at which the tool is advanced toward or retracted from the workpiece.

3,561,304

AUTOMATIC WORKPIECE ENTRAINMENT DEVICE OR DRIVER

Bernhard Bachmann, Schaffhausen, Switzerland, assignor to Firma Georg Fischer Aktiengesellschaft, Schaffhausen, Switzerland, a corporation of Switzerland

Filed May 16, 1969, Ser. No. 825,200

Claims priority, application Switzerland, May 21, 1968, 7,557/68

Int. Cl. B23b 33/00

U.S. Cl. 82—40

9 Claims

There is disclosed an automatic workpiece entrainment device for attachment to machine tool spindles, especially the spindles of lathes, which comprises a freely rotatable

3,561,305

TUBE HOLDER

Reinhard Schneider, Ostermundigen, Switzerland, assignor to Polytype AG, Freiburg, Switzerland

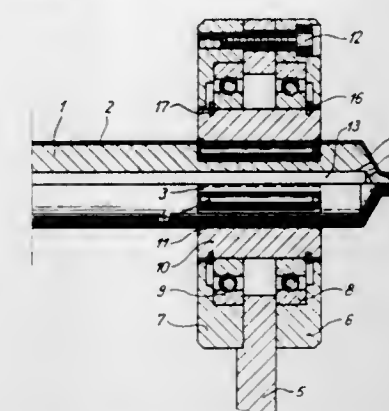
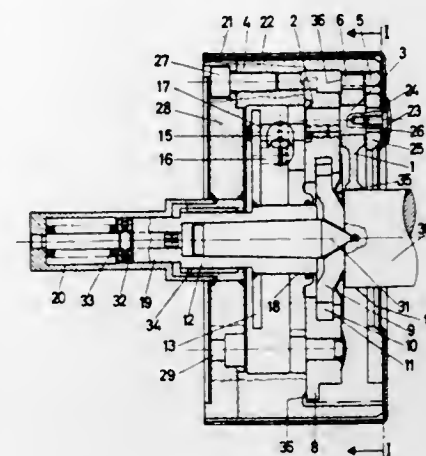
Filed May 20, 1969, Ser. No. 826,235

Claims priority, application Sweden, May 24, 1968, 7,010/68

Int. Cl. B23b 33/00

U.S. Cl. 82—40

5 Claims



A tube holder construction for a multiple stationed automatic lathe includes a mandrel centrally positioned between a clamping assembly held on a turntable. The tube to be held by the holder is engaged over the mandrel and over rollers carried by the mandrel in a plurality of circumferentially spaced slots and projecting outwardly therefrom. The rollers are shaped or mounted so that they present a tapered conical gripping surface having an entrance end of smaller dimension for facilitating the positioning of the tube thereover. The clamping member which is carried by the turntable includes a ring which is adapted to engage over the tube at a location overlying the rollers of the mandrel.

to center the workpiece, and center chuck means cooperate with such center means. Screw means fixedly arranged and coaxially extending with respect to the body member guide the center chuck means so that upon axial displacement thereof it simultaneously performs a rotational movement. The support ring means, upon axial displacement thereof against the side facing away from the receiving side of the entrainment device, comes into rigid or non-relative rotational engagement with the body member.

3,561,306

METHOD AND APPARATUS FOR TREATING TUBULAR FABRICS

Edward I. Aronoff, 605 Dorais St., St. Laurent, Quebec, Canada

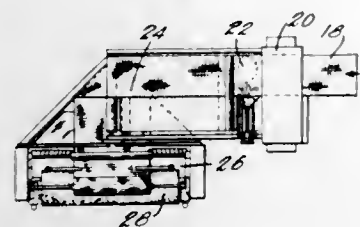
Filed Jan. 4, 1968, Ser. No. 695,605

Claims priority, application Canada, Dec. 29, 1967, 008,880

Int. Cl. B26d 7/14

U.S. Cl. 83-18

20 Claims



A rotary slitting knife mounted on a telescopically adjustable table for slitting tubular fabrics in combination with a fabric opening frame of three-dimensional triangular configuration. An uncurler device at the discharge of the opening frame including a pair of continuous belts extending transversely at each edge of the opened web of tubular fabric and in functional engagement therewith, and in combination with air nozzles pointed outwardly and in the direction of the edge of the fabric and a pair of driven rollers for rolling up the fabric.

3,561,307

FASTENING DEVICE

Louis Aackersberg Mortensen, Kongevejen 35, Birkerød, Denmark

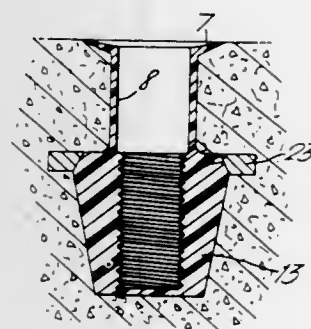
Filed Apr. 4, 1968, Ser. No. 718,898

Claims priority, application Denmark, Apr. 5, 1967, 1941/67

Int. Cl. F16b 37/00, 39/22

U.S. Cl. 85-32

9 Claims



A plastic mold-in wall plug is provided which has a thin wall tubular section and an adjacent thick wall section having an inner threaded bore whereby when the plug is molded into a cement structure or the like and fastening means are screwed thereto and tightened, the stress created in the wall plug will be distributed over a large portion of the cement surrounding the wall plug and this distribution will be away from the cement surface thereby eliminating the risk of bursting off a portion of the concrete.

3,561,308

COMMUNUTOR

Stanley V. Ehrlich, Portland, Oreg., assignor to Western Manufacturing, Inc., Portland, Oreg., a corporation of Oregon

Filed Aug. 1, 1968, Ser. No. 749,514

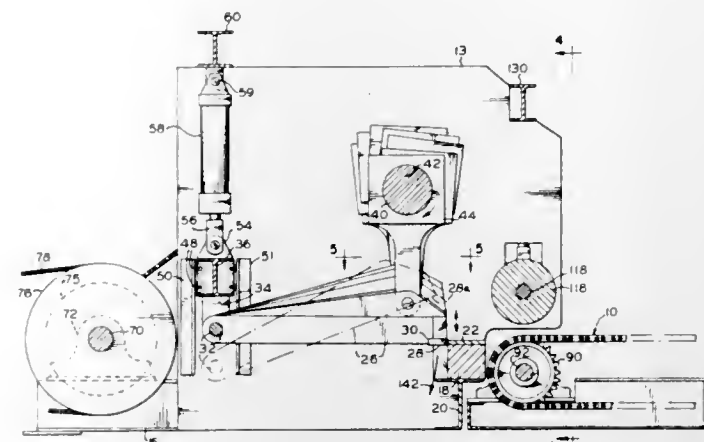
Int. Cl. B26d 5/20

U.S. Cl. 83-214

15 Claims

A comminutor for reducing scrap materials and particularly rubber tires to particulate form. A series of aligned reciprocating knives driven sequentially coact in shearing relationship with an anvil to nibble material advanced at intervals onto the anvil by a conveyor. Mechanism is provided to shift the pivotal axes of the knives periodically so as to

withdraw the knives from the anvil as they continue to reciprocate and to advance and side-shift the conveyor when



the knives are withdrawn so that particles are severed from the material during each cutting cycle.

3,561,309

DUPLEX STOCK FEEDER

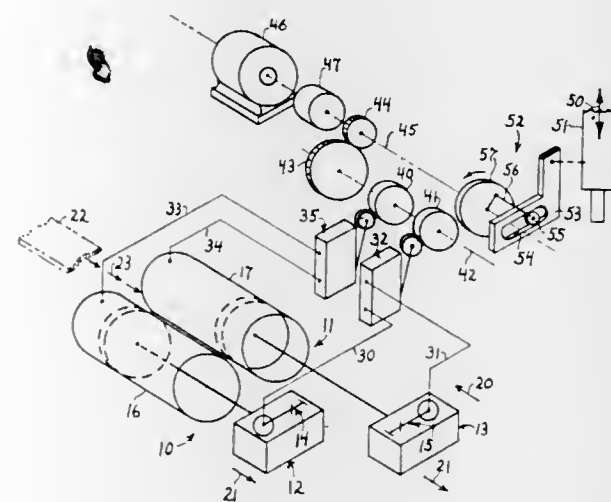
Albert W. Scribner, 6 Country Club Road, Darien, Conn.

Filed Oct. 17, 1968, Ser. No. 768,432

Int. Cl. B26d 5/22

U.S. Cl. 83-222

33 Claims



A duplex stock feeder for punch presses having a pair of opposed edge-gripping unitary feed units that are relatively laterally adjustable. The fluid motors for actuating the stock advancing feed slides are controlled by one valving means while the fluid motors for actuating the stock gripping means on said slides are controlled by a separate valving means. These two valving means are operated by an independent power means whose effective actuating speed is governed by the reciprocating movement of the press ram.

3,561,310

CUTTING AND FORMING APPARATUS

Lawrence M. Deeks, Westlake, Ohio, and Edward J. Kleber, Jr., Niagara Falls, N.Y., assignors to Union Carbide Corporation, a corporation of New York

Filed Sept. 11, 1967, Ser. No. 666,632

Int. Cl. B26d 1/54

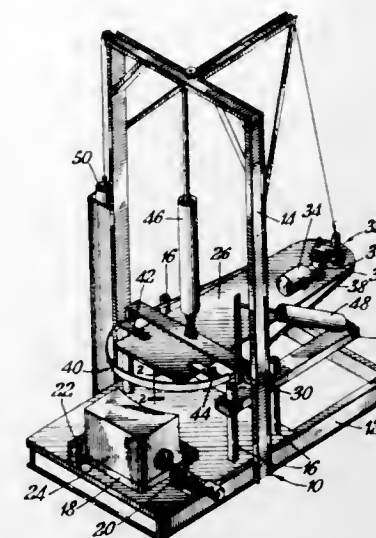
U.S. Cl. 83-201.15

6 Claims

An apparatus for cutting material into shaped articles which includes a bandsaw and a guide member, the latter being constructed so as to enclose at least a part of the band-

saw to provide a passageway therefor. The guide member may be formed into various shapes thereby causing the band-

is removably mounted on the rack adjacent one of the rolls of paper. A guide comprising a cutter bar and a guide bar disposed in spaced parallel relationship is provided to guide a cutter assembly. The cutter assembly has a body with a downwardly projecting tail, a circular cutting wheel rotatably mounted on the body, and a support wheel, also supported rotatably mounted on the body, in running alignment with



saw to be similarly shaped and to thus impart this shape to the article being cut.

3,561,311

ROTARY SHEARING DEVICE

Dieter Nowak, Duisburg, and Gerhard Steck, Rheinhausen, Germany, assignors to Demag Aktiengesellschaft, Duisburg, Germany

Filed May 9, 1969, Ser. No. 823,371

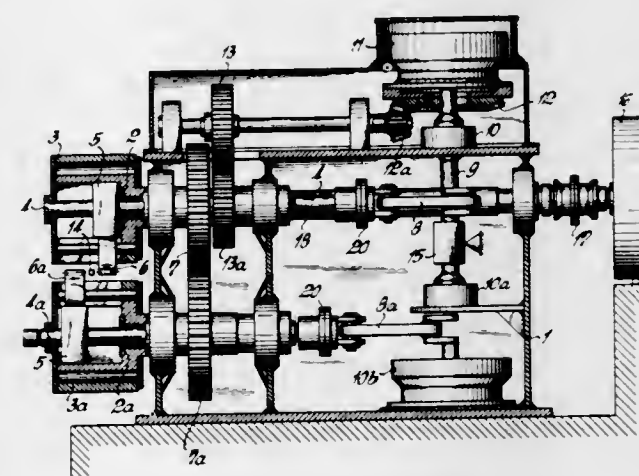
Claims priority, application Germany, June 29, 1968,

1,752,661

Int. Cl. B23d 25/12; B26d 1/56, 5/08

U.S. Cl. 83-338

10 Claims



A rotary shearing device is formed by a pair of hollow shafts each containing an axially displaceable rod having a blade secured to it which is positioned within a blade drum rotatable with the hollow shaft. Normally, the blades are maintained in a rest position, however, by selectively displacing the rods the blades are moved toward each other affording a shearing action for rolled material passing between the blade drums. After each shearing operation the blades are retained in a rest position by brake means to prevent continued movement of the cutting blades.

3,561,312

PAPER RACK AND CUTTER

Lloyd V. Jones, P.O. Box 383, Riverbank, Calif. 95367

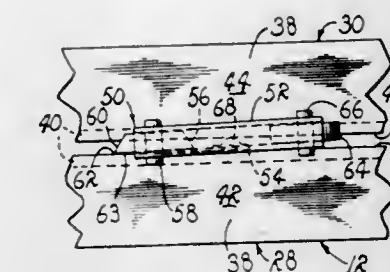
Filed June 4, 1968, Ser. No. 734,327

Int. Cl. B23d 19/02, 7/26

U.S. Cl. 83-485

3 Claims

This disclosure concerns a paper cutting tool combined with a paper rack. The paper rack is constructed of horizontal and vertical members welded at their junctures into a rectangular frame. A plurality of rolls of paper are supported in the rack parallel to one side of the frame. The paper cutter



3,561,313

APPARATUS FOR CUTTING SHEET MATERIAL USING BED OF GRANULAR MATERIAL

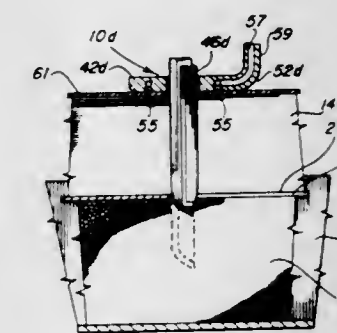
Heinz Joseph Gerber, and David R. Pearl, West Hartford, Conn., assignors to Gerber Garment Technology, East Hartford, Conn.

Original application May 5, 1969, Ser. No. 821,723. Divided and this application Mar. 26, 1970, Ser. No. 022,874

Int. Cl. B26d 7/20

U.S. Cl. 83-561

11 Claims



Apparatus for cutting sheet material includes a cutting table having a penetrable material supporting surface and a bed of penetrable granular material below such surface. A cutting tool extends through the penetrable surface and into the bed of granular material during at least a portion of the cutting process.

3,561,314

DULCIMER

Lendrum A. MacEachron, 1963 County Road E2, St. Paul, Minn. 55112

Filed Aug. 19, 1968, Ser. No. 753,453

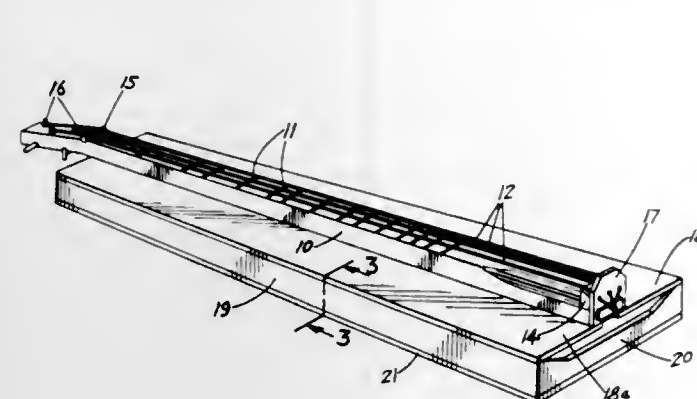
Int. Cl. G10d 1/00

U.S. Cl. 84-284

3 Claims

A dulcimer construction in which the side members of the sound box are trapezoidal in cross section with the narrowest

edge engaging the sounding board and the broader of the two narrow edges engaging the bottom board and with the lower



(larger) end of the sound box spaced from the sounding board altogether.

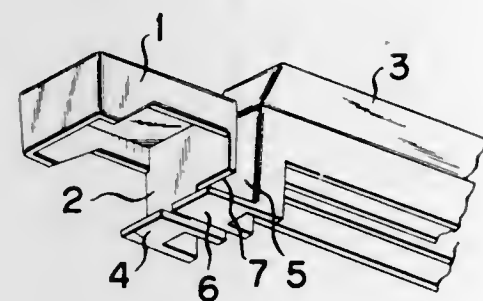
3,561,315 KEY MEMBER ASSEMBLY OF A MUSICAL INSTRUMENT

Junji Ohno, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan, a corporation of Japan

Filed May 19, 1969, Ser. No. 825,484
Claims priority, application Japan, May 24, 1968, Dec. 28, 1968, 43/42,361;43/114,379
Int. Cl. G10c 3/12

U.S. Cl. 84-433

4 Claims



Each of the black and white key members used has a skirt downwardly extending from the bottom thereof, and a stopper piece forwardly extending from the lower end of said skirt. Both stopper pieces of the black and white key members are arranged in parallel under the white key member, so that the upper limit of movement of the key members is defined by contacting the stopper piece with a common stopper rail. The lower portion of the skirt of the white key member is partly cut off in such a manner that the stopper piece of the black key member is free from being hindered by the skirt of the white key member during the vertical movement of the latter member.

3,561,316 QUICK-TIGHTENING SCREW

Erich Karges, 6056 Heusenstamm, By Offenbach, Germany

Filed June 4, 1968, Ser. No. 734,376
Int. Cl. F16b 21/16

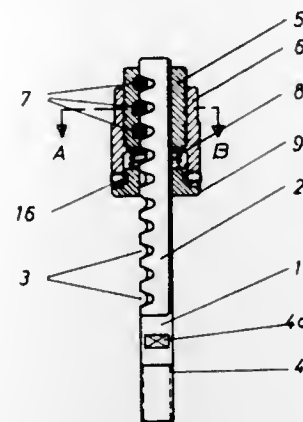
U.S. Cl. 85-7

5 Claims

A quick-tightening screw for holding work pieces in place on a work surface having T-slots.

The invention features a tensioning rod that has a flat surface disposed at right angles to a series of semicircular grooves. A two-piece securing nut is readily movable as a unit across the flat surface and when rotated at 90° has axi-

ally spaced tangential pins that become locked within the aforesaid grooves. Final clamping is done by rotation of the



outer locking member that is threadingly engaged with the inner member of said two-piece nut.

ERRATUM

For Class 85-32 see:
Patent No. 3,561,307

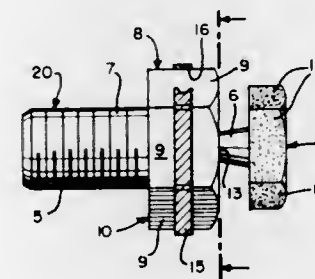
3,561,317 SELF-INDICATING CLAMPING BOLT

John C. Rowell, Middlebury, Conn., assignor to Anaconda American Brass Company, a corporation of Connecticut

Filed Apr. 4, 1969, Ser. No. 813,549
Int. Cl. F16b 31/02

U.S. Cl. 85-61

7 Claims



A bolt for securing together electrical connectors comprising a shank having a reduced diameter section, a first and second head mounted on said shank and spaced apart by the reduced diameter section, said second head being shearable at a predetermined torque, and a colored band carried by said first head for visually indicating the relative adjustment of said bolt.

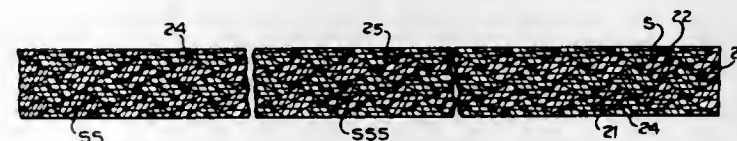
3,561,318 ELONGATED BRAIDED ROPE AND METHOD FOR PRODUCING THE SAME

Lawrence J. Andriot, Jr., Louisville, Ky., assignor to Wellington Puritan Mills, Inc., Louisville, Ky., a corporation of Delaware

Filed May 14, 1969, Ser. No. 824,461
Int. Cl. D04c 1/12

U.S. Cl. 87-9

5 Claims



A braided rope has a number of tubular major strands each of which is formed of a number of minor strands braided

together, the major strand sections being spliced end to end, and the spliced portion itself being braided with other major strands. A method for producing a rope having an indefinite length greater than the length of any single section of a major strand, is disclosed.

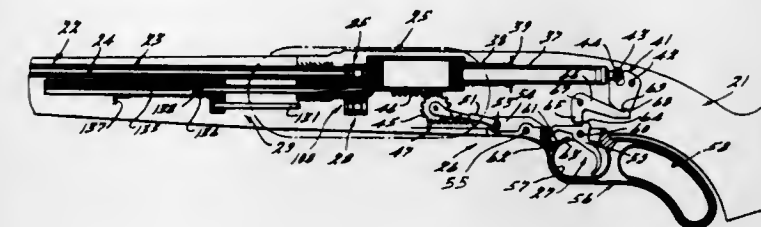
3,561,319 AIR-OPERATED PROJECTILE FIRING APPARATUS

Ronald W. Joyce, Springdale, and Jules Edmond Van Langenhoven, Rogers, Ark., assignors to Victor Comptometer Corporation, Chicago, Ill.

Filed July 7, 1965, Ser. No. 469,992
Int. Cl. F41f 1/00

U.S. Cl. 89-7

22 Claims



A repeating gun for firing rounds of ammunition, said ammunition comprising a projectile having an associated propellant capable of being ignited by surface contact with high temperature air, said gun comprising:

receiver means for supporting the operational mechanism of the gun;

barrel means for guiding the projectile from the gun after ignition of the propellant;

ammunition holding means for holding a round of ammunition in a firing position in alignment with said barrel means and for receiving a round of ammunition in a loading position and for holding the round of ammunition during transfer from the loading position to the firing position;

a source of high temperature air having a temperature at which the propellant is ignitable by surface contact therewith comprising movable air compression cylinder means and piston means mounted in said air compression cylinder means and being movable therewith from an extended position after a compression stroke to a retracted cocked position ready for a compression stroke and being movable from the retracted position to the extended position during a compression stroke, piston spring drive means associated with said piston means to drive said piston means from the retracted cocked position to the extended position during a compression stroke;

sear means for releasably holding said piston means in the retracted cocked position;

trigger means for selectively actuating said sear means and releasing said piston means for a compression stroke;

breech means for connecting said air compression cylinder means to said ammunition holding means in the firing position;

a firing chamber formed by firing chamber means in said breech means adapted to surround said propellant in the firing position;

air delivery means connecting said source to said firing chamber and comprising passage means extending from said air compression cylinder means to said firing chamber;

flow control means mounted in said passage means and being movable between an open position permitting flow of high temperature air from said compression cylinder means to said firing chamber during a compression stroke and a closed position preventing flow of high pressure fluids from said firing chamber to said compression cylinder means after ignition of the propellant;

transfer means supporting said ammunition holding means and being movable between a firing position and a transfer position and between the transfer position and a loading position to move said ammunition holding means between a firing position and a loading position; and actuator means for moving said transfer means between the firing position and the transfer position and between the transfer position and the loading position.

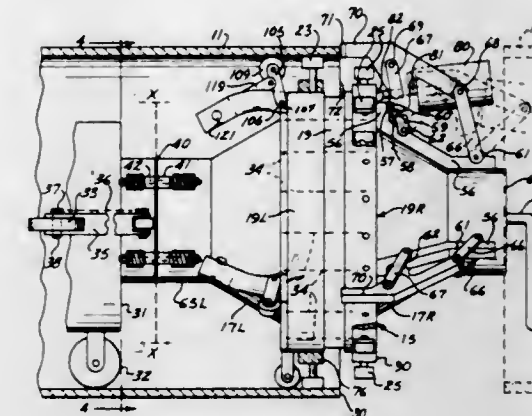
3,561,320 METHOD AND MEANS FOR ALIGNING TUBE CLAMPING MECHANISMS AND THE LIKE

Jerome W. Nelson and Eugene F. Sims, Houston, Tex., assignors to CRC-Croze International, Inc., a corporation of Oklahoma

Filed May 3, 1968, Ser. No. 726,358
Int. Cl. B23k 5/22

U.S. Cl. 29-493

16 Claims



Tubular members which are to be brought together end to end are centered and aligned by first centering a clamping mechanism in one of them, next aligning the clamping mechanism with respect to the plane of the end of the tubular member, actuating the clamping mechanism, then bringing another tubular member into position and clamping it there. The invention includes a centering mechanism, aligning mechanism, positive operating means for both mechanisms, as well as clamping means. The clamping and aligning structure is equipped with propulsion means and a limited movement yieldable joint is provided between the propulsion means and the other mechanism. This permits proper alignment and centering of the whole apparatus with respect to the tubes and also with respect to the plane of their end juncture.

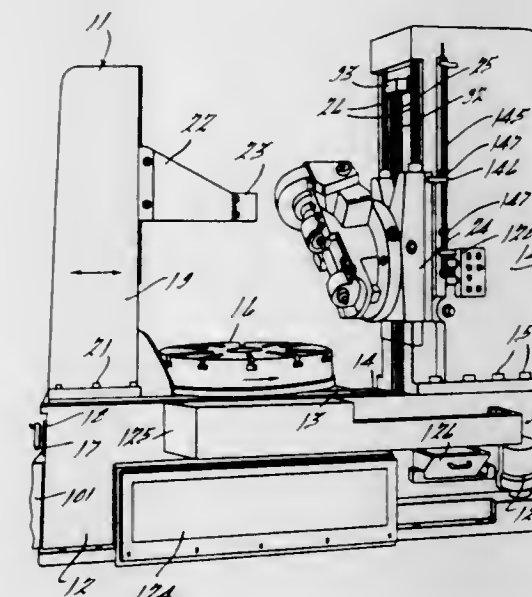
3,561,321 GEAR FINISHING MACHINE

Albert Belshaw, Birmingham, and Neil W. Patterson, Huntington Woods, Mich., assignors to Gearcraft, Inc., Hazel Park, Mich., a corporation of Michigan

Filed May 26, 1969, Ser. No. 827,637
Int. Cl. B23f 5/04, 5/20

U.S. Cl. 90-4

16 Claims



The machine has a base containing a movable bed supporting a rotatable table for the gear to be machined. A fixed stanchion on the base carries a vertically movable slide on which a swivel head is mounted having a slide for supporting a tool spindle for reciprocating movement. A fluid motor on

the swivel head slide drives a gear which drives a gear to rotate the spindle and a gear which drives a shaft for rotating the table and for moving the slide on the stanchion driven through two sets of change gears in the conventional manner.

3,561,322

STABILITY AUGMENTATION SYSTEM

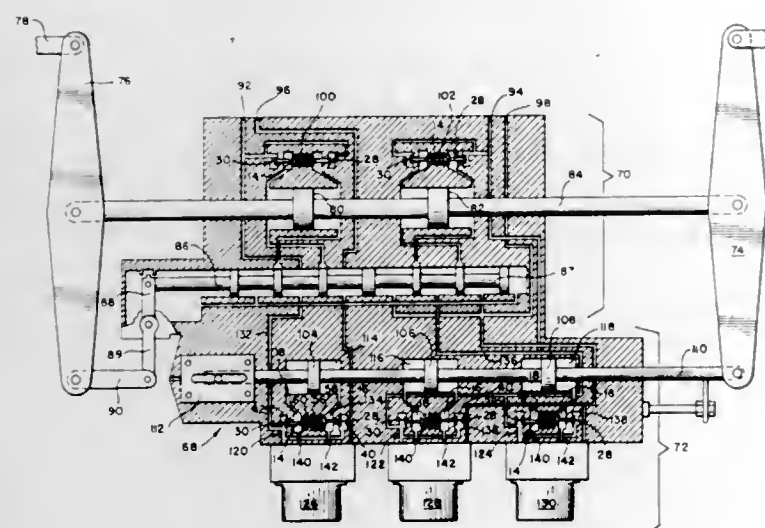
Milton I. Gerstine, Ardentown, Del., and Hans G. Krauss, Broomall, Pa., assignors to The Boeing Company, Seattle, Wash., a corporation of Delaware

Filed June 4, 1968, Ser. No. 734,315

Int. Cl. F01h 25/26; F15b 11/16

U.S. Cl. 91-1

14 Claims



A stability augmentation system is provided which has triple redundancy and is fail-functional. For each axis desired to be controlled, a hydraulic servocontrol mechanism is provided having three signal sources, and three actuator units. The actuator's pistons are connected together in tandem with a relief valve connected across each piston to prevent the piston of a failed unit from hampering the operation of the control. Means are provided to furnish a feedback signal to the servovalves controlling the pistons when pressure is being relieved across the piston to attempt to balance the output of the servovalve.

The hydraulic servocontrol mechanism may be combined with a hydraulic boost actuator comprising two tandem pistons having their pressure differential limited by boost relief valves and being controlled by a spool valve to provide an integrated hydraulic control actuator having a single output member.

The relief valve has a slider with a conduit therein positioned between a pair of fluid channels. The conduit is closed when the slider is centered in the valve and is open when the slider is not centered. Centering plungers, held in place by hydraulic pressure, normally hold the slider in its centered position. When the pressure differential across the slider exceeds the pressure of one of the plungers, the slider moves from its centered position.

3,561,323

DEVICE FOR MOVING A MOVABLE SHAFT BACK AND FORTH

Antenore Pacchioni, Versailles, France, assignor to Commissariat A L'Energie Atomique, Versailles, France

Filed Feb. 24, 1969, Ser. No. 801,425

Claims priority, application France, Feb. 29, 1968,

PV141858

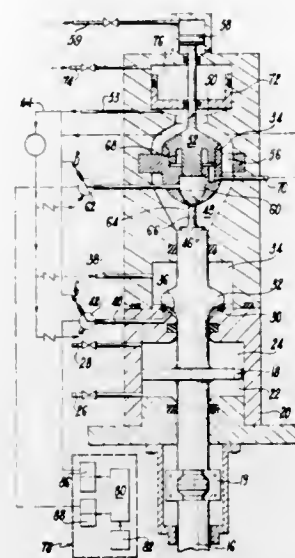
Int. Cl. F15b 21/02

U.S. Cl. 91-35

4 Claims

The device comprises a shaft provided with a drive piston movable in a gas chamber and acting as a "gas spring," and a valve member and an end surface. The valve member

separates two stationary chambers when on its seat. Timing means are provided which successively decrease the pressure differential which acts across said valve member and urges it toward its seat, establishing against the end surface an overpressure which forces the shaft back when the movable as-



sembly, after having reached an end position, returns under the action of the pressure difference which has undergone a reversal across the piston and which restores onto said valve member a pressure sufficient to lock said movable assembly in rest condition.

3,561,324

FASTENER DRIVING TOOL

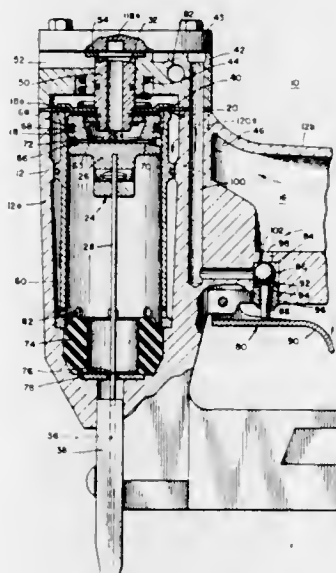
Allen R. Obergfell, Park Ridge, Ill., assignor to Fastener Corporation, Franklin Park, Ill.

Filed May 10, 1968, Ser. No. 728,128

Int. Cl. F01h 31/00, 25/06

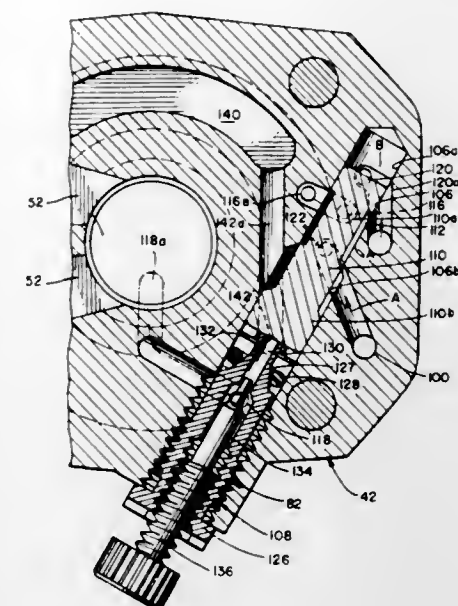
U.S. Cl. 91-252

20 Claims



A pneumatically operated automatically cycling fastener driving tool includes a housing having a cavity defining a fluid reservoir. A cylinder is provided in the housing for slideably receiving a piston therein. A cylinder valve is provided for controlling the admission of fluid to and the exhaustion of fluid from one end of the cylinder. A suitable trigger arrangement is effective when depressed to exhaust the cylinder valve to atmosphere, and when released to connect the cylinder valve to the reservoir. An automatic cycling valve controls such admission to and discharge from the cylinder valve and is responsive to the pressure buildup in the

upper end of the cylinder at the end of the driving stroke to switch the cylinder valve from exhaust to the reservoir to effect closing of the cylinder valve and the return stroke of the piston.



3,561,325

RECIPROCATING MOTOR

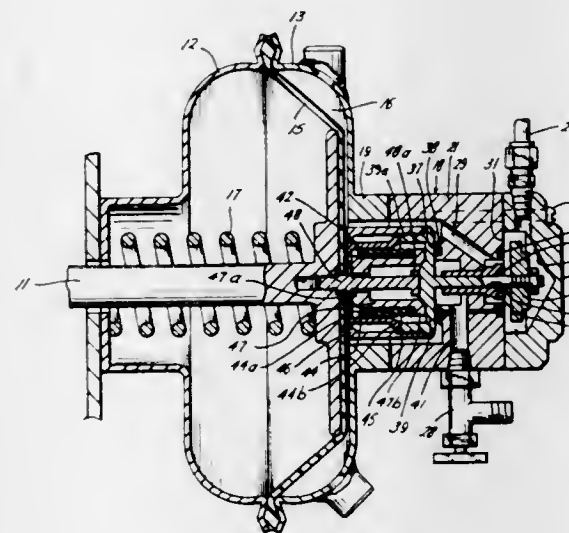
Charles P. Lamb, and William A. Dudley, Dallas County, Tex., assignors to Merla, Inc., Garland, Tex., a corporation of California

Filed Jan. 24, 1969, Ser. No. 793,686

Int. Cl. F01h 23/00, 15/14

U.S. Cl. 91-335

11 Claims



This patent discloses an injection pump and a motor therefor. The pump proper is of the poppet valve type. The motor is a pneumatic diaphragm-operated motor. The control for the motor includes a pilot controlled by a pressure regulator and valves for controlling the rate of flow of fluid to and from the pilot. The pilot effects cycling of the motor by the action of mechanical relays in the pilot.

3,561,326

PULSE PHASE MODULATED SERVOACTUATOR

Ernest W. Cassaday, Santa Susana, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio, a corporation of Ohio

Filed Mar. 6, 1968, Ser. No. 710,916

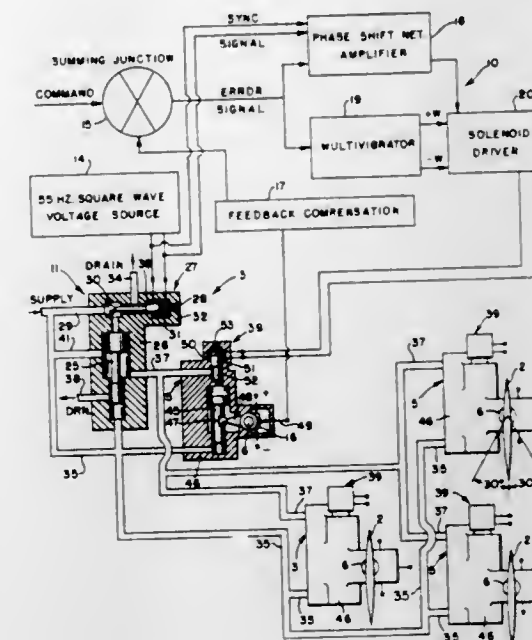
Int. Cl. F15b 9/03, 9/09, 15/17

U.S. Cl. 91-363

21 Claims

Pulse phase modulated servoactuator for use as in flight control of missiles and the like characterized in that the ser-

voactuators which turn the respective missile fins to control the pitch and the yaw of the missile are under the control of



3,561,327

FLOW DIVIDER AND FLOW-DIVIDING SYSTEM

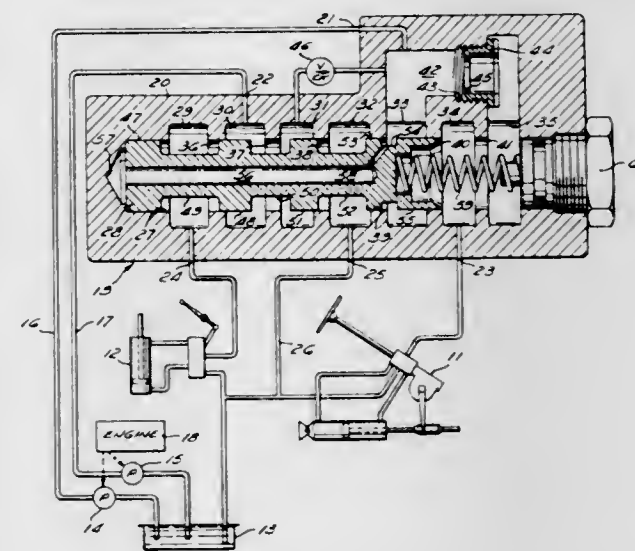
Donald A. Stremple, Strongsville, Ohio, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio

Filed June 9, 1969, Ser. No. 831,321

Int. Cl. F15b 11/16; G05d 11/00

U.S. Cl. 91-412

9 Claims



Two-pump flow divider for operating a power steering unit and a second load device on a vehicle, in which excess output from the steering pump is bypassed to a low pressure third outlet that is blocked from the second load device to prevent undesired interaction between the second load device and the power steering unit when the second load device is operated at higher pressure than the power steering unit.

3,561,328

ROTARY PISTON MACHINE

Karl Eickmann, 2420 Isshiki, Hayama-machi, Kanagawa-ken, Japan

Continuation of application Ser. No. 689,108, Dec. 8, 1967, now abandoned. This application Dec. 2, 1969, Ser. No. 876,177

Claims priority, application Germany, Dec. 8, 1966, B 90,210

Int. Cl. F04b 1/10

U.S. Cl. 91-497

7 Claims

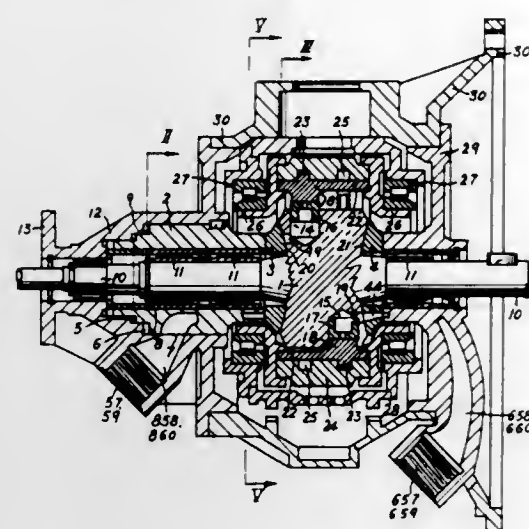
In a rotary piston machine that may serve as an engine or a pump and which has a rotor containing radially disposed

cylinders and pistons which are connected by axially disposed working fluid passageways which extend through a control face, the control face passing into suitable alignment as the rotor turns with fluid inlet and outlet ports in the housing; a thrust member about the shaft is adapted to act along the axis of the machine against the rotor to help maintain the seal at the control face and has associated therewith generally circular annular pressure chambers, connecting

of constant velocity. The duration of the latter, as a proportion of the total ball stroke, is predetermined by the number (n) of ball pistons and the number (m) of cam lobes according to the expression:

$$1-2(X)/n$$

where l =the highest common factor of m and n , and x =an integer $> n/2l$ and is even when n/l is even



with the high pressure fluid in the machine and the low pressure fluid in the machine, each of which chambers having large and small portions which are eccentric to the shaft of the machine and are positioned oppositely to each other, the chambers being positioned so that the fluid contained therein exerts an axial thrust against the thrust member with a pressure that is variable and balanced to maintain the optimum sealing force on the control faces.

3,561,329

BALL PISTON HYDROSTATIC MACHINES

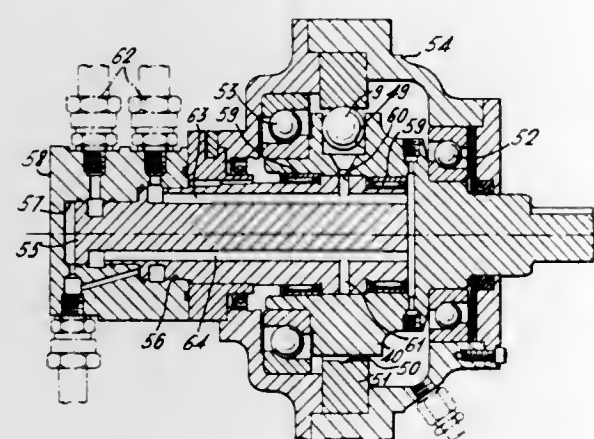
Donald Firth, and Sinclair Cunningham, East Kilbride, Scotland, assignors to National Research Development Corporation, London, England

Continuation of application Ser. No. 711966, Mar. 11, 1968, now abandoned. This application Oct. 28, 1969, Ser. No. 871,750

Claims priority, application Great Britain, Aug. 15, 1964, 33,412/64; Nov. 20, 1964, 47,458/64; July 31, 1965, 32,862/65 Int. Cl. F04b 27/00, 27/08

U.S. Cl. 91-498

7 Claims



A ball piston hydrostatic machine comprises a cylinder block in which are formed a plurality of cylinders at a constant pitch. Ball pistons working within the cylinders run on a cam track defining the stroke of each ball piston in its cylinder and having fewer complete cam lobes lying between the points of contact of the first and last balls with the cam than the total number of balls multiplied by the ball pitch. Each cam lobe is so profiled as to produce a ball stroke including a period of constant acceleration and a period of constant deceleration with or without an intermediate period

3,561,330 FLUID OPERABLE MOTOR

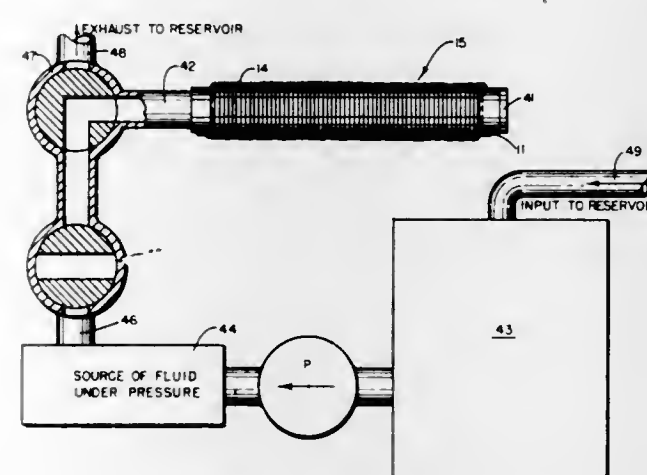
Stanley R. Rich, Worcester, Mass., assignor to Stanley R. Rich, Worcester, by mesne assignment a part interest; Alfred H. Rosen, Newton, by mesne assignment a part interest and Leonard L. Krasnow, Worcester, Mass., by mesne assignment a part interest

Continuation of application Ser. No. 622,183, Mar. 10, 1967, now abandoned. This application Nov. 24, 1969, Ser. No. 872,456

Int. Cl. F01b 19/04

U.S. Cl. 92-92

7 Claims



A fluid operable motor element made of a tube of elastic deformable material (e.g. rubber) closed at one end. The tube is restrained against deformation transverse to its longitudinal axis, and against longitudinal deformation in a limited region of its side walls. The remainder of the sidewalls is free to execute elastic deformation in the longitudinal direction. When fluid pressure in the tube is changed to a pressure different from the ambient pressure, the tube flexes about the longitudinally-restrained region of its sidewalls. Methods of making the motor element, several forms of it, and combinations of such motor elements with other devices and with other motor elements to form a pressure gauge, a clamping device, pliers, wrenches, a self-wrapping hook, and an artificial human hand, are described.

3,561,331 CONNECTING MEANS FOR A CYLINDER AND INTERNAL MEMBER

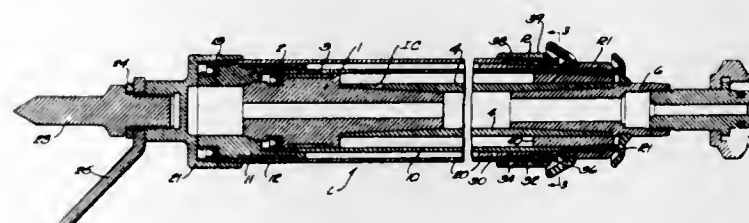
Jacob E. Feucht, 321 Van Demark Road, Sidney, Ohio 45365

Filed Aug. 6, 1969, Ser. No. 847,839

Int. Cl. F01b 29/00; F16j 15/18; F21c 11/00

U.S. Cl. 92-128

8 Claims



A tapered retaining ring for locking a generally annular member within a hollow cylinder. The ring fits in and is held by a shallow groove on the internal surface of the cylinder

and the ring has an internal taper. The generally annular member to be locked within the cylinder has a complementary external taper that slides into the retaining ring and causes the latter to radially expand into locking position.

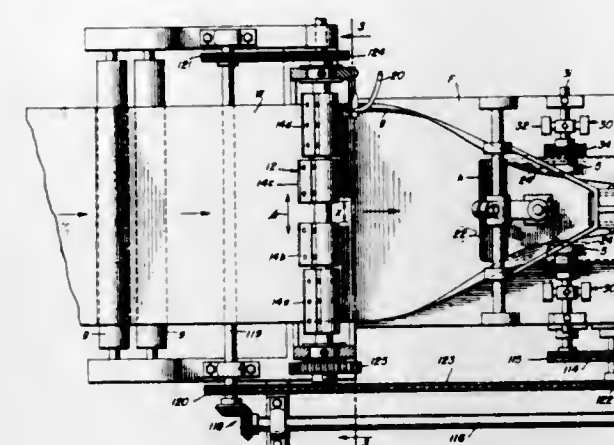
3,561,332 BAG MAKING MACHINE

Albert L. Ross, P.O. Drawer 1120, Hammond, La. 70401
Filed June 17, 1968, Ser. No. 737,640

Int. Cl. B31b 23/14

U.S. Cl. 93-19

46 Claims



A machine for making notion and millinery type bags having a lip on one layer extending beyond the edge of the other layer, the machine including means for transversely perforating the paper web in successive steps in advance of and following a folding of the web into tube form, and means to repetitively rupture the tube along the perforations to form individual bag lengths.

3,561,333 WITHDRAWN

3,561,334

ROOFING AND PAVING PROCESS

Anthony Gerosa, Bronx, and Walter G. Doherty, Carmel, N.Y., assignors to Metro-Pave Roof Leveler, Inc., a corporation of New York

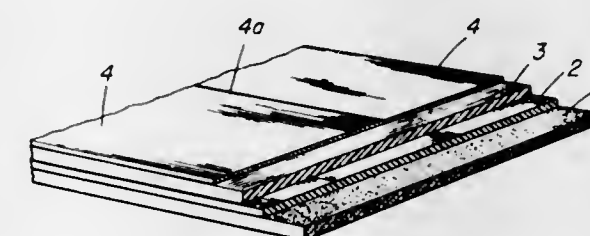
Continuation-in-part of application Ser. No. 664,867, Aug. 31, 1967, now abandoned. This application Dec. 15, 1969,

Ser. No. 885,013

Int. Cl. E04c 1/24

U.S. Cl. 94-23

6 Claims



An improved paving process has been invented which employs a cold-mix asphaltic surfacing composition. This surfacing material does not require heat or mixing as a preliminary step before application on any area to be protected. The surfacing composition is very light in weight, adhesive, waterproof and has heat insulating properties being ideal for the resurfacing of any areas requiring these properties such as old worn roof decks and parking decks with areas of irregular contours in need of resurfacing. The paving material can be stored indefinitely in waterproof bags and when ready for application on a worn roof surface or parking deck this paving composition is easily spreadable and covers such worn surfaces which are irregular in depth to an even contour with a light weight, adhesive, waterproof covering.

3,561,335 APPARATUS FOR MIXING AND SPREADING ROAD BUILDING MATERIALS OR THE LIKE

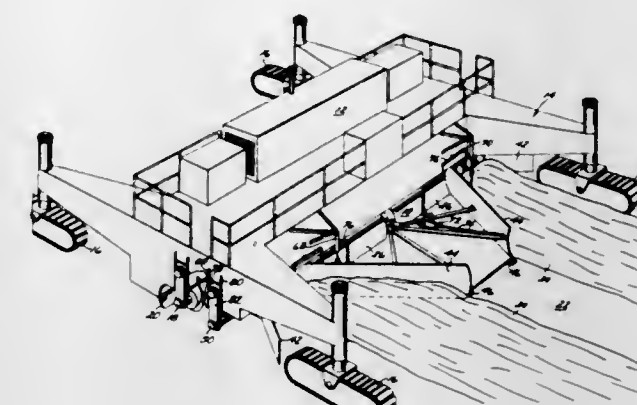
Sterling H. Leatherman, San Bernardino, Calif., assignor to Telstar Engineers, Inc., San Bernardino, Calif.

Filed Oct. 2, 1969, Ser. No. 863,113

Int. Cl. E01c 19/02

U.S. Cl. 94-40

13 Claims



An apparatus having a frame adapted to move in a longitudinal direction over the surface of a road or the like upon which mixed materials are to be spread. The frame mounts a transversely oriented chamber which is provided with a pickup opening and a discharge opening at its opposite extremities. A mixing means in the chamber is operative to pull into the chamber materials arranged in a windrow upon the road surface. The mixing means also is operative to lift and thrust the materials transversely and inwardly through the chamber in a generally suspended state. The discharge opening permits the mixed materials to be deposited on the road surface, and a spreading means on the frame rearwardly of the chamber is arranged to spread the deposited materials transversely and outwardly.

3,561,336

HYDRAULIC VIBRATORY COMPACTOR

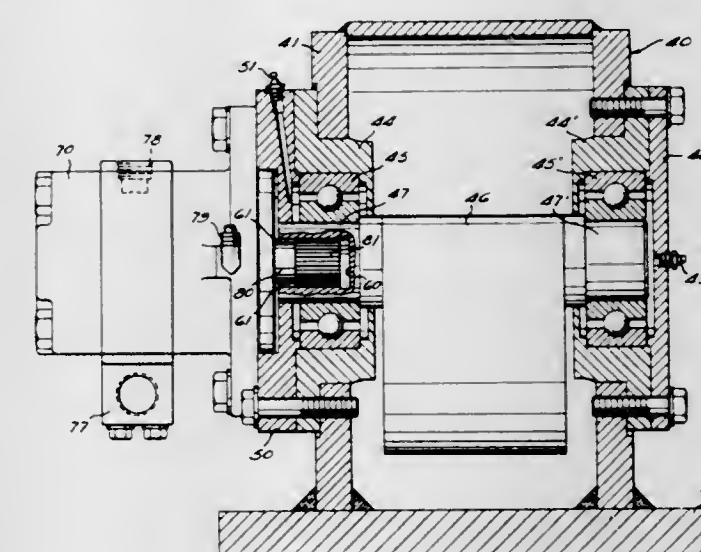
Bernard A. Century, Cleveland, Heights, Ohio, assignor to Allied Steel & Tractor Products, Inc., a corporation of Ohio

Filed Jan. 21, 1969, Ser. No. 792,442

Int. Cl. E01c 19/30

U.S. Cl. 94-48

7 Claims



Heavy duty vehicle supported soil compactor in which an eccentrically rotated weight is directly driven through a mechanical coupling allowing backlash by a hydraulic motor, thereby permitting high ratio of eccentric weight to total sprung weight, total enclosure of all bearings without use of dust seals, and more efficient utilization of the vehicle's hydraulic system.

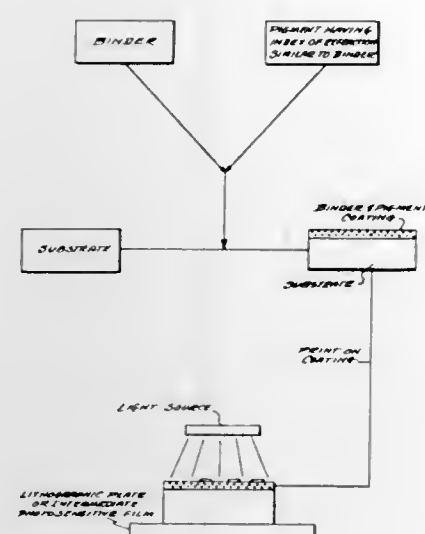
3,561,337

SHEET MATERIAL FOR MANUFACTURE OF TRANSPARENCIES

Jesse W. Mulkey, New Orleans, La., assignor to Kalvar Corporation, New Orleans, La., a corporation of Louisiana
Filed Aug. 15, 1966, Ser. No. 572,419
Int. Cl. G03b 41/00

U.S. Cl. 95—1

9 Claims



A sheet material having a transparent backing coated with a layer containing a polymeric binder and particles of solid material which is insoluble in the binder. The refractive index of the solid material varies from that of the binder by at most ± 0.6 . The surface of the layer is ink receptive and, by printing on that surface, a transparency is obtained.

3,561,338

PHOTOGRAPHIC COMPOSITIONS

Pierre Jean-Baptiste Astier, 72-76, rue de Crimée, Paris, 190 Seine, France

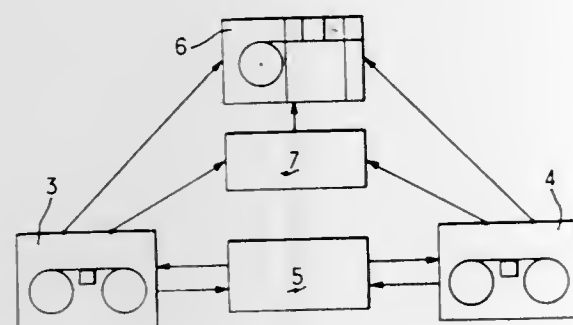
Filed Jan. 10, 1968, Ser. No. 696,929

Claims priority, application France, Jan. 12, 1967, 90912

Int. Cl. B41b 23/00

U.S. Cl. 95—4.5

7 Claims



A method and apparatus for correction of texts for use in photographic composing machines involving identifying the lines of the text in clear form and on perforated tape, placing the corrected lines with identification on perforated tape, and substituting corrected lines for original lines with same identification sign through use of coincidence detector connected to both the original tape reader and the corrected tape reader. When lines are eliminated or added, a sequence counter reestablishes logical sequencing of the lines on the revised text. Identification signs can then be removed and the text, in clear form, used in photographic composing machines.

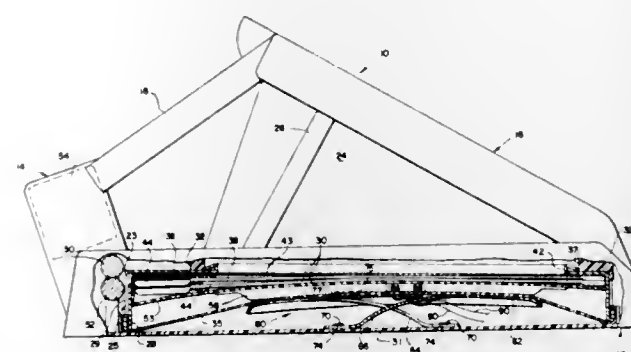
3,561,339

PHOTOGRAPHIC APPARATUS

Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Dec. 19, 1968, Ser. No. 785,089
Int. Cl. G03b 17/50

U.S. Cl. 95—13

18 Claims



An electrically operated camera for exposing and processing a succession of photographic film units arranged in a stack within the container of a film pack including a battery located behind the stack of film units. The camera includes biasing means for urging the forwardmost film unit into position for exposure and for urging electrical contacts into engagement with terminals on the rear of the battery.

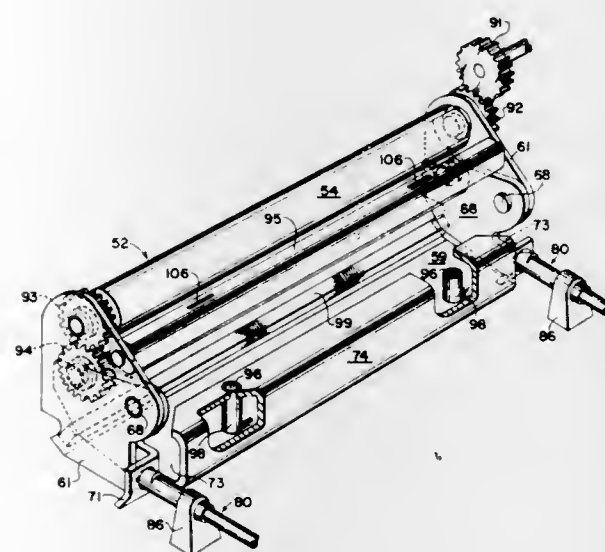
3,561,340

REMOVABLE PROCESSING ROLLER ASSEMBLY FOR A SELF-DEVELOPING CAMERA

Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Feb. 24, 1969, Ser. No. 801,428
Int. Cl. G03b 17/52

U.S. Cl. 95—13

15 Claims



A camera including a pair of processing rollers which are easily removable from the camera for cleaning, repairs, etc. The rollers are mounted on a removable chassis, and a drive rotates the rollers so as to advance the film units between the rollers for processing. Biasing springs on reciprocating plungers on the camera body urge one roller toward the other for applying pressure to the film units while the same biasing elements also serve to retain the processing elements in operative position on the camera body.

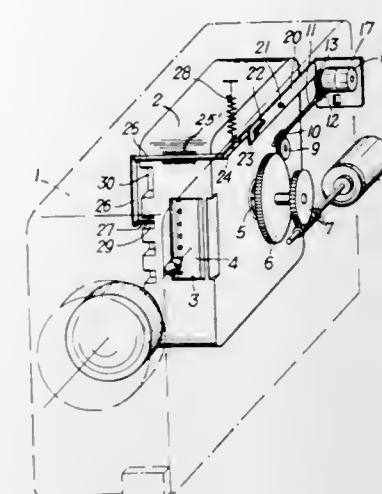
3,561,341

PHOTOGRAPHIC OR CINEMATOGRAPHIC CAMERA

Otto Freudenschusz, Vienna, Austria, assignor to Karl Vockenhuber, Vienna, Austria, and Raimund Hauser, Vienna, Austria
Filed Jan. 26, 1968, Ser. No. 700,863
Claims priority, application Austria, Jan. 30, 1967, A878/67
Int. Cl. G03b 19/04, 1/60

U.S. Cl. 95—31

6 Claims



A camera adapted to be loaded by insertion of a film carrier including a film length indicator for indicating the length of unexposed film on the film carrier, the film carrier formed with a preselected conformation representing the nominal film capacity of the film, and a sensing device cooperating with the conformation on an inserted film carrier. A mask cooperates with the film length indicator and is controlled by the sensing device and is switched over by the latter in accordance with the nominal capacity of the film carrier for indicating the length of unexposed film on the inserted film carrier.

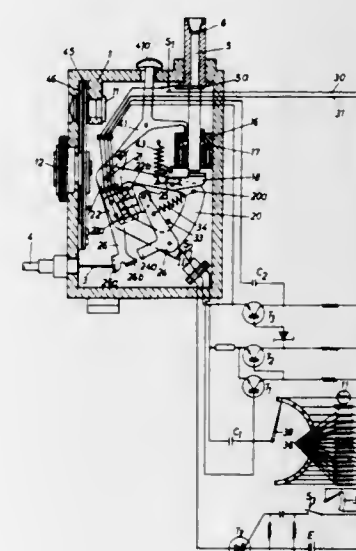
3,561,342

EXPOSURE TIME CONTROL INSTRUMENT FOR PHOTOGRAPHIC CAMERAS

Franz W. R. Starp, Calmbach, Black Forest, Germany, assignor to Prontor-Werk Alfred Gauthier G.m.b.H., Calmbach, Black Forest, Germany, a corporation of Germany
Filed Mar. 19, 1968, Ser. No. 714,186
Claims priority, application Germany, Mar. 23, 1967, P41718
Int. Cl. G03b 9/00

U.S. Cl. 95—53

11 Claims



An exposure time control instrument attachable to the wire release connection of a photographic camera equipped with a "B" setting; the control instrument has a plunger for the release of the camera and an electronic timing device

which can depend upon lighting conditions and can be regulated manually to obtain exposure times of different duration when the camera is set to "B". The plunger acting upon the camera is of a two-part design, one of the plunger parts being manually operable and the other of the plunger parts being cooperative with the release mechanism of the camera shutter. An electromagnetic coupling device is disposed between the two plunger parts and transfers the releasing pressure from the manually operable plunger to the other plunger part. The electromagnetic coupling device is connected to the electronic timing device for triggering by control impulse and to enable the other plunger part to return instantaneously after the release of the camera shutter.

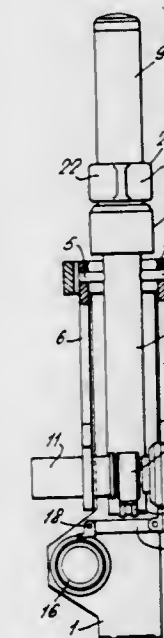
3,561,343

MANUALLY OPERABLE DEMAND UNITS FOR CAMERA CONTROL APPARATUS

Dexter Robert Plummer, Leicester, England, assignor to The Rank Organisation Limited, London, England, a British Company
Filed May 17, 1968, Ser. No. 729,975
Claims priority, application Great Britain, May 18, 1967, 23,254
Int. Cl. G03b 17/56

U.S. Cl. 95—86

17 Claims



A manually operable demand unit, particularly for motion picture or television camera control, has a handle arranged for universal rocking movement about two mutually perpendicular axes for controlling first and second transducers to produce respective demand signals, usually indicative of required camera movements. In addition the handle is provided with a manual control element which is rotatable relative to the handle by digital pressure about the longitudinal axis of the handle, this control element being associated with a third transducer producing a respective demand signal which may, for example, be used for zooming control. The movements of the handle and of the control element can be effected by singlehanded manipulation.

3,561,344

ELECTRONIC REPLENISHMENT APPARATUS FOR PHOTOGRAPHIC PROCESSOR

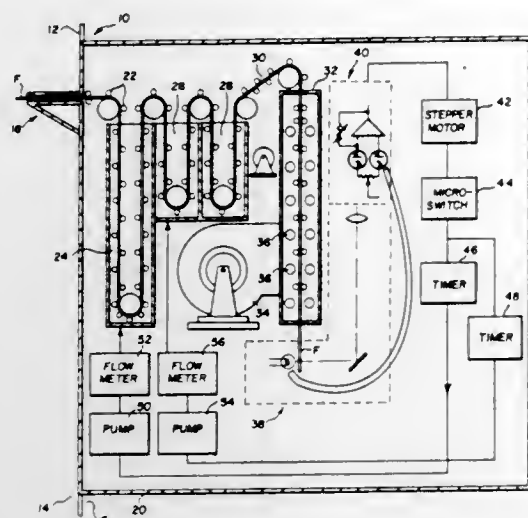
Thomas W. Frutiger, Rochester, N.Y., and Ellsworth J. McCune, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed May 23, 1968, Ser. No. 731,488
Int. Cl. G03d 3/06

U.S. Cl. 95—89

3 Claims

Apparatus is disclosed for processing film in which replenisher, developer and fixer solutions are supplied on demand, based on empirically determined requirements. The continuously moving fixed photographic film is light monitored to provide a plurality of modulated signals which are a function of the degree of transparency presented by the moving photographic film. The modulated signals are then fed to

an integrator to provide integrated output signals which are a function of the average of the modulated signals and time. The integrated signals are then compared in a comparator, and a comparator output signal is provided when the integrated signals equal or exceed a fixed voltage level. The



comparator output signals are then counted to provide a control output signal when a predetermined number of counts has been reached. In response to the control output signal, fresh developer and fixer solutions are then supplied to replenish the spent developer and fixer solutions.

3,561,345

DAMPER ARRANGEMENT

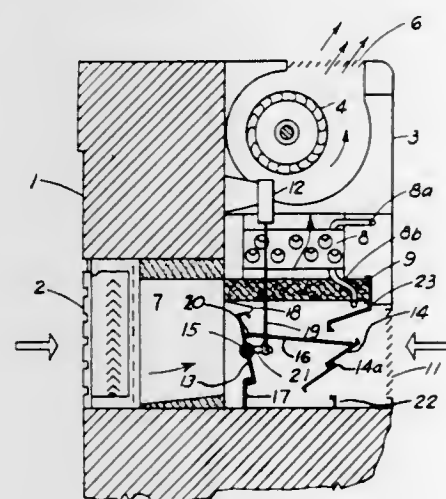
John L. Kline, Louisville, Ky., and Curtis W. Utz, New Albany, Ind., assignors to American Air Filter Company, Inc., Louisville, Ky., a corporation of Delaware

Filed Mar. 4, 1969, Ser. No. 804,149

Int. Cl. F24f 7/06

U.S. Cl. 98—38

8 Claims



A damper arrangement including a fluid flow control damper connected to a damper operator by resilient connecting means so the damper is moved in response to movement of the operator and is moved independently of the operator by forces exerted directly upon the damper.

3,561,346

BLAST ACTUATED MODULE VALVE

John M. Stephenson, Camarillo, Calif., and Donald E. Williams, Santa Barbara, Calif., assignors to the United States of America as represented by the Secretary of the Navy

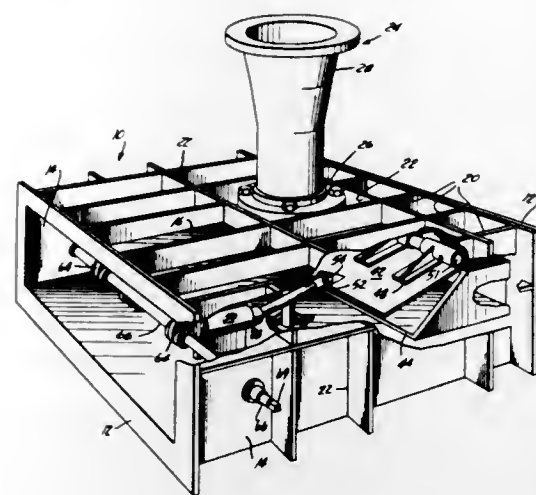
Filed Feb. 26, 1969, Ser. No. 802,525

Int. Cl. F23i 13/00

U.S. Cl. 98—119

5 Claims

A closure device for installation in ventilation ducts of protective structures comprising a normally open valve plate



ing the device. A spring assembly maintains the valve plate in a sealed position once it is closed by the blast actuated piston.

3,561,347

COOKER FOR GRAIN OR THE LIKE HAVING**PREHEATER**

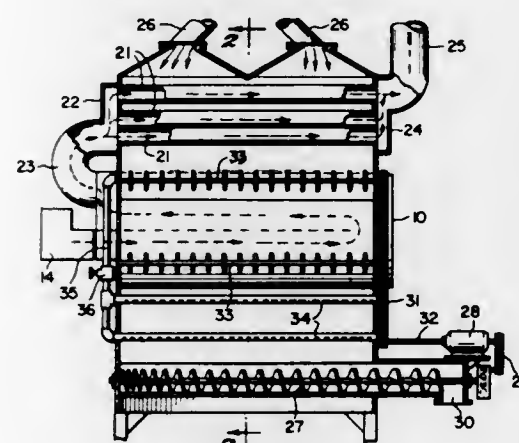
Clarence E. Ellis, Red Rock, Okla. 74651

Filed May 2, 1969, Ser. No. 821,343

Int. Cl. A23i 1/10

U.S. Cl. 99—237

6 Claims



A grain cooker receives the grain at the top thereof in a preheating zone which derives heat from otherwise wasted boiler exhaust. In the preheating zone, the grain pores are opened preparatory to proper cooking. The preheated grain then gravitates through a main heating zone around a boiler where rising steam contacts the open-pored grain and is immediately absorbed. Cooked grain discharges at the bottom of the cooker.

3,561,348

BARBECUE OVEN

John E. Weir, Sr., Vine Grove, Ky., assignor to Weir Magic Pit Corporation, Frankfort, Ky., a corporation of Kentucky

Filed July 30, 1968, Ser. No. 748,726

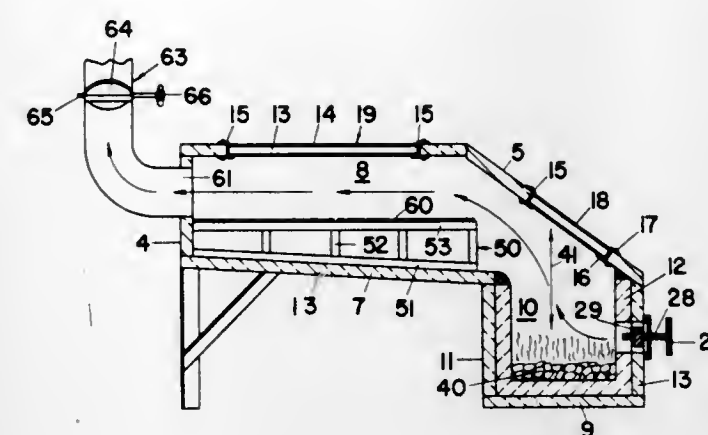
Int. Cl. A23b 3/04

U.S. Cl. 99—259

6 Claims

Discloses a barbecue oven designed for unattended operation through the use of a limited air supply, a limited emission of combustion products from the unit, the placement of the meat relative to the firebox, return of meat drippings to the firebox to wet the coals and facilitate formation of smoke

within the unit. The unit is fabricated of heat retaining insulated walls and the flow of air through the unit is controlled between an operative position to provide a support for the overlapping ends of the tape during a sealing operation, and



through the use of partially open dampers in the air inlet and in the flue so that the rate of combustion is controlled to allow for unattended continuous cooking.

3,561,349

BREWING MEANS FOR PREPACKAGED COFFEE

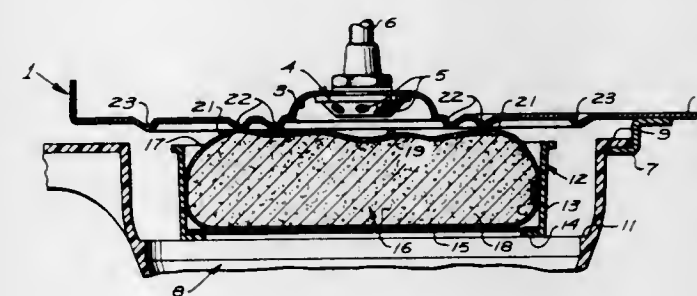
Sam I. Endo, Sun Valley, and James H. Tarrant, Los Angeles, Calif., assignors to Farmer Bros. Co., Torrance, Calif., a corporation of California

Filed May 20, 1968, Ser. No. 730,353

Int. Cl. A47j 31/34

U.S. Cl. 99—307

9 Claims



A coffee brewing means having a downwardly directed discharge spray head for hot water recessed in a surface, and a holder for prepackaged coffee for positioning the package under the spray head and underlying the surrounding surface in proximity thereto so that upon initial wetting of the coffee, the resulting expansion of the coffee presses the upper side of the package against the surface surrounding the spray head and forms a seal therewith so that the water issuing from the spray head is confined to flow through the package.

3,561,350

PACKAGE BINDING MACHINE

John Dorney and Colin Robinson, Berkshire, England, assignors to Power Industries Limited, Berkshire, England, a British company

Filed Aug. 16, 1968, Ser. No. 753,241

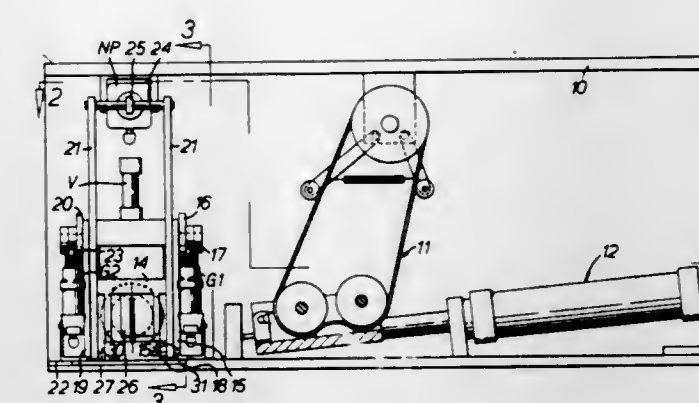
Claims priority, application Great Britain, Aug. 16, 1967, July 18, 1968, 37689/67; 34212/68

Int. Cl. B65b 13/32

U.S. Cl. 100—29

19 Claims

In a package binding machine incorporating a nose plate to support overlapping ends of a loop of binding tape, during the sealing of the overlapping ends, the nose plate is movable



a retracted position in which it provides clearance for the ejection of the sealed joint from the machine.

3,561,351

METHOD FOR FEEDING MATERIAL TO A MECHANICAL PRESS

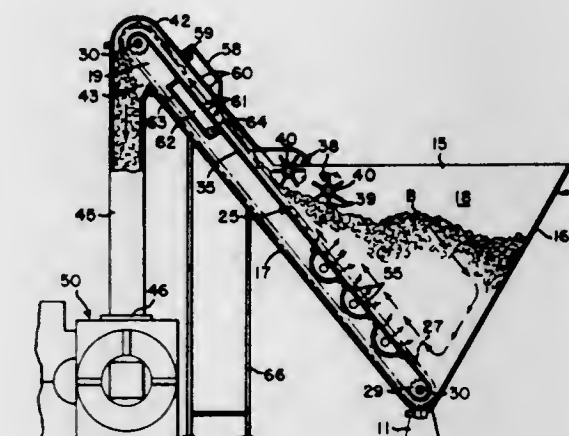
Alfred W. French, and Forest J. Starrett, Jr., Piqua, Ohio, assignors to The French Oil Mill Machinery Company, Piqua, Ohio, a corporation of Ohio

Filed June 6, 1968, Ser. No. 734,925

Int. Cl. B30b 9/02, 12/00

U.S. Cl. 100—37

4 Claims



A bed of sugar cane bagasse of substantially uniform thickness is formed on an endless conveyor and is fed into one or more mechanical presses for removing liquid from the bagasse, and the expressed liquid is filtered by directing it through the bed of bagasse supplied to the press.

3,561,352

ROTARY COMPACTOR

Jack Hirsch, 1461 Greenport Road, Far Rockaway, N.Y.

Filed Mar. 11, 1970, Ser. No. 18,542

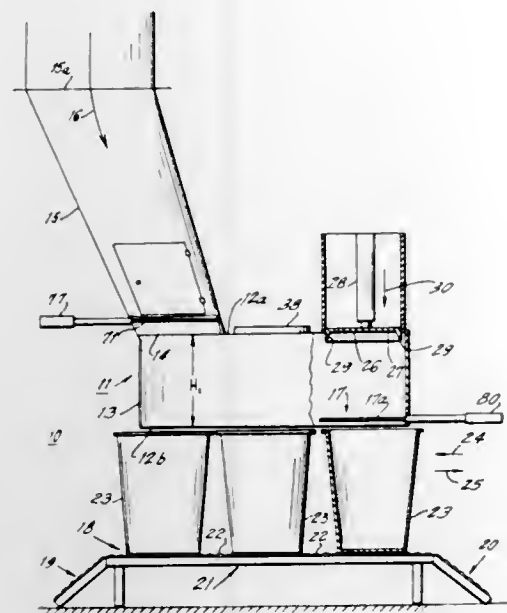
Int. Cl. B30b 15/14, 15/30

U.S. Cl. 100—53

10 Claims

A device for compacting refuse such as, for example, garbage, comprised of two rotatably mounted members each having first and second similarly shaped concave surfaces. The members are positioned within a housing having an upper inlet port and a lower outlet port wherein said ports are positioned at spaced, angular intervals. Refuse enters the housing through the inlet port, is swept up toward one of the rotating members which is held stationary by the remaining one of the rotating members until the members engage one

another at which time the swept up refuse is compacted between the opposing concave surfaces of the rotating members. At this time both members are then rotated so as to position refuse compacted between the rotating members im-

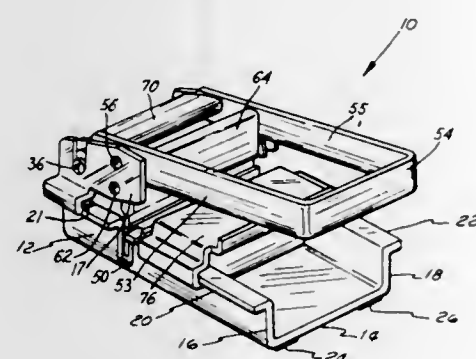


mediately above the outlet port where they may then be ejected by gravity, or alternatively, by an auxiliary linear-type ejection means, through the lower outlet port and into a refuse container.

3,561,353 PRINTING APPARATUS EMPLOYING EMBOSSED TYPE IN METALLIC FOIL

Bernard J. Curran, 9407 Courvie, Detroit, Mich.
Filed Apr. 23, 1968, Ser. No. 723,416
Int. Cl. B41H 47/44; B44b 5/00
U.S. Cl. 101-65

8 Claims



A printing apparatus for transferring an impression from a raised type printing plate such as an embossed card of the type commonly used as a credit or identification card or the like, to a piece of stock such as a match book cover, by employing a tape having a pressure removable metal coating on one face. The tape, stock and printing plate are supported between a pair of pressure bars which, when brought together, transfer the impressions of a raised or recessed type line from the printing plate to the stock. A conventional slug of type can also be employed as the source of the impression instead of the printing plate or card.

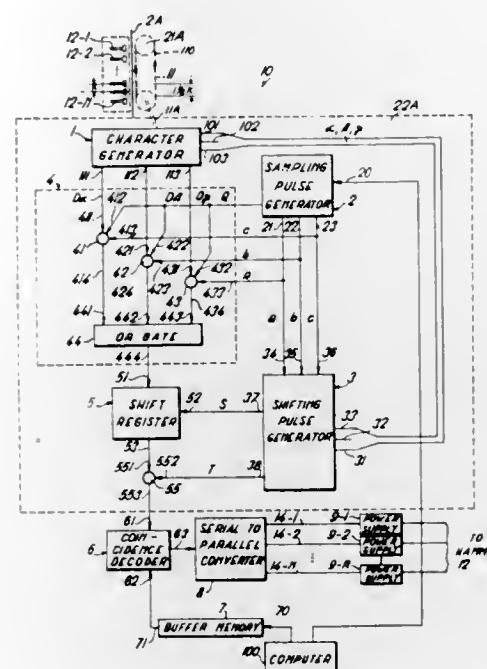
3,561,354 PRINT HAMMER SELECTION CIRCUIT IN ENDLESS BELT LINE PRINTERS

Jaroslav Mrkvicka, Prague, Czechoslovakia, assignor to Vyzkumny ustav matematickych stroju, Praha, Czechoslovakia, a firm

Filed Aug. 12, 1968, Ser. No. 752,063
Claims priority, application Czechoslovakia, Aug. 10, 1967,
PV5,761-67

Int. Cl. B41j 1/20, 9/14; G06k 15/08
U.S. Cl. 101-93

4 Claims



Staggered successions of reference character codes that are generated in timed relation to the periodic movement of a type-carrying belt past an aligned row of printing hammers are periodically sampled. The respective samples are routed through selected time slots of successive frames containing information character codes representative of the type characters to be printed. The occurrence of an identity between a shifted sample and the information character code in a particular time slot causes the actuation of an associated one of the printing hammers to print the corresponding type character.

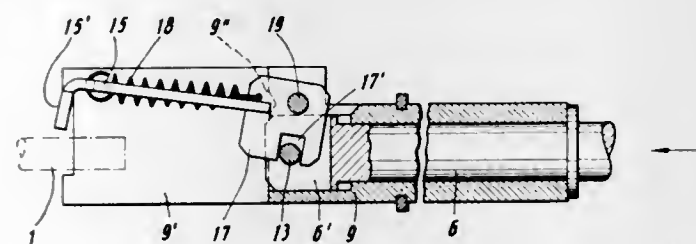
3,561,355 PRINTING MEMBER SELECTOR AND DRIVE MEANS

Hans Rappalie, and Karl Klappenecker, Constance, Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm Danube, Germany

Filed Feb. 27, 1969, Ser. No. 802,857
Claims priority, application Germany, Mar. 2, 1968,
P 15 74 727.0
Int. Cl. B41j 9/14

U.S. Cl. 101-93

7 Claims



A printing mechanism for printing a selected symbol combination or permutation code on an item of mail or the like. The mechanism includes a number of movable printing strikers adjacently arranged in accordance with the particular geometrical configuration of the code. The strikers are mechanically biased in a rest position and are selectively driven into a printing position by a drive and selection

mechanism associated with each. According to the invention this drive and selection mechanism includes a sleeve coupled to a common "guide member" which moves between a selecting position and an operating position; an elongated pusher, movably arranged within the sleeve; an electromagnet arranged to selectively apply an attractive force against one end of the pusher; a catch, which is hinged to the sleeve, for driving the associated striker, when in a "catch position," from the rest position to the printing position when the sleeve is moved by the guide member from the selecting to the operating position; and a device coupling the other end of the pusher to the catch for moving the catch into and out of its catch position in response to the movement of the pusher relative to the sleeve.

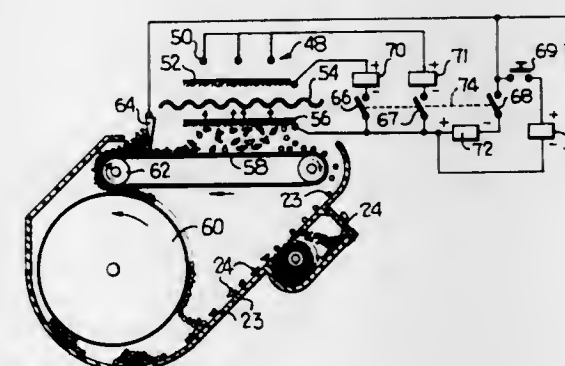
3,561,356 PRECHARGING OF SUBSTRATE FOR ELECTROSTATIC PRINTING

Kenneth W. Rarey, South Holland; James G. Buck, Western Springs; John B. Kennedy, Jr., Western Springs; Laszlo J. Javorik, Chicago, and Edward D. Higgins, Palos Heights, Ill., assignors to Continental Can Company, New York, N.Y., a corporation of New York

Continuation-in-part of application Ser. No. 396,060, Sept. 14, 1964, now Patent No. 3,306,193, which is a continuation-in-part of application Ser. No. 599,822, Dec. 7, 1966, which is a division of application Ser. No. 396,060, Continuation-in-part of application Ser. No. 409,213, Nov. 5, 1964, now abandoned, and a continuation-in-part of 609,275, Jan. 10, 1967, which is a continuation of application Ser. No. 409,213. This application Feb. 24, 1967, Ser. No. 618,395

Int. Cl. B41f 15/14
U.S. Cl. 101-129

25 Claims



Various methods and apparatus are disclosed for the treatment of poorly conducting substrates with ions so that the substrate is more receptive to printing material and the printing material is more adherent to the substrate prior to being fused thereon.

3,561,357 WATER TRAY ARRANGEMENT FOR THE DAMPENING UNIT OF AN OFFSET PRINTING MACHINE

Heinz Joachim Schinke, Unterkirnach, and Hermann Raible, St. Georgen, Germany, assignors to Math. Bauerle, G.m.b.H., St. Georgen, Germany

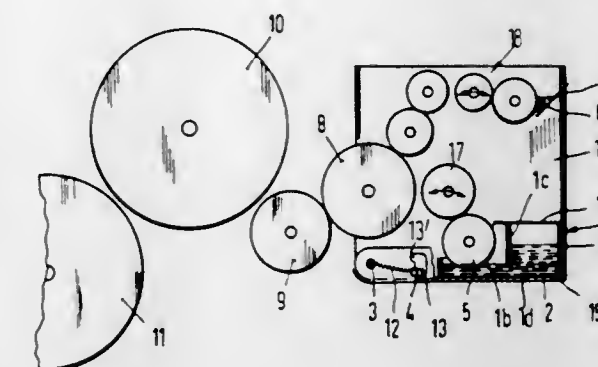
Filed Feb. 23, 1968, Ser. No. 707,624
Claims priority, application Germany, Apr. 17, 1967, B 92103
Int. Cl. B41H 25/00

U.S. Cl. 101-148

7 Claims

The water tray in the dampening unit of an offset printing machine is divided by a normally upright partition into two compartments which communicate through a low aperture in the partition near the bottom wall of the tray. One compartment is upwardly sealed by a cover projecting beyond the partition to cover a portion of the other compartment which

normally receives a fountain roller. The tray is releasably supported on a bracket which may be pivoted on the



machine frame to drive the dampening fluid into the covered compartment when the machine is shut down.

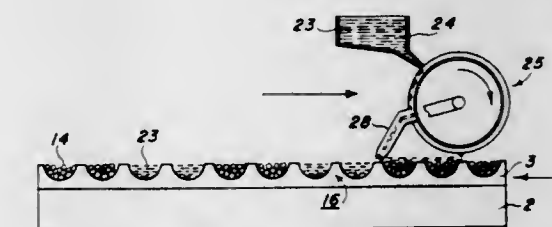
3,561,358 GRAVURE IMAGING SYSTEM

John W. Weigl, West Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Oct. 10, 1966, Ser. No. 585,432
Int. Cl. B41m 1/10

U.S. Cl. 101-170

13 Claims



There is disclosed a novel method in the preparation of a gravure printing plate. A photoconductive member, the surface of which is provided with a gravure pattern comprising uniformly spaced recessed areas, is electrostatically charged in such a manner that an electrostatic latent image is formed on the surface thereof. The resulting latent image is developed with electroscopic developer particles so as to selectively occlude the cells of the gravure member. The developer particles are then fixed in the cells. A printing ink is then applied to the resulting imaged member in such a manner such that the ink fills the cells void of the developer particles. Upon contact of the surface of the inked member with a copy sheet, a print of the desired image is realized. The steps may be repeated to produce the number of copies desired.

3,561,359 ROLLER ADJUSTING APPARATUS FOR A PROOF PRESS

Kenneth W. Cohen, 11258 Walnut Ridge, Chesterland, Ohio

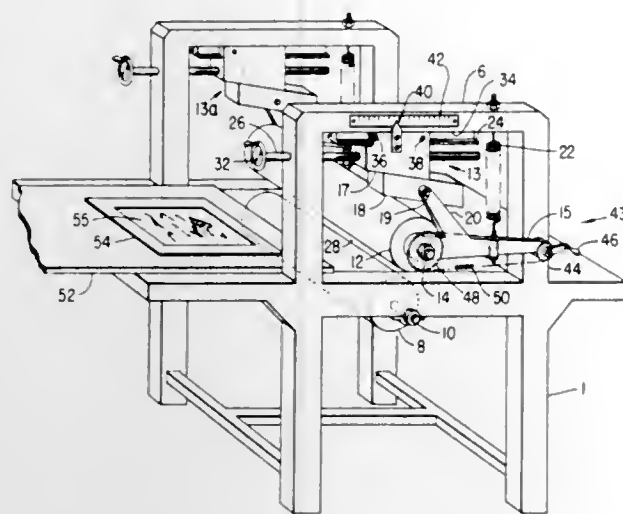
Filed Sept. 4, 1968, Ser. No. 757,425
Int. Cl. B41f 3/28

U.S. Cl. 101-250

6 Claims

An apparatus for positioning the pressure roller of a printing machine to control the pressure exerted on a record material and an inked artist's plate on which the record material is positioned. A jackscrew horizontally displaces a

tapered block which in turn exerts a vertical force on a second tapered block. The second block is attached to the



shaft of the pressure roller and transmits the vertical force to the pressure roller.

3,561,360

DISPOSABLE INK CONTAINER WITH MEANS FOR EXPELLING THE INK THEREFROM

Henry A. Branfield, Chesham, and John P. Overington, Shepperton, England, assignors to A. B. Dick Company, Niles, Ill., a corporation of Illinois

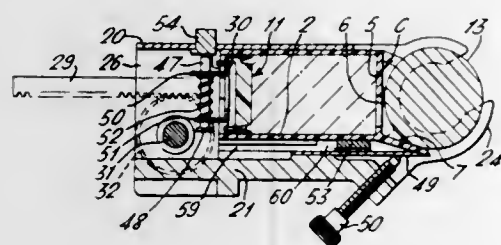
Filed Feb. 23, 1968, Ser. No. 707,636

Claims priority, application Great Britain, Feb. 28, 1967, 9550/67

Int. Cl. B41f 31/08

U.S. Cl. 101-350

24 Claims



A disposable ink container arranged to be mounted in the ink fountain of a duplicating machine and having ink outlets in its wall that will lie adjacent the first inking roller of the machine, and a flexible lip on the container which is adjustable relatively to such roller to define an ink metering gap therewith. The container may incorporate its own disposable inking roller to replace the first roller of the machine. A device for mounting such container on a duplicating machine is also disclosed, provided with a spring-urged pusher for pressurizing the ink in the container to expel it on to the inking roller.

3,561,361

DETONATION SYSTEM FOR SHAPED CHARGES

Gregory J. Kessenich, Madison, Wis., and Joseph H. Church, Austin, Minn., assignors to United States of America as represented by the Secretary of the Army

Filed Apr. 18, 1950, Ser. No. 156,642

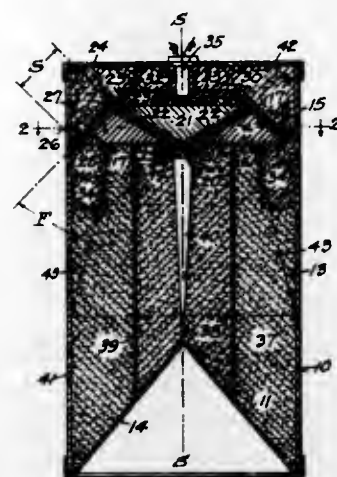
Int. Cl. F42b 1/02, 3/08

U.S. Cl. 102-24

4 Claims

Claim 1. A shaped charge unit comprising a cylindrical block of solid explosive having a central axis and a cavity in its forward end symmetrical of said axis, a first annular booster coaxial of said axis and positioned about the perimeter of said block at the rearward end thereof, a second booster positioned on said axis over the rearward face of said block and in discrete relation with said first booster, means associated with said block and forming a circular chamber coaxial of said axis and rearwardly of the rear face of said

block, there being first and second frustoconical channels from the perimeter of said chamber leading to said first and second boosters, respectively, the slant length of said first channel being less than the corresponding length of said



second channel, explosive composition filling said chamber and channels, and a single initiator on said axis in central detonating relation with the explosive composition in said chamber.

3,561,362

FREE PUNCH WITH ATTACHED POWER PLANT

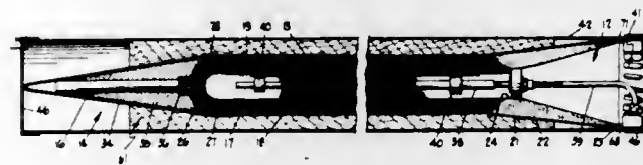
Donald V. Black; Albert D. Jamtaas; Ross T. Radey, and John K. Wall, Charlotte, N.C., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Filed May 18, 1962, Ser. No. 196,854

Int. Cl. F42b 13/28

U.S. Cl. 102-49.3

5 Claims



In a power driven punch, the combination of:

a rocket propelled vehicle having a generally cylindrical casing including a transverse wall defining a closed forward end and an open rearward end defining a nozzle; a propellant charge positioned within said casing and adapted to accelerate said rocket vehicle to a velocity greater than 5,000 ft./sec.;

means within said propellant charge for igniting said charge and causing said vehicle to be propelled; an elongated punch member having a metallic density greater than 0.5 pounds per cubic inch, and being carried by said forward end of and positioned axially co-extensive with said vehicle; and

means securing said punch member in said position, said punch member having a length to diameter ratio of between eight and 15.

3,561,363

ARMOR-PIERCING AMMUNITION

Louis Birkigt, Pregny-Geneva, Switzerland, assignor to Brevets Aero-Mecaniques S. A., Geneva, Switzerland

Filed July 9, 1968, Ser. No. 743,396

Claims priority, application Luxembourg, July 13, 1967, 54,097

Int. Cl. F42b 11/14, 13/04, 15/26

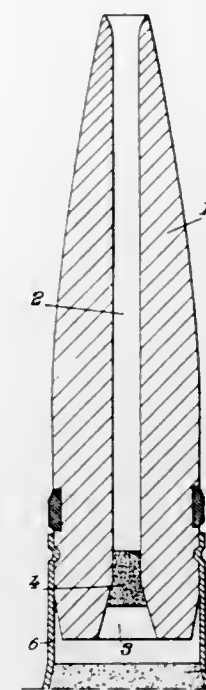
U.S. Cl. 102-52

6 Claims

The ammunition comprises an armour-piercing shell whose body is constituted of a material which is basically a metal that oxidizes easily and that burns by heating. An axial passage is provided, in the body of the shell thus constituted,

extending from the front end of the shell to a nozzle formed in the rear end of the shell. Ignition means are provided for causing, in the initial phase of the flight of the shell, the in-

monorail which can be positioned in line with the rest of the track, a cable system for raising and lowering the track section, in the initial phase of the flight of the shell, the in-



flammation of the inner wall of the axial passage which, from that moment, behaves like a ramjet playing the role of an auxiliary propeller for the shell.

3,561,364

TRACK CONSTRUCTION FOR GROUND EFFECT MACHINES

Francois L. Giraud, Plaisir, France, assignor to Societe De L'-'Aerotrain', Paris, France, a company of France

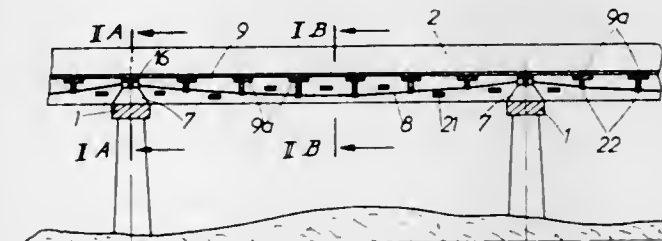
Filed July 1, 1968, Ser. No. 741,435

Claims priority, application France, Dec. 12, 1967, 131,917

Int. Cl. B60v 1/02; B61b 13/08

U.S. Cl. 104-120

4 Claims



A track for an air cushion vehicle, having a structure comprising a flexible deck which has the required surfaces for supporting and guiding the vehicle and which is suspended, by means of shackles, on cables which are supported at intervals along the track, on pylons or the like.

3,561,365

LIFT FOR TRACK VEHICLES

Jack Rooklyn, Northridge, Calif., assignor to Republic Corporation, Beverly Hills, Calif., a corporation of California

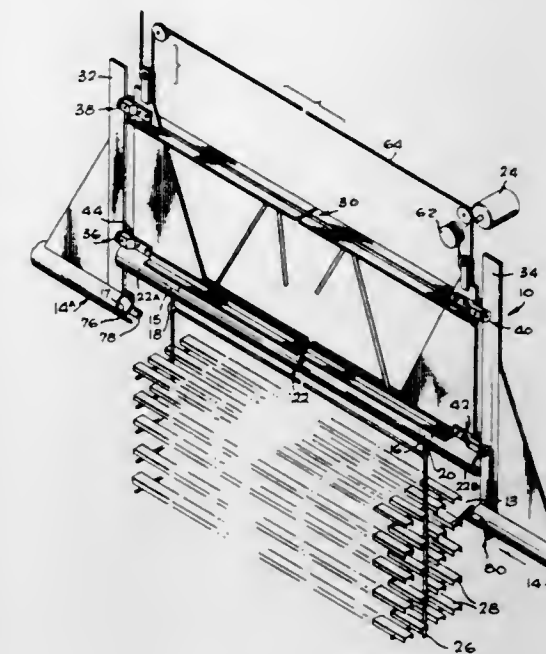
Filed Jan. 13, 1969, Ser. No. 790,607

Int. Cl. B61b 3/00, 13/04

U.S. Cl. 104-127

5 Claims

Apparatus for use with a monorail system which guides product-supporting carriers around a plant, to raise and lower the carriers and the goods thereon at one station. The apparatus comprises a separate lift track section of the



tion, and stops for supporting the track section in line with the rest of the track when it is lowered.

3,561,366

STARTING INSTALLATION FOR A SKI TOWING DEVICE

Jean Pomagalski, 116 avenue de l'Eygala, 38 La Tronche, France

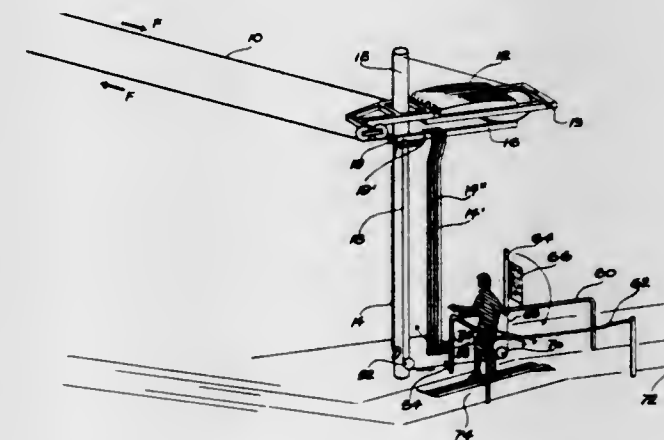
Filed May 14, 1968, Ser. No. 729,117

Claims priority, application France, May 19, 1967, 107,134

Int. Cl. B61b 11/02

U.S. Cl. 104-173

7 Claims



An installation for ensuring the departure sequence of skiers towed along a path defined by a continuously moving ski lift cable is provided with a plurality of tow bars which releasably engage with the ski lift cable to transport skiers up a ski slope. A mechanism is provided which automatically responds to the movement of a skier past a predetermined point for individually positioning the tow bars in releasable engagement with the moving ski lift cable whereby a skier can grasp the moving tow bar and be towed up the ski slope.

3,561,367

PLURAL GAS TURBINE RAILWAY CAR

James B. Black, Roscoe, Ill., and Samuel Luzaich, Santa Rosa, Calif., assignors to Twin Disc, Incorporated, Racine, Wis., a corporation of Wisconsin

Original application Feb. 14, 1967, Ser. No. 615,983, now

Patent No. 3,447,397, dated June 3, 1969. Divided and this

application July 16, 1968, Ser. No. 745,209

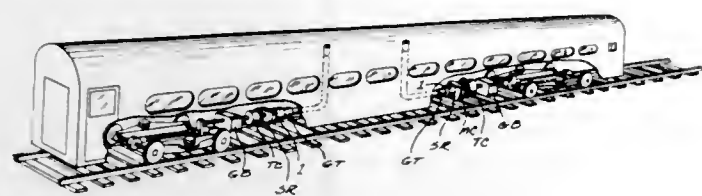
Int. Cl. B61c 5/00, 9/34; F16h 47/08

U.S. Cl. 105-61.5

10 Claims

A plurality of power transmissions, each having a single

speed power source, such as a gas turbine, and each also in-



cluding a torque converter, hydraulically actuated gear selection clutches, and a hydraulic system.

3,561,368 SELECTIVE HOPPER CAR GATE OPERATING MECHANISM

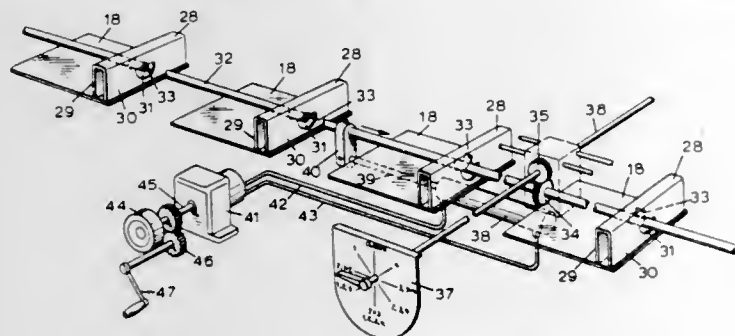
Paul F. Giesking, Burlington, Ontario, Canada, assignor to National Steel Car Corporation Limited, Hamilton, Ontario, Canada

Filed Nov. 19, 1968, Ser. No. 776,982

Int. Cl. B61d 7/02, 7/20, 7/28

U.S. Cl. 105-240

9 Claims



A mechanism for selectively operating a series of closure members in spaced alignment comprises a series of abutments carried on a shaft which is both longitudinally movable and rotatable about its axis. The abutments cooperate with gates in abutment members connected to the closure members and are selectively engageable with the closure members, individually and in groups, by appropriate rotation of the shaft about its axis.

3,561,369 RAILWAY CAR FOR CARRYING CONTAINERS OF VARYING LENGTHS IN TWO TIERS

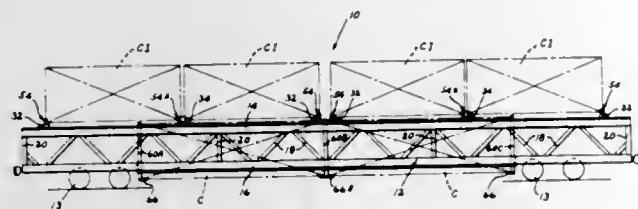
Walter E. O'Leary, Creve Coeur, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey

Filed Dec. 23, 1968, Ser. No. 786,187

Int. Cl. B65j 1/22; B60p 7/08

U.S. Cl. 105-366

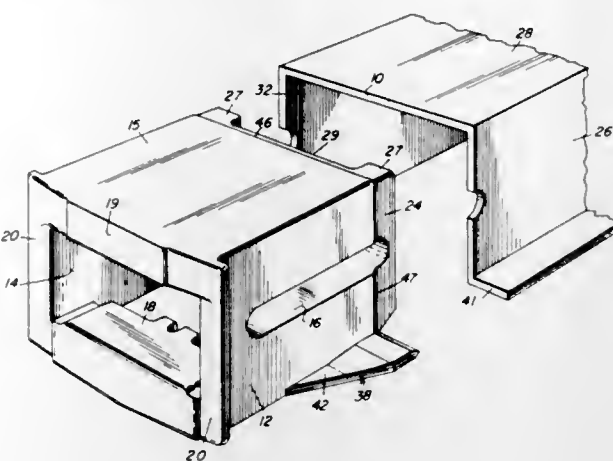
8 Claims



A railway car for carrying containers of various lengths in two tiers. A side structure extends along each side of the railway car each having an upper and a lower longitudinally extending chord member. A plurality of crossframe structures are suspended from the upper chord members and extend downwardly to a position below the lower chord members and are adjustably movable along the length of the upper chord member for positioning at selected intervals. Containers in the lower tier rest on the crossframe structures which may be positioned at selected intervals along the length of the car to accommodate containers of varying lengths. Corner pedestals on the upper chord members support the upper tier of containers and may be adjustably positioned along the length of the upper chord members to sup-

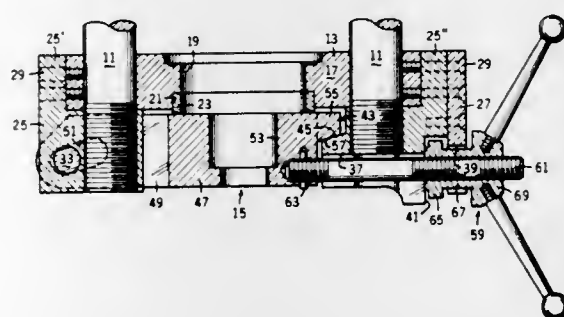
port containers of various lengths in the upper tier over the containers in the lower tier.

**3,561,370
STRIKER AND SILL STRUCTURE**
David J. Reynolds, Columbus, Ohio, assignor to The Buckeye Steel Castings Company, Columbus, Ohio
Filed June 21, 1968, Ser. No. 739,060
Int. Cl. B61f 1/02
U.S. Cl. 105-420 1 Claim



A Stub Striker equipped with front draft lugs adapted to be connected to the free end of a center sill structure of a railway vehicle without any substantial overlapping of the striker and sill structure. The striker has surfaces which facilitate welding of the inner end of the striker to the free end of the sill structure by linear welding which is substantially at right angles to the draft forces.

**3,561,371
EXTRUDER DOOR**
Charles K. Kummer, St. Louis, Mo., assignor to Ralston Purina Company, St. Louis, Mo., a corporation of Missouri
Filed Apr. 10, 1969, Ser. No. 814,923
Int. Cl. A21c 1/16
U.S. Cl. 107-14 10 Claims



An extruder is provided with an end plate having a hinge pin on one side thereof and an angled abutment surface on the other side thereof. The extruder door is provided with a slot adapted to receive the hinge pin and an abutment surface for engagement with the angled surface of the end plate. A shaft is connected to the door and provided with means for reciprocal movement for controlling the movement of the extruder door with respect to the end plate. More particularly, when the shaft is moved in one direction, the abutment faces of the door and end plate are disengaged, permitting said door to be pivoted away from the end plate. When the shaft is moved in the opposite direction, the abutment faces of the door and end plate are brought into engagement, thereby forcing the door into fluidtight engagement with the end plate.

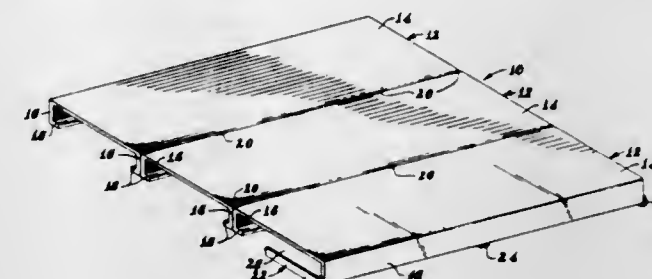
**3,561,372
DIVIDER FOR COHESIVE MATERIALS**
Clarence W. Vogt, Box 232, Westport, Conn. 06880
Filed Dec. 13, 1967, Ser. No. 690,249
Int. Cl. A21c 5/00
U.S. Cl. 107-15 7 Claims

This disclosure has to do with a divider for cohesive materials, which divider includes an impeller mounted for

rotation and having a plurality of pockets which are defined by porous liners. Valving is provided for applying a vacuum to the liners at an inlet point to assure the equal filling of the pockets and similar valving serves to apply pressure to the liners to effect the discharge of the material at a discharge point. An endless belt is provided and has a run extending generally from the inlet point to the discharge point. The endless belt serves to facilitate the movement of the material into the pockets and then cooperates with the impeller to

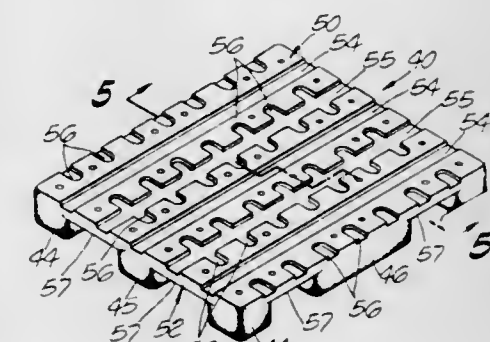
vided for transferring the products between the supporting surface and one of the units. Drive control means is associated with each of the conveyors and the pusher means and is operative in response to the position of the panned products between the bakery processing units.

**3,561,374
PALLET**
Harold E. Honderich, 425 Rainbow Lane, Indianapolis, Ind.
Filed Apr. 26, 1968, Ser. No. 724,403
Int. Cl. B65d 19/18
U.S. Cl. 108-51 7 Claims



A lightweight pallet formed by an assembly of channel-shaped panel members, tack-welded along their adjacent side-edges and reinforced by transverse strips adjacent the lower edge of the panel members.

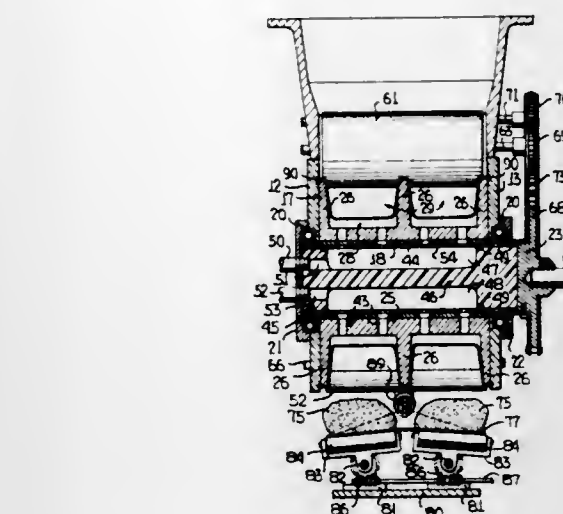
**3,561,375
PLASTIC PALLET**
Lowell D. Hammond, San Marino, and Elmer H. Good, Claremont, Calif., assignors to Nash-Hammond, Inc., Industry, Calif., a corporation of California
Filed July 8, 1968, Ser. No. 743,106
Int. Cl. B65d 19/18
U.S. Cl. 108-53 13 Claims



A one-piece seamless nestable hollow molded plastic pallet for use in handling cargo with forklift equipment and an inexpensive mode of molding the same utilizing dual-axis rotary molding equipment. The mold features an upper mold surface having open ended drainage, ventilating and reinforcing channels and rows of bosses formed in its lower surface spaced apart to receive forklift prongs from any lateral edge. Additional reinforcing is provided by equitably distributed tubular bosses having flaring ends integral with the upper and lower pallet walls and with their reduced midportions merging adjacent the parting plane of the mold parts.

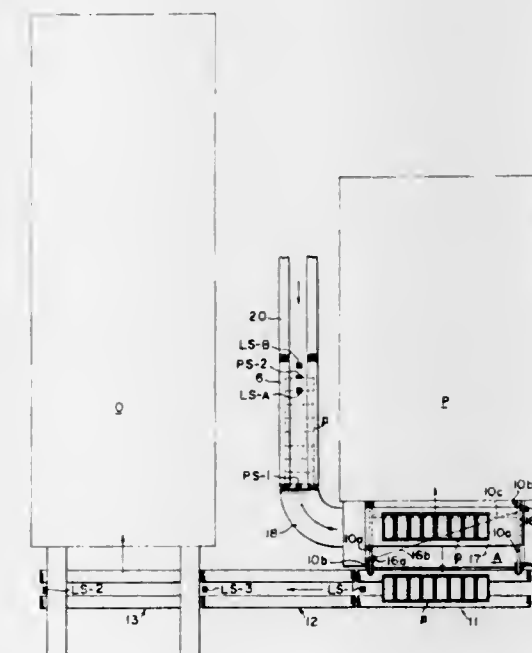
**3,561,376
FOLDING TABLE AND FOLDING TABLE ATTACHMENTS**
Frederick D. Knoblock, 436 Bonnie Brier, Birmingham, Mich. 48009
Filed Mar. 18, 1968, Ser. No. 713,604
Int. Cl. A47b 3/00
U.S. Cl. 108-124 8 Claims

A folding table comprising a pair of frame members which are movable between extended and folded condition and a



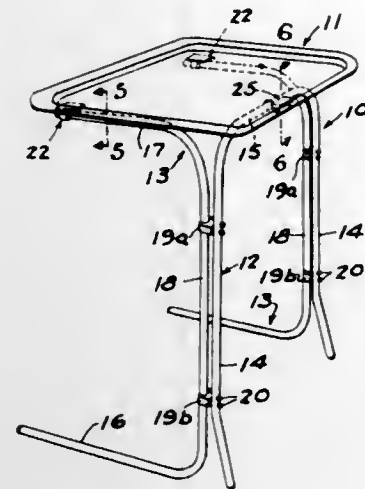
seal the pockets as they move between the inlet point and the discharge point. A conveyor belt is provided for receiving the divided units of the material which units are applied two at a time to the conveyor belt. The conveyor belt is provided with tiltable supports whereby a pair of material units may either be urged apart or together so as to facilitate the supplying of either single units or double units. A dust applicator is provided for applying a thin layer of dust to both the pockets and the conveyor belt.

**3,561,373
BAKERY CONVEYOR SYSTEM**
Carl Robert Sievert, Saginaw, Mich., assignor to Baker Perkins Inc., Saginaw, Mich., a corporation of New York
Filed June 6, 1969, Ser. No. 831,014
Int. Cl. A21b 1/42
U.S. Cl. 107-57 12 Claims



Bakery apparatus including bakery processing units for performing operations on panned products, a plurality of conveyors for conveying the pans between the units, and a pan support surface mounted between one end of one of said units and one of the conveyors for receiving the panned products. A pusher means is associated with the pan support surface which extends alongside one of the conveyors for moving the panned products between one of the conveyors and the supporting surface. Transfer apparatus is also pro-

table top. The table top is pivoted to a cross portion of one of the frame members for swinging movement by a pivot assembly and has securing assemblies thereon which are



adapted to engage the other frame member in the extended position. The pivot assembly and the contact assemblies are adhesively secured to the underside of the table top.

3,561,377

OPEN PIT VORTEX INCINERATION ARRANGEMENT

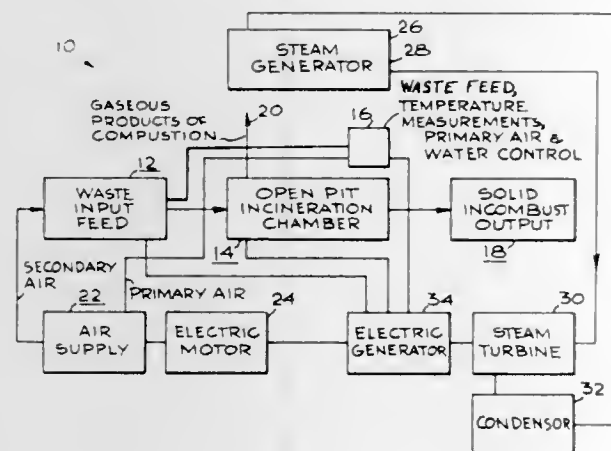
Howard R. Amundsen, Los Angeles, Calif. (6782 Homer St. Westminster Calif. 92683)

Filed May 15, 1970, Ser. No. 037,658

Int. Cl. F23g 7/00

U.S. Cl. 110-8

12 Claims



There is disclosed herein an advanced solid waste disposal system comprising an open pit incineration arrangement for heterogeneous waste and refuse such as that collected by various municipalities and private organizations for disposal. In this incineration arrangement the heterogeneous refuse is fed into an open pit incineration chamber where it is transferred throughout the length thereof by an oscillating hearth. Solid materials not converted into gaseous products of combustion in this first traversal are recirculated within the open pit incineration chamber in the opposite direction by a second oscillating hearth and automatically returns to the first oscillating hearth adjacent the input to the incineration chamber. Such continuous recirculation continues until the material is substantially rendered into a state of incombustible solids. Grates or other waste removal devices are provided within the incineration chamber to allow removal of the solid incombustible materials left in the incineration chamber. Thermodynamic control is exercised to measure the flame temperature within the open pit incineration chamber. The flame temperature is controlled so that a gas producer zone is provided adjacent to the oscillating hearths, wherein the waste is, in general, burned to products of incomplete combustion. Primary air is directed into the open pit incineration chamber from regions adjacent to the top thereof to establish a vortex having an axis substantially parallel to the direction of the travel of the waste on the oscillating hearth by a plurality of individually controlled air nozzles. A plurality of thermocouples or other temperature sensing devices are also provided to monitor continuously the

flame temperature in different portions of the gas producer zone and, through appropriate control means, the air flow is responsively varied to maintain the flame temperature within a predetermined temperature range. Water cooled baffles are provided adjacent the top of the gas producer zone to separate it from the furnace zone. The baffles define an orifice through which the products of incomplete combustion move, in altered and reduced laminar flow characteristics, to the furnace zone for burning to products of complete combustion. Secondary air flow (natural, forced or induced draft) may be provided through the feed mechanism so that materials having a large surface area to mass ratio may be burned with great rapidity to products of complete combustion and/or gasify with increased rate into other carbon and hydrogen reactions. Many materials in this category will contain oxygen up to 30 percent. Under the above-stated conditions, no additional temperature sensing devices or air volume controls are required to offset the effect of secondary air penetrating into the length of the producer zone. The primary air temperature sensing devices automatically reduce the quantity of primary air delivered in inverse ratio to the increased availability of secondary air, in maintaining the proper quantity of total air required to maintain set-point temperature in any zone. Additional temperature sensing devices are provided in the furnace zone. Water spray through nozzles are used as auxiliary flame temperature control and are located adjacent to the primary air nozzles to provide a dousing stream of water for lowering the flame temperature in the gas producer zone in the event that the flame temperature should suddenly rise to a value greater than the predetermined temperature range. The heat of the flame is diluted in the conversion of water to steam. The heated gases of the products of complete combustion may be utilized as the heat source in a conventional steam generator-steam turbine power plant for providing electrical energy to drive the air compressor for the primary and secondary air flows as well as the mechanical power necessary for the feed and transfer mechanisms.

3,561,378

INCINERATOR FOR TREATING BOTH LIQUID AND SOLID MATERIAL

Firmin Alexandre Maurice Fabry, 9, avenue de Huy, Compiègne, Oise, France

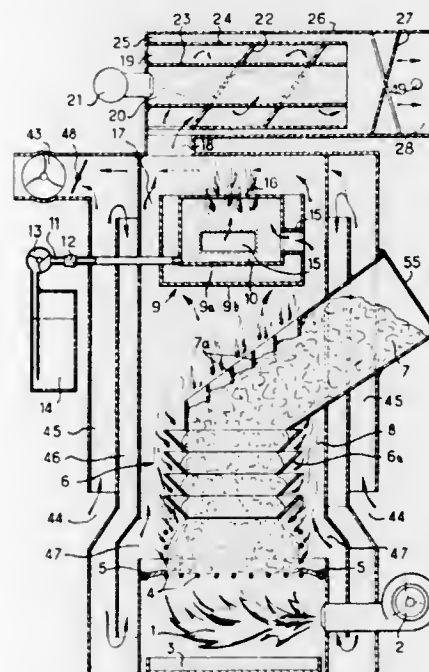
Filed June 18, 1969, Ser. No. 834,296

Claims priority, application France, June 21, 1968, 156,546

Int. Cl. F23g 5/12

U.S. Cl. 110-8

18 Claims



An incinerator comprising a grating, a burner and ash receiver beneath the grating, means above the grating for peripherally restraining garbage therein while admitting hot gases to the periphery of said garbage, and means for treating the gases evolved in the incinerator to precipitate out noxious components. The incinerator may comprise a boiler for

evaporating liquids, special means facilitating the removal of cinders, and means for supplying the incinerator without permitting the escape of noxious gases while this is being done.

3,561,379

SOLID WASTE INCINERATOR AND METHOD

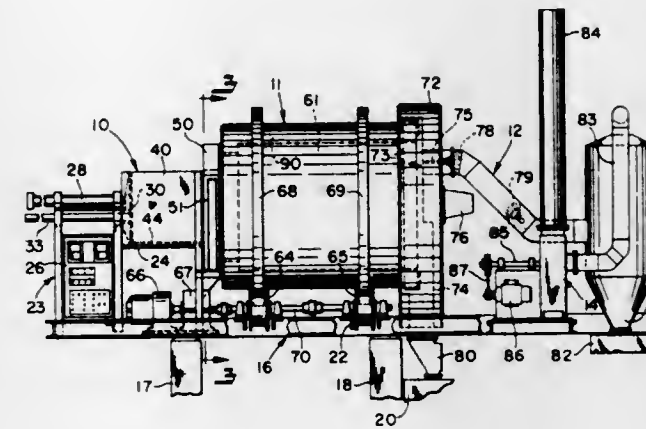
Edwin M. Polsak, South Euclid, Ohio, assignor to Bartlett-Snow, a Division of Bangor Punta Operations, Inc., Bangor, Maine, a corporation of New York

Filed Feb. 19, 1969, Ser. No. 800,510

Int. Cl. F23g 5/06

U.S. Cl. 110-14

28 Claims



A self-contained solid waste incineration system using a rotating cylinder having interior projections in its refractory lining to promote tumbling, such cylinder having a length to I.D. ratio of from about 1:1 to about 2:1; the system incorporating a time controlled plunger feeder utilizing a hinged door forming a part of the hopper to preclude spillage.

3,561,380

SEED PLANTER

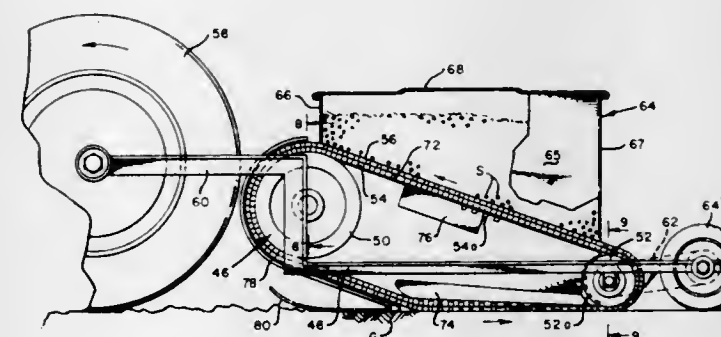
William J. Adams, Jr., San Jose, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed Aug. 28, 1968, Ser. No. 755,853

Int. Cl. A01c 7/18

U.S. Cl. 111-89

5 Claims



A seed planter for placing seed units, i.e., a single seed or a multiple seed packet, into the ground individually at zero ground speed, and at precise spacing and to desired depth. The planter includes a conveyor with pockets, each pocket to receive a single seed unit as the belt passes by a hopper. The seed depositing portion of the conveyor is in rolling or crawling ground engagement and a pusher assembly comprising a wheel or another belt moves along with the seed depositing portion so that a series of protuberances on the pusher assembly enter into the pockets to force the seeds into the ground.

3,561,381

SEWING MACHINE BUTTON HOLDING MECHANISM

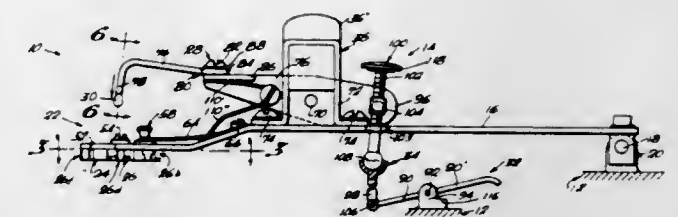
Martin Weiss, 2100 S.W. 20 St., Miami, Fla. 33145

Filed Jan. 28, 1970, Ser. No. 6,359

Int. Cl. D05b 3/00, 3/16

U.S. Cl. 112-114

9 Claims



An attachment device for button sewing machines for temporarily repetitiously holding shank type buttons during button sewing procedure. The device includes turret structure including a selectively positionable turret wheel having a circular plurality of button seats for stationarily seating a variety of styles and sizes of shank type buttons—a particular button shank seat being adapted to be turned or indexed in register with thrust arm means repetitiously operative for selectively holding or releasing buttons from a selected one of the button seats.

3,561,382

UNIVERSAL WORK FEEDING MECHANISMS FOR SEWING MACHINES

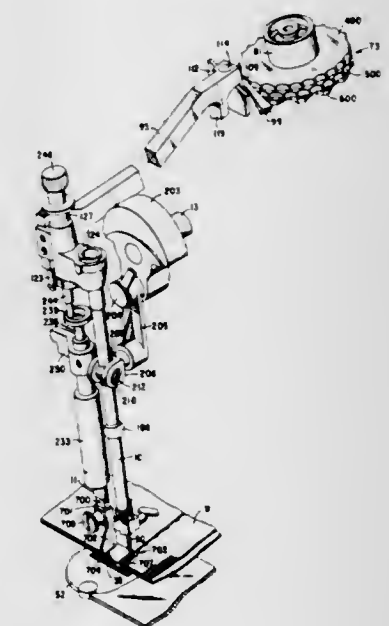
Stanley J. Ketterer, Morris Plains, and William J. Edwards, Denville, N.J., assignors to The Singer Company, New York, N.Y., a corporation of New Jersey

Filed Sept. 29, 1969, Ser. No. 861,575

Int. Cl. D05b 27/20, 3/02

U.S. Cl. 112-213

5 Claims



A universal work feeding mechanism for a zigzag sewing machine whereby the needle jogging mechanism may be converted conveniently into a work feeding mechanism for transporting the work fabric laterally of the usual direction of feed of the work through the machine. By means of a novel pattern cam for the needle jogging mechanism of the sewing machine lateral work feeding may be accomplished, and a special sewing machine presser foot facilitates feeding of the work fabric not only in the conventional direction, but also transversely thereof.

3,561,383

SEWING MACHINE

Marcel Fresard, Petit-Lancy, Geneva, Switzerland, assignor to Mefina S. A., Fribourg, Switzerland, a company of Switzerland

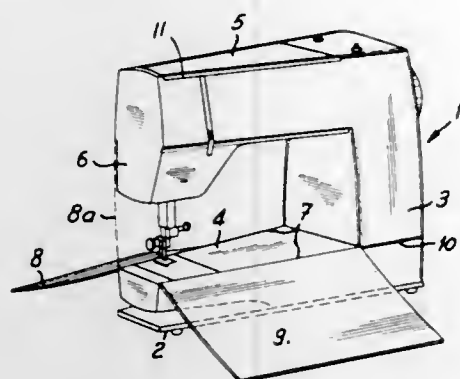
Filed Mar. 11, 1969, Ser. No. 806,067

Claims priority, application Switzerland, Apr. 11, 1968, 5,502/68

Int. Cl. D05b 75/00

U.S. Cl. 112—217.1

4 Claims



A sewing machine has two flaps hinged on respective sides of the free lower arm of the machine so that when the flaps are raised, they enclose the head of the machine and when they are lowered, they expose the head for use. The hinge means of each flap is slidable in a related groove extending along the upper face of the lower arm and into the pedestal so that each of the flaps can be slid away from the end of the free lower arm to permit tubular pieces of material to be slipped over said arm and have a sewing operation performed thereon.

3,561,384

NEEDLE THREAD TAKEUP MECHANISMS FOR SEWING MACHINES

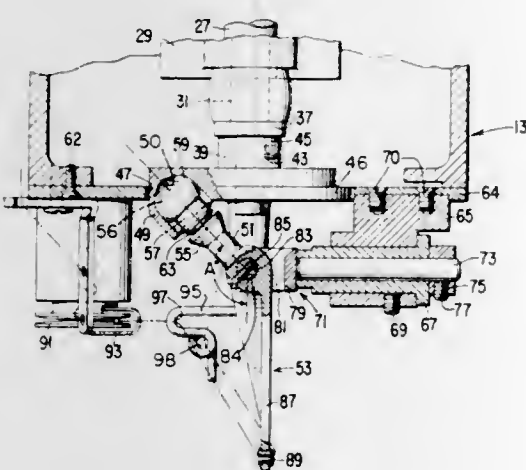
Ralph E. Johnson, Boonton, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey

Filed Sept. 10, 1969, Ser. No. 856,722

Int. Cl. D05b 49/00

U.S. Cl. 112—248

8 Claims



A needle thread takeup for a sewing machine comprising mechanism for imparting motion to the thread eyelet extremity of a takeup lever in a nonplanar closed loop path.

3,561,385

THREAD CONTROLLING MECHANISMS FOR SEWING MACHINES

Ralph E. Johnson, Boonton, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey

Filed Oct. 7, 1969, Ser. No. 864,349

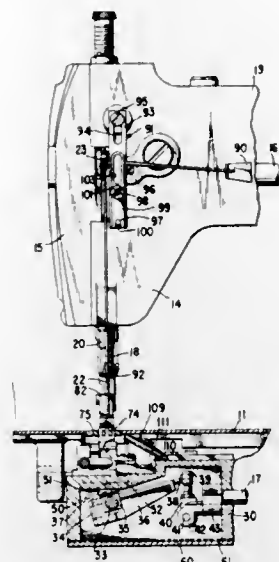
Int. Cl. D05b 49/00

U.S. Cl. 112—247

9 Claims

Thread controlling devices for the needle thread and looper thread of a two thread chainstitch sewing machine in

which a thread takeup element is arranged to move in a path closely adjacent to the opposed edges of a pair of thread frictioning plates to draw the thread at times lengthwise between the thread frictioning plates and at other times laterally therebetween.



3,561,386

CONTAINER SEALING MACHINE

Otto Meister, Oehringen, Germany, assignor to Karl Huber Verpackungswerke, Oehringen, Germany

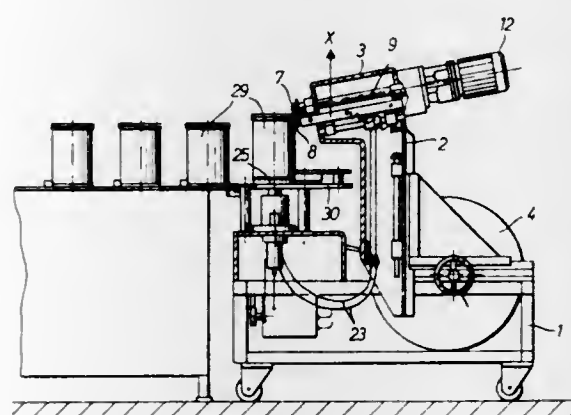
Filed Mar. 4, 1969, Ser. No. 804,112

Claims priority, application Austria, Mar. 5, 1968, A2,124/68

Int. Cl. B21d 19/00

U.S. Cl. 113—30

11 Claims



A machine for automatically securing round covers on a succession of round containers by means of sealing strips of a substantially U-shaped cross section and a predetermined length by automatically inserting the adjacent rolled outer edges of a container and cover between two sealing rollers which are rotating in opposite directions to each other, and by then automatically inserting the two webs of a sealing strip between the sealing rollers and the rolled edges while the container with its cover is turned for at least one complete revolution about a vertical axis. The automatic insertion of the rolled edges of the container and cover between the sealing rollers is attained by suitable means for retracting the lower sealing roller in the axial and vertical directions from its sealing position underneath the upper sealing roller so as to permit the container and cover to be lifted in a vertical direction until the rolled edges have passed the lower sealing roller, and for then moving the lower sealing roller forwardly and pressing it upwardly against the rolled upper edge of the container.

3,561,387

UNDERWATER SUPPORT VESSEL

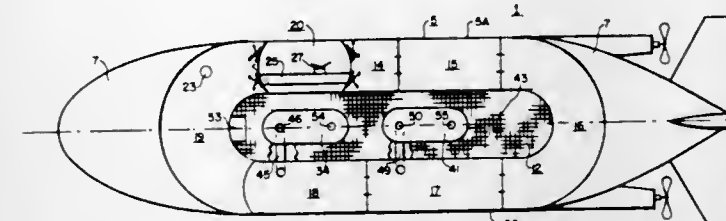
William H. Kumm, Severna Park, Md., and Harley A. Smith, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Feb. 3, 1969, Ser. No. 795,860

Int. Cl. B63g 8/00

U.S. Cl. 114—16

12 Claims



An underwater vessel for docking and maintenance of small submersible vehicles includes a toroidal hull having a plurality of compartments at least one of which is maintained at a pressure equal to the pressure of the surrounding water medium. The toroidal hull defines a central well area which includes one or more landing areas for the landing of the submersible vehicles. A passageway connects a compartment of the hull with the landing area and includes a mating means which cooperatively mates with the submersible vehicles for transfer of personnel. A galley is located in one of the compartments of the hull which compartment is maintained at a pressure of one atmosphere and the food may be transferred to the personnel in the ambient atmosphere compartment by means of a food lock. A manned passage is provided through a decompression chamber which allows personnel to transfer from the ambient pressure compartment to the one atmosphere compartment after proper decompression in the decompression chamber. Divers may exit from the ambient pressure compartment and work on the landed submersible vehicle in a dry gas atmosphere such as air by the provision of an inflatable bubble housing enclosing the landing area and having a pressure therein equal to the ambient pressure of the surrounding water medium.

3,561,388

HYDROFOIL SALING CRAFT

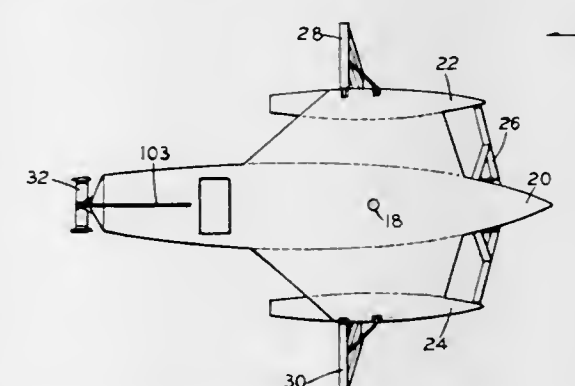
David A. Keiper, P.O. Box 71 (Marin Co.), Sausalito, Calif.

Filed May 7, 1969, Ser. No. 822,578

Int. Cl. B63b 1/28

U.S. Cl. 114—66.5

8 Claims



A hydrofoil trimaran, adapted to be supported wholly by hydrofoils with sail propulsion means, comprising a bow hydrofoil truss structure having a symmetrically disposed dihedral foil element with oppositely inclined lifting surfaces pivotally mounted upon the opposite sides of the central hull and the pontoon hulls above the normal waterline of said hulls on a substantially common pivotal axis with means for securing the truss structure in a generally vertical plane with lifting surfaces inclined to provide a positive angle of attack and positive lift, lateral hydrofoil units applied to each of the pontoon hulls, having lifting foils inclined outwardly and upwardly, and laterally of the center of thrust of the sail propulsion means and a stern foil unit lifting foils, adapted to act as a rudder, and means for retracting all hydrofoils for normal sailing.

3,561,389

GAS-CUSHION VEHICLES

Rowland D. Hunt, Fareham, England, assignor to Vosper Limited

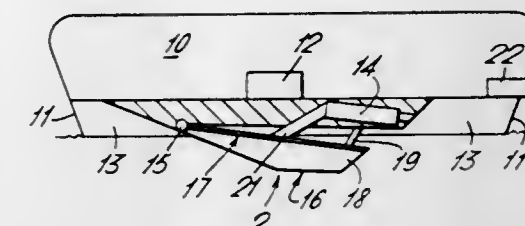
Filed Dec. 31, 1968, Ser. No. 788,231

Claims priority, application Great Britain, Jan. 11, 1968, 1609/68

Int. Cl. B63b 1/22

U.S. Cl. 114—66.5

11 Claims



A planing surface provided with a water inlet for the vehicle's water reaction propulsion means forms part of a member located within the gas-cushion space of the vehicle which member is displaced upwardly against the action of resilient means and has a downwardly protruding keel portion to prevent the planing surface from grounding when the vehicle is operating on land or in very shallow water. Auxiliary propulsion means are provided for use when said water reaction propulsion means is inoperative.

3,561,390

HYDROPLANE BOAT HULL

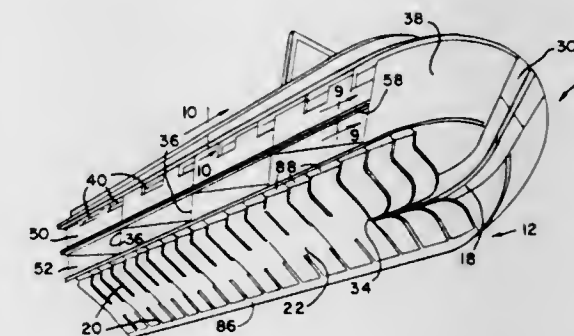
Milton A. Wallace, 11 Colonial Ave., Cleveland, Ohio 44110

Filed Apr. 21, 1969, Ser. No. 817,688

Int. Cl. B63b 1/38

U.S. Cl. 114—67

10 Claims



The invention disclosed is an improved, hydroplane boat hull comprising a watertight interior skin, extending above the water line of the boat, an exterior skin having openings to the atmosphere for induction of air, and air ports beneath the water line for egress of air under pressure to lift the boat when the boat is propelled at a planing speed. The hull itself is formed with a pair of lower, elongated convex keels, each having a runner therealong, a forward, central boat keel having an air tunnel formed therein, and a central, generally rectangular air pressure duct extending along the terminus of the forward boat keel to the rear or transom of the hull, and being of decreasing cross-sectional area, from stem to stern, and communicating with the air exhaust ports in the exterior skin of the hull so that greater air pressure is maintained towards the transom of the boat than at the bow of the boat so as to lift the transom when the boat is at a planing speed. The transom may include a cavitation plate, and the hull itself is constructed of modular, precast units.

3,561,391

BOAT WASHING APPARATUS AND METHOD

Norman C. Locati, 1714 Meadow Drive, Lake Oswego, Oreg. 97034

Filed Mar. 3, 1969, Ser. No. 803,654

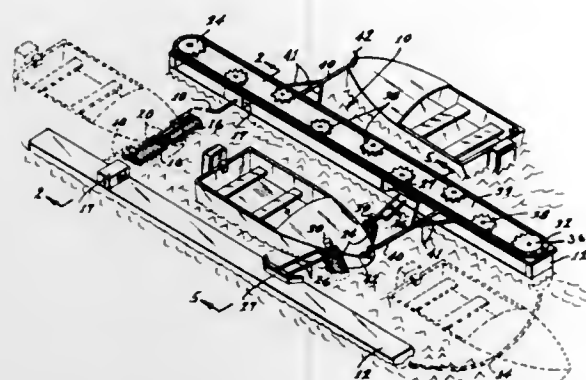
Int. Cl. B63b 59/00

U.S. Cl. 114—222

7 Claims

Two parallel elongated floating support means define a pathway for a boat. Powered brushing members are carried by double jointed arms that are anchored to the floating sup-

port means. Said powered brushing members are spring biased to conform to the various shapes of boats that are



passed through the pathway and clean algae, barnacle spores and the like from the submerged portion of the boats.

3,561,392 UNIT OF PROPULSION BY HYDRODYNAMIC REACTION

Guillermo Federico Baez, 759 Jujuy St., Buenos Aires, Argentina

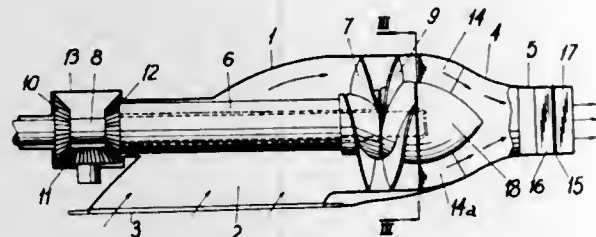
Filed Oct. 21, 1968, Ser. No. 769,289

Claims priority, application Argentina, Oct. 23, 1967, 210,440

Int. Cl. B63h 11/10

U.S. Cl. 115-12

1 Claim



The improved unit of propulsion by hydrodynamic reaction consists of an integral turbine which has a pair of adjacent, counterrotating rotors, driven either by one motor through suitable gearings, or by two separate motors. The casing which encloses this counterrotating turbine ends in a nozzle. A conical or bullet shaped element provided with one or two baffles is housed in the casing between the second rotor and the nozzle and directs the jet towards the said nozzle which has movable sidewalls for regulating the outlet.

3,561,393 CONTROL SYSTEM FOR TROLLING MOTOR

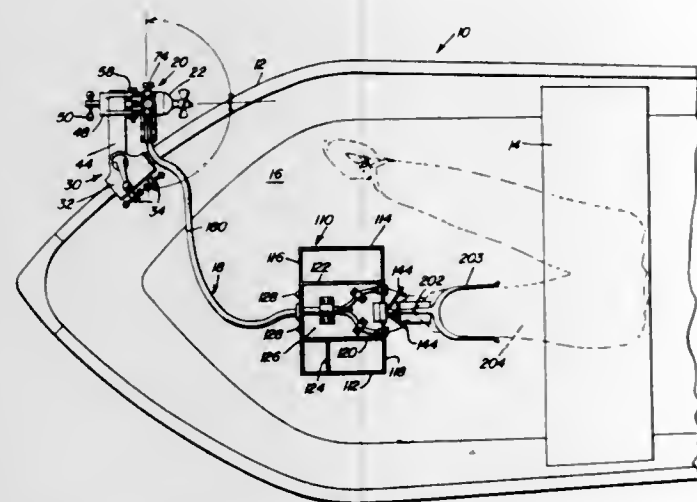
Warren D. Fortson, Sturgis, Miss. (115 Reed Ave. Louisville, Miss. 39339)

Filed Oct. 30, 1968, Ser. No. 771,766

Int. Cl. B63h 21/26

U.S. Cl. 115-18

10 Claims



An electric outboard motor assembly and storage housing therefor. The storage housing encloses a source of electrical

potential for the outboard motor, a steering control assembly and a voltage control assembly for the motor. The housing may be positioned remotely relative to the motor and the steering and voltage control assemblies may be removably supported on the exterior of the housing and operated from adjacent the latter by control portions thereof movably supported from the housing.

3,561,394 SAFETY GLOW VEST AND JACKET

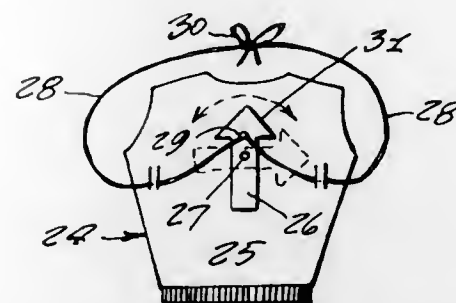
George R. Pickens, 316 N.W. 7th Ave., Homestead, Fla.

Filed Sept. 25, 1967, Ser. No. 670,072

Int. Cl. B60q 1/26

U.S. Cl. 116-35

3 Claims



A garment for riders of motor cycles, bicycles or motor scooters, the garment having a material that will glow when the headlights of an automotive vehicle shine toward it, thus giving the motorist a visibly clear indication of the presence of the cyclist ahead so to prevent colliding into him.

3,561,395 BURGLAR ALARM FOR VENDING MACHINE

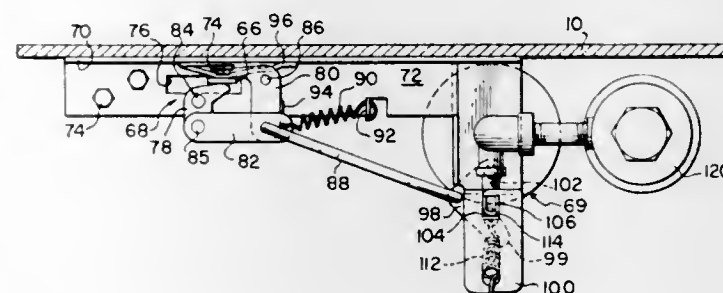
Edwin John Piersma, Grand Rapids, and Lloyd David Herring, Jenison, Mich., assignors to Rowe International, Inc., Whippany, N.J., a corporation of Delaware

Filed Dec. 12, 1968, Ser. No. 783,352

Int. Cl. G08b 13/08

U.S. Cl. 116-86

9 Claims



A burglar alarm for vending machines comprising a reinforced door assembly to protect the coin collection box, a key operated tumbler lock for securing the door assembly in flush position upon the cabinet of vending machine, linkage means connected to a trigger mechanism for actuating normally disabled sound producing device, and sensing levers for detecting the application of an unauthorized force to the tumbler lock to thereby move the linkage means to release trigger and actuate the sound producing device. After sound producing device has been actuated to alert persons in the vicinity of the machine that a burglary attempt is being made, authorized personnel can open the vending machine cabinet and manually reset the spring-loaded trigger to thereby disable sound producing device.

3,561,396 COMBINED SHELL EXTRACTOR AND INDICATOR ASSEMBLY

Arthur E. Luciani, 6744 Mulholland Drive, Hollywood, Calif.

Filed Dec. 22, 1969, Ser. No. 887,107

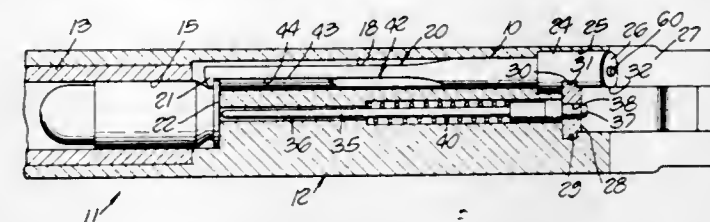
Int. Cl. G01d 21/00

U.S. Cl. 116-114

7 Claims

A combined shell extractor and indicator assembly for a gun providing both visual and tactile indication of the

presence of a shell in the gun chamber. The indicator is built into and carried by the extractor and is designed for use in



lieu of a conventional extractor without need for alteration in the gun.

3,561,397 TUNING INDICATING DEVICE FOR RADIO AND TELEVISION

Wilhelm Bertram, Hans-Cornelius Strasse 125, 8032, Grafelfing, Germany

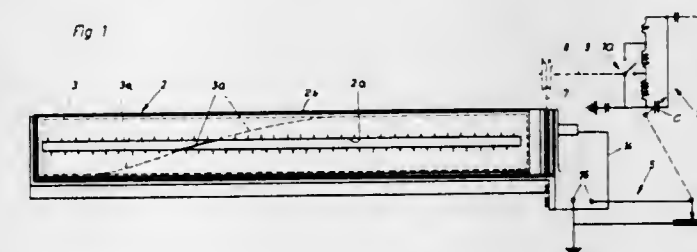
Filed Sept. 5, 1967, Ser. No. 665,517

Claims priority, application Germany, Sept. 8, 1966, B88829

Int. Cl. H03j 1/02; G01d 13/10

U.S. Cl. 116-124.4

7 Claims



A device to indicate wavelengths or channels in radio or television apparatus, including a rotary indicating cylinder having a spiral indicating line thereon. The indicating cylinder is driven by means electrically connected to the tuning means of the apparatus. A scale cylinder is outwardly of, and coaxial with, the indicating cylinder. It has a plurality of scales thereon and is selectively driven by the channels or wave band selector for movement past a fixed housing window.

3,561,398 SPRAY PAINTER

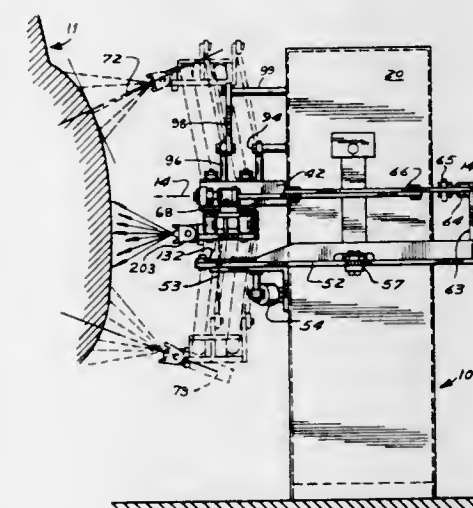
Glenn R. Rose, St. Paul, and Robert S. Hedin, Minneapolis, Minn., assignors to Programmed & Remote Systems Corporation, St. Paul, Minn., a corporation of Minnesota

Continuation of application Ser. No. 561,882, June 30, 1966, now abandoned. This application June 19, 1969, Ser. No. 838,020

Int. Cl. B05b 13/02

U.S. Cl. 118-7

20 Claims



A spray painting device comprising a spray gun mounted onto the end of the arm and including parallel linkage which will hold the spray gun in a predetermined relationship throughout the working stroke of the gun. The spray gun is also mounted so that it can be tipped up or tipped down in

order to keep it substantially perpendicular to the surface being sprayed when the surface curves. A programming device is used for controlling the spray gun so that the spray painting is done only in preselected areas of each of the arm strokes.

3,561,399 METAL COATING APPARATUS

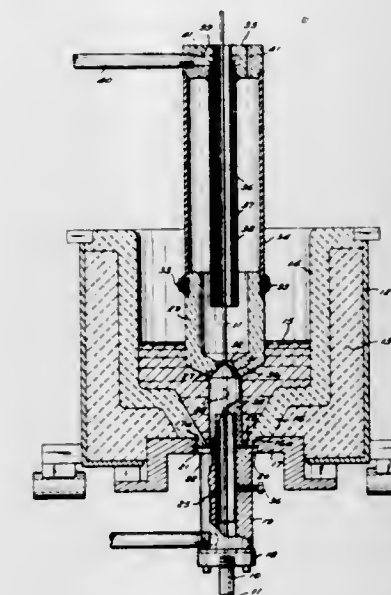
Alfred P. Federman, Chesterland, Ohio, assignor to Homer W. Giles, University Heights, Ohio, a part interest

Original application July 2, 1964, Ser. No. 379,965, now Patent No. 3,468,695, dated Sept. 23, 1969. Divided and this application June 26, 1969, Ser. No. 836,832

Int. Cl. B05c 11/00

U.S. Cl. 118-65

1 Claim



Apparatus for casting a thick coating of aluminum on steel wire. A lower refractory member presents a vertical wire passage with an exit opening inside a crucible for holding molten aluminum. An upper refractory member extends down into the crucible and is releasably engageable sealingly with the lower member around the latter's exit opening to provide a valve controlling the flow of molten aluminum into contact with the wire passing up through the exit opening.

3,561,400 DEVELOPER APPARATUS

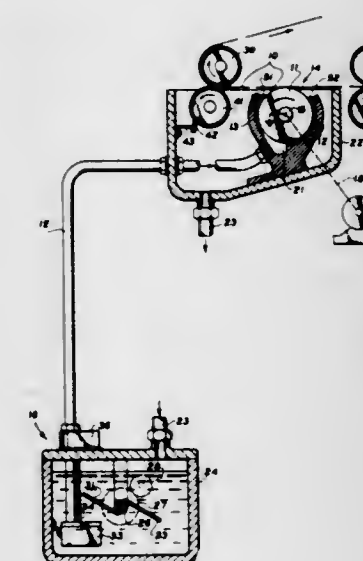
Louis A. Smitzer, and Byung Sik Hong, San Diego, Calif., assignors to Stromberg Datagraphix, Inc., a corporation of Delaware

Filed July 23, 1968, Ser. No. 746,839

Int. Cl. B05b 5/02

U.S. Cl. 118-637

10 Claims



Apparatus is described for developing a latent image on a sheet. Toner is deposited on the sheet by passing the sheet

over a projecting portion of a cylindrical roller in contact with a film of fluid established by rotating the roller. The fluid has toner entrained therein and is supplied to the roller by a pump via a space between the roller and a shroud, which surrounds the roller except for an opening through which the projecting portion of the roller extends. Wiper means both remove residual material from the roller and prevent the removed material from returning to said space.

3,561,401

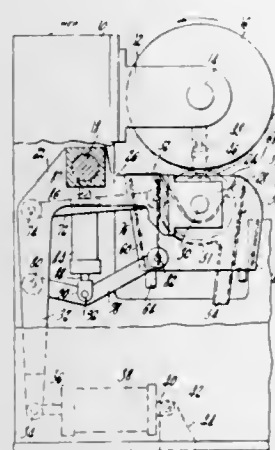
COATER APPLICATOR ASSEMBLY

Frank P. Ford, Liverpool, N.Y., and Burton D. Bjorn, Morningdale, Mass., assignors to Rice Barton Corporation, Worcester, Mass., a corporation of Massachusetts
Continuation of application Ser. No. 307,187, Sept. 6, 1963, now abandoned. This application Apr. 28, 1969, Ser. No. 819,622

Int. Cl. B05c 1/12

U.S. Cl. 118-249

6 Claims



A roller coating apparatus having a backing roll and wherein there are separately shiftable supports for the applicator roller and for its pan so that the pan may be lowered and tilted to a dump position.

3,561,402

ARTIFICIAL REFUGE REEF FOR FISH

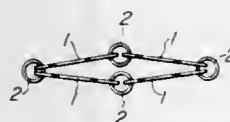
Shinichi Ishida, Tokyo; Takatsugu Kawano, Saitama-ken, and Chiaki Sato, Asaka-shi, Japan, assignors to Asahi Kasei Kogyo Kaishiki Kaisha, Osaka, a corporation of Japan
Filed Nov. 20, 1968, Ser. No. 777,433

Claims priority, application Japan, Nov. 25, 1967, July 13, 1968, 42/98663; 43/59398

Int. Cl. A01k 61/00

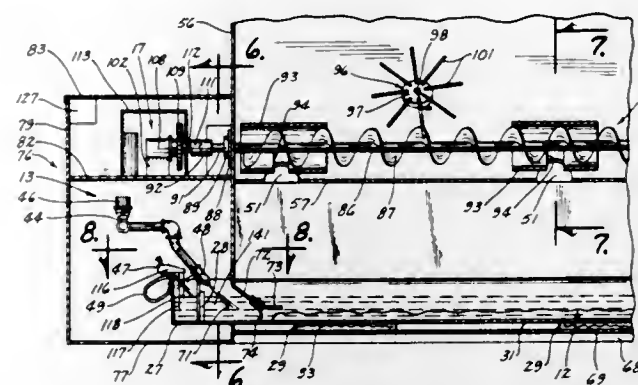
U.S. Cl. 119-3

10 Claims



An artificial reef for fish comprises a hollow tubular body with opposite open ends and constituted of a synthetic resinous substance mixed with inorganic substances so that the apparent specific gravity of the body is at least 1.1. The body is constituted by a single plate when bent to cylindrical form and connected at its ends, and a plurality of plates when of prismatic form, the plates being connected at adjacent ends by means of rings. In the case of a rectangular prism which is collapsible, internal supporting plates are used to hold the tubular body in operative state, the supporting plates being of starlike shape with apex portions engaged in cooperating openings in each of the plates.

3,561,403
AUTOMATIC LIQUID FEEDING APPARATUS
Clifford D. Wilson, Jr., 406 S. Main, and Leland G. Wiseman, 506 Maple St., Conrad, Iowa
Filed Jan. 24, 1969, Ser. No. 793,717
Int. Cl. A01k 05/02
U.S. Cl. 119-51.11 12 Claims



This invention relates to an automatic liquid feeding apparatus comprising a trough means; a water inlet means directed into the trough means; and a feed hopper having feed outlet apertures formed therein disposed above the trough means. Feed is automatically dispensed into the trough means, at intervals, through the apertures in the feed hopper by an auger rotatably mounted in the feed hopper. The direction of rotation of the auger is changed between intervals to prevent bridging and packing of the feed. Water is also automatically dispensed through the water inlet means into the trough means. The liquid level in the trough means is controlled by a liquid level sensing means.

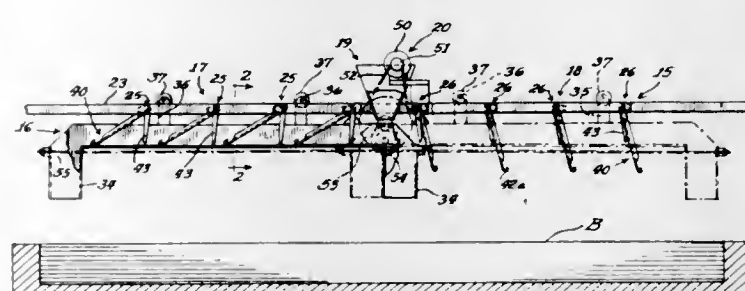
3,561,404

SWEEP SHUTTLE ANIMAL FEEDER

Robert G. Ferris, Harvard, Ill., and Allen K. Gillette, Belvidere, Ill., assignors to Starline Inc., a corporation of Delaware
Filed June 3, 1969, Ser. No. 829,933
Int. Cl. A01k 05/02

U.S. Cl. 119-56

11 Claims



A sweep shuttle animal feeder of the type having a feed trough which reciprocates above a feed bunk that is about twice the length of the trough so that feed deposited in the reciprocating trough from a feed supply station above the midpoint of the bunk may be dropped from the trough along the bunk by the action of two sets of sweep means that are pivoted above the path of travel of the trough with a set on each side of the feed supply station to selectively control relative movement between the deposited feed and the trough. The sweep means of the set through which the leading end of the trough is passing at any given time pass over feed in the trough while the sweep means of the set through which the trailing end of the trough is passing at any given time arrest feed in the trough so it drops off the trailing end. Improved means for selectively controlling relative movement between deposited feed and the trough includes:

1. Sweep means in which a solid sweep panel occupies an angle of about 30° to 35° with respect to the trough floor as it is arresting deposited feed;
2. Sweep means which includes both a solid sweep panel for arresting the movement of free flowing material and associated sweep tine means for arresting the move-

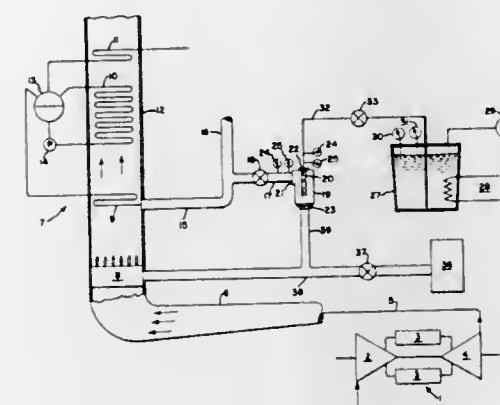
ment of dense material which the panel may not penetrate; and
3. Means for elevating selected sweep panels of each set as the trough passes under the selected panels so that the panels contact feed only when they are arresting it to be dropped off the trailing end of the trough.

3,561,405

SECONDARY FUEL SYSTEM FOR A SUPPLEMENTARY FIRED HEAT RECOVERY STEAM GENERATOR
Salvatore S. Tramuta, North Windham, Maine, assignor to General Electric Company, a corporation of New York
Filed Feb. 4, 1969, Ser. No. 799,186
Int. Cl. F22b 1/18

U.S. Cl. 122-7

2 Claims



A supplementary-fired heat recovery steam generator having a secondary source of liquid fuel and where superheated steam from the steam generator, or an external source, is used to vaporize the liquid fuel which has been atomized in a vaporization chamber.

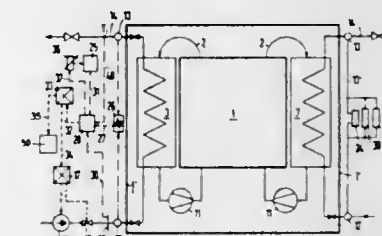
3,561,406

FLOW-THROUGH STEAM GENERATOR

Michel Rupprecht, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
Filed Dec. 10, 1968, Ser. No. 782,549
Claims priority, application Germany, Dec. 12, 1967, P 15 76 882.8; Dec. 15, 1967, P 15 76 883.9
Int. Cl. F22b 1/02

U.S. Cl. 122-32

10 Claims



Flow-through steam generator includes a boiler system having a heating zone and a nonheating zone, means for measuring boiler pressure loss and throughput at locations in the nonheating zone of the system, and load correction regulator means operatively connected to the measuring means and responsive to the measured data for adjusting feedwater supply and heat power input to the boiler system so that the feedwater supply and the heat power input are proportional to one another.

3,561,407

REVERSIBLE INTERNAL COMBUSTION ENGINE HAVING IMPROVED FUEL CONTROL MEANS

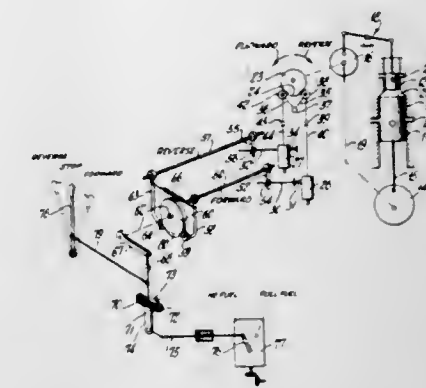
Matthew L. Foreman, Beloit, Wis.; Anker K. Antonsen, Merritt Island, Fla., and John H. Davids, Beloit, Wis., assignors to Fairbanks Morse Inc., New York, N.Y., a corporation of Delaware
Filed Aug. 15, 1969, Ser. No. 850,498
Int. Cl. F02d 27/00

U.S. Cl. 123-41

10 Claims

In a reversible internal combustion engine having at least one cylinder, a crankshaft, a governor, and a starting control

for determining engine starting in either forward or reverse direction, the provision of at least a pair of fuel injection pumps for the cylinder each having a fuel quantity control element, a single lobe pump actuating cam on the crankshaft, the cam and pumps being relatively arranged for cam actuation of one pump in each injection period of the engine operating in the forward direction and of the other pump in each injection period of the engine when operating in reverse

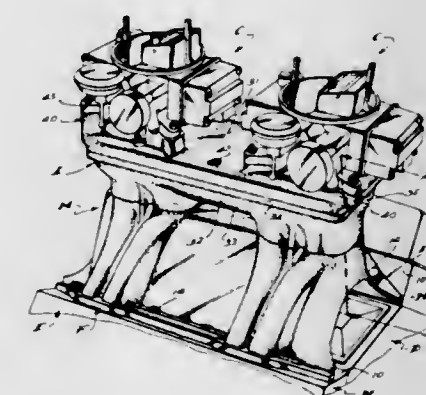


direction, operating means between the pump control elements and the governor including linkage means settable to a first setting affording governor operation solely of the control element of said one pump, and to a second setting affording governor operation solely of the control element of said other pump, and means operated by the engine starting control for effecting said first or second setting of the linkage means correspondingly to forward or reverse engine operation.

3,561,408

HIGH RAM MANIFOLD

Philip Weiland, Glendale, Calif. (2737 San Fernando Road, Los Angeles, Calif. 90065)
Filed Feb. 12, 1970, Ser. No. 010,912
Int. Cl. F02b 75/18, 75/22, 75/20
U.S. Cl. 123-52 10 Claims



An intake manifold to be arranged with and adapted to conduct fuel and air between carburetor means and the inlet ports of an internal combustion engine including a plurality of compound curved tunnels with inlet ends in axial alignment with the discharge of the carburetor means and outlet ends corresponding in cross-sectional configuration and in registering open communication with related inlet ports, the inlet ends and the major longitudinal extent of the tunnels related thereto being D-shaped in cross section with their flat sides at and extending along the outside curvature of the tunnels, the minor portion of the tunnels adjacent their outlet ends joining smoothly with the D-shaped portions thereof and a plenum chamber between the inlet ends of the tunnels and the carburetor means communicating with the carburetor means and the tunnels to balance the pressures therebetween.

3,561,409

AUXILIARY DEVICE FOR CARBURETOR ENGINES FOR PREPARING THE FUEL CONDENSATE

Paul August, C. Capellades 1, Barcelona, Spain

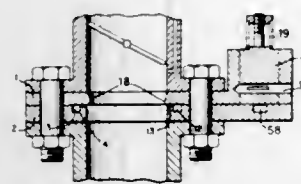
Filed May 6, 1968, Ser. No. 726,995

Claims priority, application Germany, May 20, 1967, May 23, 1967, Aug. 18, 1967, 55762; 55785—56534

Int. Cl. F02m 23/08, 23/02

U.S. Cl. 123—97

4 Claims



An auxiliary air intake for combustion engines which responds to pressure differentials between an air intake conduit of the engine and the atmosphere. The auxiliary air intake admits sufficient air to substantially completely burn hydrocarbons present in the fuel-air mixture in the engine intake conduit and which would otherwise be exhausted into the atmosphere where they form undesirable pollutants.

3,561,410

ENGINE IGNITION TIMING ARRANGEMENT

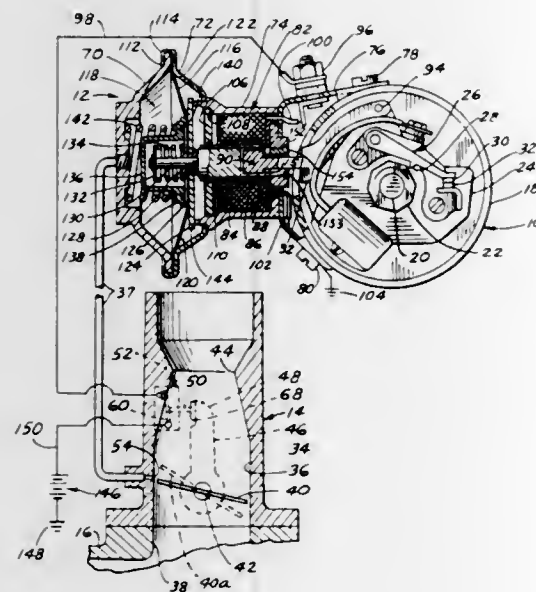
Raymond A. Soeters, Royal Oak, Mich., assignor to Holley Carburetor Company, Warren, Mich., a corporation of Michigan

Filed Nov. 29, 1968, Ser. No. 780,127

Int. Cl. F02p 5/04

U.S. Cl. 123—117

5 Claims



A primary embodiment of the invention employs a control assembly having a pressure responsive section and an electrically energizable section connected to each other and to the cooperating ignition distributor as by an arm pivotally connected to the distributor breaker plate; the pressure responsive section is connected so as to be responsive to engine intake vacuum, during certain predetermined conditions of engine operation, in order to advance the timing of the ignition spark while the electrically energizable section, comprised of a solenoid coil and armature, is operatively connected to electrical switch means also opened and closed to in accordance with preselected indicia of engine operation.

3,561,411

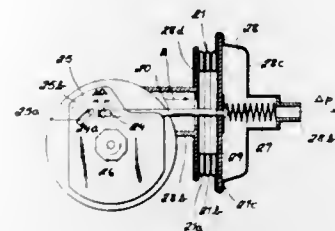
TECHNIQUE AND DEVICE FOR IMPROVING THE COMBUSTION AS WELL AS THE PERFORMANCE OF SPARK-IGNITION ENGINES OPERATING AT ALTITUDE

Adrian Calin Vasilescu, and Ion Stefan, Bucharest, Rumania, assignors to Ministerul Industrii Constructiilor De Masini, Bucharest, Rumania

Filed Aug. 27, 1968, Ser. No. 755,636

U.S. Cl. 123—117.1

8 Claims



Internal-combustion ignition system in which the distributor has a pivotable spark-advance disc angularly displaceable relatively to the distributor cam and shiftable by a diaphragm subjected to reduced pressure of the engine (intake manifold) in order to permit compensation of the spark timing or variation in engine operation. The device includes a hermetically sealed capsule effective to shift the spark-advance disc or plate in the direction in which the reduced pressure of the engine is effective so as to increase the advance as air density decreases with increasing altitude. A vacuum line runs from the diaphragm to the manifold.

3,561,412

CONTROL APPARATUS IN AN ENGINE SUCTION CONDUIT TO PREVENT INCREASE IN THE FUEL-AIR RATIO DUE TO ADHERED FUEL ON THE CONDUIT WALLS

Shizuo Yagi, Asaka-shi; Akira Ishizuya, Kitaadachi-gun, Saitama-ken, and Tetsuo Sekiya, Iruma-gun, Saitama-ken, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

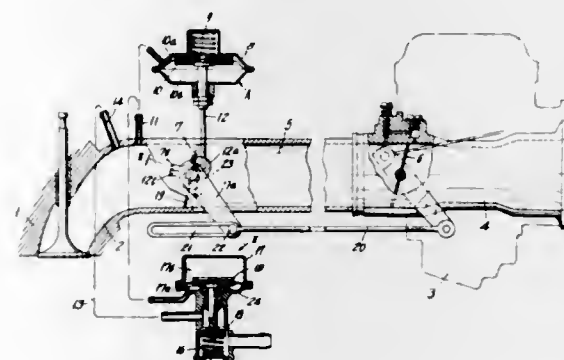
Filed Apr. 4, 1969, Ser. No. 813,439

Claims priority, application Japan, Apr. 4, 1968, 43/21804

Int. Cl. F02m 23/00, 23/02, 23/04

U.S. Cl. 123—119

8 Claims



A second throttle valve is placed in a suction conduit through which an air fuel mixture passes to the engine cylinders, the second throttle valve being disposed downstream of a manually operated first throttle valve and being connected to a device which is responsive to the suction pressure prevailing in the conduit when the first throttle valve is closed such that the second throttle valve is also closed, there being an air inlet conduit opening into the supply conduit to supply a measured burst of ambient air into the supply conduit downstream of the second throttle valve to compensate for admission to the cylinders of fuel adhering to the walls of the supply conduit whereby the air fuel ratio of the mixture supplied to the cylinders is maintained. Additionally, the first and second throttle valves are coupled together and a spring is interposed between the second throttle valve and the

device responsive to the suction pressure in the supply conduit so that when the first throttle valve is opened during acceleration, the second throttle valve is opened therewith against the opposition of the spring irrespective of the pressure prevailing in the supply conduit.

3,561,413

PREHEATING ENGINE INTAKE AIR

Hansjürgen Zurner, Nuremberg, Germany, assignor to Maschinenfabrik Augsburg-Nuremberg Aktiengesellschaft, Nuremberg, Germany

Filed Oct. 14, 1968, Ser. No. 767,320

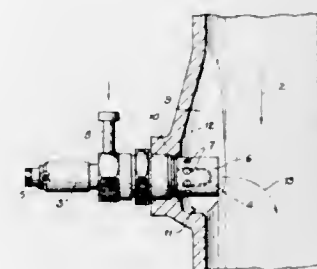
Claims priority, application Germany, Oct. 25, 1967,

P1,576,220

Int. Cl. F02m 31/00; F02n 17/00

U.S. Cl. 123—122

4 Claims



A pocket in the engine intake air pipe contains a heater plug into which fuel is supplied, ignited and mixed with the passing intake air. An end wall in the pocket catches at least a portion of the burning fuel and directs it toward the heater plug.

3,561,414

FUEL TANK FOR INTERNAL COMBUSTION ENGINE

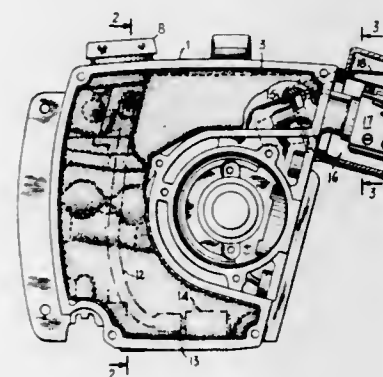
Chris Schou, Greenwich, Conn., assignor to Textron, Inc., Providence, R.I., a corporation of Rhode Island

Filed Jan. 17, 1969, Ser. No. 792,073

Int. Cl. F02m 37/00

U.S. Cl. 123—136

6 Claims



A fuel tank for internal combustion engines used on hand-held tools comprises a rigid container associated with the crank case of the internal combustion engine and a flexible bladder disposed within the rigid container. Fuel inlet and outlet ports are provided in the bladder. The rigid container has an air inlet port which presents the outside surface of the bladder with filtered air of the carburetor air intake chamber. As fuel is withdrawn from the bladder by the engine, the bladder collapses around the remaining body of fuel preventing the creation of a vacuum and thus eliminating the need for a fuel tank vent.

3,561,415

INTERNAL COMBUSTION ENGINE STARTER MECHANISM

Leopold W. Llewellyn, Burnaby, British Columbia, Canada, assignor to Kal-Pac Engineering Ltd., Vancouver, British Columbia, Canada, a corporation of British Columbia

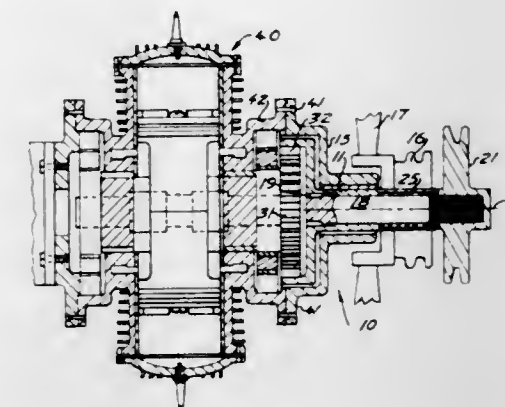
Filed July 18, 1969, Ser. No. 843,127

Claims priority, application Great Britain, July 23, 1968, 35081/68

Int. Cl. F02n 1/100

U.S. Cl. 123—185

4 Claims



Starter mechanism for a high speed engine having epicyclic output speed reduction gearing rendering cranking difficult. A starter pinion shaft with a pinion at an inner end and a starter pulley at an outer end, the shaft slidable inwards and outwards for engagement and disengagement of the pinion with a ring gear applying multiplied torque to the crankshaft through a part of the reduction gearing. Beveled teeth on non-driving faces of the teeth of the pinion provide automatic disengagement as the engine starts.

3,561,416

INTERNAL COMBUSTION ENGINE CYLINDER BLOCK

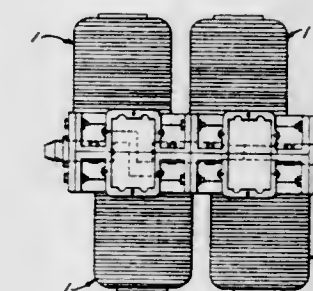
Elmer C. Kiekhaefer, 2408 Cypress Garden Road, Winter Haven, Fla. 33880

Filed Apr. 25, 1969, Ser. No. 819,192

Int. Cl. F02b 75/18, 75/20, 75/24

U.S. Cl. 123—193

5 Claims



A single cylinder engine block embodies the upper half of the crankshaft housing and has end flanges adapting the same to be assembled with other like single cylinder blocks to provide an engine having two or four opposed cylinders. The single cylinder or any number of cylinders in line therewith may be employed by adding the necessary crankcase halves thereto.

3,561,417

EXTERNALLY-MOUNTED OIL COOLER FOR INTERNAL-COMBUSTION ENGINES

Wayne Allman Downey, Dubuque, Iowa, assignor to Deere & Company, Moline, Ill., a corporation of Delaware

Filed Feb. 19, 1969, Ser. No. 800,461

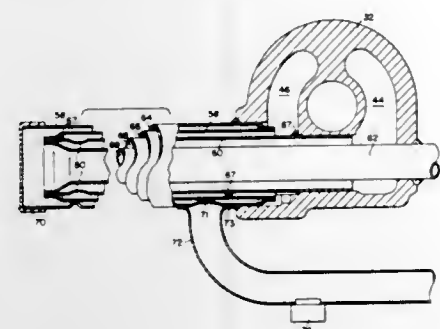
Int. Cl. F01m 5/00; F16n 39/02

U.S. Cl. 123—196

6 Claims

An oil cooler for an internal-combustion engine mounted externally of the cylinder block and having coolant-carrying

conduits mounted in heat-transfer relationship to oil-carrying conduits. The oil cooler includes an adapter portion mounted on the connection that is normally provided on a tractor for mounting an oil filter and the adapter in turn provides a con-



3,561,418

ARCHERY BOW WITH BOWSTRING STRESSING DEVICE

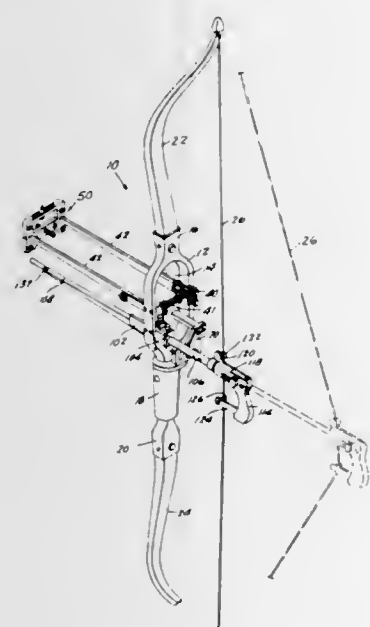
Bert E. Fredrickson, 1208 S. Bond St., Green Bay, Wis.

Filed May 2, 1969, Ser. No. 821,330

Int. Cl. F41b 5/00

U.S. Cl. 124-24

6 Claims



3,561,419

CROSS BOW WITH PNEUMATIC COOKING ASSEMBLY

Joseph R. Cucuzza, Sr., Claremont, Calif. (5903 Greenwood Ave. N., Seattle, Wash. 98103)

Filed Jan. 2, 1968, Ser. No. 695,059

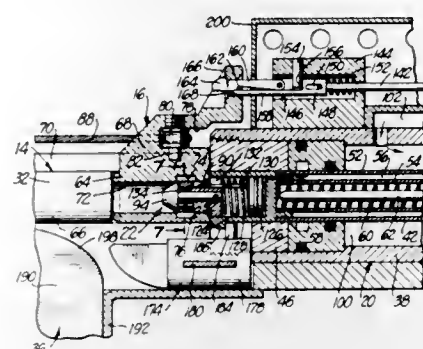
Int. Cl. F41b 5/00

U.S. Cl. 124-25

9 Claims

A repeating projectile launcher having an attached cross-

bow wherein there is a fluid actuated piston rod that retracts the string of the crossbow so as to cock the bow. The retractable piston rod has a fluid actuated coupling assembly on the forward end thereof so as to lockably engage an impeller connected to the bow string when the piston rod is in



3,561,420

OUTDOOR GRILL

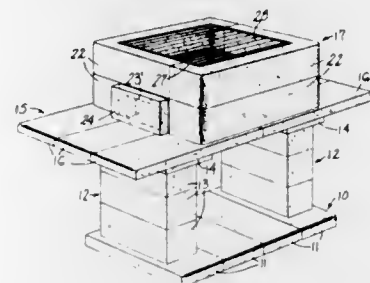
Philip Paoletta, Hamden, Conn., assignor to Plastcrete Corporation, Hamden, Conn., a corporation of Connecticut

Filed Jan. 22, 1969, Ser. No. 793,076

Int. Cl. A47j 37/00; F24b 3/00; F24c 15/08

U.S. Cl. 126-8

7 Claims



3,561,421

COOKING APPARATUS AND METHODS

William K. Body, Whittier; Russell J. Locascio; Harold W. Rice, Fullerton, and Douglas R. Scott, Santa Ana, Calif., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware

Original application Feb. 12, 1965, Ser. No. 432,228, now Patent No. 3,384,071. Divided and this application Dec. 18, 1967, Ser. No. 714,138

Int. Cl. A21b 1/00

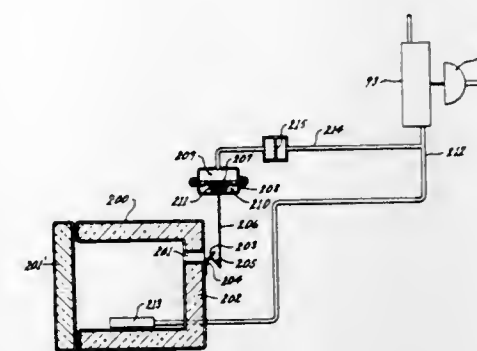
U.S. Cl. 126-21

6 Claims

This disclosure relates to pneumatic control means utilized to control the operation of a cooking apparatus, whether the cooking apparatus has an oven, or a range-type burner, or both, such pneumatic control means comprising pneumatic actuators for controlling the flow of fuel to the burner means as well as for latching the oven door means in its closed posi-

tion for oven cleaning operations, adjusting the burner means to various positions thereof and automatically controlling a

characterized by the provision of an air duct which directs air therethrough such as to preheat the air prior to entry thereof



3,561,422

INFRARED RADIATION GENERATOR

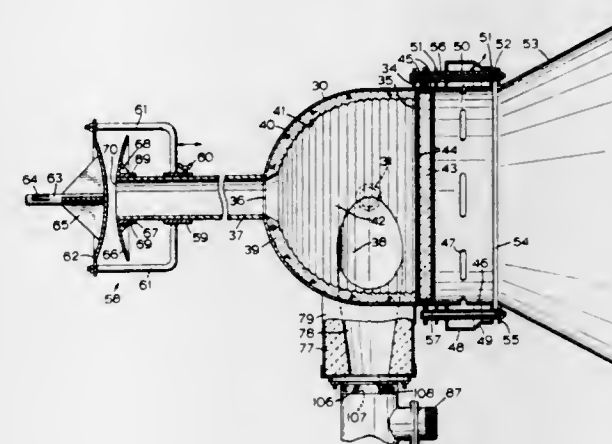
Eric Colin-Smith, 4 Damien Road, Wellesley Hills, Mass.

Filed Apr. 1, 1969, Ser. No. 822,789

Int. Cl. F23d 13/14; F24c 3/04

U.S. Cl. 126-92

6 Claims



A portable infrared heater comprises a burner capable of burning a plurality of fluid fuels individually or simultaneously and a combustion chamber lined with refractory material. Means are provided to create a vortex of heated gases in a combustion chamber for even heating. A flue mounted wind cap permits variations of draft pressure from negative to positive values to cutoff. The combustion chamber may be open to the atmosphere for direct radiation or closed with a silicon carbide plate in which case secondary radiation is emitted from the outer face of such plate. The surfaces of the lining and the plate are textured to increase their area and radiation intensity. A stand permits radiation to be beamed in any desired direction.

3,561,423

DOOR STRUCTURE FOR A SELF-CLEANING OVEN

Calvin J. Holtkamp, Mansfield, and James A. Leach, Shelby, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

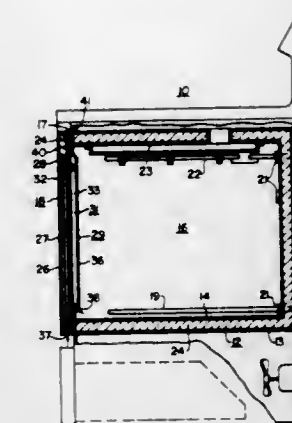
Filed Jan. 7, 1969, Ser. No. 789,538

Int. Cl. F23m 7/00

U.S. Cl. 126-198

1 Claim

Door structure for self-cleaning cooking apparatus of the pyrolytic type wherein substantially all of the heat for such purposes is supplied by a single heating element disposed near the top wall of the oven cavity. The door structure is



3,561,424

FOOD WARMING BY EXOTHERMIC REACTION

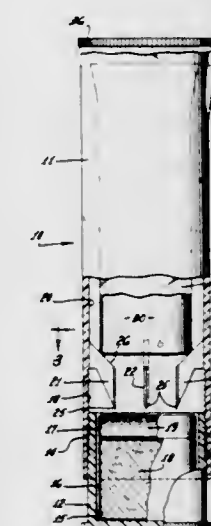
Anthony C. Failla, 26360 S. Western Ave., Lomita, Calif.

Filed Sept. 15, 1969, Ser. No. 866,783

Int. Cl. A47g 23/04; F24j 1/00

U.S. Cl. 126-263

8 Claims



A food warmer for packaged food substances in which two sacks of ingredients are packaged in one chamber and the package of food is placed in an adjacent chamber. Prongs on the second container pierce both sacks so that water in one sack is released to moisten a dry material such as lime in the other sack to generate an exothermic reaction sufficient to create enough warm vapor to surround and heat the package.

3,561,425

SOLAR HEATERS

James Geary Gardner, Riddings Cottage, Harestone Hill, Caterham, Surrey, England

Filed June 17, 1968, Ser. No. 737,473

Claims priority, application Great Britain, June 22, 1967,

28783/67

Int. Cl. F24j 3/02

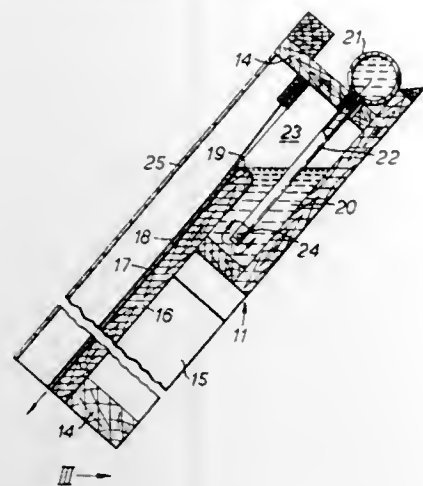
U.S. Cl. 126-271

2 Claims

A Solar Heater comprising a bank of panels each consisting of an inclined wooden frame supporting a heat collecting

lamina and an adjacent backing surface the lamina collecting sunlight and the backing surface having a horizontal top edge

for periodically turning the latter through the angular distance between the compartments at predetermined time intervals all of which are equal. The drum member has outer



over which liquid is supplied and is heated as it descends between the lamina and the backing surface.

3,561,426

FINES MELTER

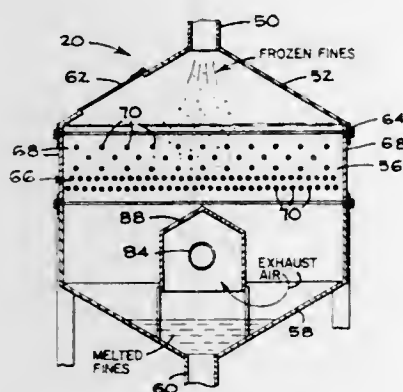
Thomas P. Wheeler, Los Gatos, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed Feb. 17, 1969, Ser. No. 799,839

Int. Cl. F24c 1/00

U.S. Cl. 126—343.5

7 Claims



Finely divided frozen granules of extract such as coffee or the like are melted in an apparatus having closely spaced tubes which act as a grating to support the frozen granulated extract. A heating fluid is passed through the tubes which causes melting of the extract that is in direct contact with the tubes. As the extract is melted, the air between the surfaces of the frozen granules is released and the melted extract drips from the tubes into a catch tank.

3,561,427

DEVICE FOR MEASURING URINARY OUTPUT

Albert Thomas Profy, 42-07 Parsons Blvd., Flushing, N.Y.

Filed Apr. 3, 1968, Ser. No. 718,558

Int. Cl. A61b 10/00

U.S. Cl. 128—2

9 Claims

A device for measuring the volume of urinary output during a given period of time. The device includes a drum member which has a vertical central axis and an open top, means being situated within the drum member to divide the latter into a plurality of equal compartments which are uniformly distributed about the central axis of the drum member with the center of each compartment located at a given angular distance from the center of the next compartment. A conduit member has an outlet end situated at any given instant over one of the compartments so that urine can flow through said conduit member from said outlet end thereof into a compartment to be collected therein. A support means supports at least one of these members for rotary movement about the central axis of the drum member, and a timing means is operatively connected with this one member

This disclosure relates to a cardioscope including a cathode-ray tube and method for displaying superimposed succeeding groups of electrocardiac complexes. To superimpose the complexes occurrence of a first complex is detected and a timing cycle generated in response thereto and a sweep of the cathode-ray tube is initiated at the end of the timing cycle after occurrences of all the complexes of each group and before the occurrences of the first complex of the next group.

wall portions which respectively form parts of the several compartments and which are transparent and carry suitable graduations for indicating the volume of urine which collects in each compartment.

3,561,428

CARDIOSCOPE WITH VARIABLE SWEEP-TIMING MEANS INCLUDING SUPERIMPOSING RECURRING EKG COMPLEXES FOR DISPLAY

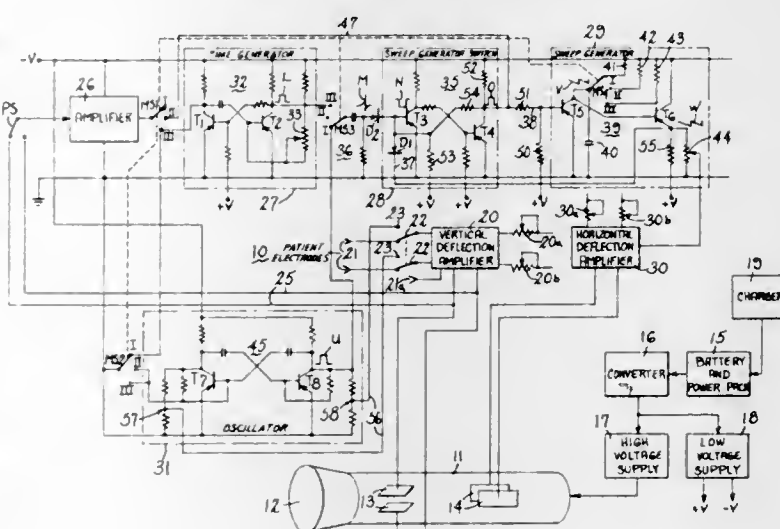
Jerry H. Jacobson, 880 Fifth Ave., New York, N.Y. 10009

Filed Feb. 2, 1966, Ser. No. 524,443

Int. Cl. A61b 5/04

U.S. Cl. 128—2.06

5 Claims



3,561,429

INSTRUMENT FOR OBTAINING A BIOPSY SPECIMEN

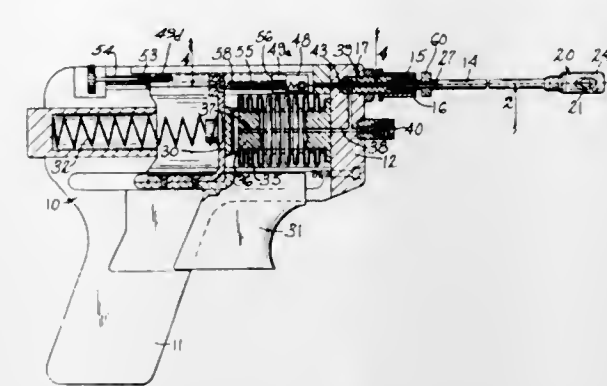
Warren R. Jewett, Orange, and Walter C. Bialobrzewski, Kensington, Conn., assignors to Eversharp, Inc., Milford, Conn., by direct and mesne assignments

Continuation-in-part of application Ser. No. 503,166, Oct. 23, 1965, now abandoned. This application May 23, 1968, Ser. No. 731,400

Int. Cl. A61b 10/00

U.S. Cl. 128—2

10 Claims



An instrument useful in obtaining biopsy specimens or the like from the body. In particular, the instrument is in the form of a gun having a triggerlike mechanism which, in a single stroke, will activate a vacuum-producing means to draw a specimen into a tip supported by the gun and, thereafter, cause a portion of the specimen drawn into the tip to become severed.

flexible manometer-tube combination in such system wherein the liquid level in the tube is easily readable with reference to



3,561,432

ENDOSCOPE

Shigeru Yamaki, and Rikizo Murata, Tokyo, Japan, assignors to Olympus Optical Co., Ltd., Shibuya-ku, Tokyo, Japan, a Japanese corporation

Filed June 27, 1968, Ser. No. 740,737

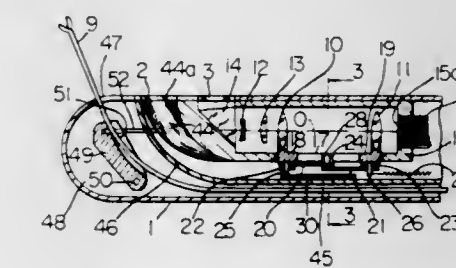
Claims priority, application Japan, July 29, 1967, Aug. 16,

1967, 42/48685; 42/52539

Int. Cl. A61b 1/06

U.S. Cl. 128—6

6 Claims



An endoscope having a forward end casing adapted to be inserted into a hollow portion of a living body and provided with an objective lens system for forming an image of an object by the light therefrom, a control casing provided with ocular means, an elongated tube connecting the forward end casing and the control casing, and an image transmitting optical system extending through the elongated tube. The forward end of the image transmitting optical system is located behind the objective lens system adjacent thereto so as to form the image of the object on the forward end of the image transmitting optical system so that the image is transmitted through the image transmitting optical system to the rearward end thereof, while the rearward end of the image transmitting optical system is located in front of the ocular means adjacent thereto so that the image thus transmitted to the rearward end of the image transmitting optical system is viewed through the ocular means. The objective lens system comprises at least two lens elements or lens groups each movable along the optical axis. The two lens elements or lens groups are operatively coupled with each other so that the movement of one of the two lens elements or lens groups causes the other to be moved relative thereto to thereby permit the distance between the two lens elements or lens groups to be varied, thus resulting in the variation in the focal length of the objective lens system. String means extends through the elongated tube with its one end connected to a control mechanism provided in the control casing and with its other end connected to one of the two lens elements

3,561,430

FETAL HEARTBEAT RATE INSTRUMENT FOR MONITORING FETAL DISTRESS

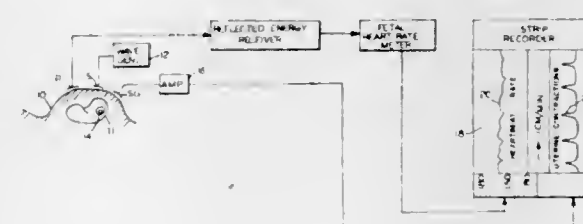
William W. Filler, Jr., 77 Bayview Ave., Great Neck, N.Y., and Jorge O. Pantle, J. B. Blanco 624 Ap6, Montevideo, Uruguay

Filed July 20, 1967, Ser. No. 654,852

Int. Cl. A61b 5/02

U.S. Cl. 128—2.05

6 Claims



Particularly during childbirth it is important to monitor fetal heartbeats to determine distress, and this is accomplished by use of automatic electronic instruments which respond to directional transducers rested upon the outer maternal abdominal wall. An automatic tracking system is provided operating the receiving transducers to follow movements of the fetus, thereby optimizing signal response without manual intervention or attention. The detected fetal heartbeats are processed to provide a visual indication of the heartbeat rate which is made available for every heartbeat period. Further signals are taken representative of the abdominal contractions during labor to correlate on a recorded display the relationship of the fetal heartbeat rate thereby providing information for diagnosing fetal distress.

3,561,431

CENTRAL VENOUS PRESSURE MONITOR SYSTEM AND MANOMETER SCALE THEREFOR

Karl A. Pannier, Jr., Salt Lake City, Utah, assignor to Sorenson Research Corporation, Salt Lake City, Utah, a corporation of Utah

Filed June 10, 1968, Ser. No. 735,837

Int. Cl. A61b 5/02

U.S. Cl. 128—2.05

4 Claims

A system for monitoring the central venous pressure of a medical patient and, in particular, a manometer scale and

or lens groups so that the two lens elements or lens groups are moved simultaneously by actuating the string means by the control mechanism.

3,561,433

DENTAL CLEANING AND MASSAGING DEVICE

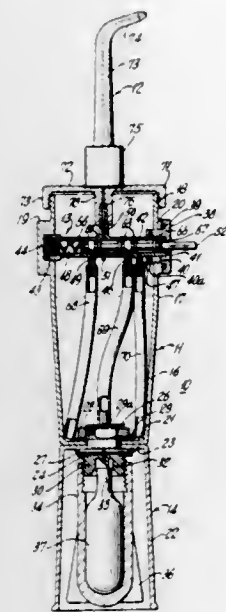
Leslie J. Kovach, 880 Fifth Ave., New York, N.Y.

Filed July 22, 1968, Ser. No. 746,550

Int. Cl. A61h 9/00

U.S. Cl. 128-66

9 Claims



A dental cleaning and massaging device includes a water tank and CO₂ cartridge-containing housing arranged end to end therewith to form a handle. The top of the tank is closed by a screw cap supporting a nozzle. A slide valve is mounted in the tank and includes two pairs of normally closed interconnecting inlets and outlets. A piercing tube is located in the housing and communicates through a pressure regulating valve and a first valve inlet-outlet pair with the tank bottom, a screw casing being provided to hold the cartridge and force it against the piercing tube. The second valve inlet is connected by a tube to the bottom of the tank and an axial tapered coupling nipple defines the second valve outlet which is engaged by a cap-carried socket communicating with the nozzle through a water pulsing device.

3,561,434

DUAL-PURPOSE BELT

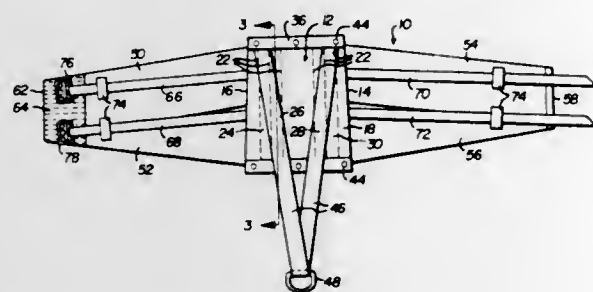
Robert W. Kilbey, P.O. Box 345, DeFuniak Springs, Fla.

Filed Sept. 17, 1968, Ser. No. 760,226

Int. Cl. A61h 1/02

U.S. Cl. 128-75

5 Claims



A dual-purpose orthopedic belt including a back pad with stays therein, a band or bands affixed to the back pad to be wrapped about the pelvic region of a person with the back pad abutting against the back of the person at his lumbosacral area and fastened together in front, and one or more elongated removable straps affixed to the belt for connection to a pulling device. The belt may be used with the stays removed from the back pad as a pelvic traction belt, and may also be used with the stays in the back pad and the straps removed from the belt as a lumbosacral support. The straps

may be designed for single pull or double pull applications when the belt is used as a pelvic traction belt. The bands may be elastic, and the back pad may have a soft removable liner.

3,561,435

COMBINED SPLINT AND COOLANT CONTAINER

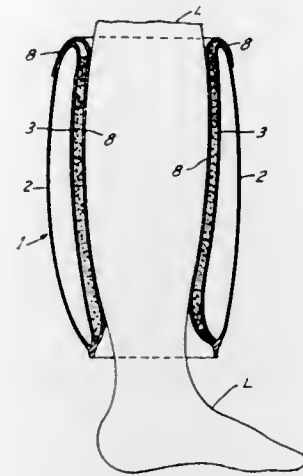
Gary W. Nicholson, Scottsdale, Ariz., assignor to Development, Inc., Cherry Hill, N.J., a corporation

Filed Nov. 15, 1968, Ser. No. 776,140

Int. Cl. A61f 5/04, 7/10

U.S. Cl. 128-82.1

7 Claims



The combined splint and container comprises an inflatable splint having inner and outer walls defining an inflatable chamber and a flexible container wall disposed in face to face spaced relation to the inner wall and connected thereto at its margins and extending from one end thereof to and beyond the other end, so as to form with the inner wall a container for coolant. The splint and container are placed in embracing relation to a member to be treated with the container, filled with coolant, usually crushed ice, in contact with the member. While held in embracing relation, the splint is inflated by oral pressure so as to stiffen the splint and force the container wall into embracing relation, under preselected pressure contact, to the member about the entire periphery of the embraced portion of the member. The splint and container may be of permanent sleeve shape or a sleeve having separable lateral margins which are detachably held together when the splint is installed and are separable so that the sleeve can be opened along one side for convenience in installing it on the member.

3,561,436

THORACIC BELT

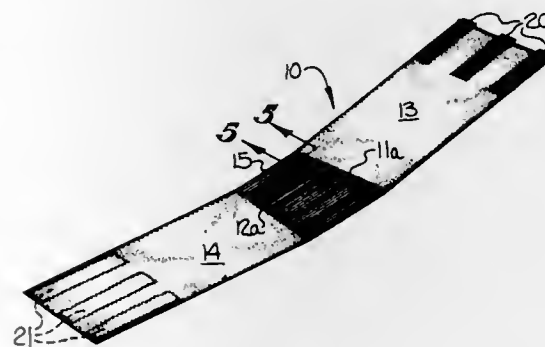
John F. Gaylord, Jr., Matthews, N.C., assignor to Medical Specialties, Inc., Charlotte, N.C., a corporation of North Carolina

Filed May 6, 1968, Ser. No. 726,902

Int. Cl. A61f 5/04

U.S. Cl. 128-87

6 Claims



A belt for reinforcing the thorax of a patient and including elongate substantially dimensionally stable pliable end panels separated by an elastic intermediate panel of trapezoidal shape secured to proximal end edges of the end panels, with fastening means for detachably securing distal end portions

of the end panels in overlapping relationship, and wherein each end panel is provided with a body-engaging facing of resilient spongelike material presenting a friction surface to prevent slippage of the belt when worn by a patient.

3,561,437

APPARATUS FOR FIXING FRACTURES OF THE FEMUR

Jose Luis Orlich, Apartado 81, San Jose, Costa Rica

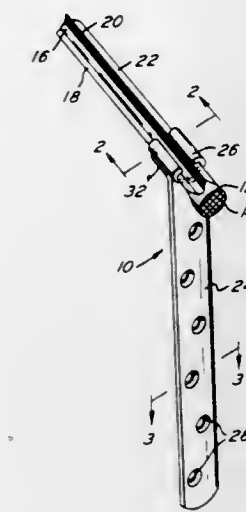
Filed Mar. 20, 1968, Ser. No. 714,661

Claims priority, application Costa Rica, Nov. 8, 1967, 1,660

Int. Cl. A61f 5/04

U.S. Cl. 128-92

3 Claims



Apparatus for fixing fractures of the femur includes a plate which is held by screws to the upper part of the femur and a channel like member fixed to the proximal end of the plate for slidably engaging a flanged nail which is driven into the head of the femur. A second embodiment substitutes a cannulated pin which is inserted into the intramedullary canal of the femur.

3,561,438

GYNAECOLOGICAL DEVICE

Robert Canel, 2 rue Gustave Desplace, Aix-en-Provence

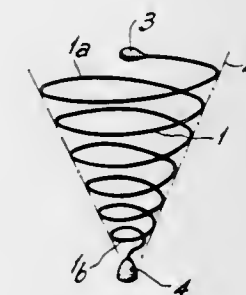
Bouches du Rhone, France

Filed July 11, 1968, Ser. No. 744,023

Int. Cl. A61f 5/46

U.S. Cl. 128-130

2 Claims



A gynaecological device for birth control in the form of a resilient spiral filament the turns of which decrease in size from one end to the other to fit into the uterine cavity, the largest turn terminating in a bulged portion serving as a stop means for an instrument which assists the introduction of the device, the smallest turn terminating in a retaining cone which holds the device in position.

3,561,439

LAPAROTOMY SHEET WITH PLASTIC CENTER STRIP**HAVING ABSORBENT LAYER**

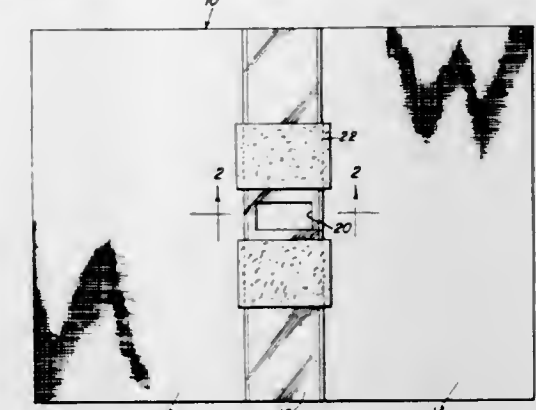
Robert T. Bayer, Asheville, N.C., assignor to Mars Manufacturing Company, Inc., Asheville, N.C., a corporation of North Carolina

Filed Dec. 12, 1968, Ser. No. 783,324

Int. Cl. A61f 13/00

U.S. Cl. 128-132

7 Claims



A surgical sheet or drape of a relatively large rectangular panel of nonwoven paper material having a centrally disposed strip of plastic incorporated therein with a fenestration centrally disposed in the plastic strip and a layer or covering of absorbent material on the plastic strip in spaced relation to the periphery of the fenestration.

3,561,440

SELF-ADHERING TABS FOR SURGICAL DRAPES AND GARMENTS

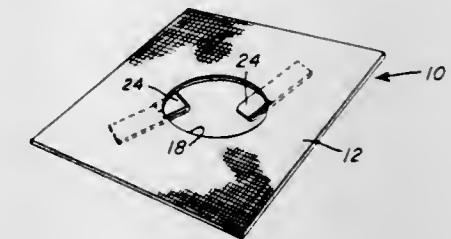
Robert T. Bayer, Asheville, N.C., and Robert M. Woronoff, Atlanta, Ga., assignors to Mars Manufacturing Company Inc., Asheville, N.C., a corporation of North Carolina, a part interest and C. R. Bard Inc., a corporation of New York, a part interest

Filed Sept. 23, 1968, Ser. No. 761,412

Int. Cl. A61f 13/00

U.S. Cl. 128-132

7 Claims



A tab or area of self-adhering adhesive material incorporated into a disposable surgical drape or garment to enable anchoring of the surgical drape or sterile garment in position while conducting an operative procedure.

3,561,441

SURGICAL PRODUCT FOR DRESSING AND TREATING WOUNDS, AND METHOD OF MANUFACTURE

Victor J. Lombardi, 2715 Charlotte Lane, Burlington, N.C.

Filed Aug. 10, 1967, Ser. No. 659,697

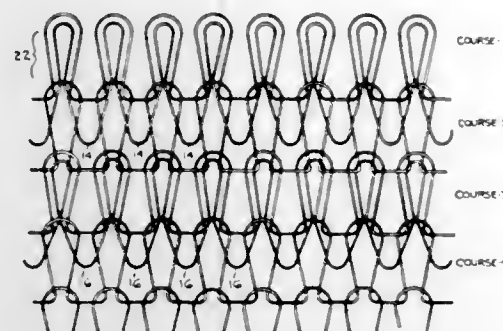
Int. Cl. A61f 15/00

U.S. Cl. 128-156

43 Claims

An improved surgical fabric for covering and treating wounds and promoting healing thereof is described. The fabric includes nonsticking loops, sheared or unsheared, on at least one face for contacting the wound and for spacing the remainder of the fabric away from the wound. The yarn loops may be synthetic and may include a polyfluorinated polyolefin in filament, spun or plastic ribbon form as a non-sticking material, or may incorporate spun yarns of natural fibers suitably treated to impart nonstick characteristics. The

nonsticking loops may be included as part of a knitted fabric construction, and additional, but shorter loops, sheared or unsheared, may be provided in the same fabric for wicking and/or absorbing liquids away from the region of the wound which is being treated. The improved surgical fabric may be produced on small circular knitting machines so as to produce a tubular, seamless fabric which can be placed around a limb or other body portion which is to be covered



and treated. Stretch material may be incorporated in the tubular fabric to help prevent the accumulation of wound fluids and to assist in the retention of the dressing on a preferred placement over a wound. Although the fabric is described with reference to important surgical applications, it will be understood that the fabric is generally useful in applications requiring a transmittal and/or absorption of liquid from any surface area, as for example in diaper constructions or constructions for other articles of apparel.

3,561,442

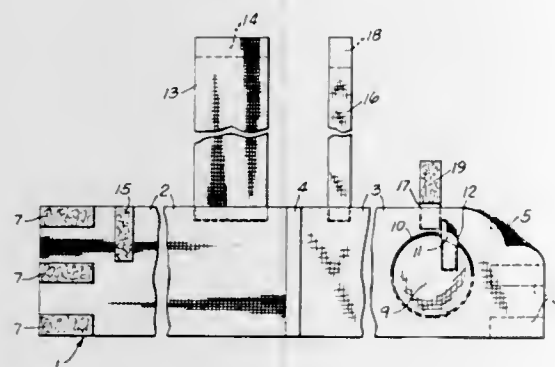
MASTECTOMY COMPRESSION BANDAGE

John T. Goswitz, 601 N. Eight St., Manitowac, Wis. 54220
Filed Nov. 15, 1968, Ser. No. 776,016

Int. Cl. A61f

U.S. Cl. 128-157

8 Claims



A medical bandage for a radical mastectomy which includes a relatively wide body strip adapted to encircle the body. Approximately one half of the length of the strip is formed of elastic material while the other half is formed of a nonelastic material and the free ends of the strip are joined together at the front of the body. The elastic section covers the area of the mastectomy, while the nonelastic area is provided with a brassiere cup and covers the remaining breast. An elastic shoulder strap is attached to spaced portions of the elastic section and extends over one shoulder, while a nonelastic shoulder strap is connected to spaced portions of the nonelastic section and extends over the opposite shoulder.

The bandage acts to hold a dressing in place over the area of the mastectomy with a firm constant pressure and eliminates adhesive tape burns.

3,561,443
INOCULATOR GUN WITH DELAYED ACTION

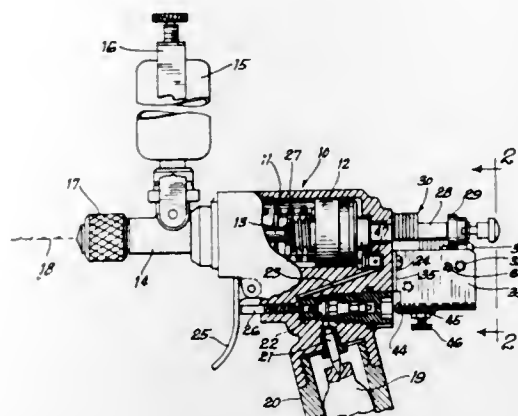
Oscar H. Banker, 261 Breezewood Drive, Bay Village, Ohio

Filed Sept. 6, 1968, Ser. No. 757,932

Int. Cl. A61m 11/06

U.S. Cl. 128-173

10 Claims



An improvement in gas-operated inoculator guns which ensures correct operating pressure for the gun and hence a correct penetrating pressure for the inoculant. The pressure-producing piston is held back by a spring-pressed latch which is released by a plunger operated by the pressure of the gas behind the piston. The spring pressure is adjustable so that the gas pressure at which the piston is released can thereby be varied. This in turn makes it possible to adjust the pressure at which the inoculant is introduced under the skin. The latch prevents operation of the gun when insufficient pressure is available for a satisfactory inoculation.

3,561,444

ULTRASONIC DRUG NEBULIZER

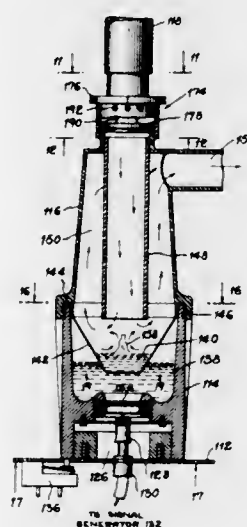
Raymond Marcel Gut Boucher, Metuchen, N.J., assignor to Bio-Logics, Inc., Salt Lake City, Utah, a corporation of Delaware

Continuation-in-part of application Ser. No. 510,537, Nov. 30, 1965, now abandoned. This application May 22, 1968, Ser. No. 730,981

Int. Cl. A61h 1/00; A61m 15/00

U.S. Cl. 128-194

15 Claims



An ultrasonic drug nebulizer for forming droplets from a medicated solution and emitting the same into the surrounding atmosphere having a receptacle with a base and walls to form a liquid containing chamber, a truncated conical cup for containing the medicated solution removably mounted in the upper portion of the receptacle so that its smaller base is below its larger base, the smaller base being closed and the larger base being open, a dome containing an inner, vertically disposed, column and an outer, vertically disposed, column surrounding the inner, vertically disposed, column removably mounted to the receptacle above the truncated conical cup, the inner, vertically disposed, column and the outer, vertically disposed, column both being open at the

bottoms thereof, the outer, vertically disposed, column having an opening therein adjacent the top thereof, a transducer mounted in the base of the receptacle, gas flow regulating means in the top of the inner, vertically disposed, column, means for exciting the transducer at an ultrasonic rate such that a geyser is formed from the medicated solution in the truncated conical cup, and means for introducing gas into the inner, vertically disposed, column through the gas flow regulating means in the top thereof so that there is a pressure difference between the gas in the column and the ambient atmosphere to thereby sweep the mist of the geyser into the outer, vertically disposed, column to be discharged through the opening therein, the flow rate of the gas introduced into the inner column controlling the size of the liquid droplets which are so discharged from the column.

3,561,445

CATHETER PLACEMENT UNIT

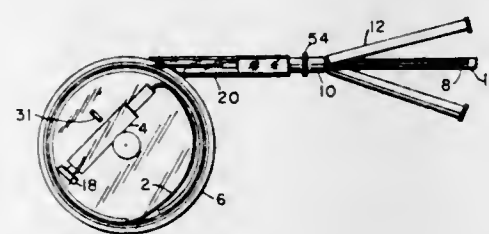
Dean R. Katerndahl, Wheaton; Robert P. Earl, La Grange; Gary D. Evans, Waukegan, and Richard M. Chittenden, Grayslake, Ill., assignors to Abbott Laboratories, Chicago, Ill., a corporation of Illinois

Filed July 3, 1968, Ser. No. 742,333

Int. Cl. A61m 5/00

U.S. Cl. 128-214.4

9 Claims



A catheter placement unit adapted to advance a catheter in a sterile state comprising a catheter having a hub, a concentric needle and hub, a sheath, and a catheter container adapted to enclose a relatively long catheter and being adapted to advance the catheter from the container through the needle and sheath without exposing the catheter. The container in its preferred form is constructed of two halves which snap together to enclose the catheter, and snap apart to expose the catheter. The halves are relatively rotatable, and one half has two concentric walls, the outer wall providing frictional force on the catheter coiled therein, and causing the catheter to advance from the container when the said half is rotated relative to the remaining half.

3,561,446

PLEATED DIAPER

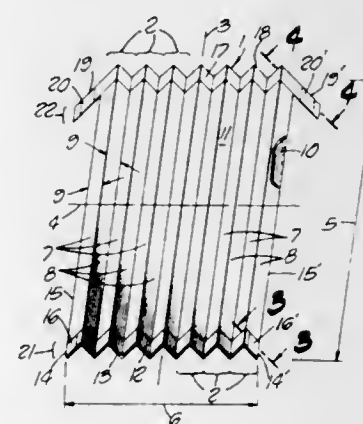
John Leslie Jones, Sr., 1070 Glen Oaks Blvd., Pasadena, Calif. 91105

Filed Oct. 20, 1969, Ser. No. 867,713

Int. Cl. A61f 13/16

U.S. Cl. 128-287

2 Claims



This invention teaches a single-use, rectangular area, disposable diaper, having multiple longitudinal, parallel

pleats disposed in accordion-type folds in the area, said folds being positioned on a baby's torso parallel to the baby's legs. The accordion pleated folds of this diaper simplify the placement of the diaper in the baby's crotch in a position most suitable for maximum absorption and retention of the baby's waste products.

3,561,447

FLUSHABLE SANITARY NAPKIN

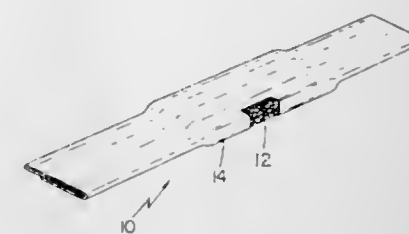
Robert R. Alexander, Sudbury, Mass., assignor to The Kendall Company, Boston, Mass., a corporation of Massachusetts

Filed Mar. 13, 1969, Ser. No. 807,055

Int. Cl. A61f 13/16

U.S. Cl. 128-290

7 Claims



A bonded nonwoven fabric suitable for use as a flushable cover for a disposable diaper or a sanitary napkin is produced by bonding a thin web of textile-length fibers with a fugitive binder comprising a mixture of a soft acrylic binder and a polyvinyl alcohol. Such a fabric has sufficient tensile strength to function usefully as a cover whether dry or damp, but then, after use, may be readily disposed of by flushing since it disintegrates into a thin fibrous slurry when agitated in water.

3,561,448

BLOOD VESSEL SUTURING APPARATUS

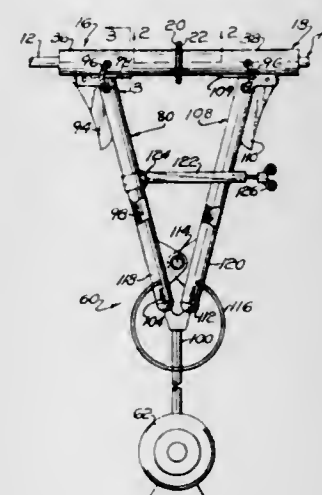
Jacob Peternel, 2917 E. 121 St., Cleveland, Ohio 44120

Filed Aug. 30, 1968, Ser. No. 756,583

Int. Cl. A61b 17/11

U.S. Cl. 128-334

11 Claims



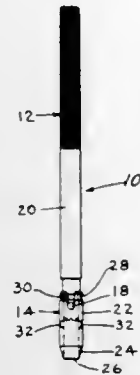
An improved clamp assembly for positioning blood vessels applies suction to end portions of blood vessels to hold the blood vessels in a generally cylindrical shape with outwardly flaring ends which are held in engagement to facilitate interconnecting or sewing together of the blood vessels. Accordingly, the clamp assembly includes a pair of sleeves each of which defines a generally cylindrical manifold which is connected in fluid communication with a source of vacuum or low pressure. The manifold is also connected in fluid communication with an interior portion of the sleeve to thereby apply suction to the outer wall of an empty blood vessel and draw or urge the wall of the empty blood vessel outwardly to a shape similar to the normal shape of the blood vessel.

3,561,449 CUTTER TOOL

Frank A. Bellantoni, 101 Helena Ave., Yonkers, N.Y. 10710
Filed May 1, 1968, Ser. No. 725,731
Int. Cl. A61b 17/32

U.S. Cl. 128—305

3 Claims

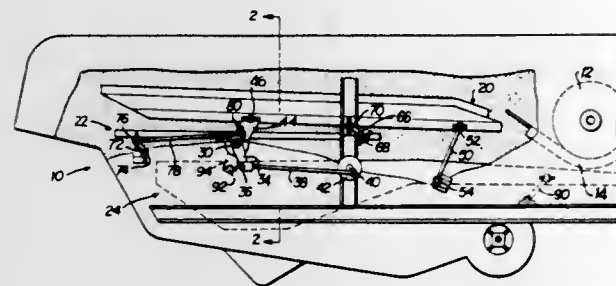


A cutter tool for forming sockets in the skin of the scalp of a person with ease and precision. The tool may be produced at a reasonable cost so that the tool can be discarded after a single operation. The tool comprises an elongated handle cylindrical in cross section, with a detachable tubular head open at both ends, with a knife edge at one end. The head is formed with guide slots and bleed holes.

**3,561,450
COUNTERBALANCING MECHANISM FOR COMBINE**
Robert L. Dahlquist, Rock Island, Ill., assignor to J. I. Case Company, Racine, Wis., a corporation of Wisconsin
Filed July 3, 1968, Ser. No. 742,270
Int. Cl. A01f 12/30

U.S. Cl. 130—26

12 Claims



A drive mechanism for a crop separator of a separating mechanism and including a shaft having a drive at one end thereof for reciprocating the separator with counterbalancing means connected to the opposite end of the shaft for absorbing shock loads supplied to the shaft. In the illustrated embodiment, the counterbalancing means includes a pair of springs telescoped on an extension arm pivoted to the shaft with the respective springs acting between a fixed stop on the mechanism and a stop on the extension.

**3,561,451
PROCESS OF MANUFACTURING RECONSTITUTED TOBACCO OF LIGHT COLOR**
Harry Jacin, Norwalk, and Joseph Fiore, Fairfield, Conn., assignors to American Machine & Foundry Company
No Drawing. Filed May 17, 1967, Ser. No. 639,032
Int. Cl. A24b 03/14, 15/08

U.S. Cl. 131—143

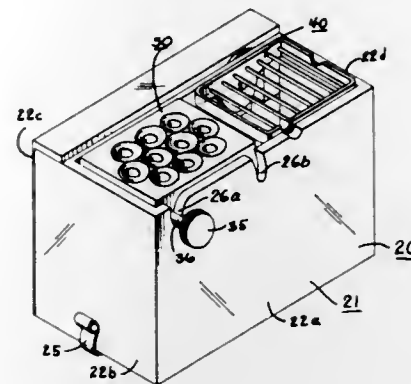
1 Claim

A process of treating tobacco in the manufacture of reconstituted tobacco is disclosed wherein the color of the finished reconstituted product is lightened by the removal of basic polyphenols present in the starting batch. The process involves washing the tobacco with water to form an aqueous extract thereof, separating the extract and treating it with absorbent agents such as activated alumina or polyamids to remove the basic polyphenols and finally reincorporating the extract minus the removed polyphenols into the fibrous tobacco mass.

**3,561,452
ASH TRAY WITH CIGARETTE EXTINGUISHER AND ASH REMOVING GRATING**
Mario Artelli, c/o M.S. Franca C. Costa Lines, Atlantic Cruise, Inc. 520 Biscayne Blvd., Miami, Fla. (Corso Italia, 44/22 Rapallo Geneva, Italy)
Filed Oct. 17, 1968, Ser. No. 768,421
Int. Cl. A24f 19/00, 19/14

U.S. Cl. 131—235

7 Claims

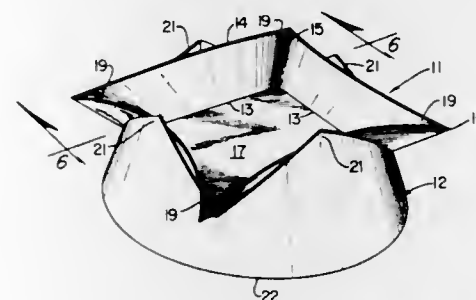


An ash receiver is disclosed which contains a rotatable snubber assembly, a rotatable grate assembly, a lever assembly coupling the snubber and grate assemblies and a receptacle for housing the snubber, grate and lever assemblies.

**3,561,453
DISPOSABLE ASHTRAY AND BASE**
Jesse J. Kline, 8583 Pacific Place, Denver, Colo. 80227
Filed Aug. 11, 1969, Ser. No. 849,061
Int. Cl. A24f 19/00; A47g 23/032

U.S. Cl. 131—241

7 Claims



A disposable insert-type ashtray and base therefor with the tray being made of a single blank of a resilient sheet material having at least an upper heat resistant layer. Fold lines are provided substantially inwardly of and along each edge which permit the blank to be folded along the lines into an open container characterized by a flat bottom, upright inclined and inwardly bowed sidewalls and generally V-shaped corners. A base into which the ashtray may be inserted for support and readily removed therefrom is a generally hollow body with a top opening and upstanding inwardly inclined spaced projections or lips sized and circumferentially arranged to bear against the sidewalls of the tray to releasably hold it in place and which may also be formed from a disposable blank.

**3,561,454
IMPLEM FOR APPLYING FALSE EYELASHES TO A HUMAN EYELID**
Jon O'Connell, 12 East 22nd St., New York, N.Y. 10010
Filed Aug. 2, 1968, Ser. No. 749,805
Int. Cl. A45d 44/00

U.S. Cl. 132—1

1 Claim

A false-eyelash applicator constituting a pair of substantially parallel elongated shanks integral with a pair of elongated tips, at least one tip is flexible and the tips are at such

angles with respect to their associated shanks that when the shanks are manipulated to force the tips into contact with



one another, the tips engage on opposite sides of a plane which is at an angle to the plane between the shanks.

**3,561,455
HAIR PROTECTOR**
Richard G. Gregg, 2410 Holmes Ave., Huntsville, Ala.
Filed Nov. 7, 1969, Ser. No. 874,862
Int. Cl. A45d 8/00

U.S. Cl. 132—46

7 Claims

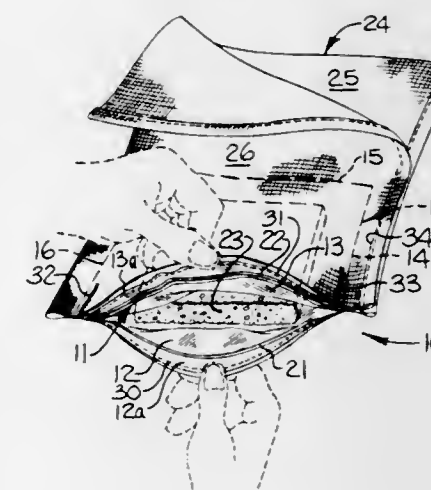


A hair protector that can be placed over a woman's hair style for protecting the hair while sleeping and cover hair rollers, etc., when hair is put up, asleep or awake, and which is made in three tubular panels, a top panel being of light, open weave material, an intermediate panel being of two ply construction with an inner layer being of foam material and an outer layer of smooth or slick material, and a bottom panel being of light net material. An elastic band is attached around the bottom of the lower panel to hold the protector on the head and provide lateral adjustment and a sliding ring is positioned around the top to provide vertical adjustment.

**3,561,456
PORTABLE CLEANING DEVICE**
Charles Wayland Stuart, Jr., 926 Nottingham Road, Charlotte, N.C. 28211
Filed Sept. 9, 1968, Ser. No. 758,248
Int. Cl. A45d 40/00

U.S. Cl. 132—79

6 Claims



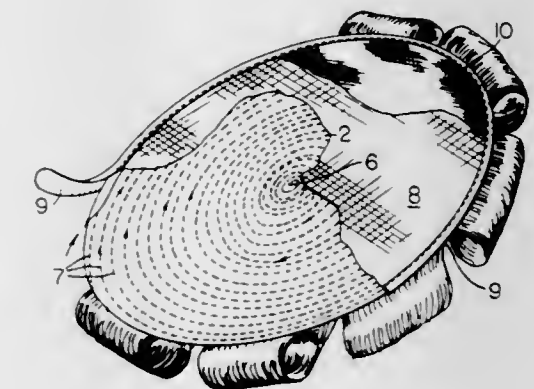
A portable cleaning device adapted for use as an ablutionary device and including a generally flat, moisture impermeable member and a cleaning member.

vious container having an access opening therein and separable sealing means normally closing the access opening to provide a moisture tight container but being separable to permit access into the interior of the container, a moisture absorbent washing member removably disposed within said container and adapted to contain therein a washing solution, and a drying member composed of a pair of layers of moisture absorbent material enclosing the container therebetween at one end and being of such length as to extend beyond the container to facilitate use as a drying medium, the drying member being secured to the container to maintain the container in position therebetween and to reinforce the edges of the container at opposite ends of the access opening.

**3,561,457
THREE POSITION WIGLET**
Irene A. Duesel, 3329 Robinwood Drive, Fort Wayne, Ind.
Filed Dec. 26, 1968, Ser. No. 786,947
Int. Cl. A41g 3/00

U.S. Cl. 132—53

4 Claims

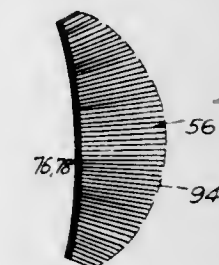


A detachable wiglet to be worn on a woman's hair in any of three positions is disclosed which is constructed by sewing a fringe of hairlike filaments to a foundation of burlap in a spiral pattern beginning near the periphery of the burlap and terminating near the center. The wiglet is an oval shape having a major axis of substantially 7½ inches and a minor axis of substantially 6½ inches.

**3,561,458
FALSE EYELASHES WITH WOVEN EDGES**
Benjamin Udes, 360 E. 55th St., New York, N.Y. 10022
Original application Aug. 6, 1968, Ser. No. 750,502, now Patent No. 3,454,015, dated July 8, 1969. Divided and this application Jan. 30, 1969, Ser. No. 795,201
Int. Cl. A41g 5/02

U.S. Cl. 132—53

6 Claims



False eyelashes made by weaving operation in which a strip of paper or other suitable material is employed as a warp. At

both side edges of the strips, additional warps are arranged in the form of threads. A weft constituted by a Nylon filament or the like is woven through the warp by the use of a shuttle. The resulting product is then curled and/or cut longitudinally to form sections whereof the weft constitutes the lashes and the warp threads constitute a woven support for the lashes. The strip is removed.

3,561,459

SPRAY CENTERING DEVICE FOR BATTLE-CLEANING MACHINES

Joachim Ciongwa, Dortmund-Wambel; Wilfried Ernst, Dortmund-Horde, and Joachim Kuhnt, Dortmund, Germany, assignors to Holstein & Kappert Maschinenfabrik Phonix G.m.b.H., Postfach, Germany

Filed Feb. 13, 1969, Ser. No. 799,008

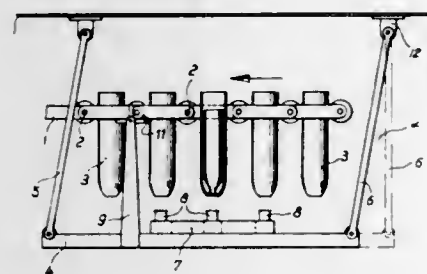
Claims priority, application Germany, Mar. 9, 1968,

P 16 57 177.0

Int. Cl. B08h 3/02; B67c 1/00

U.S. Cl. 134-144

5 Claims



In a bottle-cleaning machine an elongated chain advances in a horizontal path and carries longitudinally spaced bottles. Abutment portions project from the chain. A supporting frame is mounted below the chain for swinging movement from rest position to a deflected position in which it is swingingly deflected in the direction of advancement of the chain. One or more spray nozzles are provided on the supporting frame and arranged to spray cleaning fluid against the objects with which they are in registry. An engagement arrangement is provided for controlling the motion of the support means so as to effect the swinging movement thereof to the deflected position while maintaining substantial registry of the nozzle with selected ones of the objects during such motion, and this arrangement means comprises an arm provided on the support means and extending towards the chain, and a substantially X-shaped contact member turnably mounted on the free end of the arm so that one pair of its four projections is operative for the desired purpose, namely the upwardly extending projection engaging with one of the above-mentioned portions of the chain and one of the horizontally extending projections engaging with a stationary detent which prevents turning of the contact member until the support means has reached its deflected position at which point the contact member can turn and the support means is free to swing back to rest position to begin its travel to a deflected position again.

3,561,460

SHEATH FOR AN UMBRELLA

Fritz Bremshey, Solingen-Ohligs, Germany, and Werner Ludwig, Paris, France, assignors to Telesco Brophy Limited, Montreal, Quebec, Canada

Filed Mar. 26, 1969, Ser. No. 810,538

Claims priority, application Germany, Mar. 30, 1968, P 17 57 103.8; Apr. 13, 1968, P 17 57 241.7

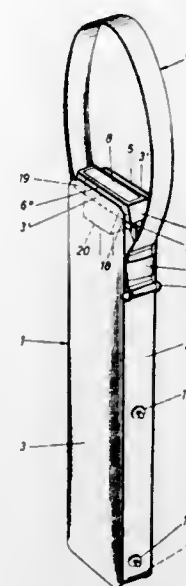
Int. Cl. A45b 25/18, 25/24

U.S. Cl. 135-33

7 Claims

The sheath includes a carrying strap which overlies the

open end of the sheath. The carrying strap has different attachment points on the sheath so it can assume a handle con-



dition or alternatively it can assume a cover condition over the open end of the sheath.

3,561,461

FLUIDIC DEMODULATOR

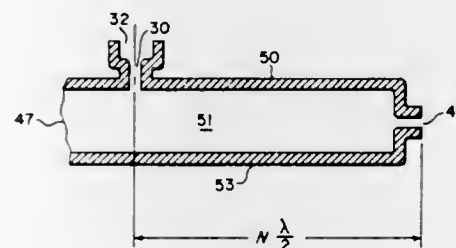
Jonathan E. Fine, Washington, D.C., and Carl J. Campagnuolo, Chevy Chase, Md., assignors to the United States of America as represented by the Secretary of the Army

Filed June 3, 1968, Ser. No. 734,064

Int. Cl. F15c 1/04

U.S. Cl. 137-1

2 Claims



A fluidic device to demodulate a fluidic AC carrier signal to obtain a pure fluid signal. A modulated signal is impressed through an orifice to a cavity resonator. The output of the resonator is an orifice of smaller dimensions than the input orifice. Between limited frequency ranges the resonator will successfully demodulate AM and FM signals. If another orifice is placed in between the input and output orifices and opened to ambient pressure, the device will successfully demodulate FM and AM signals again within different but still limited frequency ranges.

3,561,462

ULTRASONIC DRIVE ASSEMBLY FOR MACHINE TOOL

John Jugler, Danbury, Conn., assignor to Branson Instruments, Incorporated, Stamford, Conn., a corporation of Delaware

Filed Oct. 10, 1969, Ser. No. 865,381

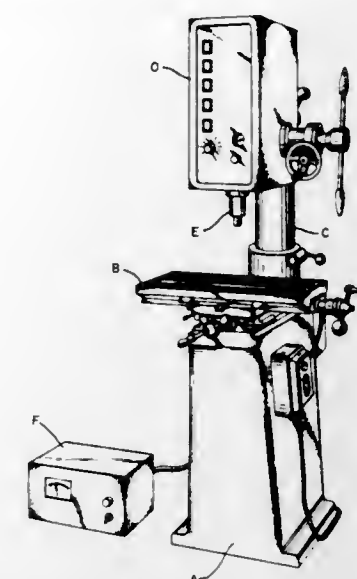
Int. Cl. E21b 27/00; B24b 4/00

U.S. Cl. 173-57

12 Claims

An ultrasonic drive assembly comprises a shaft which while rotating is caused to be resonant along its axis at a sonic or

ultrasonic frequency by piezoelectric means. A set of anti-friction bearings is mounted on the shaft at nodal regions the air line rather than from any auxiliary electrical or other source, and the fluidic apparatus itself.



3,561,465

JET LEVEL SENSOR

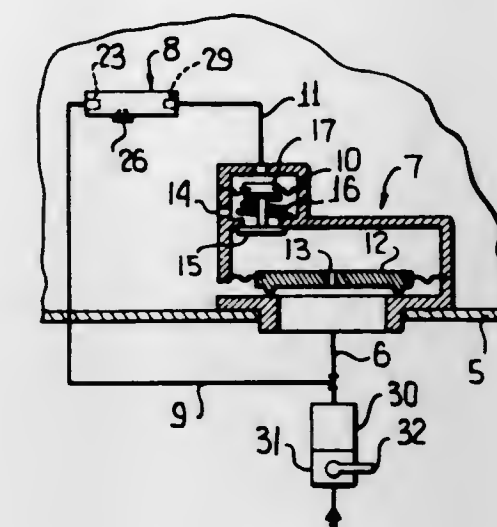
Paul A. de Graaf, Los Angeles, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio, a corporation of Ohio

Filed May 7, 1969, Ser. No. 822,403

Int. Cl. F15c 1/14

U.S. Cl. 137-81.5

7 Claims



using liners for providing acoustic decoupling. The liners are made of compliant nonresilient material to minimize tool run-out.

3,561,463

CONTROL DEVICE

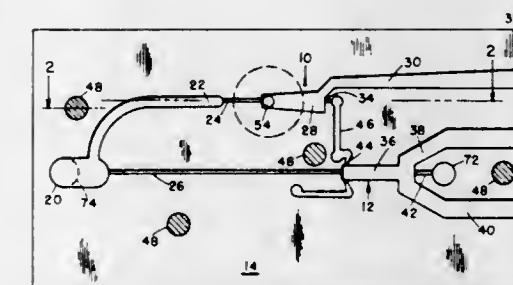
Basil B. Beeken, New Haven, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn., a corporation of Delaware

Filed Sept. 12, 1968, Ser. No. 759,440

Int. Cl. F15c 1/18

U.S. Cl. 137-81.5

1 Claim



A sonically sensitive fluid amplifier that has a thin plastic film or membrane stretched across the control line thereof whereby sonic control signals can effectively pass through said control line but foreign particles and contaminants are blocked from entry through said line into the fluid amplifier.

3,561,464

FLUIDIC CONTROL APPARATUS

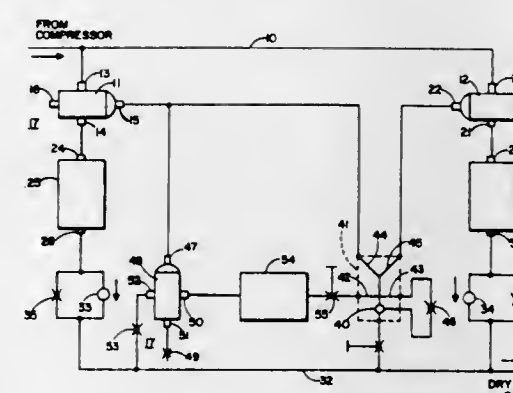
Neil C. Sher, and John M. Zabsky, Minneapolis, Minn., assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Oct. 22, 1968, Ser. No. 769,572

Int. Cl. F15c 3/00

U.S. Cl. 137-81.5

6 Claims



An air-drying arrangement with fluidic apparatus for controlling the cyclic operation of the device and powered from

This disclosure relates to a sensor for operating a flow control valve pilot. The sensor incorporates a jet which is interrupted by rising liquid within a container and includes an aspirator for picking up liquid and deflecting the jet to render same ineffective.

3,561,466

ANESTHETIST'S VENTILATOR

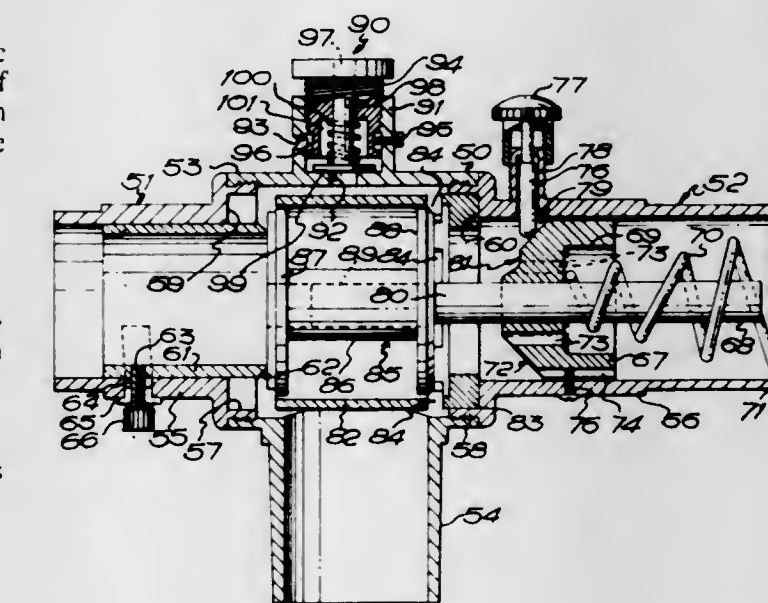
Edward Carden, Stockport, Cheshire, England (Cavendish House, Priestnall Road, Heaton Mersey)

Filed Jan. 8, 1968, Ser. No. 700,668

Int. Cl. A61m 17/00

U.S. Cl. 137-102

10 Claims



An anaesthetist's ventilator in the form of a valve comprising a body having a gas inlet connection for connecting to anesthetic equipment, a breathing connection for enabling a patient to breathe through the valve and an outlet to atmosphere, a valve member, and biasing means biasing the valve member to a fixed rest position in the body wherein it closes the gas inlet connection and opens the breathing connection to the outlet, the valve member being adapted, upon buildup of pressure at the gas inlet connection momentarily to be displaced against the action of the biasing means to open the breathing connection to the gas inlet connection

and at least partially close the outlet, and then, as a result of consequential lowering of the pressure at the gas inlet connection, and increase in pressure in the breathing connection to return to its rest position.

3,561,467

VALVE CASE CONSTRUCTION

Sepp Lutz, Giengen (Brenz), Germany, assignor to Alligator Ventilfabrik Gesellschaft Mit Beschränkter Haftung, Giengen, Germany

Filed Sept. 25, 1968, Ser. No. 762,423

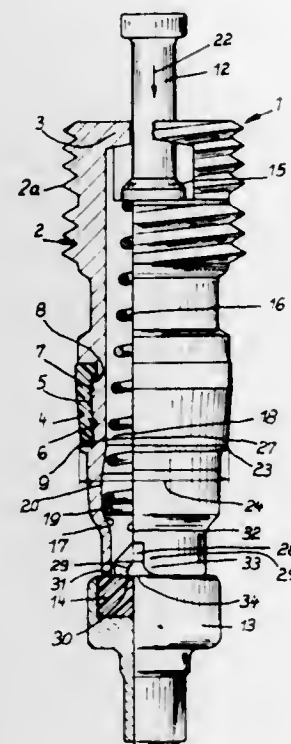
Claims priority, application Germany, Sept. 30, 1967,

A28,474

Int. Cl. F16k 15/20

U.S. Cl. 137—234.5

7 Claims



A valve case construction particularly for use for tire valves includes a tubular housing having an exterior surface with an annular groove into which is inserted a gasket of a material having very little sensitivity to temperature and which has little or no tendency toward cold flow, such as a polyvinylidene fluoride. The gasket includes fins, or teeth, which project into corresponding recesses of the valve case housing groove base. The valve case housing also includes an inwardly extending depression in the groove which provides a free space behind the gasket into which the gasket may yield under stress. The valve case also includes an indented wall forming a shoulder for the valve spring and a widened interior area immediately before the shoulder to facilitate the air flow through the housing. The valve rod includes a disc seal which is adapted to bear against the end of the housing in a closed position and it is provided with a conical portion adjacent the seal having a plurality of radial grooves distributed uniformly around its circumference which connect tangentially into the surface of the seal and provide a streamlined flow for the air which is thus directed over the surface of the seal and insures that it is maintained clean.

3,561,468

UNIVERSAL CONTROL VALVE

Harry Sugden, Jr., Statesboro, Ga., assignor to Emerson Electric Co., St. Louis, Mo., a corporation of Missouri

Filed Oct. 18, 1968, Ser. No. 768,834

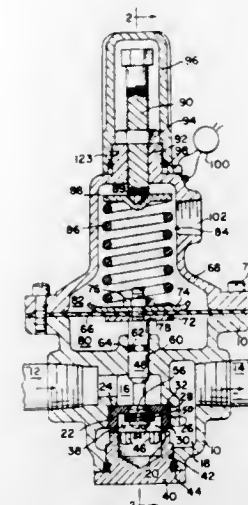
Int. Cl. F16k 51/00

U.S. Cl. 137—269

11 Claims

A universal control valve capable of performing several different control functions including those of a pressure reducing valve, a relief valve, and/or a normally open or normally closed pressure differential control valve. The respective control functions are accomplished merely by reassem-

bling the valve components in various possible structural arrangements. The valve may also be used as a pilot valve causing



ing a larger main valve to perform the same control functions as that provided by its own structural assemblage.

3,561,469

MODULATED FLUID CONTROL PANEL BOARD

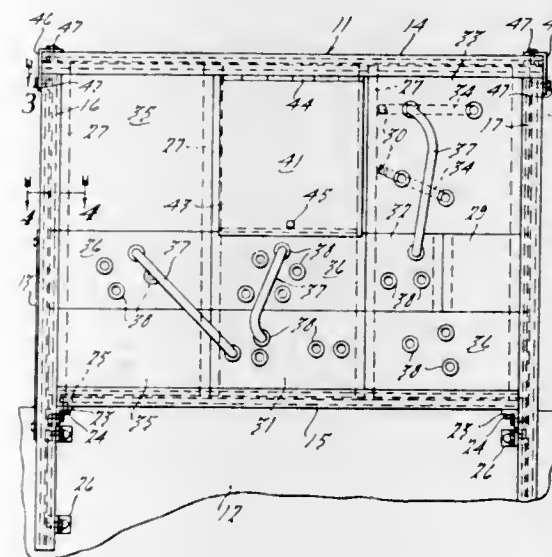
William H. Kellstrom, 2303 Playview, St. Clair Shores; John F. Peters, 656 Perrin Place, Grosse Pointe Woods, and Philip Parrino, 20307 Yale, St. Clair Shores, Mich. 48081

Filed Jan. 14, 1969, Ser. No. 790,980

Int. Cl. F16l 5/00; F16d 1/00

U.S. Cl. 137—343

8 Claims



The panel board is made of modulated panel sections which interlock with each other and a frame in which the panel sections are removably retained to form a unit construction. The panel sections are the multiple of a unit which in the illustration example is square so that the panel section can be a rectangle having the dimension of two of the units or a square having a dimension of four of the units and the like.

3,561,470

VALVE ACCESS BARREL FOR USE IN STREETS

Erwin Hawle, Wagreinerstrasse 13, Vocklabruck, Austria

Filed Mar. 19, 1969, Ser. No. 808,579

Claims priority, application Austria, Apr. 11, 1968,

A3564/68

Int. Cl. F16e 5/00

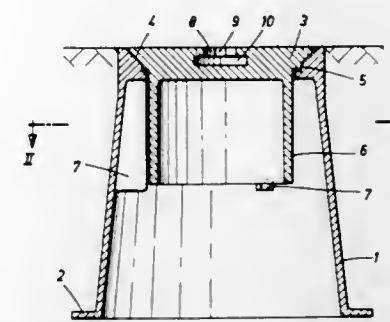
U.S. Cl. 137—371

6 Claims

A barrel body structure having a bottom flange and open top and bottom ends has detachably connected to it a cover closing said barrel body structure at said top end thereof. A pilot extension is carried by said cover and depends into said

barrel body structure and engages the same. The cover has a largest outside diameter which is smaller than the outside diameter of said barrel body structure at said top end

deformably gripped between clamping shoulders on separably connected housing parts so as to permit other



thereof. Said cover is formed with a downwardly facing, conical seat face. The barrel body structure is formed with an upwardly facing, conical seat face in mating engagement with said seat face of said cover.

3,561,471

SAFETY VALVE

Asa D. Sands, 3606 Federal St., Camden, N.J. 08105

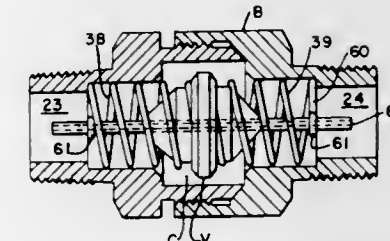
Continuation-in-part of application Ser. No. 637,714, May 11, 1967, now abandoned. This application Oct. 29, 1968, Ser.

No. 771,595

Int. Cl. F16k 17/24

U.S. Cl. 137—498

3 Claims



A valve body defining a chamber with coaxial valve ports and valve seats on the ports facing the chamber. A valve member is movable axially in the chamber into engagement with either of the seats. The valve member is supported in the chamber, normally centrally between the seats, by a pair of coil springs which are seated in the valve ports and on opposite sides of the valve member. In some embodiments additional support of the valve member is provided by a rod extending axially through the valve member and having its end portions slidably journaled in bearing means provided in the valve ports. A fluid bypass from one port to the other is provided, either in the valve body or axially through the valve member.

3,561,472

CHECK VALVE WITH RESTRICTED BACKFLOW

Ted L. Lamb, San Lorenzo, and Chris O. Schmitz, III, Alamo, Calif., assignors to Parker-Hannifin Corporation, Cleveland, Ohio, a corporation of Ohio

Filed May 29, 1968, Ser. No. 732,966

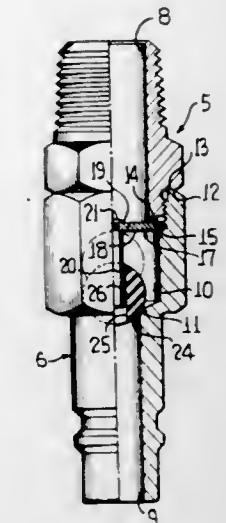
Int. Cl. F16k 15/14

U.S. Cl. 137—513.3

13 Claims

A check valve providing free flow in one direction and restricted flow in the other, the valve element being a ball and the restricted flow passing through a clearance between a bore through the ball and a stem upon which the ball is slidably mounted, the stem being carried by a spider that is

A valve or regulator apparatus for fluid flow, in which a pressure differential shifts the valve to different positions, one portion of the valve being subject to low pressure, such as pressure in an atmospheric chamber, and the other portion of the valve being subject to relatively high pressures. A valve stem, or the like, is exposed to the atmospheric pressure in the chamber and makes a sealing fit in a guide. A seal chamber is provided containing a liquid, such as silicone oil, which is prevented from entering the atmospheric chamber by the seal between the valve stem and the guide, the silicone oil preventing the fluids under pressure, which flow through the valve, from contacting and acting upon the seal adjacent the atmospheric chamber.



3,561,473

VALVE SEAL APPARATUS

David V. Chenoweth, Houston, Tex., assignor to Baker Oil Tools, Inc., City of Commerce, Calif., a corporation of California

Original application July 14, 1967, Ser. No. 653,372, now

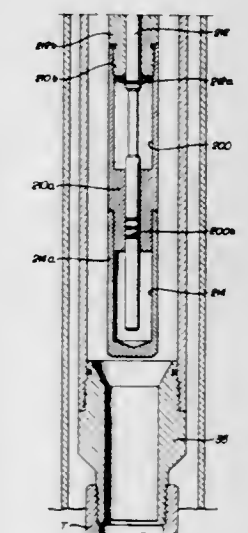
Patent No. 3,474,859, dated Oct. 28, 1969. Divided and

this application Sept. 5, 1968, Ser. No. 757,688

Int. Cl. F16k 39/02

U.S. Cl. 137—542

3 Claims



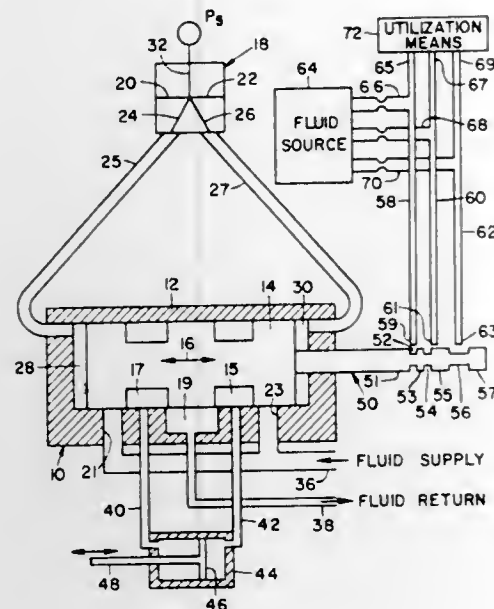
3,561,474

SERVOVALVE OUTPUT FLUID VELOCITY INDICATOR

Lawrence W. Langley, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Dec. 30, 1968, Ser. No. 787,631
Int. Cl. F15c 3/02; F15b 13/042

U.S. Cl. 137-557

2 Claims



A system for providing digital fluidic signals which are indicative of the velocity of hydraulic fluid flowing through a servovalve. A shaft connected to the servovalve spool has a plurality of slots therein which are disposed adjacent to a plurality of back pressure sensors. Different locations of this spool cause correspondingly different digital fluidic signals to be generated by the back pressure sensors.

3,561,475

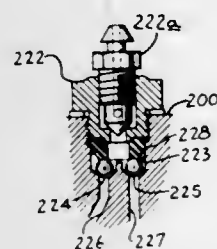
DUAL HYDRAULIC BRAKE SYSTEMS AND BRAKE BOOSTER MECHANISMS THEREFOR

Edward A. Rockwell, 167 Ashdale Place, Los Angeles, Calif. 90049

Original application Apr. 5, 1966, Ser. No. 540,308, now Patent No. 3,442,080, dated May 6, 1969. Divided and this application Sept. 19, 1968, Ser. No. 800,298
Int. Cl. F16k 15/18

U.S. Cl. 137-606

1 Claim



A bleeder valve assembly for a dual hydraulic brake system having dual hydraulic lines with independent fluid reservoirs. The bleeder valve assembly includes a hydraulic chamber communicating with both of the hydraulic lines, and containing a primary valve element for controlling the bleeding of hydraulic fluid from the dual lines via the chamber. A pair of secondary valve elements are mounted within the chamber, each cooperating with one of the dual hydraulic lines. A rubber grommet biases both of the secondary valve elements against the fluid pressure in the dual hydraulic lines, and a bleeder screw is associated with the grommet to control the bleeding of fluid from the lines into the chamber.

3,561,476
VALVE

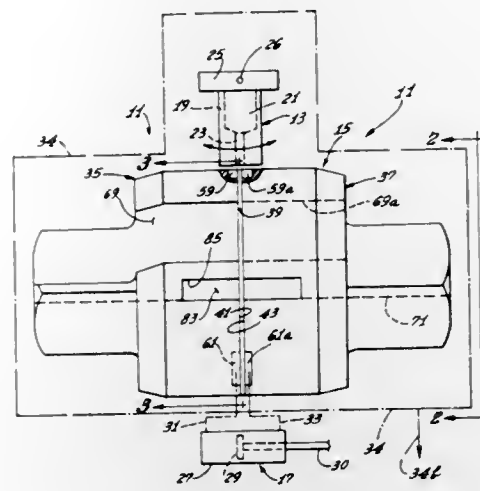
Harold Mandroian; Chandler A. Phillips, La Canada, and William D. Wilkerson, Santa Ana, Calif., assignors to Bertea Corporation, Irvine, Calif., a corporation of California

Filed Oct. 17, 1968, Ser. No. 768,381

Int. Cl. F16d 1/00

U.S. Cl. 137-608

18 Claims



This disclosure describes a valve including a movable jet pipe, a receiver and a pressure responsive member. Fluid is supplied to the discharge end of the jet pipe and through first and second passages in the receiver to the fluid pressure responsive member. The receiver provides first and second outlet passages connected to the first and second passages, respectively, for returning fluid from the pressure responsive member.

3,561,477

REDUCING VALVE ASSEMBLY

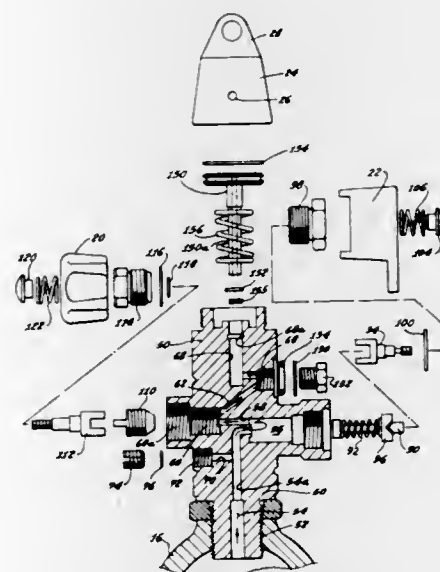
Olympio F. Pinto, Praia de Botafogo 114, Apt. 602, Rio De Janeiro, Brazil

Filed Oct. 11, 1968, Ser. No. 766,788

Int. Cl. A62b 9/02

U.S. Cl. 137-614.19

4 Claims



The invention is concerned with an improved on-off valve and reducing valve unit for use, for example, in underwater diving equipment, and which is interposed between the air hose from the face mask and the high-pressure air cylinder which is carried by the diver. The unit includes a manually controllable on-off valve, and an internal regulator which causes air at a predetermined regulated reduced pressure to be produced at the outlet of the unit and through the air hose to the face mask in response to the high-pressure air from the interior of the air cylinder.

3,561,478

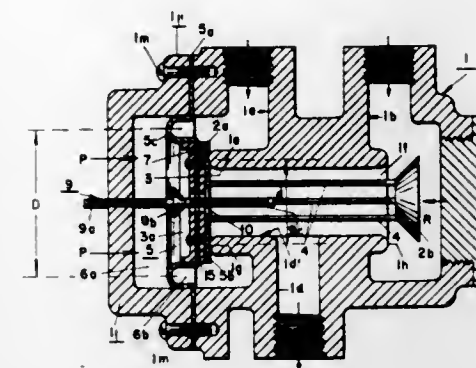
COMPACT SERVO-CONTROLLED FLUID MIXING VALVE

John F. Taplin, 15 Sewall St., West Newton, Mass. 02165
Filed Sept. 23, 1966, Ser. No. 581,508

Int. Cl. F16k 11/02; G05d 23/00

U.S. Cl. 137-625.4

12 Claims



A servo-controlled dual fluid mixing valve is provided with a fluid motor having a cylinder which is subdivided by a dual function partition into two chambers. This partition is adapted to operate both as a valve element and as the piston of a fluid motor. The dual function partition is provided with two transverse control passageways of which one admits fluid to the cylinder of the fluid motor to cause movement of the piston in one direction, and the other transverse control passageway dumps fluid from the cylinder of the fluid motor to cause movement of the piston—or of a structure operating as a piston—in the opposite direction.

3,561,479

NONINTERFLOW ROTARY VALVE AND IMPROVED FLUID SEALS

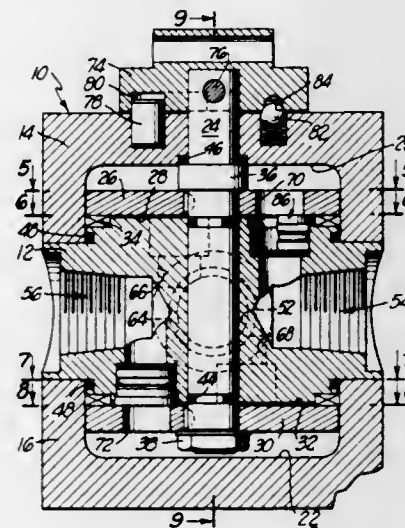
Lyle J. Archer, 10808 E. Orange Drive, Whittier, Calif. 90606

Filed Aug. 12, 1968, Ser. No. 751,928

Int. Cl. F16k 11/02

U.S. Cl. 137-625.21

15 Claims



A housing has upper and lower pressure chambers separated by a housing central portion, each chamber containing a pivotal rotor adjacent to the central portion. The housing central portion has first and second ports, each opening into both chambers against the rotors, a third port opening only into the upper chamber and a fourth port opening only into the lower chamber. Each rotor has two ports therethrough so that in alternate positions, the upper rotor ports communicate with the central portion third port and alternately with the lower rotor ports communicate with the central portion second and first ports. The rotors are connected simultaneously pivotal and spool seals are mounted in the ends of the central portion ports against the rotors permitting such rotor pivoting.

3,561,480

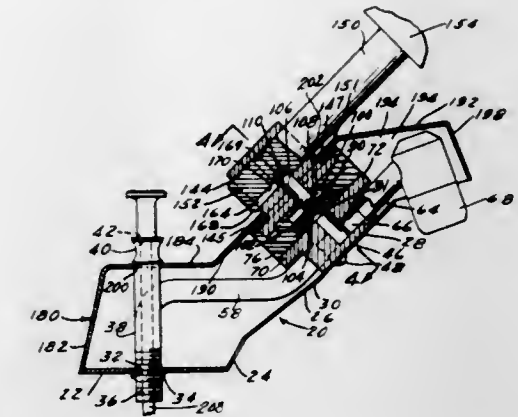
FLUID MIXING APPARATUS

Wayne K. Fairchild, 1106 S. Pacific Ave., Santa Ana, Calif.
Filed May 27, 1968, Ser. No. 732,124

Int. Cl. F16k 11/00

U.S. Cl. 137-625.4

11 Claims



A mixing apparatus for controlling the mixing of hot and cold water and controlling the volume of discharge of the mixture water. A single control lever provides accurate adjustment of both the temperature of the mix and the amount or volume of the water discharged.

3,561,481

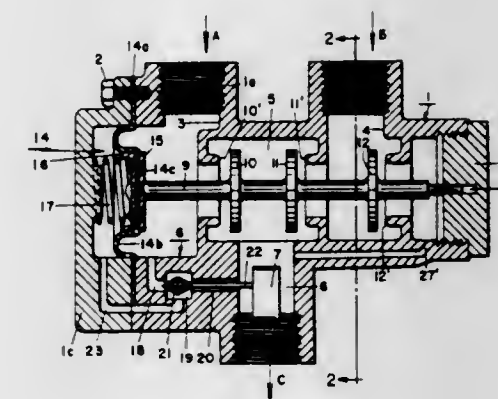
FAIL-SAFE SERVO-CONTROLLED MIXING VALVE

John F. Taplin, 15 Sewall St., West Newton, Mass. 02165
Original application Nov. 7, 1966, Ser. No. 597,192, now abandoned. Divided and this application Apr. 15, 1969, Ser. No. 816,228

Int. Cl. F16k 11/02, 31/165, 19/00

U.S. Cl. 137-625.4

3 Claims



A fail-safe servo-controlled mixing valve is provided with a spring means to render it fail-safe, and with another or auxiliary fluid-pressure-operated means to render it fail-safe should the fail-safe spring means fail to properly function.

3,561,482

FAIL-SAFE SERVO-CONTROLLED MIXING VALVE

John F. Taplin, 15 Sewall St., West Newton, Mass. 02165
Continuation of application Ser. No. 597,192, Nov. 7, 1966, now abandoned. This application June 23, 1969, Ser. No. 838,034

Int. Cl. F16k 11/02, 19/00

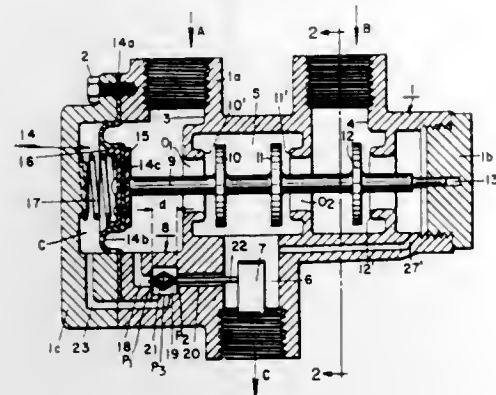
U.S. Cl. 137-625.4

3 Claims

A fluid mixing valve has a nonforce-balanced, or nonpressure-compensated, valve means controlling the flow of a first fluid and a force-balanced, or pressure-compensated, valve means controlling the flow of a second fluid. The thrust to which the first mentioned valve means is subjected by the first fluid and the thrust of a fail-safe biasing means acting in

the same direction are balanced by the partition of a fluid servomotor whose effective area exceeds the effective area of

trolled by dual action servovalve means, the effective area of the fluid admission means and of the fluid dumping means



the first mentioned valve means and is acted upon by the full pressure of the first fluid.

3,561,483

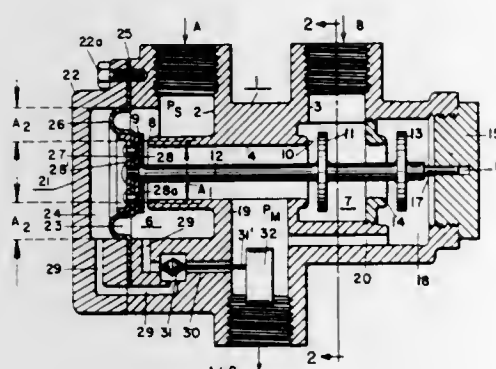
DUAL FLUID MIXING VALVE WITH SERVOMOTOR

John F. Taplin, 15 Sewall St., West Newton, Mass. 02165
Continuation of application Ser. No. 596,911, Nov. 25, 1966,
now abandoned. This application Aug. 6, 1969, Ser. No.
849,592

Int. Cl. F16k 11/02, 19/00

U.S. Cl. 137-625.4

4 Claims



A servo-controlled mixing valve for mixing two fluids in accordance with a variable ratio determined by the action of a sensing element includes a first valve element controlling the flow of a first fluid and a second valve element controlling the flow of a second fluid. Both valve elements are integral with a first common stem operated by a single fluid servomotor. A single pressure-balancing element integral with said first stem is under the action of said second fluid and precludes the transmission by the intermediary of said first stem of forces resulting from the action of said second fluid upon said second valve element to a partition of said single fluid servomotor. The forces resulting from the action of said first fluid upon said first valve element are transmitted to said partition of said single fluid servomotor by the intermediary of said first stem. The aforementioned fluid servomotor is operated by said first fluid and its operation is controlled by means which are a fluid equivalent of a voltage divider thus enabling to supply the fluid servomotor with any pressure down from the full supply pressure of said first fluid.

3,561,484

SERVO-CONTROLLED DUAL FLUID MIXING VALVE

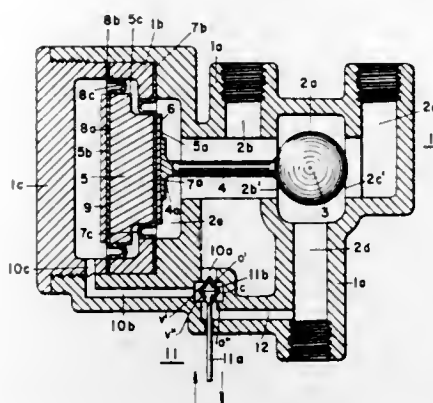
John F. Taplin, 15 Sewall St., West Newton, Mass. 02165
Continuation of application Ser. No. 564,383, July 11, 1966,
now abandoned. This application Sept. 12, 1969, Ser. No.
857,599

Int. Cl. F16k 11/00

U.S. Cl. 137-625.4

7 Claims

A servo-controlled mixing valve for mixing two fluids in a variable ratio is operated by a fluid motor having fluid admission means and fluid dumping means which are jointly con-



being changed inversely and simultaneously by operation of a common valve stem under the control of a sensing element.

3,561,485

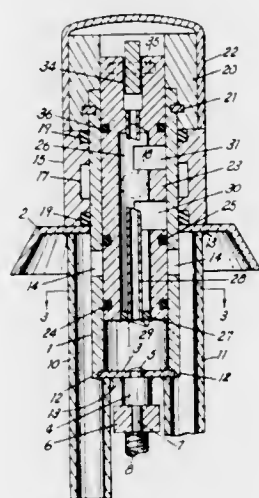
MIXING FAUCET USING DRAWN METAL PARTS

Hughlin E. Klingler, 223 Arcade Ave., Elkhart, Ind. 46514
Filed Dec. 30, 1968, Ser. No. 787,792

Int. Cl. F16k 11/07

U.S. Cl. 137-625.17

9 Claims



A casing of drawn tubular metal is secured in projecting relation through a stamped sheet metal mounting ring. Tubular supply pipes notched at their upper ends are soldered to sides of the casing and against the bottom of the ring to deliver to supply ports in the side of the casing. A hollow cylindrical core slides and rotates in the casing to variably register a transverse lower slot with the supply ports. An upper slot moved into registry with outlet ports formed through the sides of the casing. A spigot has a sleeve sealed around the casing above the ring, with an outlet groove registering with the outlet ports. A vent tube extends through the hollow center of the core and is sealed thereto at each end to vent the lower end of the casing. A clamp bar secured to the bottom of the casing supports screws opposed to the clamp ring.

3,561,486

PNEUMATIC PROGRAMMING MEANS AND THE LIKE

Roland D. Beck, Anaheim, and Harold W. Rice, Fullerton, Calif., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware

Original application Mar. 4, 1965, Ser. No. 437,169, now
Patent No. 3,417,663, dated Dec. 24, 1968. Divided and this
application July 17, 1968, Ser. No. 763,446

Int. Cl. G05b 19/44

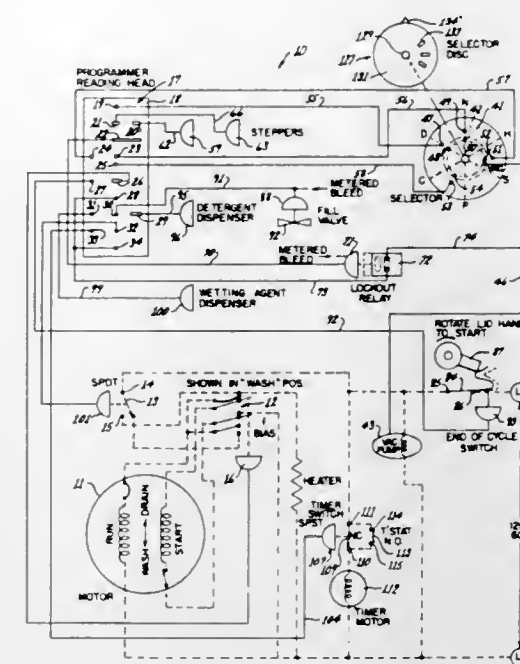
U.S. Cl. 137-624.18

7 Claims

This disclosure relates to a program member that is rotated relative to a reading head to fluidly interconnect together various ports interrupting the reading surface of the reading head by a timer motor and that is rapidly rotated relative to the reading head by a pair of pneumatically operated actuators to override the timer motor with such overriding actuators being controlled by the program member itself, the dis-

closure also relating to a selector valve being mounted on the same plate that forms the reading head and to various shapes

two different-sized passageways are opened simultaneously to the load conduit. The smaller communicates with the second-



and combinations of channel means formed in the program member for interconnecting various ports of the reading head together.

3,561,487

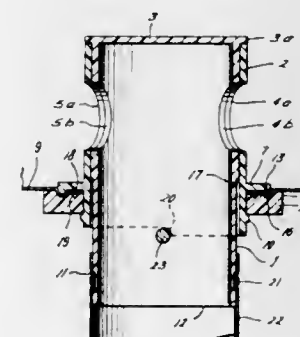
ROTARY VALVE WITH SNAP RING CONNECTOR

Thomas G. Reed, Jr., 818 Heather Court, Houston, Tex.
Filed Dec. 29, 1966, Ser. No. 605,785

Int. Cl. F16k 5/18, 11/07

U.S. Cl. 137-625.32

6 Claims



A rotary valve having an inner cylindrical sleeve, an outer cylindrical sleeve in sealing contact with the inner sleeve, the inner sleeve being closed by a wall closure at one end, and openings in the sleeve surfaces to allow liquids to enter the chamber inside the inner sleeve and exit through the open end of the inner sleeve. The valve is provided with elements to prevent longitudinal movement of the sleeves, an element to rotate the openings into and out of coincidence, and a snap-ring-flange combination to facilitate engagement with a containing surface.

3,561,488

FLUID FLOW CONTROL VALVE

James Otto Byers, Manchester, N.H., assignor to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware

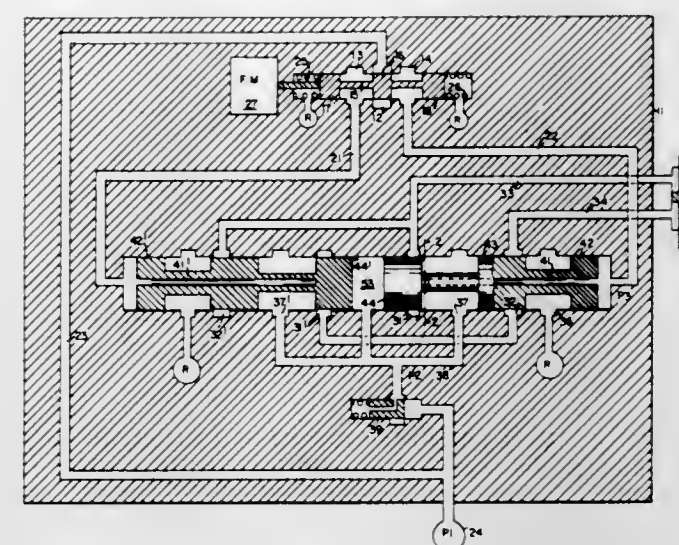
Filed July 1, 1969, Ser. No. 838,062

Int. Cl. F16k 11/07

U.S. Cl. 137-625.62

27 Claims

A two-stage fluid flow control valve is described in which the rate of flow of fluid to the load depends solely on the input signal and is independent of load pressure. The second stage spool and housing are formed so that upon movement of the spool in response to fluid pressure from the first stage,



stage fluid pressure source. Analysis shows that this results in a fixed flow rate for each value of input signal.

3,561,489

HYDRAULICALLY OR PNEUMATICALLY CONTROLLABLE SLIDE VALVE ARRANGEMENT

Eduard Furrer, Zurich, Switzerland, assignor to Contraves AG., Zurich, Switzerland, a corporation of Switzerland

Filed Dec. 11, 1968, Ser. No. 782,936

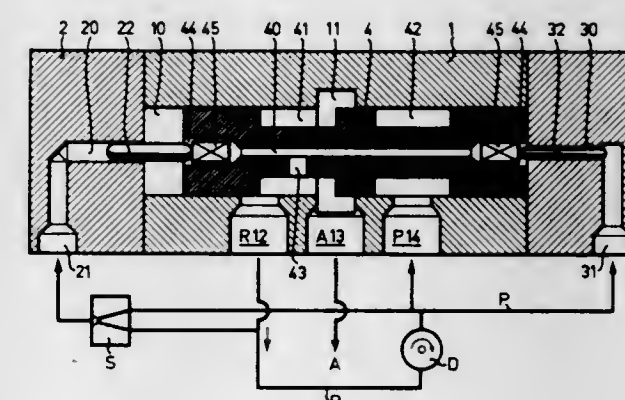
Claims priority, application Switzerland, Dec. 22, 1967,

18132/67

Int. Cl. F16k 11/07

U.S. Cl. 137-625.63

7 Claims



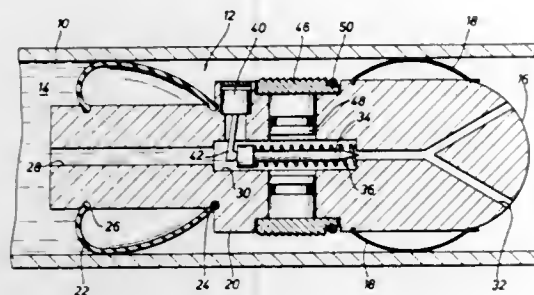
There is disclosed a fluid-operated, in particular a hydraulically or pneumatically controllable slide valve arrangement for alternately communicating in flow relationship an outflow conduit with a pressure conduit and return flow conduit of a fluid-operating system. This slide valve arrangement comprises a slide valve housing equipped with the aforesaid outflow, pressure and return flow conduits, and a sleeve valve or slide valve piston member is disposed in such slide valve housing. A respective coaxially extending displacement piston member acts upon each end face of the sleeve valve member, the effective cross-sectional area of both displacement piston members differing from one another. Additionally, there is provided fluid-operated control circuit means for continually applying a predetermined control pressure of a fluid medium to the displacement piston member possessing the smaller effective cross-sectional area and for alternately applying the control pressure of the fluid medium of the control circuit means and a considerably smaller pressure to the other displacement piston member possessing the larger effective cross-sectional area.

3,561,490

PIPELINE TESTING APPARATUS

Jewel E. Little, P.O. Box 902, Pearland, Tex. 77581
 Filed Mar. 3, 1969, Ser. No. 803,543
 Int. Cl. F16l 55/10; G01m 3/08
 U.S. Cl. 138—90

6 Claims



For use in testing pipelines exposed to a variety of environmental conditions and soil conditions, an apparatus which preferably incorporates a structure which is pushed through the pipeline by the fluid therein and which incorporates means for centering the apparatus, means for expanding the apparatus to completely plug the pipeline, said last named means having a size which alternatively does not plug the pipeline to permit its movement, and said means holding the apparatus at a selected position while the pressure upstream from the apparatus is increased to a desired test level, and thereafter releasing to permit the apparatus to move further along the pipeline.

3,561,491

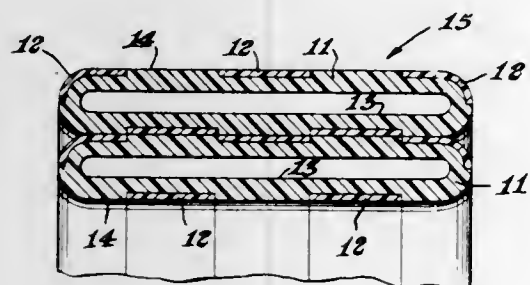
CONFIGURATION FOR NONSLIP PLASTIC BAG MATERIAL

Robert McFedries Jr., Bay Village, Ohio, assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Apr. 22, 1968, Ser. No. 723,196
 Int. Cl. F16l 11/04

U.S. Cl. 138—118

6 Claims



An improved plastic shipping container of baglike configuration having adhering to one surface a nonskid material positioned at selected intervals so as to avoid "blocking" on the roll during manufacturing operations.

3,561,492

FLEXIBLE LIQUID CONDUIT

Knut Kauder, Hannover, and Herbert Bittner, Krahenwinkel, Germany, assignors to Kabel-und Metallwerke, Gutehoffnungshutte, Hannover, Germany, a corporation of Germany

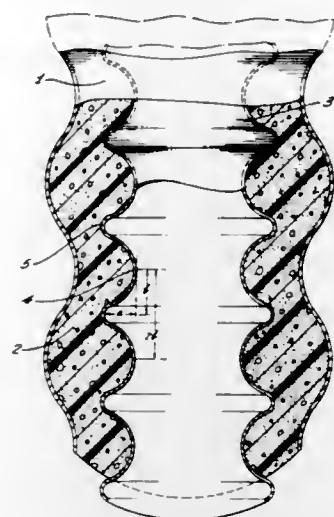
Filed June 3, 1968, Ser. No. 733,917
 Claims priority, application Germany, June 6, 1967, K62,485
 Int. Cl. F16l 11/12, 59/00

U.S. Cl. 138—121

3 Claims

This application discloses a corrugated pipe with folds and ridges extending around the axis and alternating along the axis. The radius of curvature of the flow-throttling folds is

larger than the radius of curvature of the adjacent corrugation ridges, and half of the peak-to-peak distance of folds (or



ridges) in axial direction has approximately a 1:1 ratio to the fold-to-ridge amplitude of the corrugations.

3,561,493

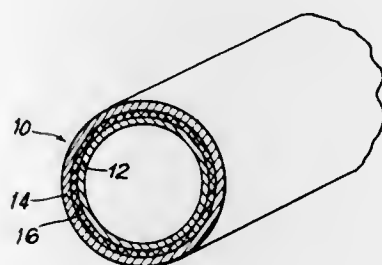
COMPOSITE TUBES AND METHOD OF MANUFACTURING SAME

Paul Maillard, 16 Boulevard Sebastopol, Paris, 2 ieme, and Michel Rebeyrolle, rue des Ponts, Vienne le Chateau, Marne, France

Filed Apr. 21, 1965, Ser. No. 449,874
 Int. Cl. F16l 9/14, 11/04

U.S. Cl. 138—141

6 Claims



This invention is addressed to a tube formed of a plurality of interbonded layers of plastic material in which the plastic material in one layer differs from the plastic material in others with the adjacent layers of different plastic materials being interbonded with a layer formed of a precompounded mixture of the plastic materials making up the adjacent layers and extruded between said layers.

3,561,494

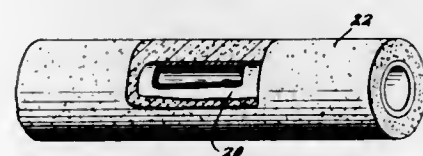
CASTABLE SILICATE COMPOSITIONS, CASTING METHODS AND ARTICLES PRODUCED THEREBY

Robert J. Hackett, Cross Road, Brookfield, Conn. 06804

Filed Mar. 4, 1968, Ser. No. 710,316
 Int. Cl. F16l 9/10

U.S. Cl. 138—177

8 Claims



Castable compositions including soluble or colloidal silicates as binding agent. The composition is cast as an aqueous slurry in a mold coated with a reagent for precipitating the silicate, to prevent penetration of silicates into the mold surface. A lightweight, expandable, refractory tube having excellent resistance to thermal shock is produced.

3,561,495

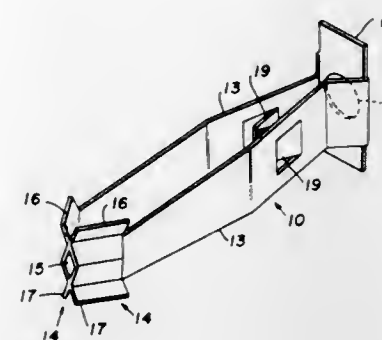
YARN CARRIER FOR GRIPPER AXMINSTER LOOM

John Alexander Charles, Blaby, Leicestershire, England, assignor to Monsanto Textiles Limited, London, England, a British company

Filed May 29, 1969, Ser. No. 828,843
 Int. Cl. D03d 39/00

U.S. Cl. 139—7

3 Claims



A yarn carrier for a gripper Axminster loom having a flat base and a pair of spaced resilient side members. The yarn extends through an opening in the base and is held by the cooperating ends of the side members.

3,561,496

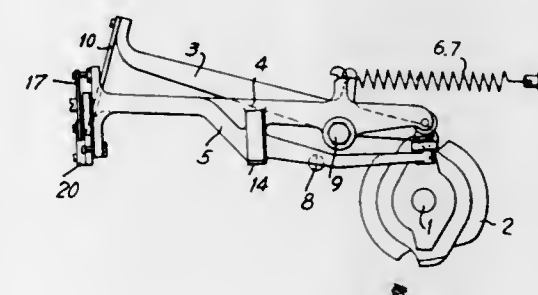
DEVICE FOR BINDING WEFTS ON A SHUTTLELESS LOOM

Maxime Guallo, Bourgoin-Jallieu, France, assignor to Ateliers Diederichs, Bourgoin-Jallieu, Isere, France, a company of France

Filed Dec. 31, 1968, Ser. No. 788,140
 Claims priority, application France, Jan. 18, 1968, 49,538
 Int. Cl. D03d 47/40

U.S. Cl. 139—54

8 Claims



In a shuttleless loom a device is provided for binding weft ends by a leno shed working on at least one "straight" thread and at least one cross thread per "straight" thread. The crossing of the threads is effected by three levers all actuated by an independent, single, triple action cam, coordinated to operate the binding as a function of the time of arrival of the end of the weft with respect to the crossing of the warp yarns. Two levers are hinged to a fixed common axis and the third lever is hinged to one of said two levers. The first lever controls one or more "straight" threads, the second lever controls the dip of one or more cross threads and the third produces a reverse motion between the cross threads.

3,561,497

LOOM

Omer Vandoolaege, Comines, Belgium, assignor to Roger Decramer, Wervik, Belgium

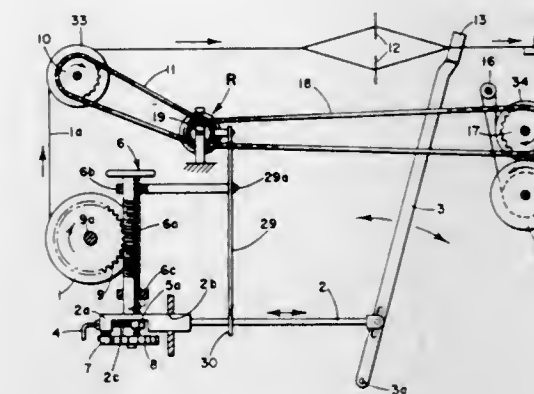
Filed Sept. 3, 1968, Ser. No. 756,903
 Claims priority, application Belgium, Sept. 4, 1967, 703,433
 Int. Cl. D03d 49/06, 49/20

U.S. Cl. 139—99

3 Claims

A loom having a warp letoff mechanism with a warp beam, a fabric takeup device with a pulling cylinder, a batten, a transmission positively driving the warp beam from the batten, and a regulator responsive to the difference between the

speed of the thread being unwound from the warp beam and the speed of the pulling cylinder and acting on the transmis-



sion. Thus the loom has a constant ratio between the length of the fabric being produced and the length of the unwound warp from the warp beam.

3,561,498

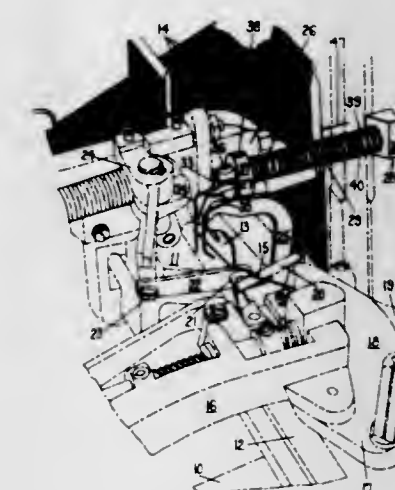
LOOM FRINGE MOTION

Stanley C. Tiernan, Bellingham, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa., a corporation of Delaware

Filed Jan. 21, 1969, Ser. No. 792,594
 Int. Cl. D03d 47/34

U.S. Cl. 139—116

6 Claims



A fringe motion for looms of the shuttleless type adapted to selectively control the omission of a number of picks during loom operation to produce, in continuance of normal weaving, nonwoven bands of warp yarns of a predetermined width.

3,561,499

WEFT STORAGE MOTION AND MEASURING DEVICE FOR WEAVING MACHINES

Erich Walter Hortmann, Schotten, Germany, assignor to Georg Fischer Ltd. Brugg, Brugg, Switzerland

Filed Jan. 23, 1969, Ser. No. 793,521
 Claims priority, application Switzerland, Feb. 16, 1968, 2288/68

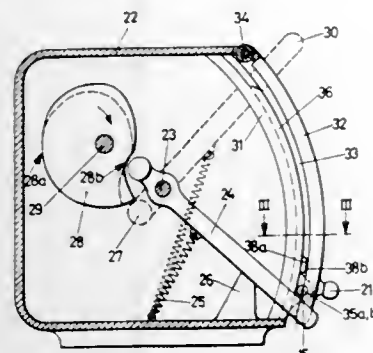
U.S. Cl. 139—122

Int. Cl. D03d 47/34

8 Claims

The invention pertains to a weft storage motion and pick measuring device for weaving machines for taking off weft periodically from stationary supply packages with at least one

loop former positioned between a supply package and point of weft insertion and acting substantially at right angles to the mesh about one of the longitudinal wires of the mesh to link



travel of weft yarn (in that section) and actuatable in synchronism with the weft insertion itself.

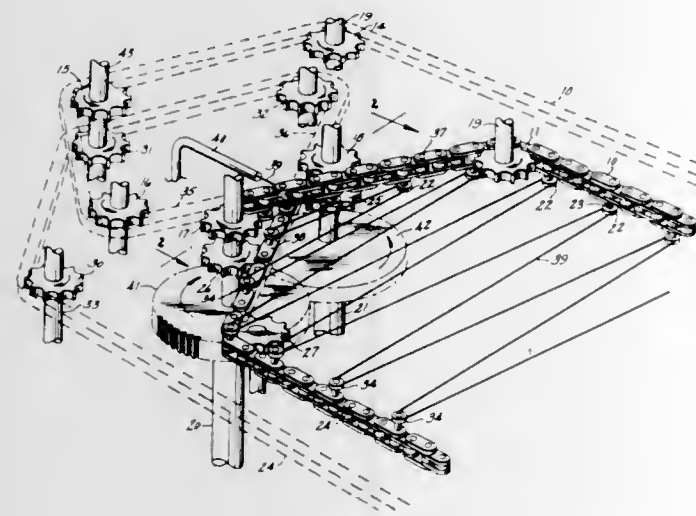
3,561,500

WIRE-FORMING APPARATUS AND METHOD

John Clifton Rentz, Salfords, England, and William B. Williams, King of Prussia, Pa., assignors to General Electric Company, a corporation of New York
Filed Sept. 30, 1968, Ser. No. 763,725
Int. Cl. B21f 1/04

U.S. Cl. 140-71

7 Claims



This disclosure concerns forming wire into a serpentine pattern by means of two driven belts, each having a plurality of spaced apart projections for temporarily retaining the wire, which wire is engaged by the projections on one moving belt then the other in an alternating manner and then directing the belts away from each other after the wire is engaged thereby forming the serpentine pattern.

3,561,501

CRIMPING OF WIRE REINFORCING BASKETS

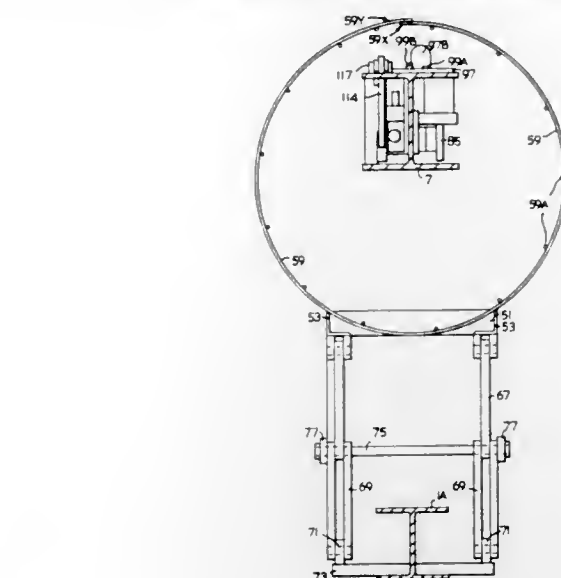
Denis Fauteux, 8426 Riverside Drive, Windsor, Ontario, Canada

Filed Feb. 3, 1969, Ser. No. 796,049
Claims priority, application Canada, Dec. 13, 1968, 037,735
Int. Cl. B21f 15/04, 33/00

U.S. Cl. 140-107

13 Claims

A machine for fabricating from wire mesh a cylindrical wire basket for use in reinforcing spun concrete pipes. The



the overlapping edges of the web. The machine obviates the need to weld the overlapping wires.

3,561,502

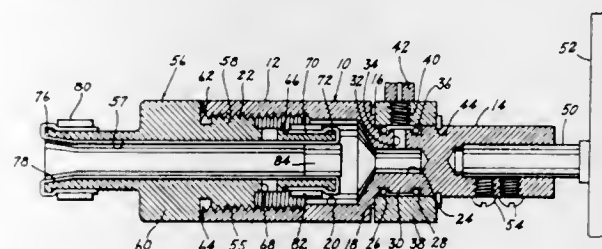
WIRE TWISTING APPARATUS

Ralph H. Swaisgood, Fort Collins, Colo., assignor to Storm Products Company, Los Angeles, Calif., a corporation of California

Filed Mar. 10, 1969, Ser. No. 805,545
Int. Cl. B21f 7/00

U.S. Cl. 140-115

10 Claims



Wire twisting apparatus adapted for twisting a plurality of individual strands of wire into a single cable comprising a twisting head mounted for rotary movement utilizing a pneumatically actuated flexible tubing for effecting clamping of the wire to be twisted.

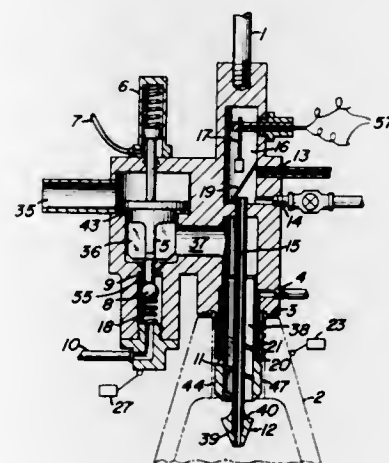
3,561,503

LIQUID FILLING HEAD

Bernhard Rogge, Baldwin, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed June 3, 1968, Ser. No. 734,031
Int. Cl. B65b 3/26

U.S. Cl. 141-7

23 Claims



An improved system, apparatus, and method of filling containers with liquid comprising a reservoir means, electronic

sequencing means, conduit means, and a plurality of valve means wherein the improvement is a filling head means having a plurality of chamber members, a novel valve means adjacent to an inlet means, means to avoid overflow, means to avoid drip, and an electric means to interrupt liquid flow.

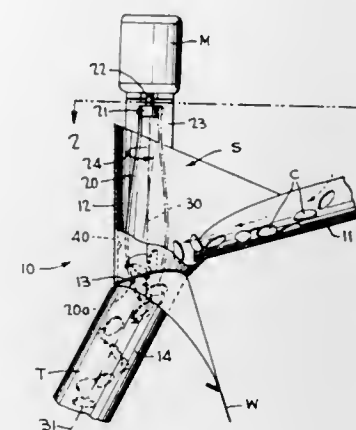
3,561,504

PRODUCT FILLING SYSTEM

Jack B. Tanner, Decatur, Ga., assignor to The Woodman Company, Inc., Decatur, Ga., a corporation of Georgia
Filed Oct. 17, 1968, Ser. No. 768,343
Int. Cl. B65b 1/20

U.S. Cl. 141-11

13 Claims



An apparatus and method are disclosed for filling a package having an upwardly extending open mouth to prevent jam-up and breakage of the product. An arcuately shaped rod is moved in a rotary path in the mouth to cause the product to have a positive whirlpool action and induced spiraling in order to seek the best orientation to enter the package. The tip of the rod is positioned along the centerline of the rotary path and the centerline of the package to provide a full sweep within the vortex pattern and allow maximum space for entrance around the package for the spiraling product. Gentle agitation of the product to break up lumps is provided by a tortuous path within the vortex pattern and limited flexure of the rod. The whirlpool action is enhanced and the integrity of the product insured by feeding the product tangentially with respect to the vortex and operating the rod at the same speed as the merging product.

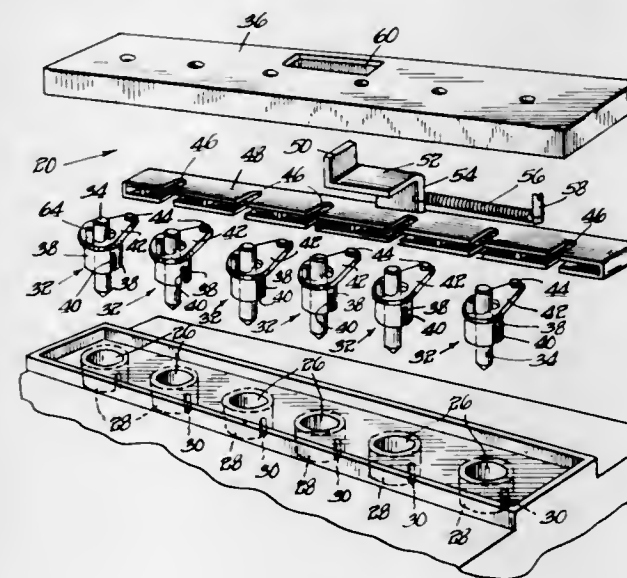
3,561,505

LIQUID CONTROL DEVICE FOR CONTAINERS

Francis Eugene Ryder, Des Plaines, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed Oct. 14, 1968, Ser. No. 767,261
Int. Cl. B65b 3/04; H01m 33/00; E03h 11/00

U.S. Cl. 141-237

11 Claims



This invention relates generally to devices for controlling the delivery of liquid to a container and more particularly to

liquid controlling devices adapted for use with storage batteries and the like. The devices herein illustrated contemplate a container cover having, in association therewith, a plurality of laterally spaced, elongate, liquid level indicators for association with conventional battery apertures. The number of level indicators employed with each container or battery is determined by the number of container sections or cells with which they are to be used. A liquid conduit or tray serves to direct liquid received from an external source contemporaneously to the plurality of areas in the vicinity of the indicators, and manually shiftable closure means serves to selectively open and close external communication of said conduit or tray with an associated container.

3,561,506

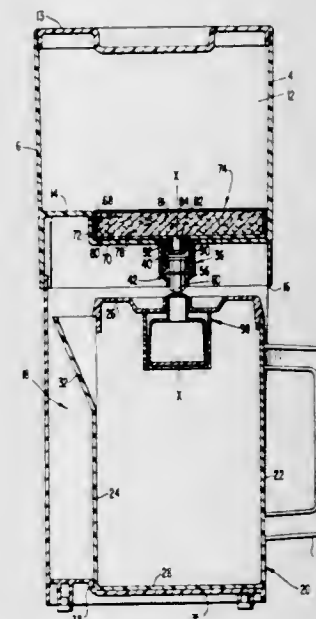
WATER PURIFIER

Allan B. Johnson, Tarzana, Calif., assignor to Industrial Molding Corporation, Torrance, Calif., a corporation of California

Filed Aug. 9, 1968, Ser. No. 751,496
Int. Cl. B67d 5/00

U.S. Cl. 141-360

8 Claims



A liquid dispensing unit which includes a housing having a reservoir for unfiltered water. A receptacle is releasably connected with the housing. Whenever the receptacle is connected with the housing, liquid is automatically caused to flow from the reservoir into the receptacle until a predetermined liquid level therein is exceeded at which time further liquid flow is automatically terminated. Means are also provided for automatically preventing liquid flow from the reservoir whenever the receptacle is not connected with the housing.

3,561,507

SHARPENING DEVICE FOR A WRITING ELEMENT

Peter Dziuk, Nuremberg, Germany, assignor to U.S. Staedtler, Nuremberg, Germany, a firm

Filed Dec. 4, 1968, Ser. No. 781,112
Claims priority, application Germany, Dec. 7, 1967, St 22015
Int. Cl. B43i 23/00

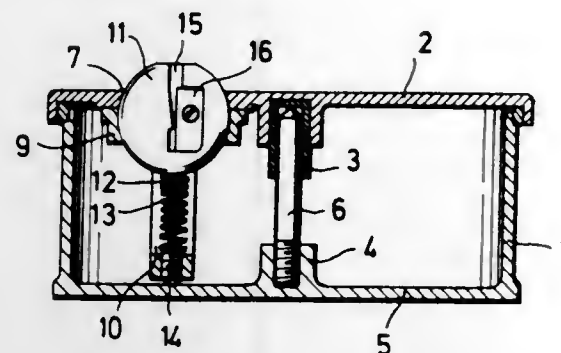
U.S. Cl. 144-28.4

7 Claims

A device for sharpening a writing element mounted in a holder when the writing element is inserted into an eccentric opening in the device and moved in a circular path to rotate a sharpening tool round the element. The opening is formed in a rotary part of a casing and the sharpening tool is carried

in a toolholder mounted adjacent said opening, as in a ball-and-socket joint, so that the toolholder may tilt during shar-

endless roller chain connected to each other, and the cutter teeth are secured between adjacent strands of roller chain. Elongated opposed guides support opposite sides of each of said strands of chain in that reach of the chain body which



pening and so minimize the danger of breakage of said writing element but the toolholder is held against rotation with the writing element.

3,561,508

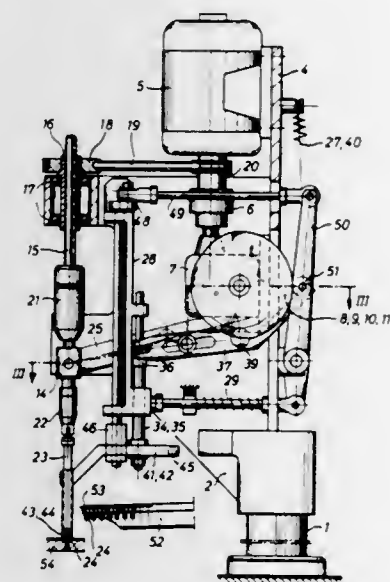
APPARATUS FOR AUTOMATICALLY SCREWING SCREWS INTO WORKPIECES

Friedrich Karl Holzwarth, Winnenden, Germany, assignor to Firma Oku-Automatik, Olta Kurz, Rosenstrasse, Germany
Filed Sept. 25, 1968, Ser. No. 762,414

Int. Cl. B25b 23/00

U.S. Cl. 144—32

2 Claims



A machine for feeding one screw after another from a magazine to a point laterally adjacent to and underneath a rotating screwdriving tool, then picking up one screw by means of a pair of tongs and shifting these tongs to a position in axial alignment with the tool and a bore in a workpiece, then lowering the tool toward the workpiece so as first to insert the tip of the tool into the screw slot and to turn the screw before it engages with the workpiece and while still held in the tongs, and then starting to screw the screw into the bore, then opening the tongs and returning them to their original position ready to pick up the next screw while the first screw is fully screwed into the workpiece.

3,561,509

SURFACE TEXTURIZING APPARATUS

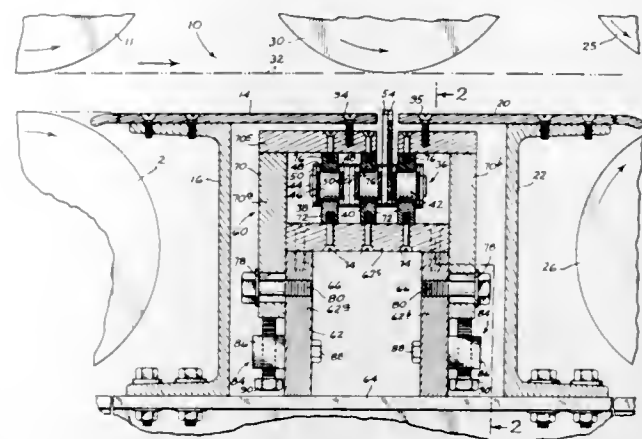
Roy E. Hayden, Grants Pass, Oreg., assignor to Vanply, Inc., Alhany, Oreg., a corporation of Washington
Filed Nov. 25, 1968, Ser. No. 778,407

Int. Cl. B27c 1/00

U.S. Cl. 144—123

7 Claims

Apparatus for producing a textured surface on a workpiece conveyed along a path, the apparatus including a continuous chain body with cutter teeth secured to and projecting outwardly from the chain body, with the cutter teeth being adapted to be drawn across the surface of the workpiece. The chain body comprises multiple side-by-side strands of



produces cutting during operation of the apparatus. The guides may be adjusted to vary the working clearance between the guides and the chain body. Disassembly of a cutter tooth may be done without breaking the continuity of the chain body.

3,561,510

SCREWDRIVER WITH TORQUE AMPLIFYING MEANS

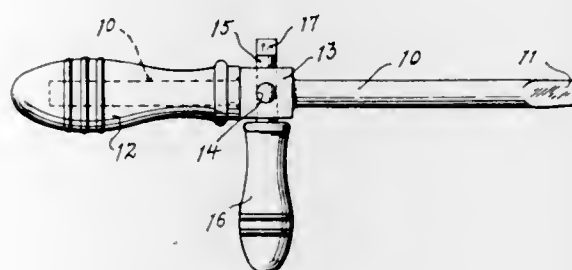
Peter F. Johnson, 155 Alvarado St., Brisbane, Calif. 94005

Filed Oct. 9, 1968, Ser. No. 766,141

Int. Cl. B25b 15/02

U.S. Cl. 145—50

2 Claims



A handheld screwdriver having a handle and an axially extending shank with screw engaging bit at its end and a drum head feature formed integrally upon the shank, as in a conventional ship's capstan, having bar or lever accommodating sockets by which, when in use, increased torque or leverage is applied to the shank by an associated bar or lever means when setting or removing a wood screw that requires more force than can be exerted by the use of a present day screwdriver.

3,561,511

EGG SLICER

Charles K. Kummer, St. Louis, Mo., assignor to Ralston Purina Company, St. Louis, Mo., a corporation of Missouri

Filed Feb. 27, 1969, Ser. No. 803,017

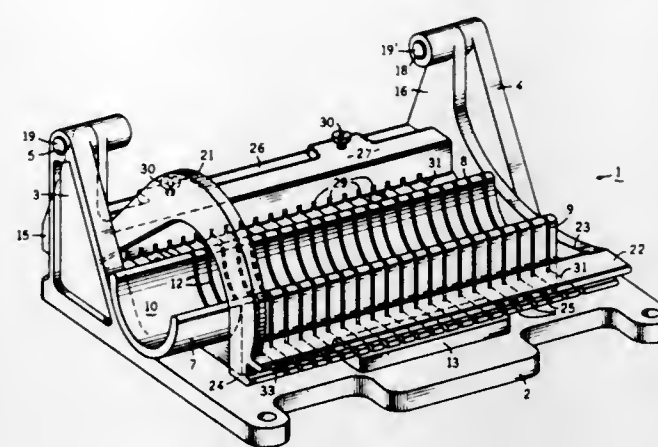
Int. Cl. B26d 4/08

U.S. Cl. 146—2

1 Claim

A device for slicing a cooked egg roll is provided with slicing wires arranged for presentation to the egg roll in such a manner that slices less than three-sixteenths of an inch may be obtained without destruction or crumbling of the egg product. The slicing wires are provided in a plane predominantly spaced from the pivot point of the cutting wires

such that when the wires are presented to the egg roll, they pass therethrough with a slicing action. This slicing action placement force of predetermined magnitude to such hammer element to cause the same to crack the shell of a nut



permits the egg roll to be sliced closer than three-sixteenths of an inch without deformation, crumbling or squashing of the egg roll.

3,561,512

PINEAPPLE-TREATING APPARATUS

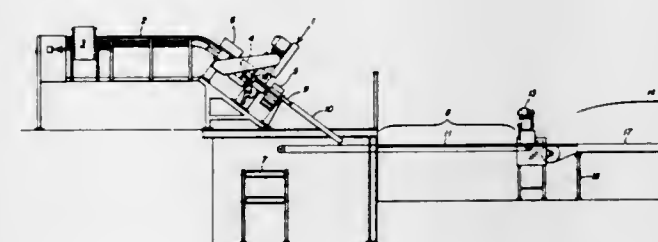
John Farmer, Honolulu, Hawaii, assignor to Ward Foods, Inc., New York, N.Y., a corporation of New York, by mesne assignment

Original application Jan. 12, 1961, Ser. No. 82,240, now abandoned. Divided and this application Apr. 15, 1968, Ser. No. 721,366

Int. Cl. A23n 15/00; B26d 4/22

U.S. Cl. 146—6

15 Claims



Pineapple-treating apparatus having a processing line in which pineapples are sized, end cut and cored, the resulting cylinders are conveyed by an endless conveyor to a single-cut slicer, the slices from the slicer are conveyed by a main endless conveyor past a plurality of spaced inspection and sorting stations, each station has an associated resizer, can loader or other slice-processing device removed therefrom, and the slices selected at each station are fed to the associated device by an endless feed conveyor.

3,561,513

NUT-CRACKING MACHINE

John J. Lindsey, Lafayette, Calif. (2608 Janna Ave. Modesto, Calif. 95350)

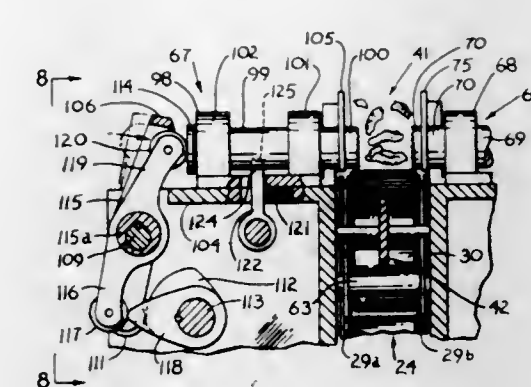
Filed May 31, 1968, Ser. No. 733,598

Int. Cl. A23n 5/02

U.S. Cl. 146—12

6 Claims

A machine for cracking the shells of walnuts and the like so as to enable separation from the shell of the nut kernel otherwise confined therewithin. The machine includes a container defining a compartment or reservoir for the receipt of nuts therewithin, conveyor means passing through such compartment for removing nuts one-by-one therefrom and for advancing the same in spaced apart succession into a cracking station, and nut-cracking means at such station and including both anvil structure and hammer structure aligned therewith. The hammer structure comprises gripper mechanism for displacing a hammer element into engagement with a nut to hold the same, in cooperation with the anvil structure, at a predetermined location, and it further comprises force applicator mechanism for imparting a dis-



then constrained against movement by the cooperative anvil structure.

3,561,514

SLICER COMMODITY RETAINER

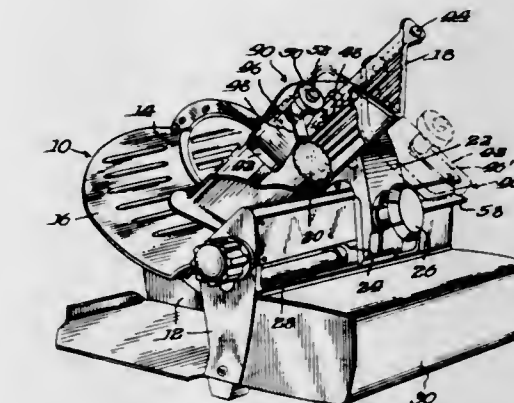
Edward C. Karp, Belvidere, Ill., assignor to Sanitary Scale Company, Belvidere, Ill., a corporation of Illinois

Filed Feb. 1, 1968, Ser. No. 702,425

Int. Cl. B23d 45/18

U.S. Cl. 146—217

12 Claims



Improved commodity retainer means are provided in a slicing machine of the type having a commodity feed hopper reciprocable relative to a slicing blade. The preferred retainer means include a commodity guide means such as a flat plate positionable adjacent to the commodity in the hopper and movable in the direction of feed. Tine means are mounted on the guide means for rotation in a plane perpendicular to the direction of feed and for linear penetration toward the center of mass of the commodity. The tine means include selective locking means for locking the tine means in a selected rotational position.

3,561,515

SOYBEAN DEHULLER

Lee J. Nahm, Jr., St. Louis, Mo., assignor to The Ralston Purina Company, St. Louis, Mo., a corporation of Missouri

Filed Nov. 13, 1968, Ser. No. 775,275

Int. Cl. B02b 3/00

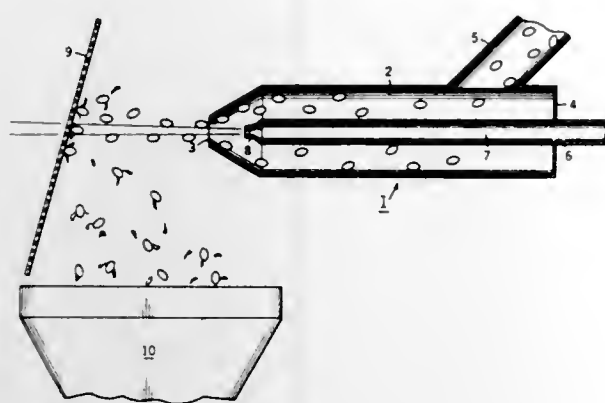
U.S. Cl. 146—253

1 Claim

The hulls of soybeans are separated from the cotyledons by thrusting the soybeans into a perforated plate which serves to rupture the hulls and permit the separation of the cotyledons therefrom. This thrusting action is imparted to the soybeans by means of compressed-air flow through a nozzle to create a partial vacuum carrying the soybeans to the orifice of the nozzle and thereafter the compressed-air flow serves to expel the soybeans into a perforated plate rupturing the soybean hull and permitting the cotyledons to be separated from the hulls. The apparatus which may be used in carrying out this method of dehulling soybeans consists of a chamber having a restricted orifice through which compressed air is permitted to flow thereby creating a partial vacuum in the chamber

which is effective to permit soybeans introduced thereto to be expelled through the restricted orifice and into a per-

flutes extend from one to the other end of the chamber. This irregular evaporative surface increases significantly the heat



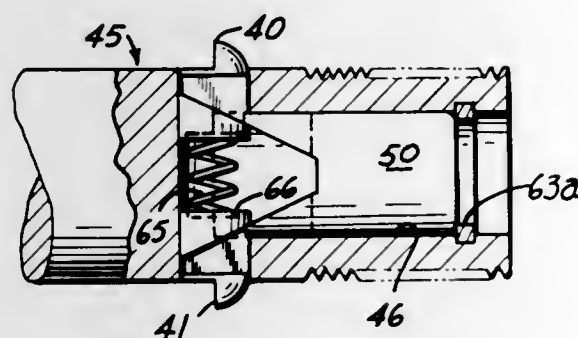
forated plate for the subsequent separation of the hulls from the cotyledons.

3,561,516 SAFETY BOLT

Robert R. Reddy, 1195 Michillinda, Pasadena, Calif. 91107
Continuation of application Ser. No. 619,233, Feb. 28, 1967,
now abandoned. This application June 11, 1969, Ser. No.
834,231

U.S. Cl. 151-9 Int. Cl. F16b 39/32, 43/00

9 Claims



A safety bolt having a headed end, a shank, and a threaded end, with means near the threaded end to hold the bolt in a hole even though the nut may have fallen off the thread or not have been put on it in the first place. An axial passage in the threaded end intersects a laterally extending passage spaced therefrom, and a dog fills the laterally extending passage and is laterally reciprocable so as to be entirely retracted or extended beyond the maximum diameter of the shank. The dog is biased to its extended position, and carries a retraction surface to retract it as the bolt is thrust into a hole and a restraint surface to retain the bolt after the dog has passed through the hole in a workpiece. Ratchet means may be formed on the dog and on a nut threadable to the bolt so as to retain the nut on the bolt.

3,561,517 WIPED FILM PROCESSING APPARATUS WITH HEATED, CYLINDRICAL, FLUTED, INTERIOR SURFACE

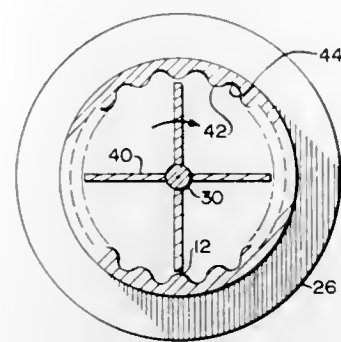
James Donovan, Cambridge, and James L. Baird, Winchester, Mass., assignors to Artisan Industries, Inc., Waltham, Mass., a corporation of Massachusetts

Filed Mar. 17, 1969, Ser. No. 807,530
Int. Cl. B01d 1/22

U.S. Cl. 159-6

5 Claims

In a horizontally axised wiped thin-film evaporator the evaporative surface of the processing chamber is fluted. The



exchange coefficient and provides means to control the residence time of the material being processed.

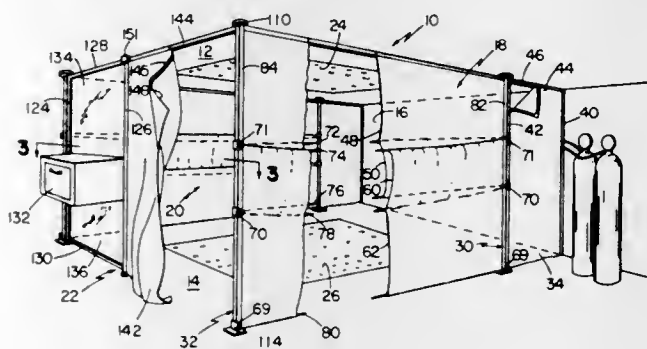
3,561,518 FLEXIBLE WALL HAVING THROUGH ACCESSIBILITY

Harold A. Johnson, Norwood, Mass., assignor to Mutron Corporation, Brockton, Mass., a corporation of Massachusetts

Filed Mar. 24, 1969, Ser. No. 809,764

U.S. Cl. 160-87 Int. Cl. E06b 3/80; E04h 3/08

15 Claims



A wall structure comprising a pair of overlapping flexible sheets and three transversely spaced elastic bands, one being secured to each of the sheets adjacent the longitudinal edge thereof that overlies the other of the sheets and the third being secured to one of the sheets.

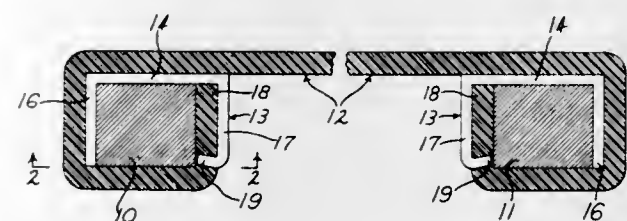
3,561,519 CONNECTOR FOR METALLIC FURNITURE SUPPORT STRIPS

T. W. Tawhush, Tarrant, Ala., assignor to U.S. Plywood-Champion Paper Inc., New York, N.Y., a corporation of New York, by mesne assignments

Filed Mar. 24, 1969, Ser. No. 809,750

U.S. Cl. 160-184 Int. Cl. E05d 3/48, 3/96

2 Claims



An article of furniture having side rails generally rectangular in cross section with strips of support material extending therebetween and wrapped around portions of rails. A channel-shaped clip receives a portion of rail with each terminal end of strips between and in engagement with both rail and adjacent flange of clip. Inturned projections on adjacent flange penetrate adjacent terminal end.

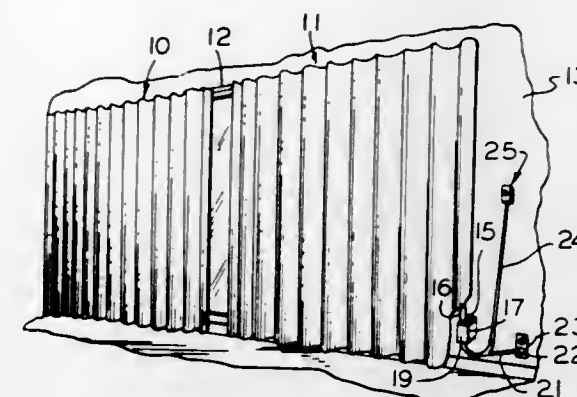
3,561,520 DRAPERY ACTUATOR

Robert A. Gill, 615 S.W. Country Club Road, Lake Oswego, Oreg. 97034

Filed July 14, 1969, Ser. No. 841,319

U.S. Cl. 160-331 Int. Cl. A47h 5/02

14 Claims



A drapery actuator, including a motor drive for a drapery pull cord, detects a closed or open limit condition for the draperies through detecting a predetermined tension condition in the pull cord. In response to predetermined tension, the motor drive is reversed for a short period for relieving the tension in the pull cord.

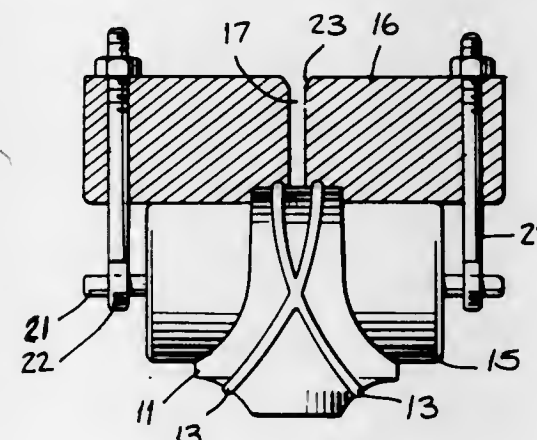
3,561,521 METHOD FOR CHANGING THE SIZE OF WAX RING PATTERNS

George R. Reneer, Hialeah, Fla., assignor to Micro-Thermal Applications, Inc., Hialeah, Fla., a corporation of Delaware

Filed Feb. 27, 1969, Ser. No. 803,009

U.S. Cl. 164-45 Int. Cl. B29c 1/02

4 Claims



A method for accurately changing the inside diameter of wax patterns for finger rings. A portion of the band of the wax pattern on each side of the sprue piece is removed and a bar of the desired size is inserted in the ring. The ring and bar are affixed to mold and wax is injected through a bore hole in the mold and into the open portion of the band of the ring for completing the same. The mold has means for gripping the bar and comprises a cavity with a design therein.

3,561,522 CONTINUOUS CASTING APPARATUS INCLUDING STARTER BAR WITH QUICK DISCONNECT SECTIONS

Leonard R. Bosold, Massillon, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio, a corporation of New Jersey

Filed June 4, 1968, Ser. No. 734,341

U.S. Cl. 164-274 Int. Cl. B22d 11/08

5 Claims

A starter rod for continuous casting formed in a plurality of end connected sections where the sections are interconnected to form the starter rod by bayonet fittings which are

of the quick assembly type. The connection fittings are constructed and arranged to provide a properly aligned rod of



adequate strength and rigidity to comply with service requirements.

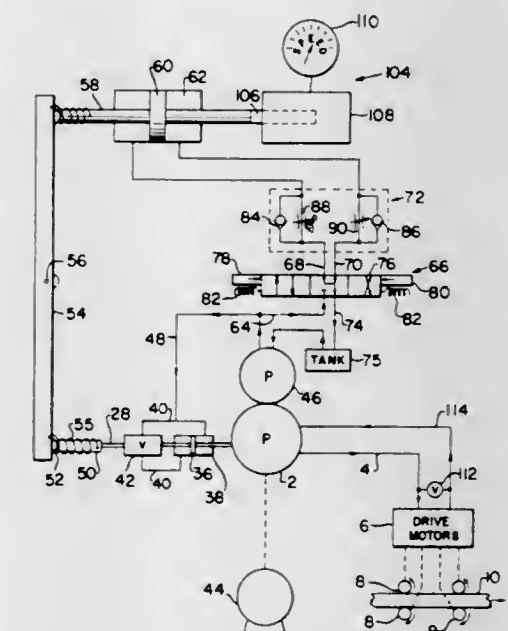
3,561,523 MOLD LEVEL CONTROL SYSTEM

Tibor Miklos Vertesi, 211 Reedaire Court, Whitby, Ontario, Canada

Filed May 27, 1968, Ser. No. 732,395

U.S. Cl. 164-282 Int. Cl. B22d 11/12; B22c 19/04

3 Claims



A mold level control used with a continuous casting machine having hydraulic motors for withdrawing a cast strand from a mold. The system includes a stem servo-controlled pump supplying fluid to the motors, a piston actuating the stem to control pump output, and a four-way self-centering solenoid valve to control piston movement. Movement of a joystick up or down closes microswitches to operate the valve to decrease or increase strand withdrawal rate respectively. Between joystick movements the valve centers itself and strand withdrawal rate remains steady.

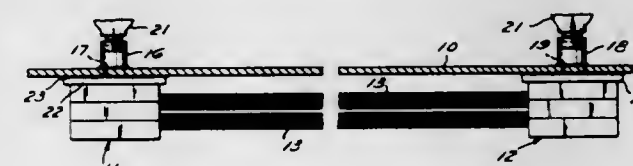
3,561,524 MARINE KEEL COOLER

James Glenn Satterthwaite, 1 Dogwood Trail, Portsmouth, Va., and James B. Macy, Jr., 107 Holly Lane, Morehead City, N.C. 28557

Continuation-in-part of application Ser. No. 711,646, Mar. 8, 1968, now abandoned. This application Oct. 8, 1969, Ser. No. 868,969

U.S. Cl. 165-76 Int. Cl. F28b 7/00

21 Claims



A marine keel cooler is disclosed which includes two header assemblies each adapted to be mounted on the exterior of a vessel's hull. Each header assembly includes a stud plate and at least two separable members formed of an

elastomeric material. The members are formed with semicylindrical recesses which cooperate with adjacent recesses to form openings which receive and grip the ends of the heat exchanger tubes. Relatively soft heat resistant seals are positioned over the ends of the tubes within the openings and are tightly gripped when the parts of the header assembly are bolted together. When fluted tubes are used, the parts are proportioned so that the tube is radially contracted to a uniform or standard size during the clamping by the headers. The header assemblies are arranged so that separators may be selectively positioned therein. Such separators permit a given header assembly to be used in single pass, multiple pass, and compound heat exchanger installations. When tubes having deep grooves are provided, i.e., tubes having an outside diameter to groove depth of about four to one or less, the cooler may be mounted in a location where forced flow thereover can be provided solely by the slip stream of the propulsion screw.

3,561,525

HEAT PIPE CONDENSATE RETURN

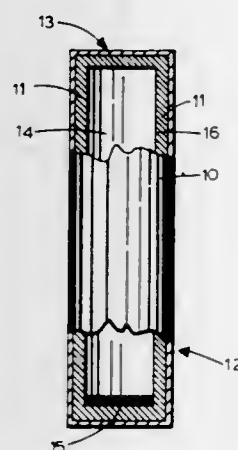
Stephen C. Baer, Albuquerque, N. Mex., assignor to Energy Conversion Systems, Inc., Albuquerque, N. Mex., a corporation of New Mexico

Filed July 2, 1969, Ser. No. 838,598

Int. Cl. F28d 15/00

U.S. Cl. 165-105

7 Claims



This invention is an improved device for returning the condensate in an evaporation-condensation heat exchanger to the evaporation end utilizing the principle of osmotic action to improve the rate, efficiency and distance of return of the condensed heat exchange fluid.

3,561,526

PIPE SHEARING RAM ASSEMBLY FOR BLOWOUT PREVENTER

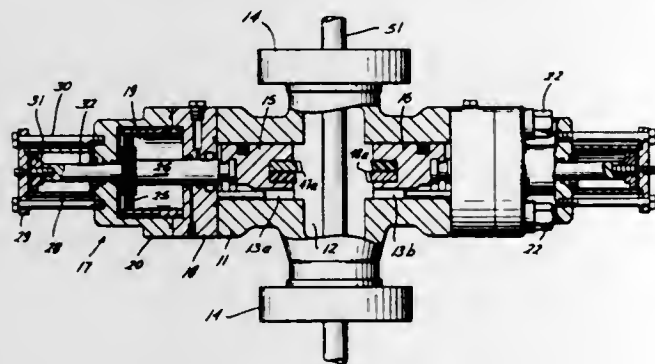
Leonard E. Williams, Jr., and Maurice J. Meynier, III, Houston, Tex., assignors to Cameron Iron Works, Inc., Houston, Tex.

Filed Sept. 3, 1969, Ser. No. 854,836

Int. Cl. E21b 29/00

U.S. Cl. 166-55

4 Claims



A knife blade is carried by each of the two rams of the ram assembly of a blowout preventer. The knife blades overlap

when the rams are closed with the cutting edge of one knife blade passing just below the cutting edge of the other knife blade to shear a pipe string extending through the preventer. Each knife blade engages a seal member on the other ram, when the rams are closed, to form two vertically spaced seals between the engaging faces of the rams.

3,561,527

HYDRAULICALLY SET CASING HANGER APPARATUS AND PACKING SLEEVE

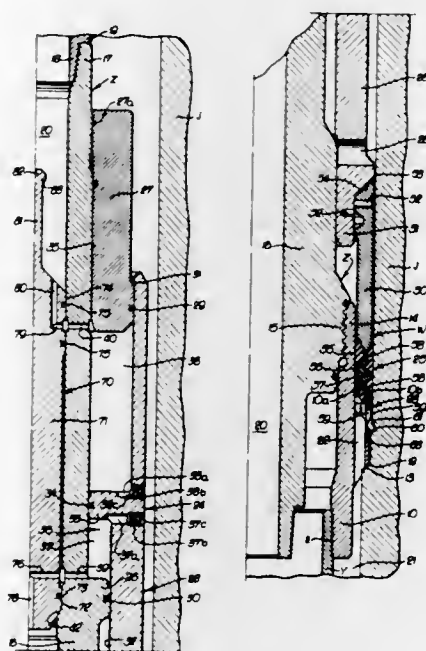
Bobby H. Nelson, Houston, Tex., assignor to Vetco Offshore Industries, Inc., Ventura, Calif., a corporation of California

Filed Nov. 1, 1968, Ser. No. 772,521

Int. Cl. E21b 33/04

U.S. Cl. 166-86

19 Claims



Casing hanger apparatus for hanging a well casing in a casing head beneath a body of water, in which the hanger body is locked into the casing head by the application of fluid pressure, the seal between the casing head and the hanger body also being set by fluid pressure. Such a casing hanger in which the seal includes a longitudinally undulated metal ring deformable by axial force to expand inwardly and outwardly into sealing engagement with inner and outer cylindrical walls.

3,561,528

APPARATUS FOR SIMULTANEOUSLY GUIDING AT LEAST TWO INSERTABLE MECHANISMS IN A WELL TUBING

Huston V. Butler; Tilghman M. Feeler, and Bernard F. Peterson, Ventura, Calif., assignors to Harold Brown Company, Houston, Tex., a corporation of Texas

Filed Oct. 31, 1969, Ser. No. 872,945

Int. Cl. E21b 7/06, 33/00

U.S. Cl. 166-117.5

11 Claims

An apparatus for installing and removing insertable elements, such as flow valves and the like, laterally of a well axis. The well has a plurality of laterally offset receiving stations. An elongated guide tool rotatably supports a top shifting tool and a bottom shifting tool. When the guide tool is lowered into the well, the top shifting tool is normally adapted to remove an element from a predetermined receiving station. The removed element upon becoming aligned with the axis of the well, releases the bottom shifting tool for lateral movement. The bottom shifting tool can then either install or remove another insertable element. Accordingly, in one apparatus aspect at least one insertable element can be

removed and another element installed during a single run by the elongated tool through the well tubing; in another ap-



3,561,529

THROUGH-TUBING NONRETRIEVABLE BRIDGE PLUG

Arthur L. Owen, Houston, Tex., assignor to Electric Wireline Specialties, Inc., Alice, Tex., a corporation of Texas

Filed Oct. 2, 1968, Ser. No. 764,438

Int. Cl. E21b 33/134

U.S. Cl. 166-182

22 Claims



Several concentric sections of tubing are telescoped over each other with each section except the innermost being slotted longitudinally and with the slots of one section being circumferentially offset from the slots of adjacent sections. The innermost section includes a central passageway extending along its entire axial length with a bypass valve disposed at the lower end of the passage. When the innermost section is pulled axially upwardly with respect to the outer sections, the slotted portions are forced radially outwardly to engage and lock to the surrounding well structure. The locking means retains the radial expansion and the central passageway conducts well fluids through the assembly. The valve may thereafter be set to completely close the passageway.

3,561,530
OIL RECOVERY METHOD USING MICELLAR SOLUTIONS

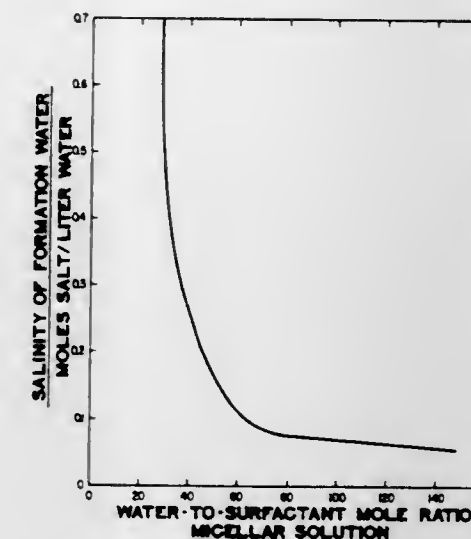
William C. Tosch, Parker, and Stanley C. Jones, Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed Aug. 4, 1969, Ser. No. 847,059

Int. Cl. E21b 43/22

U.S. Cl. 166-252

12 Claims



paratus aspect at least two such elements can be removed during a single run.

Hydrocarbon from a subterranean formation having an injection means in fluid communication with a production means is recovered by injecting and displacing through the formation a micellar solution having a mole ratio of aqueous medium to surfactant substantially at equilibrium with the formation water, the relationship taught by the curve in the attached figure. The micellar solution contains aqueous medium, hydrocarbon and surfactant and optionally cosurfactant (e.g. alcohol) and electrolyte. Compatibility between the formation fluids and injected micellar solution is obtained by determining the salinity of the formation water and selecting the desired mole ratio of aqueous medium to surfactant as illustrated in the figure to be used in the micellar solution.

3,561,531

METHOD AND APPARATUS FOR LANDING WELL PIPE IN PERMAFROST FORMATIONS

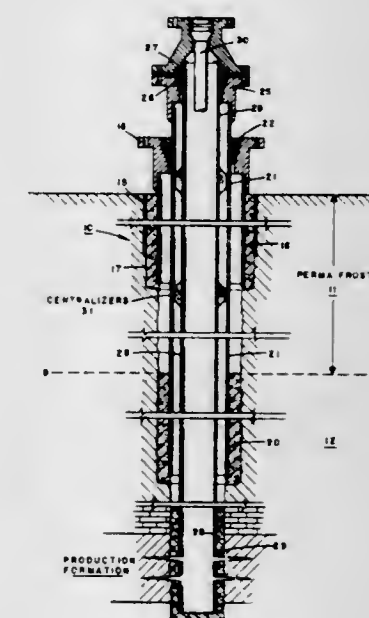
Terrell V. Miller, Houston, Tex., assignor to Esso Production Research Company

Filed Aug. 21, 1969, Ser. No. 851,886

Int. Cl. E21b 33/14

U.S. Cl. 166-285

20 Claims



A method for landing and suspending well pipe strings in wells penetrating subsurface formations including formations adjacent the earth's surface particularly susceptible to sub-

sidence, such as permafrost formations or zones, that prevents damage from subsidence. At least one (outer) well pipe is run and set in the permafrost formation and cemented to the permafrost formation. At least one other (inner) well pipe is run and set through the permafrost formation in lower level subsurface formations and cemented only to the lower level subsurface formations below the bottom of the permafrost formation. The entire weight of the inner well pipe is supported on the outer well pipe. In the event of subsequent subsidence of the permafrost formation, the outer well pipe may subside without affecting the inner well pipe. A third inner well pipe is suspendible on and within the inner well pipe without causing buckling of the inner well pipe.

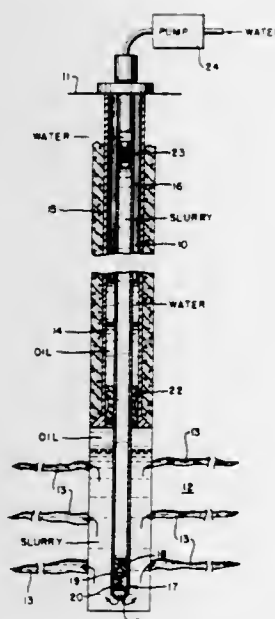
3,561,532

WELL FRACTURING METHOD USING EXPLOSIVE SLURRY

David A. Fletcher, Mesa, and Leonard N. Roberts, Scottsdale, Ariz., assignors to Talley-Frac Corporation, Pryor, Okla.
Filed Mar. 26, 1968, Ser. No. 716,056
Int. Cl. E21b 43/26

U.S. Cl. 166—299

8 Claims



A method of fracturing a geological formation adjacent a well bore is described, comprising injecting a free-flowing explosive slurry, which is nondispersible in well fluids over a time period required to fracture the formation and thus retains its initial density until fracturing and which contains a granular explosive which is nonhygroscopic and insoluble in the dispersive medium of the slurry, into the well bore directly adjacent the formation to be fractured, so that the slurry cannot contact fluids in the well bore before reaching the formation, then placing a detonating device in the slurry and detonating it to explode the slurry. The explosive slurry used in the method is an even dispersion in an inert fluid dispersive medium of a granular solid explosive, which is an organic nitro compound of high explosive power and which is insoluble in the dispersive medium, to which is added a gelling agent for maintaining the solid explosive evenly dispersed throughout the fluid medium under conditions of temperature and pressure encountered in well fracturing.

3,561,533

CONTROLLED CHEMICAL HEATING OF A WELL USING AQUEOUS GAS-IN-LIQUID FOAMS

John C. McKinnell, Taft, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware
Filed July 17, 1969, Ser. No. 842,733
Int. Cl. E21b 43/24

U.S. Cl. 166—302

10 Claims

Aqueous gas-in-liquid well circulation foams are useful as agents in the chemical heating of a well, e.g., (1) as a cover or blanketing means for hypergolic reactions carried out in a well, or (2) as a carrier means for the controlled introduction and contacting of one or more reactive chemicals of a high energy reaction system into a well.

A method for installing and removing insertable elements, such as flow valves and the like, laterally of a well axis. The

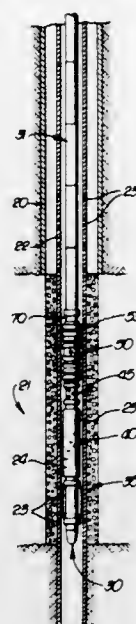
3,561,534

METHOD AND APPARATUS FOR CLEANING OIL WELLS

Daniel W. Dendy, 950 Molino Ave., Long Beach, Calif. 90804
Filed Sept. 4, 1969, Ser. No. 855,193
Int. Cl. E21b 21/00, 33/12

U.S. Cl. 166—311

11 Claims



A method for cleaning the perforations in an oil well casing liner set in an oil producing zone of the well hole including setting a cleaning tool initially adapted to produce high fluid pressure in the liner, depositing fluid in the well hole through a pipe, raising and lowering the tool to pump fluid into and create high fluid pressure in the liner so as to force the fluid through the perforations in the liner into the formation, converting the tool while in the well hole to a tool for producing a vacuum in the liner, and then raising and lowering the tool to produce a vacuum in the liner so as to draw the fluid from the formation through the perforations into the liner and to pump the fluid to the surface.

3,561,535

METHOD FOR SIMULTANEOUSLY GUIDING AT LEAST TWO INSERTABLE MECHANISMS IN A WELL TUBING

Huston V. Butler; Tilghman M. Feeler, and Bernard F. Peterson, Ventura, Calif., assignors to Harold Brown Company, Houston, Tex., a corporation of Texas
Filed Oct. 31, 1969, Ser. No. 872,944
Int. Cl. E21b 43/00

U.S. Cl. 166—315

4 Claims



well has a plurality of laterally offset receiving stations. An elongated guide tool rotatably supports a top shifting tool and a bottom shifting tool. When the guide tool is lowered into the well, the top shifting tool is normally adapted to remove an element from a predetermined receiving station. The removed element upon becoming aligned with the axis of the well, releases the bottom shifting tool for lateral movement. The bottom shifting tool can then either install or remove another insertable element. Accordingly, in one method aspect at least one insertable element can be removed and another element installed during a single run by the elongated tool through the well tubing; in another method aspect at least two such elements can be removed during a single run.

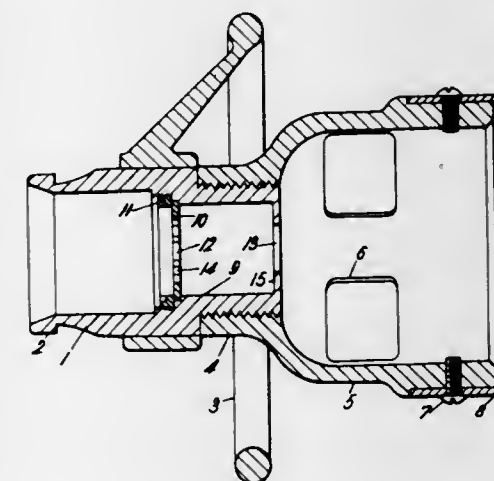
3,561,536

JET HEAD FOR FOAM GENERATORS

Thomas Anthony Henshaw, Stonegate, near Wedhust, Sussex, England (9 Arundel Crescent, Brighton, Sussex, England)
Filed June 12, 1968, Ser. No. 745,064
Int. Cl. A62c 31/12

U.S. Cl. 169—15

5 Claims



A jet head for a fire-fighting foam generator by which the jet is caused to form a uniform conical spray of droplets without substantial loss of kinetic energy. The liquid stream to form the jet passes through a chamber having an inlet orifice with slots around its periphery, and the part of the stream that passes through these slots impinges on the end wall of the chamber around the periphery of the outlet orifice.

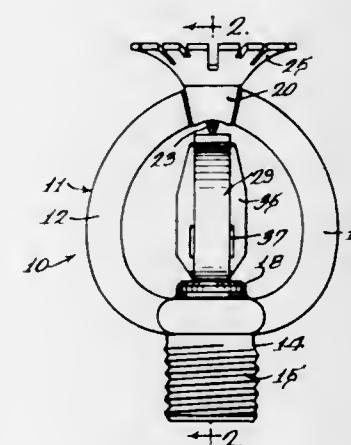
3,561,537

AUTOMATIC SPRINKLER HEAD

Keith M. Dix, Bannockburn, and Harold F. Grenning, Jr., Glenview, Ill., assignors to Fire Protection Company
Filed June 20, 1968, Ser. No. 738,697
Int. Cl. A62c 35/22

U.S. Cl. 169—38

14 Claims



An automatic fire protection sprinkler head including a frame having means providing a passage for water or the like

terminating in an outlet closed by a valve disc, together with a temperature responsive linkage acting between the valve disc and the frame to normally maintain the outlet closed comprising a pair of bimetal elements which react similarly on a slow rate of temperature rise below a predetermined high value to produce no effect, and which react differentially when the high temperature is exceeded or when there is a rapid rate of rise in temperature, to release the valve member and let the water flow. Five embodiments are illustrated.

3,561,538

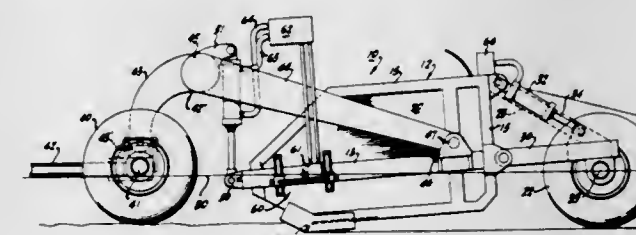
EARTH MOVING MACHINE WITH DEPTH AND CROSS-SHAPE CONTROLS

John Curlett, Los Gatos, and Raymond A. Gurries, San Jose, Calif., assignors to Gurries Manufacturing Co., San Jose, Calif.

Continuation of application Ser. No. 758,645, Aug. 15, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 339,069, Jan. 13, 1964, now abandoned, which is a continuation-in-part of application Ser. No. 157,407, Dec. 6, 1961, now abandoned. This application Aug. 25, 1969, Ser. No. 852,997
Int. Cl. E02f 3/76, 3/00

U.S. Cl. 172—4.5

1 Claim



This invention relates to the control of the height or cross slope or both of an earth working tool such as a scraper blade with height control achieved by use of an external elongated reference member disposed along the path to be traveled by the scraper to actuate the hydraulic control valve of a ram used to move the earth working tool. A pendulum-actuated control valve is used to control cross slope disposition.

3,561,539

VIBRATORY RIPPER PLOW

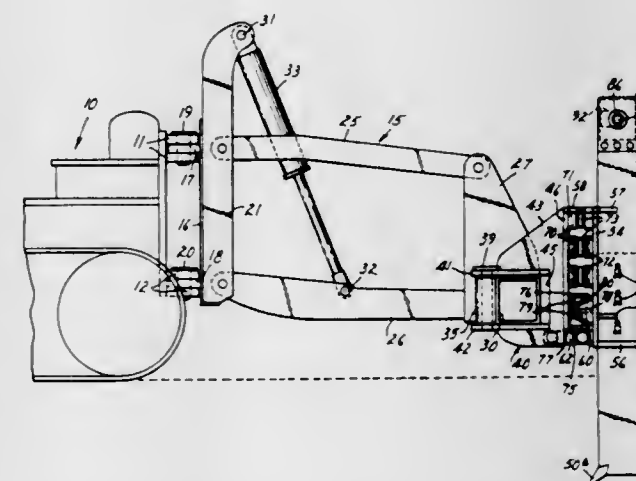
James L. Evans, Minneapolis, Minn., assignor to Universal Vibro, Inc., a corporation of Minnesota, by mesne assignment to

Filed May 9, 1968, Ser. No. 727,987

Int. Cl. A01b 35/06

U.S. Cl. 172—40

3 Claims



An elongated ripper plow blade attached to an intermediate member by a mechanical link allowing limited vertical movement and a plurality of resilient pads designed to enhance vibratory movement and the intermediate link being

connected to a vertically movable frame so as to allow limited rotary movement thereof about a vertical axis. A hydraulically operated rotary eccentric attached to the plow blade to produce vibratory movement of the plow blade to enhance the ripping or plowing action.

3,561,540

DEVICE FOR PLANTING TREES OR THE LIKE

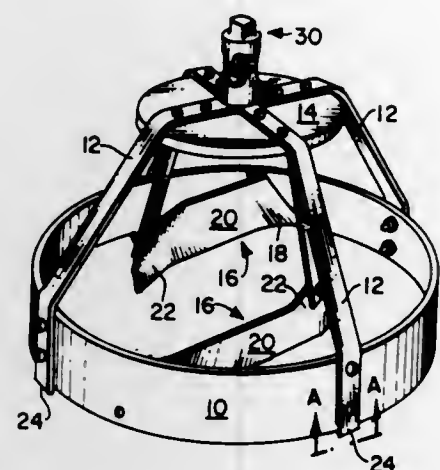
Anatol Kaszkurewicz, 3341 Carol Ave., Baton Rouge, La.

Filed Apr. 15, 1968, Ser. No. 721,475

Int. Cl. A01b 33/06

U.S. Cl. 172-111

13 Claims



A device for planting cuttings, seedlings, or the like is described. The configuration of the device is such that soil in an annular region about the item to be planted is caused to move centripetally into an excavation containing the item to be planted. At the same time an annular trench is created in the soil around the periphery of the planted item. Methods of conducting the planting operation are also described. Among the advantages of the invention are that it reduces the time and manpower otherwise required for conducting large-scale planting operations on a forestry preserve or the like, and that planted items exhibit increased survival and growth rates.

3,561,541

TRACTOR AND IMPLEMENT HYDRAULIC CONTROL SYSTEM

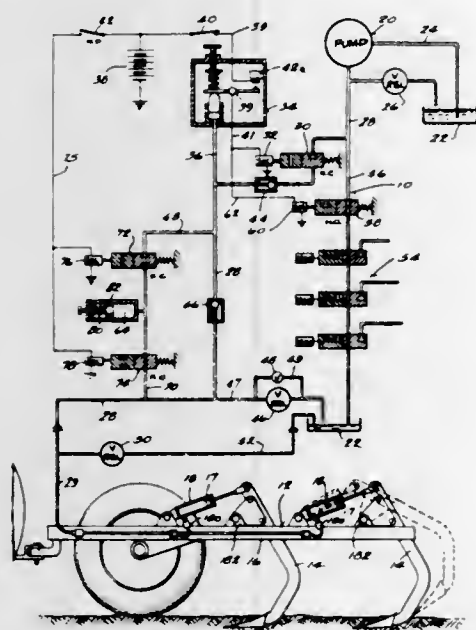
Roger W. Woelfel, 3780 S. Woelfel Road, New Berlin, Wis.

Filed Sept. 21, 1967, Ser. No. 669,497

Int. Cl. A01b 61/04

U.S. Cl. 172-265

13 Claims



Disclosed herein are hydraulic circuits for controlling hydraulic cylinders utilized on agricultural implements to afford tripping and resetting of the earth working tools. The

circuits are provided with means for maintaining suitable working pressures in the cylinders. In one embodiment an adjustable pressure responsive electrical switch is used. In another embodiment an adjustable pressure responsive unloading valve is provided. Check valves in the circuits seal the desired pressure in the hydraulic cylinders and pressure relief valves permit discharge of fluid from the cylinders into a reservoir as the working tools trip. The circuits also include fluid accumulators which can be selectively connected to function as shock absorbers to absorb surges in pressure or disconnected to increase the resistance of the circuit to tripping of the working tools.

3,561,542

CONTROL SYSTEM FOR ROCK DRILLS

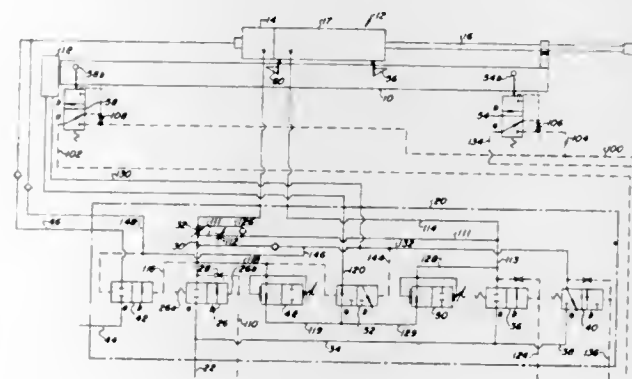
Laurence B. Hanson, Pine, and Arthur W. Wallace, Denver, Colo., assignors to Gardner-Denver Company, Quincy, Ill., a corporation of Delaware

Filed Mar. 20, 1969, Ser. No. 808,925

Int. Cl. E21c 5/08, 5/16

U.S. Cl. 173-1

3 Claims



An automatic control system for a guide shell-mounted rock drill including a control circuit having pneumatically operated valves for providing pressure fluid to the drill hammer, rotation motor and feed motor and for controlling drill hole flushing medium. Sensors mounted on the drill guide shell provide for reversal of the feed motor and reduced drill power upon reaching the forward end of the guide shell, and shutdown of the drill upon reaching the rearward end of the guide shell. The control circuit includes a series of control valves for selection, at will, by the drill operator of a particular operating sequence or condition of the drill. A control valve is included for providing an operating sequence which includes operation of the drill at reduced power for a predetermined period of time for collaring a drill hole. The control system also includes pressure proportioning valves for automatically regulating the feed motor pressure to be proportional to the drill percussion motor supply pressure.

ERRATUM

For Class 173-57 see:
Patent No. 3,561,462

3,561,543

ROTARY IMPACT WRENCH MECHANISM

Otmar M. Ulbing, Lisle, N.Y., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey

Filed Feb. 7, 1969, Ser. No. 797,537

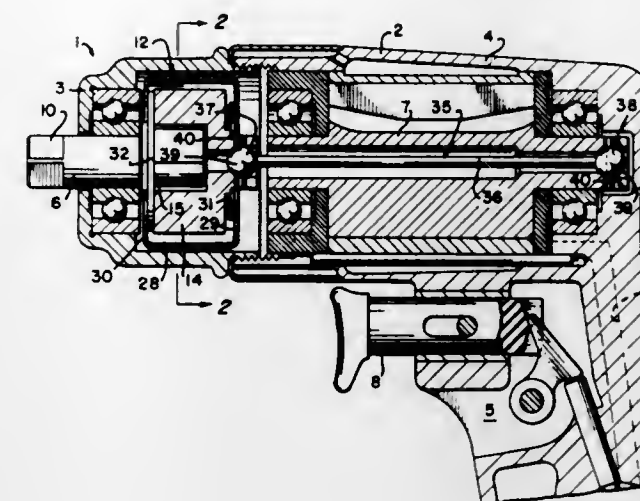
Int. Cl. B25b 21/02

U.S. Cl. 173-93.5

11 Claims

A rotary impact wrench mechanism including a hammer rotating around an anvil with both having cooperating cam surfaces for periodically engaging shoulders on the hammer and anvil to cause impacts. The hammer is connected to the

wrench motor by a joint that allows the hammer to move transversely following impact to cause the hammer to auto-



matically disengage itself from the anvil and to start further rotary movement.

3,561,544

PARALLEL SHAFT DRIVEN MACHINE TOOL WAY OR QUILL UNIT

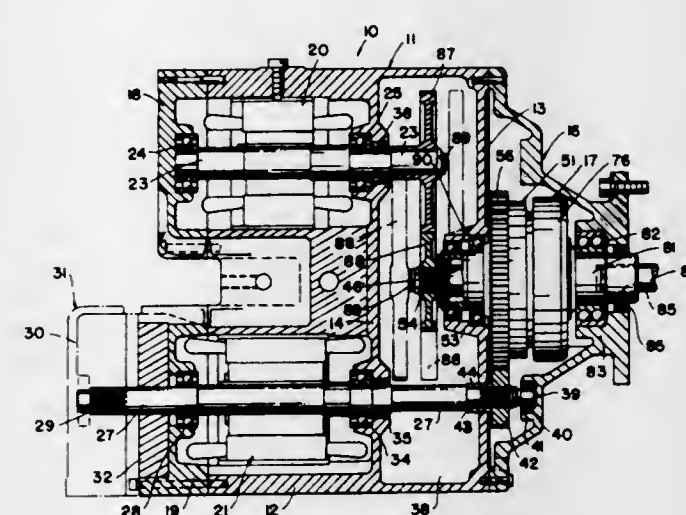
Herman Farmer, Livonia, Mich., assignor to Buhr Machine Tool Corporation, a corporation of Delaware, by mesne assignment

Continuation of application Ser. No. 694,998, Jan. 2, 1968, now abandoned. This application Dec. 5, 1969, Ser. No. 878,998

Int. Cl. F16h 37/06

U.S. Cl. 173-145

9 Claims



Two different versions of a machine tool unit are disclosed for use particularly in the mass production machining of castings, forgings and like heavy workpieces at longitudinally spaced stations of factory transfer equipment, past which stations the workpieces are successively indexed, or pallets or otherwise. However, the combination of the invention also pertains generally to individual tool units of the dual feed and traverse motor type, not necessarily operating in such a transfer system, but characterized by a speed reducer, drivingly interposed between a prime mover, such as a feed motor, and a driven machine tool unit or units.

3,561,545

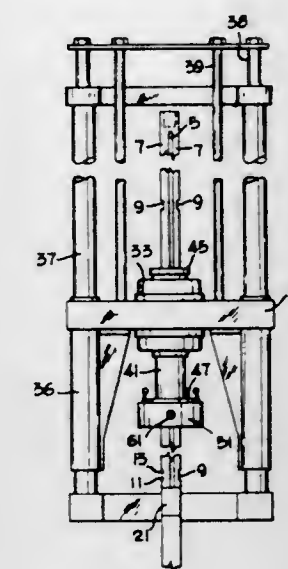
KELLY BAR AND MOUNTING MEANS THEREFOR
Charles L. Rassieur, University City, Mo., assignor to Central Mine Equipment Company, St. Louis County, Mo., a corporation of Missouri

Filed Oct. 8, 1968, Ser. No. 765,783

Int. Cl. E21b 3/04

U.S. Cl. 173-166

14 Claims



A rotary drill having a driven rotary table with an axially directed passage through its center of rotation defined by a hollow spindle depending from the rotary table. A Kelly bar of noncircular cross section extends through the passage. A noncircular face of the Kelly bar is engaged for positive rotation with the spindle by a mating piece on the spindle. A circular cross section liquid-tight coupling at the bottom of the Kelly bar lies radially within the inner circumference of the noncircular Kelly bar. Plungers carried by the spindle selectively engage shoulders on the Kelly bar for exerting axial pressure on the Kelly bar when the rotary table is moved axially downward.

3,561,546

METHOD OF AND APPARATUS FOR UNDERWATER GEOCHEMICAL EXPLORATION

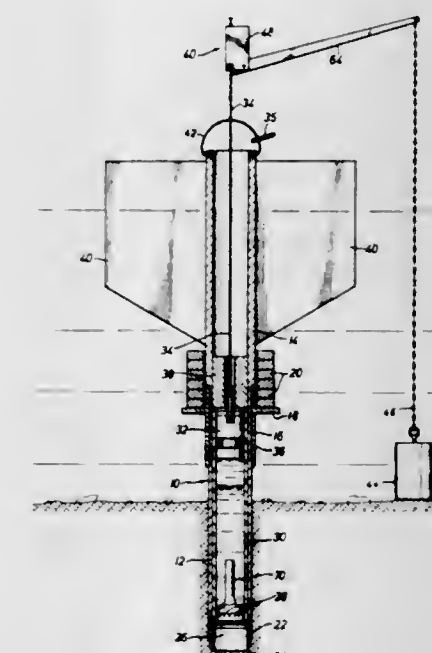
Calvin B. Craig, Dayton, Tex., assignor to Leo Horvitz, Houston, Tex.

Filed Nov. 12, 1968, Ser. No. 774,901

Int. Cl. E21b 9/20, 25/00; G01n 23/04

U.S. Cl. 175-5

2 Claims



A method of and apparatus for underwater geochemical prospecting by taking samples of the bottom formation and

water at or immediately above the bottom. The method comprises taking samples simultaneously of the water at the bottom and of the earth formation immediately below at spaced apart locations for analysis to determine the concentration of significant hydrocarbon leakage products from subterranean petroleum deposits to be used in exploring for such deposits. The sample taking apparatus comprises a tubular body whose lower end is open and provided with means for penetrating the bottom formation and retaining a sample of the same in the body. The sample taker includes a piston movable upwardly from a lower position closing the lower end portion of the body to an upper position above when the body reaches a predetermined position at or close to the bottom during its downward travel to draw in a sample of water at or immediately above the bottom. The apparatus is adapted to be suspended by an operating cable and means is provided for adjusting the piston actuating means to allow predetermined setting of the apparatus to allow free fall of the body from a desired point of its downward travel before the body penetrates the bottom formation.

3,561,547

BOTTOM SAMPLER

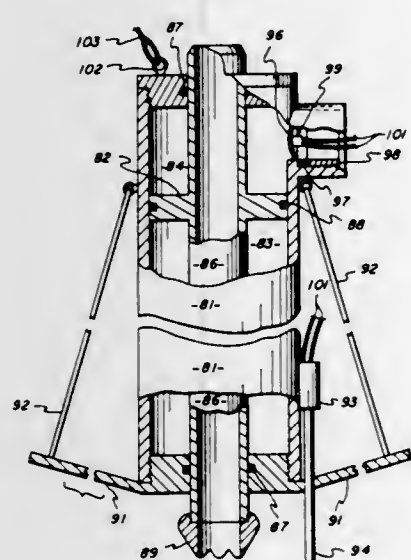
Vlash A. Pullos, Garden Grove, Calif., assignor to North American Rockwell Corporation

Original application Nov. 15, 1965, Ser. No. 507,904, now Patent No. 3,439,537. Divided and this application Sept. 18, 1968, Ser. No. 795,748

Int. Cl. E21b 7/12, 25/00

U.S. Cl. 175—6

3 Claims



This invention relates to apparatus for obtaining forceful motion and more particularly relates to apparatus for obtaining forceful motion underneath a body of water. In particular, a bottom sampler has a piston actuated by hydrostatic pressure, which upon contact of the sampler with the sea floor, drives a hollow tube into the sea floor for collecting a sample. An explosive detonator triggered by contact with the sea floor adds to hydrostatic pressure to rupture a diaphragm and actuate the piston.

3,561,548

EMULSION MUD DRILLING

Thomas C. Mondshine, Houston, Tex., assignor to National Lead Company, New York, N.Y., a corporation of New Jersey

Filed Oct. 13, 1969, Ser. No. 865,677

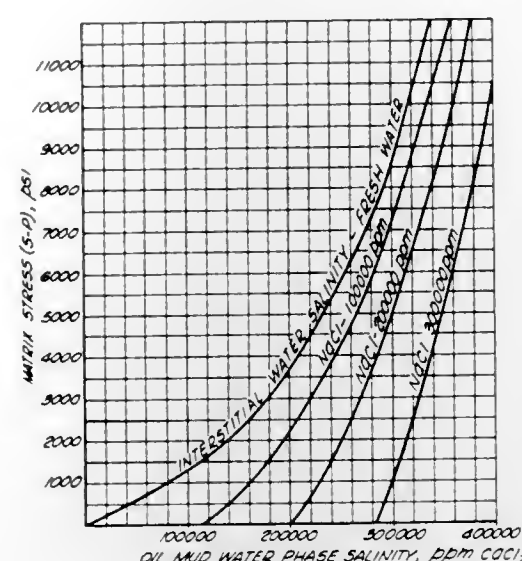
Int. Cl. E21b 21/04

U.S. Cl. 175—65

4 Claims

A method is provided for determining the optimum salinity of and making adjustments to the dispersed aqueous phase of an oil base emulsion mud being used to drill through a shale bearing formation. The osmosity of the aqueous phase is adjusted, as by adding calcium chloride or sodium chloride or a

mixture thereof, so as to be at least equal to the osmosity corresponding to the sum of the osmosity equivalent of the



matrix stress pressure and the osmosity of the aqueous interstitial fluid in said shale bearing formation.

3,561,549

SLANT DRILLING TOOLS FOR OIL WELLS

Erskine P. Garrison, Long Beach, and John E. Tschirky, Manhattan Beach, Calif., assignors to Smith Industries International, Inc., Whittier, Calif., a corporation of California

Filed June 7, 1968, Ser. No. 735,414

Int. Cl. E21b 7/06

U.S. Cl. 175—76

5 Claims



Drill string orienting apparatus for nonrotating drill strings equipped with down hole motors, the orienting apparatus preferably being located between the lower portion of the motor and the bit sub and having a laterally projecting portion engageable with the hole formation to bias the bit directionally. Also, orienting apparatus on the string above the down hole motor having a portion projecting laterally opposite to the projection of the first mentioned orienting means. Also, a modification wherein symmetrical stabilizing means is located adjacent the lower end of the motor and laterally disposed directional orienting means is located above the down hole motor in spaced relation to the stabilizing means.

3,561,550

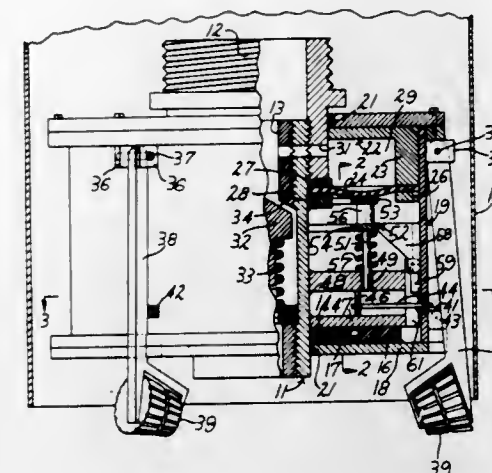
EXPANSIBLE ROTARY DRILL BIT

Gordon E. Mays, 245 27th Court N.W., Birmingham, Ala.
Filed Nov. 10, 1969, Ser. No. 875,187

Int. Cl. E21b 9/26

U.S. Cl. 175—271

10 Claims



A bit body having passageway therethrough receiving fluid under pressure. Pressure responsive unit communicates with passageway and moves from one position to another upon receiving fluid under pressure. Cutter assembly carried by bit housing surrounding bit body and movable by actuating member to expanded position upon angular movement of bit body prior to introduction of fluid under pressure. Movable restraining member limits angular movement of bit body relative to bit housing upon introduction of fluid under pressure prior to angular movement of bit body.

3,561,551

COMPUTING AND PRINTING WEIGHING SCALE SYSTEM WITH WEIGHT TOTALIZING MEANS

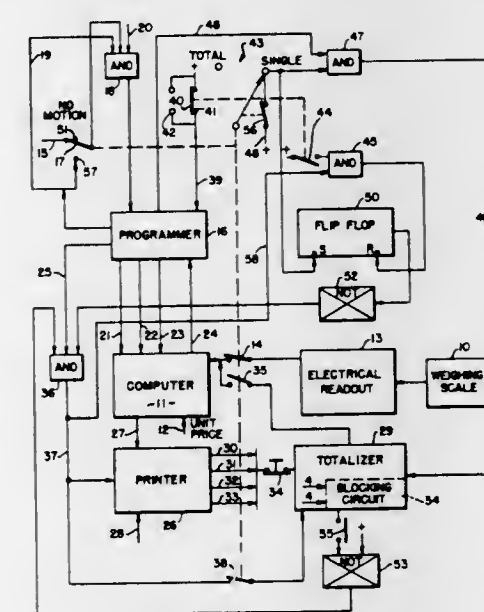
William C. Susor, Toledo, Ohio, assignor to Reliance Electric Company, Toledo, Ohio, a corporation of Delaware

Filed July 23, 1969, Ser. No. 843,940

Int. Cl. G01g 23/38

U.S. Cl. 177—3

8 Claims



A system for weighing, computing and printing records of the weight and value of each and the total of a plurality of successively weighed loads having retail and wholesale modes of operation. When the system is in the retail mode, tickets are printed showing the weight of a single package, the retail price per pound and value computed by multiplying such single weight and retail price. When the system is in wholesale mode, tickets are printed showing the total weight of a plurality of packages, the wholesale price per pound and value computed by multiplying such total weight and wholesale price.

PROCESS AND DEVICE FOR MEASURING OUT TOBACCO

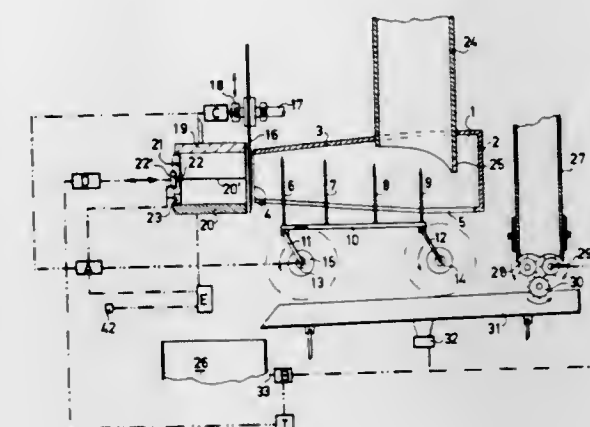
Robert L. M. Rischke, Quintuslaan 18, Groningen, Netherlands

Filed Dec. 20, 1968, Ser. No. 785,593
Claims priority, application Netherlands, Feb. 6, 1968, 68.01680

Int. Cl. G01g 13/02

U.S. Cl. 177—120

7 Claims



A type of tobacco strand identified as the cut variety is conveyed and compressed by a frustum shaped automatic conveyor system. A pressure sensor activated by virtue of the compressed cut tobacco energizes a rotary knife to cut off a desired volumetric quantity of the cut tobacco. Another type of tobacco identified as the short variety is conveyed by a second automatic conveyor system. The two types of tobacco are commingled on a common weighing mechanism to produce a predetermined quantity by weight of a mixed variety.

3,561,553

LOAD-MEASURING SYSTEM

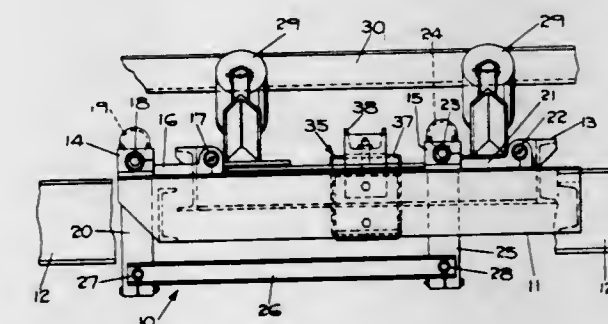
Otto J. Blubaugh, Columbus, Ohio, assignor to Jeffrey Galion Inc., a corporation of Ohio

Filed July 29, 1968, Ser. No. 748,390

Int. Cl. G01g 11/00, 23/14, 21/24

U.S. Cl. 177—168

5 Claims

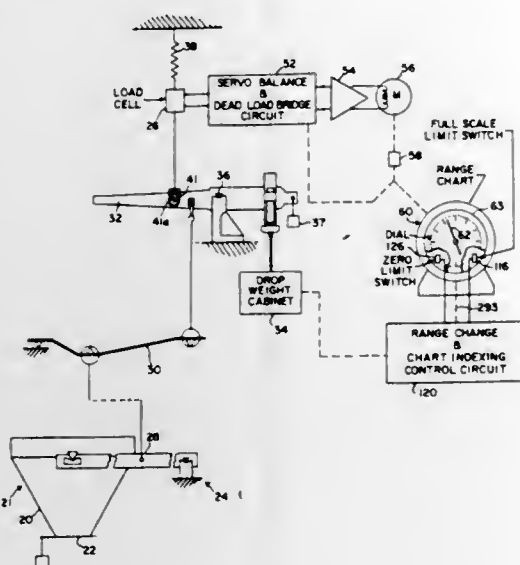


A force-measuring system in which the force of a load of material is applied to a load-responsive element to produce a signal proportional to the weight of material. There is a load beam by which the force is applied to the load-responsive element. A counterbalance beam is connected to the load beam to counterbalance at least a part of the static weight that would otherwise be applied to the load responsive element. The force-measuring system is compactly constructed, and the elements are highly stabilized to be accurately responsive.

3,561,554
ELECTRICAL WEIGHING APPARATUS WITH INCREMENTAL LOAD-COUNTERBALANCING MEANS
 Layton C. Merriam, Mendon, Vt., and Arthur J. Burke, Oakland, N.J., assignors to Howe Richardson Scale Company, Clifton, N.J., a corporation of Delaware
 Filed July 1, 1969, Ser. No. 838,099
 Int. Cl. G01g 1/34

U.S. Cl. 177-203

14 Claims

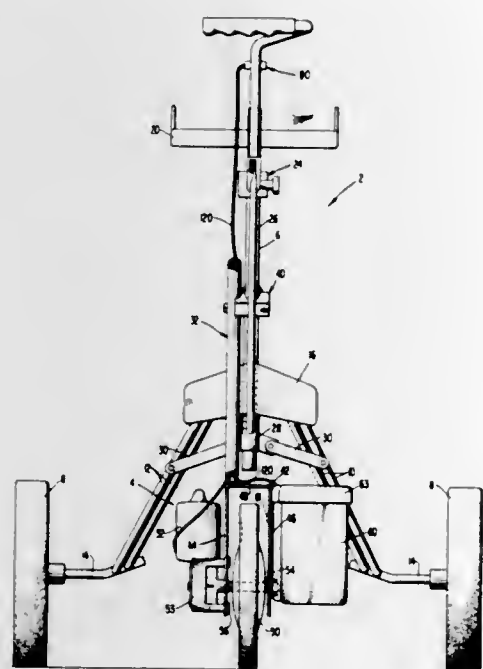


A weighing apparatus having a load cell operatively connected to the lever system of a scale so that the output signal voltage of the load cell represents the load-produced force that is transmitted by the lever system to the input of the load cell. A control circuit responds to the load cell output signal voltage to back balance a portion of the load being measured with range weights that are applied to the lever system so that the effective operating range of the load cell is limited to only a fractional proportion of the total scale capacity. As load-counterbalancing weights are added and removed, the control circuit also operates a multirange chart in a weight indicating dial mechanism to provide a readout of the total weight of the load.

3,561,555
POWER ATTACHMENT UNIT FOR GOLF BAG CARTS
 James W. Carmichael, Clearwater, Fla., assignor to Haja, Inc., Miami, Fla.
 Filed May 29, 1969, Ser. No. 829,022
 Int. Cl. B60k 1/04

U.S. Cl. 180-11

8 Claims



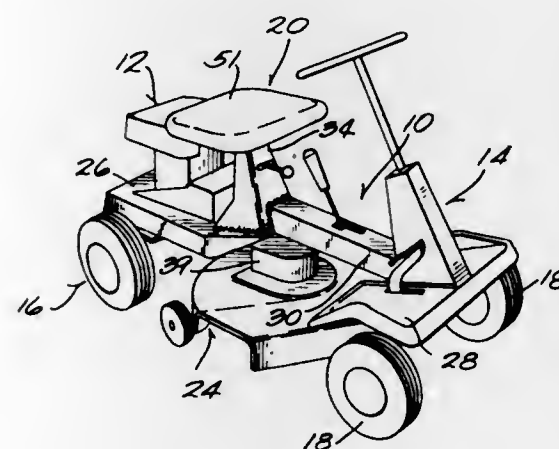
A power attachment unit for golf bag carts comprising a curved support tube whose lower end is fixed to an inverted

yoke support having mounted therein a wheel to be power driven by means of a motor and gear assembly mounted to one side of the yoke support. To the other side of the yoke support is fixed a battery case containing a battery for energizing the motor. The support tube is mounted to the vertical stem of the push cart by means of a releasable and adjustable clamping bracket. An electrical control unit is mounted by a second clamping bracket to the handle of the push cart for controlling the speed of the motor and in turn the power driven wheel. Electrical lines between the control unit and the battery and the motor are partly housed through the support tube.

3,561,556
RIDING MOWER
 John W. Davies, III, Plymouth, Wis., assignor to Gilson Bros. Co., Plymouth, Wis., a corporation of Wisconsin
 Filed June 14, 1968, Ser. No. 737,078
 Int. Cl. B62d 23/00

U.S. Cl. 180-54

7 Claims

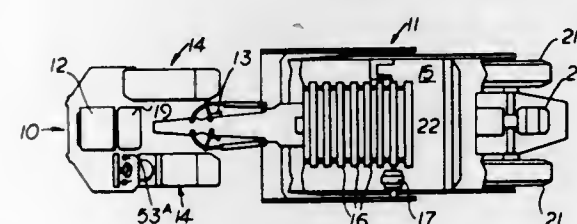


A riding mower frame assembly having an engine base connected to a front wheel shroud by a channel shaped box beam with a seat support pedestal having rearwardly diverging sidewalls mounted on the box beam with the lower edges of the sidewalls welded to the engine base on each side of the box beam to constitute the pedestal as an overhead base reinforcing truss.

3,561,557
VEHICULAR DRIVE SYSTEM WITH ELECTRIC ASSIST
 Lee T. Magnuson, Davenport, Iowa, and Alexander Kusko, Newton Centre, Mass.
 Filed May 20, 1968, Ser. No. 730,541
 Int. Cl. B601 15/20, 11/08

U.S. Cl. 180-65

1 Claim



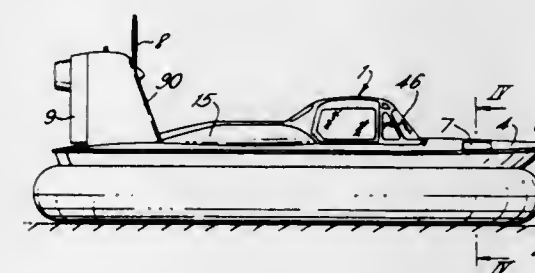
A vehicle is equipped with a main drive system and an electric assist drive system which is actuated by the operator when the vehicle speed falls below some predetermined speed. A prime mover for the vehicle, in addition to driving two wheels directly through a primary transmission, drives a three-phase electrical alternator. The alternator energizes an induction motor with a torque-regulating control system for independently driving two other wheels of the vehicle to provide greater traction at low speeds. The rotor circuit of the induction motor includes a rectifier bridge which feeds a line-commutated inverter for coupling the slip power back to the stator input. The control system determines the firing angle for conduction of the switches in the inverter to control the output torque of the induction motor as a function of

speed. The system includes a shaping network which defines the desired speed-torque characteristic for accelerating the vehicle; and it generates a signal representative of a demand torque for a given motor speed. Another circuit sensing rotor current generates a signal representative of the load torque. A comparison circuit receives the two signals representative respectively of the actual torque and the desired torque for that speed; and it generates an error signal for controlling the firing angle of the switches in the inverter circuit such that the motor and vehicle are accelerated along the torque-speed envelope of the shaping network once the assisting system is actuated. Thus, the control system regulates the output torque of the assisting induction motor as a predetermined function of vehicle speed.

3,561,558
GROUND-EFFECT CRAFT
 Robin Derrick Parkhouse, La Massana, Andorra, assignor to Hovermarine Limited, Southampton, England, a British company
 Filed Aug. 14, 1968, Ser. No. 752,514
 Claims priority, application Great Britain, Aug. 14, 1967, Aug. 14, 1967, Aug. 25, 1967, 37323/67; 37324/67; 39337/67
 Int. Cl. B60v 1/14, 1/16, 1/20

U.S. Cl. 180-120

12 Claims

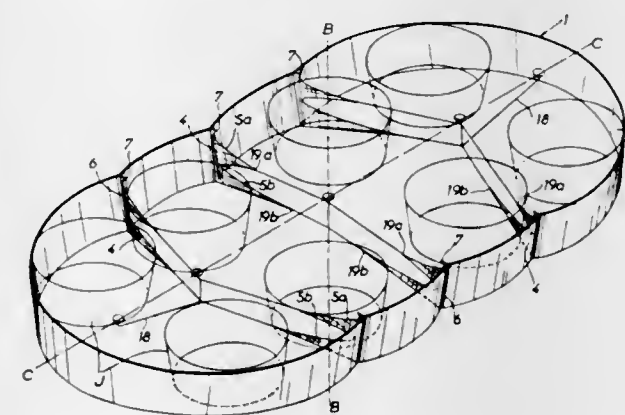


A ground-effect vehicle is provided with a flexible, cushion-containing skirt, a centrifugal fan for supply of cushion air, an airscrew for propelling the vehicle, rudders for steering the vehicle, "puff-ports" for supplying turning moments to the vehicle, the fan and airscrew being driven by separate engines.

3,561,559
SKIRTING SYSTEM FOR SURFACE EFFECT MACHINE
 Guy Robert Delamare, Herblay, France, assignor to Societe D'Etudes Et De Developpement Des Aeroglisateurs Marins - S.E.D.A.M., Paris, France, a company of France
 Filed May 13, 1968, Ser. No. 728,726
 Claims priority, application France, May 18, 1967, 106,832
 Int. Cl. B60v 1/16

U.S. Cl. 180-127

3 Claims

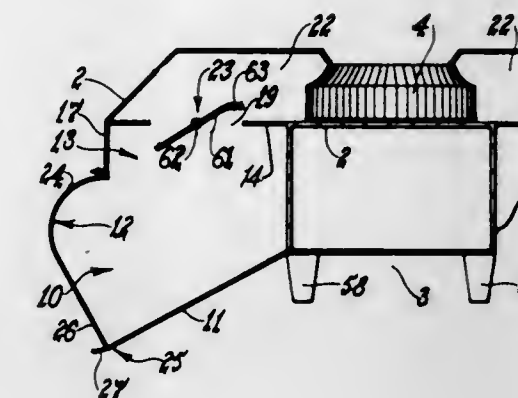


A multilobed flexible skirt device for a surface effect machine, comprising a flexible diaphragm, such as a canvas, connecting the lobes of the skirt, the diaphragm being only partly continuous, since it is cut away over a predetermined curve, and being attached on the one hand to the skirt at the cuspidal edge junctions of its lobes and on the other hand to the skirt support structure of the machine.

3,561,560
FLEXIBLE STRUCTURE FOR AIR CUSHION VEHICLES
 Alfred J. Ford, Launceston, Tasmania, Australia, assignor to Air Cushion Vehicles Australasia Pty. Ltd., Launceston, Tasmania, Australia
 Filed Sept. 9, 1968, Ser. No. 758,318
 Claims priority, application Australia, Oct. 13, 1967, 28481/67
 Int. Cl. B60v 1/04, 1/16

U.S. Cl. 180-128

21 Claims

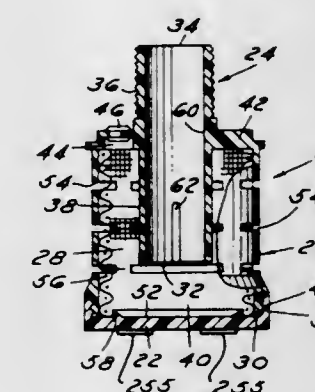


This invention relates to a flexible structure for defining at least part of the periphery of a plenum chamber of an air cushion vehicle. The structure includes two sidewalls defining an open-top channel adapted to receive fluid under pressure from a pressure supply source, a closable fluid passage is defined along the base of the channel and a lip or flap forming a continuation of the lower edge of one of the sidewalls defines a valve member engageable with a reaction surface over which the vehicle is positioned to regulate escape of air from the plenum chamber beneath the flexible structure. The arrangement is such that the fluid pressure within the channel is maintained substantially equal to that within the plenum chamber.

3,561,561
SOUND ATTENUATING DEVICE
 John B. Trainor, 2771 Charter Blvd. Apt. 106, Troy, Mich.
 Filed Nov. 28, 1969, Ser. No. 880,825
 Int. Cl. F01n 1/10, 7/18

U.S. Cl. 181-55

17 Claims



This disclosure relates to improved sound attenuating devices for exhaust gas, such as is presently utilized in various industries to muffle the sound of pneumatically operated industrial equipment. The basic embodiment includes an exhaust entrance tube, a shell encircling the tube defining a gas expansion chamber or plenum having exhaust slots, and a screen overlying the exhaust slots. The tube and shell are integrally formed of plastic to improve the sound attenuating characteristics and reduce the safety hazard of separate secured parts.

The second disclosed embodiment includes a sound absorbing medium in the form of a cellular disc opposite the gas exit of the tube and a floating perforated disc located between the tube exit and the sound absorbing medium. A baffle deflector is also provided at the gas exit of the tube, deflecting the gas into the sound absorbing medium and then

into the annular expansion chamber surrounding the tube. The third embodiment includes a metering valve having a nonrotatable, axially shiftable cylindrical plug telescopically received in the gas exit end of the tube. The metering plug has a plurality of longitudinal V-shaped tapered slots increasing in width toward the plug end received in the tube, accurately controlling the flow of gas.

3,561,562

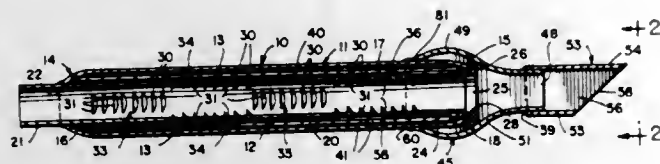
AUTOMOTIVE EXHAUST SYSTEM UNITS

Vincent E. Ignoffo, 7040 W. Newport, Chicago, Ill. 60634
Continuation-in-part of application Ser. No. 744,917, July 15, 1968, now abandoned. This application Jan. 2, 1970, Ser. No. 93

Int. Cl. F01n 1/04, 1/10, 7/20

U.S. Cl. 181-59

12 Claims



Automotive exhaust resonator or muffler having a tubular outer shell with a tapered or dome-shaped downstream end and exhaust-conveying tube extending longitudinally therethrough and a hollow exhaust discharge extension having its upstream end snugly fitted on the medial portion of the shell, said extension embodying a downstream portion merging from the round or oval transverse cross section of the upstream portion into a substantially rectangular transverse cross section defining a rectangular exhaust discharge opening which is longer than the diameter of said medial portion in one dimension and narrower than said diameter in the other dimension.

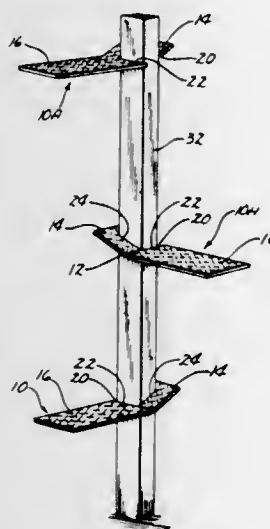
3,561,563

PORTABLE POST STEP

Ralph Harsh, 905 Bryan, Adel, Iowa 50003
Filed Aug. 14, 1969, Ser. No. 850,213
Int. Cl. E06c 7/08

U.S. Cl. 182-92

1 Claim



An integral rigid catwalk metal sheet bent along a transverse fold line to provide a post engaging portion and a step portion, the post engaging portion having a laterally inwardly extending notch for engaging the post. The post is engaged by opposing edges of the notch wherein one of the edges is the inner edge portion of the step portion. The step is placed on the post from the side and the weight of the step portion will cause the unit to pivot downwardly bringing the opposing edges of the notch into engagement with the post thereby locking it in place. The post engaging portion forms an obtuse angle with the step portion and the step portion is normally positioned in a horizontal plane. A series of vertically

spaced apart steps may be placed on a post and extend alternately from the post at angles of 90° to each other. Oppositely facing concave portions may be formed in the opposing edge portions for matingly engaging the rounded peripheral edge of a round post.

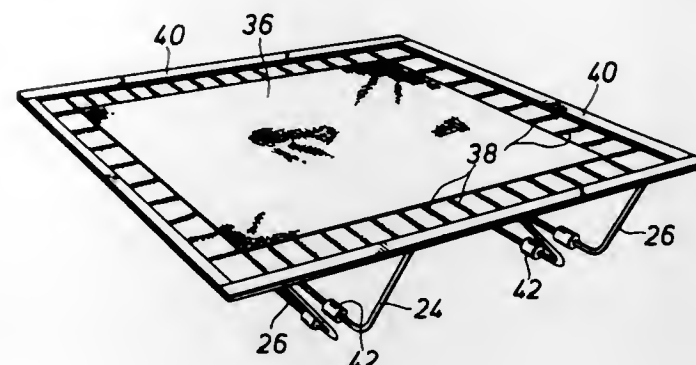
3,561,564

TRAMPOLINE

Edward W. Russell, 6404 Denton Drive, Dallas, Tex. 75235
Filed Apr. 9, 1969, Ser. No. 814,654
Int. Cl. A63b 5/18

U.S. Cl. 182-139

3 Claims



A trampoline, which is constructed to yieldingly resist the downward force exerted thereon by the user, and in which the rebounding action is controlled and directed to prevent accidental outward displacement of the user from the bed of the trampoline during rebound. The trampoline of the invention has a generally rectangular frame, constructed to contract by inward flexing of the sides of the frame in response to the downward force exerted by the user on the bed, and to expand by outward flexing of the sides to provide a rebounding action tending to cause the user's body to move inwardly of the frame during rebound, whereby accidental displacement of the user outwardly beyond the frame is prevented. The frame is supported on U-shaped legs or support members which are shaped to yieldingly resist the contracting movement of the frame and to allow sagging movement of the frame in response to downward force exerted on the bed, whereby the directed rebounding action of the frame is augmented.

3,561,565

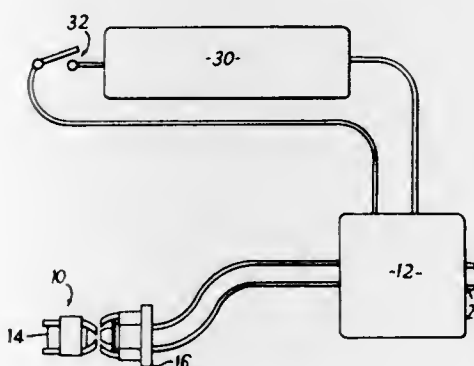
PULSE-ACTUATED LUBRICATION SYSTEM

Dennis Frederick Woor, 34 Powisland Drive, Derriford, Plymouth Devon, and Peter William Stripp, 34 Looseleigh Lane, Crownhill, Plymouth Devon, England
Continuation-in-part of application Ser. No. 569,324, Aug. 1, 1966, now abandoned. This application Sept. 15, 1969, Ser. No. 865,224

Int. Cl. F16n 7/14; K03k 21/00; H02k 21/12

U.S. Cl. 184-7

9 Claims



A lubricating system supplies lubricant to various parts of an apparatus. An electrical pulse generator provides a signal so as to actuate the lubricating means. A blocking oscillator stores a specific number of pulses from the generator to provide a counting cycle from which the signal is produced.

3,561,566

ARRANGEMENT, ESPECIALLY FOR USE IN CONNECTION WITH THE CASHIER STAND, FOR SELF-SERVICE STORES AND THE LIKE

Werner Potrafke, Hufelsenstrasse 16, 432 Hattingen, (Ruhr), Germany

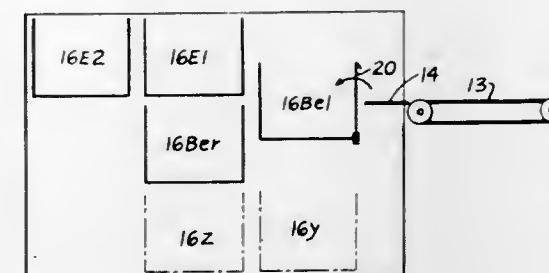
Filed Apr. 18, 1968, Ser. No. 722,364

Claims priority, application Germany, Apr. 20, 1967, P41946

Int. Cl. E04h 3/04

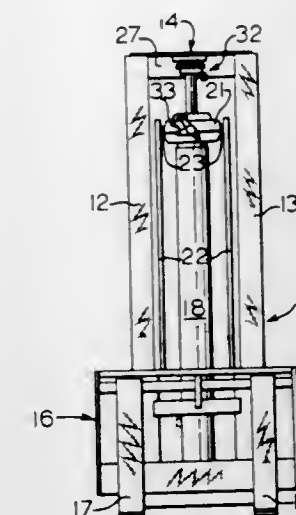
U.S. Cl. 186-1

18 Claims



An installation for self-service stores according to which the goods purchased by a customer are moved by the latter to the cashier, checked off by the latter, and packed by the customer, which includes a plurality of, at least three, receiving containers for the goods, which between a loading station in manual reach of the cashier and one or more unloading stations are adjustable along tracks of which at least one section extends in a substantially vertical direction.

the extendible motor portion. A latching arrangement associated with the forklift carriage and the slider functions in at least partial response to downward force on the carriage to



effectively latch the carriage and slider when the slider is raised relative to the stationary mast and not adjacent the extendible motor portion.

3,561,569

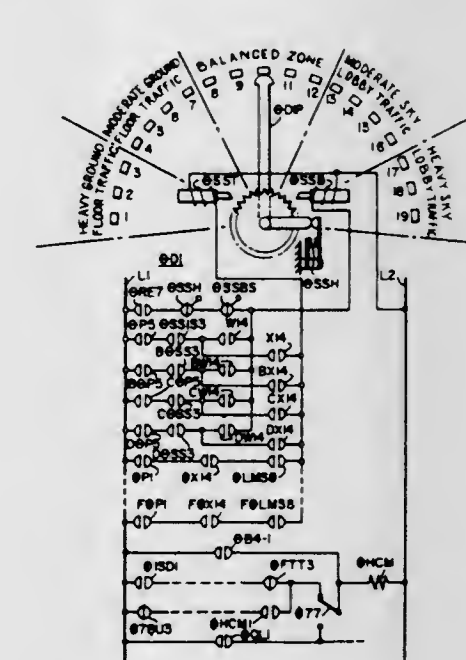
CONVEYOR SYSTEM FOR ELONGATED STRUCTURES

John Suozzo, Hackensack, and Henry C. Savino, Hackensack, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Original application Feb. 11, 1966, Ser. No. 526,813, now Patent No. 3,467,223. Divided and this application May 28, 1969, Ser. No. 828,555

Int. Cl. B66b 1/20

U.S. Cl. 187-29

9 Claims



3,561,567

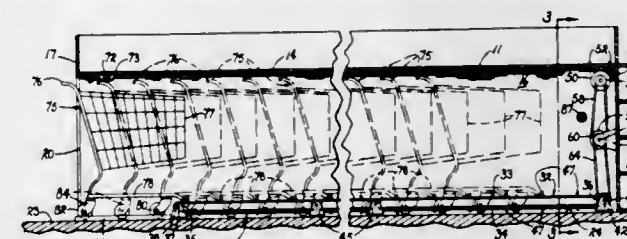
STORAGE AND DISPENSING SYSTEM FOR SHOPPING CARTS

Woody Bradley, 7344 N. Edythe Circle, Winton, Calif. 95388
Filed Oct. 23, 1968, Ser. No. 770,042

Int. Cl. E04h 3/04

U.S. Cl. 186-1

5 Claims



A storage and dispensing system for shipping carts which utilizes an elongated product display shelf gondola of the type found in supermarkets and the like modified to include opposite open and closed ends and an elongated inner compartment therein for receiving a plurality of such shopping carts through said open end with powered conveyor means disposed within the gondola having spaced drive portions individually engageable with the shopping carts and including control means operationally associated with the conveyor means for dispensing said shopping carts one at a time from the open end of the gondola incident to the actuation of the control means.

3,561,568

LATCHING ASSEMBLY FOR FORKLIFT TRUCKS

Eugene E. Hansen, Cleveland Heights, Ohio, assignor to Towmotor Corporation, Cleveland, Ohio, a corporation of Ohio
Filed Oct. 2, 1968, Ser. No. 764,571

Int. Cl. B66b 9/20

U.S. Cl. 187-9

14 Claims

An assembly for preventing unsupported extension of the extendible mast or slider relative to the stationary mast of a forklift truck. A coupling associated with the slider and an extendible portion of the forklift motor means automatically couples the slider to the extendible motor portion when the slider is raised relative to the stationary mast and adjacent

A tall building has a lower first feeder or shuttle bank of elevators operating between a bottom terminal or main floor and a transfer floor. The building has a local second bank of elevators operating between the transfer floor and higher floors to provide local service. A computer maintains a proper number of feeder elevators in service, distributes feeder elevator cars between the bottom terminal and transfer floors, and coordinates arrival of local and feeder elevator cars at the transfer floor. If plural feeder banks are employed the computer coordinates the service provided by such feeder banks.

3,561,570

SNUBBER INCLUDING VISCOUS FLUID

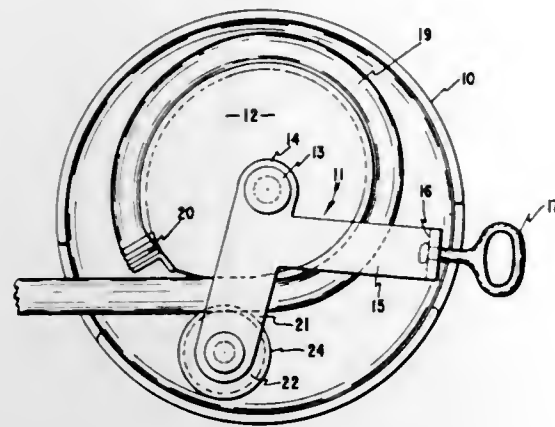
Henry L. Sundermann, 945 S. Holt Ave., Sioux Falls, S. Dak.

Filed Nov. 12, 1968, Ser. No. 775,049

Int. Cl. F16d 63/00

U.S. Cl. 188—1

2 Claims



A fluid-filled flexible tube compressed between at least one roller and another surface. The viscosity of the fluid and the space between the roller and the surface determine the amount of snubbing available.

3,561,571

ELEVATOR GROUP SUPERVISORY CONTROL SYSTEM

John A. Gingrich, Toronto, Canada, assignor to Dover Corporation, New York, N.Y., by mesne assignments

Filed Nov. 4, 1966, Ser. No. 592,186

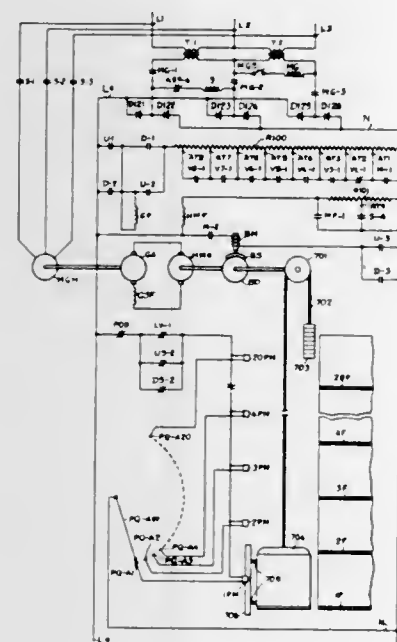
Claims priority, application Great Britain, Nov. 5, 1965,

47,065

Int. Cl. B66b 1/20

U.S. Cl. 187—29

54 Claims



The disclosure relates to an elevator group supervisory control system in which bits of information, as to registered demands for service, position of the cars, and the degree of availability of the cars relative to the number of calls for service each is capable of answering without undue delay, are successively and repetitively scanned to control the respective movement of the cars.

3,561,572
**DEVICE FOR MOUNTING FRICTION LINING CARRIERS
IN DISK BRAKE ASSEMBLIES**

Helmut Flegl, Stuttgart-Zuffenhausen, and Hans Mezger,

Ludwigsburg, Germany, assignors to Firma Dr. Ing. h.c.F.

Porsche K.G., Stuttgart-Zuffenhausen, Germany

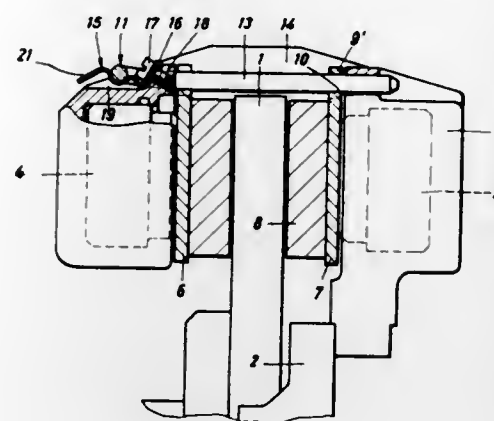
Filed Mar. 6, 1969, Ser. No. 804,849

Claims priority, application Germany, Mar. 8, 1968, P31039

Int. Cl. F16d 65/02

U.S. Cl. 188—73.6

4 Claims



Apparatus for mounting friction lining carriers of disc brake assemblies, particularly for use in automotive vehicles, including readily removable means for supporting the carriers and the friction linings secured thereto, in a stationary position relative to the brake caliper structure, within a recess provided in said caliper structure.

ERRATUM

For Class 188—1 see:
Patent No. 3,561,570

3,561,573

SELF-ADJUSTING ELECTROHYDRAULIC BRAKE CONTROL

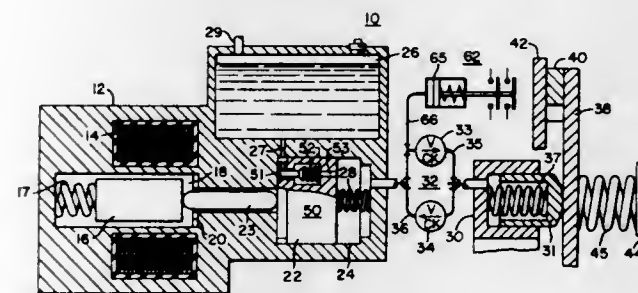
Laird R. Allen, Jr., Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 9, 1968, Ser. No. 782,366

Int. Cl. B60t 13/04, 13/22

U.S. Cl. 188—171

5 Claims



A compact electrohydraulic brake control system in which a reservoir of brake fluid is employed to compensate for brake shoe wear and for brake fluid leakage. In addition, an electric recycling circuit provides a means for compensating for fluid leakage, and a check valve arrangement prevents the hydraulic system from becoming air bound even when the fluid containing parts thereof are above the fluid level in the reservoir.

3,561,574

FLUID FLOW CONTROL DEVICE

Richard H. Dickinson, Jr., Shaker Heights, and William A.

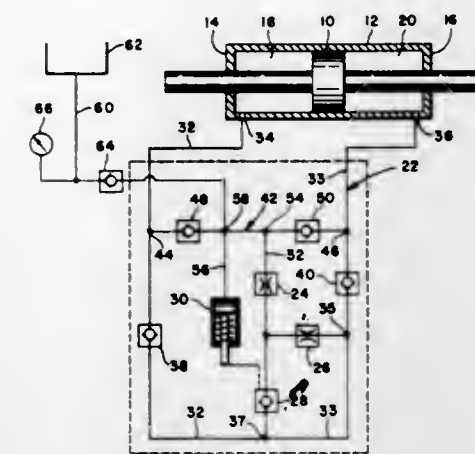
Gail, Northfield, Ohio, assignors to McDowell-Wellman Engineering Company, Cleveland, Ohio

Filed Apr. 25, 1969, Ser. No. 819,184

Int. Cl. F16d 57/00

U.S. Cl. 137—110

17 Claims



There is provided a fluid flow control device which is particularly useful in hydraulic shock absorber or damping devices, and characterized by a circuit attachable to a system where fluid moves under pressure in either of two directions. This circuit includes a pair of constrictions of considerably different resistance to fluid flow in series with each other. Bypass means are provided around one constriction which function to render such restriction inoperative when predetermined pressure conditions exist.

3,561,575

ADJUSTABLE HYDRAULIC DAMPER

Fernand Stanislas Allinquant, 53, Avenue Le Notre, 92

Sceaux, France

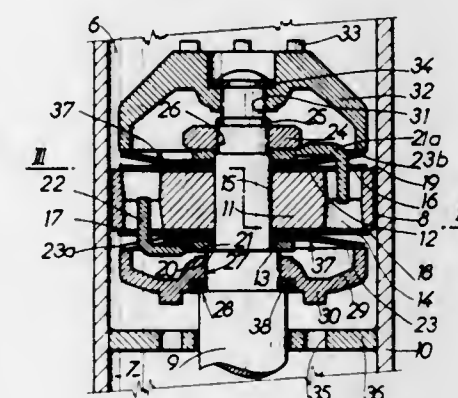
Filed Jan. 10, 1969, Ser. No. 790,250

Claims priority, application France, Mar. 11, 1968, 143,253

Int. Cl. F16f 9/44

U.S. Cl. 188—88

4 Claims



This invention relates to a hydraulic damper device in which a piston and piston rod assembly is axially slidable in a cylinder, said piston assembly including passage means controlled by a spring leaf valve to restrict flow of hydraulic fluid through said passage means thereby to afford damping, characterized by the provision of a bent washer of resilient material whose convex surface presses the spring leaf against a front surface of the piston assembly in a region around the piston rod, and a control member engaging a peripheral portion of the bent washer and slidable along the piston rod to adjust the surface area of said region.

3,561,576

MACHINE TOOL DRIVE

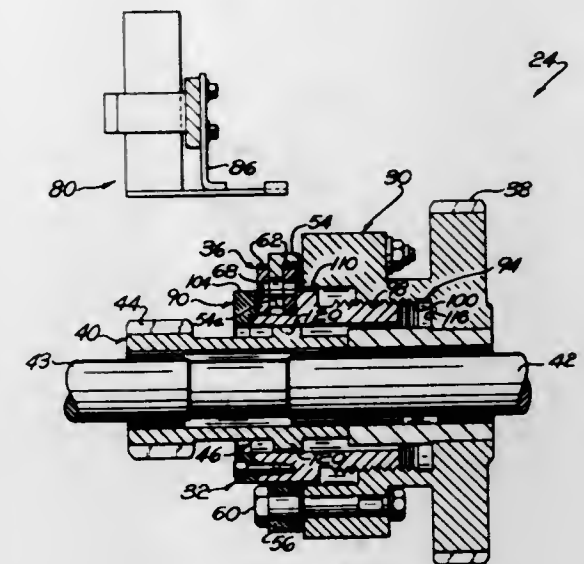
Gilbert F. Lutz, Chesterland, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio, a corporation of Ohio

Filed Jan. 23, 1969, Ser. No. 793,289

Int. Cl. F16d 43/20; B23b 21/00

U.S. Cl. 192—56

23 Claims



An improved machine tool assembly includes cross-slide and turret assemblies for supporting tools which operate on a workpiece mounted on a spindle assembly. These assemblies are driven in a predetermined working relationship by a common drive train. The drive train includes improved clutch assemblies which are disengaged in response to overloading of the cross-slide or turret assembly, respectively. To ensure that the desired operation is performed on the workpiece after disengagement of the clutch assembly, the clutch assembly can be reengaged only when the previously overloaded assembly is in the predetermined relationship with the other assemblies. To this end, each clutch assembly includes a driving member which is drivingly connected in an initial relationship with a driven member when the clutch assembly is engaged. Upon disengagement, relative angular displacement between the driving and driven members occurs. The clutch cannot be reengaged until the members are restored to their initial predetermined relationship.

3,561,577

MULTIPLE DISC CLUTCH WITH AUTOMATIC WEAR ADJUSTER

Richard Binder, Schweinfurt am Main, Germany, assignor to Fichtel & Sachs AG, Schweinfurt am Main, Germany

Filed Mar. 14, 1969, Ser. No. 807,174

Claims priority, application Germany, Mar. 23, 1968,

P 17 55 032.2

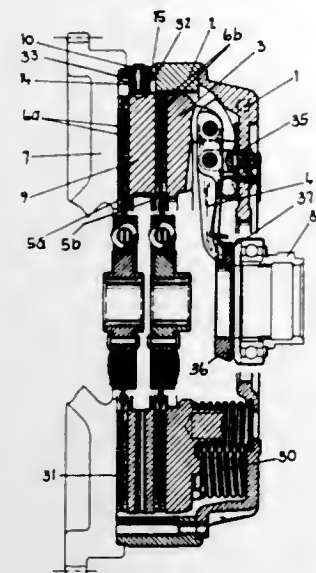
Int. Cl. F16d 13/75

U.S. Cl. 192—111

10 Claims

A double-plate friction clutch in which the axial movement of the spring-loaded intermediate driving plate away from the flywheel is limited by an improved mechanism. An abutment member is axially slidably mounted on the intermediate disc in axial alignment with two abutments on the flywheel which are oppositely offset from the abutment member. A friction brake on the intermediate disc prevents axial shifting of the abutment member under the pressure of the relatively weak springs pushing the intermediate plate away from the flywheel, but cannot prevent shifting of the abutment

member by the more powerful pressure plate springs so that the position of the abutment member on the intermediate



disc is adjusted during each clutch adjustment for wear of the friction facing on the driven disc on the flywheel side.

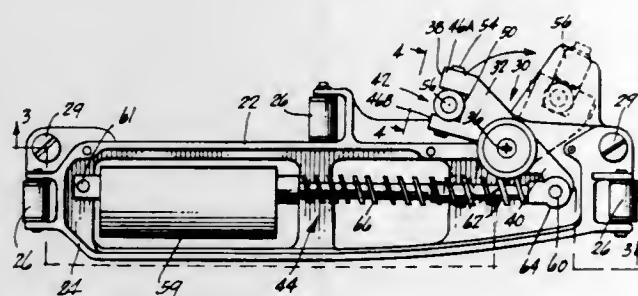
3,561,578

DECELERATING DEVICE

Walter H. Goodwin, Sierra Madre, and Basil H. Minnich, Long Beach, Calif., assignors to McDonnell Douglas Corporation, a corporation of Maryland
Filed Oct. 1, 1968, Ser. No. 764,269
Int. Cl. B65g 11/20

U.S. Cl. 193-32

6 Claims



An article decelerating device including a rotatably supported lever, a self-releasing unit pivotally mounted to one end of the lever, and at least one hydraulic energy absorber coupled to another end of the lever. The self-releasing unit, adapted to engage a moving article, is spring-loaded and normally held in an upright position. Upon engagement of a moving article with the self-releasing unit, the inertial force of the article is transferred to the lever. The lever rotates to exert pressure upon the hydraulic energy absorber to a predetermined absorption limit, thus to reduce the speed of the moving article. When the predetermined amount of energy has been absorbed by the hydraulic energy absorber and upon movement of the lever to a release position, the remaining inertial force imparted by the moving article causes the self-releasing unit to pivot about its axis automatically to disengage the moving article, thus releasing the article for further movement at a reduced speed.

3,561,579

SEMI-AUTOMATIC TOY BALLOON VENDING AND INFLATING MACHINE

Rudolph L. Allison, Rockford, Ill., assignor to Paramount Textile Machinery Company, Chicago, Ill., a corporation of Illinois

Filed June 4, 1969, Ser. No. 830,417

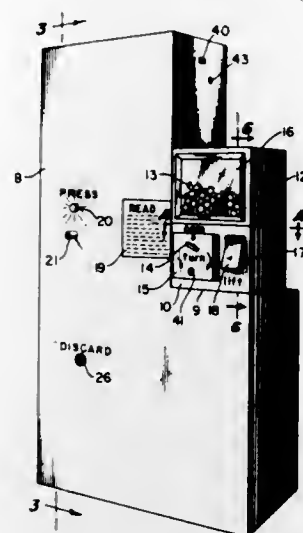
Int. Cl. G07f 1/00

U.S. Cl. 194-1

24 Claims

This machine vends the balloon envelope and string in a capsule upon deposit of a coin and turning of a knob. Then a

button on the machine is automatically lighted signalling the customer that upon depression of the button, after application of the neck of the balloon to a nozzle adjacent the button, the balloon will be inflated. The vending mechanism released for operation of the knob by depositing a coin has a novel arrangement of magnetically operable electrical switches that are so connected in an electrical circuit that they have to be operated in succession to light the signal light



and activate the inflation means, thereby preventing activation of the inflation means more than once per coin deposited. There is also novel memory means in the electrical circuit which permits depositing several coins at one time for the vending of a number of balloon capsules in succession, the memory means serving after the first of the balloons has been inflated to cause the button to be lighted again signalling that the machine is ready for another cycle, and so on until all of the coins deposited have been accounted for.

3,561,580

COIN TESTER HAVING A PAIR OF INDUCTION COILS

Mario Meloni, Muri/BE, Switzerland, assignor to Autelca AG, Gumligen, Switzerland

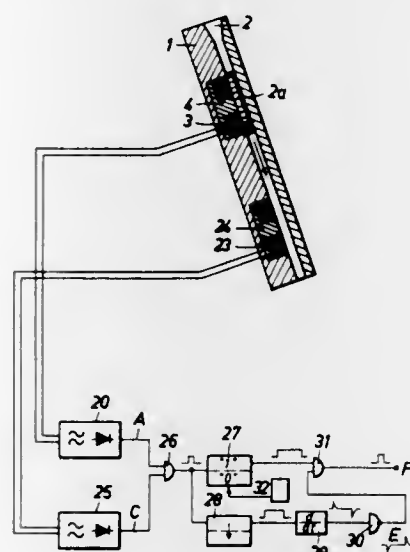
Filed Jan. 31, 1969, Ser. No. 795,608

Claims priority, application Switzerland, Feb. 5, 1968, 1677/68

Int. Cl. G07f 3/02

U.S. Cl. 194-100

5 Claims



A coin tester comprises a pair of oscillators respectively connected to a pair of self-induction coils with a coin track extending through the fields of the coils, the oscillators being connected in a logic circuit so that the oscillation of one of the oscillators temporarily ceases when an acceptable coin passes along the coin track and the oscillations of both temporarily cease or are uninterrupted when another object passes along the coin track.

3,561,581

SIGNAL-CONTROLLED PRINTER

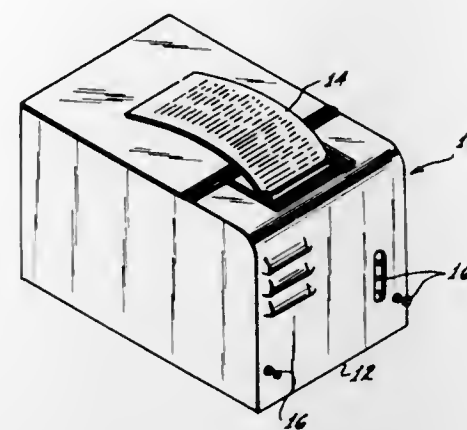
George Takenaka, Santa Ana, Calif., assignor to Codamite Corporation, Anaheim, Calif.

Filed Feb. 27, 1968, Ser. No. 708,572

Int. Cl. B41j 1/46

U.S. Cl. 197-49

5 Claims



An alphanumeric signal control character printer is disclosed for typing or printing symbolic data in accordance with binary code electrical signals. A somewhat cylindrical-type body or font carries the print symbols and is positioned by a pair of bidirectional stepping motors to align each character in printing relationship to a printing medium. One of the stepping motors translates the type font while the other revolves it. Thus, after a letter, numeral or other symbol disposed about the type font is selectively placed in printing position, a hammer closes the medium and the selected symbol. In this manner, characters are printed (one symbol at a time) and the type font along with the hammer is progressively stepped across the sheet of paper or other medium.

The system also incorporates structure defining a reference position for the font, from which the font is moved to print each character, then returned to the referenced position. By providing more than one reference position, the operating speed of the system is increased. The structure also incorporates a mechanical detent or indexing arrangement whereby the type font is stabilized only in printing position. A control system cooperates with the indexing system to maintain the font in the current reference position, by withholding the operation of the print font until passage of a period during which establishment of the reference position is verified. The system also incorporates an inking structure in the form of a continuous loop of ribbon that is mounted in changing relation to the path of the print font and which ribbon is continuously driven for effectively supplying ink. Still further, the system incorporates an automatic margin control structure whereby carriage return signals may be transmitted to terminate a line of type, or such signals will occur automatically upon reaching a predetermined position, with the occurrence of a space between words.

3,561,582

SHUFFLE FEED POSITIONER

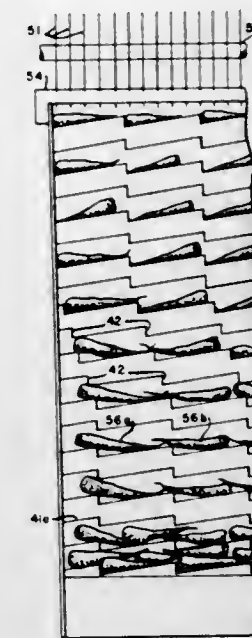
Traver J. Smith, San Jose, Calif., assignor to Genevieve I. Hanscom, Saratoga, Calif., a part interest and Genevieve I. Hanscom, Robert Magnuson, and Lois J. Thomson, as trustees of the estate of Roy M. Magnuson, a part interest
Filed July 24, 1968, Ser. No. 747,393
Int. Cl. B65g 47/28, 25/04

U.S. Cl. 198-30

7 Claims

A shuffle feed structure for feeding articles which require cutting into lengths or other operations involving orienting, in which the article advancing faces of the shuffle members include a series of wedge-shaped surfaces for feeding and orienting the articles (such as carrots or cucumbers) so that each article rests against one of the inclined faces of the shuffle feed member and abuts the end face of one of the wedges. A series of the shuffle feed members have their wedges offset laterally toward one side of the machine to produce a feeding

action of the articles laterally in the direction of the offset to insure proper orientation of each article into a wedge-shaped



3,561,583

APPARATUS FOR ORIENTATING FRUIT PRODUCTS FOR PROCESSING

Giordano Tomelleri, 22 Via Montorio, Verona, Italy

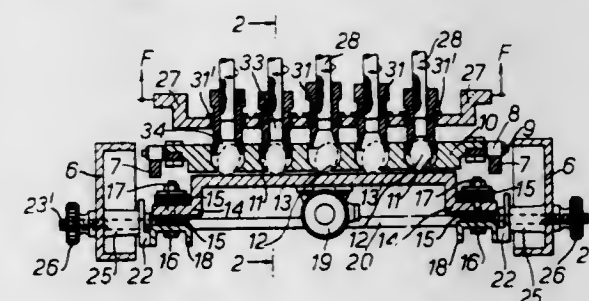
Filed May 5, 1969, Ser. No. 821,849

Claims priority, application Italy, May 6, 1968, 61246-A/68

Int. Cl. B65g 47/24

U.S. Cl. 198-33

7 Claims



The invention relates to apparatus for mechanically orientating fruit products of ovoid form carried in cavities provided in a conveyor, the base of each cavity having an orifice in which the fruit seats when correctly orientated, a plate provided above the conveyor supporting rotatable positioning members and adapted to be vertically displaced so as to bring said members into contact with the products and to retract said members when correct orientation is achieved, each of said members comprising a cylindrical member having a radially extending flange which serves to support it on the plate and having a frustoconical or conoidal hollow opening extending towards the product, means being provided below the conveyor belt to cause the products to be shaken continuously whilst they are being orientated.

3,561,584

APPARATUS FOR FEEDING PULPWOOD TO A CONVEYOR OF A DEVICE FOR CHARGING DEFIBER MAGAZINES

Adolf Pinkhusovich Sinyavsky, ul. B. Porokhovskaya, 46, kv. 50, and Viktor Alexandrovich Bedeker, V.O. IO linia, 43, kv. 35, Leningrad, U.S.S.R.

Filed June 11, 1968, Ser. No. 736,189

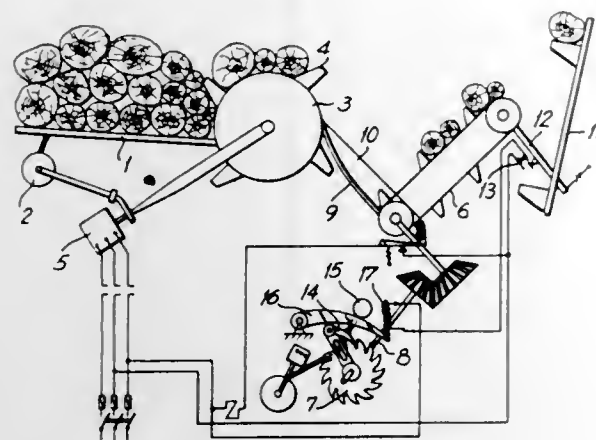
Int. Cl. B65g 47/00

U.S. Cl. 198-45

2 Claims

Pulpwood is fed from a vibratory table to a drum with grips which deposits the pulpwood onto a first guide in turn trans-

ferring the pulpwood to a conveyor which transports the pulpwood to a second guide, in turn transferring the pulpwood to a conveyor for charging defiber magazines. Both guides include displaceable members which are moved when pulpwood is present in the guides and these members act on respective switches which deactuate the drive of the preced-



ing drum and conveyor respectively. Thus, when the first guide is loaded with pulpwood, the drum is at rest and when the second guide receives pulpwood from the first conveyor, the drive of the latter is terminated until the pulpwood has been transferred from the second guide to the conveyor for the defiber magazines.

3,561,585

ARTICLE HANDLING APPARATUS

Alan K. McCombie, London, England, assignor to Molins Machine Company Limited, London, England, a corporation of Great Britain

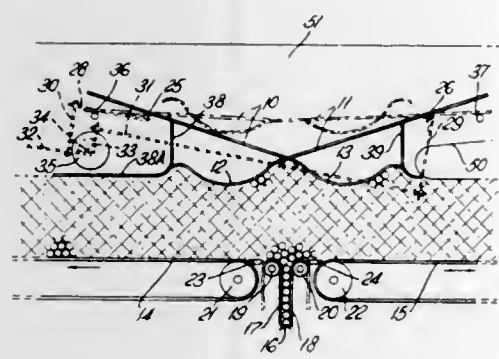
Filed May 7, 1969, Ser. No. 822,385

Claims priority, application Great Britain, May 10, 1968, Feb. 28, 1969, 22413/68; 10941/69

Int. Cl. B65g 47/44, 15/62

U.S. Cl. 198-69

9 Claims



This invention is mainly concerned with a sensor for controlling one of two conveyors extending horizontally in opposite directions from a junction which may, for example, be a T junction into which cigarettes are delivered in an upward stream. The sensor consists of two sensor members which rest on the cigarettes at the junction and which both control a single speed-regulating mechanism controlling the speed of one of the conveyors. Each sensor member is particularly sensitive to a drop in the level of the cigarettes above the end of one of the conveyors, and the arrangement is preferably such that the position of the speed-regulating mechanism is determined by whichever sensor member is lower.

3,561,586

APPARATUS FOR FEEDING FLUENT DRY MATERIAL

Patrick J. Sweeney, 1340 N. Second St., Chillicothe, Ill. 61523

Filed June 9, 1969, Ser. No. 831,545

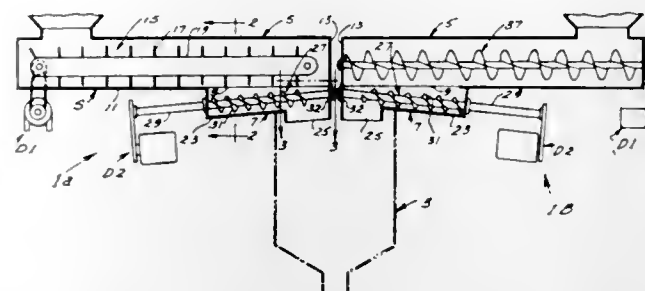
Int. Cl. B65g 37/00

U.S. Cl. 198-75

8 Claims

Apparatus for feeding fluent dry material comprising two conveyors, one positioned above the other, the upper conveyor being adapted to feed material to the lower conveyor,

and the two conveyors having a common discharge. The upper conveyor is operable to feed material forward at a relatively high rate, first filling the lower conveyor, and then continuing to feed the material forward into the discharge. As the quantity of material fed approaches a quantity



somewhat less than a desired quantity, the upper conveyor is stopped. Then the lower conveyor, which is adapted to feed the material at a relatively low controllable rate, is operated to deliver the material into the common discharge to bring the total amount delivered up to the desired quantity.

3,561,587

CONVEYOR BELT TURN

Fritz Schausten, Aachen, Germany, assignor to Leonard Monheim, Aachen, Germany

Filed Sept. 4, 1968, Ser. No. 757,258

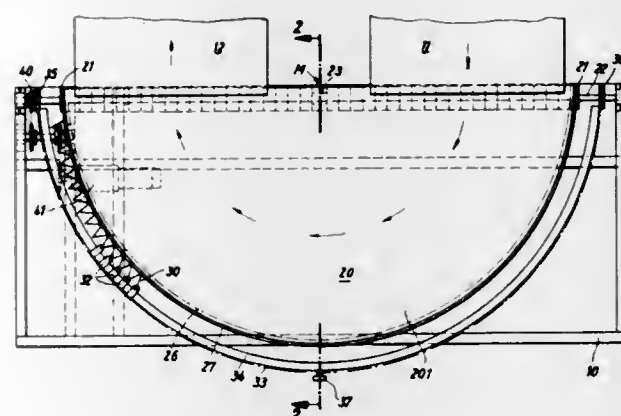
Claims priority, application Germany, Sept. 4, 1967,

P 15 56 083.5; Sept. 4, 1967, P 15 56 084.6

Int. Cl. B65g 15/02

U.S. Cl. 198-182

8 Claims



A conveyor belt turn for diverting the path of a conveyor through a given angle, adapted to transport small separate articles supplied in a plurality of parallel rows. A smooth conveying surface is constituted by a sheet being circular or circular-ring shaped. At the feed and delivery ends the sheet is passed round nosing rollers of same diameter. The endless free outer edge of sheet is provided with a series of eyelets for the connection of resilient means being attached to a round link chain engaging a guide rail.

3,561,588

INFEED TRAP DEVICE

James R. Nash, Zionsville, Ind., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Nov. 4, 1968, Ser. No. 772,997

Int. Cl. B65g 43/00

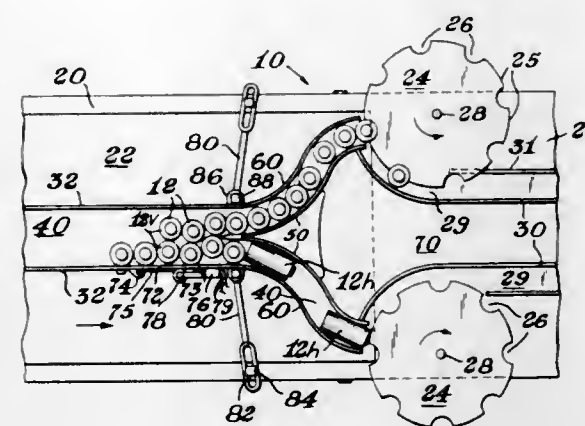
U.S. Cl. 198-232

13 Claims

An improved device for guiding the transfer of an article, such as bottle, from a continuous supply conveyor to a discontinuous indexing device, such as a star wheel, is described. The device comprises a pair of opposed guide rails which define an S-shaped path adapted to permit upright articles to pass along the path, while having dimensions and a configuration adapted to prevent fallen articles from reaching the index device by contacting a fallen article on at

least three points on two sides thereof. Means for stopping the conveyor or star wheel, or diverting the flow of articles to

All protruding match stems and pull out heads are covered with a relatively thin film of latex to fully waterproof the en-



one or another of a plurality of star wheels are also described.

3,561,589

ARTICLE HOLDER FOR MOTOR VEHICLE BODY

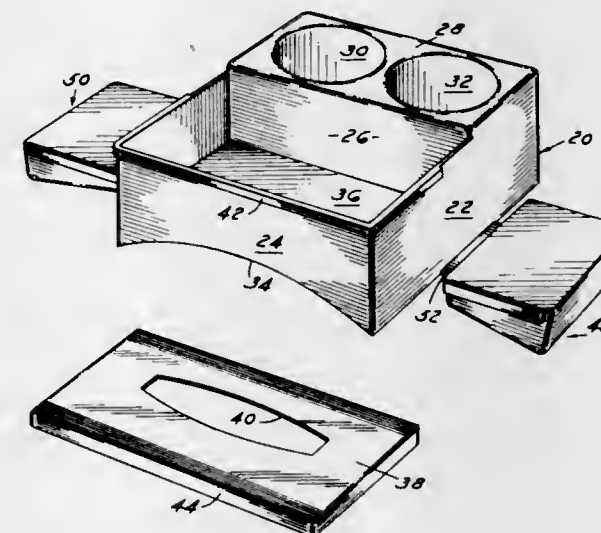
Daniel C. Larkin, Jr., Orchard Lake; Edwin C. Fuller, Dearborn Heights, and Stanley W. Prenosil, Rochester, Mich., assignors to The Crest Manufacturing Company, Southfield, Mich.

Filed May 8, 1969, Ser. No. 823,070

Int. Cl. B60n 3/08, 3/10, 3/12; B60r 7/00; B65d 25/00

U.S. Cl. 206-19.5

9 Claims



A one-piece molded plastic tray having compartments therein adapted to contain articles such as drinking glasses, cleansing tissues, etc. the lower edge portion of which is contoured to be seated upon the longitudinal tunnel hump of an automobile body, with weighted receptacles integrally hinged to opposite sides of the container having sharp prongs on their lower surfaces adapted to engage the tunnel hump covering for retaining the device in position despite forces acting thereon due to sudden starts and stops and cornering of the automotive vehicle.

3,561,590

SAFE FROM BURNS AND WATERPROOF MATCH HOLDER

Tiburcio Coria Lopez, 86-35 Queens Blvd., Elmhurst, N.Y.

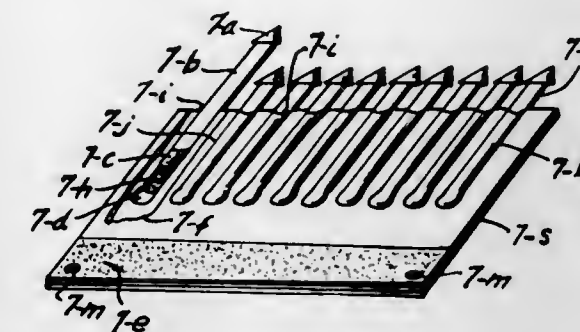
Filed Feb. 28, 1969, Ser. No. 803,483

Int. Cl. A24f 27/20

U.S. Cl. 206-34

3 Claims

A waterproof safety match holder for self-igniting matches having the self-igniting match retained in individual hermetically and electronically sealed waterproof cells with a portion of the match stems protruding from the cells to cause ignition of a match in its cell when it is being withdrawn therefrom.



tire match and thereby providing safe use and preventing sparks when said match is withdrawn already ignited.

3,561,591

SAFETY DISPENSER

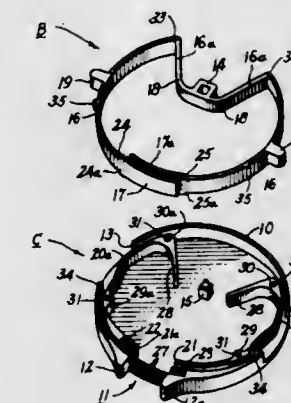
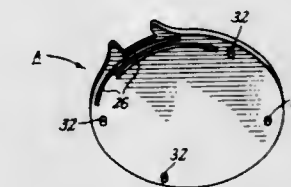
Edward Henderson, 220 Central Park, New York, N.Y. 10019

Filed June 16, 1969, Ser. No. 833,304

Int. Cl. B65d 83/04, 43/20

U.S. Cl. 206-42

9 Claims



A safety dispenser for pharmaceutical products, or the like includes a container having an opening normally closed by two gates, one at each end of said opening, said gates being independently slidable longitudinally to bring their free ends into and out of overlapping closing position across the opening. Said gates are individually biased toward closing position by spring means formed integrally therewith. Both gates must be held open at the same time to permit passage of articles through the opening.

3,561,592

PILL DISPENSER

Dorothy M. McCool, 118 20 N. W. Thompson Road, Portland, Oreg. 97229

Filed Feb. 10, 1969, Ser. No. 798,011

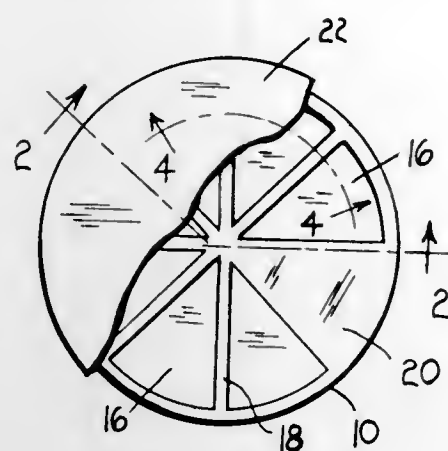
Int. Cl. B65d 83/04

U.S. Cl. 206-42

4 Claims

A container portion has a number of dividing walls to form sector-shaped compartments and a similarly shaped false compartment. A cover is rotatably mounted on the container portion and has an outlet aperture arranged to be aligned with one of the compartments at a time for removal of a pill therefrom. Each of the compartments has an identifying inscription designating the time that a pill is to be taken, whereby a patient can preload the compartments with pills and then take the pills as designated on the compartments. When the pill dispenser is not in use, the cover is turned such that the outlet aperture therein is in registry with the false

compartment. The cover has a down-turned flange and is held rotatably on the container portion by a rib and groove connection. In some embodiments the aperture in the cover



may extend partly into the flange to form a window at the side of the container portion in which case the identifying inscriptions are provided on the side surface of the container.

ERRATUM

For Class 206—46 see:
Patent No. 3,562,480

3,561,593

COLLAPSED BAG AND WRAPPER PACKET

Raymond J. Ruda, Chicago, Ill., assignor to Bagercraft Corporation of America, Chicago, Ill., a corporation of Illinois
Filed May 2, 1969, Ser. No. 821,430
Int. Cl. B65d

U.S. Cl. 206—57

10 Claims



A collapsed bag and wrapper packet comprises a collapsed bag made from a thin, pliable material and which in and of itself tends to be limp and difficult to handle in a manner to maintain it in the collapsed condition, with a multilayer wrapper sheet of a material substantially stiffer and more self-sustaining than the material of the bag wrapped about the collapsed bag. A substantial portion of the bag is retainingly intercalated with turns of the wrapper. A substantial portion of the bag may be turned on itself within the wrapper, thereby enabling the wrapper to be substantially shorter than the length of the bag or a plurality of bags in a separable string.

3,561,594

CARDBOARD BLANK

Arne Jorgensen, Korsor, Denmark, assignor to Pakko-Tryk A/S, Copenhagen V, Denmark, a company of Denmark
Filed Oct. 3, 1968, Ser. No. 764,885

Claims priority, application Denmark, Oct. 10, 1967,
5034/67

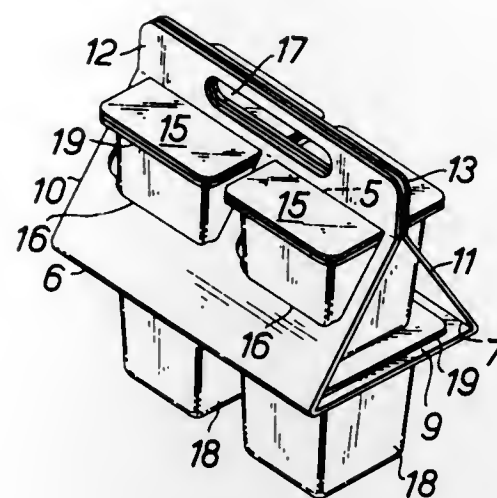
Int. Cl. B65d 71/00

U.S. Cl. 206—65

7 Claims

A wraparound cover sleeve for cuplike packages with rim flanges and lids has a base panel with at least one aperture

for receiving a cup with its rim flange engaging the base panel about the aperture, a second cup being superimposed



on the first cup and held in place by up-folding sidewall panels having cup-engaging formations.

3,561,595

TAPE CARTRIDGE HOLDER

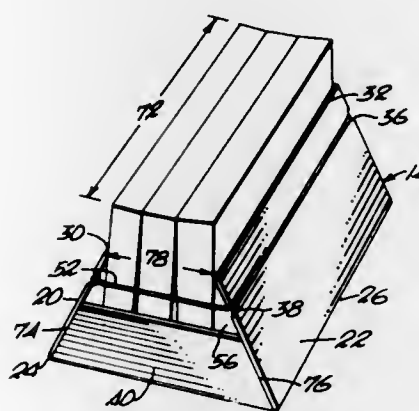
John H. Weggeland, 401 E. Leland Heights Blvd., Lehigh Acres, Fla. 33936

Filed Nov. 26, 1968, Ser. No. 787,288

Int. Cl. B65d 71/00

U.S. Cl. 206—65

8 Claims



A holder for tape cartridge cassettes which includes a receptacle sized to receive a plurality of the cassettes in stacked, side-by-side relation and which receptacle includes sidewalls which are hingedly connected to the floor of the receptacle so as to expand when the tapes are tilted in a common direction which serves to expose the nameplates so that a user may identify the cassette which he desires to utilize without the necessity of removing all of the cassettes from the holder.

3,561,596

PACKAGING FOR HYPODERMIC SYRINGES, NEEDLES AND THE LIKE

James J. Knox, Avenel, N.J., assignor to Knox Laboratories Inc., Rahway, N.J., a corporation of New Jersey
Filed May 20, 1969, Ser. No. 826,143

Int. Cl. A61b 17/06

U.S. Cl. 206—63.2

35 Claims

A coordinated system of interchangeable hypodermic syringe components is described wherein there are provided:

1. A plunger shaft element comprising a hollow shaft containing a hypodermic needle and having means for releasably attaching the shaft to a plunger and, optionally, a plunger; and
2. A syringe barrel element optionally having a plunger disposed therein, a seal for the needle-receiving tip

thereof and containing a parenteral medicament between said seal and said plunger.

and reduces sludge to a form in which it can be inexpensively shipped or incinerated.



3,561,599

CHROMATOGRAPHY APPARATUS

Brian Eric Sheen, Saint Austell, Cornwall, England, assignor to English Clays Lovering Pochin & Company Limited, Saint Austell, Cornwall, England, a British Company

Filed May 7, 1969, Ser. No. 822,545

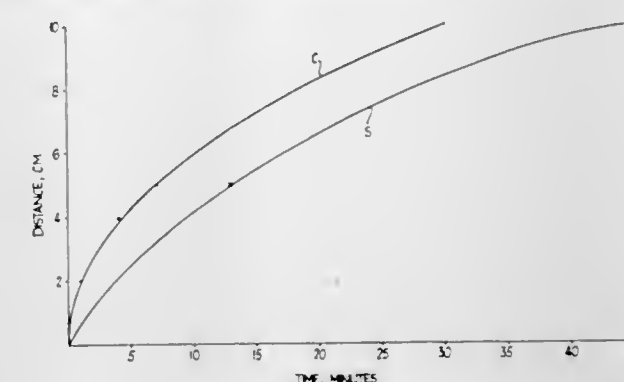
Claims priority, application Great Britain, May 15, 1968,

23183/68

Int. Cl. B01d 15/08

U.S. Cl. 210—198

7 Claims



Each of these elements may be individually packaged in a sterile form. There is also described a packaged pre-filled hypodermic syringe assembly.

3,561,597

GAUGING AND AGITATOR MEANS FOR DROPOUT-TYPE FRUIT GRADER

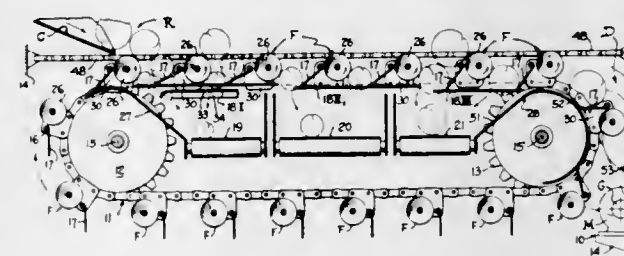
William Dudley Youngblood, 404 Calero Ave., San Jose, Calif.

Filed Apr. 11, 1969, Ser. No. 815,397

Int. Cl. B07c 5/04

U.S. Cl. 209—97

5 Claims



Gauge tracks for supporting the louver plates of a dropout-type fruit grader at any desired level to form dropout openings of various sizes in combination with an agitator for agitating a promiscuous mass of fruit therebetween to assure separation of the fruit according to size determined by the openings thus formed.

3,561,598

METHOD FOR DISPOSING OF SLUDGE FROM SEWAGE AND INDUSTRIAL WASTES

Alexander S. Goldberg, 84 Locust Ave., Millburn, N.J. 07041
No Drawing. Filed Oct. 10, 1969, Ser. No. 865,499

Int. Cl. C02c 3/00

U.S. Cl. 210—10

1 Claim

An economical process for instantly disposing of sludge from sewage and industrial wastes and manufacturing a useful product therefrom, comprises reducing suspended solids in the sludge and wastes to a concentration of less than one percent by dilution to form a slurry, oxidizing the slurry, rapidly filtering the oxidized slurry and drying it on a paper making machine which rolls the dried residue onto a roller. The method eliminates odors and produces a product useful as a synthetic top soil or soil conditioner or as a paperlike product, useful for packing carton liners. The process also eliminates the previously required capital investment in digester equipment, reduces operating and chemical costs

3,561,600

FILTER PRESS OF PLATE-AND-FRAME TYPE

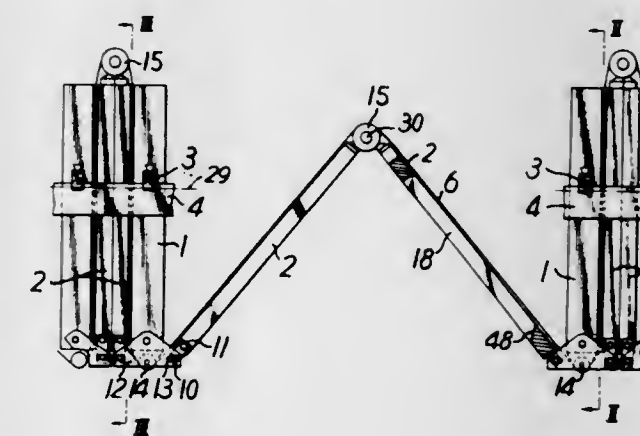
Ken-Ichiro Kurita, 36-4, 5 chome Senriyama-nishi, Suita, Osaka Prefecture, Japan

Filed Jan. 12, 1970, Ser. No. 002,268

Int. Cl. B01j 25/34

U.S. Cl. 210—225

12 Claims



A filter press is of a type which comprises filter plates and filter frames alternately arranged between a stationary end plate and a movable end plate with filtering cloth disposed between the filter plates and filter frames facing each other, the filtering elements being adapted to be pressed together by the movable end plate for filtration, the filter plates being adapted to be separated from the filter frames for the removal of cake. Each frame unit comprises two filter frames hingedly connected together at their upper portions and adapted to be opened in inverted V-shape. The lower portions of the frames are respectively connected to the lower opposite sides of the adjacent plates by means of links. When one filter plate is released, the following frame unit is opened

to allow the cake to drop automatically from the cake chamber in the unit.

3,561,601

OIL SLICK DISPERSION APPARATUS

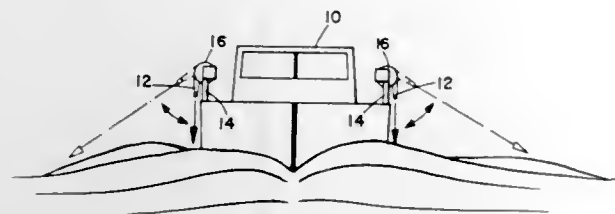
William H. McNeely, San Diego, Calif. (c/o Ara-Chem. Inc., 808 Gable Way El Cajon, Calif. 92020)

Filed Oct. 24, 1969, Ser. No. 869,015

Int. Cl. C02b 9/02; E02b 15/04

U.S. Cl. 210-242

3 Claims



An oil slick on a body of water is dispersed by a specially equipped boat which is driven through the slick to separate and concentrate the oil on the boat's bow wave. From nozzles on opposite sides of the bow near the bow, a mixture of water and a chemical dispersant is directed against the oil as a high pressure jet in a cyclically oscillating path sweeping across the bow wave generally perpendicular to the direction of travel. The rate of oscillation is sufficiently fast to apply the dispersant over all of the oil in the vicinity of the boat and due to the particular oscillating action, a concentration of dispersant is applied close to the boat where the oil is heaviest on the bow wave.

3,561,602
LIQUID FILTER

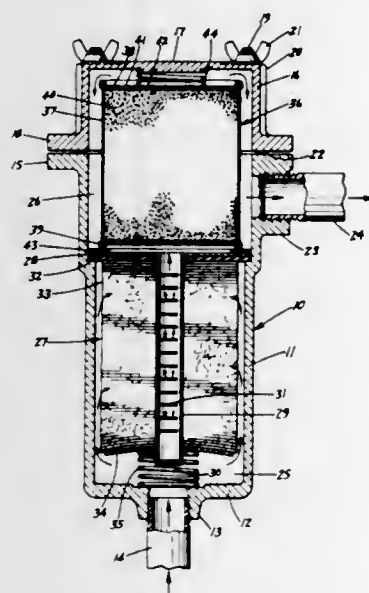
Donald H. Molitor, Farmington, Minn. (c/o Samcor, Inc., 836 W. 79th St., Bloomington, Minn. 55420)

Filed Dec. 18, 1968, Ser. No. 784,643

Int. Cl. B01d 25/06; C02b 1/26

U.S. Cl. 210-266

8 Claims



A liquid filter having a casing with liquid inlet and outlet and characterized by a filter element comprised of a multitude of absorbent cellulosic cloth discs, such as terry cloth, in compressed stacked face-to-face relation around a tube disposed between the inlet and outlet. The tube is open at one end and closed at the other and perforated along its length. The liquid to be filtered is forced to pass radially between adjacent cloth discs between the perimeters of the discs and the tube. Dissolved iron is removed from water passed through the filter if the cloth discs are saturated with potassium permanganate.

3,561,603

PULP SCREEN OR THE LIKE

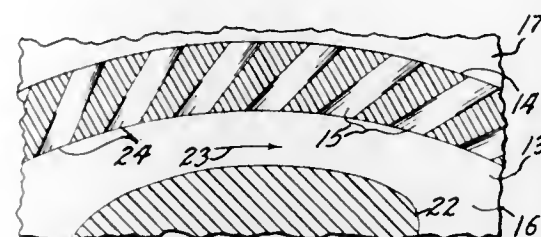
Salomon M. Salomon, Madison, Wis., assignor to Beloit Corporation, Beloit, Wis., a corporation of Delaware

Filed Oct. 8, 1968, Ser. No. 765,815

Int. Cl. B01d 29/04

U.S. Cl. 210-415

1 Claim



A pulp screen plate is provided with screening holes of circular cross section extending obliquely therethrough so that elliptical hole openings are presented to the fluid material being screened. This construction encourages individual fibers longer than the diameters of the screening holes to enter and pass through those holes without increasing significantly the passage of unwanted lumps or flake-like particles therethrough. In applications employing hydrofoil impellers or the like, the holes are disposed in relatively tangential relation to the direction of movement of the adjacent strata of the fluid material being processed, thereby minimizing velocity losses to increase the capacity and efficiency of the screening machine.

3,561,604

FILTER ELEMENT

Kokichi Yotsumoto, Sagami-hara-shi, Japan, assignor to Caterpillar Mitsubishi Ltd., Chiyoda-ku, Tokyo, Japan

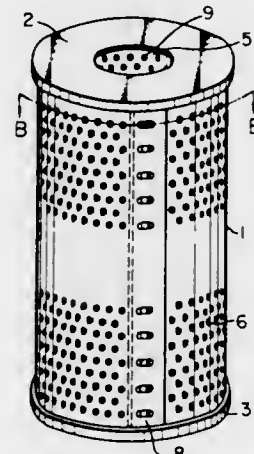
Filed Dec. 31, 1968, Ser. No. 788,244

Claims priority, application Japan, Jan. 26, 1968, 43/4731

Int. Cl. B01d 27/08

U.S. Cl. 210-484

4 Claims



A filter element comprising an outer wrapper, an improvement wherein pores are provided in juxtaposed relationship to each other along a joint of the outer wrapper.

3,561,605

SELF-CLEANING TUBULAR SCREEN

David M. Likness, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Dec. 30, 1968, Ser. No. 787,708

Int. Cl. B01d 27/08

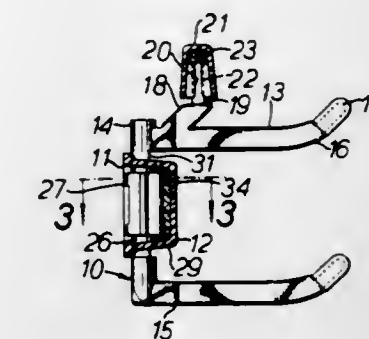
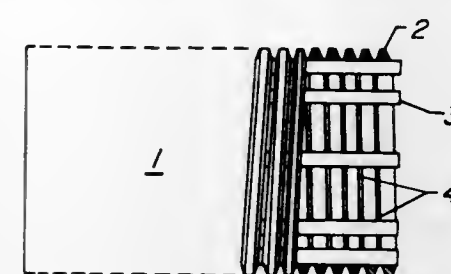
U.S. Cl. 210-497.1

2 Claims

A self-cleaning tubular screen adapted for dewatering or classifying particulates which embodies a slotted construction

to provide a self-cleaning V-Slot that enlarges in the outward radial direction. The support rods for the tubular screen are located on the inner periphery of the tubular screen and attached to the wide face of wedge-shaped wire so as to

holders, the base of the U of each holder being pivotally mounted in an aligned pair of rearwardly open recesses



preclude any interference with the slot opening. In a preferred arrangement the support rods are spiralled in order to enhance or improve particulate flow longitudinally through the screen.

located in the opposite walls of an elongated, hollow, box-shaped back which is open at the rear.

3,561,606

GARBAGE CAN HOLDERS

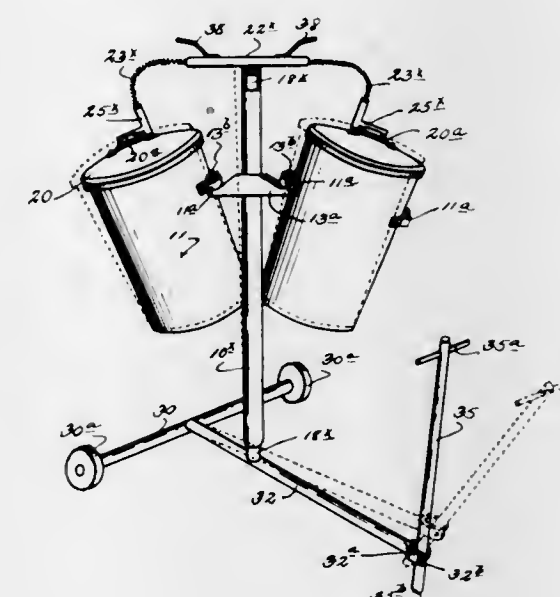
Ian A. Stewart, 10736 Maple Glen Crescent, Calgary, 30 Alberta, Canada

Continuation-in-part of application Ser. No. 598,993, Dec. 5, 1966, now abandoned. This application Apr. 21, 1969, Ser. No. 826,758

Int. Cl. B60p 1/64

U.S. Cl. 211-84

12 Claims



Holders for plural refuse cans in which upstanding posts have opposed, hook-ended arms for engaging one of the usual carrying handles of a refuse can for canting the can angularly whereby opposed cans diverge upwardly; the hook arms substantially preventing rocking of the canted cans; and means to maintain a refuse can cover to the post; and in which the post is vehicular.

3,561,608
SELF-ALIGNING RACK STRUCTURE

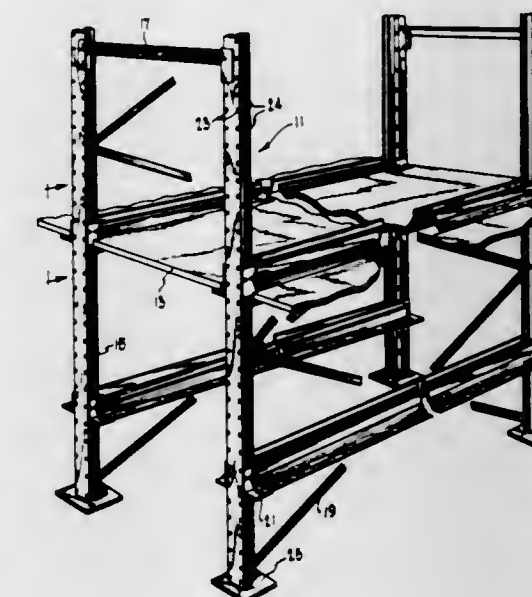
John J. Weider, Arlington Heights, Ill., assignor to Speedrack Incorporated, Skokie, Ill., a corporation of Illinois

Filed Dec. 26, 1967, Ser. No. 693,207

Int. Cl. A47f 5/00

U.S. Cl. 211-176

7 Claims



A rack structure is provided which is designed to support a plurality of material carriers such as conventional pallets thereon in vertically structured disposition. The rack structure is adapted to support the material carriers and to position the carriers generally centrally between the columns of the structure as the carrier is placed in position for storage.

3,561,609

GARMENT RACK AND SQUARE TUBE ASSEMBLY THEREFOR

Donald W. Doherty, Park Ridge; William P. Crockett, Jr., and William P. Crockett, III, administrators, Park Ridge, Ill., assignors to Queen Manufacturing Company, Inc., Chicago, Ill., a corporation of Illinois

Filed July 29, 1968, Ser. No. 749,259

Int. Cl. A47f 5/10; E04g 7/02; F16b 7/22

U.S. Cl. 211-177

7 Claims

A garment rack and means of assembling such structures involving angularly disposed square tubing, including adapters enclosed and concealed within the tubing and locked thereto, the adapters being effective to lock tubing elements together and to lock external elements thereto, the

3,561,607

NECKTIE RACK

Dennis Thomas Deeley, Birmingham, England, assignor to Laughton & Sons Limited, Birmingham, England, a British Company

Filed Feb. 25, 1969, Ser. No. 802,163

Claims priority, application Great Britain, Mar. 5, 1968, 10,513

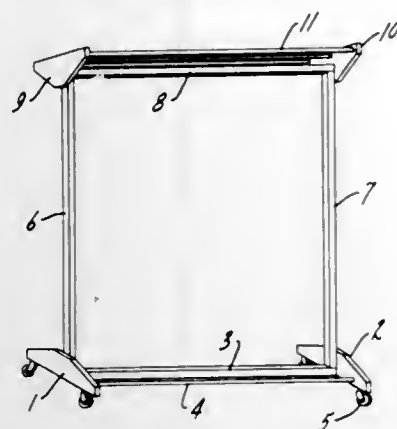
Int. Cl. A47f 5/08

U.S. Cl. 211-96

3 Claims

A necktie rack is formed by a linked series of U-shaped tie

adapters being formed of identical individual parts joined in the desired angular relationship prior to concealment within



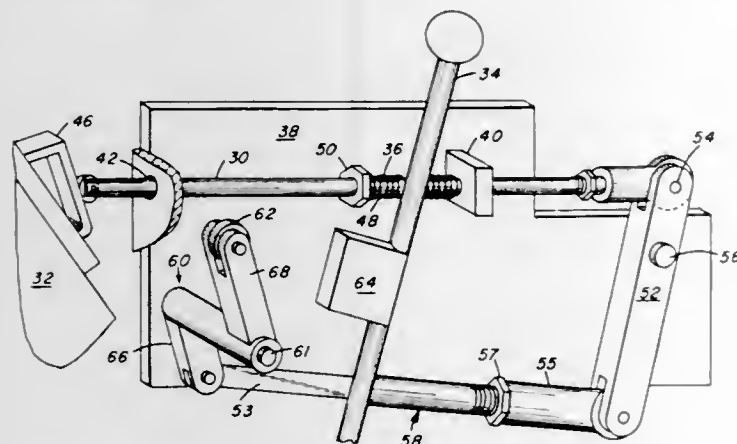
the tubular element, the entire assembly being accomplished without the use of tools.

3,561,610 BOOM STOP

Wilfred F. Buckert, and Frederick L. Thompson, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Apr. 28, 1969, Ser. No. 819,544
Int. Cl. B66c 13/48

U.S. Cl. 212-39

4 Claims



An improved safety device on a crane for preventing the crane boom from falling backward onto the crane cab. A push rod is positioned for engagement with the boom when the boom reaches a substantially vertical elevation. The movement of the rod caused by the upwardly moving boom is multiplied through a system of levers and imparted to a contact lever which pushes the boom control stick into a neutral position thereby stopping the boom before it moves past the maximum safe elevation.

3,561,611

END OF CAR IMPACT ABSORBING DEVICE

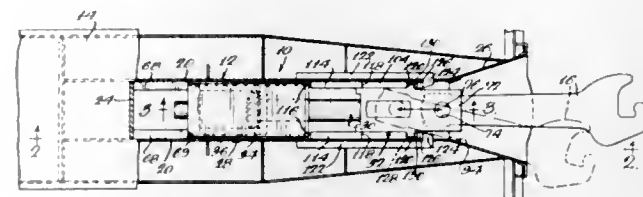
Vaughn T. Hawthorne, Mount Prospect, and James T. Smith, Wilmette, Ill., assignors to Keystone Railway Equipment Company, Chicago, Ill., a corporation of Delaware
Filed Apr. 10, 1968, Ser. No. 720,015
Int. Cl. B61g 9/02, 9/06

U.S. Cl. 213-8

10 Claims

The end of car impact absorbing device includes a single acting impact absorbing cylinder-piston combination positioned within a reservoir and having a piston rod projecting from the rod end of the combination to be affixed to a slidable coupler yoke which in turn is connected to a coupler. The reservoir, cylinder-piston combination, piston rod, and coupler yoke are mounted within an inverted channel shaped draft sill of a low deck flat car. The reservoir and cylinder are mounted so that their combined head end in buff abuts against a pair of abutment plates secured to the inner faces of the vertical draft sill walls. The coupler yoke is slidably sup-

ported on wear pads and is adapted to abut against a pair of stop blocks carried on the inner faces of the draft sill walls to limit movement in buff. The coupler yoke projections are also adapted to abut wear pads carried on the inner faces of the draft sill walls and the inwardly projecting ends of the



draft bars mounted on the outer faces of the draft sill walls in draft. A return spring assembly acts between the draft sill and the coupler yoke to restore the yoke and coupler after buff movement. If desired bolts having elastomer covered heads may be carried by the yoke projections to abut against the wear pads in normal and draft position.

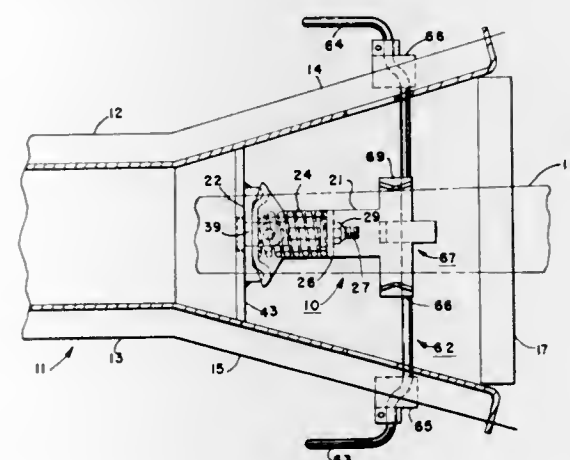
3,561,612

RAILWAY CAR COUPLER CENTERING DEVICES

Thomas La Boda, Chesterland, Ohio, assignor to Midland-Ross Corporation, Cleveland, Ohio, a corporation of Ohio
Filed Dec. 19, 1968, Ser. No. 785,167
Int. Cl. B61g 7/10

U.S. Cl. 213-20

2 Claims



A car coupler centering device for railway cars including a pivotally mounted spring loaded arm supported cantilever-fashion to the car underframe and underneath the shank of a railway car and moves both radially in a horizontal plane and vertically with respect to the shank of the coupler. This device includes a spring loaded arm movable about a pivot point which is forwardly of the coupler pivot point and in the direction of the coupler head. The device is mounted independently of the coupler so that when the coupler shank is moved transversely it will effect a foreshortening of the spring, thus further compressing the spring. This increased applied spring load is transferred to an offset reaction point according to the direction of the coupler shank displacement from its central or neutral position.

3,561,613

APPARATUS FOR SHIFTING IRRIGATION PIPE

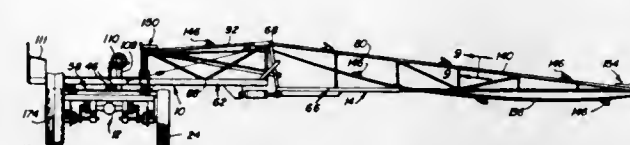
Van N. Moad, 122 12th Ave. South, Nampa, Idaho 83651
Filed July 16, 1968, Ser. No. 745,203
Int. Cl. B65g 41/00

U.S. Cl. 214-1

12 Claims

An apparatus including a mobile platform having a generally horizontally disposed boom supported at a first inner end portion of the boom from the platform and extending transversely outwardly from the platform at the second

outer end portion thereof. The boom includes conveying means for supporting irrigation pipe sections placed thereon by a first workman and conveying the pipe sections from the outer end portion of the boom to the inner end portion thereof for removal therefrom by the operator of said plat-



form and placement upon a rearwardly and downwardly inclined chute supported adjacent the inner end portion of the boom, the platform being adapted to be advanced over a field to be irrigated in a path extending transversely of the boom.

3,561,614

ARTICLE TRANSFER APPARATUS ADAPTED TO CYCLICALLY TRANSFER AN ARTICLE FROM A POSITION TO ANOTHER POSITION

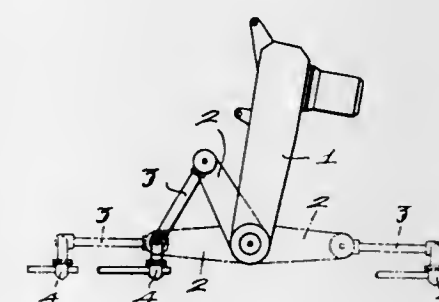
Yoshitomo Tezuka, and Munehiro Namba, Tokyo, Japan, assignors to Kabushiki Kaisha Aida Tekkosho, Kanagawa-ken, Japan

Filed Apr. 3, 1969, Ser. No. 813,205

Int. Cl. B66c 1/02

U.S. Cl. 214-1

3 Claims



An article transfer apparatus for cyclically transferring an article from one position to another position in which an article retained in a holder is transferred from one position to another position while being moved in one and the same plane.

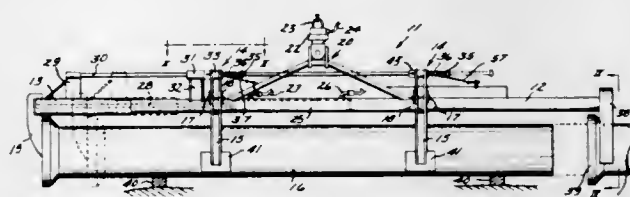
3,561,615

PIPE POSITIONING AND HANDLING DEVICE

Terry A. Forsberg, 1216 W. Jolly Road, Okemos, Mich., and Robert E. Smith, 3598 Stagecoach Drive, Okemos, Mich.
Filed July 16, 1969, Ser. No. 842,173
Int. Cl. B23p 19/04

U.S. Cl. 214-1

5 Claims



An hydraulically actuated pipe manipulating structure wherein a single hydraulic element imparts axial movement and cooperating selected gripping and relaxation of grip in accord with desired location of piping.

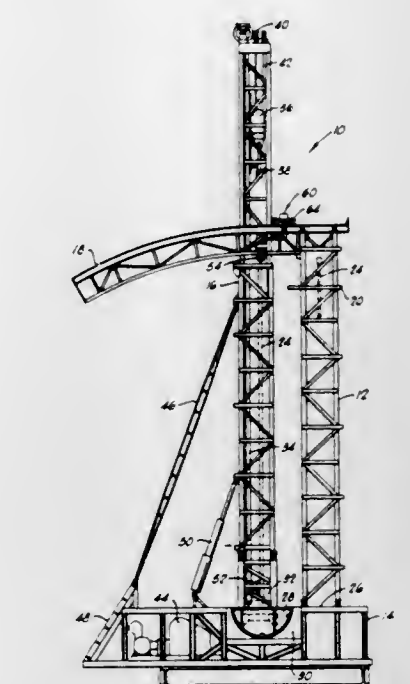
3,561,616

WELL DRILLING APPARATUS

Kenneth H. Eddy, Jefferson County, Tex., and Kenneth H. McGill, Jefferson County, Tex., assignors to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware
Filed July 29, 1969, Ser. No. 845,758
Int. Cl. E21b 19/14

U.S. Cl. 214-2.5

9 Claims



The well drilling apparatus described herein includes a drilling mast pivotally mounted on a base, a separate pipe racking mast mounted on the base, and drill pipe transfer means extending between the drilling mast and pipe racking mast. The drilling mast of the apparatus can be tilted at an angle relative to the pipe racking mast which is disposed substantially vertically. The transfer means includes a track extending between the pipe racking mast and the drilling mast and a trolley moveable on the track for moving the drill pipe from the racking mast to the drilling mast and vice versa. Pipe engaging means located on the lower end of the drilling mast is provided to engage the lower end of the drill pipe so that the lower end of the drill pipe is retained on the well bore axis during at least a portion of the movement between the masts.

3,561,617

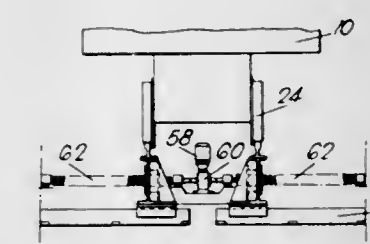
MEANS FOR THE TRANSPORTATION OF GOODS

John Henry Marsh, P.O. Box 6202, Johannesburg, Republic of South Africa
Filed Oct. 16, 1967, Ser. No. 693,034
Claims priority, application South Africa, Oct. 14, 1966, 66/6234

Int. Cl. B63b 27/16

U.S. Cl. 214-15

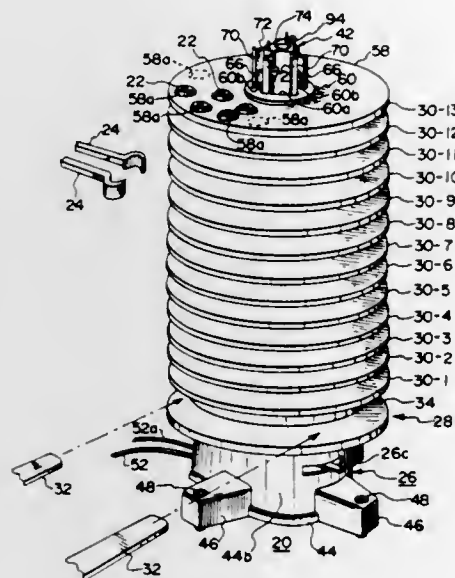
3 Claims



The invention provides for a means for transporting goods in which the goods are loaded in containers supported upon and detachable from wheeled chassis. The means further provides for cargo holding means having at least two levels, one level being for permitting the wheeled chassis to enter the cargo holding means, and another level being for stowing the containers after being detached from the wheeled chassis. A plurality of hoisting devices are operable between the levels

to hoist the containers from one level to another. The hoisting devices include clamps for engaging the corners of containers. The cargo holding means may be provided on land or on a ship.

3,561,618
ARTICLE STORAGE AND TRANSFER ARRANGEMENT FOR PROGRAMMED MANIPULATORS
Torsten H. Lindbom, Newtown, Conn., assignor to Unimation, Inc., Bethel, Conn., a corporation of Delaware
Filed Feb. 28, 1969, Ser. No. 803,158
Int. Cl. B65g 1/00
U.S. Cl. 214-16.4 6 Claims

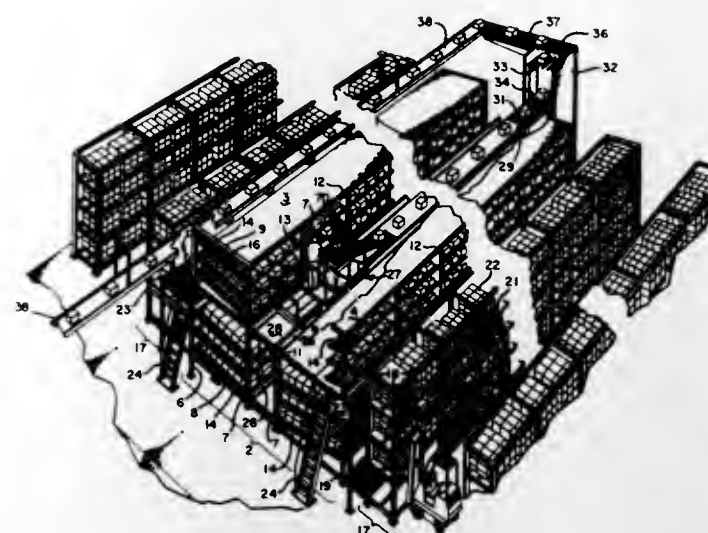


A series of programmed manipulators each having an article transfer arm are provided at different work stations to perform different work operations on a batch of articles. The articles are stored in and transferred between work stations in a magazine assembly which is capable of maintaining all of the parts in a predetermined orientation at each work station. Furthermore, the magazine assembly cooperates with the programmed manipulator at a particular work station to sequentially position each article in the batch to a predetermined position and with a predetermined orientation so that the article can be grasped by the manipulator, worked on, and redeposited in the magazine without human assistance.

3,561,619
WAREHOUSING SYSTEM AND APPARATUS THEREFOR
Stanley M. Weir, Palo Alto, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Original application Jan. 15, 1968, Ser. No. 679,942, now Patent No. 3,447,699, dated June 3, 1969. Divided and this application Apr. 16, 1969, Ser. No. 851,110
Int. Cl. B65g 1/06
U.S. Cl. 214-16.4 1 Claim

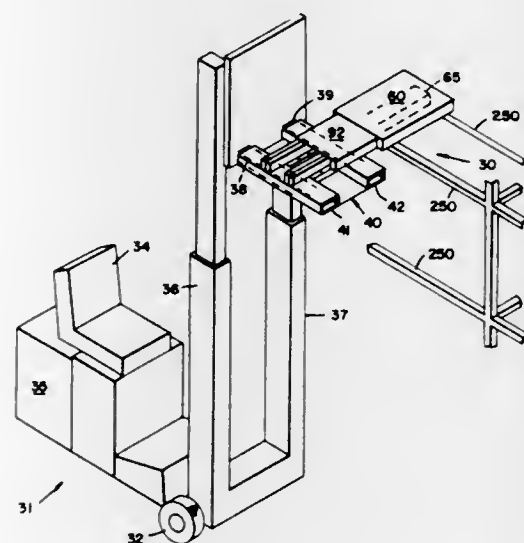
Power-driven warehouse equipment facilitates accurate and rapid selection of articles of commerce for distribution to warehouse outlets. A mobile track-mounted order-selection vehicle under the control of a warehouseman moves along an aisle formed by storage racks arranged in rows. Each rack is divided into compartments or slots, each slot containing cases, cartons or containers of a designated article of commerce. As the vehicle moves along the slots, selection of type and quantity of containers is made in accordance with a predetermined program carried by the driver of the vehicle in accordance with order picking instructions displayed for him by a display unit on the vehicle. Following selection of the requisite type and quantity of containers, each container is automatically labeled with a label which indicates the type, quantity and destination information im-

printed thereon according to a program, and the containers are mechanically transported to an area where they are auto-



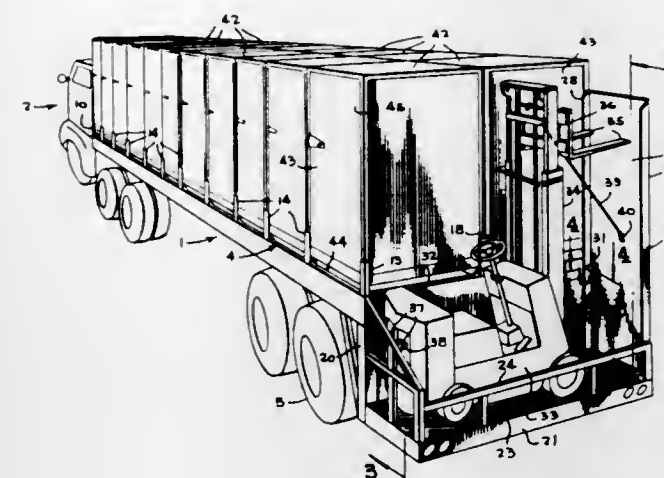
matically diverted to accomplish assembly of orders in accordance with their proper destination.

3,561,620
SIDE-LOADING ATTACHMENT FOR FORK-LIFT TRUCKS
Wilfred Ernest Willis, 3633 Jackson St., San Francisco, Calif.
Continuation of application Ser. No. 669,169, Sept. 20, 1967, now abandoned. This application Dec. 15, 1969, Ser. No. 882,363
Int. Cl. B65g 1/06; B66f 9/14
U.S. Cl. 214-16.4 27 Claims



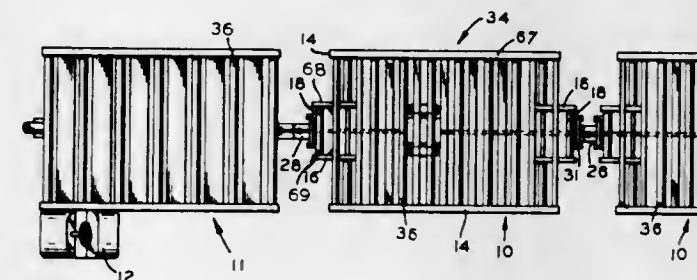
An attachment for forklift trucks can be used in conjunction with load supporting pallets and pallet supporting storage devices to give side loading and unloading. The attachment has a frame with fork receiving sockets, a laterally disposed stabilizer supported on the frame for movement laterally thereof, and a pallet-and-load supporting platform above the stabilizer supported by the frame for movement laterally thereof. There is a mechanism for moving the stabilizer to either side of the frame where it lies wholly beyond the sides of the forklift truck for engagement with and rest upon a pallet supporting storage device on which a pallet and its load are to be deposited, and a mechanism for moving the platform out where it lies wholly beyond the forklift truck and above the stabilizer only after the stabilizer is fully extended and is properly supported by the pallet-supporting storage device.

3,561,621
TRANSPORT VEHICLE
William C. Rivers, Jr., 2848 Village Grove Drive S., Jacksonville, Fla. 32217
Filed Mar. 19, 1969, Ser. No. 808,531
Int. Cl. B65g 67/02; B60p 1/64
U.S. Cl. 214-38 5 Claims



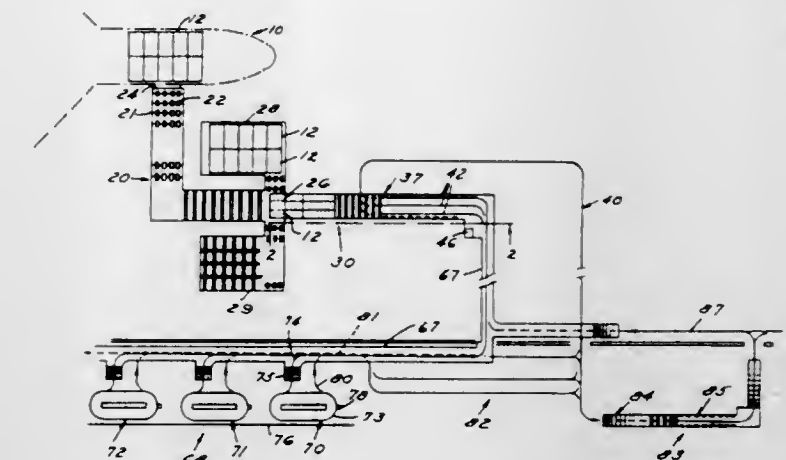
A transport vehicle having a load bed with upstanding guides defining container positions on the bed, and containers having downwardly converging pallet bottoms for automatic orienting at the container positions. The vehicle has an after deck carrying a load-handling machine for loading and unloading containers, with a pivoted machine loading ramp pivotally mounted on the after deck and movable to and from loading position by the load-handling machine.

3,561,622
CARGO TRAILER WITH CONVEYOR ROLLERS
John Dioguardi, Port Washington, and Laszlo Nemessanyi, Westbury, N.Y., assignors to Tridair Industries, Redondo Beach, Calif., a corporation of California by mesne assignments to
Filed May 13, 1969, Ser. No. 824,133
Int. Cl. B65g 67/02; B60p 1/00
U.S. Cl. 214-38 6 Claims



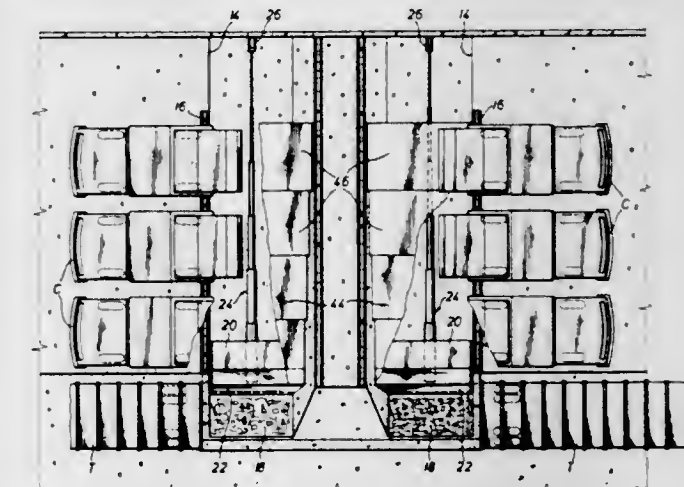
A self-tracking trailer including a chassis with a running gear, identical coupling means at each end, conveyor rollers with interconnected driving means journaled transversely on the chassis so that torque applied to one roller will produce conjoint rotation to all rollers, means for transferring power from the drive vehicle to the rollers in the trailer and including a rotatable drive sleeve with a noncircular through bore at each end of the trailer and a flexible shaft extending in driving relation between the sleeves, a pair of stub shafts with friction wheels fast thereon, a gear on each stub shaft, a drive gear fast on the flexible shaft engaging said gears to drive the friction wheel in opposite directions.

3,561,623
ARTICLE-HANDLING SYSTEM FOR BAGGAGE OR OTHER CARGO
Edward W. McCaul, Bloomfield Hills, Mich., assignor to Jervis B. Webb Company, a corporation of Michigan
Filed Jan. 7, 1969, Ser. No. 789,490
Int. Cl. B65g 43/00
U.S. Cl. 214-11 20 Claims



A system for handling baggage or other cargo of a vehicle such as an aircraft equipped with cargo containers. Each container is provided with a number of removable cargo trays. A terminal includes a vehicle loading and unloading dock, conveyORIZED for moving containers, and having a container storage area and a station where trays are unloaded from or loaded into containers. A tray conveyor extends between the container loading and unloading station and a tray transfer station. Carriers of a tray transporting conveyor selectively operate between the transfer station, where trays are automatically transferred to or from the carriers, and tray loading and unloading stations in the terminal. Operation of the system in an unloading direction results in loaded trays being delivered by the carriers to selected unloading loops at a delivery area where carriers circulate until unloaded. In the loading operation of the system, loaded trays are transported by the carriers, transferred to the tray conveyor and forwarded to the container loading station.

3,561,624
TRANSFER STATION EQUIPMENT FOR REFUSE DISPOSAL
Jimmie V. Thurmond, and William A. Ferrari, P.O. Box 14147, San Antonio, Tex. 78214
Filed Dec. 16, 1968, Ser. No. 783,918
Int. Cl. B65g 67/20
U.S. Cl. 214-41 3 Claims



A refuse transfer station at which short-haul collection vehicles discharge refuse to be loaded into long-haul transportation vehicles for removal to a disposal location. The station is provided with upper and lower levels and hoppers into which refuse may be dumped at the upper level to be discharged downwardly to the lower level to load the long-haul vehicles.

Elongated refuse-receiving troughs opening at one end into the hoppers may be provided at the upper level into which refuse is dumped from the collection vehicles and in which pusher blades are movably mounted to push the refuse into the hoppers, and cover means is provided for the troughs which are designed to be extended as the pusher blades are advanced and retracted as the blades are retracted to prevent the dumping of refuse behind the pusher blades.

Ram means is mounted beneath the hoppers in position to move refuse from the hoppers horizontally into the long-haul vehicles to pack the refuse therein, the ram means being positioned for movement in one direction to load one vehicle and in the other direction to load another vehicle so that two vehicles may be loaded at once by reciprocation of the ram means. The hoppers may be provided with cutoff doors to prevent the discharge of refuse from either hopper when a vehicle is being loaded from the other hopper to prevent dumping of refuse on the lower level.

3,561,625

TRAILERS WITH POWER TRANSFER SYSTEM

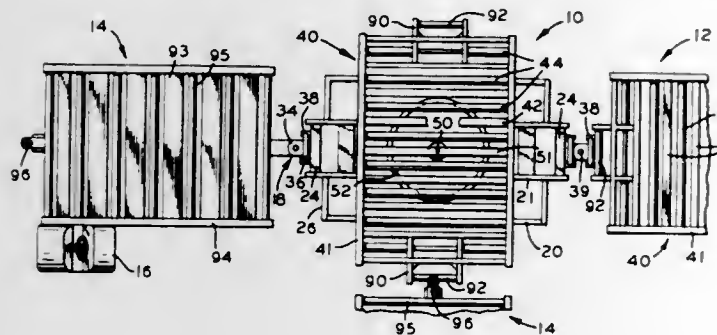
John Dioguardi, Port Washington, and Laszlo Nemessanyi, Westbury, N.Y., assignors to Tridair Industries, Redondo Beach, Calif.

Filed May 13, 1969, Ser. No. 824,144

Int. Cl. B60p 1/52

U.S. Cl. 214-84

8 Claims



A cargo trailer to be coupled in train to others and to be drawn by a drive vehicle provided with a single power source for the trailers. The trailer includes a chassis with rigidly running wheels and a rectangular platform with cargo conveyor rollers journaled between the platform sides. The several rollers have interconnected drive means so that driving torque applied to one roller will impart conjoint rotation to all. The trailer has a flexible shaft extending over its length, which drives stub shafts journaled in a gear box. Each stub shaft has a shaft which can engage a roller. A king pin pivotally joining the chassis and platform, permitting rotation of the latter to provide a cargo turntable.

3,561,626

SINGLE ROWER FOR CASE UNPACKING APPARATUS

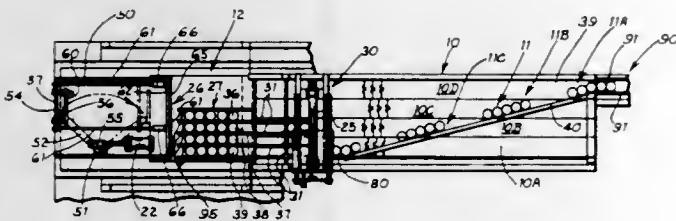
Carlton S. Sprague, Huntington, Ind., assignor to Shuttlework Machinery Corporation, Huntington, Ind., a corporation of Indiana

Filed May 29, 1969, Ser. No. 829,026

Int. Cl. B5b 21/04

U.S. Cl. 214-309

8 Claims



A case unpacker for removing cans from a box and placing them on a conveyor in single file. A vacuum lifting head is movable vertically to engage the cans and deposit them on a

platform in a pattern of parallel rows. A pusher bar operates to push the cans off the platform and onto a can conveyor. A blocking bar extends across the can conveyor and is retractable at a given speed to permit the rows of cans to move in order on said can conveyor. The cans are guided into single file by a guide bar extending at an angle across the can conveyor.

3,561,627

LOAD CARRYING DEVICE

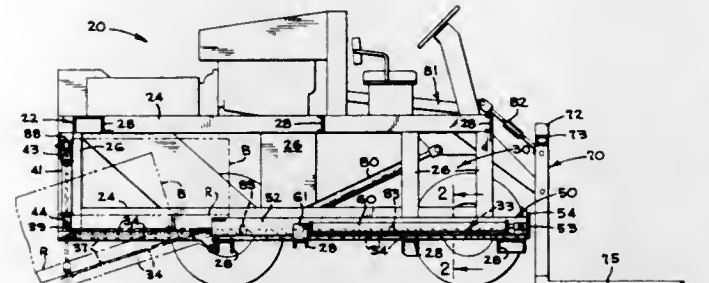
John L. Fisher, Campbell, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed Feb. 17, 1969, Ser. No. 799,818

Int. Cl. B60p 1/46

U.S. Cl. 214-518

8 Claims



A vehicle is provided with a fork lift at its front end that is adapted to raise boxes one at a time and transfer them to a conveying mechanism that moves the boxes into a tunnel that extends internally of the vehicle longitudinally thereof. A plurality of boxes may be temporarily stored in the tunnel and then discharged from the rear of the tunnel down an inclined ramp.

3,561,628

MOVABLE FORK COVER FOR FORKLIFT TRUCK

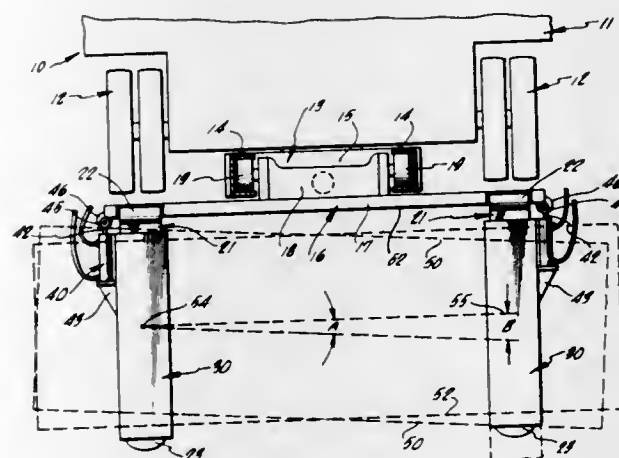
Thomas N. Melin, Long Beach, Calif. (1424 24th Ave., Longview, Wash. 98632)

Continuation of application Ser. No. 426,482, Jan. 15, 1965, now abandoned. This application Dec. 14, 1965, Ser. No. 517,883

Int. Cl. B66f 9/14

U.S. Cl. 214-731

3 Claims



In a forklift truck, at least one, and preferably both, of the horizontal load-supporting tines, which extend forward in cantilever fashion from a vertically movable fork apron, are provided with load-engaging cover members which are selectively movable along the lengthwise of the tines. The cover members are movable independently of each other along their respective forks so that the angular relationship of a load supported on the forks may be adjusted relative to the length of the truck about an axis passing vertically through the load, thereby making it possible to precisely adjust the position of a load supported by the truck relative to a foundation upon which the load is to be supported without moving the truck per se.

3,561,629

LAMINATED OR COATED BLOW MOLDED CONTAINERS

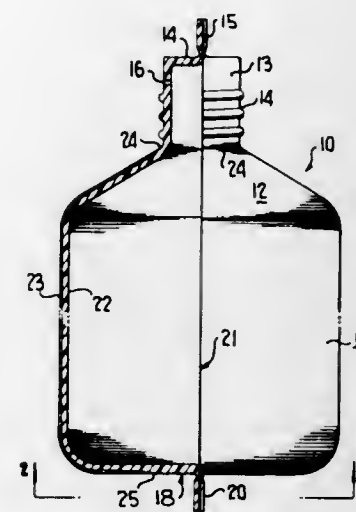
Howard M. Turner, Oak Forest, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Continuation-in-part of application Ser. No. 648,356, June 23, 1967, now Patent No. 3,457,337, dated July 22, 1969, which is a division of application Ser. No. 356,411, Apr. 1, 1964, now abandoned. This application Feb. 17, 1969, Ser. No. 799,712

Int. Cl. B65d 23/08

U.S. Cl. 215-1

9 Claims



This invention relates to novel blow molded laminated plastic containers formed by extruding a composite plastic tube and expanding the same to a desired configuration within a blow mold cavity, each container including a body wall terminating at one end in a neck and at an opposite end in a bottom wall, a line of flash, traversing the bottom wall, the line of flash including a pinched-off portion, the body wall being composed of a plurality of laminates, and the pinched-off portion being composed of at least one less wall than the number of laminates forming the body wall.

3,561,630

SPURT CAP

Seth Morris Smedstad, 4612 102 Ave., Edmonton, Alberta, Canada

Filed Jan. 27, 1969, Ser. No. 794,113

Int. Cl. B65d 51/02

U.S. Cl. 215-37

3 Claims



A spurt cap for use with test tubes is provided. It is hollow, open bottomed and has top closure. A spring clip is attached to its bottom edge which clamps it over the test tube mouth. A transverse screen extends across its interior to slow down the movement of fluid spurting out of the tube.

3,561,631

CLOSURE CAP FOR CONTAINERS

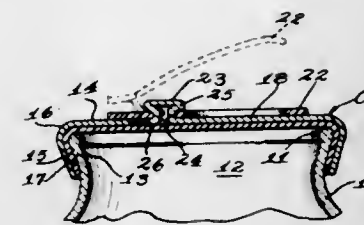
John D. Hatfield, Perrysburg, and Richard A. Heaton, Toledo, Ohio, assignors to Owens-Illinois, Inc., a corporation of Ohio

Continuation-in-part of application Ser. No. 579,911, Sept. 16, 1966, now abandoned. This application May 5, 1969, Ser. No. 825,116

Int. Cl. B65d 43/02, 41/10

U.S. Cl. 215-46

17 Claims



A sheet metal closure cap embodying a tear-strip extending diametrically of the panel and defined by two opposed scores extending from points in the upper areas of the skirt to a zone slightly beyond the cap axis where they are joined together by an arcuate score, there being a pull-ring overlying the tear-strip and secured to the tear-strip near the arcuate score. The pull-ring is plastic (polyethylene) and the invention also includes means for fastening a plastic pull-ring to a tear-strip by a rivet wherein a flanged bushing or a cylindrical collar is disposed in an aperture of the plastic pull-ring and interposed between the plastic and the rivet reinforcing the fastening of the pull-ring to the tear-strip.

3,561,632

AUTOMATIC CLOSURE FOR VACUUM BOTTLES

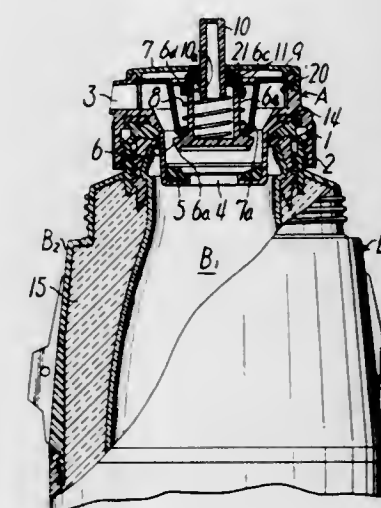
Nobuo Shirai, Nishinomiya, Japan, assignor to Tiger Vacuum Bottle Industrial Company, Limited, Kadoma, Osaka, Japan

Filed Apr. 22, 1969, Ser. No. 818,346

Int. Cl. B65d 97/20

U.S. Cl. 215-74

3 Claims

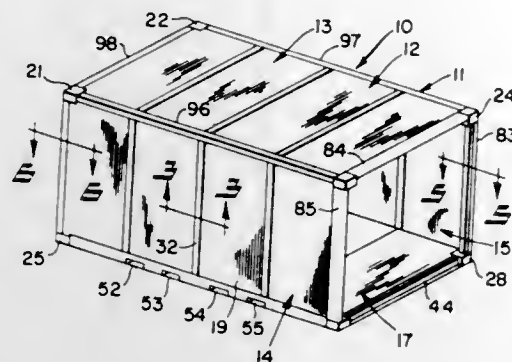


An automatic closure comprises a valve body and a projecting member to be depressed upon the closing operation of a lid or cap of a container. Between the projecting member and the valve body is acting a spring which is provided with a greater spring force than a restoring spring on the valve body. The arrangement is such that when the cap or lid is brought to the extreme of permissible range of closing state, the valve body is brought into contact with a valve seat without effecting compression of the spring. Thus, as far as the cap or lid is closed within the range, the automatic closure can be retained in closed position.

3,561,633 CONTAINER

Robert S. Morrison, Ashtabula, and Edward P. Rebovich, Jefferson, Ohio, assignors to Morrison Industries, Inc., Ashtabula, Ohio, a corporation of Ohio, by mesne assignments
Filed June 5, 1968, Ser. No. 734,619
Int. Cl. B65j 1/02; B65d 9/30, 11/28
U.S. Cl. 220-1.5

12 Claims

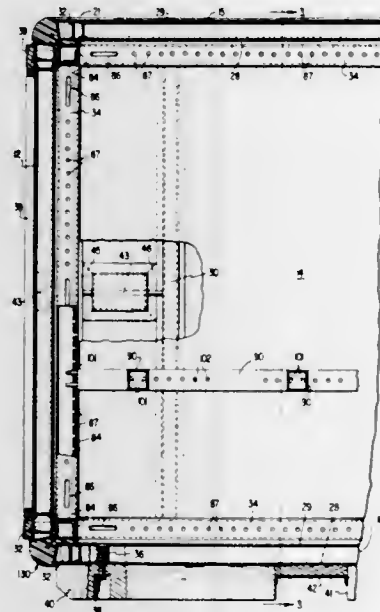


A container for general cargo and the like including an extruded metallic frame having panels of plywood or like material encapsulated with glass reinforced plastic and bonded with a polyurethane adhesive both to the frame and to adjacent panels to form a monolithic boxlike structure.

3,561,634 SHIPPING CONTAINER

Robert A. Meldrum, Bloomsburg, Pa., assignor to Impetus Inc., Chicago, Ill., a corporation of Illinois
Filed Sept. 11, 1968, Ser. No. 767,566
Int. Cl. B65j 1/02; B65d 7/42, 7/14
U.S. Cl. 220-1.5

18 Claims

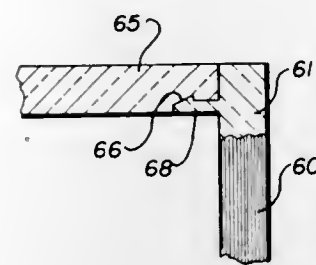


A universal high-strength shipping container having its wall panels supported adjacent their peripheral edges by a parallelepiped skeleton metal frame within the container. The frame is constructed from a plurality of elongated structural members rigidly welded at the corners of the container only, and the wall panels are each removably secured along their edges to the adjacent structural members of the frame. The container may be employed in any orientation, and includes improved means for securing the wall panels in tamper proof, hermetically sealed relation on the frame.

3,561,635 TAMPERPROOF COVER FOR SPEEDOMETER ODOMETERS

Robert C. Henderson, 9763 W. Virginia Drive, Denver, Colo.
Filed Oct. 30, 1968, Ser. No. 771,777
Int. Cl. B65d 25/54; G01c 22/00
U.S. Cl. 220-4

7 Claims

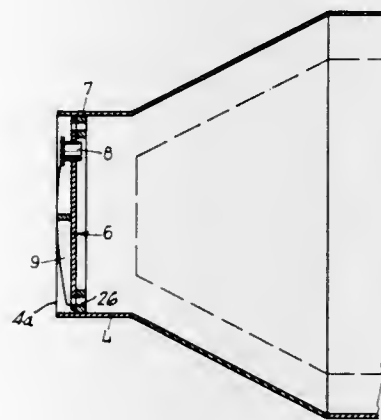


The odometer of a vehicle speedometer is provided with a transparent cover, preferably glass, completely enclosing the number wheels and a nonremovable closure member for the cover is provided with means indicating tampering with the cover on visual observation of an installed odometer. The cover is readily usable on existing odometers of American made vehicles as well as original equipment.

3,561,636 METALLURGICAL TRANSPORT VESSEL CONSTRUCTION

Werner Marxen, Duisburg, and Werner Trost, Duisburg-Wanheimerort, Germany, assignors to Demag Aktiengesellschaft, Duisburg, Germany
Filed Sept. 11, 1968, Ser. No. 759,116
Claims priority, application Germany, Dec. 4, 1967, 1,583,244
Int. Cl. B65d 25/24
U.S. Cl. 220-18

3 Claims



A transport vessel for the transportation of metallurgical melts or molten metals includes a cylindrical ring at each end having a journal extending radially outwardly from each side which engages in open topped bearing bushings on a forked end of a rotatable journal. The rotatable journal is supported on a pedestal on a mounting platform which, for example, may be a wheeled car. The transport vessel includes a ring spaced inwardly from the end of the cylindrical end formation providing a mounting for receiving a detachable end plate which may be secured to the ring, for example, by securing bolts. The end plate is reinforced by intersecting reinforcement ribs, and it includes a mortar charging opening.

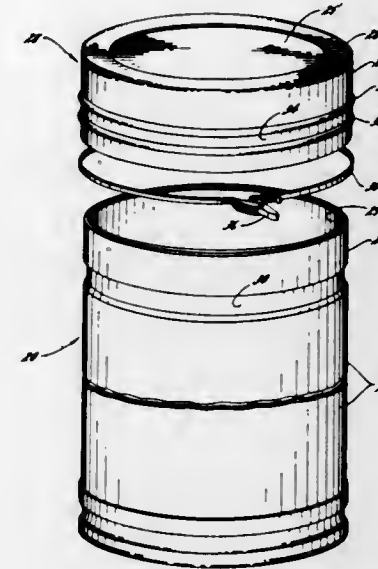
3,561,637 CONTAINER AND REUSABLE, RESEALABLE CLOSURE THEREFOR

William McConnell, Helsby, Frodsham, England, assignor to Inland Steel Company, Chicago, Ill., a corporation of Delaware

Filed Aug. 8, 1968, Ser. No. 751,111
Claims priority, application Great Britain, Aug. 8, 1967, 36,298/67
Int. Cl. B65d 41/00

U.S. Cl. 220-42

8 Claims



A container, particularly one having a container body made of fiber or other synthetic material, and of the type having a slip cover including a skirt adapted to overlap and surround the upper portion of the container body, wherein improved means are provided for reclosing and/or resealing the container by providing a circumferential constricted area in the container body and a complementary circumferential deformable zone in the cover skirt, together with contractible means for deforming said zone into said area on a repetitively usable basis.

3,561,638 BOX OR CONTAINER OF METAL SHEET HAVING A SMALL THICKNESS AND BEING SUBJECTED TO HIGH INTERNAL PRESSURES

Jean B. Morjan, Koekelberg-Brussels, Belgium, assignor to Etablissements J. B. Gabriels S.P.R.L., Koekelberg-Brussels, Belgium, a company of Belgium

Filed Aug. 26, 1968, Ser. No. 755,209
Claims priority, application Belgium, June 14, 1968, 48,034
Int. Cl. B65d 7/42

U.S. Cl. 220-67

5 Claims

This invention relates to boxes or containers of metal sheet having a small thickness and being provided for storage and distribution of beers and other drinks rich in carbonic gas under pressure, with ends made of rolled sheet having a high yield strength of soft steel recrystallized by annealing and the composition of which contains Nb in the range of 0.015 percent to 0.050 percent by weight of the composition.

3,561,639 FUEL STORAGE CELL

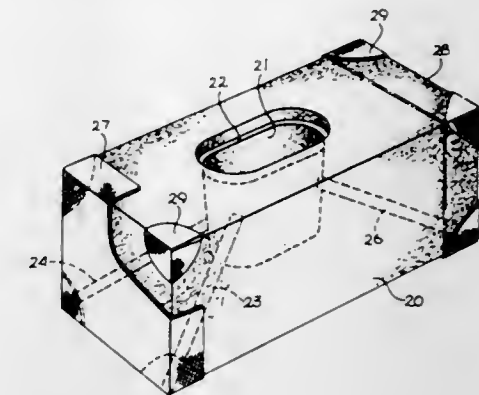
Donn W. Allen, 5730 Bankfield Ave, Culver City, Calif.
Filed Sept. 5, 1968, Ser. No. 757,598
Int. Cl. B65d 25/14, 25/34

U.S. Cl. 220-88

11 Claims

The fuel cell disclosed herein includes a shaped, porous core having an approximate 97 percent void which is covered by an impregnated fabric material so as to adhere to the

periphery of the core and to seal the fabric material. The covered core or bladder is enclosed in a metal container hav-



ing mounting fixtures adapted to detachably connect the fuel cell to supporting structure.

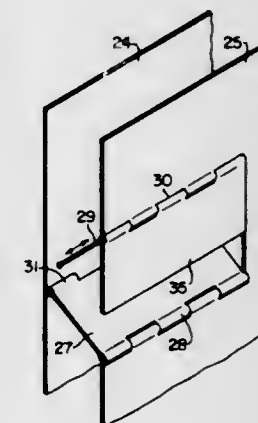
3,561,640 MULTIPLE COLUMN MULTIPLE CHOICE VENDING MACHINE

Daniel P. Thompson, Worthington, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 10, 1968, Ser. No. 782,597
Int. Cl. B65g 59/00

U.S. Cl. 221-108

2 Claims



A multiple column multiple choice vending machine having a respective vending gate for each column with removable or selectable diverting means to divert some articles stored in one column to an adjacent column to be vended by the adjacent column vending gate while permitting other articles stored in the one column to be vended by the one column vending gate thus increasing capacity for favorite articles without reducing the total choice of articles.

3,561,641 FASTENER SUPPLY DEVICE

Charles E. Kerr, Jr., Hillsboro, Oreg., assignor to Eltec, Inc., Lake Oswego, Oreg., a corporation of Oregon

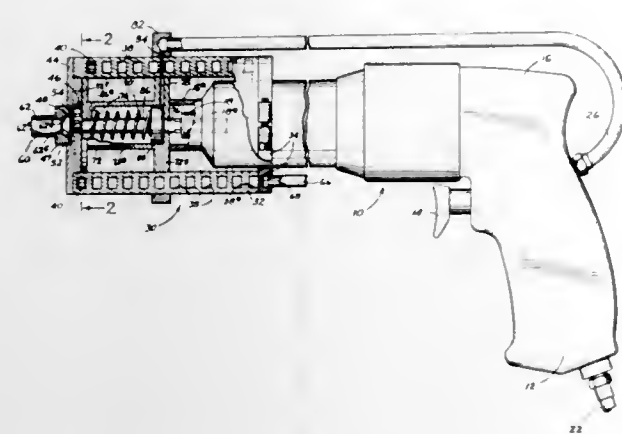
Filed Dec. 19, 1968, Ser. No. 785,176
Int. Cl. B65h 5/00

U.S. Cl. 221-278

8 Claims

A magazine-type fastener supply device attached to a power-driven tool and adapted to feed fasteners into a fastening position with the supply device held in any position. The supply device includes a conduit which a column of side-by-side fasteners are moved along by the action of a stream of air flowing through the conduit. The conduit terminates at its downstream end at a fastener retaining station, one side of which is bounded by a split diaphragm which releasably holds a fastener in the retaining station. A plunger adjacent the

retaining station and opposite the diaphragm is operable on actuation to thrust a fastener in the retaining station endwise from the bin is received. The rate signal can be used for determining whether a correct amount of material is being



through the diaphragm and into a fastening position. The plunger is rotatable and is driven by the tool.

3,561,642

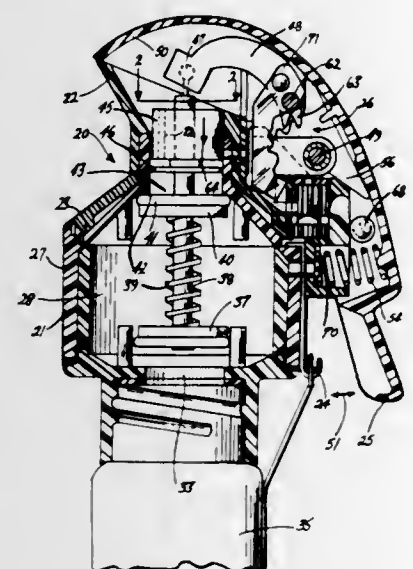
ANTITAMPER DEVICE FOR LIQUID DISPENSERS

Peter P. Bazarnic, P.O. Box 24, Willoughby, Ohio 44094

Filed Oct. 14, 1968, Ser. No. 767,439

Int. Cl. B67d 5/32; G01f 1/32

U.S. Cl. 222—36



An antitamper device for mounting in a dispenser which measures, records, and pours liquor by the drink to prevent the entrance of a wire or toothpick into the valve region of the dispenser. This prevents the valve from being pried open or propped open to prevent unwanted, and uncounted dispensing of liquor from the bottle on which the dispenser is mounted.

3,561,643

FEEDER FOR PARTICULATE MATERIAL, HAVING MEANS RESPONSIVE TO THE RATE OF FLOW

Gerald P. Kloven, White Bear Lake, Minn., assignor to Ramsey Engineering Company, St. Paul, Minn.

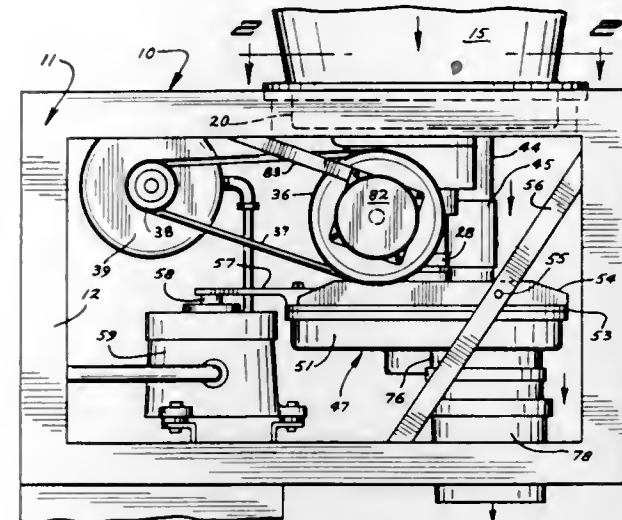
Filed Sept. 16, 1968, Ser. No. 759,853

Int. Cl. B67d 5/08

U.S. Cl. 222—55

A gravity-type feeder apparatus for feeding particulate material from a storage bin including a first member having agitator and valve means rotating about an upright axis to provide a valving action for discharging material from the bin, and a second member for receiving the material as it discharges from the first member and including means to weigh the material. Means to provide a signal corresponding to the speed of movement of the feeding apparatus are included so that by combining the weight signal and the speed signal a signal indicating the rate of discharge of material

15 Claims



fed, and control means are provided for making proper adjustments to the rate of feed.

3,561,644

PRODUCT DISPENSER AND VALVE THEREFOR

Everett L. Works, Lafayette, Calif., and Gloria May Works, administratrix of said Everett L. Works, deceased

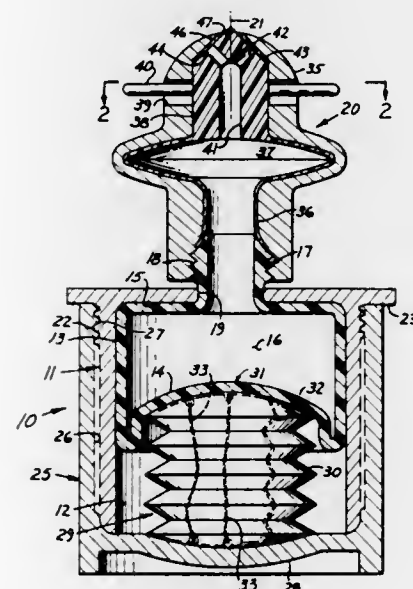
Continuation-in-part of application Ser. No. 574,435, Aug. 23, 1966, now abandoned. This application Oct. 17, 1967,

Ser. No. 683,066

Int. Cl. B65d 35/28

U.S. Cl. 222—95

2 Claims



This disclosure relates to pressurized product dispensers in which a product is dispensed under pressure supplied by a fluid pressure source, but which source is kept separate from the product itself. In the preferred embodiment, a flexible product container is placed in a rigid retainer and in contact with an expansible pressure source, the pressure from the source exerting a mechanical and compressive force on the product container. A valved orifice controls expulsion of the product from its container.

3,561,645

VISCOUS MATERIAL SPRAYING DEVICE

Roger H. Hopkins, Pasadena, Calif., assignor to Roger Hopkins Company, Pasadena, Calif., a corporation of California

Filed Apr. 12, 1968, Ser. No. 720,931

Int. Cl. B67d 5/62

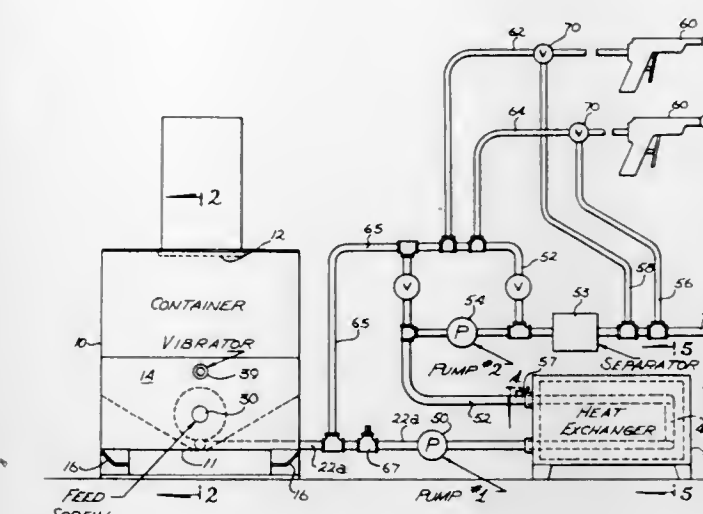
U.S. Cl. 222—146

An apparatus and method for spraying coal tar and other thixotropic viscous materials comprising a first vibrating con-

10 Claims

tainer having therein a feed screw and having pumping means for removing materials from the first container to an adjacent heating container for heating the viscous materials. A second high-pressure pumping means are connected to the heating container to remove the lower viscosity material

thereby making the toner available for dispensing. A rupturable seal is also linked to the shaft to enable opening of the



therefrom which is then pumped through conduit means for spraying. A heating conduit circuit is arranged so that when not in use a limited amount of viscous material may be heated and prepared for spraying without having to heat the entire bulk of raw material.

3,561,646

MOVABLE BED FOR GRAVITY BED VEHICLES

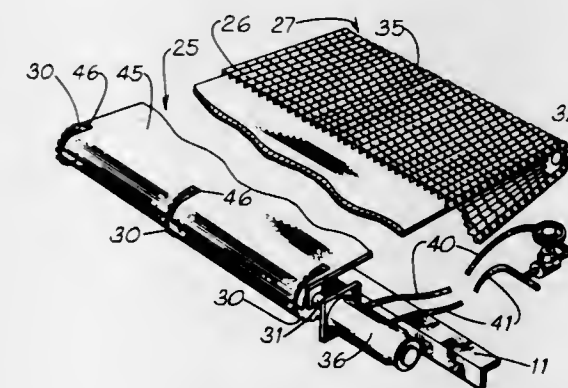
James L. Meharry, R.R. 1, Wingate, Ind. 47994

Filed Oct. 21, 1968, Ser. No. 769,167

Int. Cl. A01c 15/18

U.S. Cl. 222—176

2 Claims



A gravity bed vehicle having front and rear sloping bed surfaces which lead into an endless chain conveyor arranged to discharge from either transverse side of the vehicle.

3,561,647

APPARATUS FOR HANDLING ELECTROGRAPHIC TONER PACKAGES

Conrad Altmann, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

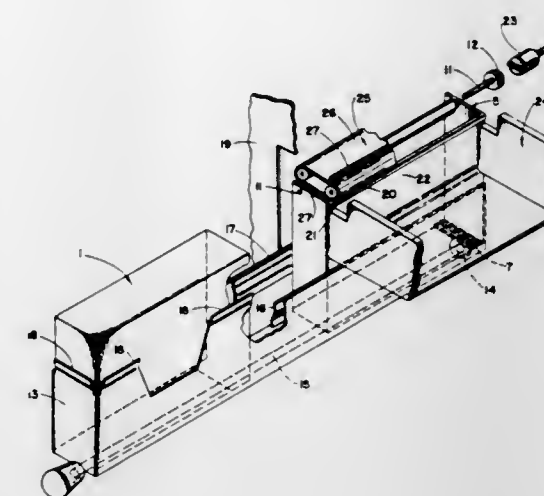
Filed May 1, 1968, Ser. No. 725,785

Int. Cl. B67d 5/06

U.S. Cl. 222—179.5

A toner container and dispenser, usable with electrographic apparatus, has an outer cover from which an inner container is mechanically slid to a dispensing position. The inner container has an inside lining restricting the volume of toner in the container and a shaft for taking up the lining

6 Claims



container as the shaft is turned. After the container is empty, it is slid back into the still-clean cover for removal.

3,561,648

RESILIENT INTEGRAL BODIES INCORPORATING POPPET-VALVES

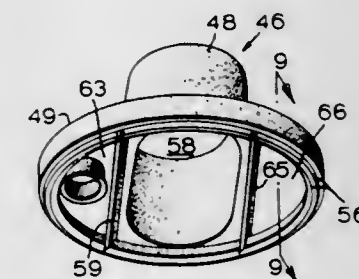
Frederick Harold Humphrey, 7 Orchard St., Markham, Ontario, Canada

Filed Apr. 9, 1969, Ser. No. 814,571

Int. Cl. B65d 37/00

U.S. Cl. 222—207

12 Claims



The combination of a supporting surface having two ports, and an integral body which includes a recess-defining resilient portion secured against the surface to define therewith a chamber into which the two ports open. A poppet-valve integral with the body extends toward the surface and closes one port with mechanical interference, thereby to establish one pressure threshold above which fluid flows from one port to the other port, and a second pressure threshold above which fluid flows in the opposite direction.

3,561,649

DISPENSING CONTAINER

Calvin L. Wilson, Chesterfield County, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Filed June 10, 1968, Ser. No. 735,657

Int. Cl. B65d 83/14

U.S. Cl. 222—399

This disclosure relates to an inexpensive and easily cleaned

12 Claims

3,561,657

STOCK FEEDER

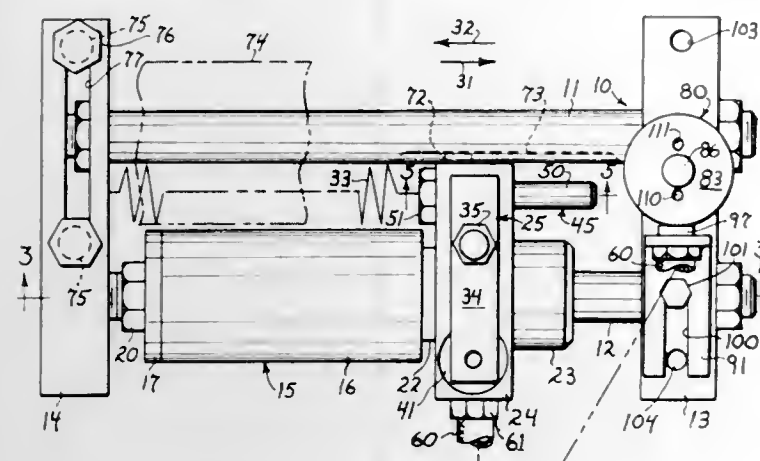
Albert W. Scribner, 6 Country Club Road, Darien, Conn.

Filed Sept. 20, 1968, Ser. No. 761,253

Int. Cl. B65h 17/36

U.S. Cl. 226-150

35 Claims



A simplified low-cost air-operated stock feeder for punch presses, and having a separate three-way valve unit which is detachable from the rest of the feeder and which is adapted to apply to stock being fed a clamping force corresponding to the force required to operate the valve unit. Fluid pressure is conducted to and from the feeder air motors through a simple flexible tube that is connected between the reciprocating feed slide and the output port of said valve unit. A tubular main air motor is coaxially mounted on one of two slide rods forming part of the feeder frame.

3,561,658

NIP ROLL ASSEMBLY

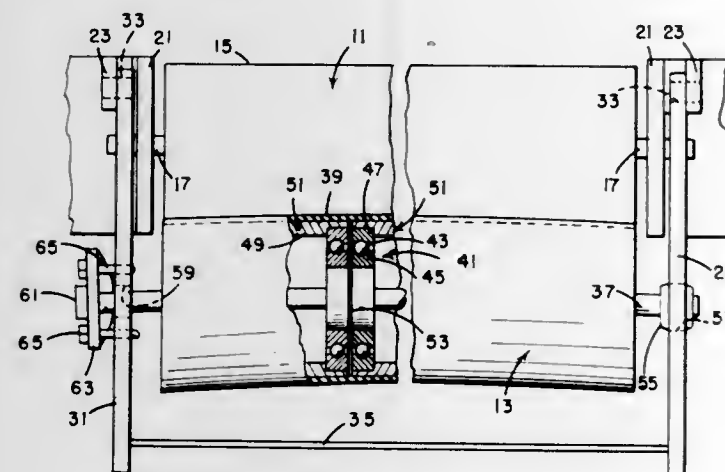
Henry J. McDermott, Collingdale, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware

Filed Sept. 27, 1968, Ser. No. 763,313

Int. Cl. B65h 17/20

U.S. Cl. 226-176

3 Claims



A nip roll assembly including a guide roll and a longitudinally arcuate pressure roll which together provide a nip into and through which a web is adapted to travel, with the curvature of the arcuate pressure roll being adjustable to vary the degree of nipping provided by such rolls at selected locations longitudinally thereof.

3,561,659

TRANSPORT SYSTEM

Jack R. Anthony, Borger, Tex., assignor to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware

Filed June 19, 1968, Ser. No. 738,258

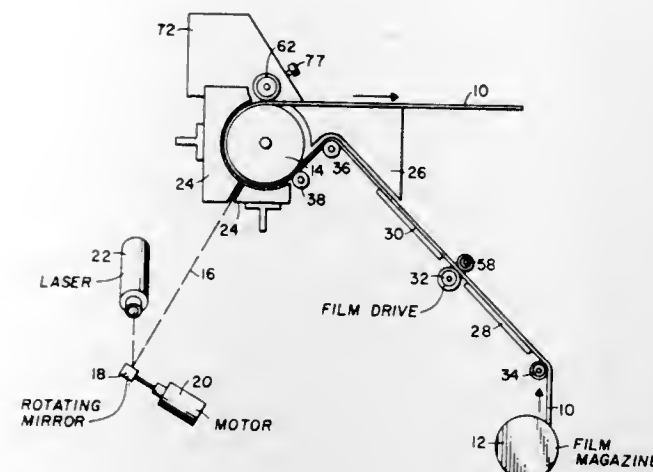
Int. Cl. B65h 17/08

U.S. Cl. 226-180

1 Claim

This disclosure is of a high speed data plotter system. The data plotter system uses modulated laser light to scan photo-

graphic film. The system includes means for driving the photographic film, and at least two separate guide rollers which frictionally engage the moving photographic film. The system also includes a rotatable drum and pressure rollers



adapted to frictionally engage the photographic film with the rotatable drum so that all slippage is eliminated therebetween throughout any series of rapid incremental motions of the drum. The guide rollers and pressure rollers maintain the fast moving film taut and true in position during the scanning.

3,561,660

SWIVELING PRESSURE ROLLER ASSEMBLY

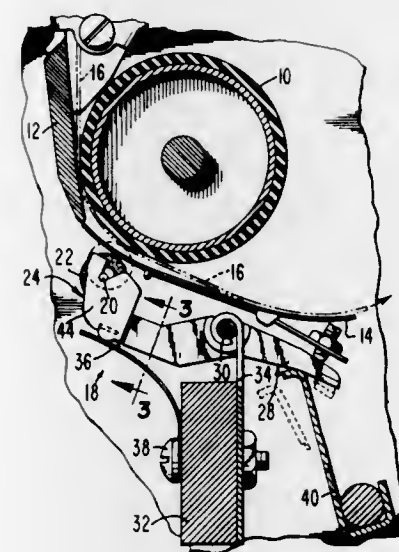
Edward A. Nicol, Farmington, Mich., and Edward M. Johnson, Glenside, Pa., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Oct. 28, 1968, Ser. No. 771,236

Int. Cl. B65h 17/22

U.S. Cl. 226-187

8 Claims



A pressure roller assembly, such as incorporated in a business machine, which permits the parts to be snap-fitted together and to rotate or swivel with respect to one another. The assembly includes a pressure roller which snap-fits onto one end of a yoke and the yoke in turn snap-fits into a pressure rocker arm. The rocker arm is shaped to snap-fit onto a support rod so that the assembly can pivot about the rod as an axis to open and closed position with respect to a rotatable platen. The snap-fitted pivotal connections between the parts are accomplished by forming the parts of molded hardened plastic material having the inherent properties of lubricity and slight elasticity.

3,561,661

PIN DRIVING TOOL

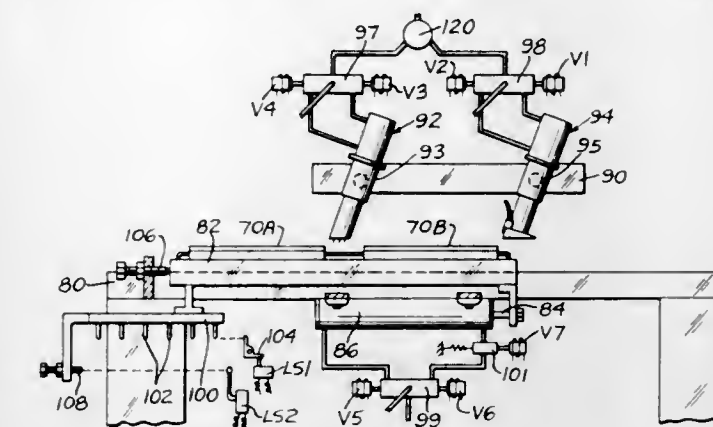
Carl E. Boettcher, Evansville, Ind., assignor to Kimball Piano & Organ Co., Jasper, Ind., a corporation of Delaware

Filed Oct. 14, 1968, Ser. No. 767,436

Int. Cl. A43d 69/00

U.S. Cl. 227-73

8 Claims



The invention concerns a device for driving headless pins and includes a shuttling pin carrier that moves the pins laterally from a feed path to a driving path where a drive plunger drives the pins endwise into a preformed hole. The device is arranged to drive one pin or multiple pins and is adapted for incorporating in a machine having a drilling arrangement for drilling the holes to receive the pins.

3,561,662

SOLDER-REMOVING DEVICE

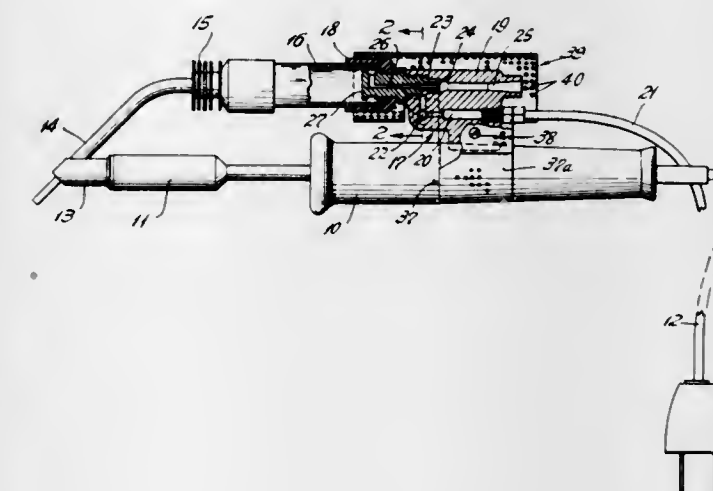
Raymond A. Duhaime, Huntington, and Clifford S. Lasto, Orange, Conn., assignors to Air-Vac Engineering Company, Incorporated, Milford, Conn., a corporation of Connecticut

Filed Jan. 8, 1969, Ser. No. 789,697

Int. Cl. B23k 1/00, 5/22

U.S. Cl. 228-20

6 Claims



A solder-removing device has a handle and a heated solder-removing tip thereon provided with a tube connected to a receptacle for the melted solder. A transducer means is mounted on the handle of the device adjacent the solder-receiving receptacle and connected thereto. The transducer means produces a suction in response to the flow therethrough of air under pressure, and has a manually operated valve thereon for controlling the flow of said air under pressure. A perforated protective shield covers the transducer means to prevent contact with the transducer means and to permit the transducer means to be cooled. The shield forms a part of the mounting for the transducer means and also a supplemental handle or gripping surface for the device.

3,561,663

APPARATUS FOR PRODUCING SHEET METAL PLATES HAVING REINFORCING MEMBERS WELDED THEREON

Heinz Martin Wenzlaff, 2863 Ritterhude, Am Groben Geeren 7-9 Germany

Filed Jan. 22, 1968, Ser. No. 699,483

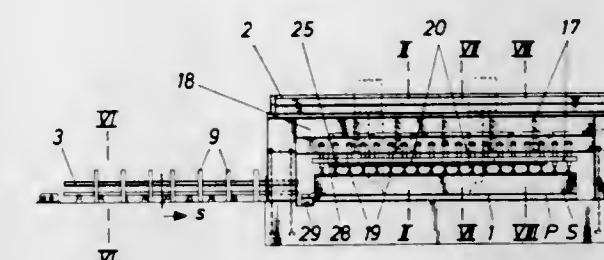
Claims priority, application Germany, Feb. 4, 1967,

P1,298,852

Int. Cl. B23k 1/00, 5/00

U.S. Cl. 228-25

18 Claims



This disclosure relates to an apparatus for producing sheet metal plates having reinforcing members welded thereon, particularly ribbed ship's plates, of the kind comprising a feed device for the sheet metal plates, a device for mounting said reinforcing members on to the plates and means for welding said reinforcing member to said sheets.

3,561,664

CONTAINER AND INSERT THEREFOR

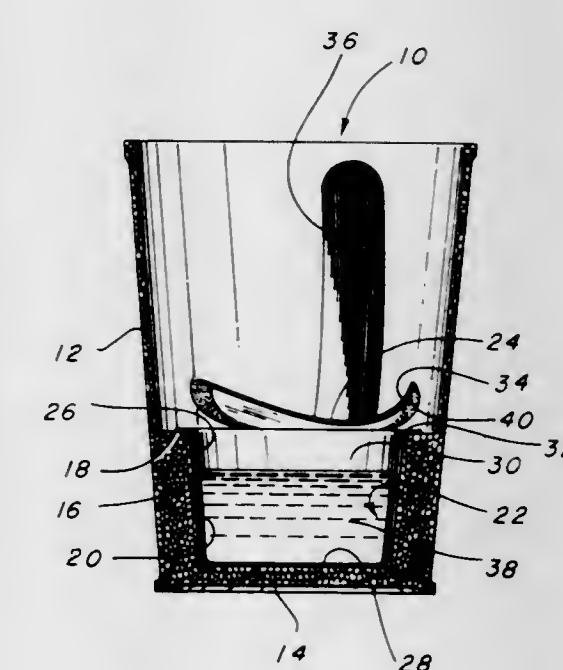
Charles E. Palmer, Turnpike Road, Somers, Conn. 06071

Filed Mar. 17, 1969, Ser. No. 807,531

Int. Cl. B65d 25/08, 5/56, 77/08

U.S. Cl. 229-15

9 Claims



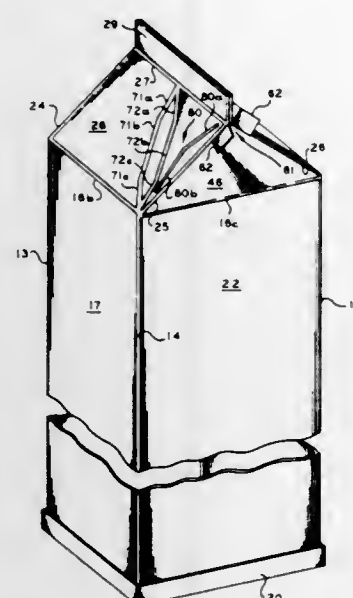
A container assembly comprises a container having an end wall and a sidewall with an inwardly extending portion adjacent the end wall providing an inwardly extending shelf and defining an inner recess. An insert seated in the recess includes a body with a material-receiving cavity and a flange extending outwardly therefrom which is of lesser lateral dimension than the shelf and is sealed thereupon.

3,561,665

GABLE TOP CONTAINERS

Ernest L. Smith, Kansas City, Mo., assignor to Phillips Petroleum Company, a corporation of Delaware
 Filed June 11, 1969, Ser. No. 832,258
 Int. Cl. B65d 5/02, 5/72, 17/00
 U.S. Cl. 229-17

5 Claims



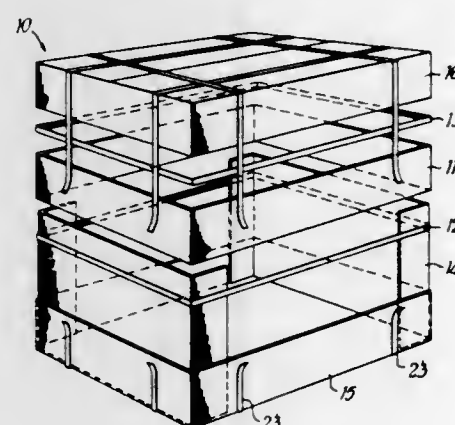
Snap-action score lines in each roof panel and downwardly extending reckoned lines of severance improve the opening characteristics of gable top containers.

3,561,666
CONTAINER

Anthony M. Spinks, and Michael H. Lethbridge, London, England, assignors to Tri-Wall Containers, Inc., Plainview, N.Y., a corporation of New York
 Filed May 5, 1969, Ser. No. 821,881
 Int. Cl. B65d 13/00

U.S. Cl. 229-23

10 Claims



A container of boxlike construction which comprises at least two tubular sections and a rigid frame interposed between the or each pair of the adjacent sections each frame comprising a flange which is interposed between the adjacent faces of the sections to form a butt joint therebetween and upwardly and downwardly projecting walls located externally of the container to retain the edges of the sections against outward expansion.

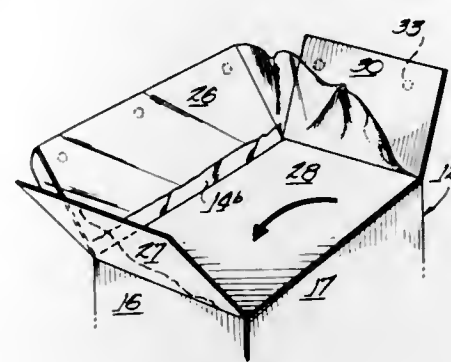
3,561,667

COMPOSITE CONTAINER

Elias A. Saltman, Grand Rapids, Mich., assignor to Packaging Corporation of America, Evanston, Ill., a corporation of Delaware
 Filed Dec. 12, 1968, Ser. No. 783,279
 Int. Cl. B65d 5/56

U.S. Cl. 229-37

4 Claims



A composite container is provided for use in the bulk handling of comminuted materials and the like. The container includes a foldable outer carton having sidewall panels and full overlapping end closure flaps which cooperate to define a product-accommodating compartment, and a pliable bag disposed within the compartment and having an open upper end for product loading. The wall portions of the bag are affixed to the interior surfaces of the carton sidewall panels and the portions of the bag circumjacent the open upper end are releasably affixed to the closure flaps defining the carton upper end. The bag portion of the first folded closure flap projects beyond the distal edge of the flap so that the projecting bag portion overlies a portion of the bag attached to a second closure flap, opposed to said first folded closure flap, and thus, retains the projected bag portion in linear contact with the overlapped bag portion of the second closure flap at the fold line connection between the second closure flap and a sidewall of the container.

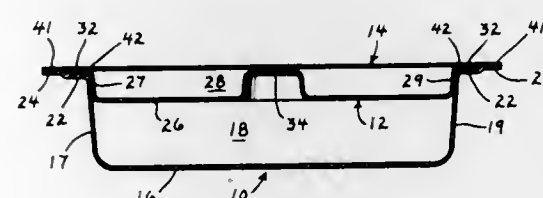
3,561,668

SEALED PACKAGE

Roger C. Bergstrom, Rockford, Ill., assignor to Anderson Bros. Mfg. Co., Rockford, Ill., a corporation of Illinois
 Filed Aug. 23, 1966, Ser. No. 574,451
 Int. Cl. B65d 5/64, 43/00, 51/19

U.S. Cl. 229-43

10 Claims



A double-sealed package including a container with an inner cover member spanning its open end. An outer cover is sealed to both the container flange and the inner cover member. The method includes pressure forming the container and inner cover member, depositing a material in a container, placing the inner cover member in position, and sealing the outer cover to both the container and inner cover member.

3,561,669

COMPOSITE LEAKPROOF CARTON

Norval W. Postweiler, Maplewood, N.J., and George Vrana, Flushing, N.Y., assignors to Riegel Paper Corporation, New York, N.Y., a corporation of Delaware
 Filed Sept. 30, 1968, Ser. No. 763,788
 Int. Cl. B65d 5/54, 5/70

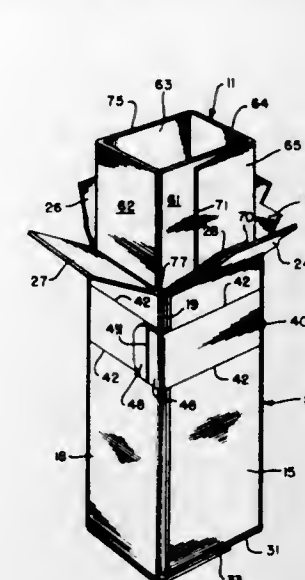
U.S. Cl. 229-51

1 Claim

The disclosure relates to a composite leakproof carton construction having a parallelepiped outer shell, a full length

tubular liner tightly fitted within the outer shell, and sealing membranes adhered to outfolded carton end flaps of the shell and gasketed between the liner end edges and said flaps

escape of the record or finger contact with its grooves while the enclosure is being inserted in or removed from a jacket,



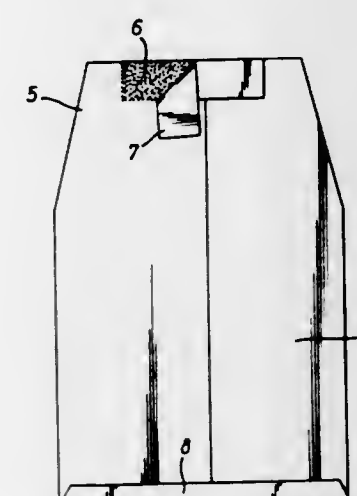
when the flaps are infolded. The carton is easily openable by a shell encircling tear strip, the removal of which forms a telescopically reclosable cover or cap member.

3,561,670

ASHTRAYS AND LIKE SMOKER'S RECEPTACLES
 Marcus Segal, Kirkella, near Hull, England (14 Allenhall Way, Kirkella, Hull, East Yorkshire)
 Filed Feb. 25, 1969, Ser. No. 802,052
 Claims priority, application Great Britain, Apr. 30, 1968, 20338/68
 Int. Cl. B65d 31/04

U.S. Cl. 229-53

1 Claim



A throwaway receptacle for cigarette ends, tobacco ash and suchlike comprising a pouch made with at least a lining of noncombustible material and formed with an extension on the back of which is a band of adhesive normally covered with a strip of readily removable material which is removed to adhere the pouch to a support in opened out condition with its mouth uppermost.

3,561,671

ENCLOSURE FOR RECORDS

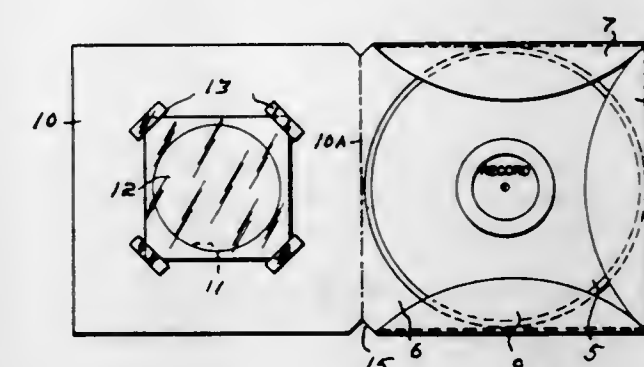
Wayland M. Minot, Jr., deceased, late of Cambridge, Mass., by Elizabeth C. Minot, Administratrix, 94 Foster St., Cambridge, Mass. 02138

Filed Jan. 9, 1969, Ser. No. 790,898
 Int. Cl. B65d 27/04, 85/30

U.S. Cl. 229-71

2 Claims

A record enclosure is disclosed that includes a wrapper on which a record may be placed while held by its margins and marginal portions foldable over the member to prevent the



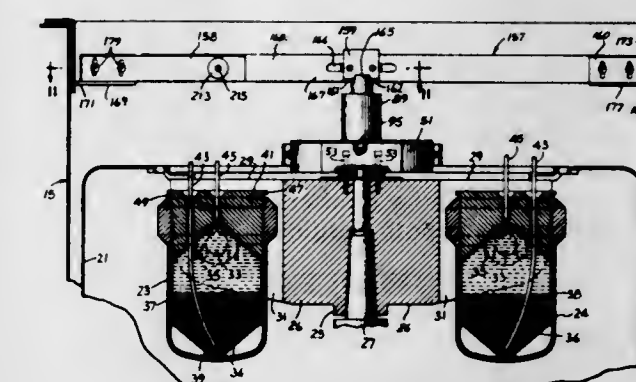
one portion being a cover substantially the size and shape of the member.

3,561,672

WASHING PROCESS AND CENTRIFUGE ASSEMBLY
 Charles A. Schlutz, Glenview; Stanley J. Sedivy, Chicago Ridge, and Charles R. Memhardt, Morton Grove, Ill., assignors to Baxter Laboratories, Inc., Morton Grove, Ill., a corporation of Delaware
 Filed Mar. 18, 1968, Ser. No. 713,595
 Int. Cl. B04b 5/02

U.S. Cl. 233-17

22 Claims



A fluid system for separating materials in each of a plurality of batches which are simultaneously washed by forcing a fluid through a centrifuge, provides independent pressure heads for each batch to enable flow of equal volumes through said batches, respectively.

3,561,673

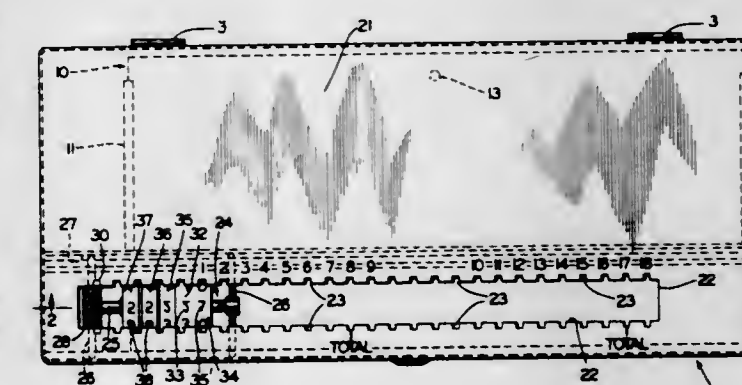
GOLF SCORE COUNTER

Andy Kerestes, 611 Delford Ave. N.E., Massillon, Ohio 44646

Filed June 11, 1969, Ser. No. 832,204
 Int. Cl. G06c 29/00

U.S. Cl. 235-58

9 Claims



A portable device for recording golf scores having a rotatable-printing wheel for printing the number of strokes for each hole upon a card. A counting wheel assembly having printing

type thereon is actuated by the rotatable-printing wheel for recording the total of nine holes and of eighteen holes. A rotatable connection between the rotatable-printing wheel and the counting wheel assembly permits backward rotation of the printing wheel without moving the counting wheel assembly.

3,561,674

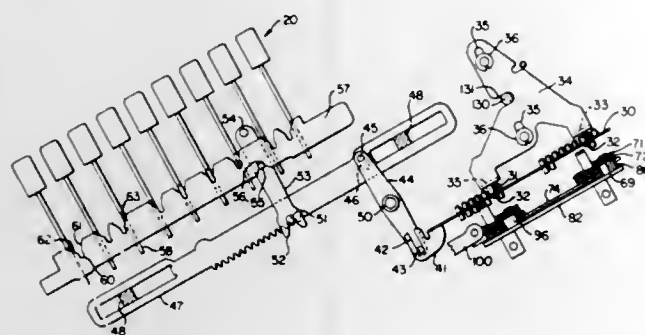
TOTALIZER SHIFTING MECHANISM

George J. Eberhardt, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

Filed July 1, 1968, Ser. No. 741,751
Int. Cl. G06c 29/00; G07g 1/00

U.S. Cl. 235—60.3

10 Claims



A totalizer shifting mechanism for transferring a total from one totalizer element to another totalizer element on the same totalizer line during the same machine cycle including a control member containing a plurality of predetermined positioned control elements mounted on the upper and lower surfaces of the control member, a mechanism for shifting the control member between two positions, and sensing means, controlling the positioning of the totalizer line, for sensing the control elements in both positions.

3,561,675

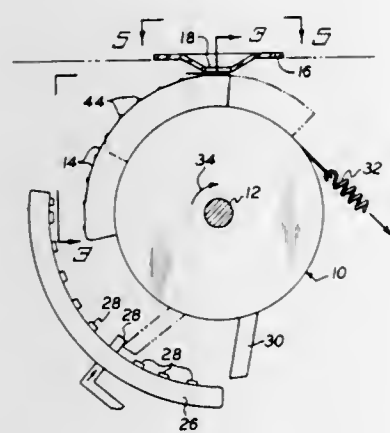
RECORDING SYSTEM FOR BUSINESS MACHINES

Edgar Wolf, New Hyde Park; Francis C. Marino, Huntington, and Edward Henry Lau, Old Westbury, N.Y., assignors to Digitronics Corporation, Albertson, N.Y., a corporation of Delaware

Filed July 23, 1969, Ser. No. 844,028
Int. Cl. G06c 17/00, 29/00

U.S. Cl. 235—61

12 Claims



A recording system for a business machine of the type having a plurality of character wheels, each having a set of circumferentially spaced characters thereon and being rotatable to a preselected position to display the character entered into the machine. The recording system comprises first and second signal-generating means which are adapted to produce respective sequential first and second signals as each character passes a preselected point during a rotation of a character wheel. Signal means is provided which is responsive to the sequential occurrence of said first and second signals for producing an output signal which is indicative of the character entered into the machine.

ERRATA

For Classes 235—201 and 235—201 see:
Patent Nos. 3,562,506 and 3,562,507

3,561,676

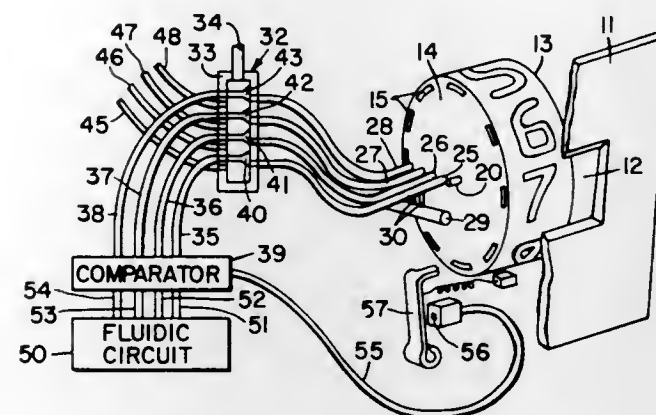
FLUIDIC NUMERIC COMMUNICATOR

Lynn G. Amos, Powell, Tenn., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Dec. 27, 1968, Ser. No. 787,517

Int. Cl. G06m 1/24

U.S. Cl. 235—201

9 Claims



A fluidic numeric display device which receives a digitally coded output from a fluidic circuit such as a counter and displays its numerical equivalent. A rotatable numbered cylinder is coded by means of a plurality of slots to provide a coded fluidic output which is indicative of the numeral appearing in an indexing window adjacent the cylinder. The initially rotating cylinder is stopped when the coded output therefrom is identical with the coded signal. Furthermore, a desired number can be indicated to a fluidic circuit by manually rotating the numbered cylinder to the desired number. The device will translate the setting into a fluidic code.

3,561,677

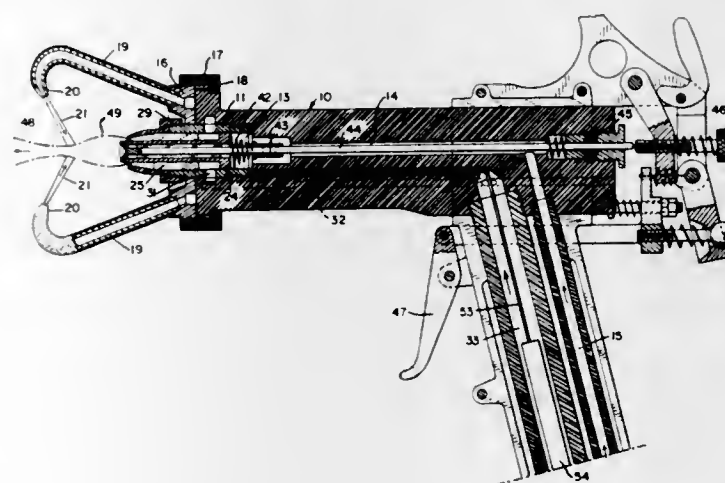
ELECTROSTATIC AIR-LIQUID ATOMIZING NOZZLE FOR PAINTS AND THE LIKE

Edward O. Norris, Westport, Conn., and Hereward Wake, Executor of the estate of Edward O. Norris, deceased, assignors to The Gyromat Corporation, Stratford, Conn., a corporation of Connecticut

Continuation-in-part of application Ser. No. 340,466, Jan. 27, 1964, now Patent No. 3,344,992. This application July 7, 1967, Ser. No. 651,902
Int. Cl. E01b 5/00

U.S. Cl. 239—15

8 Claims



The invention is directed to air-liquid atomizing nozzles, particularly for electrostatic paint spray systems. The nozzle of the invention is characterized by having an annular liquid discharge opening closely surrounded by an annular air

discharge opening. The arrangement of the air discharge opening is such that the air, while being discharged in a generally cylindrical flow, is caused and permitted immediately to contract in diameter in front of the nozzle, and thereafter to gradually expand in diameter to form a desired paint spray pattern.

3,561,678

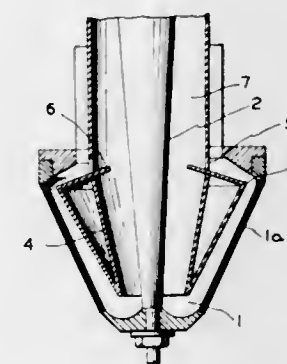
CENTRIFUGE FOR SPRAYING LIQUID MATERIAL TO BE PRILLED

Isak Andreas Friestad, Flattenlia, Norway, assignor to Norsk Hydro-Elektrisk Kvaelfstafabrik, Oslo, Norway
Filed Oct. 14, 1968, Ser. No. 767,415

Claims priority, application Norway, Oct. 25, 1967, 170,270
Int. Cl. B05b 3/02

U.S. Cl. 239—222

8 Claims



Centrifuge for use in spraying liquid material intended to be converted into so-called prills. The centrifuge comprises a centrifuge container having a perforated wall, a displacement body arranged in said container and means for rotating the container. Liquid material to be sprayed is supplied through a pipe, either to the annular space between the displacement body and the perforated wall of the centrifuge container, or to the inner space of a hollow displacement body having orifices through which the liquid material can flow out in the space between the body and the perforated wall of the centrifuge container.

The displacement body may be mounted axially moveable and/or rotatable independently of the centrifuge container.

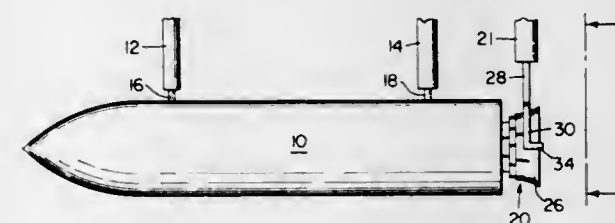
3,561,679

COLLAPSIBLE NOZZLE FOR AIRCRAFT ROCKET MOTORS

Sam E. Lager, 385 La Cumbre Road, Somis, Calif. 93066
Filed June 25, 1968, Ser. No. 740,836

Int. Cl. B63h 1/100; B64d 33/04
U.S. Cl. 239—265.11

4 Claims



A nozzle for rocket motors formed of collapsible telescoping tubes which are extended upon launch to a predetermined nozzle length whereby the advantage of reduced space during shipping and stowage may be combined with the advantage of extended nozzle length during operation.

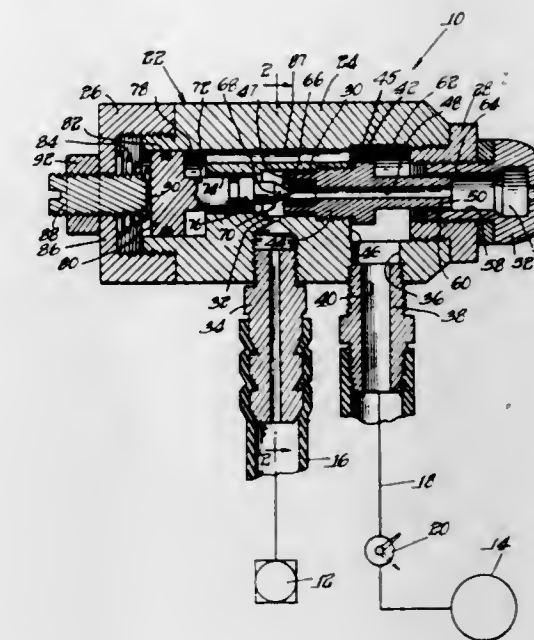
3,561,680

SPRAY HEAD ASSEMBLY

Richard J. Ott, Baroda, Mich., assignor to Respond Inc., Baroda, Mich., a corporation of Michigan
Filed Sept. 16, 1968, Ser. No. 759,917
Int. Cl. B05b 7/12

U.S. Cl. 239—411

6 Claims



There is disclosed a spray head assembly for dispensing a liquid spray with air under pressure. An internal valve in the spray head closes for positively preventing dripping of the liquid when the air under pressure is stopped and a piston is provided and is responsive to the development of a back pressure within the spray head for opening the valve during a spraying operation.

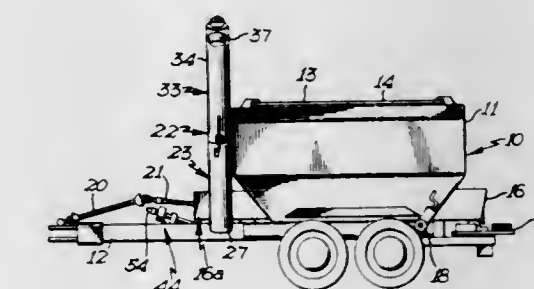
3,561,681

SPREADER APPARATUS WITH AUXILIARY CONVEYOR MEANS

Loren E. Tyler, Wayzata, Minn., assignor to Letco, Inc., Long Lake, Minn., a corporation of Minnesota
Filed May 16, 1969, Ser. No. 825,237
Int. Cl. A01c 15/12; B60p 1/38, 1/40

U.S. Cl. 239—663

10 Claims



A trailer type spreader-hauler for fertilizer or other particulate material and including a hopper or tank for containing the material, a chain conveyor for moving material longitudinally of the hopper, a distributor apparatus at the rear of the hopper for spreading the material, and an auxiliary auger conveyor mounted adjacent the front end of the unit. The auxiliary conveyor includes a lower portion fixed with respect to the hopper and inclined with respect to the horizontal and a movable portion which in one position is in continuous alignment with the fixed portion but is pivotable through a vertical arc to a retracted or rest position wherein it extends back across the front of the hopper so that it does

not interfere with normal use of this apparatus as a spreader. Normal drive means for the apparatus when used as a spreader includes a power takeoff driven drive means for operating the distributor apparatus and a ground driven drive means for driving the longitudinal conveyor whereby it conveys material to the rear of the hopper. An auxiliary drive means including power takeoff driven drive means is operable to drive the auxiliary conveyor and to drive the longitudinal conveyor in a reverse direction whereby material is conveyed to the front end thereof and to the auxiliary conveyor.

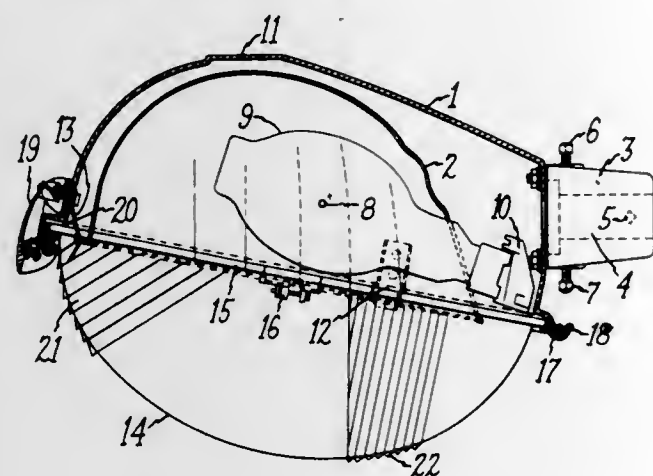
3,561,682 LUMINAIRE

Charles H. Rex, Marblehead, Mass., assignor to General Electric Company, a corporation of New York
Continuation of Ser. No. 626,906, May 27, 1966, which in turn is a division of Ser. No. 542,267, now Patent No. 3,283,140.

Int. Cl. F21s 1/10

U.S. Cl. 240—25

5 Claims

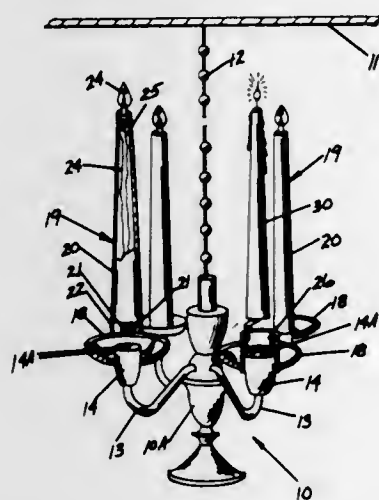


Luminaire for street lighting comprises an inverted bowl-shaped casing having a flat leveling pad formed on its top surface and having a slipfitter socket at its rear end arranged with its axis parallel to the plane of the leveling pad. The rim of the casing is at an acute angle to the leveling pad. Leveling screws on the slipfitter enable the luminaire casing to be tilted at the correct angle by adjusting the screws with reference to a spirit level placed on the leveling pad.

**3,561,683
CONVERTIBLE ELECTRIC CANDLELIGHT FIXTURE**
William B. Dragan, Burr ST., Fairfield, Conn. 06430
Filed July 26, 1968, Ser. No. 747,924
Int. Cl. F21v 35/00

U.S. Cl. 240—53

7 Claims



The disclosure is directed to a readily convertible electric candlelight fixture. The light fixture comprises a base or fix-

ture having connected thereto a female socket formed with at least a pair of spaced contact openings and electric light having complementary projecting electrical contact prongs adapted to be detachably received in the contact openings of the female socket. An adapter is provided to circumscribe the socket when the electric light is removed therefrom to provide a holder for receiving a candle and a protective cover for the contact openings to prohibit any candle drippings from entering the contact openings when candles are employed instead of the electric light.

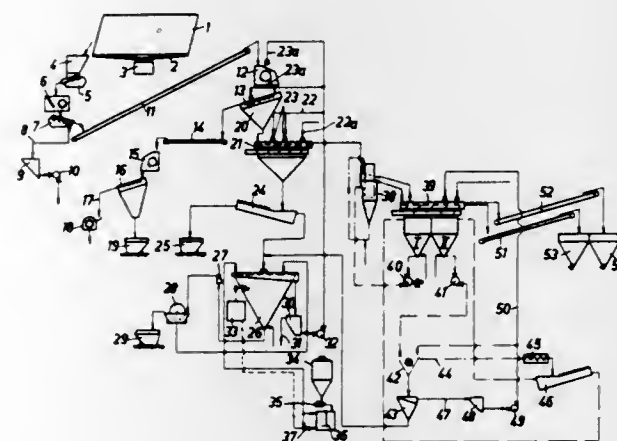
3,561,684 APPARATUS FOR SEGREGATING THE COMPONENTS OF ELECTRIC CELLS

Reinhard Fischer; Ludolf Frank, and Guenter Ebeling, Stolberg, Germany, assignors to Stolberger Zink Aktiengesellschaft fur Bergbau und Huttenbetrieb, a corporation of Germany

Original application May 25, 1966, Ser. No. 552,843, now Patent No. 3,493,183. Divided and this application July 10, 1968, Ser. No. 743,905
Int. Cl. B02c 21/00

U.S. Cl. 241—42

16 Claims



Components of electric cells of the type having a non-metallic housing, nonmetallic separators and metallic active material and grid plates are separated by means of an apparatus comprising a fragmentizer for fragmentizing the cells to obtain a mass of fragments, a primary separator for dividing the mass of fragments into a first fraction comprising the nonmetallic separators and a second fraction comprising at least the major part of the housings and the metallic fragments, and a secondary separator for segregating the second fraction by weight into metallic and nonmetallic fragment.

3,561,685 CENTER FED MILL WITH ARCUATE DISCHARGE SCREENS

Friedhelm R. Feder, North Plainfield, N.J., assignor to Wedco, Inc., Garwood, N.J., a corporation of New Jersey
Filed Jan. 31, 1968, Ser. No. 702,027
Int. Cl. B02c 13/13, 18/44

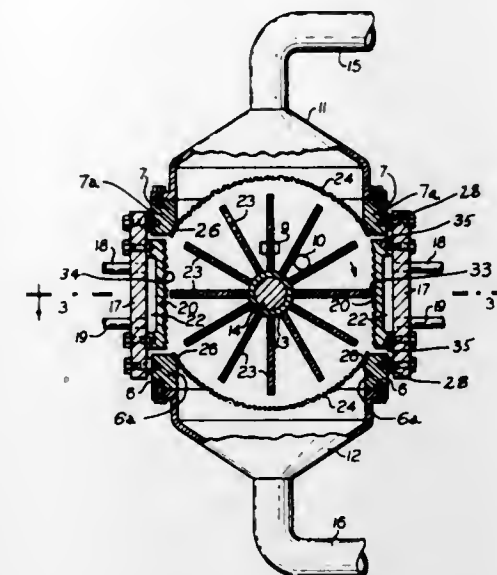
U.S. Cl. 241—55

7 Claims

Material, particularly thermoplastic material, for example polyethylene, is subjected to size reduction in a mill in which

it is projected by an impeller against one or more cutter plates closely spaced from the impeller. The working of the

formed by a channel extending across the face at generally right angles to the axis of the bit, said channel being symmetrical with reference to an opening for receiving the terminal



material is continued until it is reduced to the extent that it passes through a screen disposed in the mill housing.

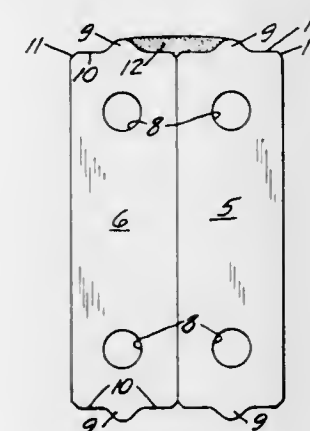
ERRATUM

For Class 241—186 see:
Patent No. 3,561,072

**3,561,686
HAMMERMILL HAMMERS**
Glenn D. Hedrick, 905 Orchard Ave., St. Paul, Minn. 55103
Filed June 25, 1968, Ser. No. 739,719
Int. Cl. B02c 13/28

U.S. Cl. 241—197

5 Claims



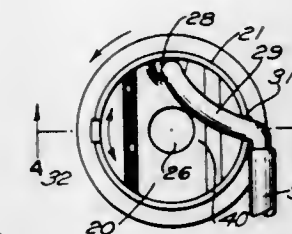
A hammermill hammer design to increase the life of the hammer due to the placement of more of the hard facing material on the working edge. The hammer has a steel body with end surfaces having a centrally raised portion on which surfaces hard facing material is applied to a depth at least equal to the height of the raised portion. The hammer corners are beveled to permit more facing material at the corners. Mounting pin holes are provided adjacent each end of the hammer such that it may be reversed when worn.

**3,561,687
CONDUCTOR WRAPPING BIT**
Adolph G. Bergmann, Barrington, R.I., assignor to Ostby & Barton Co., a corporation of Rhode Island
Filed Feb. 23, 1968, Ser. No. 707,646
Int. Cl. H01r 43/00

U.S. Cl. 242—7.17

3 Claims

A bit for wrapping a conductor around a terminal in successive convolutions in which the end face of the bit is



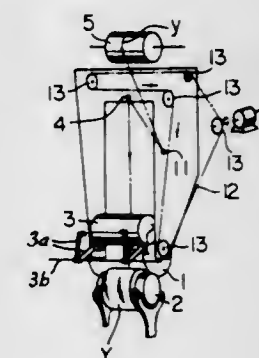
about which the conductor is wound with the sides of the channel providing the camming surfaces for urging the conductor against the terminal and axially along the terminal.

3,561,688 YARN TRANSFER METHOD IN THE WINDUP OPERATION

Shingo Hagihara; Akio Ando; Akemi Higashimoto, and Katsumi Hasegawa, Shiga-ken, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Chuo-ku, Tokyo, Japan
Continuation-in-part of application Ser. No. 427,739, Jan. 25, 1965. This application May 24, 1968, Ser. No. 740,804
Int. Cl. B65h 54/02

U.S. Cl. 242—18

10 Claims



A method and apparatus for continuously winding yarn on a succession of bobbins. The apparatus has a travelling yarn guide mounted on a flexible member such as a chain or belt extending in a loop. The flexible member is driven in one or the other directions around the path of the loop. This crosses the path of the yarn coming from a yarn source and extending to a transversing guide for guiding yarn back and forth across the bobbin. The path of the flexible member also crosses the adjacent ends of the bobbin which have yarn catching means thereon. As the travelling guide moves along the path of the flexible member, it picks up the yarn and moves it so that it moves past the end of an empty bobbin and when the bobbin rotates, it picks up the thus moved yarn.

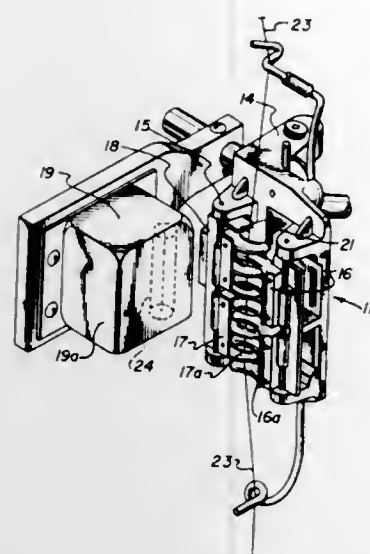
**3,561,689
THREAD BREAK DETECTOR**
Bert B. Morgan, Black Mountain, N.C., assignor to Northrop Carolina, Inc., Swannanoa, N.C., a corporation of North Carolina
Filed May 19, 1969, Ser. No. 825,632
Int. Cl. B65h 63/02

U.S. Cl. 242—37

7 Claims

Thread being wound is passed through a tensioning device which includes a fixed member and a movable member which is urged towards the fixed member to tension the thread therebetween. A permanent magnet is attached to the movable member. A reed switch is positioned so that it is actuated when the magnet moves to within a predetermined distance therefrom, this proximate actuation position being attained when the thread breaks and the movable member

moves in response to the tensioning force applied thereto. The switch operates to actuate a suitable control device formed in the tape between the other two. Power is supplied to the drive wheel by a gear head motor which is automatically controlled by a mercury switch connected in series



which may operate a warning indicator and/or stop the thread-winding operation.

3,561,690

PLASTICALLY DEFORMABLE DAMPING MEMBER FOR MOTOR VEHICLE SAFETY BELTS

Kurt Muskat, Hamburg, Germany, assignor to Klippen GmbH, Hamburg-Garstedt, Germany

Filed Dec. 13, 1968, Ser. No. 783,690

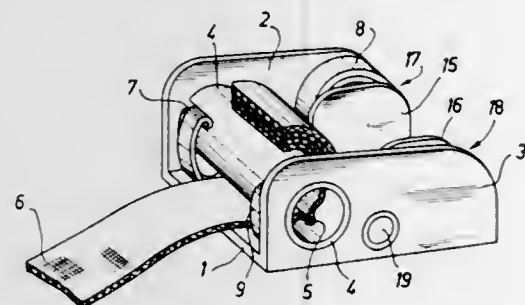
Claims priority, application Germany, Dec. 15, 1967,

P 15 31 524.9

Int. Cl. B65h 75/00, 59/00

U.S. Cl. 242-54

14 Claims



An energy absorbing device for motor vehicle safety belts comprises a plastically deformable damping member. The damping member is in the form of at least one coil of metal tape one end of which is secured to a rotatable shaft about which a length of belt is wound. The fixed reaction member is so located relative to the coil and shaft that the withdrawal of the length of belt from the shaft as the result of a collision causes the shaft to rotate and the fixed reaction member to deform the tape as it is drawn past the reaction member from the coil and is wound onto the rotatable shaft.

3,561,691

TAPE UNWINDING MEANS

William A. Nichols, 5617 Hawthorne, and Ralph E. Simpson, Montclair, Calif. (604 E. Arrows Hwy., Upland, Calif. 91786)

Filed Sept. 6, 1968, Ser. No. 758,012

Int. Cl. B65h 75/02

U.S. Cl. 242-55

10 Claims

A device for automatically unwinding paper tape from a roll and feeding it, under gentle tension, to the output tape punch of a tape justifying computer. The device has a drive wheel, for tractively propelling the tape, and three rollers, one of which is mounted on a pivot arm and rides in a loop

therewith and mounted on the above-mentioned pivot arm. As the tape slackens, the pivot arm moves downwardly and causes the mercury switch to turn off the motor.

3,561,692

WEB ROLL CRADLE FOR LOOSELY WOUND MATERIAL

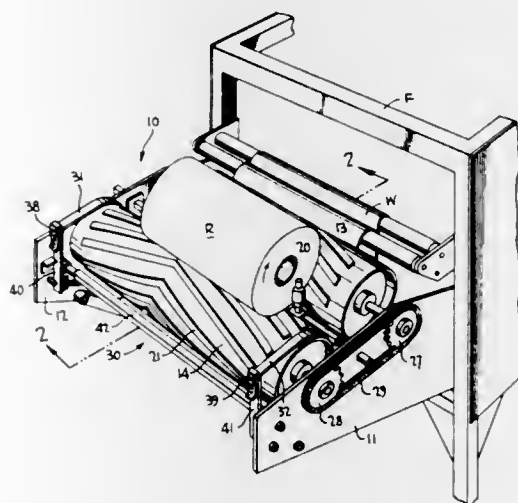
Nelson R. Henry, Decatur, Ga., assignor to The Woodman Company, Inc., Decatur, Ga., a corporation of Georgia

Filed Feb. 19, 1969, Ser. No. 800,687

Int. Cl. B65h 75/02

U.S. Cl. 242-55

19 Claims



A cradle for supporting a web roll of material during an unwinding operation is provided wherein the outer turn of the web is maintained in a tight condition on the roll by rotation of the rear support roller at a differential speed slower than the forward roller. A control system is provided wherein flexible brake bands are adapted to engage the periphery of the rear roller and move in the direction opposite to the rotation of said roller in response to a dancer arm to brake the roll upon decrease in demand; said brake bands being driven in the direction of rotation of the roll upon restart of the unwinding operation or increase in demand to overcome the inertia of the roll. An improved roll centering system is provided wherein individual adjustment of the side guides as well as adjustment in unison for positioning the roll along the centerline of the cradle can be effected.

3,561,693

YARDAGE APPARATUS

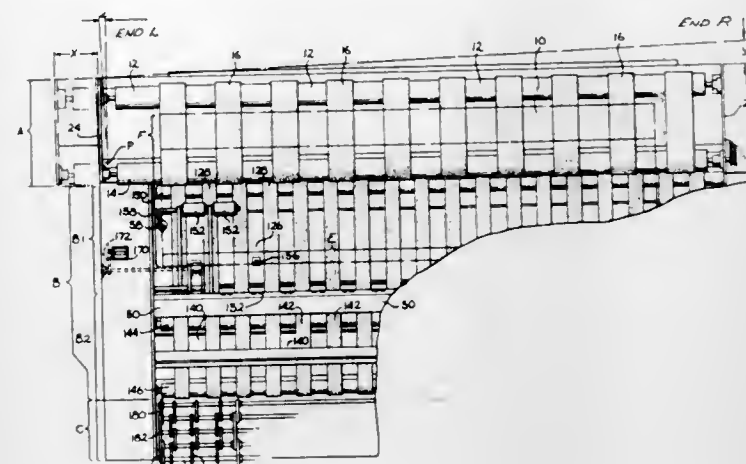
John R. Ulyate, Torrance, Calif., assignor to Scorpion, Inc., Los Angeles, Calif., a corporation of California, by mesne assignments

Filed Feb. 3, 1969, Ser. No. 796,036

Int. Cl. B65h 25/10, 25/26

U.S. Cl. 242-57.1

13 Claims



A yardage apparatus having a laterally movable and pivotable receptacle for supporting and unwinding a source roll of sheet material; a feed table having photoelectric means for laterally aligning the material to keep the edges continuously even to eliminate "coning" on the generation of a new roll; a control system for pivoting the receptacle to compensate for any skewness in the position of the source roll; and, a reroll mechanism. Both the receptacle and the reroll mechanism are capable of dumping their respective rolls when desired without manual handling.

3,561,694

STRAND HANDLING APPARATUS

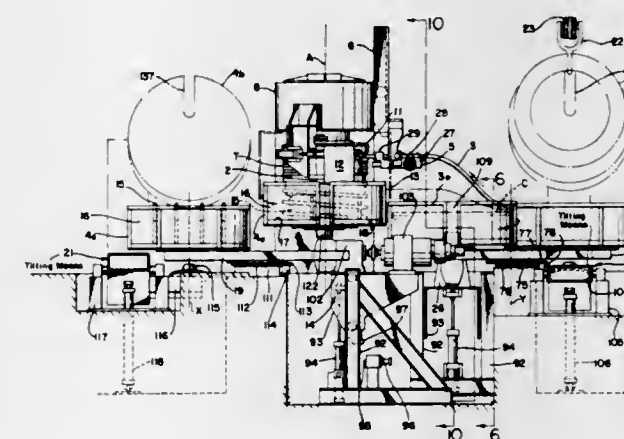
James W. Schuetz, Pittsburgh, Pa., assignor to Blaw-Knox Company, Pittsburgh, Pa., a corporation of Delaware

Filed Oct. 22, 1968, Ser. No. 769,690

Int. Cl. B21c 47/00

U.S. Cl. 242-83

7 Claims



Apparatus for drawing strands such as tubing, rod or wire, in which the strand is drawn from a source such as a coil through a die onto a capstan or drum rotatable about a generally vertical axis and having a free lower end, on which capstan turns of strand are wound and over the free end of which the turns drop onto a receiving tray that rotates at essentially the same speed as the capstan and forms the dropped turns into a coil. The tray has inner and outer up-standing guard means that define between them a generally annular channel in which the coil is formed. The tray in receiving position is located at the free end of the capstan so its inner guard means is in close proximity to and under the free end of the capstan and its outer guard means is radially spaced outwardly from the capstan and cooperates with guard means surrounding the capstan and independent of the

tray to provide a protected generally annular zone through which the strand drops into the channel of the tray. After the coil is formed, the tray may be lowered to clear the capstan and moved laterally to a position where coil can be removed.

3,561,695

ELECTRIC FLY REEL

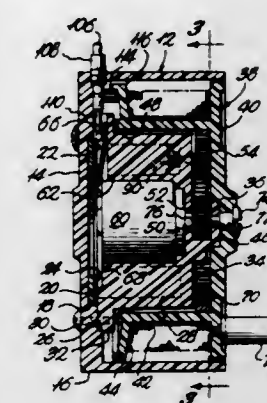
Garfield A. Wood, Jr., 4565 Sabal Palm Road, Miami, Fla.

Filed Dec. 8, 1967, Ser. No. 689,174

Int. Cl. A01k 89/00

U.S. Cl. 242-84.1

3 Claims



An electric fly reel having a handle for rotating the spool in a conventional manner to reel in a fish and a miniature electric motor for rotating the spool with sufficient torque to reel in slack in the line. The motor is powered by a plurality of small pen cell batteries mounted on the reel.

3,561,696

SLEEVE FOR TREATMENT OF TEXTILE THREADS AND YARNS

Gerhard Herbert Hahn, Aachen, Germany, assignor to Messrs Jos Zimmermann, a partnership

Filed June 10, 1969, Ser. No. 831,934

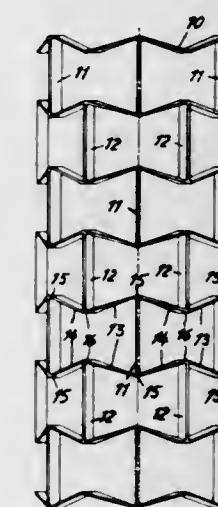
Claims priority, application Germany, June 15, 1968,

P 17 60 652.9

Int. Cl. B65h 75/20, 75/24

U.S. Cl. 242-118.11

5 Claims



A textile treatment sleeve has a shell, which may be cylindrical or conical. The shell has peripherally extending rings which are spaced-apart and which are axially yielding. The rings are connected by spaced-apart webs which are rigid and extend longitudinally. Axially consecutive webs are laterally offset relatively to one another.

3,561,697

SLEEVE FOR TREATMENT OF TEXTILE THREADS AND YARNS

Josef Egyptian, Aachen, Germany, assignor to Messrs Jos Zimmerman, a partnership

Filed June 10, 1969, Ser. No. 831,955

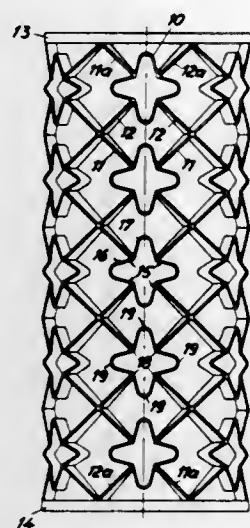
Claims priority, application Germany, June 15, 1968,

P 17 60 651.8

Int. Cl. B65h 75/20, 75/24

U.S. Cl. 242-118.11

8 Claims



A textile treatment sleeve has a shell, which may be cylindrical or conical. The shell has uniformly distributed elements yielding in two diagonal directions and is thereby capable of shortening axially and radially. The shell also has rigid diagonal webs connecting the uniformly distributed yielding elements.

3,561,698

YARN-SUPPORTING BODY MEMBER

Francesco Steffenini, Via Pizzi 28, Milan, Italy

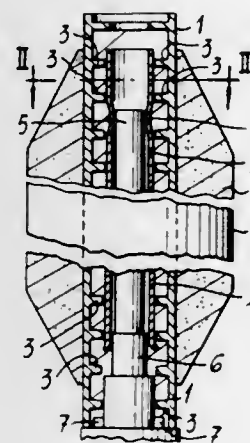
Filed May 7, 1968, Ser. No. 727,259

Claims priority, application Italy, May 12, 1967, 16026A/67

Int. Cl. B65h 75/10, 75/30

U.S. Cl. 242-118.31

8 Claims



Yarn-supporting body member comprising an external wall and an internal hub. The external wall is carried by the hub through ribs or the like projecting from said wall, or from said hub, or a material filling the gap between the wall and hub. The deformations as induced by the yarn wound up on the external wall will transmit a stress to the hub, without deforming the latter.

3,561,699

DUAL HUB ASSEMBLY FOR REELS

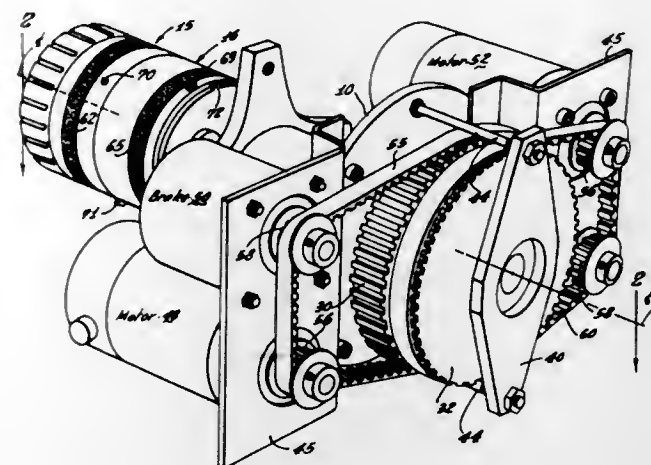
Peter L. Garrett, Malibu, and Donald C. Houk, Simi, Calif., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed Nov. 27, 1968, Ser. No. 779,351

Int. Cl. G03b 1/04; G11b 15/32; B65h 75/18

U.S. Cl. 242-193

24 Claims



An assembly for mounting in an opening in a panel to drive two reels reversibly for driving a magnetic recording tape reversibly comprises: a spool-shaped housing attachable to the rear of the panel; two coaxial shafts extending through the housing and the opening in the panel; two coaxial hubs on the front ends of the two shafts, respectively; outer circumferential elastomeric rings on the two hubs respectively; screw means incorporated in the two hubs, respectively, to compress the corresponding elastomeric rings for radial bulging of the rings into binding engagement with the two corresponding reels; two motors on the rear end of the housing to drive the two coaxial shafts respectively; two electrically actuated brakes adapted when deenergized to retard the two coaxial shafts respectively; and two oppositely oriented one-way clutches connecting the two brakes to the respective shafts so that when the power supply fails with resultant deenergization of the two motors and the two brakes, the brake for whichever reel is functioning as a supply reel retards the supply reel with the other take-up reel freewheeling.

3,561,700

TAPE APPARATUS INCLUDING TAPE SPEED SENSING DEVICE

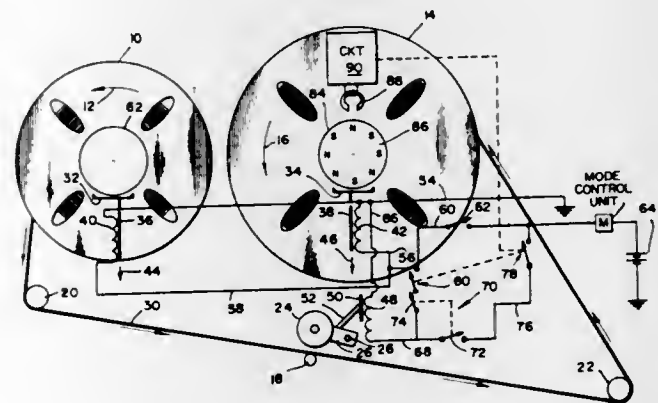
George Adams, and John Hawkins, New York, N.Y., assignors to United Research Laboratory, New York, N.Y., a corporation of New York

Filed May 12, 1969, Ser. No. 823,922

Int. Cl. B11b 15/32; G03b 1/04; G11b 15/60

U.S. Cl. 242-206

9 Claims



A magnetic wheel having a plurality of north and south poles arranged on the shaft of a take-up reel of a tape apparatus in which tape is fed to the take-up reel via a capstan

from a supply reel. The tape is urged against the capstan by a pinch roller and the magnetic wheel is employed to generate a signal which is employed to disengage the pinch roller under certain circumstances in which the tape might otherwise break.

3,561,701

VERTICAL TAKEOFF AND LANDING AIRCRAFT

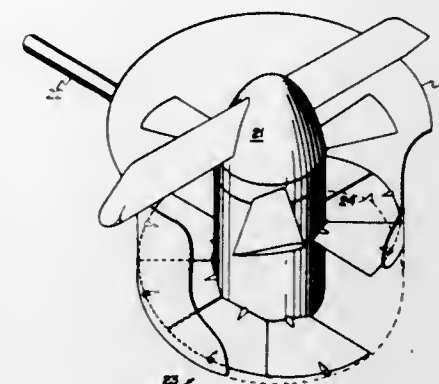
Wilbert A. Kalk, 416 S. Susana Ave., Redondo Beach, Calif.

Filed Mar. 5, 1969, Ser. No. 804,391

Int. Cl. B64c 29/00

U.S. Cl. 244-12

2 Claims



A vertical takeoff and landing aircraft which consists of a high wing monoplane having the wing mounted on top of the fuselage cabin section with first and second fan wells in the top of the wing in which are mounted first and second fans, respectively; first and second ducts disposed beneath the first and second fans and communicating with exhaust ports below the bottom of the wing; the ducts being formed by a plurality of pie-shaped segments which are rotatably mounted on a radial axis in the fan well for being rotated to a vertical position which will create straight cylindrical ducts and allow the fans to propel the vertical takeoff and landing aircraft in a vertical direction and when closed, form helical ducts for exhausting in a rearward direction under the wing for a forward propulsion of the vertical takeoff and landing aircraft.

3,561,702

SWEPT WING VARIABLE PITCH SAILPLANE

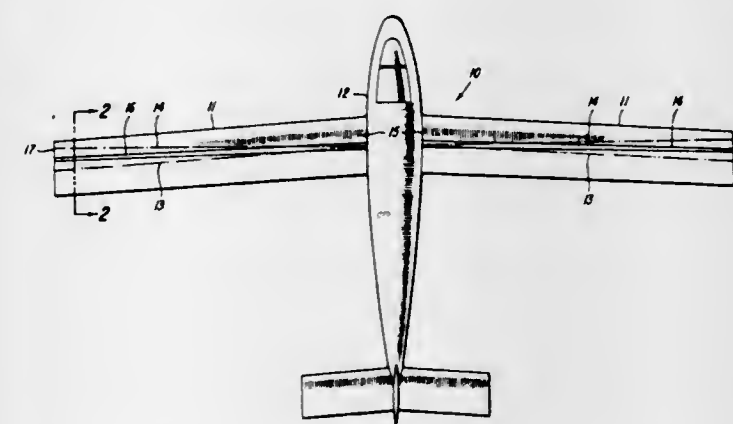
Edward B. Jones, General Delivery, Perryman, Md. 21130

Filed Nov. 1, 1968, Ser. No. 772,548

Int. Cl. B64c 31/02

U.S. Cl. 244-16

6 Claims



A sailplane is provided in which the line-of-lift of the wing is swept back from the longitudinal elastic axis to give an automatic wing twist with change of lifting force. In operation, a reduction in the angle of incidence from an updraught wind results in a trade of lift for greater forward thrust. An increase in angle of incidence from a downdraught wind results in a trade of forward momentum for greater lift. This is most effective under turbulent air conditions.

3,561,703

CANOPY BREAKING BY SHAPED CHARGE

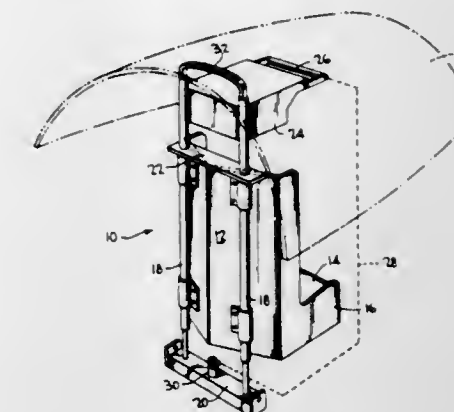
Fred B. Stencel, Asheville, N.C., assignor to Stencel Aero Engineering Corporation, Arden, N.C., a corporation of North Carolina

Filed July 7, 1969, Ser. No. 839,195

Int. Cl. B64d 25/10

U.S. Cl. 244-122

9 Claims



A device for breaking the canopy overlying an aircraft ejection seat prior to the time that the seat contacts the canopy. An explosive shaped charge is provided for directly blasting an opening in the canopy and detonating means are provided for exploding the charge. Movable means, advantageously in the form of canopy breaker means are provided for movement toward the underside of the canopy as a seat ejection operation is initiated and the detonating means explodes the charge at substantially the same time as the canopy breaker means contacts the underside of the canopy. As the charge blasts an opening in the canopy, the breaker means continues moving through the canopy to enlarge the opening, if necessary.

3,561,704

ARRANGEMENT OF THE OPENINGS TO LOADING COMPARTMENTS IN VERTICAL TAKEOFF AND LANDING AIR VEHICLES

Carsten Schulze, Renton, Wash. Vereinigte Flugtechnische Werke Gesellschaft mit beschränkter Haftung fruher Weser Flugzeugbau Focke-Wulf Heinkel Flugzeugbau, Bremen, Germany

Filed July 10, 1968, Ser. No. 743,727

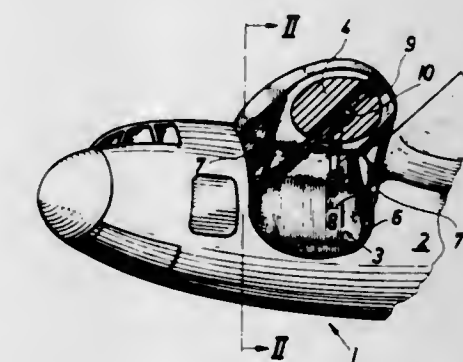
Claims priority, application Germany, July 14, 1967,

P 1,531,467

Int. Cl. B64c 1/14; B64d 29/00

U.S. Cl. 244-137

1 Claim



An airplane adapted to vertical take off and landing which includes a fuselage comprising cargo chamber means having opening means for loading cargo into and unloading cargo from said cargo chamber means, and means pivotally connected to said fuselage, said last mentioned means comprising lifting means and simultaneously forming closing hatch means for selectively opening and closing said opening means.

3,561,705

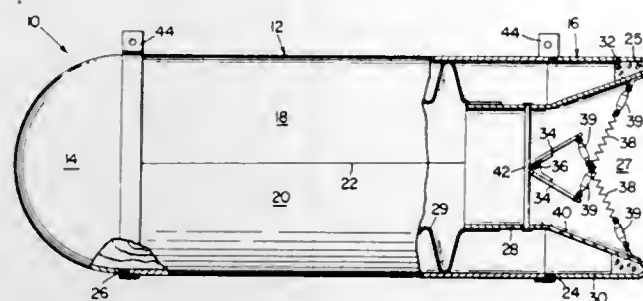
SELF-INFLATING TARGET DEPLOYMENT CONTAINER
Raymond S. Daughenbaugh, 860 S. LaLuna, Ojai, Calif. 93023

Filed Feb. 24, 1969, Ser. No. 801,594

Int. Cl. B64d 1/02

U.S. Cl. 244-138

6 Claims



A container for deploying a self-inflating target from an aircraft comprising an elongate tubular casing for the target, a nose cap and a weighted tail portion which also serves as an air scoop. Upon release from the aircraft the weighted tail portion orients the container vertically. A valve positioned in the air scoop controls the amount of air entering the target to prevent target ejection and inflation until the falling container and target have decelerated to a safe opening speed.

3,561,706

PARACHUTE RELEASE CONTROL HANDLE

James Martin, Southlands Manor, Southlands Road, Denham near Uxbridge, Middlesex, England

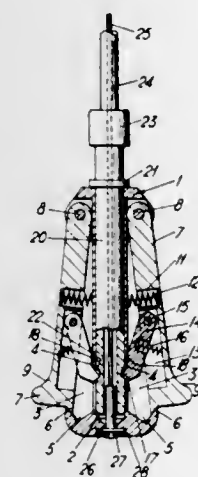
Filed June 4, 1969, Ser. No. 830,292

Claims priority, application Great Britain, June 6, 1968, 27,064/68

Int. Cl. B64d 17/52

U.S. Cl. 244-149

6 Claims



A releasable locking mechanism particularly suitable for a parachute ripcord comprising first and second inter-telescoped parts adapted respectively to be coupled to the inner and outer of a control cable, the two parts normally being locked against relative movement by a detent which, when released by a lever, permits movement between the two parts and thus movement between the inner and outer of the cable.

3,561,707

THRUST MOUNT

William J. Strock, Hartford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed June 24, 1969, Ser. No. 836,005

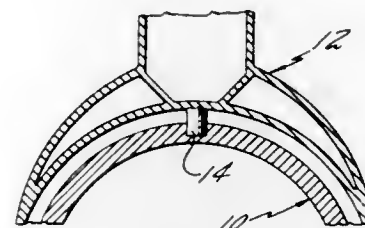
Int. Cl. B64c 1/14; B64d 27/16

U.S. Cl. 248-5

6 Claims

A thrust mount construction for transmitting thrust

developed in an engine to an airframe structural member. A thrust boss on the engine cooperates with a thrust bracket



and transmits the thrust thereto. The thrust bracket in turn transmits the thrust to the airframe structural member.

3,561,708

MULTIPURPOSE CABLE CLAMP

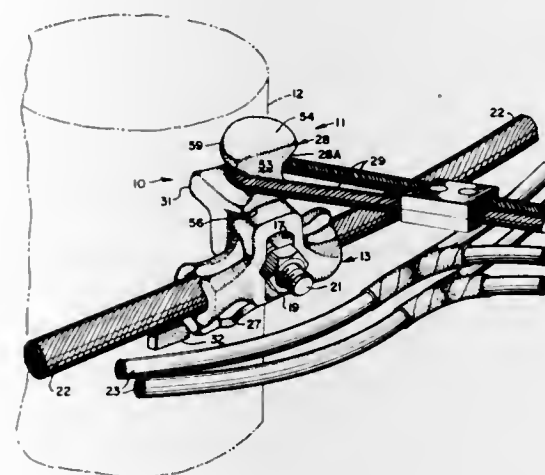
George A. Dubey, Branford, and Edwin C. Taylor, New Haven, Conn., assignors to MIF Industries, Inc., Branford, Conn.

Filed Feb. 18, 1969, Ser. No. 800,187

Int. Cl. F16l 3/06

U.S. Cl. 248-63

7 Claims



A multipurpose pole line clamp for clamping utility cables and for supporting service drops. The clamp comprises a bearing member and a clamp member. The bearing member is provided with a tapped hole engaging a throughbolt extending through the utility pole. The clamp member is provided with an enlarged through hole to facilitate clamping it on the throughbolt with ease of assembly. Facing surfaces of the bearing and clamp members cooperate to anchor a messenger cable. The bearing member includes a saddle-horn-shaped stanchion for transferring to the pole the tensile load of a secondary messenger cable supporting the service drop line.

3,561,709

SUPPORT ARRANGEMENT FOR METALLURGICAL VESSEL

Friedrich W. Bornscheuer, Stuttgart, Germany, assignor to Demag Aktiengesellschaft, Duisburg, Germany

Filed July 2, 1968, Ser. No. 741,954

Claims priority, application Germany, July 13, 1967, 1,583,234

Int. Cl. A47f 5/12

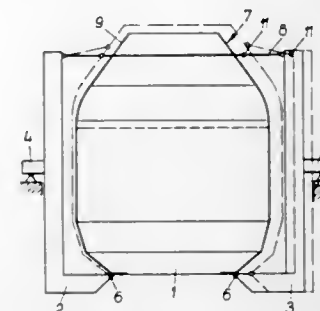
U.S. Cl. 248-141

11 Claims

A support arrangement for a metallurgical vessel tiltable about a pair of coaxial trunnions rotatable in bearings on a frame, one bearing being fixed and the other displaceable, includes a pair of upright supports each carrying a respective trunnion, with the supports interconnected the bottom and the open top of the vessel independently of each other.

Respective connecting elements interconnect the upper end of each support to the top of the vessel, and the supports are

extending sockets. Outriggers having shanks telescoped within the sockets extend outwardly from the uprights and receive vertically extending leg members telescoped in



3,561,710

RECEPTACLE SUPPORT AND CLOSURE OPERATOR

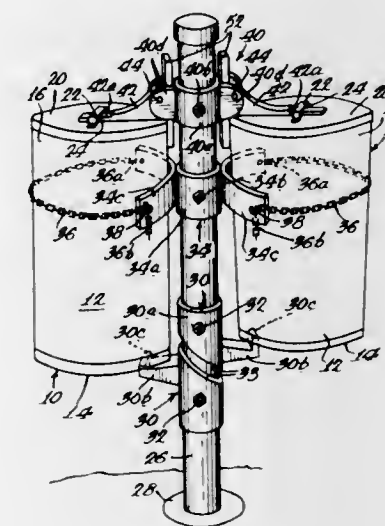
Ralph J. Cummings, 1904 S. Cicero Ave., Cicero, Ill. 60656 and Paul Miller, ON468 Willow Road, Wheaton, Ill. 60187

Filed Apr. 10, 1969, Ser. No. 814,904

Int. Cl. B65f 1/16

U.S. Cl. 248-147

1 Claim



An adjustable stand assembly for use with refuse containers or the like having various diameters or lateral dimensions and having an upper end, a lower end and a cover removably secured on the upper end. The stand assembly includes an upright support structure having vertically adjustable support means on which the lower end of the container rests. The support structure has a concave portion spaced upwardly from said support means and facing outwardly for accommodating a container having a circular cylindrical sidewall. An elongated flexible member is fixed at one end to one side of the concave portion, embraces the container sidewall and holds the container against the concave portion. The opposite end of the flexible member is detachably secured to the other side of the concave portion in such a manner as to vary the length of the flexible member for different size containers. An arm member is pivotally mounted on the upright support structure above the upper end of the container for providing a cover-retaining means pivotally movable about a horizontal axis. A locking means releasably and automatically locks the arm in a horizontal position with the cover secured on the upper end of the container.

3,561,711

PORTABLE TOWER

Dwight V. Dodge, 1817 McAlister, Topeka, Kans. 66604

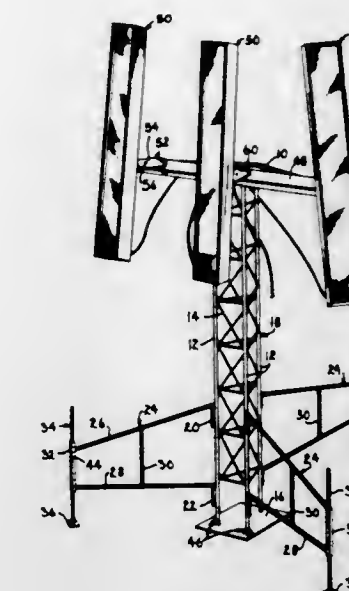
Filed July 2, 1969, Ser. No. 838,404

Int. Cl. F16m 1/12

U.S. Cl. 248-163

8 Claims

A portable tower having interconnected uprights, each being provided with transversely square, tubular, vertically



3,561,712

ADJUSTABLE SUPPORT DEVICE

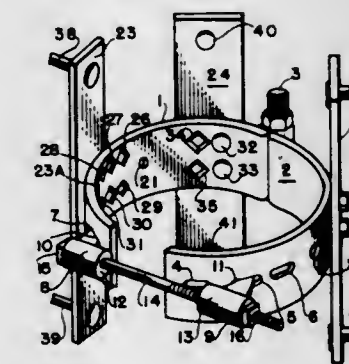
Joe B. Newsome, East Point, Ga., assignor to Southern States, Inc., a corporation of Georgia

Filed Jan. 24, 1969, Ser. No. 793,829

Int. Cl. F16m 13/00; E04h 12/00

U.S. Cl. 248-221

2 Claims



An adjustable support device for mounting on poles of different sizes is disclosed and comprises a pair of hingedly connected arcuate clamping elements which are of generally semicircular configuration arranged to envelop a pole and the ends thereof remote from the hinged connection therebetween are interconnected by a pair of gripping hooks which cooperate with gripping apertures formed in the ends of the clamping elements. The gripping hooks are adjustable relative to each other by means of a threaded connector. A plurality of mounting brackets are disposed about the periphery of the support device and are adjustable in a peripheral direction relative to the support device, the mounting brackets being particularly well adapted for supporting electric apparatus such as disconnect switches and the like. Apertures are provided in the clamping elements into which spikes or lugs are inserted for securing the clamping element positively to the associated pole.

3,561,713

ANGULARLY ADJUSTABLE SHELF BRACKET

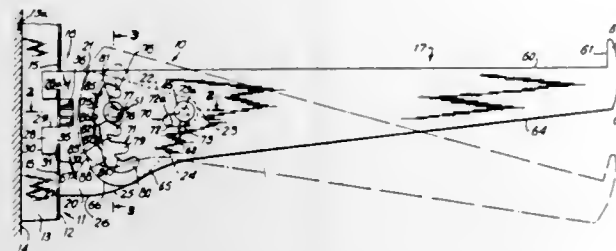
Irving L. Berkowitz, Binghamton, N.Y., assignor to Kason Hardware Corporation, Binghamton, N.Y., a corporation of New York

Filed Jan. 15, 1969, Ser. No. 791,341

Int. Cl. A47g 29/02

U.S. Cl. 248—242

15 Claims



This bracket is adjustable to various angles above and below horizontal, in equal increments. Double movement is required for adjustment. This is a safety feature for preventing accidental movement of the bracket when used in support of shelving. There are no removable pins, and loosening of screws is not required for adjustment of the angle of the bracket. One person can make the adjustment. The ratchet design of the adjustable bracket provides secure locking thereof. No right and left hand brackets are required.

3,561,714

BRACKET ASSEMBLY AND SUPPORT SYSTEM

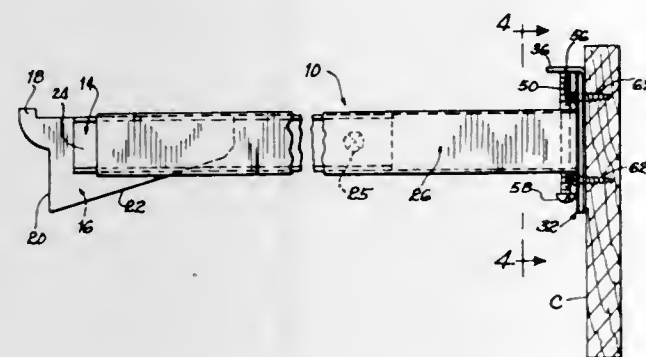
Edward F. Zurawski, Niles, and Richard R. Ruhnke, Skokie, Ill., assignors to Garco Corporation, a corporation of Illinois

Filed Feb. 28, 1969, Ser. No. 803,314

Int. Cl. A47g 29/02

U.S. Cl. 248—243

7 Claims



A bracket assembly for a support system utilizing a plurality of such bracket assemblies, the bracket assembly being adapted to be supported by a wall support and to project therefrom and being adjustably securable to a cornice, the bracket assembly including a member slideably movable on the free end thereof, and having cornice connector means and an adjustable member engaging the slideable member for raising and lowering the slideable member with respect to the free end.

3,561,715

SHELF CONSTRUCTION FOR RACKS

Herbert Klein, Arlington Heights, Ill., assignor to Unarco Industries Inc., a corporation of Illinois

Filed Apr. 21, 1969, Ser. No. 817,642

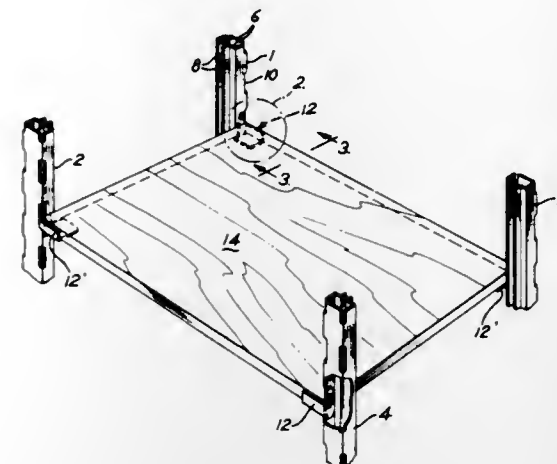
Int. Cl. A47b 57/24

U.S. Cl. 248—243

5 Claims

A removable shelf-mounting clip, for supporting sheets of shelving material on upright posts of a storage rack, is provided as an integral unit shaped to define a post-entering finger and two flanges at right angles to each other. The flanges serve dual purposes of engaging the post to stabilize the clip and to support and maintain a shelf on the clip. The finger and two flanges lie in three planes each of which is perpendicular to the other two planes. One flange has a post-

engaging edge which is spaced from the plane of the finger by an amount substantially equal to the thickness of the



3,561,716

PERCUSSION INSTRUMENT SUPPORT

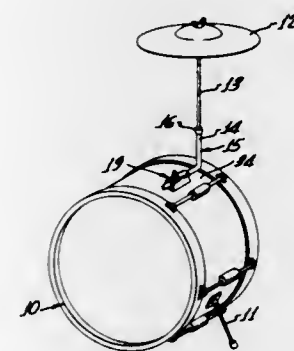
Josephus B. Thompson, deceased, late of Covington, Ohio, by K. E. Stade, Administrator, Covington, Ohio, assignor to Columbia Broadcasting System, Inc., a corporation of New York

Filed Oct. 9, 1968, Ser. No. 766,047

Int. Cl. A47f 5/00

U.S. Cl. 248—286

6 Claims



An adjustable support for cymbals and other small percussion devices (traps), wherein a lug has provided therein means to define elongated parallel rails having relatively sharp edges. Mounted in the lug, and adjacent such rails, is a generally cylindrical shaft in which is formed a large number of longitudinal grooves adapted to receive the rail edges. A setscrew is provided to force the shaft against the rails, so that the rail edges seat in the grooves and lock the shaft against rotation whereby to prevent undesired movement of the cymbal (or other percussion device) which is connected to the shaft.

3,561,717

CONNECT-DISCONNECT FIXTURE

Thomas M. Frederick, Palos Verdes, and Leslie W. Baxter, Palmdale, Calif., assignors to Northrop Corporation, Beverly Hills, Calif., a corporation of California

Filed May 1, 1969, Ser. No. 820,954

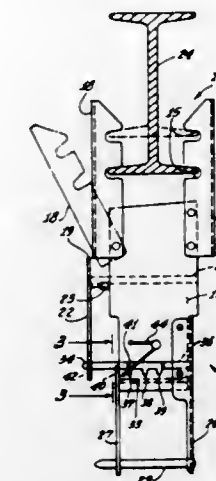
Int. Cl. B66d 3/00

U.S. Cl. 248—317

6 Claims

A transportation and hanger assembly including means enabling the assembly to be releasably secured to overhead structure while retaining relative large components thereon

in a releasable, suspended and locked relation and incorporating means precluding the possibility of electrolytic ac-



tion between components carried by the fixture and overhead structure to which the fixture is attached.

3,561,718

HANGER FOR ADVERTISING DISPLAYS

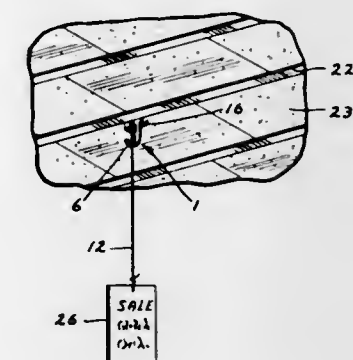
Peter B. Iverson, Excelsior, Minn., assignor to Postmark Corporation, Minneapolis, Minn., a corporation of Minnesota

Filed Jan. 31, 1969, Ser. No. 795,612

Int. Cl. A47f 7/00

U.S. Cl. 248—340

1 Claim



An advertising display hanger having a deformable and flexible hooked end which will collapse inwardly as it is forced into a tubular mounting pole in frictional engagement therewith, the removable mounting pole being used to install the hanger on a ceiling frame member by means of a laterally extending flange on the hanger. Alternatively, the hooked end may be secured over a support member such as a fluorescent light bulb; in either case an aperture in the hanger receives a string from which a display may be suspended.

3,561,719

LIGHT FIXTURE SUPPORT

James L. Grindle, Hendersonville, N.C., assignor to General Electric Company, a corporation of New York

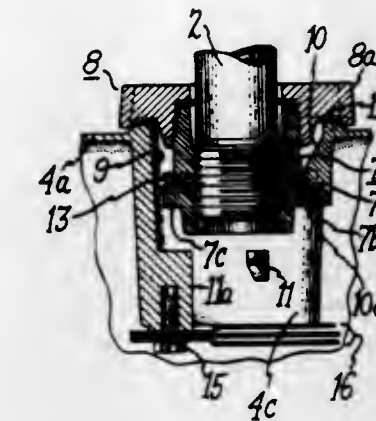
Filed Sept. 24, 1969, Ser. No. 860,676

Int. Cl. F21v 21/00, 21/14

U.S. Cl. 248—343

8 Claims

Hanger device for supporting industrial luminaire from ceiling conduit. Cover of ballast housing at top of luminaire has central aperture for receiving conduit and a mounting bushing threaded internally for engaging threaded conduit and threaded externally for engaging locking nut slidably positioned on conduit above the luminaire cover. The central aperture of the cover is formed with spaced inwardly directed lugs against which complementary radial arms of the mounting bushing are clamped upon tightening of the locking nut. The luminaire is hung on the conduit by pushing it up-



aligned with the radial arms of the bushing, and tightening the locking nut on the mounting bushing.

3,561,720

RECESS JOINT FOR ROAD CONSTRUCTION

Franklin T. White, Morning Sun, Iowa 52640

Filed Aug. 5, 1968, Ser. No. 750,191

Int. Cl. E01c 11/02

U.S. Cl. 249—9

1 Claim



A recess joint for road construction having feet attachable thereto which may be of various heights so as to make the recess joint useable for various thicknesses of concrete to be poured in the construction of various roads.

3,561,721

JOINT MEMBER FOR CONCRETE SLABS

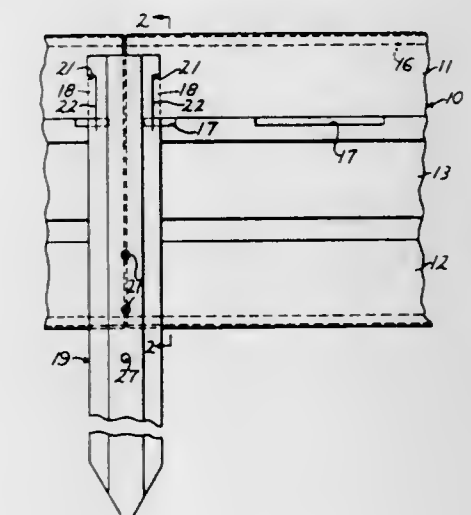
Ernest H. Self, Birmingham, Ala., assignor to Vulcan Metal Products, Inc., a corporation of Alabama

Filed Aug. 9, 1968, Ser. No. 751,552

Int. Cl. E01c 11/02

U.S. Cl. 249—9

3 Claims



A joint member for concrete slabs embodying a vertical stake carrying an ear extending upwardly alongside and in

spaced relation to the stake for receiving therebetween a portion of a screed sheet. A barb carried by the ear extends toward the stake and cuts into a side of the screed sheet inserted therebetween.

3,561,722

STEEL CASTING MOLD INSERT

Helmut Kobusch, Duisburg-Mundelheim; Walter Pfaff, Duisburg-Huttenheim, and Arnold Pfeiffer, Duisburg-Huckingen, Germany, assignors to Mannesmann Aktiengesellschaft, Dusseldorf, Germany

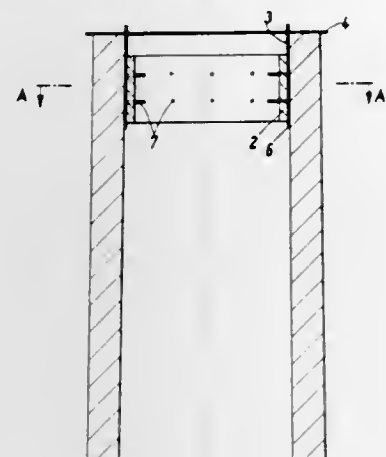
Filed Dec. 4, 1967, Ser. No. 687,547

Claims priority, application Germany, Dec. 20, 1966, M72083

Int. Cl. B22d 7/10

U.S. Cl. 249-198

1 Claim



An insert for steel casting molds which consists of four individual heat-insulating plates. These plates are reinforced with steel sheets or rods on their sides facing the mold walls. When the molds are filled with liquid steel, the reinforcements fuse with the ingot upon cooling, and the insert leaves the mold together therewith. The insert remains on the ingot throughout reheating in a furnace prior to rolling and is discarded only in the roller mill as scrap. The device and the process of using the same reduce segregation and cavitation in the ingot, also considerably reduce scrap formation and lengthen the working life of the molds.

3,561,723

STRIPPING AND BLOW-OUT PREVENTER DEVICE

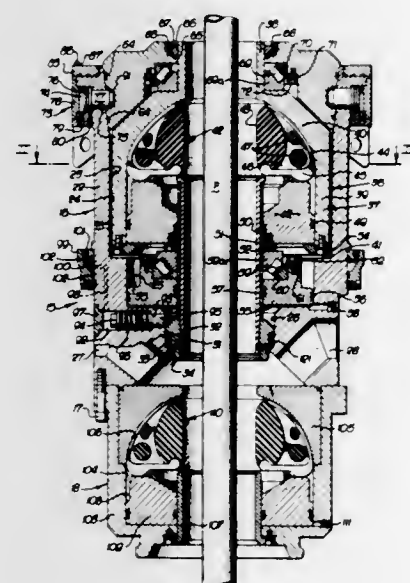
Edward T. Cugini, 429 Catalpa, Brea, Calif. 92621

Filed May 7, 1968, Ser. No. 727,165

Int. Cl. E21b 33/06

U.S. Cl. 251-1

11 Claims



Stripping and blowout preventer devices for use in well drilling operations, particularly in off shore subsea well

drilling, to prevent fluid escaping from the well in the presence or absence of a well tool such as a pipe string, while rotating or stationary, or during removal of the string from the well hole.

3,561,724

GATE VALVE OPERATOR

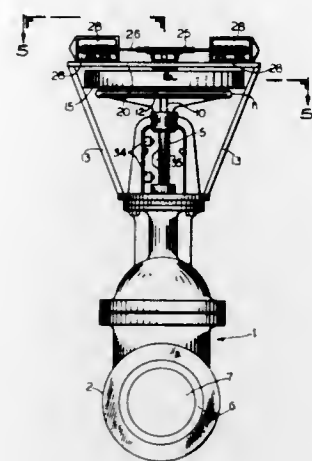
Guido P. Trombetta, 9415 N. Fairway Drive, Bayside, Wis.

Filed Jan. 8, 1969, Ser. No. 789,741

Int. Cl. H02k 7/06; F16k 31/05

U.S. Cl. 251-130

12 Claims



An electric, direct drive, lost motion operator for opening and closing a gate valve. The apparatus comprises two pairs of modified electric stator members each pair being disposed at opposite sides and overlapping a nonmagnetic metal disc, which rotates in response to forward and reverse flux fields created between the respective stator pairs upon energizing their respective windings in either of two ways. The metal disc is directly connected through an axial, hollow sleeve to a flywheel having a circular slot for receiving a driving block attached directly to the gate valve handle.

3,561,725

VALVED COUPLING

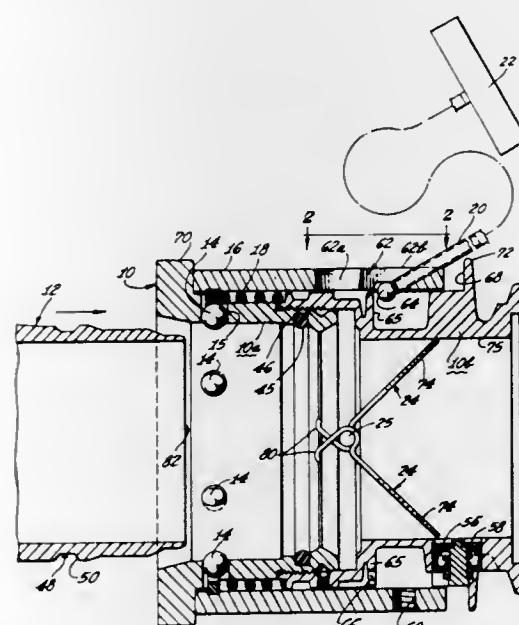
Jorge Torres, Los Angeles, Calif., assignor to Purolator Inc., Rahway, N.J., a corporation of Delaware

Continuation of application Ser. No. 547,920, May 5, 1966, now abandoned. This application July 7, 1969, Ser. No. 845,632

Int. Cl. F16k 51/00; F16l 35/00; 27/00

U.S. Cl. 251-149.2

4 Claims



A coupling on a hose for releasable connection to a jet engine for starting the jet engine by heated compressed air has

a valve to prevent the hose from whipping around when disconnected. The valve comprises two leaves that diverge upstream to be closed and held closed by fluid pressure and the two leaves are opened in response by coupling the hose to the engine. A locking sleeve that is movable to lock the engine-engaging means is mounted between two radial flanges that protect the sleeve when the end of the hose is dropped onto a hard surface. The locking sleeve is equipped with a removable lanyard.

3,561,726

PLASTIC COUPLING

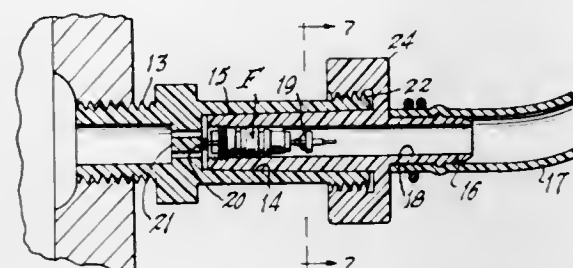
Frank M. Iannelli, 5 Penwood Road, Livingston, N.J. 07039

Filed Feb. 18, 1969, Ser. No. 800,113

Int. Cl. F16l 37/28

U.S. Cl. 251-149.6

2 Claims



A coupling comprises two sections molded of polymeric plastic material which is tough and hard but possesses a small degree of elasticity, one section having a tubular interior frustoconical recess at one end with which mates an exterior frustoconical portion on one end of the other section, whereby said sections can be frictionally connected to each other with a fluid-tight joint and can be easily separated, by merely relatively rotating them and respectively pressing them together and pulling them apart. One or each section may have a spring closed valve that is opened when the sections are connected. Also, each section may have an integral element coactive with the element on the other section for separably locking the sections together.

3,561,727

HIGH STRESS VALVE SEAL AND VALVES

Domer Scaramucci, 3245 S. Hattie, Oklahoma City, Okla.

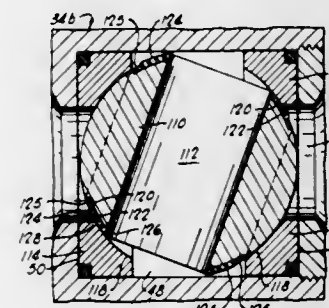
Continuation-in-part of application Ser. No. 435,797, Mar. 1, 1965, now abandoned. Continuation-in-part of application Ser. No. 641,415, May 8, 1967, now abandoned, which is a

continuation-in-part of application Ser. No. 435,975, Mar. 1, 1965, now abandoned. This application Jan. 25, 1968, Ser. No. 703,845

Int. Cl. F16k 3/02, 5/06

U.S. Cl. 251-172

31 Claims



A valve seat assembly including a rigid material seating ring having a seating surface shaped to engage a movable valve member when the valve member is in a closed position, and including a thin, elastic material annular seal bonded to the seating ring adjacent the seating surface. The seal protrudes beyond the seating surface to be engaged by the valve member and has a length substantially greater than the thickness thereof to be placed in a high state of stress when distorted by the valve member. The seat is particularly suited as an upstream seat, and the seal is preferably positioned ad-

jacent the inner periphery of the seat to minimize abrasive wear and throttling when the valve approaches full closure.

3,561,728

FLUID CONTROL VALVES

Terence James Leonard Clarke and Lawrence Mawbey, Leicester, England, assignors to The British United Shoe Machinery Company Limited, Leicester, England, a British Company

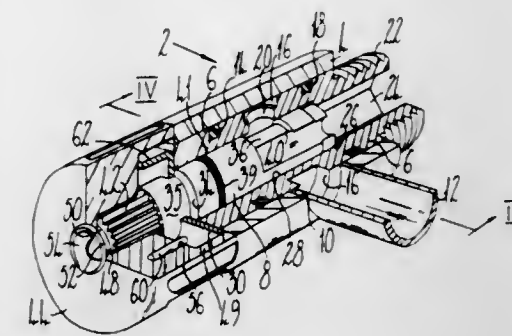
Filed Jan. 13, 1969, Ser. No. 790,546

Claims priority, application Great Britain, Jan. 18, 1968, May 25, 1968, 2658;25120

Int. Cl. F16k 51/00

U.S. Cl. 251-285

17 Claims



The invention relates to fluid-flow means, in particular connectors for fluid-flow devices and fluid-control valves and is especially concerned with fluid-control valves for use in control of flow of water through radiators of central heating systems, connector assemblies for such radiators and radiator assemblies. Fluid-control valves comprising a rotary control member by which flow of fluid through a circuit element e.g. a radiator can be controlled, connector assemblies comprising a housing in which is rotatably mounted a tubular member which can be connected to a circuit element and radiator assemblies comprising a radiator to which two connector assemblies are connected in axial alignment so that the radiator may be swung away from a wall without interrupting flow through the radiator, are described.

3,561,729

CARTRIDGE TYPE VALVE INCLUDING STEM, BONNET AND SEAT

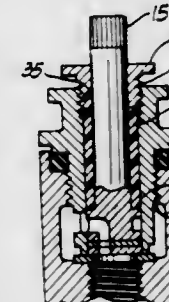
William E. Politz, Delphi, Ind., assignor to Stephen A. Young, Monticello, Ind.

Filed Oct. 2, 1968, Ser. No. 764,568

Int. Cl. F16k 5/00

U.S. Cl. 251-287

6 Claims



This invention consists of valve structure, primarily structure useful in regulating water flow in domestic or like applications, and involves the provision of a stem, bonnet and seat arrangement in which the elements enumerated are included in a single unit, replaceable in and removable from a valve body. The flow control is effected by relative rotation of discs or disc elements having passages therethrough which are brought into alignment, a single passage through the stem providing for direction of flow from an inlet to an outlet through the sealing and seat means.

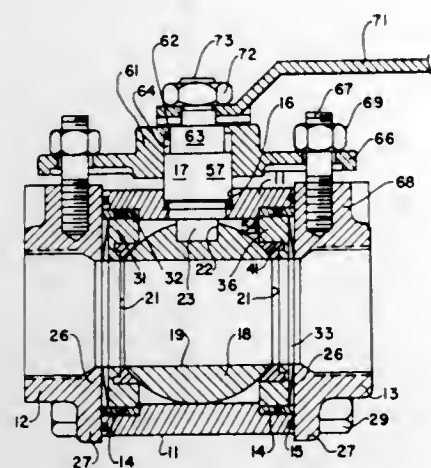
3,561,730

BALL VALVE CONSTRUCTION

Gordon F. Hurst, 540 Callan Ave., San Leandro, Calif. 94577
 Filed May 2, 1968, Ser. No. 726,071
 Int. Cl. F16k 5/06

U.S. Cl. 251-315

12 Claims



A ball valve seal comprises a metallic ring having an annular plastic inset engaging the ball. The ring is biased toward the ball by a Belleville washer or the like which is backed by an end cap. Surrounding the metallic ring is a stationary outer ring, which may be of chevron construction and permits sliding of the metallic ring to accomplish a tight seal despite movements of the ball under pressure changes. Both an upstream and downstream seal is effected. Pressure relief from volatilization of liquids trapped within the body around the ball is provided by momentary deflection of the plastic inset on the upstream side.

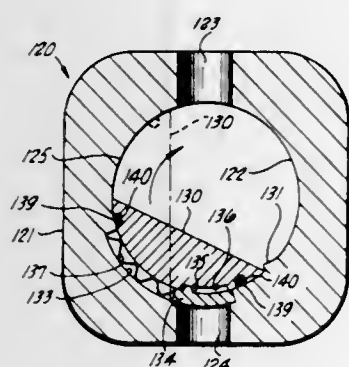
3,561,731

VALVE WITH IMPROVED SEAL ASSEMBLY

William A. Rogers, 337 Broadway, Costa Mesa, Calif. 92626
 Filed Jan. 24, 1969, Ser. No. 793,790
 Int. Cl. F16k 5/00

U.S. Cl. 251-317

5 Claims



A valve having a body member defining a chamber with first and second ports, and a closure member movable in the chamber over the first port between open and closed positions to control flow between the ports. A resilient seal is mounted on either the body member or the closure member to seal the valve by bearing against a mating face of the other member when the valve is closed. A backup element is slidably mounted in the valve chamber to provide continuous confinement for the seal as the closure member is moved away from the closed position toward the open position. The backup element fits against the mating-face member when the valve is opened to define a substantially continuous smooth surface in sliding contact with the seal and against which the seal is compressed. The smooth surface formed by the mating-face member and the backup element is broken only by a line joint or seam between the member and element, and the seal passes easily over this joint without distorting or tending to extrude. After the closure member has retracted toward the open position sufficiently to pass the seal over the joint so the seal now bears entirely on the backup member, the closure member is further drawn past the first port to permit flow through the valve.

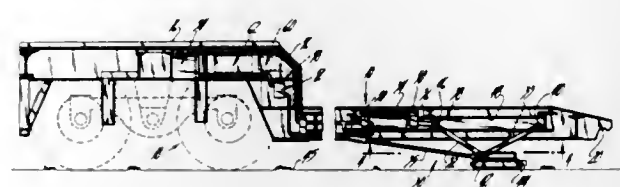
3,561,732

DETACHABLE GOOSENECK TRAILER WITH SELF-CONTAINED ELEVATING MEANS

Anthony S. Pulcini, 21 Elwood Road, Kensington, Conn.
 Filed Oct. 17, 1968, Ser. No. 768,250
 Int. Cl. B60s 9/02

U.S. Cl. 254-86

3 Claims



A low bed trailer is provided with a detachable gooseneck for connecting the bed portion of the trailer to the fifth wheel of a conventional tractor, and the forward end of the trailer bed has an elevating support which includes a pair of side-by-side hydraulic cylinders adjacent to the other underside of the floor of the trailer bed, and a toggle link means driven from a self-contained hydraulic system to move a foot toward and away from the trailer bed for raising and lowering the bed.

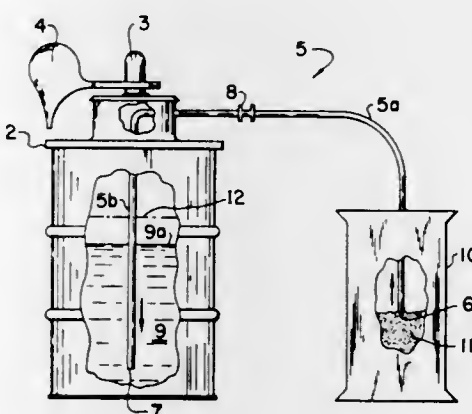
3,561,733

VACUUM SLURRY SYSTEM

Charles G. Formeck, Jackson Heights, and Leon J. Harris, Jr., Covington, Va., assignors to Westvaco Corporation, New York, N.Y., a corporation of Delaware
 Filed July 30, 1968, Ser. No. 748,696
 Int. Cl. B01f 5/10

U.S. Cl. 259-18

4 Claims



Powdered, activated carbon is mixed with a slurring agent, such as water, by drawing the powdered carbon by means of a vacuum beneath the surface of the slurring agent.

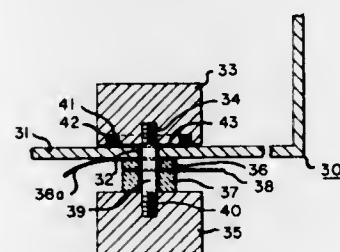
3,561,734

TRANSDUCER MOUNTINGS AND METHODS

John N. Antonevich, Jamestown, N.Y., assignor to Blackstone Corporation, a corporation of New York
 Filed Jan. 2, 1969, Ser. No. 788,468
 Int. Cl. B01f 5/26

U.S. Cl. 259-114

6 Claims



An ultrasonic transducer coupling system for fluid materials within a walled container is provided which couples the

output of transducers through the walled container directly to the fluid to be insulated by mechanically sandwiching the container wall at a low particle displacement plane of a composite transducer.

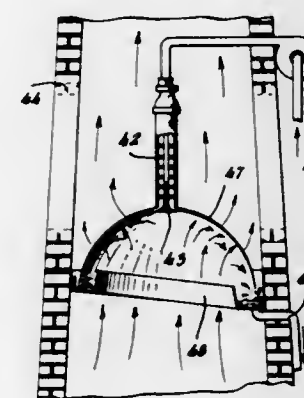
3,561,735

FLUID-BELL-SHEET FORMING APPARATUS

Millard F. Smith, P.O. Box 295, Westport, Conn. 06882
 Continuation-in-part of application Ser. No. 734,805, June 5, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 617,398, Feb. 20, 1967, now abandoned, and a continuation-in-part of Ser. No. 477,987, May 10, 1965, now Patent No. 3,311,085, and a continuation-in-part of Ser. No. 513,366, Dec. 13, 1965, now Patent No. 3,422,795, and a continuation-in-part of Ser. No. 110,581, May 16, 1961, now abandoned. This application Apr. 14, 1969, Ser. No. 815,665
 Int. Cl. B01f 3/04, 5/20; B01d 47/06

U.S. Cl. 261-34

12 Claims



Fluid bell sheet forming apparatus incorporating a fluid delivery conduit provided with at least four flow straightening transverse screens, directing the stream of fluid issuing therefrom against a deflector positioned to spread the stream laterally, forming a thin, continuous outwardly moving sheet shaped by gravity to form a "fluid bell," to promote intermixing of the delivered fluid and the surrounding gas, or to facilitate the capture of entrained solid or liquid particles carried by the surrounding gas in the advancing bell-shaped fluid stream, or to expose the fluid stream thoroughly to incident radiation, such as sunlight or ultraviolet radiation. Extreme thinness of the continuous liquid sheet maximizes the ratio of exposed liquid surface to liquid volume, thus maximizing the effectiveness of the intermixing, entrainment and irradiation operations.

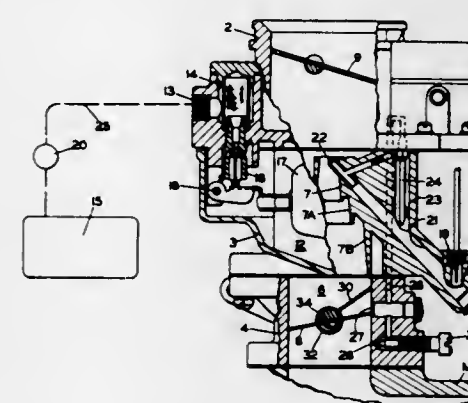
3,561,736

CARBURETOR THROTTLE VALVE

Silas Owen Dye, Highland, Ill., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
 Filed Jan. 9, 1969, Ser. No. 790,054
 Int. Cl. F02m 3/08

U.S. Cl. 261-41

6 Claims



A carburetor having a conventional throttle valve for controlling the flow of air and fuel in the mixture conduit thereof is further provided with an auxiliary half-throttle arranged in such a manner that the half-throttle blocks off a portion of

the mixture conduit during at least part of the opening movement of the conventional throttle thereby increasing air and fuel velocity in the mixing conduit at part throttle conditions.

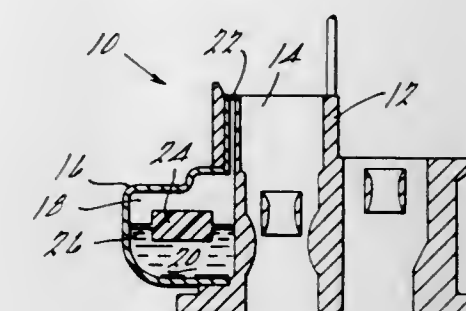
3,561,737

CARBURETOR WITH FUEL BOWL EVAPORATION CONTROL MEANS

Paul E. Braun, Bloomfield Hills, and James R. Clarke, Northville, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
 Filed Jan. 28, 1969, Ser. No. 794,636
 Int. Cl. F02m 5/12

U.S. Cl. 261-72

5 Claims



A carburetor for an internal combustion engine in which evaporation of fuel in the fuel bowl is controlled to promote desired engine operating characteristics and reduce engine evaporative emissions. The fuel bowl float member is surrounded by an impervious member coextensive with the surface of the fuel present in the fuel bowl. This impervious member allows freedom of movement of the float member but minimizes evaporation from the surface of the fuel and passage of evaporated fuel to the atmosphere through the fuel bowl vent.

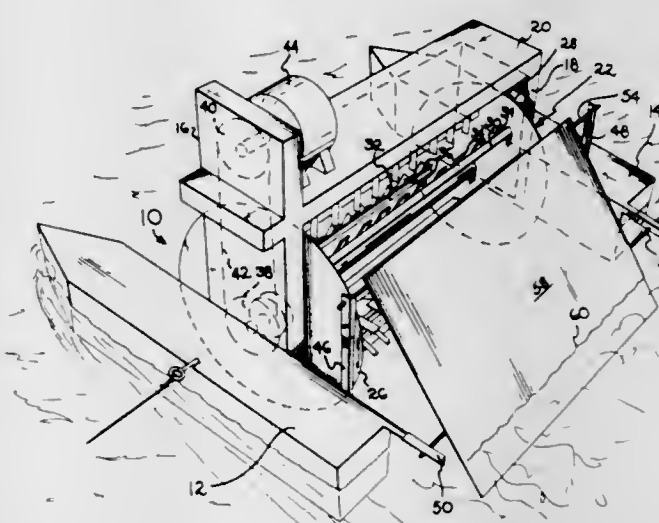
3,561,738

AERATION APPARATUS

Sergio F. Galeano, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
 Filed Feb. 10, 1969, Ser. No. 798,198
 Int. Cl. C02c 1/10

U.S. Cl. 261-92

1 Claim



An improved liquid aeration device which comprises a power driven, floating cylindrical rotor structure with an inclined baffle located in the downstream portion of the rotor, the rotor being immersed and rotated through the liquid being aerated, thereby causing particles of the liquid to be impinged upon the baffle so as to cause substantial turbulence and the transfer of large quantities of air into the liquid.

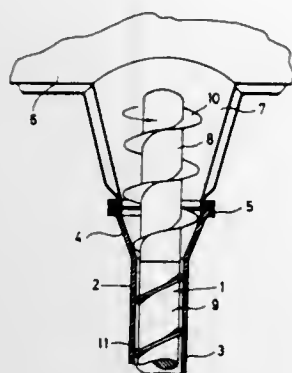
3,561,739

SCREW CONVEYOR

Heinz Kuehne, Oberhieschstadt, Taunus; Manfred Dietze, Offenbach am Main, and Franz Hauer, Frankfurt am Main, Germany, assignors to Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen
Filed Sept. 9, 1968, Ser. No. 758,496
Int. Cl. F27b 9/16; B65h 5/08

U.S. Cl. 263-7

11 Claims



A screw conveyor for viscous material which includes a screw and a housing. The screw is made of a constant diameter shaft and a helical spiral web attached to the shaft surface. The housing includes an inlet region, a draw-in region and a constant diameter pressure region. The inlet region has a cross-sectional area larger than that of the pressure region, and the draw-in region connects those two regions. The web on the shaft of the screw has a constant width in the pressure region, but a greater width in the draw-in region. The configuration of the housing and web in at least a portion of the draw-in region combine to cause the edge of the web to come close to the wall of the housing during parts of a revolution of the screw and to leave a gap between the housing and the screw during other parts of the revolution.

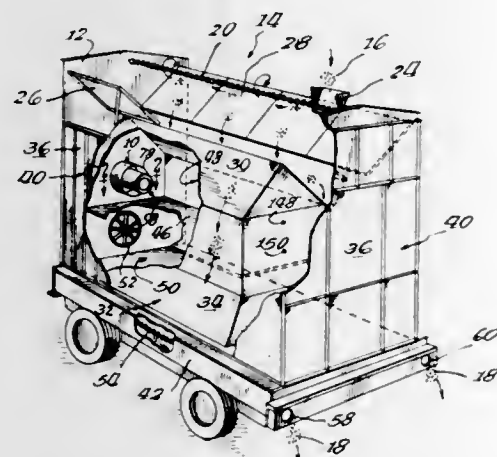
3,561,740

CROP DRYING OIL BURNER

Donald C. Walker, Munster; John Bachi, Jr., Whiting, and Russell A. Hunt, Jr., Griffith, Ind., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana
Filed Dec. 27, 1968, Ser. No. 788,696
Int. Cl. F24h 3/02

U.S. Cl. 263-19

12 Claims



This burner includes a cylindrical combustion chamber, and means which blow air through the chamber. A circular opening in the chamber's front plate and a plurality of peripheral apertures and radial slits in the chamber's rear plate allow air to pass through the chamber. Pitched blades adjacent the slits cause this moving air to form a vortex within the chamber, and when oil is injected into the vortex and ignited, a clean, smoke-free flame shoots out the circular opening. If a centrifugal fan is used as the air blowing means, the chamber is ideally located in the quiet zone opposite the fan's hub. In this instance, air intercepting and directing means collect some air from the peripheral air stream generated by the fan, and direct this intercepted air into the chamber.

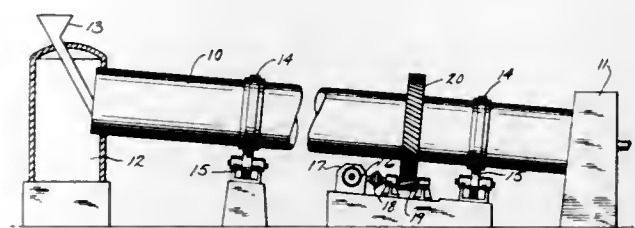
3,561,741

RING GEAR AND MOUNTING ASSEMBLY THEREFOR

William S. Richardson, Milwaukee, Wis., assignor to The Falk Corporation, Milwaukee, Wis., a corporation of Wisconsin
Filed May 12, 1969, Ser. No. 823,755
Int. Cl. F27b 7/00; F16h 55/30, 55/12

U.S. Cl. 263-33

5 Claims



A ring gear for driving a rotary apparatus that has an annular flange including radially elongated slots and the gear is bolted to the apparatus along the elongated slots to enable the apparatus to expand and contract, or otherwise deform, without distorting the ring gear.

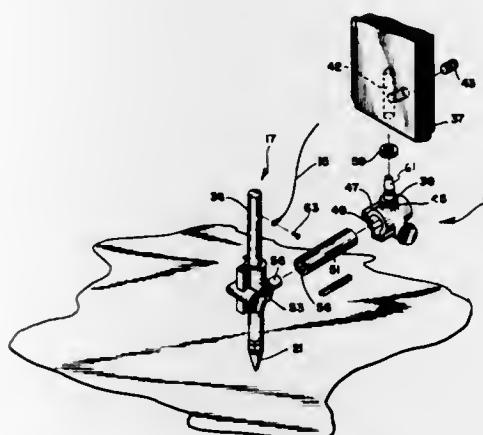
3,561,742

MULTIPLE GAS TORCH IGNITION AND SUPPORT SYSTEM

Ira C. Smith, and Elizabeth T. Smith, legal heir, Moorestown, N.J., assignors to Liquid Carbonic Corporation, Chicago, Ill., a corporation of Illinois, by mesne assignments
Filed July 30, 1968, Ser. No. 749,262
Int. Cl. B23k 7/02

U.S. Cl. 266-23

4 Claims



To ignite gas issuing from a plurality of flame cutting torches on a frame of a flame cutting machine, electrical spark discharges are caused from the tips of the torches to the metallic workpiece which is to be cut. Preferably, each torch is electrically insulated against being electrically grounded to the frame by an insulator which will fail if an excessive force is applied to its torch.

3,561,743

USE OF STACK GAS AS OXYGEN POTENTIAL MEASUREMENTS TO CONTROL THE BOF PROCESS

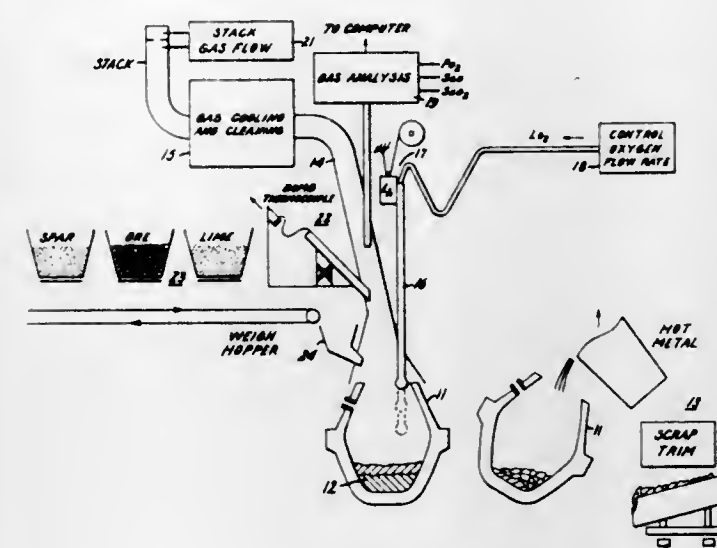
David L. Schroeder, Schenectady, and David L. Lippitt, Scotia, N.Y., assignors to General Electric Company
Filed Oct. 17, 1967, Ser. No. 675,877
Int. Cl. C21c 5/32

U.S. Cl. 266-35

12 Claims

This invention relates to a control method and apparatus for a basic oxygen furnace steel making facility of the type having an oxygen lance for supplying oxygen to a molten metal bath within the furnace and means for moving the oxygen lance relative to the molten metal bath for controlling the partition of oxygen supplied by the lance to the molten metal bath. During the course of a heat, conditions are continuously sensed which are indicative of the oxygen content of the molten bath, the oxygen lance height and the oxygen lance flow rate to provide input data relative to the partitioning of the lance oxygen within the molten bath in the BOF vessel. This input data is processed by suitable computation means which derives measurements representative of the

temperature, carbon content and oxygen content of the molten bath during the course of the heat, as well as corrective output signals for the lance height and/or lance oxygen flow rate to optimize the process. The output control signals thus derived are then fed back in a dynamic, closed loop to control of the furnace to thereby optimize its operation. In a preferred embodiment of the invention the continuously sensed condition is the oxygen potential of the gases emanat-



ing from the furnace. The sensing is accomplished by a gas analyzer which is positioned ahead of any stack gas cleaning equipment located in the stack of the furnace, and which accordingly has a high response speed. The gas analyzer derives output measurement signals indicative of the oxygen partitioning of the lance oxygen, and these output measurement signals are employed to automatically and continuously control the position of the lance and the flow rate of the oxygen supplied therethrough to optimize the same during a heat.

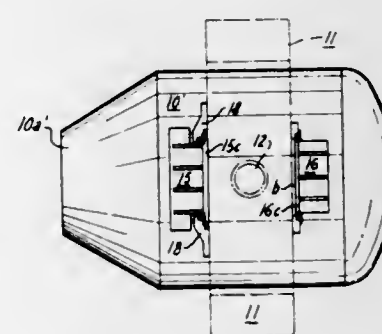
3,561,744

STABILIZED MOUNTING FOR BOF-LIKE VESSELS

Donald L. Altman, New Castle, and James A. Mullen, Jr., Hubbard, Pa., assignors to Pennsylvania Engineering Corporation, New Castle, Pa., a corporation of Pennsylvania
Filed May 27, 1969, Ser. No. 828,123
Int. Cl. C21c 5/46

U.S. Cl. 266-36

11 Claims



Expansion and contraction permitting bracket and keeper assemblies are provided between a trunnion ring and the metal outer shell wall of a molten material handling or processing vessel for mounting and supporting it in an upright position and during any tilting movement thereof in an improved stabilized manner. An upper group of pairs of diagonally-opposed mounting assemblies constitute the main mounting and supporting means for the vessel and an aligned lower group serve to supplement the support when the vessel is tilted from a vertical towards a horizontal position, all while permitting the vessel to expand and contract peripherally, vertically or longitudinally, laterally or transversely. Unique gib or keeper and wedge elements are employed for adjustably-connecting or adjustably-slidably-clamping the vessel on its trunnion ring.

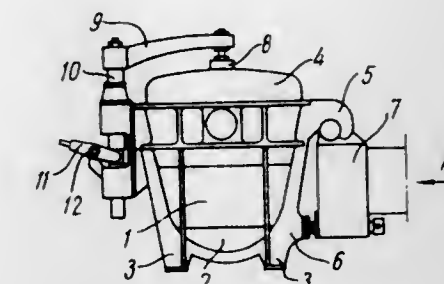
3,561,745

TUNDISH FOR CONTINUOUS CASTING MACHINES

Leonid Alexandrovich Bykov, Ulitsa Mashinostroitelei, 59 kv. 30; Albert Grigorievich Ksenofontov, Ulitsa Krasnykh Bortsov, 7, kv. 16, and Adolf Petrovich Kolomeitsev, Ulitsa Ilich, 4, kv. 2, Sverdlovsk, U.S.S.R.
Filed Apr. 30, 1968, Ser. No. 725,411
Int. Cl. C21b 7/14

U.S. Cl. 266-38

5 Claims



A continuous metal casting tundish which is easily replaceable over the mold and insures convenient servicing in situ. The tundish comprises a shell for containing the molten metal, at least one cover over the shell, stopper means for selectively controlling the rate and amount of the molten metal being poured from the tundish, an upper support means and a lower support means, both the support means being on the same lateral side of the shell and coacting to support the tundish in a cantilever fashion. The stopper means includes an actuating mechanism located on the opposite lateral side of the shell from the upper and lower support means. The upper support means is a hook, the lower support means is an abutment, and the upper and lower support means coact with commensurate shaped elements on a rotating lifting table which positions the tundish over the mold.

3,561,746

LEAFSPRING

Joachim Ulbricht, Hagen, Germany, assignor to Hoesch Aktiengesellschaft, Dortmund, Germany
Filed Dec. 26, 1968, Ser. No. 787,003
Claims priority, application Germany, Jan. 31, 1968, P 16 50 971.0
Int. Cl. F16f 1/24

U.S. Cl. 267-50

10 Claims



A leafspring consists of two or more elongated superimposed leaves each having a surface facing the other. The leaves each have an end portion provided with an upwardly extending projection on which the underside of the next-higher leaf slidably rests. These projections are each provided with a downward depression the open side of which faces the underside of the leaf above, and lubricating material is accommodated in this depression so as to lubricate and facilitate the sliding movements between the projection and the superimposed leaf.

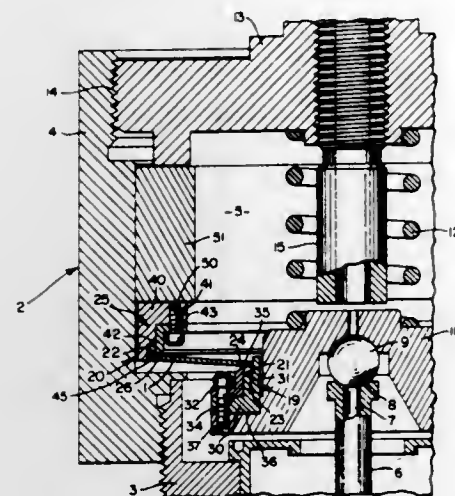
3,561,747

BELLEVILLE SPRING SUPPORTS

Alfred F. Donnelly, Thousand Oaks, Calif., assignor to Pneumo Dynamics Corporation, Cleveland, Ohio, a corporation of Delaware

Filed Sept. 25, 1968, Ser. No. 762,512
Int. Cl. F16f 1/26

U.S. Cl. 267-161



Belleville spring supports in the form of closely packed antifriction bearings contained in races having sufficient radial clearance to permit radial movement of the bearings with the I.D. and O.D. edges of the Belleville spring supported thereby as they move in and out during deflection.

3,561,748

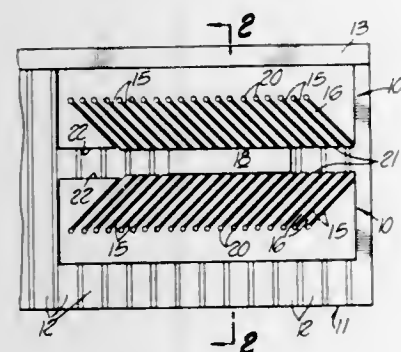
WORKPIECE CLAMP

Corby J. Schefers, 1112 B Chestnut St., Burbank, Calif. 91502
Filed Oct. 18, 1968, Ser. No. 768,782

Int. Cl. B25b 11/00

U.S. Cl. 269-8

9 Claims



A versatile workpiece clamp having many uses with and without magnetic chucks. The clamp comprises a strip of rigid material having closely-spaced slightly-flexible fingers acutely inclined to one lateral edge with their exposed ends lying in a common plane and adapted to be held in firm contact with a workpiece backed by a suitable stop. A work force applied to the exposed surface of the workpiece and generally toward the fingers acts to flex the fingers into firmer gripping contact with the workpiece without risk of injury thereto. The clamp can be used alone or in combination with a second clamp. If made of magnetic material the clamp can be used with a magnetic chuck and employed to clamp workpieces made of a wide variety of nonmagnetic materials.

3,561,749

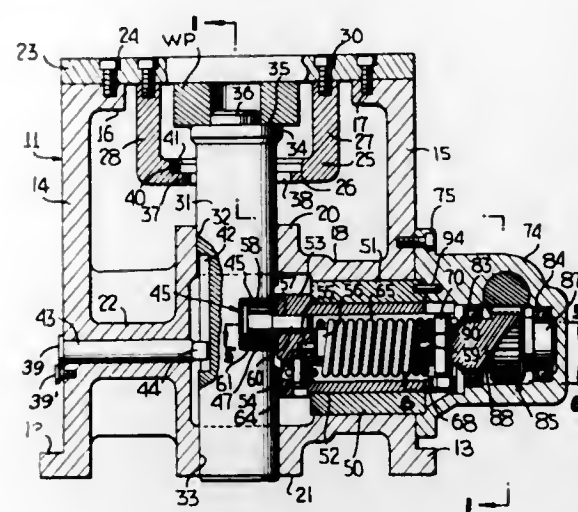
TORSION SPRING CLAMPING MECHANISM

Robert R. Grover, Westport, N.H., assignor to Kingsbury Machine Tool Corporation, Keene, N.H., a corporation of Delaware

Filed Feb. 28, 1967, Ser. No. 619,265
Int. Cl. B25b 1/20, 1/06

U.S. Cl. 269-224

22 Claims



This disclosure relates to a unitary form of torsion spring clamping mechanism including a vertically reciprocable ram which is movable through a hole in the bottom of a workpiece-holding-nest for engaging against an undersurface of a workpiece and raising the workpiece to contact the undersurface of a clamp plate, then to apply a clamping pressure to the workpiece, against the clamp plate. The ram is vertically driven in guides by a crank connected to a rotatable sleeve, and indirectly, to one end of a torsion spring. The other end of the torsion spring is connected to a rack-and-pinion driving means which is operable upon receiving a motive driving force. Upon movement of the rack and rotation of the pinion, the crank is rotated through the torsion spring which is operative as a coupling, to raise the ram to a clamping point spaced from the clamp plate with the workpiece therebetween. Continued rotation of the pinion gear tensions the torsion spring, relatively displacing the ends of the spring. This allows the pinion gear to be rotated through an arc of 180°, but the crank which raises the ram will not always be rotated through 180°, depending upon the allowable tolerance variation in the thickness of the workpieces. At the removal of a motive force, the ram will be retained in position, clampingly engaging an associated workpiece under a force applied by tensioning the spring, due to a self-locking feature utilizing friction forces between relatively movable parts.

3,561,750

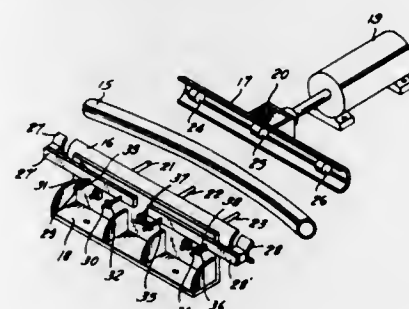
HOSE STRAIGHTENING FIXTURE

Howard L. Woodrum, Stillwater, Okla., assignor to Amerace Esna Corporation, New York, N.Y., a corporation of Delaware

Filed Sept. 25, 1968, Ser. No. 762,417
Int. Cl. B25b 1/24

U.S. Cl. 269-269

4 Claims



A fixture for holding curved rubber hose in a substantially straight condition comprising two arcuate members which

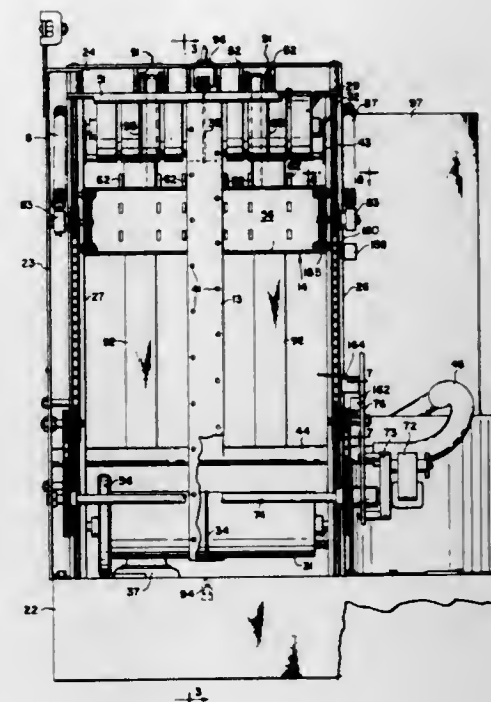
3,561,753

SHEET COLLATING DEVICE

Donald L. Snellman, Seattle, Wash., assignor to Norfin, Inc., Seattle, Wash., a corporation of Washington
Filed July 29, 1968, Ser. No. 748,306
Int. Cl. B65h 39/02

U.S. Cl. 270-58

8 Claims



A sheet collating device having a collator distributor for receiving sheets and distributing the sheets at preselected vertical positions for reception by a vertical column of bins. The sheet distributor has a perforated tape conveyor system with a vertical course located in front of the column of bins. The conveyor tape passes over a vacuum plenum which serves to hold the sheets to the moving tape until they are deflected. A deflector mechanism is mounted for vertical travel up and down the vertical course of the conveyor with its position being controlled by an electrical control system so as to cycle through a set of preselected vertically spaced positions. Extensible tape members are connected at one end to the deflector so as to move therewith and to overly the moving sheet to aid in retaining the sheet against the conveyor. Stationary vertical backup means are provided in back of the sheet which cooperate with the extensible tapes in maintaining the sheet properly disposed until it reaches the position of deflection. The device may also include bypass conveyor means for moving sheets onto an adjacent collating device placed in tandem. The bin assembly is carried by the same frame and cabinet which mounts the distributor mechanism and is mounted so as to be easily removed from the cabinet. Access is afforded to the shelves from one side of the cabinet to facilitate removal of the collated sheets.

3,561,754

SHEET COLLATION DISTRIBUTOR

Bernard W. Gaffron, New Brighton; Logan D. Gilman, St. Paul, and Leo J. Schulz, Woodbury, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Continuation-in-part of application Ser. No. 756,992, Sept. 3, 1968. This application Aug. 11, 1969, Ser. No. 849,129
Int. Cl. B65h 39/02

U.S. Cl. 270-58

11 Claims

A collation copying machine which distributor is adapted to receive and collate the copies of the document made by the machine and receive the original sheets of the document. The distributor comprises a plurality of trays for receiving the copies, means for directing the copies of each original sheet serially into the

3,561,751

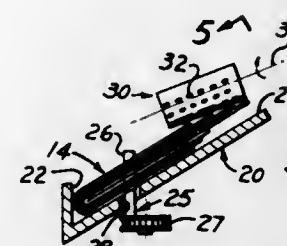
MECHANISM FOR UNFOLDING SIGNATURES

Lyle V. Dutro, 1660 Carriage House Road, Pasadena, Calif.
Filed July 31, 1968, Ser. No. 749,054

Int. Cl. B65h 5/30

U.S. Cl. 270-55

9 Claims



This invention includes a mechanism for unfolding signatures so that inserts can be put in the central fold. The signature, of which an example is a tabloid, comprises a plurality of folded, substantially identically-sized flat sheets of paper, each folded sheet being inserted within the fold of its next contiguous sheet so that a common center fold for the signature is formed with the successive sheets formed as embracing layers. Each successive outer layer is underlapped at its free edges relative to the free edges of the layer next innermost to it, by which means a tapered free edge is formed. The means comprises a supporting table, a sucker wheel with an axis of rotation, and a perforated peripheral surface with a peripheral tangential speed equal to the forward speed of the signature so as periodically to engage the uppermost portion of a folded structure. A transfer means moves the folded structure along the supporting table in a path parallel to the center fold at said forward speed. A source of subatmospheric (suction) pressure is periodically connected to the perforated peripheral surface by timer means. A shelf overlays at least a part of the supporting table and receives the free edge which is lifted by the sucker wheel.

According to a preferred feature of the invention, the sucker wheel is driven by a motor, and the timer means connects the peripheral surface to subatmospheric pressure with a frequency less than the frequency of revolution of the sucker wheel.

3,561,752

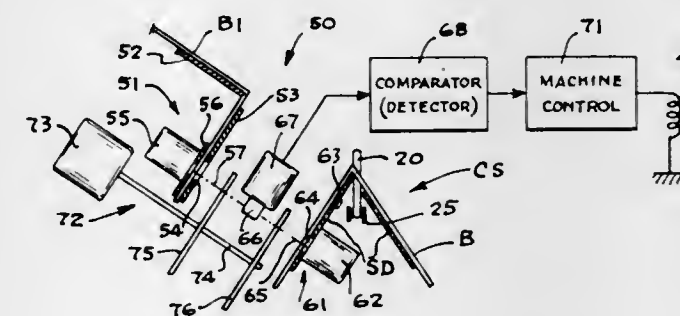
SIGNATURE MACHINES

William B. McCain, Hinsdale, and James F. Cosgrove, Western Springs, Ill., assignors to Chicago Machinery Laboratory, Inc., Chicago, Ill., a corporation of Illinois
Filed July 29, 1968, Ser. No. 748,380

Int. Cl. B65h 43/02

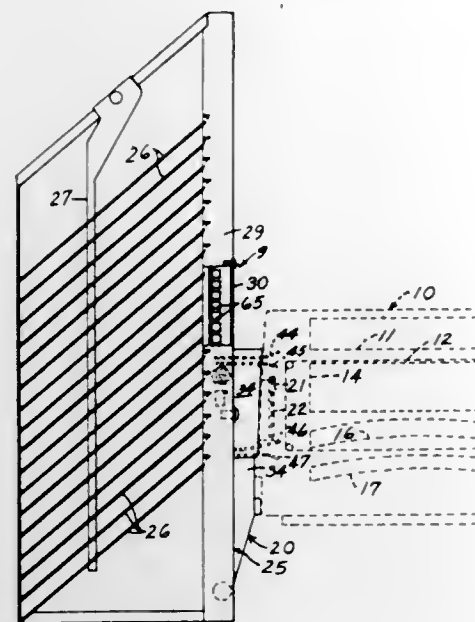
U.S. Cl. 270-56

17 Claims



A caliper system for a cyclically operable signature gathering machine in which each unbound book of signatures is probed with a beta particle beam or other beam and the energy level of the emergent beam is compared with a reference to control machine operation and prevent binding of incorrectly assembled books.

trays, and control means for resetting the sheet-directing means with relation to the trays in response to the discharge synchronism with the rotation of the feed plate through the utilization of camming pins secured to the feed plate which



of each successive original sheet of the document from the copying machine prior to commencement of the next run.

3,561,755

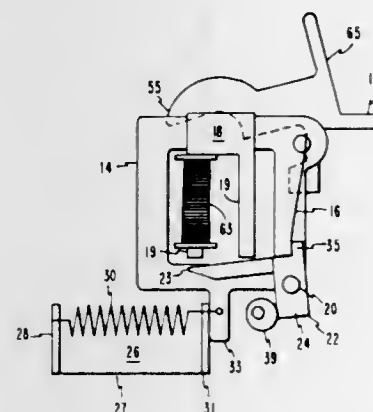
DOCUMENT FEED MECHANISM

Boyd M. Brue, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Oct. 25, 1968, Ser. No. 770,505
Int. Cl. B65h 3/06, 7/18

U.S. Cl. 271-41

3 Claims



The invention pertains to a document feeding mechanism for selectively lowering a document deck to engage a feed roll to effect sequential feeding of documents from the hopper. The document supporting bed is controlled by a cam driven articulated pivot latch which is magnetically actuated to cause the articulated portions to be locked to one another for pivoting as a unitary structure.

3,561,756

CARD HANDLING SYSTEM

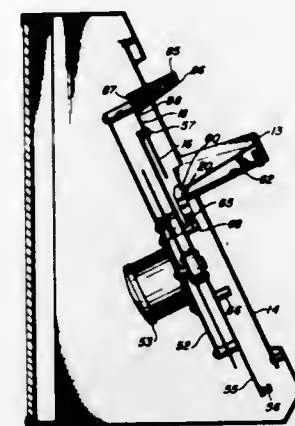
David L. Barnett, Phoenix, Ariz., assignor to Data Computing Corporation, a corporation of Arizona

Filed Mar. 21, 1969, Ser. No. 809,168
Int. Cl. B65h 3/56

U.S. Cl. 271-41

10 Claims

Apparatus including a feed bin attached to a frame for supporting cards in parallel planes slightly inclined from vertical. A picker knife extends into the feed bin and periodically elevates the first card in the bin into a feed position. A feed plate mounted for rotation in a plane substantially parallel to the plane of the card in feed position is provided with a plurality of card-engaging protrusions which contact the edge of the card in the feed position and move the card in its plane past read heads. The picker knife elevates the card in



contact the bottom of the picker knife to cause the latter to extend into the feed bin.

ERRATUM

For Class 271-60 see:
Patent No. 3,561,771

3,561,757

HINGED MODULAR PLAYGROUND BLOCK SYSTEM

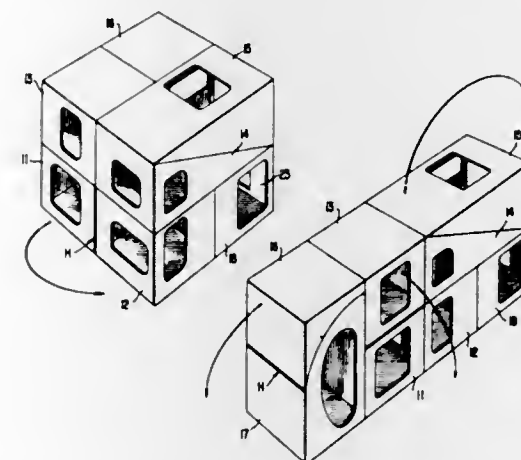
William C. Schillig, 2801 N. Dinwiddie St., Arlington, Va.

Filed Mar. 17, 1969, Ser. No. 807,789

Int. Cl. A63b 17/00; A63b 33/04

U.S. Cl. 272-60

6 Claims



A modular playground block system including a plurality of hollow block modules, each of which is hingedly connected to one other module, some of the hinges being vertically oriented and others horizontally disposed. Through passageways or ports connect from adjacent modules and at least two of the modules together forming an inclined plane for sliding and climbing.

ERRATUM

For Class 272-58 see:
Patent No. 3,561,772

3,561,758

ELASTIC FRICTIONAL ISOMETRIC TYPE EXERCISING DEVICE

Laurence J. Huber, 410 Hamilton St., Harrison, N.J. 07029

Filed Nov. 19, 1968, Ser. No. 776,865

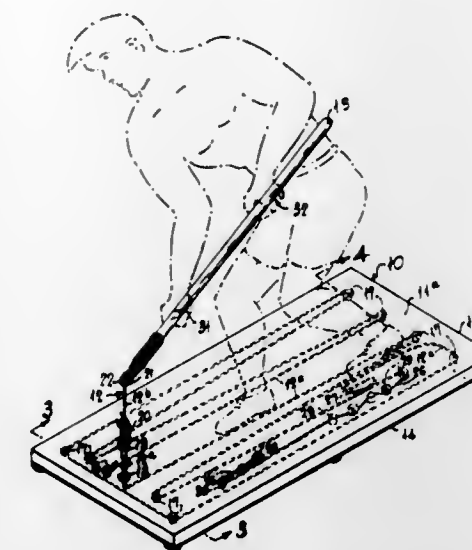
Int. Cl. A63b 21/04

U.S. Cl. 272-82

3 Claims

An exercising apparatus in which a handle is connected at one end of a flexible elastic strand such as nylon, the opposite end portion of the strand being supported by a base

having spaced stationary abutments thereon adapted to be frictionally engaged by the strand when tensile stress is applied to the latter through the handle. The apparatus is



further characterized by a frictionally engaged second strand for damping the return of the first strand from its stressed elongated position to its initial unstressed contracted position.

3,561,759

FORWARD FOLDING BASKETBALL BACKSTOP

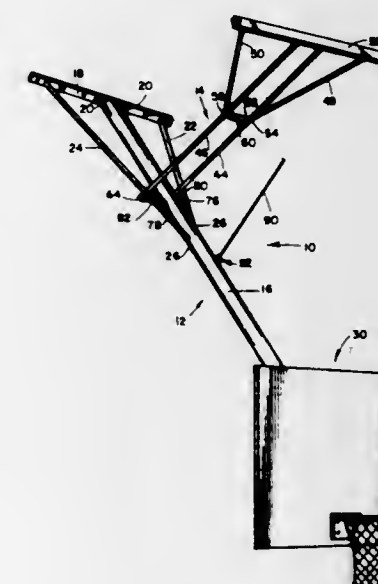
Joseph W. Duganich, Pendleton, Ind., assignor to Institutional Equipment Corporation, Pendleton, Ind., a corporation of Indiana

Filed Aug. 5, 1968, Ser. No. 750,304

Int. Cl. A63b 63/04

U.S. Cl. 273-1.5

8 Claims



A support for a basketball goal. A first support boom is connected at one end to a stationary overhead structure for pivotal movement about a generally horizontal axis between a lower use position and an upper storage position, the other end of the first boom being proportioned and designed to carry such a goal. The first boom carries a pair of roller stops intermediate its ends. A second support boom is connected at one end to the stationary structure for pivotal movement about a second axis and between a lower position and an upper position, the second axis being parallel to the pivot axis of the first boom. The second boom is bifurcated in its distal region to straddle the first boom, and its distal extremity is closed by a transverse member constituting a second stop means which, when the second boom is in its lower position, engages that surface of the first boom which is remote from the second axis to support the first boom in its use position. A cord and pulley system is provided to lift the first boom from its use position to its storage position, and the

pair of stops coact with the second boom during such movement to lift the second boom also to its storage position. There is described, therefore, a support comprising a pair of interlocking booms, both of which are foldable between a lower use position and an upper storage position.

3,561,760

HOCKEY STICK WITH FLARED UPPER AND LOWER PORTIONS

Hans Klay, Handbuehlstrasse 10, 4900 Langenthal, Switzerland

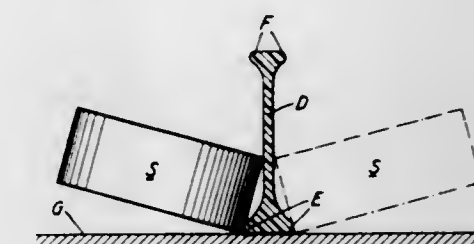
Filed Mar. 11, 1968, Ser. No. 712,072

Claims priority, application Switzerland, Mar. 17, 1967, 3997/67

Int. Cl. A63b 59/12; B63h 16/04

U.S. Cl. 273-67

3 Claims



An article of sporting equipment, for instance a conventional ice hockey stick which comprises a shaft with a handle portion formed at the upper end and an elongate blade provided at the lower end of such shaft and extending substantially transversely with respect to the lengthwise axis of such shaft. The blade possesses a central portion of substantially uniform cross section throughout its length and incorporates substantially vertical, parallel sidewalls. Additionally, there are provided outwardly flared portions at the upper and lower extents of the central blade portion, these flared portions extending substantially linearly the full length of the blade, and such flared portions being symmetrically formed on both sides of the blade.

3,561,761

TARGETS ACTUATED UPON IMPACT BY A MISSILE

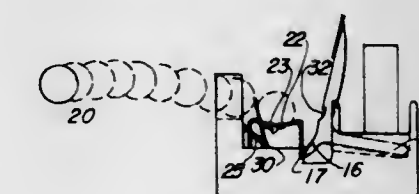
Asle Klemma, Roselle, Ill., assignor to Richard R. Mybeck, Oak Park, Ill., fractional part interest to each

Filed Apr. 22, 1969, Ser. No. 818,254

Int. Cl. F41j 7/00

U.S. Cl. 273-102.1

12 Claims



An amusement device having a plurality of individually actuable targets, each operatively associated with a launching device which, in response to the impact of a missile upon its associated target, is actuated to fire a retaliatory shot in the direction from whence the missile came. The device is further capable of initiating return fire of either single shot or volley, depending upon which target is struck.

3,561,762

PORTABLE BASKETBALL APPARATUS WITH BALL RETURN

Merle P. Russell, Rte. 3, Rensselaer, Ind. 47978

Filed July 7, 1969, Ser. No. 839,176

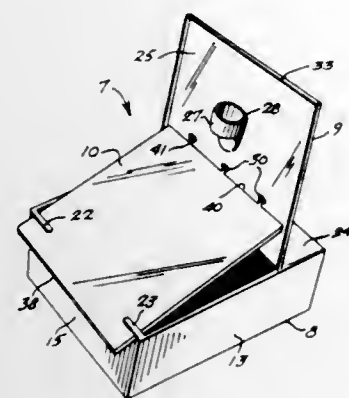
Int. Cl. A63b 63/04

U.S. Cl. 273-103

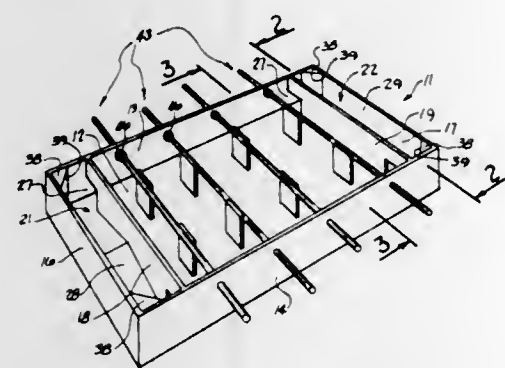
10 Claims

A portable amusement device having a small basket mounted on the underside of the lid of a box so that when

the lid is secured in a vertical position a ball can be thrown toward the lid with the object being for the ball to go through



3,561,763
GAME BOARD WITH APERTURED GOAL ENCLOSURE
Floyd F. Mellen, Jr., 8417 Pacific St., Omaha, Nebr. 68124
Filed Oct. 3, 1968, Ser. No. 764,876
Int. Cl. A63d 3/02
U.S. Cl. 273-119



This invention relates to a game board comprising a playing deck with at least one ball receiving and rejecting goal enclosure disposed thereon and ball impelling members adapted to be used therewith. The goal enclosures each have at least two apertures formed therein with a ball passageway connecting the apertures. The floor of the ball passageway slopes upwardly from the lowermost portion of the apertures to form an apex between the apertures.

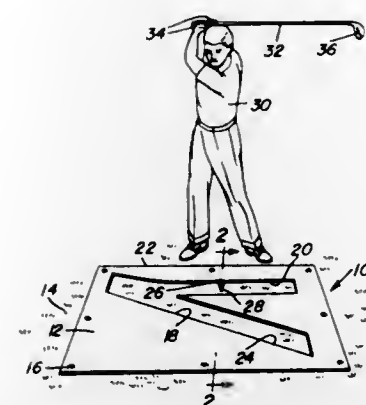
ERRATUM

For Class 273-130 see:
Patent No. 3,561,774

3,561,764
GOLF SWING CORRECTIVE MAT
Richard A. Thomas, Tallahassee, Fla. (11302 S. W. 104th Ave., Miami, Fla. 33156)
Filed Oct. 3, 1968, Ser. No. 764,691
Int. Cl. A63b 69/36
U.S. Cl. 273-183

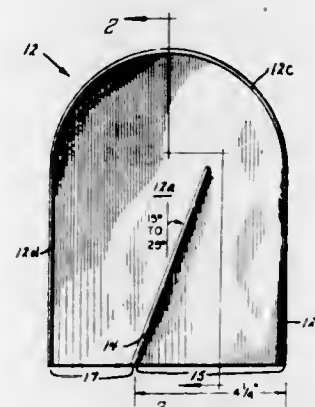
A panel structure for positioning on the ground in a golf tee area and defining a pair of generally straight visually ascertainable paths inclined approximately 25 to 30° relative to each other and intersecting at one pair of corresponding ends, the panel structure being operative, when a ball is teed up on a first of the paths at a point spaced therealong from the intersecting ends of the paths and the nonintersecting end

portion of the first path extends in the intended tee shot direction, to provide a visual guide defined by the second



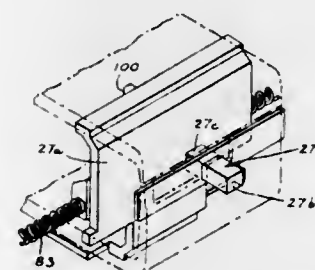
path to assist the golfer in swinging "out and through" when swinging at the teed ball.

3,561,765
PRACTICE PUTTING DEVICE
Larry D. Dixon, 1729 S. Grand Ave., Evansville, Ind., and William Virgil Johnson, Vanderburgh County, Ind. (R.R. 4, Box 411, Mesher Park Drive, Evansville, Ind. 47712)
Filed Apr. 8, 1968, Ser. No. 719,329
Int. Cl. A63b 57/00
U.S. Cl. 273-177



A simulated putting arrangement characterized by a guide arm angularly disposed on a partially enclosed inclined plate member, where the opening to such plate member for the golf ball is the same as an actual cup, and where the position of the guide arm permits the ready return of the golf ball to the practice putter. The guide arm angles towards one side of the device in a range of between 15° and 25° with reference to a vertical plane along the length of the device.

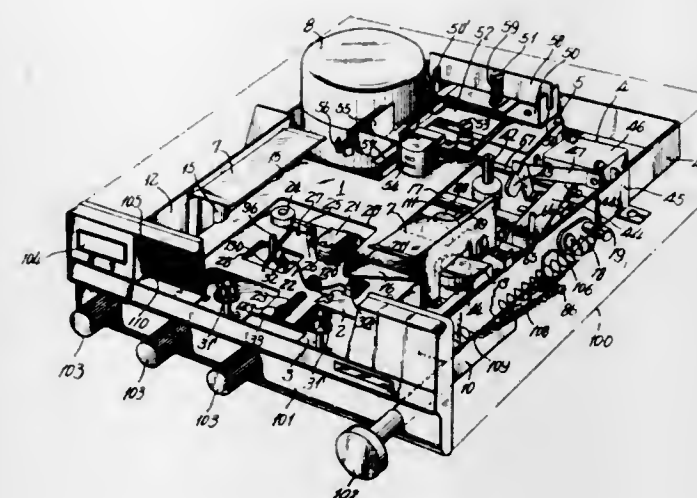
3,561,766
SWITCH ACTUATING MECHANISM FOR RECORD PLAYER
Jack L. Kelly, Bethel Park, Pa., and Ronald K. Wiandt, Decatur, Ill., assignors to General Electric Company, a corporation of New York
Filed Jan. 6, 1969, Ser. No. 789,173
Int. Cl. G11b 17/00
U.S. Cl. 274-1



In a miniature record player for reproducing diminutive records, there is provided a multifunctional slidable actuator

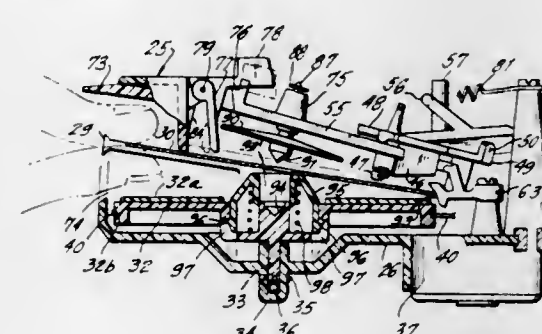
which is manually operable to select "on," "off," "reject," or "repeat" play. Characterized by simplicity, this actuator is only a single part which is controlled by a single spring that is loaded in two directions.

3,561,767
TAPE PLAYER
Tokuji Negishi, Kawaguchi-shi, Japan, assignor to Teikoku Dempa Co., Ltd., a corporation of Japan, by mesne assignment
Filed Apr. 15, 1968, Ser. No. 721,393
Int. Cl. G11b 5/00
U.S. Cl. 274-4



The present invention is an improvement in tape recorders, and provides a new mounting mechanism in the tape player onto which a two reel type tape cartridge is mounted including an elevator for moving said two reel-type tape cartridge in its width direction, as well as a sliding table on this elevator, and at the same time permits interchangeability between said two reel-type tape cartridge and either or both of a single reel-type tape cartridge with pinch roller or without pinch roller, thereby enabling the playing of many different types of cartridges with the same tape player for which in the past a plurality of tape players have had to be used.

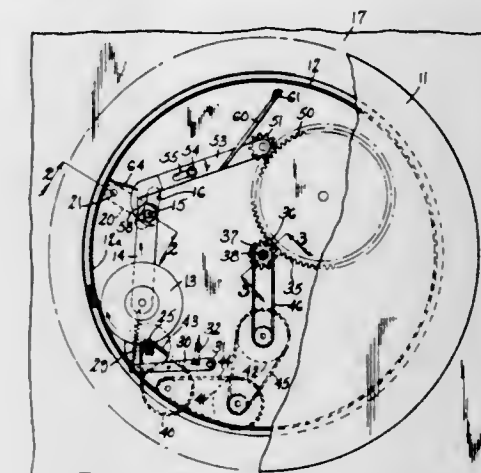
3,561,768
PHONOGRAPH
John F. Castagna, Brooklyn, N.Y., assignor to Castagna Electronics Corporation, Brooklyn, N.Y., a corporation of Delaware
Filed Apr. 28, 1969, Ser. No. 819,834
Int. Cl. G11b 3/00, 25/04
U.S. Cl. 274-9



A phonograph for playing thin flexible vinyl disc records is provided with means for automatically lifting the record from the turntable so that it may be readily grasped for manual removal. Cooperating with the record-lifting means is a spindle for centering the record on the turntable and a flange associated with the spindle for clamping the record against the turntable during rotation of the latter. The centering spindle and clamping means are mounted to a hinged platform which also carries the tone arm. When the hinged platform is raised, the tone arm is operated to a position where the stylus is aligned with the record lead-in groove and upon sub-

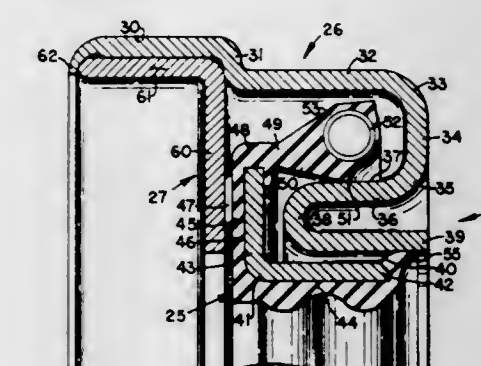
sequent lowering of the hinged platform a switch is automatically operated to energize the electrical circuits for rotating the turntable and operating the amplifier. When the stylus is in the record lead-out groove, an extension of the tone arm operates a switch to deenergize the motor and amplifier.

3,561,769
RECORD PLAYERS
Robert H. Boynton, 6 Westland Ave., Milford, Conn. 06460, and James S. Boynton, 559 Pepper St., Monroe, Conn. 06468
Continuation-in-part of application Ser. No. 524,888, Feb. 3, 1966, now abandoned. This application May 8, 1968, Ser. No. 727,528
Int. Cl. G11b 19/22
U.S. Cl. 274-9



A mechanism for use in conjunction with automatic record changers, in order to momentarily stop a turntable while the record changer is permitting a record to fall onto the turntable. The mechanism includes a braking device for stopping the turntable and a device for preventing the drive system from moving the turntable.

3,561,770
SHAFT SEAL
George L. Corsi, Southfield; Mario Zelaya, Royal Oak, and Stanley N. Smith, Farmington, Mich., assignors to Federal-Mogul Corporation, Southfield, Mich., a corporation of Michigan
Filed Oct. 7, 1968, Ser. No. 765,315
Int. Cl. F16j 15/32; 15/02
U.S. Cl. 277-35



A unitized seal for sealing between a stationary shaft and the bore of a rotating housing. The shaft-supported annular oil-sealing element has a metal reinforcing member with an inner cylindrical reinforcing portion and a radially outwardly extending radial flange; an elastomeric element molded and bonded to the reinforcing element has an inner peripheral portion for snug engagement of the stationary shaft, a dirt-excluding lip extending radially outwardly from the free edge of the cylindrical reinforcing portion, a radially outwardly extending portion on the axially outer surface of the radial flange and extending axially outwardly thereof, and a main oil-sealing element lying mostly radially outwardly beyond the radial flange and axially back in the direction of the

cylindrical portion and having a lip body with a lip member on the radially inward side thereof. A wear sleeve member has an outermost cylindrical portion adapted to fit in and rotate with the bore; a radial portion leads radially inwardly to a cylindrical wear sleeve portion in engagement with the main oil sealing lip, and a recurved portion leads radially in from there to an innermost cylindrical portion in engagement with the dirt-excluding lip. A unitizing member has a cylindrical portion fitting held snugly inside the outermost cylindrical portion and a radial flange leading radially inwardly.

3,561,771

DEVICE FOR THE ALIGNMENT OF A SHEET

Werner Koch, Gotzenhain Über Langen, Germany, assignor to Roland Offsetmaschinenfabrick Faber & Schleicher A.G., Offenbach am Main, Germany, a corporation of Germany

Filed Aug. 13, 1968, Ser. No. 752,330

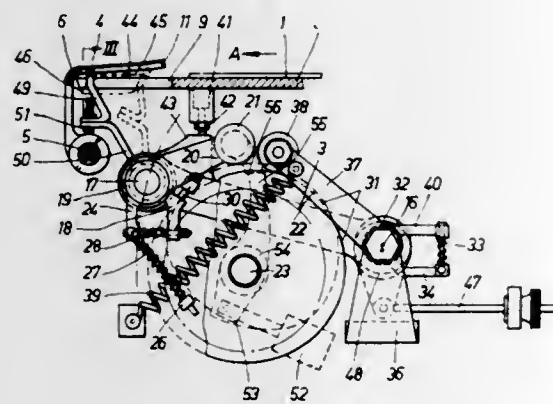
Claims priority, application Germany, Aug. 16, 1967,

P 16 11 367.0

Int. Cl. B65h 9/06

U.S. Cl. 271—60

12 Claims



A control device for alignment marks controlling the feed of sheets in a sheet processing machine comprises means for producing movement of the marks in two parts which are independently controllable. A drive shaft supports two control cams, one of which oscillates a shaft lying parallel to the sheets on a feed table, the shaft mounting a lever which carries a second shaft oscillatable by the second cam. The marks are attached to the second shaft.

3,561,772

RECLINING EXERCISING DEVICE

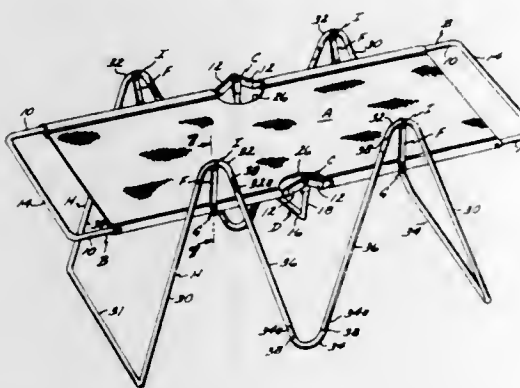
Joan Curtess, La Mesa, Calif., assignor to Embro Co., Inc.

Filed Sept. 24, 1968, Ser. No. 762,113

Int. Cl. A63b 23/02; A47c 19/06; A61a 7/06

U.S. Cl. 272—58

7 Claims



An elongate flexible panel on which a user rests, which is supported within the confines of two U-shaped tubular pivotally connected frames. The frames in turn are pivotally supported by a number of upwardly extending links connected to the centers of the upper apexes of M-shaped transversely connected side pieces that may be collapsed at will from this expanded first position to a contracted second position for storage. When the side pieces are in a first expanded position the user may pivot the frames angularly relative to

one another and at least partially by the weight of his body to make active exercise simple and easy, and in so doing, stretch and strengthen the body muscles. The panel is of zippered structure and is removably secured to the side pieces of the frames.

3,561,773

FLOATING-RING SHAFT SEAL

Hans Baumann, Homburgsteig 15, Nussbaumen, and Heinrich Lorenzen, Augartenstrasse 221, Enneturgi, Switzerland

Filed Jan. 15, 1969, Ser. No. 791,449

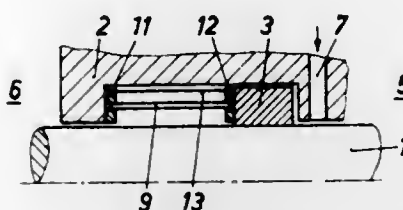
Claims priority, application Switzerland, Jan. 25, 1968,

1190/68

Int. Cl. B65d 53/00

U.S. Cl. 277—71

4 Claims



A shaft seal for sealing off an opening where the shaft passes through a wall enclosing a pressurized space comprises a floating sealing ring located within a recess in the wall opening and surrounding the shaft. A fluid sealing medium is introduced into the recess under pressure which causes the sealing ring to be forced axially in the direction of a wall surface within the recess, and a supporting member, for example, in the form of an assembly of axially extending rods surrounds the shaft intermediate the sealing ring and the wall surface to take up the force applied against the sealing ring by the pressurized sealing medium. The axially extending rods are stiff in an axial direction but flexible in a radial direction so as to allow the ends thereof in contact with the sealing ring to shift radially and accommodate themselves to radial shifts of the sealing ring. A cylindrical liner can be installed around the rod assembly to seal it off from pressures which would otherwise be exerted directly against it by the pressurized sealing medium.

3,561,774

THREE-DIMENSIONAL GAME

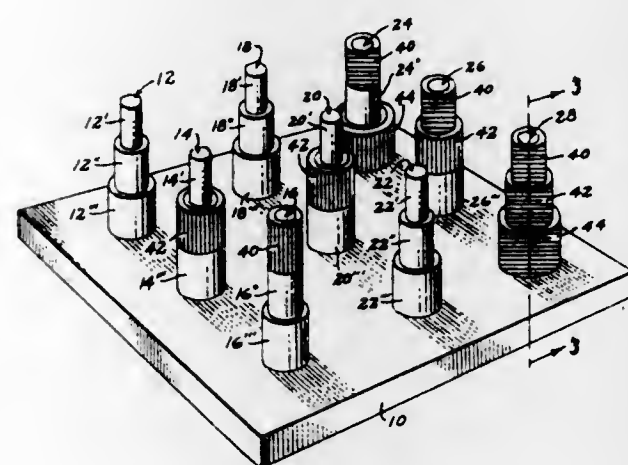
Lester C. Brinser, 1730 Briggs Chaney Road, Silver Spring, Md. 20904

Filed May 15, 1968, Ser. No. 729,202

Int. Cl. A63f 3/00

U.S. Cl. 273—130

6 Claims



A base means has a plurality of spaced support members extending upwardly therefrom. Each of these support members includes a plurality of shoulders extending therearound. A plurality of tubular playing pieces are provided which are adapted to fit within one another and to fit over the support members to be supported on said shoulders at different vertical levels so that a plurality of playing pieces of one player

may be aligned in lines extending horizontally, vertically or diagonally through the playing pieces when supported in playing position relative to said support members.

3,561,775

SEALING DEVICE COMPRISING AN O-RING

Leif V. Sturlason, Sonderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark, a company of Denmark

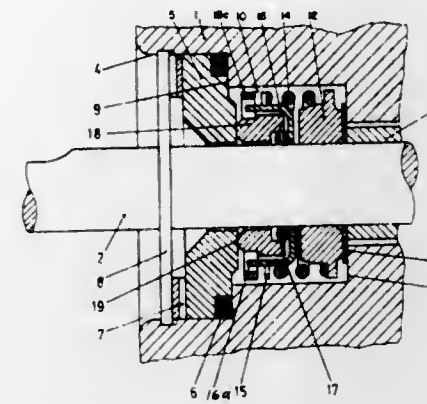
Filed May 17, 1968, Ser. No. 729,984

Claims priority, application Germany, May 18, 1967, D53111

Int. Cl. F16j 15/38

U.S. Cl. 277—87

6 Claims



A sealing device comprises a component encircling a shaft with the component having a steeped circular groove coaxial with the shaft. The deeper portion of the groove is closer to the surface of the shaft than the shallower portion and the edge of the step defining the two portions is located at a distance from the surface of the shaft that is greater than the radius but smaller than the diameter of an O-ring received in the groove. Means are provided for loading the O-ring against the edge of the step and roll into the deeper portion of the groove thus effecting a seal between the component and the shaft.

3,561,776

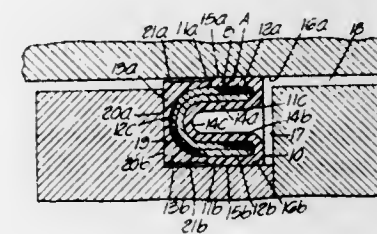
COMPOSITE RING SEAL AND METHOD OF MAKING
John D. Wilson, Pacific Palisades, Calif., assignor to The Fluorocarbon Company, Anaheim, Calif., a corporation of California

Filed Nov. 20, 1968, Ser. No. 777,227

Int. Cl. F16j 15/32

U.S. Cl. 277—206

23 Claims



A radial loaded ring seal having an annular jacket of suitable material such as Teflon, the jacket being of channel-shaped cross section surrounding a loading spring of channel-shaped cross section, the loading spring being fabricated from a spring strip of suitable material such as stainless steel by being helically wound into a tube in which the edge margins of the successive convolutions are in overlapping relation, the tube then being formed into a ring and deformed under suitable pressure means in a die or by other suitable means into a generally U-shaped annular spring member having a double-walled channel with a radial side opening, after which the preformed jacket is applied to the spring to provide a composite structure in which the jacket forms a shield for the spring which in turn provides radial energizing means for the jacket.

3,561,777

BICYCLE WITH SUPPORT SKIS

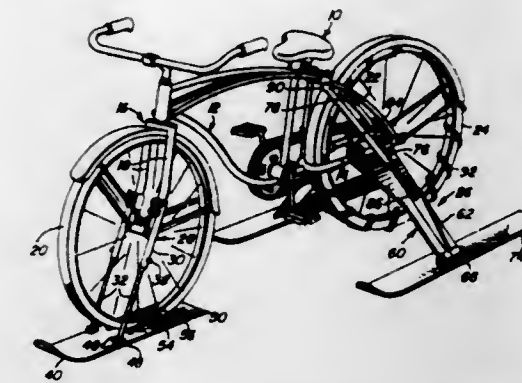
Harry F. Geis, Willow Glenn Drive, Kalispell, Mont. 59901

Filed Apr. 9, 1969, Ser. No. 814,540

Int. Cl. B62k 13/00

U.S. Cl. 280—7.12

7 Claims



An attachment for a two-wheeled bicycle including a pair of upstanding front fork extension arms for securement to the lower ends of the legs of the fork and including, alternately, a forward ski or float supported from their lower ends upon and to which the front wheel of an associated bicycle may rest and be secured. The attachment also includes a pair of upstanding rear support legs for securement, in downwardly divergent relation, to the opposite sides of the rear portion of a bicycle frame and which are each provided with, alternately, a ski or float at its lower end.

3,561,778

THREE WHEELED VEHICLE

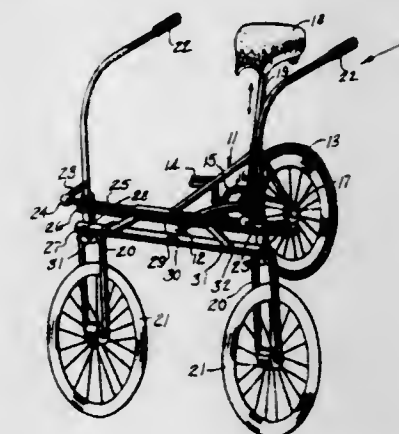
Edward G. La Brie, 53 Chaney Ave., Tupper Lake, N.Y. 12986

Filed Mar. 6, 1968, Ser. No. 812,862

Int. Cl. B62k 21/02, 9/02

U.S. Cl. 280—7.14

1 Claim



A novel tricycle having a rear wheel which is pedal and chain driven, the front end of the vehicle having a pair of parallel forks to carry the front wheels which are steerable by a handlebar's upper portion. The front wheels of this tricycle are of such construction as to allow the rider when stopped to maintain balance without removing his feet from the pedals. This vehicle also allows the rider to bank into a turn and provide maximum safety for the rider at higher speeds which cannot be attained with the conventional tricycle-type of vehicle.

3,561,779

HEEL- OR TOE-HOLDING APPLIANCE FOR SAFETY

SKI BINDINGS

Otto Huss, No. 26, Wallgau, Germany

Filed Sept. 6, 1968, Ser. No. 758,054

Claims priority, application Germany, Sept. 14, 1967,

P 15 78 856.4

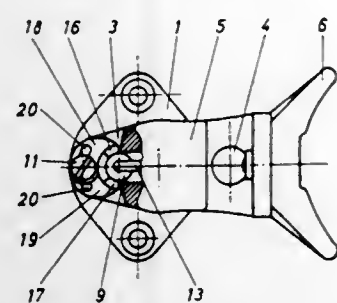
Int. Cl. A63c 9/08

U.S. Cl. 280—11.35

9 Claims

A soleholder carrier is pivoted to a mounting, e.g., the baseplate, on an axis which is vertical or transverse to the ski. The soleholder carrier is also connected to the mounting by a

detent device, which is automatically releasable in response to an overload. The concave detent socket member is adjustably mounted on that part of the appliance which carries



said socket member and in such a manner that its angle or area of contact with the convex detent element is variable to vary the force required for a release.

3,561,780

SAFETY SKI BOOT FRONT BINDING

Georges P. J. Salomon, 34 de Loverchy Avenue, Annecy, Haute-Savoie, France

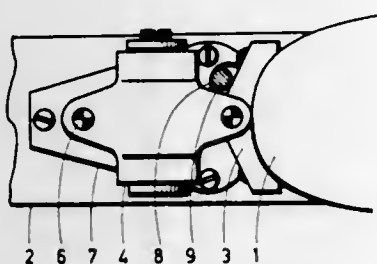
Filed Jan. 6, 1969, Ser. No. 789,157

Claims priority, application France, Jan. 10, 1968, 135563

Int. Cl. A63c 9/00

U.S. Cl. 280—11.35

8 Claims



A ski boot front binding which can be opened to release the ski boot by means of a ski pole acting as a lever and which produces forces substantially equal to the forces necessary for the safety release of the binding.

3,561,781

SAFETY SKI BOOT TOE FIXTURE

Noriyasu Hashioka, and Kesao Shinohara, Tokyo, Japan, assignors to Hope Kabushiki Kaisha, Tokyo, Japan, a corporate body of Japan

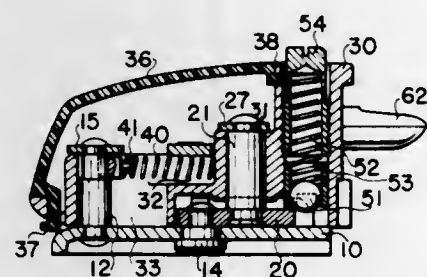
Filed July 15, 1969, Ser. No. 841,784

Claims priority, application Japan, July 31, 1968, 43-66111; 43-66112; 43-66113; 43-66114; 43-66115

Int. Cl. A63c 9/00

U.S. Cl. 280—11.35

6 Claims



A safety ski boot toe fixture comprises a base, a turning member, a toe-fitting member and a spring or other means for pressing the turning member to the base under compression. The turning member, such as a disc, has a semicircular hole, a circumferential projection comprising steep slopes at both sides of the semicircular hole and flat portions in succession with the steep slopes. A vertical pin is fixed at the

center portion of the turning disc which is turnably fixed to the base and is connected to the toe-fitting member by the vertical pin. The toe-fitting member, having a deep slot at its fore portion, is positioned on a second vertical pin provided at the fore portion of the base. A first spring is provided under compression between the two vertical pins. A ball above the semicircular hole is held under compression and will never be displaced up to the flat portion of the circumferential projections unless unreasonable side force is applied to the toe, while the ball once coming to the flat portion, will easily be displaced to disengage the toe. In the disengaging position the first spring contributes to turn back the toe-fitting member to the toe engaging position by its increased pressure.

3,561,782

SKI POLE CONSTRUCTION WITH LIQUID RESERVOIR

Donald P. Tyrack, 5840 Avenida LaBarrance NW., Albuquerque, N. Mex. 87100

Filed Jan. 23, 1969, Ser. No. 793,429

Int. Cl. A63c 11/22

U.S. Cl. 280—11.37

7 Claims



A ski pole having an upper hollow end providing a liquid container. The contoured handgrip is readily applicable and removable, and is provided with a latch-controlled locking device. The handgrip when removed permits partial withdrawal of a flask for drinking use. In addition, the locking device functions as a safety release if the basket at the pointed lower end of the ski pole should become snagged on a tree, a bush or other obstruction.

3,561,783

SKI BIKE

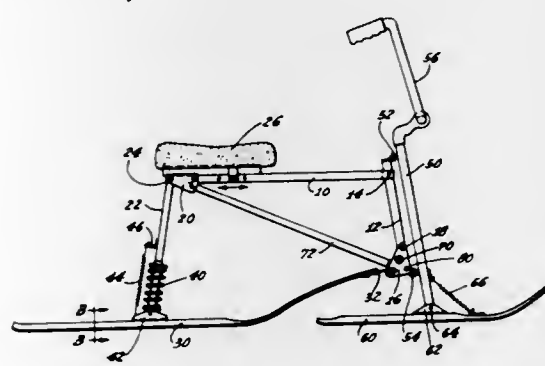
Richard H. Ellett, 4435 Sunset Ave, Montrose, Calif. 91020

Filed June 9, 1969, Ser. No. 831,517

Int. Cl. B62b 13/04

U.S. Cl. 280—16

9 Claims



An improved collapsible ski bike is provided for gliding down snow covered slopes. The ski bike of the invention in-

cludes a frame supported on a rear ski by means of a shock absorber, a seat mounted on the frame, and turnable steering means including handle bars attached to the frame and supported on a forward ski.

3,561,784

TRANSMISSION FOR TRANSMITTING A MOVEMENT

Manfred Bantle, Esslingen-Hegensberg, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

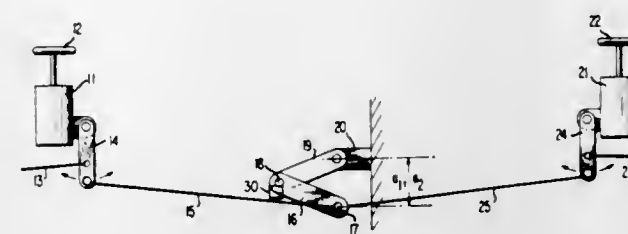
Filed Mar. 6, 1968, Ser. No. 710,812

Claims priority, application Germany, Mar. 7, 1967, D52453

Int. Cl. B62d 7/00

U.S. Cl. 280—91

14 Claims



A transmission system for the transmission of movement from one movement system to another movement system with a device for controlling and possibly effectively disconnecting the transmission of movement, in particular for crank gears and the steering system of several pairs of wheels in motor vehicles, in which a linkage is provided between a lever arm of one movement system and between a lever arm of the other movement system; the linkage includes an intermediate lever system having adjustable lever arm lengths at least for the partial linkage connected with the lever arm of one movement system, but preferably providing adjustable lever arm lengths for both partial linkages.

3,561,785

PROTECTIVE COVER FOR VEHICLES

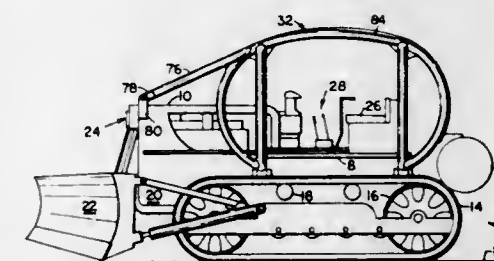
Charles C. Kidder, Rte. 1 Box 735, Crannell, Calif. 95530

Filed Mar. 5, 1969, Ser. No. 804,599

Int. Cl. B62d 25/06

U.S. Cl. 280—150

3 Claims



A protective cover for placement over the driver's seat of a vehicle and defined by a plurality of arcuate members secured to the vehicle. The members define oval shaped, arcuate roll surfaces extending over an arc of more than 180° so that objects striking the canopy slidably move along the roll surfaces under their own weight and off the canopy and the vehicle without contacting the operator of the vehicle.

3,561,786

VEHICLE ENTRANCE STEP APPARATUS

Russell E. Lentz, 110 W. Fifth St., Hutchinson, Kans. 67501

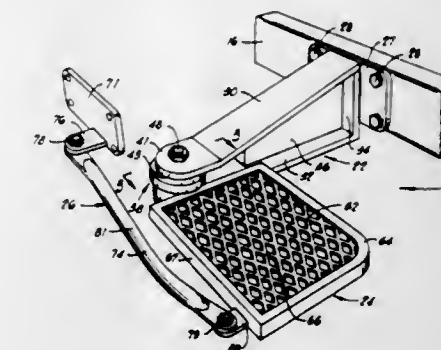
Filed Mar. 21, 1969, Ser. No. 809,081

Int. Cl. B60r 3/02

U.S. Cl. 280—166

3 Claims

This invention is an entrance step apparatus having a support assembly attachable to the frame of a vehicle; a step assembly pivotally connected to the support assembly movable from concealed to usage positions; and an actuator assembly connected to a movable door structure of the vehicle and the step assembly operable on movement of the door structure to conceal and reveal the step assembly. This invention is



operable to position an entrance step structure in a nonuse condition under the vehicle body and pull the same out-

wardly therefrom to the usage condition on movement of an adjacent door structure or the like.

3,561,787

COLLAPSIBLE FRAME FOR A BABY CARRIAGE

Tokuzoh Toda, and Isao Niino, Tokyo, Japan, assignors to Suzuki Baby Company Limited, Tokyo, Japan

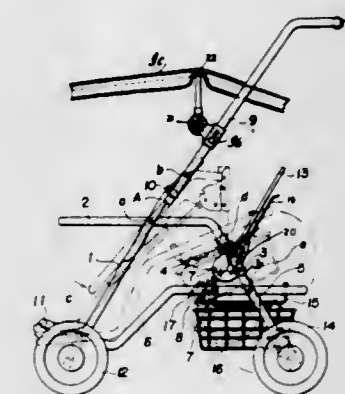
Filed Dec. 20, 1968, Ser. No. 785,550

Claims priority, application Japan, Dec. 23, 1967, 42/82316

Int. Cl. B62b 11/00

U.S. Cl. 280—41

6 Claims



A baby carriage frame is collapsible from an open position to a closed position. The frame is formed of a forward frame section and a rearward frame section pivotally interconnected by a support section and with a hand rail section pivotally secured to the forward frame section and articulated to the rearward frame section by a connector member. The connector member includes a locking notch into which a locking member mounted on the support section is engaged in the open position. With the locking member disengaged the various frame sections pivot relative to one another into a compact arrangement.

3,561,788

HITCH ADAPTER

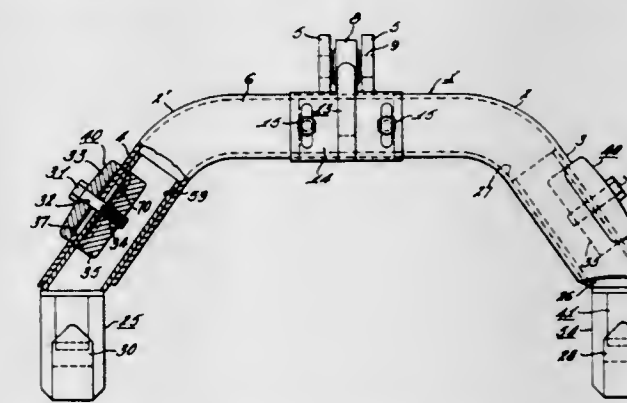
Richard G. Carlson, Greendale, and Craig W. Cannon, New Berlin, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Nov. 22, 1968, Ser. No. 778,047

Int. Cl. B60d 1/04

U.S. Cl. 280—461

10 Claims



A tractor hitch adapter carried on a three-point hitch for connecting a tractor to an implement.

3,561,789

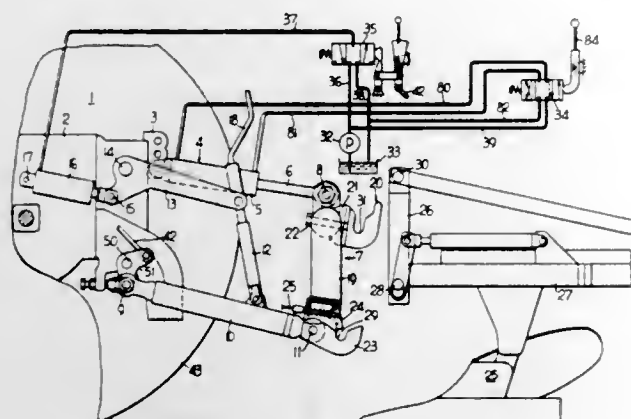
TRACTOR HITCH

Larry F. Stikeleather, Greendale, and Craig W. Cannon, New Berlin, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Nov. 22, 1968, Ser. No. 778,070
Int. Cl. B60d 1/04

U.S. Cl. 280—479

9 Claims



A powered three-point hitch carrying a hitch adapter for quick hitching to an implement. The three-point hitch is powered by any suitable means to provide horizontal and vertical movement of the hitch adapter.

3,561,790

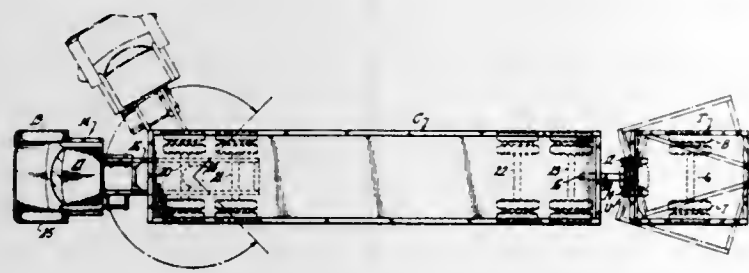
SELF-STEERING AND BACKABLE TRAILER

Herman E. Jurgens, 421 Banning Ave., Compton, Calif. 90222
Filed Oct. 11, 1968, Ser. No. 766,800

Int. Cl. B62d 53/06

U.S. Cl. 280—423

7 Claims



A self steering and backable highway trailer consisting of two components: (1) a cargo frame with vertically hinged drawbar at one end and nonswiveling wheels at the other end, and (2) a swivel-mounted front undercarriage or dolly coupled to the frame by a pair of dependent pivot pins spaced apart along the longitudinal axis of the frame and extending through a channeled pressure disc of the dolly. The pins form alternate swivel points for the dolly, on opposite sides of the transverse axle and in each case the functioning pivot point being in the direction of travel taken by the trailer, with the other pivot pin being swingable along an arcuate slot in the disc which slot is radiused from the socketed pivot pin. The pressure disc has two such arcuate channels, each with a central recess-socket so that whichever pivot pin is lodged in a recess-socket changes with direction reversal of the trailer, thus facilitating backing. Selective lock holds forward pin in socket during usual forward towing of trailer to prevent accidental displacement of pins into reverse position.

3,561,791

STEERING MECHANISM FOR AN APPLIANCE HAVING DIRECTIONAL WHEELS AND DRAWN BY A TRACTOR OR THE LIKE TO WHICH IT IS ATTACHED BY A THREE OR FOUR POINT LINKAGE

Arnold Gego, 67 Soerser Weg, Aachen, Germany
Filed Dec. 4, 1968, Ser. No. 781,103
Claims priority, application Germany, Dec. 8, 1967,
P 15 57 708.9

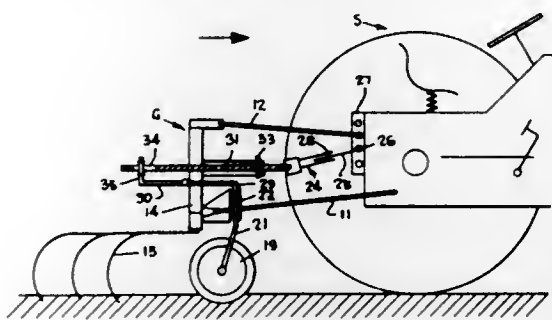
Int. Cl. B62d 53/00

U.S. Cl. 280—443

14 Claims

Steering mechanism for a tractor-drawn appliance having directional wheels and connected to the tractor by a three- or

four-point linkage. The mechanism has a steering shaft pivotally connected to the rear end of the tractor and to the appliance chassis. Steering members are connected both to



the steering shaft and to the directional wheels. On lateral displacement of the steering shaft with reference to the direction of travel of the tractor, the directional wheels are deflected in the same sense.

3,561,792

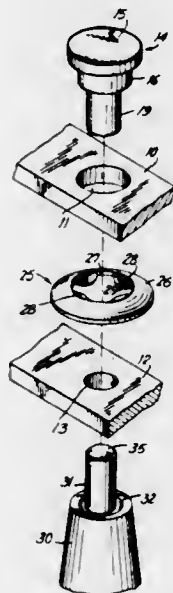
RIVET PIVOTED MEMBERS AND WASHERS THEREFOR

Izchak Cycowicz, Brooklyn, N.Y., assignor to Super Sagless Spring Corp., Bayonne, N.J., a corporation of New York
Filed Jan. 7, 1969, Ser. No. 789,549

Int. Cl. F16c 11/00; F16b 43/00

U.S. Cl. 287—101

5 Claims



A pair of metal members are connected by a rivet, with a washer on the rivet and disposed between said pivoted members. The washer is made of synthetic plastic, resilient, good wearing, low friction bearing material. The washer has an annular outer portion from which an inner thinner or finned portion projects inwardly to center the rivet, thereby providing more space for lubricating oil. The outer annular portion of the washer is cup-shaped or annularly sinuous to make the washer resilient. When used with a shouldered rivet, the centering finned portion centers on the smaller diameter portion of the rivet to prevent the rivet from becoming offset, as is the case with washers having a hole large enough to receive the large diameter part of the rivet. During the riveting process, the centering finned portion may be torn off by the shoulder of the rivet.

3,561,793

SEAL ELEMENT AND SPACER MEMBER FOR USE THEREWITH

John E. Rode, Ligonier, Pa., assignor to Temper Corporation, Ligonier, Pa., a corporation of Pennsylvania
Filed Sept. 3, 1969, Ser. No. 854,879

Int. Cl. F16l 55/00

U.S. Cl. 285—13

14 Claims

The disclosure pertains to the combination of a seal element and a spacer member for being interposed between a

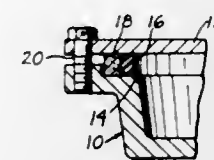
3,561,796

PITLESS WELL ADAPTER

Clifford C. Williams, 400 N. Raynor Ave., Joliet, Ill. 60435
Filed Dec. 31, 1968, Ser. No. 788,203
Int. Cl. F16l 17/02

U.S. Cl. 285—106

10 Claims



pression of the seal element when the parts are connected together and is formed of a porous powdered metal material so as to drain off from around the outside of the seal element any fluid escaping from the inside of the seal element to the outside thereof.

3,561,794

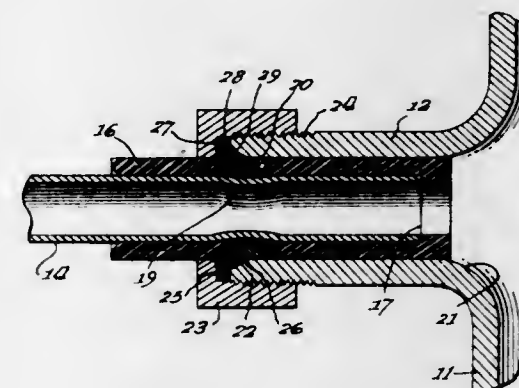
INSULATION GASKET

Charles L. Dobbelaere, and Michael J. Rafalski, Jr., South Bend, Ind., assignors to M. B. Skinner Company, Division of the Fanner Manufacturing Company, Division of Textron Inc., Providence, R.I., a corporation of Delaware
Filed Apr. 17, 1969, Ser. No. 816,944

Int. Cl. F16l 11/12

U.S. Cl. 285—52

9 Claims



An insulation device for electrically insulating, sealing, and securing fluid conducting conduit members. The device preferably comprising a tubular sleeve and a plastic skirt disposed about a portion of the sleeve.

3,561,795

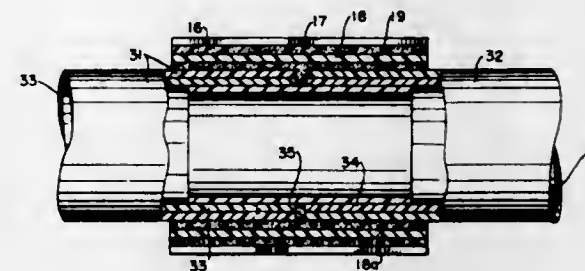
PIPE CONNECTIONS

Udo Becher, Leipzig, Germany, assignor to VEB Montagewerk Leipzig, Leipzig, Germany
Filed Apr. 15, 1968, Ser. No. 721,232

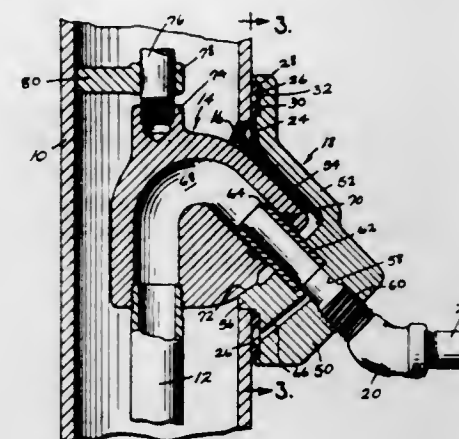
Int. Cl. F16l 13/10, 47/00

U.S. Cl. 285—55

5 Claims



Pipe connection for joining two pipes having two concentric pairs of half shells around the joint ends of the two pipes to be connected, the inner pair being larger in diameter than the pipes and the outer pair being larger than the inner pair, with large-area bonding interstices therebetween. The gaps between half shells are angularly staggered between the inner and outer pairs. Preferably the gaps are filled up with the same bonding agent used to interconnect the pipes with the pairs of half shells.



A pitless well adapter having an outer adapter part anchored to a well casing around an opening and having a discharge passage therethrough, and an inner adapter part within the well casing supported by and interconnected with said outer part and having a passage in communication with the discharge passage of said outer part. A pair of spaced gasket rings interposed between said outer part and said well casing around said casing opening define an endless spaced passage which communicates with a passage branching from the discharge passage in said outlet part.

3,561,797

COUPLING FOR GAS-TIGHT CONNECTION OF TWO TUBULAR CASING SECTIONS OF A PRESSURE GAS INSULATED SWITCH PLANT

Karl-Heinz Wagner, Mannheim, Germany, assignor to Aktiengesellschaft Brown, Boveri & Cie., Baden, Switzerland, a joint stock company

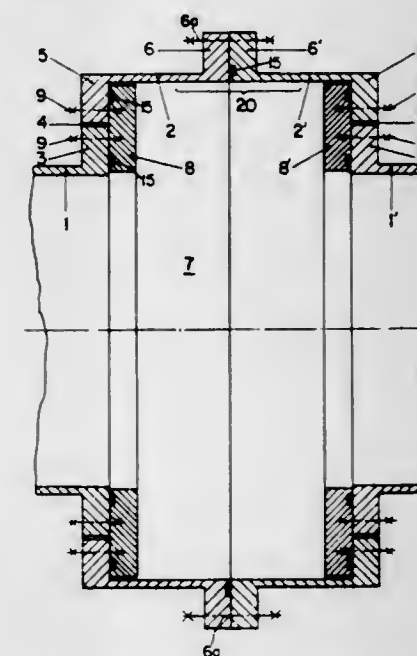
Filed Apr. 8, 1969, Ser. No. 814,255

Claims priority, application Germany, Apr. 18, 1968,
1,750,285

Int. Cl. F16l 17/00

U.S. Cl. 285—368

7 Claims



In a coupling for the gastight connection of two coaxial tubular casing sections of a pressure gas insulated switch plant which enclose electrical components the sections are provided with outwardly directed end flanges, are spaced apart axially, and the spacing between the end flanges is bridged over by two tubular coupling parts which have outwardly directed, bolted together flanges meeting in a sealed joint

and inwardly directed flanges in alignment with the end flanges on the tubular casing sections so as to form circular joints between the confronting end faces of the outwardly and inwardly directed flanges. The inwardly directed flanges on the coupling parts are secured to the outwardly directed flanges on the tubular casing sections by means of a series of bolts and a flange ring and which also provides a seal structure for the circular joint.

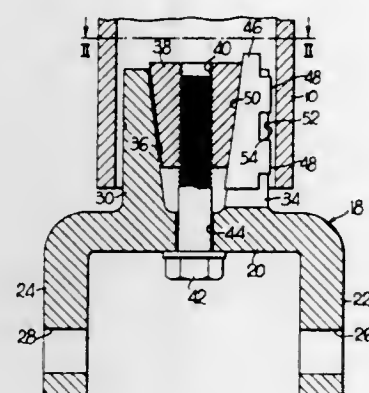
3,561,798

DISCONNECT SWITCH HAVING INTERNALLY CLAMPED ROTARY COUPLING

Calvin E. Redfern, Portland, Oreg., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Oct. 13, 1969, Ser. No. 865,758
Int. Cl. F16b 1/00

U.S. Cl. 287—20.3

4 Claims



The hollow tubular rotatable control rod of an electrical disconnect switch is connected to a yoke which effects rotary movement thereof by means of a slotted hollow cylindrical member on the yoke which projects into one end of the hollow rod. Each slot is provided with a taper key located therein. A frustoconical nut is drawn up inside the member on the yoke to cause radial movement of the taper keys and a snug fit between exterior surface of the latter and the interior surface of the rod.

3,561,799

DETENT FASTENER

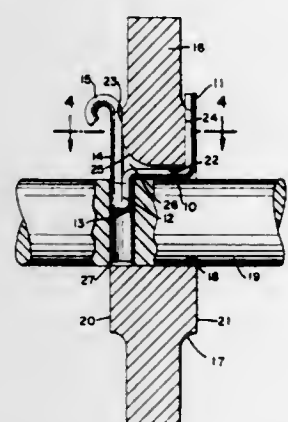
Francis M. Hutchinson, 141 Springer Road, Box 83, Fairfield, Conn. 06430

Filed Aug. 13, 1969, Ser. No. 849,697

Int. Cl. F16d 1/06

U.S. Cl. 287—52.05

12 Claims



A detent fastener for releasably holding together two structural parts, such as spindle and a wheel member mounted thereon having a hub provided with an axial spindle-receiving opening. The fastener comprises a generally U-shaped spring wire clip for interlocking engagement in grooves provided in the axial opening and sides of the wheel hub, and includes a yieldable spring-loaded detent pin portion for releasable snap engagement in a transverse diametric hole provided in the spindle, whereby the wheel member is held against both axial and rotational movement relative to the spindle. Means is provided for manually retracting the detent pin portion from the spindle hole without the use of tools to enable removal of the wheel member from the spindle.

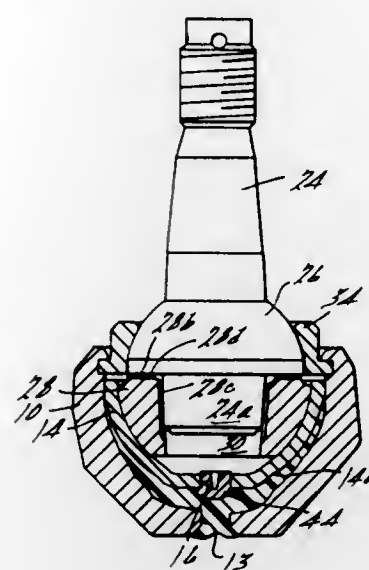
3,561,800

PRELOADED BALL JOINT

Morris Hassan, Trenton, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Nov. 21, 1969, Ser. No. 878,735
Int. Cl. F16c 11/06

U.S. Cl. 287—87

5 Claims



A ball joint incorporating means for insuring a proper joint preload throughout the life of the joint. The preloading is accomplished by injecting plastic into a portion of the joint at a pressure sufficient to firmly press the joint components together. The plastic becomes an integral part of the joint and distributes substantially uniform pressure across the joint components. Due to its location in the joint, the plastic is not in contact with the components of the joint which move, and hence, the degree of preload is not effected through wear of the plastic.

ERRATUM

For Class 287—101 see:
Patent No. 3,561,792

3,561,801

SPRING TUBE CONNECTING MEMBER

Joseph Chak Fai Chiu, Kowloon, Hong Kong, assignor to Chiu's Joint System Limited, Tai Wai, Shatin, New Territories, Hong Kong, Japan

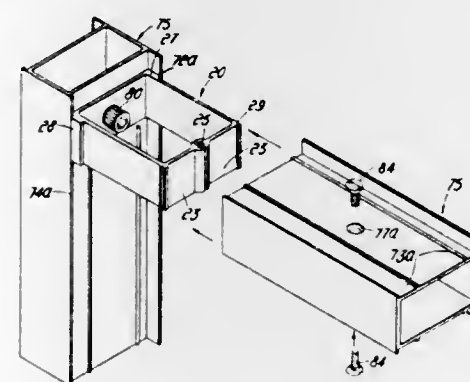
Filed Sept. 25, 1969, Ser. No. 861,076

Claims priority, application Great Britain, June 2, 1969, 27836/69

Int. Cl. F16b 7/18

U.S. Cl. 287—189.36

12 Claims



A constructional unit for connecting together hollow tubes includes a first connecting member with a base portion and an insert portion having flanged prongs, the free ends of the prongs facing each other and formed to define a threaded bore when compressed together. The second connecting member has a common base for two insert portions of the type the first connecting member has. The base portions are apertured and a three-dimensional, easily demountable and assemblable constructional system can be built up.

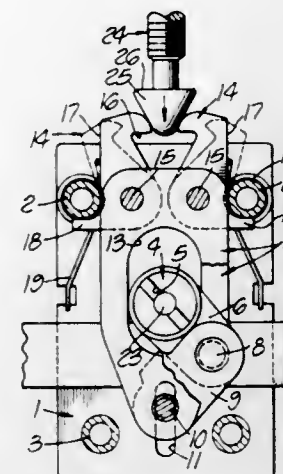
3,561,802

OPPOSED JAW LATCH

James E. Brockway, Venice, Calif., assignor to Hartwell Corporation, Los Angeles, Calif., a corporation of California
Filed Nov. 13, 1968, Ser. No. 775,327
Int. Cl. E05c 9/16, 19/12

U.S. Cl. 292—49

13 Claims



A latch having opposed and pivoted keeper jaws for engagement with a latch bolt thrust therebetween; the jaws being pivoted about separated parallel axes or a common axis by a common pair of slide plates; the slide plates, in turn, being moved by pivotally connected lever pairs one end of each being connected to a slide plate, the other being connected to a fixed axis of rotation, and the intermediate connection between the lever pairs also being joined to an operating bar connected to similar opposed jaw latches; the keeper jaw being movable between a locked position to secure a mating latch bolt, and an open position to receive the latch bolt freely, through an intermediate position wherein the keeper jaws are yieldable to spreading thrust exerted by the keeper bolt. One form of the opposed jaw latch being operable directly by rotation at the fixed axis as well as by the operating bar.

3,561,803

DOOR PULL LOCK

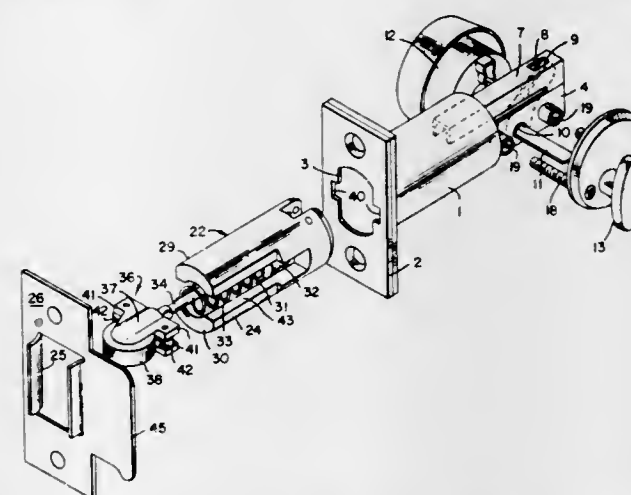
Ernest L. Schlage, Burlingame, Calif., assignor to Schlage Lock Company, San Francisco, Calif., a corporation of California

Filed May 12, 1967, Ser. No. 637,988

Int. Cl. E05c 1/02, 1/16

U.S. Cl. 292—15

6 Claims



The combination of a spring-urged roller or bullet catch and a deadbolt mounted for projecting from the edge of a

3,561,804

POSITIVE HOLDING DOOR AND WINDOW LOCK

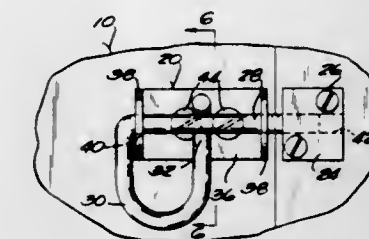
Dean R. Brown, Gages Lake, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill., a corporation of Delaware

Filed Feb. 11, 1969, Ser. No. 798,295

Int. Cl. E05c 5/04

U.S. Cl. 292—58

5 Claims



Disclosed herein is a positive holding bolt action lock having a base with a flat center portion and a pair of parallel end members and a bolt having a shank at one end which is supported by said end members for rotary and axial motion on the base and a half loop handle at the other end of the bolt encircling one of the end members and overlapping the shank.

3,561,805

DOOR LOCKS AND HANDLES THEREFOR

Albert Shaw, Bolton, England, assignor to Strebor Diecasting Company Limited, Radcliffe, England, a body corporate of Great Britain

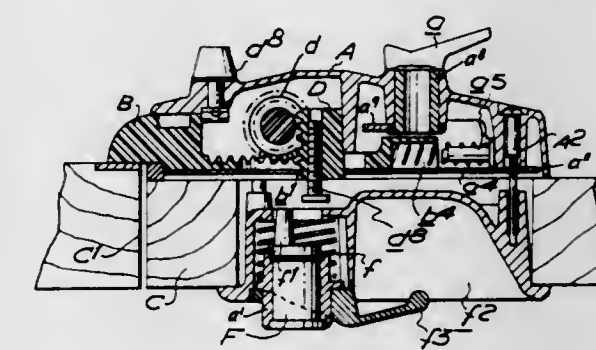
Filed Mar. 22, 1968, Ser. No. 715,252

Claims priority, application Great Britain, Apr. 22, 1967, 18656/67

Int. Cl. F05b 55/06; E05c 1/14

U.S. Cl. 292—172

5 Claims

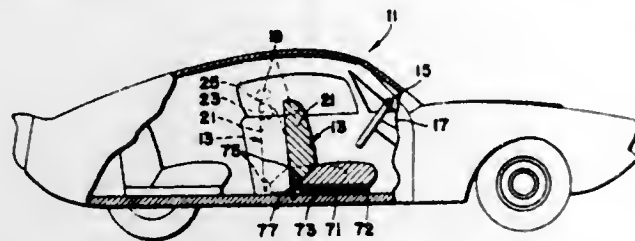


A pushbutton for operating a lock bolt through a rack and pinion to provide a movement of the bolt greater than the movement of the pushbutton.

3,561,806
VEHICLE SAFETY SYSTEM
 Quong Non Tse, 2315 S. Wentworth,
 Chicago, Ill. 60616
 Filed Sept. 19, 1968, Ser. No. 760,797
 Int. Cl. B60r 21/02

U.S. Cl. 297-216

8 Claims

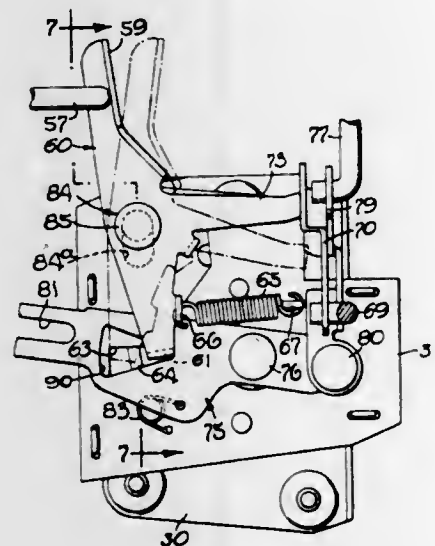


A head support for a vehicle passenger is automatically moved from an inoperative, retracted position to an operative head supporting position behind the passenger's head to reduce the possibility of injury due to "whiplash." Additionally, the passenger seat may be automatically shifted rearwardly away from the dashboard, windshield and steering wheel conjointly with shifting of the head support into the operative head supporting position.

3,561,807
FREE-WHEELING LATCH FOR VEHICLE DOORS
 Leonard K. Ploughman, Rockford, Ill., assignor to Atwood Vacuum Machine Company, Rockford, Ill., a corporation of Illinois
 Filed Oct. 22, 1968, Ser. No. 769,488
 Int. Cl. E05c 3/26

U.S. Cl. 292-216

9 Claims



A free-wheeling, dual preset latch for a vehicle door includes a contactor which is mounted both for turning and for bodily shifting and which is coupled to a locking lever by a finger-and-slot connection permitting turning of the contactor relative to the locking lever while enabling the locking lever to shift the contactor bodily.

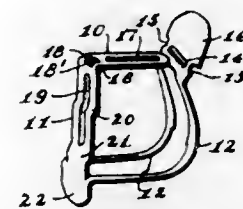
3,561,808
SEALING DEVICE
 John H. Beler, Pleasantville, and Henry Nierhaus, Scarsdale, N.Y., assignors to Stoffel Seals Corporation, Tuckahoe, N.Y.
 Filed Apr. 22, 1968, Ser. No. 723,220
 Int. Cl. B65d 55/06, 77/10

U.S. Cl. 292-307

19 Claims

A tamper-proof seal of sheet material having a flap adapted to be inserted into an aperture of the seal and foldable in one direction of rotation for insertion into the aperture whereby the flap has to be rotated in the opposite direction approximately 270° to attach the seal

and wherein weakened zones are provided in the are connecting the flap with the seal to assure breakage of the

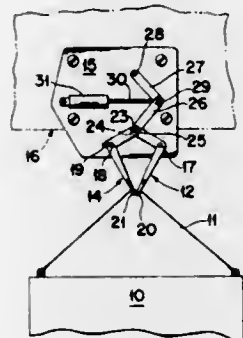


flap in case of tampering, whereby a rotation in the one direction of about 180° is required to open the seal.

3,561,809
HIGH TORQUE CARGO HOOK
 David G. Harding, Morton, Pa., assignor to The Boeing Company, Seattle, Wash., a corporation of Delaware
 Filed Dec. 29, 1967, Ser. No. 694,673
 Int. Cl. B66c 1/00, 1/36

U.S. Cl. 294-81

2 Claims

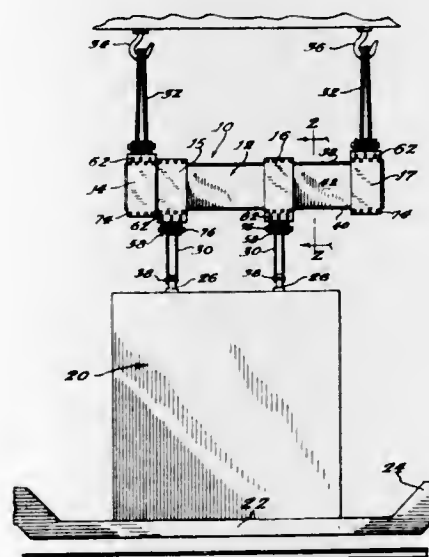


Cargo handling apparatus including a pair of arms having end portions adapted to receive a cargo sling for supporting a suspended load. The arms assume a loading position in which their end portions are disposed adjacent one another for receiving the sling at substantially a single location. After the sling is attached to the end portions, the arms are moved away from each other to provide support for the sling at spaced locations.

3,561,810
LIFTING BEAM ASSEMBLY
 Harold V. Newsted, Downers Grove, Ill., assignor to Power Systems, Inc., Chicago, Ill., a corporation of Delaware
 Filed Sept. 23, 1968, Ser. No. 761,529
 Int. Cl. B66c 1/12

U.S. Cl. 294-81

6 Claims



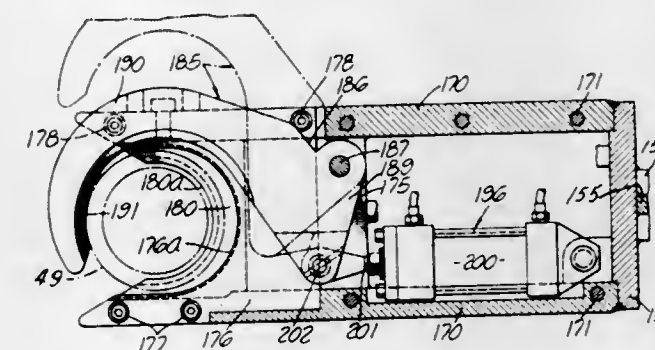
A lifting beam for cranes for use in the material handling area is designed in such a way that each one of a plurality of hanger brackets on the beam is movable along the length of the beam to an infinite number of positions

so as to make it possible to locate the hangers on the beam to balance the forces acting on the beam as a load is lifted. The beam generally is a wide flange beam and the hanger brackets are constructed in such a way as to provide rigidity to the beam without the use of stiffeners on the beam. The hanger brackets are reversible with the load attaching portion facing up or down as required. The hanger brackets can be located along the beam at precomputed locations depending upon the size of the load and the availability of one or two cranes for doing the lifting.

3,561,811
WELL PIPE RACKER
 John W. Turner, Jr., Houston, Tex., assignor to Byron Jackson Inc., Long Beach, Calif., a corporation of Delaware
 Filed May 23, 1968, Ser. No. 731,542
 Int. Cl. E21b 19/00

U.S. Cl. 294-90

7 Claims

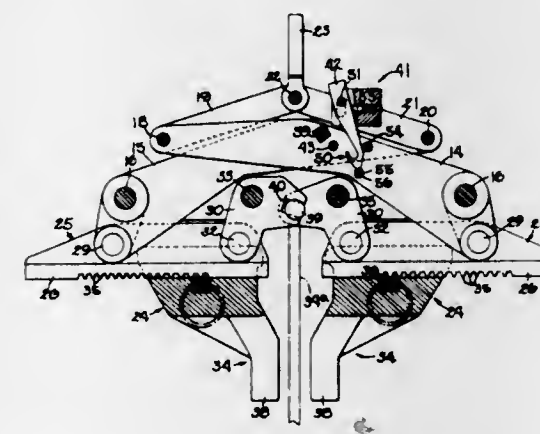


A well drilling rig having pipe racker apparatus in which a number of racker arms are controllable from a remote location to engage drill pipe tool joints and drill collars, one of the arms having a head for supporting the weight of lengths or stands of pipe or drill collars being added to or removed from the drill string, while the arms are retracted or extended and moved to place such stands in the rack therefor in vertical relation or to remove such stands from the rack therefor and position the stands over the well for connection to the drill string extending into the well.

3,561,812
GRAPPLE WITH LOCKING MECHANISM
 Paul H. Dixon, Belvidere, Ill., assignor to Dixon Automatic Tool, Inc., Rockford, Ill., a corporation of Illinois
 Filed Jan. 29, 1969, Ser. No. 794,868
 Int. Cl. B66c 1/00

U.S. Cl. 294-110

3 Claims



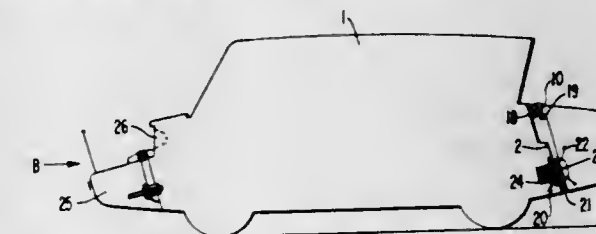
A grapple for gripping a succession of articles to be lifted in which jaws attached to arms move between open positions and closed or gripping positions in response to the arms being lowered to spread positions and raised to collapsed positions. Mounted on the grapple is a latch which swings between latched and unlatched positions automatically in response to raising and lowering

of the grapple thereby to automatically lock the jaws open to grip an article and then to automatically unlock the jaws to free the latter for movement to their gripping positions. The latch is mounted by a pin-and-slot connection on one moving part of the grapple and can hook around a catch on another part of the grapple to lock the grapple open. The latch is spring biased to swing about the pin, and the latter moves up and down in the slot during use of the grapple to cause the latch to be biased first toward the latched position and then toward the unlatched position.

3,561,813
DETACHABLE END SECTION FOR PASSENGER CARS
 Béla Barényi, Stuttgart-Vaihingen, and Hermann Renner, Magstadt, Württemberg, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
 Filed June 19, 1968, Ser. No. 738,199
 Int. Cl. B62d 33/04

U.S. Cl. 296-28

7 Claims

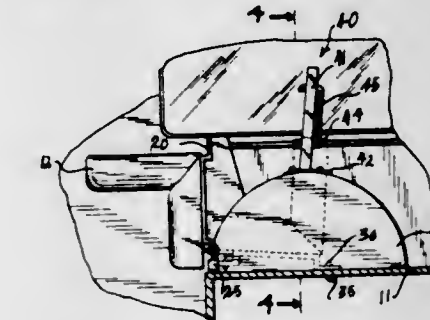


A passenger vehicle body including a main portion which extends only a relatively short distance forward of the front wheels of the vehicle and/or a relatively short distance rearward of the rear wheels, and detachable end sections which can be attached to the front and/or the rear end walls of the main portion as an extension thereof, said end sections being hingedly connected to the main portion of the body at two points spaced apart by a relatively large distance in the region of the upper edge of the wall of the detachable end section which faces the main portion of the body, said detachable end section lockingly engaging the main portion of the body at at least one point in the region of the lower edge of the wall of the end section facing the main body portion.

3,561,814
REAR SEAT MODIFICATION KIT AND METHOD
 Reuben Klein, West Highway 210-1-94, Fergus Falls, Minn. 56537
 Filed Aug. 8, 1969, Ser. No. 848,650
 Int. Cl. B60n 1/10

U.S. Cl. 296-65

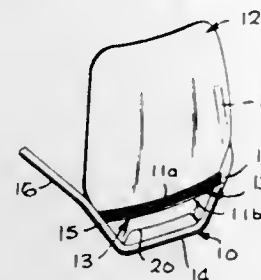
3 Claims



Two sets of pin and bushing members affixed between the forward edge of the rear seat in a utility vehicle and the floor of the vehicle so that the rear seat is pivotal in a forward direction from the upright position and removable by disengaging the pin and bushing members. The modification further including means for affixing the spare wheel above one of the wheel wells in the rear of the vehicle so that the entire rear portion of the vehicle can be cleared for load-carrying purposes.

3,561,815
COMBINATION WINDSHIELD AND HANDLEBAR
FOR MOTORCYCLES AND THE LIKE
 Frank G. Stone, Long Beach, Calif., assignor of one-half
 to Peter Mead, Canoga Park, Calif.
 Filed June 21, 1968, Ser. No. 749,525
 Int. Cl. B60j 1/02
 U.S. Cl. 296—78.1

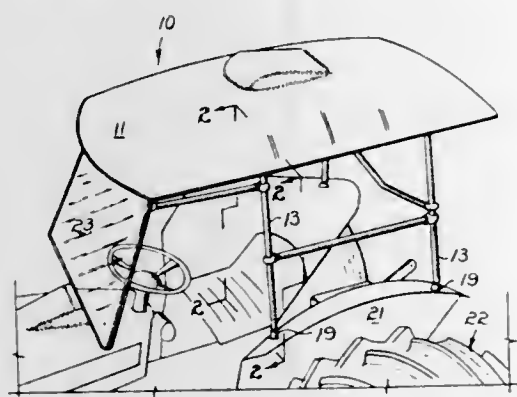
5 Claims



A combination windshield and handlebar for motorcycles and the like. The device comprises a conventional handlebar, extending between portions of which are a pair of arcuate, spaced, parallel crossbars. A convex windshield, preferably of plastic, is attached to the crossbars by means of carriage bolts which extend through the opening between the crossbars and through a pair of spaced holes in the windshield.

3,561,816
VEHICLE CANOPY
 Kevin Errol Koch, Unley Park, South Australia, Australia (4 Ford Ave., Torrens Park, South Australia, Australia 5062)
 Filed May 13, 1968, Ser. No. 728,556
 Int. Cl. B62d 25/06
 U.S. Cl. 296—102

5 Claims



A vehicle canopy having a top member, a frame and support members, the frame having posts with extension members, support members depending from the extension members, and universally movable securing means securing the support members to respective extension members, so that the canopy can be fitted to vehicles of various shapes and sizes.

ERRATUM

For Class 297—216 see:
 Patent No. 3,561,806

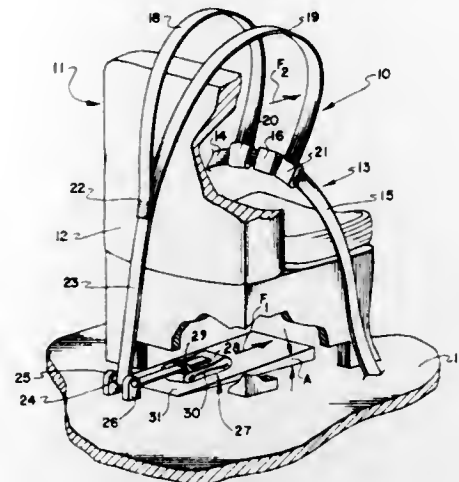
3,561,817
SAFETY HARNESS ASSEMBLY
 Leo Austin Needham, 6104 Glen Alder,
 Hollywood, Calif. 90028
 Filed June 20, 1968, Ser. No. 738,684
 Int. Cl. B60r 21/10

U.S. Cl. 297—216

7 Claims

A vehicle safety harness assembly includes shoulder straps interconnected with a slidable counterweight located

either beneath the seat or behind it. Upon abrupt deceleration, the counterweight is thrust forwardly with a greater force than the upper body portion of the user and thus swiftly exerts tension on the straps so that the user is pulled rearwardly against the backrest where he is re-

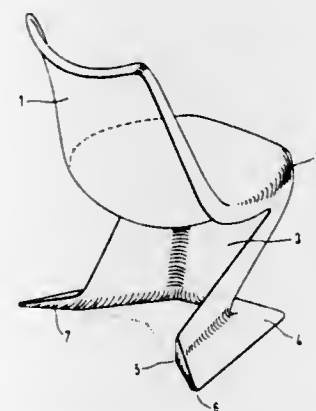


strained from forward movement until the period of harmful deceleration has elapsed. An underlying support platform for the counterweight may be sloped to adjust the horizontal force component of the counterweight to accommodate the varying needs of different users.

3,561,818
SEATING FURNITURE MADE OF
SYNTHETIC MATERIAL
 Hartmut Lohmeyer, 189 Schleissheimerstrasse,
 8 Munich 13, Germany
 Filed Oct. 2, 1968, Ser. No. 764,499
 Claims priority, application Germany, Oct. 5, 1967,
 P 16 54 305.8
 Int. Cl. A47c 3/04

U.S. Cl. 297—239

11 Claims



The present seating furniture comprises seat and rest means which are supported by a channel the open face of which faces rearwardly and the walls of which are inclined inwardly and downwardly so that the channel cross-section decreases in size from the seat means down to substantially horizontal standing means into which the channel walls extend. The entire furniture is preferably a one-piece, stackable molded structure.

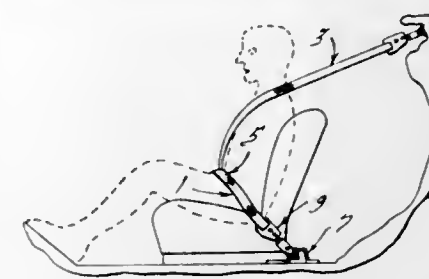
3,561,819
RESTRAINT APPARATUS
 Dennis N. Renneker, Warren, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
 Filed Sept. 26, 1967, Ser. No. 670,638
 Int. Cl. A62b 35/60

U.S. Cl. 297—386

4 Claims

Energy absorbing restraint system for a passenger in a vehicle including, in one embodiment, a wire adapted to

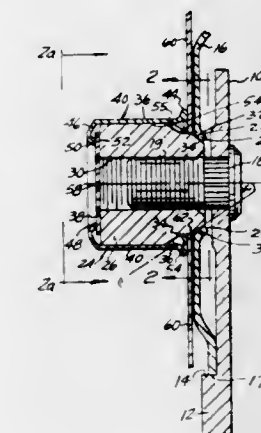
be drawn through a die and reduced in diameter as it is so drawn to absorb kinetic energy transferred from the passenger to the restraint system upon impact. Other em-



bodiments include energy absorbing cable and cable strands adapted to elongate a substantial amount without breaking to absorb energy.

3,561,820
WHEEL NUTS
 Joseph W. Chaivre, Royal Oak, Mich., assignor to Towne Robinson Fastener Company, Dearborn, Mich., a corporation of Michigan
 Filed May 16, 1969, Ser. No. 825,330
 Int. Cl. B60b 7/06
 U.S. Cl. 301—9

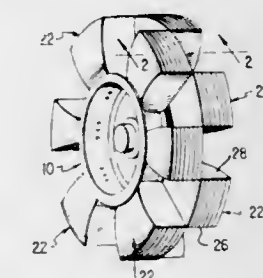
7 Claims



A nut for fastening a wheel to an axle flange and having a conical end adapted to mate with a conical depression in the wheel. The conical end extends into a cylindrical land portion and a chamfered portion of the nut head which is covered with a hard corrosion resistant cap extending all around the sides of the nut head, and which is crimped to the nut to retain a disc or button of plastic material to close the nut. The cap is expanded into a radial flange adjacent the chamfered portion of the nut head to retain a wheel cover in spaced relation to the wheel.

3,561,821
DUAL WHEEL WITH TIRE SEGMENTS
 Samuel C. Pellegrino, 1297 Hertel Ave.,
 Buffalo, N.Y. 14216
 Filed Dec. 3, 1968, Ser. No. 780,810
 Int. Cl. B60b 11/00
 U.S. Cl. 301—36

2 Claims



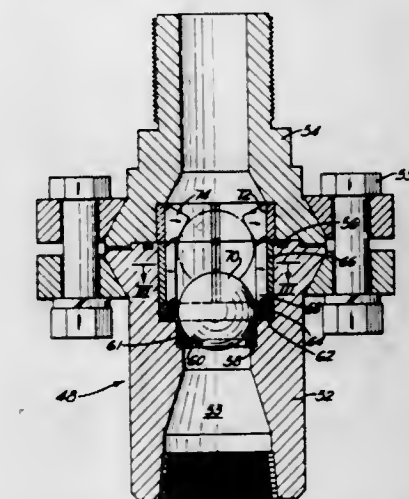
A dual wheel having adjacent rims having a drop center in which independently inflatable tire segments are in alternately staggered relation, whereby a single segment can be readily removed and repaired, the dual wheel tire

provides improved traction on rough terrain and particularly in mud or loose soil, and provides a smooth bearing surface for passage over conventional road surfaces without damage to such road surfaces.

3,561,822
SOLID PARTICLE INJECTOR
 Eber W. Gaylord, Pittsburgh, Robert J. Goodwin, Oakmont, Ernest A. Mori, Hampton Township, Allegheny County, and Joseph L. Pekarek, Penn Hills Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
 Filed Apr. 25, 1968, Ser. No. 723,996
 Int. Cl. B65g 53/30

U.S. Cl. 302—14

3 Claims

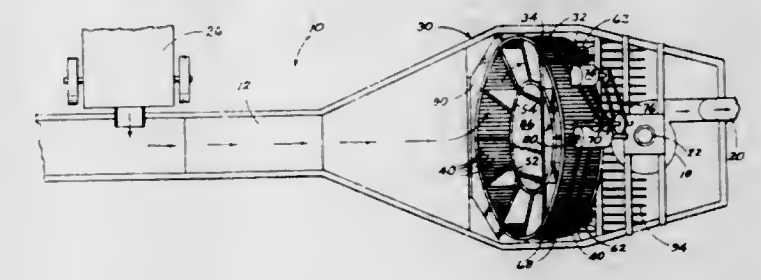


An injector in which a slow moving plunger reciprocates in a cylinder to inject a liquid having a high concentration of solid particles suspended therein into a stream of fluid under a high pressure. The inlet valve of the injector includes an inner, upwardly opening valve seat tapering downwardly at 19 to 23 degrees on which a valve ball seats during the pressure stroke of the plunger. The opening at the upper end of the valve seat has a radius such that the space between the seat at its upper end and the ball is not more than 0.01 inch. A deformable annular valve seal supported on the upper surface of the valve seat surrounding the tapered surface engages the valve ball and has a thickness such that the valve seal extends above the horizontal centerline of the valve ball when the ball rests on the valve seat.

This invention relates to apparatus for injecting solid particles into a stream of fluid under high pressure.

3,561,823
METERING AND SEPARATING MEANS FOR A CONVEYER SYSTEM
 Forrest L. Meuret, Rte. 1, Box 224,
 Madras, Oreg. 97741
 Filed July 31, 1968, Ser. No. 749,031
 Int. Cl. B01d 33/02; B65g 29/00, 53/30
 U.S. Cl. 302—14

7 Claims



Metering means for regulating the flow of articles moved along a flow path in a conveyer system including a rotatable open-centered wheel set transversely of the flow path and tilted downstream. The wheel has pockets

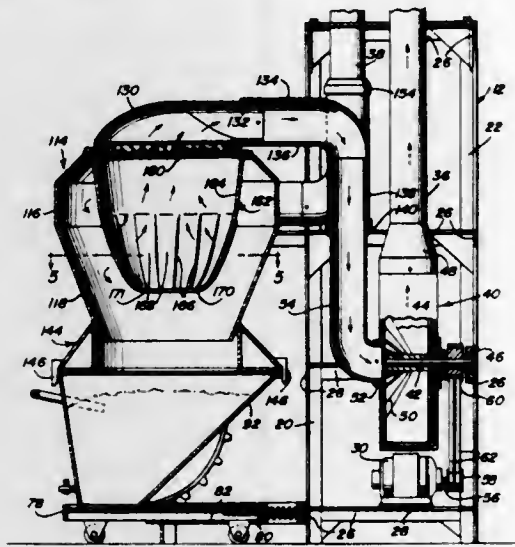
disposed about its open center which open toward the upstream side and toward the center of the wheel. A motor is provided for rotating the wheel. An arcuate shroud set within the center of the wheel closes off the center opening of each pocket as it is moved through an arc beneath the center of the wheel. A plate extending across the upstream end of the shroud prevents articles from being moved directly through the center of the wheel. A power-operated endless conveyor having fingers projecting outwardly therefrom separates articles in the system.

3,561,824 CONE SEPARATOR

Virgil A. Homan, St. Henry, Ohio
Parker Shady Acres, St. Marys, Ohio 45885
Filed May 22, 1968, Ser. No. 731,185
Int. Cl. B65g 53/40

U.S. Cl. 302—59

9 Claims



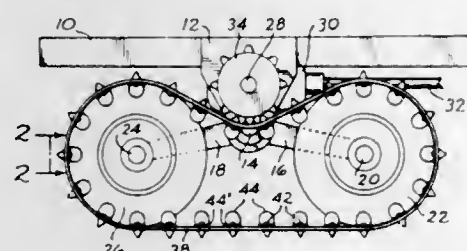
A stand from which a downwardly opening hood is supported for vertical adjustment, the hood having first and second vacuum lines opening into the hood at their inlet and outlet ends, respectively, and an upwardly opening and horizontally shiftable receptacle disposed beneath the hood with the hood being lowerable to a position closing the upper end of the receptacle in reasonably good air-tight sealed engagement therewith and the receptacle being horizontally shiftable outwardly from beneath the hood when the latter is in its raised position. The outlet end of the first vacuum line is adapted for connection with a suitable source of vacuum and the inlet end of the second vacuum line is adapted to be positioned adjacent the cutting member of a cutting tool adapted to perform cutting operations on a workpiece. Further, the hood is constructed in the form of a cone separator.

3,561,825 TRACK AND DRIVE SPROCKET FOR TRACK-LAYING

Duane M. Gibson, Milwaukie, and Richard H. A. Schoonover, West Linn, Oreg., assignors to Katrak Vehicle Co., Canby, Oreg., a corporation of Oregon
Filed Dec. 13, 1968, Ser. No. 783,567
Int. Cl. B62d 55/12

U.S. Cl. 305—20

6 Claims



An endless track has longitudinally spaced ground-engaging grousers engageable by a drive sprocket having

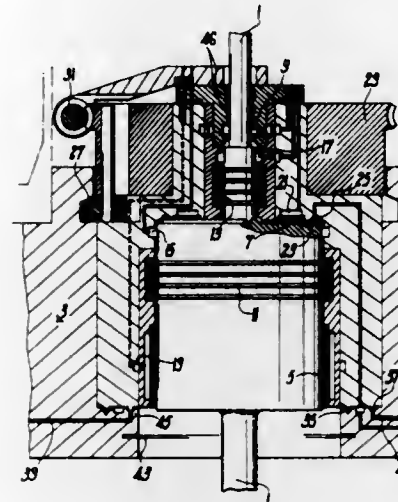
tooth elements pivoted thereon to seat positively against the confronting surfaces of the grousers during driving of the track.

**3,561,826
HERMETICALLY-SEALED TRANSFER UNIT**
Claude Cavy, 6 Square Bernard Palissy, 78 Fontenay-le-Fleury, France; Pierre Rouge, 8 Boulevard de la Terrasse, 91 Orsay, France; and Roland Tissot, Chemin de la Ferme de Bellevue, 91 Arpajon, France
Filed Nov. 19, 1968, Ser. No. 777,067
Claims priority, application France, Dec. 11, 1967, 131,758

U.S. Cl. 308—36.3

Int. Cl. F16c 1/24

1 Claim

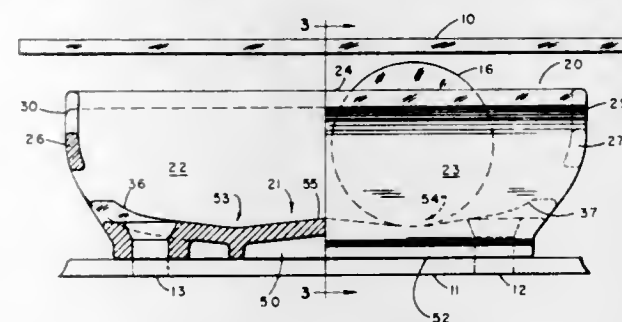


A rotary shaft passing through the wall of an atomic reactor is sealed against leaks around the shaft by two sets of baffles on the shaft spaced from each other and cooperating with a support mounted in the wall of the reactor receiving the shaft. A fluid film thrust bearing for the shaft is mounted in the support between the sets of baffles and a centering fluid bearing for the shaft is mounted within the support. A neutral gas under pressure is admitted to the shaft adjacent to the first set of baffles and between it and the exterior of the reactor with sealing means engaging the shaft and mounted in the support exterior thereof. Pumping means are provided around the shaft between the first set of baffles and the point of admission of the neutral gas. Second pumping means are provided opening around the shaft between the thrust bearing and the second set of baffles. A metallic seal is provided around the shaft engaging the support when the shaft is at rest.

**3,561,827
RAILWAY FREIGHT CAR SIDE BEARING
HOUSINGS**
Orville Ingram and James D. Hipp, Toledo, Ohio, assignors to Midland-Ross Corporation, Cleveland, Ohio, a corporation of Ohio
Filed Dec. 13, 1968, Ser. No. 783,614
Int. Cl. F16c 19/04

U.S. Cl. 308—138

7 Claims



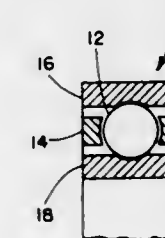
A self clearing, self centering side bearing, a housing structure having a roller for engagement with the car body

under service conditions. The housing for the roller is formed of a green sand casting free of core-formed vertically obstructed indentations. The base of the housing is formed with concave seats having end portions determined by the use of the same axis of generation for an arcuate seat as used for the circumference of the roller. Contact by the roller with this arcuate seat effectively limits service movement of the roller when the roller moves toward the ends of the housing effectively transferring the service force to the base of the housing rather than to the end of the housing. This roller seat has a centrally dividing opening extending longitudinally of the base to admit of a rivet or other securing fastener for fixedly mounting the housing to the truck bolster. The housing has laterally extending walls tied together by a web disposed at each end and below the top marginal edge of the housing and within the vertical limits of the axis of the roller.

**3,561,828
ROLLING ELEMENT BEARINGS**
Dean C. Glenn, League City, Tex., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Original application Nov. 28, 1967, Ser. No. 686,344, now Patent No. 3,500,525, dated Mar. 17, 1970. Divided and this application Apr. 10, 1969, Ser. No. 840,870
Int. Cl. F16c 33/66

U.S. Cl. 308—187

1 Claim

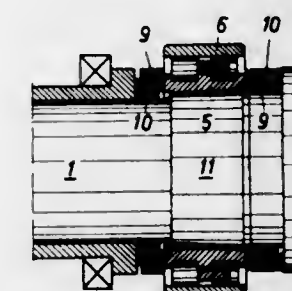


A solid film lubricant is applied to components of rolling element bearings having porous retainers prior to use in a vacuum.

**3,561,829
MEANS FOR MAINTAINING THE CLEARANCE IN
ROLLING BEARINGS**
Karl Helge Konstantin Heldt, Svedalen, Sweden, assignor to Aktiebolaget Svenska Kullagerfabriken, Goteborg, Sweden, a corporation of Sweden
Filed Dec. 6, 1968, Ser. No. 781,898
Claims priority, application Sweden, Dec. 7, 1967, 16,789
Int. Cl. F16c 33/00

U.S. Cl. 308—189

1 Claim



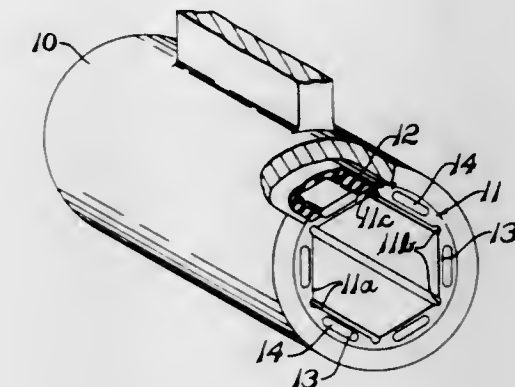
A device for maintaining the clearance in rolling bearings subjected to varying temperatures contains at least two annular members made of materials having different heat expansion coefficients. These members engage each

other along a conical surface and due to the different expansions of the members the breadth of the pair of members will vary as the temperature changes. One of the members abuts against a ring of the bearings, and the other member abuts against a support, which may be regarded as fixed in relation to the ring, thus permitting compensation movements to take place.

**3,561,830
BEARING ASSEMBLY**
Roy L. Orndorff, Jr., Kent, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed Apr. 22, 1968, Ser. No. 722,977
Int. Cl. F16c 27/00

U.S. Cl. 308—238

13 Claims

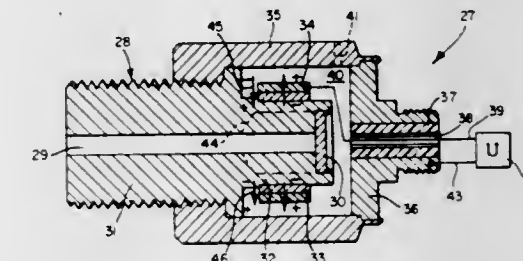


A resilient elastomeric insert for bearings of the type used for marine propeller shafts. The insert is formed of low hardness elastomeric material and has rigid backing strips inserted in the elastomer spaced closely adjacent the bearing surfaces. The insert is formed in a one-piece cylindrical configuration for short bearings and is formed as a longitudinal strip for bearings of large diameter and length which have the bearing surface provided by a plurality of separately removable strips.

**3,561,831
TRANSDUCER SYSTEM FOR DETECTING
CHANGES IN APPLIED FORCES**
Vernon F. Allbert, Chester Heights, and Thomas H. Carey, Chester, Pa., assignors to Columbia Research Laboratories, Inc., Woodlyn, Pa., a corporation of Pennsylvania
Filed Dec. 3, 1969, Ser. No. 881,733
Int. Cl. H01v 7/00

U.S. Cl. 310—8.7

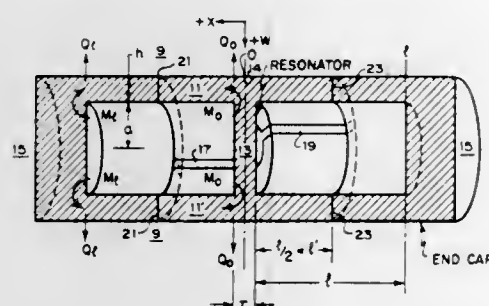
10 Claims



The present transducer system employs a piezo-electric device which is formed in a loop or an endless-belt configuration and which is polarized radially with respect to the longitudinal axis of said loop, i.e., polarized from the inside surface of said loop toward the outside surface thereof. The piezo-electric device is formed to be fitted circumferentially with a fluid container or fluid carrying conduit or a solid bar in such a fashion that any changes

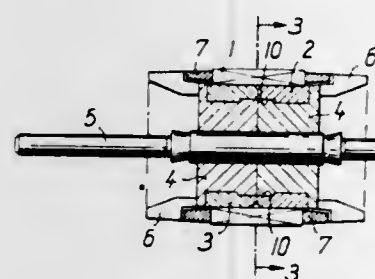
in pressure in the fluid or forces applied to the bar will cause strains in the direction of the radial polarization, i.e., perpendicular to the longitudinal axis or flow path of the conduit. The resulting radial strain generates a voltage which is proportional to the change in pressure of the fluid or the change in the applied force to the bar being monitored. The system provides a means for detecting the "strain generated voltage" and accordingly initiates monitoring or control signals in response thereto.

3,561,832
QUARTZ RESONATOR PRESSURE TRANSDUCER
Henry E. Karrer, Palo Alto, and Jerry G. Leach, Santa Clara, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Dec. 5, 1969, Ser. No. 882,501
Int. Cl. H01v 7/00
U.S. Cl. 310—9.6 16 Claims



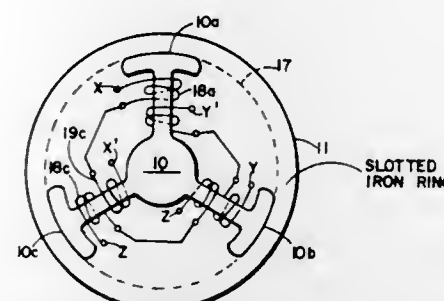
A pressure transducer uses a precision piezoelectric quartz resonator that exhibits linear changes in frequency when subjected to radial compressive stresses. A cylindrical quartz tube is integral with the circular resonator and acts as a diaphragm which transfers and concentrates the stress from the applied pressure onto the periphery of the resonator. The tube and resonator are fabricated from a single quartz crystal to minimize nonelastic effects.

3,561,833
MOTOR
Heinz Hellmann and Klaus Frohmüller, Oldenburg, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany
Filed Nov. 10, 1969, Ser. No. 875,147
Claims priority, application Germany, Nov. 10, 1968, P 18 08 133.9
Int. Cl. H02k 1/02, 19/14
U.S. Cl. 310—46 12 Claims



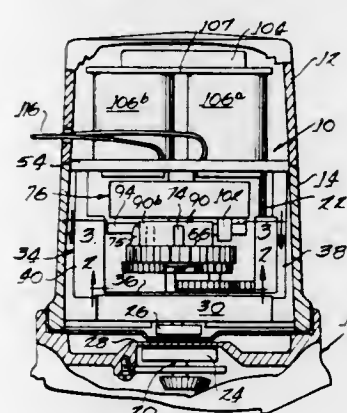
A low cost hysteresis motor having a rotor whose yoke is formed of one or more hollow cylinders of hysteretic material, the interiors of which are filled with a non-magnetic filler material provided with an axial bore to receive the rotor shaft. The exterior of the cylinders is enclosed by a lamination packet of layers of annular sheets of conventional dynamo sheet iron which supports a squirrel cage. At the ends of the rotor, the filler material is preferably formed to provide protrusions which serve as ventilation vanes.

3,561,834
STEPPING MOTOR HAVING HYPOCYCLICALLY REVOLVING ROTOR
Joseph L. Durand, Woodland Hills, Calif., assignor to Systems Technology, Inc.
Filed Mar. 19, 1969, Ser. No. 842,414
(Filed under Rule 47(b) and 35 U.S.C. 118)
Int. Cl. H02k 37/00
U.S. Cl. 310—49 14 Claims



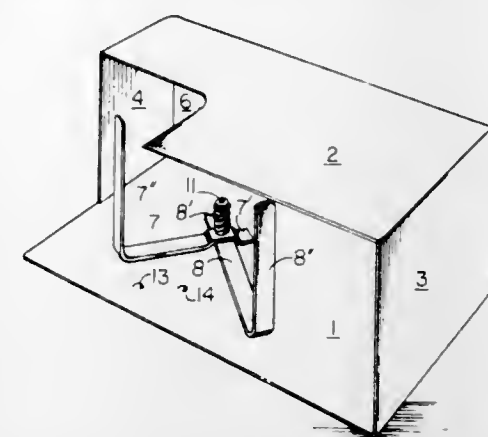
A stepper motor having a polyphase stator and a rigid ring-like rotor of magnetic material mounted for hypocyclic rotation relative to the stator. The rotor is circumferentially slotted by means of a number of uniformly axially and circumferentially spaced slots, and adjacent field pieces of the stator are oppositely poled for the generation of an improved sealing pole effect in the rotor, whereby detent action and reduced rotor slip are obtained.

3,561,835
ROTARY DRIVE ELECTRICAL PULSE GENERATOR
Clayton Fyfe, Milwaukee, Wis., assignor to Badger Meter Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Mar. 24, 1969, Ser. No. 809,910
Int. Cl. H02k 7/00
U.S. Cl. 310—66 16 Claims



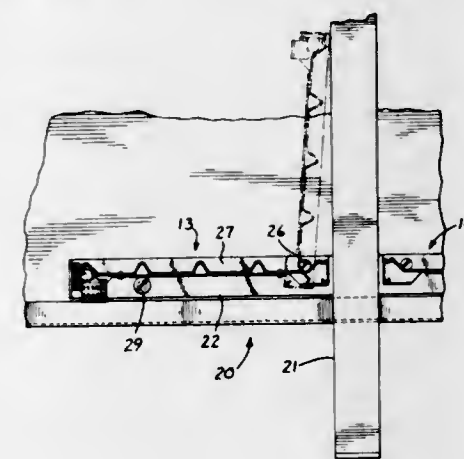
An electromechanical transducer adapted to utilize a mechanical rotary input drive from a metering device and to generate a digital electrical pulse output for sensing or reading at a station remote from the meter. The rotary input drives a gear which is connected by a coil spring to a coaxially disposed rotatable magnet assembly. A trigger mechanism sequentially restrains the magnet assembly to cause loading of the coil spring upon rotation of the gear, and thereafter releases the magnet assembly for intermittent, limited rotation in the direction of rotation of the gear under the impetus of the coil spring. A U-shaped core with coils thereon is positioned with the ends of the core adjacent the magnet assembly for generating an electrical pulse upon each such rotation of the magnet assembly.

3,561,836
PAPER DISPENSERS
Curtis F. Bennett, 655 W. Hatfield St., and George C. Wright, 965 Calle Bocina, both of Tucson, Ariz. 85706
Filed Jan. 14, 1969, Ser. No. 791,066
Int. Cl. B65h 19/00
U.S. Cl. 312—39 6 Claims



The dispenser consists of a steel box with an open bottom, to be fastened to a wall. The rear wall of the box carries two arms welded at right angles and rotatably bolted to the rear wall. Each arm carries a 90° bend for receiving a roll of toilet paper. Dimples in the rear wall lock the arms in dispensing position.

3,561,837
CONCEALED LATCHING MECHANISM FOR SWINGABLE SHELVES
Raymond A. Magnuson, Hinsdale, and Donald L. Branson, Western Springs, Ill., assignors to Beatrice Foods Co., Chicago, Ill., a corporation of Delaware
Filed Apr. 3, 1969, Ser. No. 813,007
Int. Cl. A47b 67/02
U.S. Cl. 312—313 7 Claims

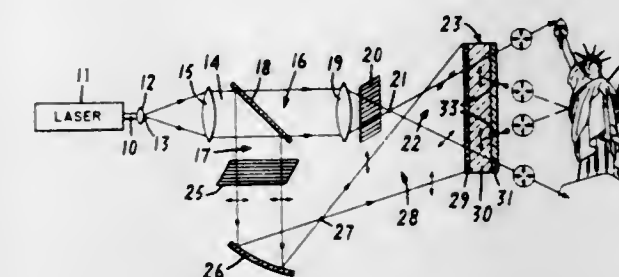


A semi-permanent storage facility with a shelf which is pivotally mounted for swinging movement between a normal lowered position and a raised position. The shelf is provided with concealed latching mechanisms of the sliding bolt-type which not only permit the shelf to be locked in its normal lowered position but which also structurally reinforce the shelf and aid in centering it as it is lowered from its raised position.

3,561,838
HOLOGRAPHIC IMAGING
Dennis Gabor, London, England, assignor to Columbia Broadcasting System, Inc., New York, N.Y., a corporation of New York
Filed Mar. 24, 1967, Ser. No. 625,795
Int. Cl. G02b 27/22
U.S. Cl. 350—3.5 8 Claims

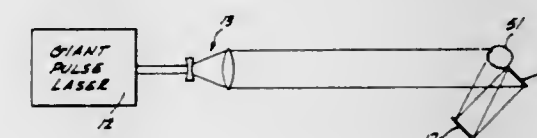
In the particular embodiments of the invention described herein, deep holographic imaging is accomplished

by polarizing the object and reference beams in two perpendicular directions and passing one of the beams twice through a quarterwave plate prior to formation of the hologram. In one form, the object illuminating beam is passed through a photographic emulsion and then through a quarterwave plate toward the object, from



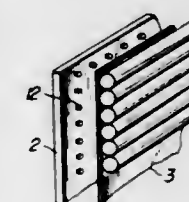
which it is reflected back through the quarterwave plate for interference with the reference beam. In another form, the reference beam passes through the photographic emulsion and a quarterwave plate to a mirror, from which it is reflected back through the quarterwave plate to the emulsion for interference with the object beam.

3,561,839
HIGH-SPEED HOLOGRAM
Frederick J. McClung, Canoga Park, and Alexander D. Jacobson, Sherman Oaks, Calif., assignors to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Continuation of application Ser. No. 464,031, June 15, 1965. This application Oct. 6, 1969, Ser. No. 866,094
Int. Cl. G02b 27/00; H01s 3/00
U.S. Cl. 350—3.5 4 Claims



A holographic system including a giant pulse ruby laser operated with transverse mode selection and longitudinal mode selection for producing pulsed spatially coherent and temporally coherent radiation, a portion of which illuminates a subject and is reflected to a photographic film as a subject beam, and another portion of which is reflected from a flat mirror and is directed towards the photographic film as a reference beam.

3,561,840
PROJECTION SCREEN
Takeo Seki and Masuo Fukumura, Kokubunji-shi, and Hajime Fukke, Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Continuation-in-part of application Ser. No. 686,550, Nov. 29, 1967, now Patent No. 3,510,197. This application June 3, 1968, Ser. No. 734,165
Claims priority, application Japan, Dec. 22, 1967, 42/81,867
Int. Cl. G03b 21/60
U.S. Cl. 350—128 5 Claims



Parallel transparent rods are bonded to each other and to a transparent film. The film's other side is bonded to a support.

diffused reflection sheet but is separated by a microscopic air gap. Paste dot between the film and the reflecting sheet provide the gap.

3,561,841

DIFFUSING LIGHT POLARIZERS

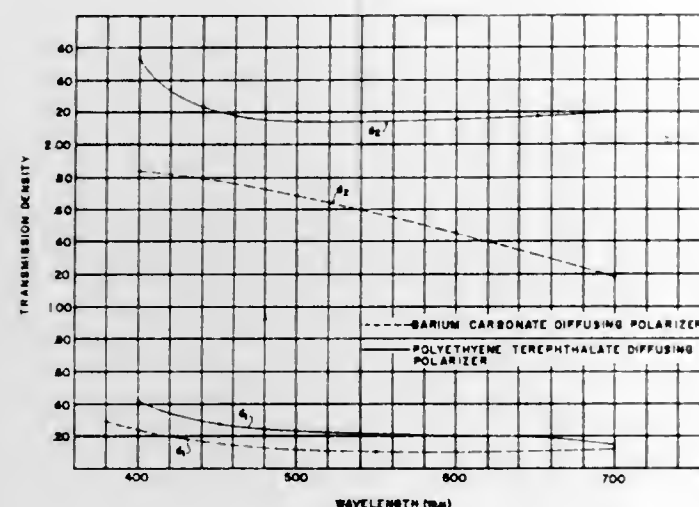
Kestutis Norvalsa, Concord, and Richard F. Wright, Acton, Mass., assignors to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

Filed Sept. 16, 1968, Ser. No. 762,211

Int. Cl. G02b 5/30

U.S. Cl. 350—157

11 Claims



Highly efficient diffusing light polarizers of a new type are described. The new diffusing light polarizers comprise an oriented suspension of doubly refracting, i.e., birefringent, crystallites of an organic high polymer within an amorphous, noncrystalline, substantially uniaxial, birefringent film of said polymer. These diffusing light polarizers transmit a specular beam and a diffuse beam polarized in the same plane.

3,561,842

LIGHT DISRUPTER

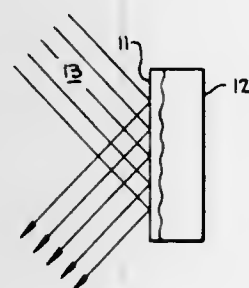
Billy M. Horton, Kensington, Md., assignor to the United States of America as represented by the Secretary of the Army

Filed Apr. 30, 1965, Ser. No. 453,887

Int. Cl. G02f 1/02, 1/36

U.S. Cl. 350—160

7 Claims



An optical device for protecting a viewer from the harmful effects of high intensity optical radiation. This result is accomplished by bonding a light transmissive or reflective film to a roughened substrate. The film is slightly light absorptive, but in no way interferes with the optical characteristics of the device used. When high intensity optical radiation impinges on the device, the thermal effects of the light absorbed in the film destroy the film and expose the roughened substrate which will materially disrupt the transmission or reflection of light.

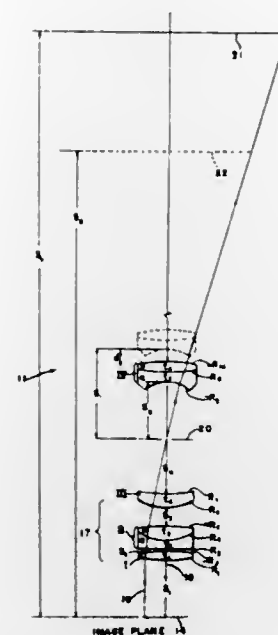
3,561,843
MULTIFOCAL PROJECTION LENS SYSTEM
Harold E. Rosenberger, Brighton, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York

Filed Aug. 27, 1969, Ser. No. 853,426

Int. Cl. G02b 9/34, 21/02

U.S. Cl. 350—183

4 Claims



A projection lens system composed of a fixed positive power front lens group and a focusable negative power rear lens group, said system being operative within a numerical magnification range of at least 3 1/2 and producing a flat field, the image formed by said system being particularly characterized by low distortion as well as being well corrected for the usual chromatic and monochromatic image aberrations.

3,561,844

OPTICAL OBJECTIVES OF VARIABLE EQUIVALENT FOCAL LENGTH HAVING TWO MOVABLE DIVERGENT MEMBERS

Peter Arnold Merigold, Prestatyn, Wales, assignor to The Rank Organisation Limited, London, England a British company

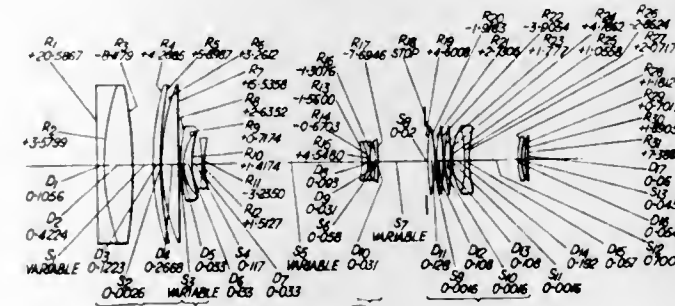
Filed June 29, 1966, Ser. No. 561,539

Claims priority, application Great Britain, June 29, 1965, 27,526/65

Int. Cl. G02b 15/16

U.S. Cl. 350—184

13 Claims



A zoom lens mechanically corrected for aberrational deviations throughout the zooming range, said lens having a convergent front member stationary during zooming, divergent second and third members axially movable to effect zooming, and a stationary convergent rear member, the focal lengths of the second and third members together with their axial movements being determined within ranges to provide an increased zoom ratio and the constructions of the second and third members having parameters determined within ranges to provide improved stabilization of aberrations throughout the zooming range.

3,561,845

RADIANT ENERGY ANALYZER INCLUDING MEANS FOR OFFSETTING AND SCALING THE RATIO OF TWO SIGNALS

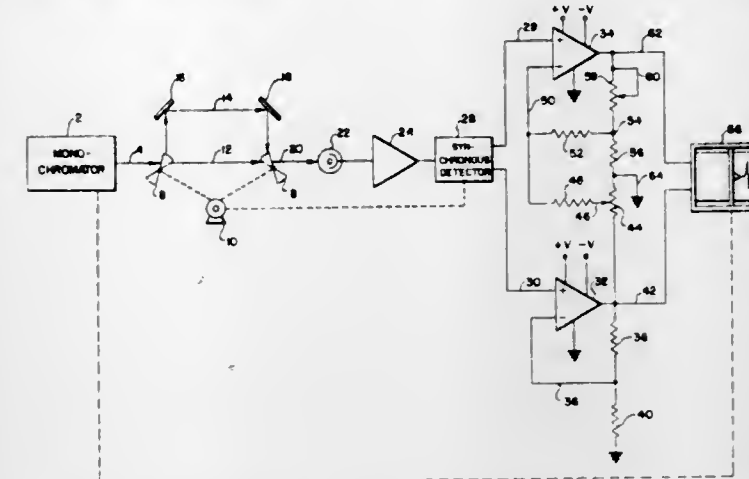
Attila D. Boronkay, La Habra, and Kenneth V. Matthews, Garden Grove, Calif., assignors to Beckman Instruments, Inc., a corporation of California

Filed June 2, 1969, Ser. No. 829,668

Int. Cl. G01d 3/42; G01j 3/08; G01n 21/27

U.S. Cl. 356—205

4 Claims



There is disclosed a circuit in a radiant energy analyzer for offsetting and scaling the ratio of two signals. The circuit in part comprises a first channel and a second channel amplifying device. A first signal is connected to the first channel amplifying device the output of which is connected to a first voltage divider component. A second signal is connected to the second channel amplifying device the output of which is connected to a second voltage divider component. The second divider is connected to the second channel amplifying device so as to provide a portion of the second channel amplifying device signal output as degenerative feedback. The first divider is connected to the second channel amplifying device so as to provide a portion of the first channel amplifying device output signal in series with the second channel amplifying device feedback. The ratio of the second signal to the first signal at the output of the amplifying devices is equal to a scale factor times the difference between the input signal ratio and an offset term where the offset is determined by the first divider and the scale factor by the second divider.

3,561,846

RADIATION SENSITIVE SCANNER FOR DOCUMENTS

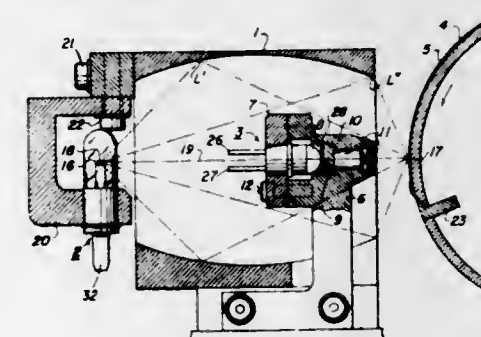
David O. Kingsland, Fairport, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Jan. 31, 1969, Ser. No. 795,510

Int. Cl. G06k 9/00

U.S. Cl. 250—219

12 Claims



Apparatus for scanning documents in facsimile machines and the like having a light source, elliptical reflector, means to accumulate and focus reflected light contained within the reflector and means for generating an electrical signal in response to the reflected light.

3,561,847

AUTOMATIC ELECTRORESPONSIVE LIGHT REGULATOR UTILIZING TAUT BAND METER MOVEMENT

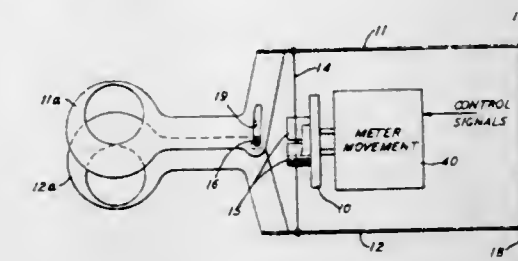
Sotirios C. Kitsopoulos, Summit, Rembert R. Stokes, Midletown, and Werner Thommen, Marlboro, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed June 5, 1968, Ser. No. 734,746

Int. Cl. G02f 1/30; G03b 9/06

U.S. Cl. 350—272

5 Claims



An electroresponsive light regulating device is constructed with a pair of light controlling elements such as filters or iris blades mounted on a pair of cantilever spring members. The cantilever springs are connected together by a taut band and a meter movement is positioned to engage and displace the taut band and thus alter the relation of the light controlling elements.

3,561,848

REAR VIEW MIRRORS FOR VEHICLES

Douglas J. Cunningham, Chichester, England, assignor to Wingard Limited, Chichester, England, a British company

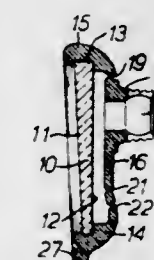
Filed Nov. 26, 1968, Ser. No. 778,996

Claims priority, application Great Britain, Jan. 23, 1968, 3,501/68

Int. Cl. G02b 5/08

U.S. Cl. 350—281

3 Claims



In a rear-view mirror for vehicles incorporating a mirror element having two surfaces of different reflecting powers arranged at a small angle to each other within a case and means for bringing either surface at will into an operative position, the case is moulded in one piece from plastic and front and back parts of the case respectively carrying the mirror element and means for mounting the mirror on a support are articulated together along at least one line formed by reducing the thickness of the plastic.

3,561,849

MIRROR MOUNTING MECHANISM FOR WHEEL ALIGNING APPARATUS

Tracy Carrigan, Lansing, Mich., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed Feb. 17, 1969, Ser. No. 799,820

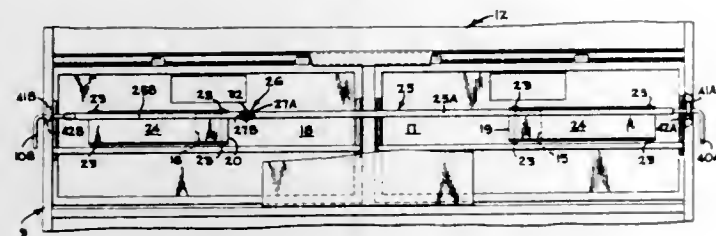
Int. Cl. G02b 5/08

U.S. Cl. 350—299

7 Claims

A background unit which is positioned in front of a vehicle to be aligned has a frame with a mirror bar mounted thereon. The mirror bar has two sections, each section having a mirror secured thereto. The outer ends

of each section are rotatably mounted in a bearing block which is slidably mounted on the side of the frame. The inner ends of the bar sections, each of which have flanges, are pivotally connected on an axis substantially perpen-



pendicular to the bar and parallel to the mirrors. Two screws, threadedly received in one flange and abutting the other flange, lock the two bar sections into one rigid mirror bar.

3,561,850
OPTICAL EFFECT GENERATOR WITH
TELEVISION DISPLAY SCREEN

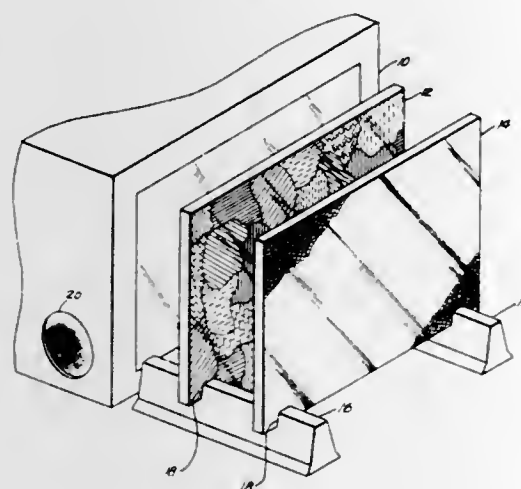
Robert Shaffer, 10238 56th St.,
Mira Loma, Calif. 91752

Filed June 20, 1968, Ser. No. 738,613

Int. Cl. G02b 5/22

U.S. Cl. 350—317

3 Claims



rected radially inwardly of film coiled in the holder. The cartridge may be provided with means for indicating the amount of film advanced by the pull-down mechanism during use of the camera.

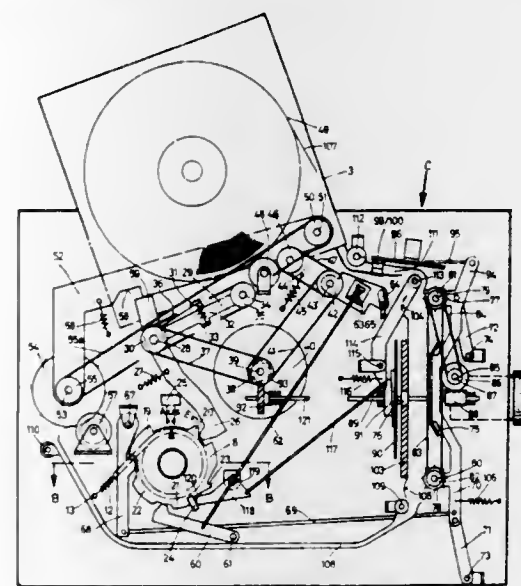
3,561,852
SWITCH APPARATUS FOR A FILM PROJECTOR
Fritz Krumbein and Dietrich Becker, Stuttgart-Mohringen,
Germany, assignors to Zeiss Ikon Aktiengesellschaft,
Stuttgart, Germany, a corporation of Germany

Filed June 27, 1968, Ser. No. 740,665
Claims priority, application Germany, July 1, 1967,
Z 12,925

Int. Cl. G03b 1/56

U.S. Cl. 352—157

7 Claims



An optical effect generator utilizing a plurality of light sources, a patterned light transmitting medium and a light diffusing or refracting medium. The elements of the apparatus are arranged such that the light medium and the light transmitting medium are interposed between the viewer and the light sources with the diffusing medium being located between the viewer and the slide.

3,561,851
MOVIE CAMERA FILM CARTRIDGE
William A. Martin, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Aug. 13, 1968, Ser. No. 752,399

Int. Cl. G03b 23/02

U.S. Cl. 352—78

11 Claims

A filmstrip cartridge for a movie camera having a pair of chambers arranged so that film can be driven from one chamber to the other through alternate "sound" or "silent" film paths without using a driving take-up core. Film from a supply roll in one chamber is advanced by the action of the camera pull-down claw past an exposure aperture through either of the alternative paths to a pivotal arm which feeds the film into a rotatable holder in

A film projector, particularly one provided with a film cartridge insertable in the projector housing is equipped with a switch apparatus having a single central rotatable control member for controlling all of the operative functions of the projector, such as driving the film feed reel, the film take-up reel, controlling the drive motor, the film threading mechanism, the film advancing mechanism, the shutter mechanism and the forward and return movement of the film. This is accomplished by a cam disc having several cams mounted on the central rotatable control

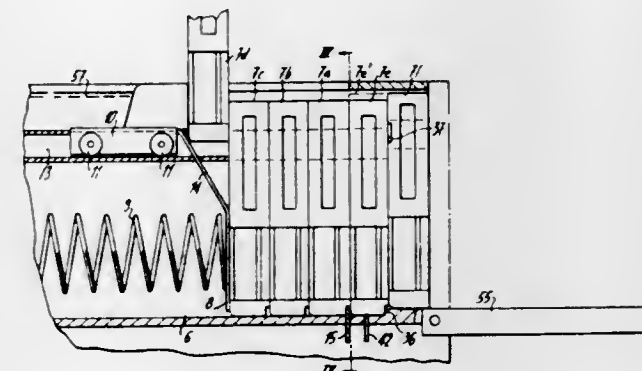
member. Each cam controls a particular lever mechanism, each of which performs in the required sequence one particular operative function of the projector.

3,561,853
MOTION-PICTURE PROJECTOR FOR AUTOMATICALLY PROJECTING A SERIES OF FILMS IN CASSETTES
Louis Thevenaz, Vaud, Switzerland, assignor to Paillard S.A., Vaud, Switzerland, a company of Switzerland
Filed Oct. 29, 1968, Ser. No. 771,435
Claims priority, application Switzerland, Nov. 15, 1967, 15,996/67

Int. Cl. G03b 21/04

U.S. Cl. 352—123

14 Claims



A series of cams ensures the correct movement of a row of cassettes in the projector magazine, and the timed operation of levers, for automatically projecting a film while rewinding the previously projected film onto its spool in its cassette.

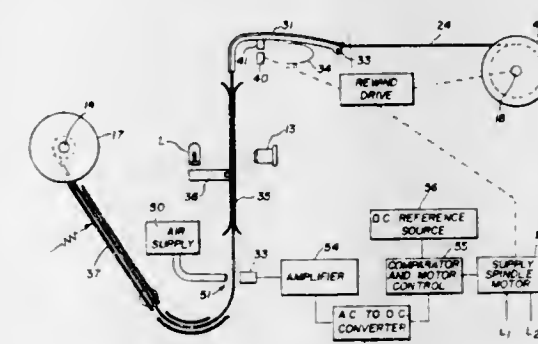
3,561,854
APPARATUS FOR MONITORING REWIND IN A MOTION PICTURE PROJECTOR
John J. Bundschuh, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Dec. 22, 1967, Ser. No. 692,814

Int. Cl. G03b 23/00

U.S. Cl. 352—124

3 Claims



A rewind mechanism for a motion picture projector includes a control mechanism for regulating a drive for transporting film through a motion picture projector. A stream of air or other gas under pressure is carried by the projector and directed toward a sensing device. The film is transported between the air supply and the sensing device so that perforations in a side edge of the film and the portions of film between the perforations alternately permit and block movement of air from the supply to the sensing device. The sensing device is coupled to the control means so that the drive for the film is controlled as a function of the output of the sensing device.

3,561,855
CINEMATOGRAPHIC APPARATUS WITH BUILT-IN EXPOSURE METER

Helmut Mayr, Richard Pelte, and Theodor Huber, Munich, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

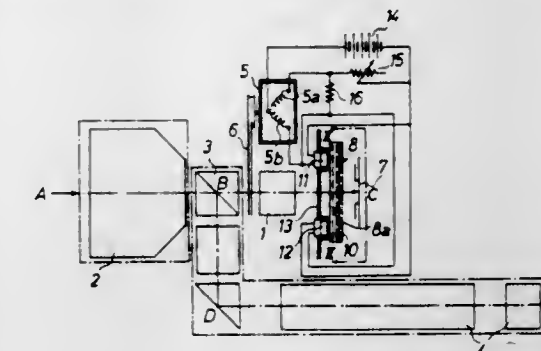
Filed Sept. 19, 1968, Ser. No. 760,791

Claims priority, application Germany, Sept. 29, 1967, A 56,935

Int. Cl. G03b 19/18, 9/10

U.S. Cl. 352—141

10 Claims



The shutter (8) of a motion picture camera has a flat light reflecting and diffusing front surface (8a) which directs diffused scene light against one or both parallel-connected photoelectric resistors (11, 12) in the circuit of an exposure meter (5, 11, 12, 14) which is built into the camera and serves to adjust the diaphragm (6). The front surface is provided with a flat plate-like liner (10) of transparent lightweight synthetic plastic material. When the shutter admits scene light to an unexposed film frame (7), its front surface is moved away from the path (A-B-C) of incoming scene light. When the shutter is at a standstill, its front surface directs light against a single photoelectric resistor (11).

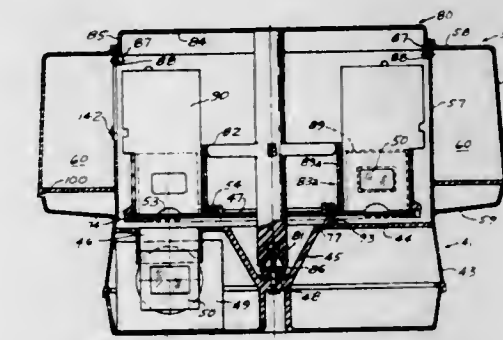
3,561,856
SOUND SLIDE PROJECTOR
William Castedello, Southington, Stephen G. Gilvar, New Britain, and Ray L. Marquis, Brookfield, Conn., assignors to The Kalart Company, Inc., Plainville, Conn., a corporation of New York

Filed Sept. 3, 1968, Ser. No. 757,023

Int. Cl. G03b 31/06

U.S. Cl. 353—19

20 Claims



A sound slide projector for projecting still pictures, particularly slides, and playing back sound recorded on magnetic tape or recording sound on such tape has a tray for accommodating a plurality of cartridges each including magnetic tape from which sound is to be played back or on which sound is to be recorded and a compartment for releasably retaining a slide to be projected. The tray has a plurality of compartments open at the bottom and each accommodating one of the cartridges and is movable with reference to a platform including a discharge slot. Stepwise of the movement of the tray brings successive cartridges into registry with the discharge slot to permit dropping of the respective slide into a presentation position. Each slide is returned from the presentation position into the respective cartridge upon

completion of a presentation. The sound projector further has an optical system for projecting a slide in the presentation position and a sound system for reproducing sound from the tape of the respective cartridge or recording sound on such tape. A drive mechanism including a play-back capstan pulls the tape in a cartridge in the presentation position past the sound head of the projector and a rewind mechanism including a rewind capstan rewinds the tape upon completion of a play-back or recording. A cycling mechanism operates tray moving means, the sound system, the optical system and slide returning means in a predetermined sequence and time relationship.

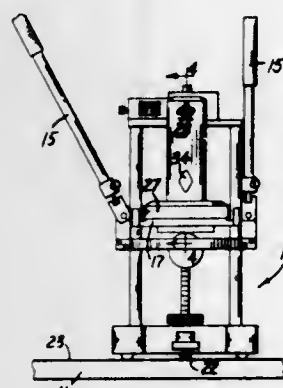
3,561,857

NADIR SCOPE

Edward M. Bean, 508 S. 3rd W.,
Missoula, Mont. 59801
Filed July 12, 1968, Ser. No. 744,374
Int. Cl. G01c 11/14

U.S. Cl. 353—6

8 Claims



The nadir scope is for use in realigning a topographic map with a stereoscopic projector. The device comprises a mounting member positioned relative to a movable table in a predetermined attitude. A vertical focusing member is aligned along the vertical axis being related to the map and is carried on the mounting member. Use of the nadir scope permits vertical alignment and centering of a projector above selected points on the map.

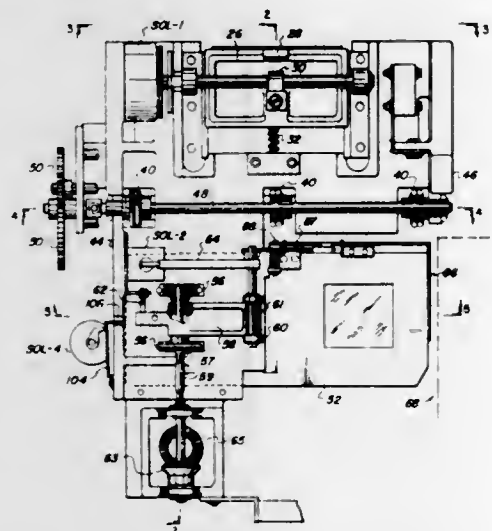
3,561,858

AUTOMATIC MICROFILM FEEDER,
SCANNER AND PROJECTOR

Hans H. Balblerer, Fairport, and Frank R. Hynes, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed May 20, 1968, Ser. No. 730,459
Int. Cl. G03b 23/02

U.S. Cl. 353—25

8 Claims



A projector for automatically feeding microfilm aperture cards including a card transport for feeding card serially to a card carriage, where each card is registered, scanned and ejected automatically from the carriage.

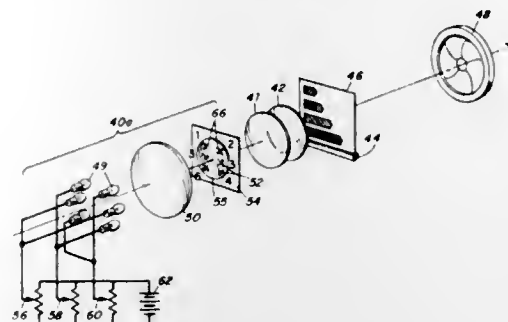
3,561,859
OPTICAL APPARATUS AND METHODS FOR
VIEWING OR DISPLAYING IMAGES

Helmut Heckscher, Newton Center, and Peter F. Mueller, Concord, Mass., assignors to Technical Operations, Incorporated, Burlington, Mass., a corporation of Delaware

Filed Feb. 14, 1968, Ser. No. 705,524
Int. Cl. G03b 5/18, 21/00

U.S. Cl. 353—25

8 Claims



This application depicts, inter alia, methods and apparatus for selectively retrieving one or more of a plurality of images stored in superposition upon a record in respective multiplication with spatially periodic modulation of unique azimuthal orientation. Ways are shown for varying the relative intensity of the retrieved images. Disclosed embodiments of the invention are adapted for viewing or displaying in natural or selectively distorted color a scene recorded on black and white film as three superimposed color separation images respectively modulating a spatial carrier of distinct angular orientation. Yet another embodiment is adapted for viewing or displaying a selected one or more of a large number of different scene images which have been recorded in superposition on a common recording medium in respective multiplication with an angularly unique spatial carrier.

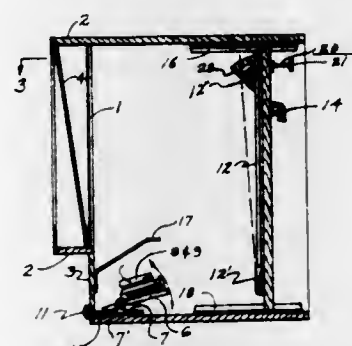
3,561,860

VIEWING APPARATUS

Leonard F. Rudolph, 6600 Vincent Lane,
Baltimore, Md. 21215
Filed May 16, 1969, Ser. No. 825,282
Int. Cl. G03b 21/28

U.S. Cl. 353—77

2 Claims



An enclosed viewing apparatus having a cabinet and a screen positioned on one side thereof, and an extended portion about the screen area having a recessed portion under the screen, the screen being provided with a light filter positioned at the extended portion to take away the glare that may come from the screen having means within the enclosure for reflecting images upon the screen at predetermined intervals.

3,561,861

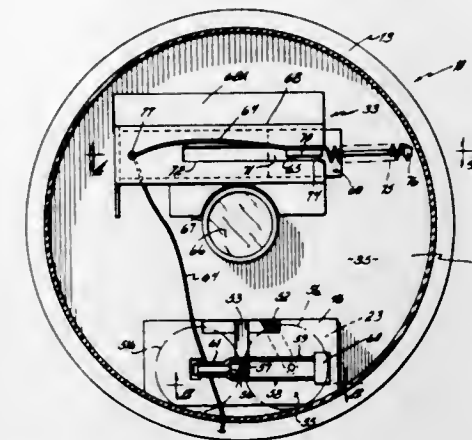
SELF-CONTAINED PROJECTOR
AND SCREEN UNIT

John F. Mayer, Fort Thomas, Ky., assignor to Kenner Products Company, Cincinnati, Ohio, a corporation of Delaware

Filed Jan. 9, 1969, Ser. No. 790,013
Int. Cl. G03b 1/48

U.S. Cl. 353—95

9 Claims



A self-contained projector and screen unit comprising, in preferred form, (a) a housing mounting a translucent screen on one side thereof, (b) a film strip having a series of image carrying frames enclosed within the housing, (c) a projection system, including a lens and a light source, positioned inside of the housing and adapted to project the film strip's frames onto the screen, (d) a switch for selectively actuating the light source, (e) frame sequencing apparatus for selectively moving film frames one at a time in sequence through the projection system, and (f) a pull cord relating the frame sequencing apparatus to the switch and extending outside of the housing. As the cord is repeatedly pulled by a child the film strip frames are sequentially presented one at a time to the projection system; also, the light source is turned on only when the cord is pulled. Thus, the unit operates to project a different image onto the screen from the film strip each time and only when the cord is pulled.

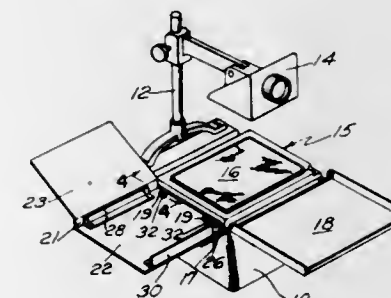
3,561,862

CONTAINER FOR PROJECTUALS

Percy Frederick Albee, Jr., Barrington, R.I., assignor to Q-Panel Corporation, a corporation of Rhode Island
Filed Apr. 22, 1968, Ser. No. 723,181
Int. Cl. G03b 21/32

U.S. Cl. 353—122

2 Claims



A container for overhead visual projectuals that simplifies the storage and use of projectuals by enabling the container to be stored vertically on a shelf or in a file drawer through the utilization of a shelf-back.

3,561,863

COLOR DISPLAY APPARATUS

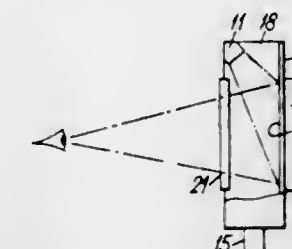
Arthur Edward Brewster, Cheshunt, Hertfordshire, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed July 8, 1968, Ser. No. 743,189

Claims priority, application Great Britain, Sept. 21, 1967
42,934/67

Int. Cl. G03g 15/00

U.S. Cl. 355—3

16 Claims



Apparatus for displaying in color information contained in signals received by the apparatus. A latent image corresponding to the received signals is formed either electromagnetically or electrostatically on a display recording surface by selectively charging those areas of the recording surface which surround the desired image. The display recording surface is permanently colored with an array of at least two color regions, preferably a reseau of color lines arranged parallel to an axis of the recording surface and in groups, with each of the lines of a group being a different primary color and the order of arrangement of the lines being the same in each group to provide a repetitive order of colors. Powder particles having a color which contrasts with the colored lines are applied to the latent image to form a two-dimensional color image which is viewable directly from the display recording surface without the need of projection or printing means.

3,561,864

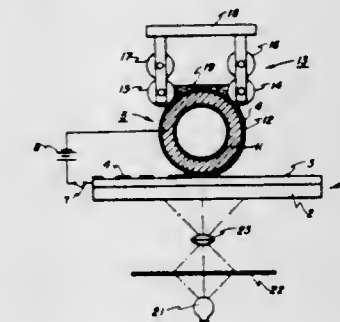
ELECTROPHORETIC COATING DEVICE

Leonard M. Carreira, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Oct. 2, 1968, Ser. No. 764,478
Int. Cl. G03g 15/00

U.S. Cl. 355—3

4 Claims



An electrophoretic imaging process is disclosed utilizing a continuous coating device. The imaging process uses at least one roller electrode and the coating device includes two coating members positioned in contact with the surface of the roller electrode. As the roller rotates a photoelectrophoretic imaging suspension is metered onto its surface by one of the coating members.

3,561,865

COPYING APPARATUS

Lester L. Burdick, Jr., Farmers Row,
Groton, Mass. 01450

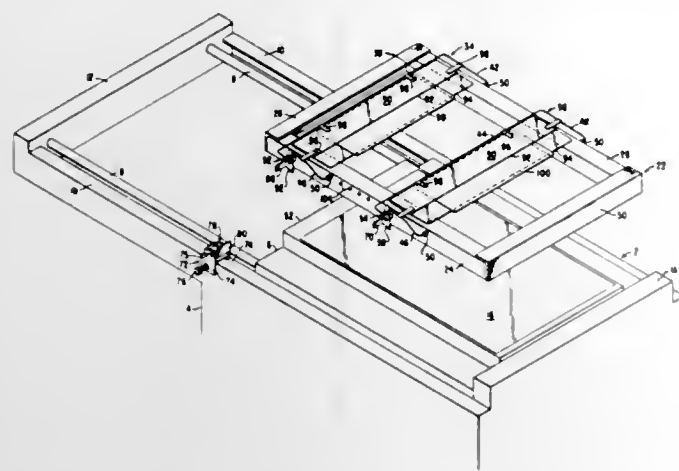
Filed Mar. 9, 1967, Ser. No. 621,947
Int. Cl. G03b 27/62

U.S. Cl. 355—23

13 Claims

The invention is an apparatus which is an improvement over existing copying machines such as the electro-

static type of machine. The apparatus provides a holder for a document for holding it on the platen of a copying machine for copying one surface of the document, and then automatically movable means turn the holder and document over on the platen so that the other side will be copied. Either a single or a plurality of documents



may have both sides copied on a single sheet of paper. The holder is pivotally mounted on the copying machine, and is automatically swung to either of two positions with respect to the platen, in one of which one side of the material is copied, and in the other, the other side of the material is copied.

3,561,866

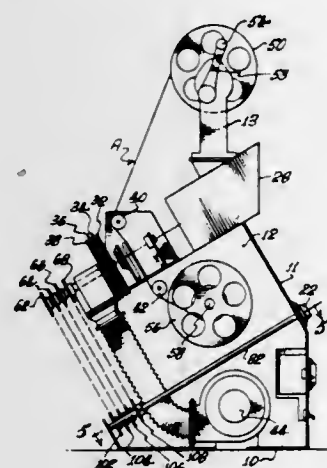
FILM COLOR DENSITY SETTING INDICATOR
Lester Cohen, Los Angeles, Calif., assignor to Cinefx, Inc. of California, Hollywood, Calif., a corporation of California

Filed Feb. 13, 1968, Ser. No. 705,198

Int. Cl. G03b 27/76

U.S. Cl. 355—35

6 Claims



A method to rapidly color balance and density balance a film interpositive and a film color density setting indicator comprising a light, a film guide, a plurality of color and density filters, appropriate lenses, and a screen in operative optical alignment, whereby a color image displayed on the screen can be color and density balanced.

3,561,867

ILLUMINATING SYSTEM FOR PHOTOGRAPHIC PRINTERS AND ENLARGERS

Alfred Simmon, New York, N.Y., assignor to Berkey Photo, Inc., Woodside, N.Y.

Filed Dec. 20, 1968, Ser. No. 785,714

Int. Cl. G03b 27/54

U.S. Cl. 355—67

18 Claims

An illuminating system for photographic printers and enlargers includes a single source of light, a light collector and a light integrator. The light integrator has a rel-

atively small entrance window and a relatively larger light exit window. The single source of light, the light collector, an aperture reducer, in the form of an inverted, truncated cone or polygonal pyramid of clear transparent material with an index of refraction larger than unity, and a light distributor, in the form of a polygonal pyramid or preferably a cone, with a specularly reflecting exterior surface, are positioned on a common axis passing



through the center of the light entrance window and the light exit window of the integrator, which is in the form of a modified hollow sphere having a diffusely reflecting interior surface. The aperture reducer greatly reduces the required size of the light entrance window of the light integrator, and the light distributor provides for the same light integration effect to be obtained with a single light source as hitherto obtainable with two light sources.

3,561,868

COOLING ARRANGEMENT FOR A COPYING MACHINE

Gerhard Ritzerfeld, Schorlemer Allee 14, Berlin 33, Germany

Filed Apr. 1, 1968, Ser. No. 717,744

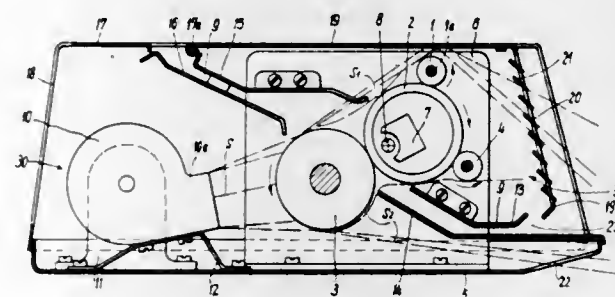
Claims priority, application Germany, Apr. 7, 1967,

R 45,703

Int. Cl. G03b 27/10

U.S. Cl. 355—110

11 Claims



A thermo copier has a transparent tubular roller cooperating with a counterpressure roller. A source of infrared radiation in the interior of the transparent roller heats sheets passing between the rollers, and also the rollers. A blower discharges an airstream against the counterpressure roller by which the airstream is divided into two cooling airstreams flowing transversely to the axes of the rollers above and below the same and being discharged through separate outlet openings.

3,561,869
LIDAR WITH AUTOMATIC SCANNER
HAVING FIXED OPTICS

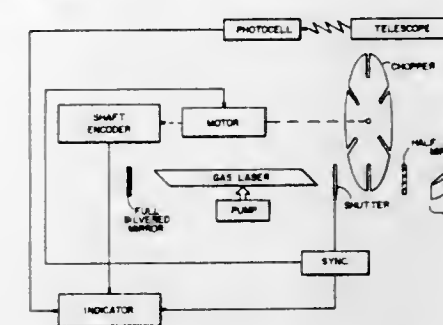
Charles M. Cason III, and James F. Perkins, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army

Filed Jan. 22, 1969, Ser. No. 792,913

Int. Cl. G01c 3/08

U.S. Cl. 356—4

8 Claims



A lidar (light direction and ranging) system using a gas laser as the light source is shown. The cross-sectional area of the laser is scanned by a narrow slit on a chopper wheel. The particular volume of the laser defined by the slit lases and the resulting light falls on a wide-angle cylindrical lens. The lens causes the light to be deflected from the axis of the laser in accordance with the position of the slit.

3,561,870

IMAGE MOTION DETECTION SYSTEM

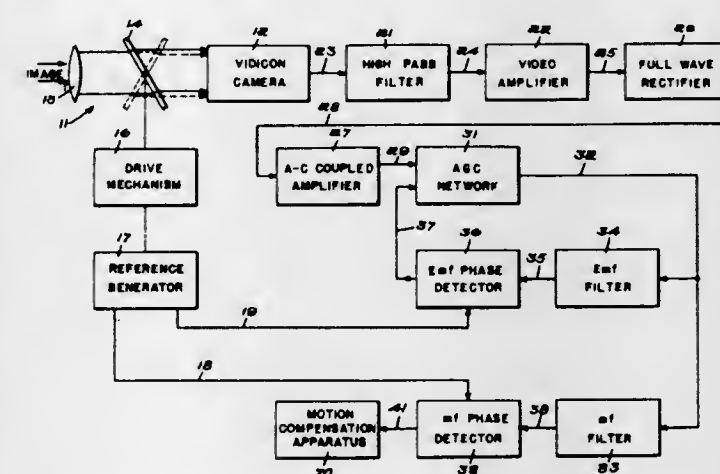
Donald C. Redpath, Winchester, Mass., assignor to Itek Corporation, Lexington, Mass., a corporation of Delaware

Filed Dec. 18, 1967, Ser. No. 691,472

Int. Cl. G01p 3/36

U.S. Cl. 356—28

23 Claims



An image motion detection system in which an optical image of an observed object is velocity modulated at a given fundamental frequency on the target of a light integrating device such as that present in a vidicon camera. The high frequency video output of the vidicon camera is filtered at the fundamental frequency and compared to the modulation phase to produce an output representing both the magnitude and sense of relative movement existing between the observed object and the system.

3,561,871

ULTRACENTRIFUGE FOR ANALYTICAL PURPOSES

Hans Beutelspacher, Braunschweig, Germany, assignor to Heraeus-Christ G.m.b.H., Osterode, Harz, Germany

Filed May 13, 1968, Ser. No. 728,538

Claims priority, application Germany, May 17, 1967,

C 42,364

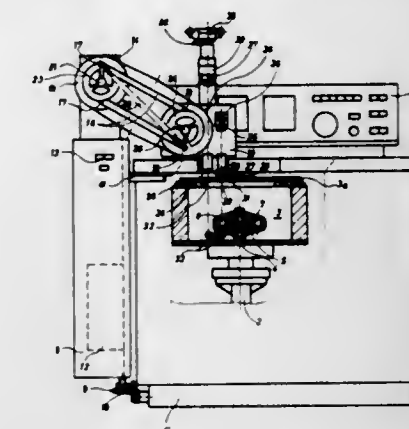
Int. Cl. G01n 21/00, 21/06

U.S. Cl. 356—72

3 Claims

An ultracentrifuge which is provided with an optical system with a very short beam path for carrying out ana-

lytical observations. This optical system takes up a very small space and may be designed as a separate unit which



may be attached to a normal ultracentrifuge which only requires simple alterations for the additional analytical purposes.

3,561,872

ELECTRONIC SPECTROPHOTOMETER

Zbigniew Ryszard Grabowski and Jozef Koszewski, Warsaw, Poland, assignors to Polska Akademia Nauk, Warsaw, Poland

Filed Feb. 14, 1966, Ser. No. 527,251

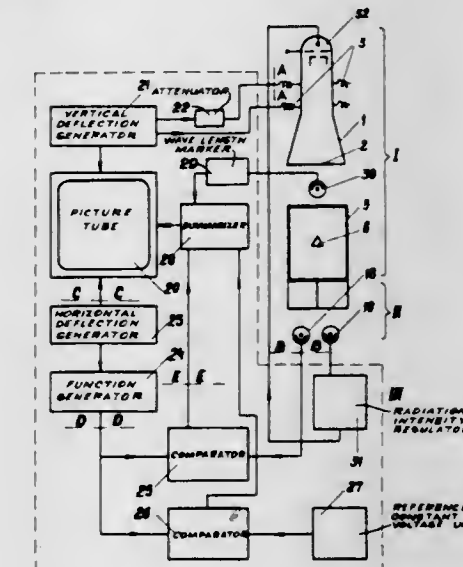
Claims priority, application Poland, Feb. 22, 1965,

P 107,569

Int. Cl. G01j 3/42

U.S. Cl. 356—83

7 Claims



An electronic spectrophotometer comprises a movable light source in front of a luminous spot on a phosphor screen of a cathode-ray tube and a beam splitter which splits a radiation beam at an exit of a monochromator into a test beam and a reference beam, a photoelectric detector of the test beam being coupled through a negative feedback circuit to the electric gun of the cathode ray tube so that the output of the detector is at a constant level independent of the wavelength of the radiation impinging on the detector so that a second detector in the path of the test beam which passes through a sample has an output directly proportional to the transmittance of the sample.

3,561,873

RECORDING SPECTROPOLARIMETER WITH ZERO-LEVEL COMPENSATOR

Paige B. Hooper, Glendora, Calif., assignor, by mesne assignments, to Cary Instruments, Monrovia, Calif., a corporation of California

Filed Mar. 2, 1964, Ser. No. 348,347

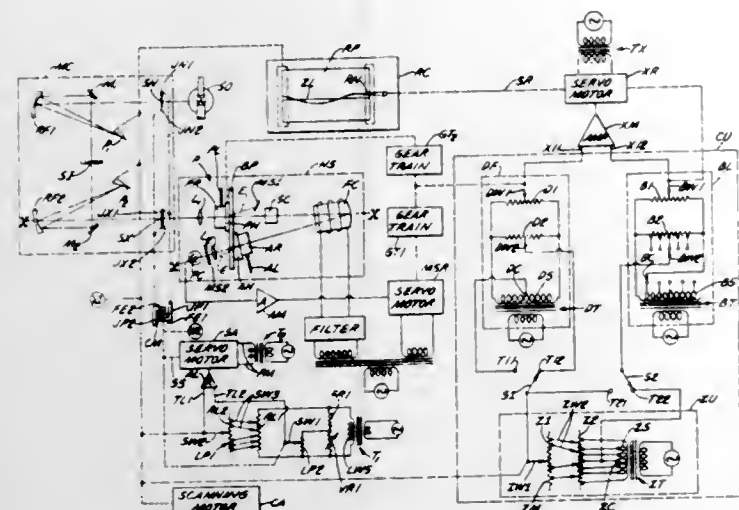
Int. Cl. G01j 3/00; G01n 21/44

U.S. Cl. 356—96

6 Claims

A spectropolarimeter having a control unit for substantially eliminating errors that would otherwise occur in

the measurement from one wavelength to another and from one specimen to another. The control unit includes a zero-correction sub-unit, a deflection signal sub-unit and a balancing sub-unit. The zero-correction sub-unit makes such zero-correction possible throughout the entire spec-



trum. The balancing sub-unit makes it possible to shift the zero level to facilitate recording on an enlarged scale the significant data of a spectropolarogram. The balancing sub-unit also makes it possible to record different spectropolarograms and even different parts of the same polarogram to different scales.

3,561,874

LASER DISCRIMINATOR AND METHOD

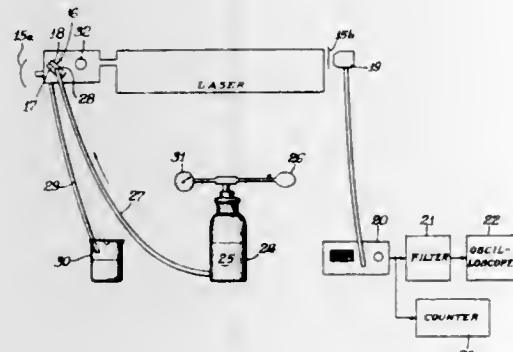
Robert J. Weber, Marion, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa, a corporation of Iowa

Filed Dec. 18, 1967, Ser. No. 691,312

Int. Cl. G01n 21/00, 21/48

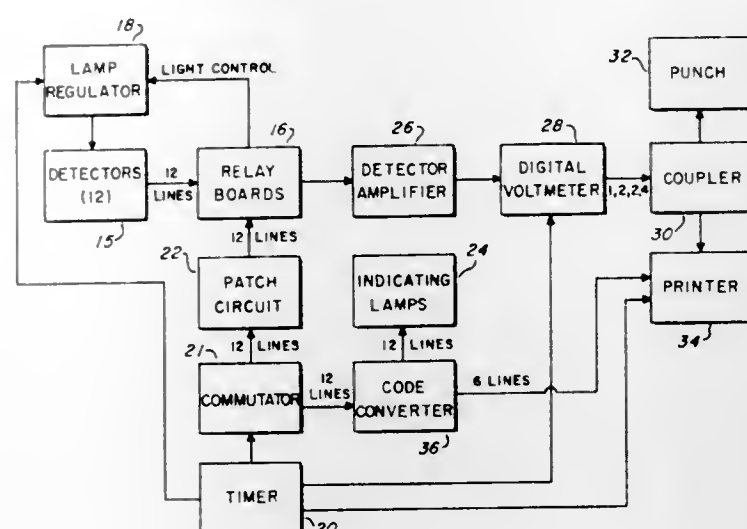
U.S. Cl. 356—102

7 Claims



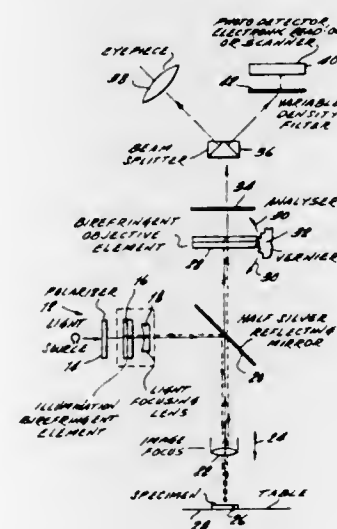
A laser is used to determine the size of small particles or other objects. The particles are introduced into the electromagnetic cavity of the laser in an aqueous medium flowing through a channel which intersects with the laser beam. The channel is defined in a quartz housing, and it is oriented relative to the adjacent quartz windows at the Brewster angle to insure complete transmission of the light. A light power meter monitors the laser output and converts it to an electrical signal representative of the intensity of the laser beam. As incident light strikes the particles, the total scatter will depend upon the size of the particles, and a change will be reflected in the laser output due to the gain characteristics of the laser. The change in laser power bears a one-to-one correlation with particle scattering cross section.

3,561,875
TURBIDIMETER
Louis Ried, Jr., and Charles A. Springer, Boulder, Colo., assignors to Ball Brothers Research Corporation, Boulder, Colo., a corporation of Colorado
Filed Apr. 27, 1967, Ser. No. 634,384
Int. Cl. G01n 21/00
U.S. Cl. 356—103 7 Claims



An electro-optical device capable of sequentially testing a predetermined plurality of solutions for particle presence at preselected intervals. Particle presence is indicated by developing a current when light passing through the solution under test is scattered by particles in the solution. Control for the device is provided by timing circuitry wherein the timing interval, as well as the total number of samples to be sequentially tested, are made selectable.

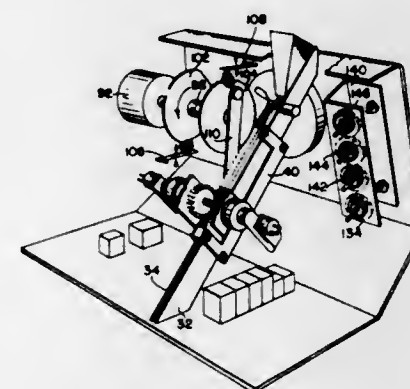
3,561,876
DETECTING AND MEASURING APPARATUS USING POLARIZATION INTERFEROMETRY
Robert Hoffman, 17 Copper Beech Place, Merrick, N.Y. 11566
Filed Mar. 11, 1968, Ser. No. 712,011
Int. Cl. G01b 9/02; G02b 21/06
U.S. Cl. 356—106 1 Claim



A detecting and measuring system using polarization interference optics comprising a source of polarized coherent illumination, an object in the coherent light field, an objective focusing lens system and a birefringent element or elements for splitting and displacing light rays. Means are provided for altering compensation by changing position of birefringent element or by changing the

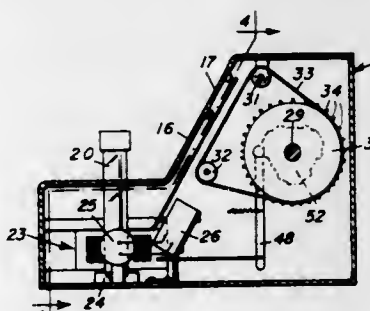
angle of coherent light source. Analyser means are provided for causing interference of displaced light rays as is a photo detector means for electrically indicating the minute changes in light intensity that result from the interfering light rays. Beam splitting means are provided for directing interfering rays from the analyser to the photo detector and/or to an eye piece. Variable density filter means are placed between the analyser means and the photo detector means to control level of light intensity. There may be provided coupling means for coupling motion of an external object to the stage or compensator for detecting minute motions of the object.

3,561,877
HEMATOCRIT READER
Pershing Nakada, Elmhurst, Clarence H. Hambel, Clarendon Hills, and Fred K. Suzuki, Skokie, Ill., assignors to Delta Research, Inc., Chicago, Ill., a corporation of Illinois
Filed June 30, 1967, Ser. No. 650,267
Int. Cl. G01b 11/22; G01f 23/00; G01n 21/24
U.S. Cl. 356—158 26 Claims



This invention relates to a hematocrit tube reader in which the hematocrit tube is scanned by means of a light source and photocell to detect the volumes of the plasma and of the blood cells and to produce from that information a voltage output that is calibrated directly in percentage of blood cell volume in relation to the total sample volume. A light source directs light at a photocell through the tube to be read as the tube is moved lengthwise past the cell. The photocell in response to the differences in the light transmission characteristics of the tube actuates electro-mechanically an indicator which shows the ratio of the volume of blood cells to the total sample volume.

3,561,878
DIRECT READING COLORIMETER
Raymond W. Kiess, Miami, Fla., assignor to Kiess Instruments, Inc., Miami, Fla., a corporation of Florida
Filed Dec. 21, 1967, Ser. No. 692,525
Int. Cl. G01j 1/42, 3/48
U.S. Cl. 356—184 12 Claims

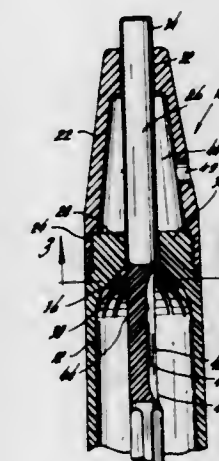


A direct reading colorimeter for chemical analysis is provided with a plurality of meter scales and a plurality

of color filters with interlocking means for automatically selecting the scale and filter appropriate to the specific analysis to be performed.

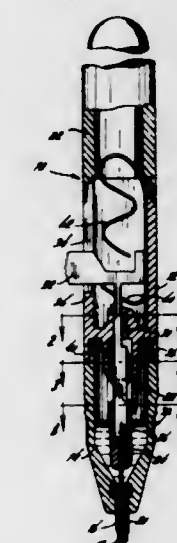
ERRATUM
For Class 356—205 see:
Patent No. 3,561,845

3,561,879
CAPILLARY PASSAGE INK REMOVER FOR VENT
Edward Bok, 1011 Arlington Blvd., Apt. 816W, Arlington, Va. 22209
Filed Feb. 13, 1969, Ser. No. 798,963
Int. Cl. B43k 1/10 9 Claims



A stylographic writing pen having integral reservoir with extendible and retractable vent and capillary passage adapted to the removal of deposited ink from the vent opening and vent valve, per se.

3,561,880
VENT SYSTEM FOR STYLOGRAPHIC PEN
Edward Bok, 819 Tucker Road, New Bedford, Mass. 02747
Filed May 21, 1969, Ser. No. 826,361
Int. Cl. B43k 1/06, 1/10 14 Claims



Stylographic drafting or writing pen of the type having an ink reservoir with a venting hole in the top of said reservoir and a cleaning wire reciprocally extendible through a tubular writing point, particularly a vent stem with vent valve portion protruding through said venting hole so as to provide a vent and improved ink carrying off system, inside the reservoir, beneath said venting hole.

3,561,881

STYLOGRAPHIC PEN WITH THE CAPILLARY PASSAGE CLEANING MEANS OPERABLE BY HAND OR BY SHAKING OR CONTACT

Edward Bok, 819 Tucker Road,
New Bedford, Mass. 02747
Filed May 7, 1969, Ser. No. 828,415
Int. Cl. B43k 1/10

U.S. Cl. 401—258

14 Claims U.S. Cl. 415—131



A stylographic writing pen having a longitudinally displaceable wire in the capillary passage of its pen stylus whereby in rest position this wire protrudes through the pen tip bottom and either by hand or by longitudinally shaking of the pen or by resting of the pen tip on the writing surface, the wire can be more or less retracted into the ink passageway.

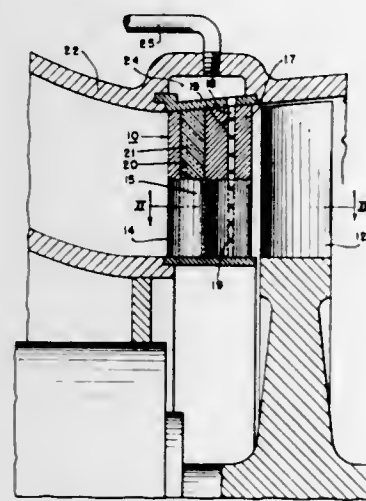
3,561,882

TURBINE BLADE COOLING

Edward V. Somers and Edward Burke, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 15, 1952, Ser. No. 298,947
Int. Cl. F01d 5/08, 5/18

U.S. Cl. 415—115

3 Claims



1. In gas turbine blade cooling, a row of nozzle blades followed by a row of moving blades; the tail portions of the nozzle blades having longitudinal passages formed therein, adapted to be supplied with liquid and having ports through which liquid may be sprayed into the nozzle passages from the tail portion passages; and each of said nozzle blades being hollow between the inlet edge thereof and the tail portion to reduce the heat conductive area between the inlet edge and the tail portion.

3,561,883

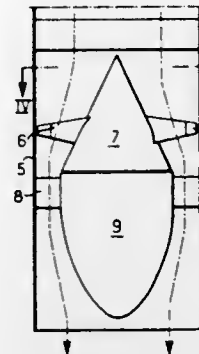
BLOWERS

Paul Berry, 23 Avenue de Saint-Maur,
59 La Madeleine (Nord), France
Filed Dec. 2, 1968, Ser. No. 780,525
Claims priority, application France, Dec. 12, 1967,
131,823

Int. Cl. F04d 19/00, 27/00, 29/26

14 Claims U.S. Cl. 415—131

4 Claims



The rotor for a blower comprises a hub of varying cross-section and the blades are mounted on the hub to be movable lengthwise thereof to selected positions which make it possible to modify the external diameter of the helix and consequently the operating characteristics of the blower.

3,561,884

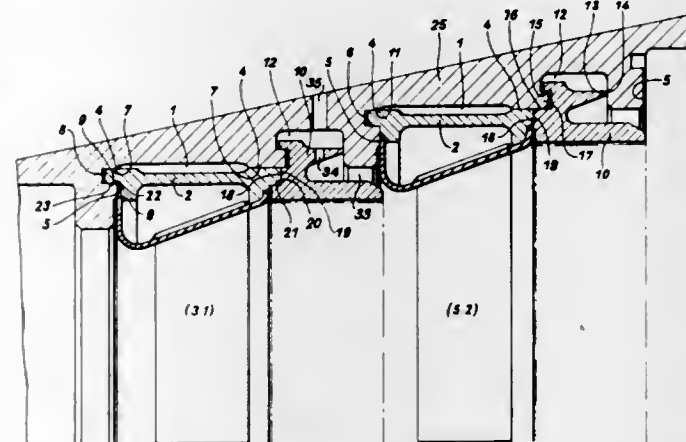
STATOR BLADE CONSTRUCTION FOR TURBOMACHINES

Ferdinand Zerlauth, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland, a company of Switzerland
Filed Oct. 11, 1968, Ser. No. 766,846
Claims priority, application Switzerland, Mar. 22, 1968,
4,330/68

Int. Cl. F01d 1/02, 1/04

U.S. Cl. 415—218

1 Claim



There is disclosed a stator blade construction for turbomachines (e.g. turbines, or pumps or compressors) in which the position of the stator blades of each stage is defined axially and radially in an annular housing by means of coaxial plane annular, cylindrical, or conical surfaces formed in that housing by turning or boring operations.

3,561,885

BLOWER HOUSING

Charles R. Lake, Brecksville, Ohio, assignor to Pyronics, Inc., Cleveland, Ohio
Filed Aug. 11, 1969, Ser. No. 849,116
Int. Cl. F01d 25/24; F04d 17/08, 29/40

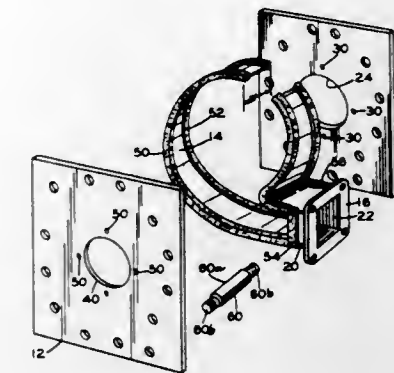
U.S. Cl. 415—219

5 Claims

A radial flow blower housing comprising flat, rectangular side plates positioned on opposite sides of a scroll

forming member. The scroll forming member is made from an elongated strip of metal curved into the required shape. The side plates are clamped to the scroll forming member by transversely extending bolts or studs which are

product discharge port; and an impeller rotatably mounted within said housing. One wall of the housing has formed therein the inlet port and is mounted for rotation as a unit with the impeller. Disposed outside



arranged to position the scroll forming member. Additionally, the edges of the scroll forming member are provided with resilient, U-shaped gaskets which engage the side plates to form an airtight seal.

3,561,886

TURBINE BUCKET EROSION SHIELD ATTACHMENT

Charles H. Kreischer, Jr., Schenectady, and Victor S. Musick, Scotia, N.Y., assignors to General Electric Company, a corporation of New York
Filed Feb. 7, 1969, Ser. No. 797,459
Int. Cl. F01d 5/28

U.S. Cl. 416—224

5 Claims



An erosion resistant shield is attached to the leading edge of a steam turbine bucket at the radially outer portion thereof by means of an intermediate shim using selected materials to provide a ductile composite welded structure. Controlled reduction of stress at the point where the shield commences on the bucket is accomplished by local enlargement of the bucket cross section.

3,561,887

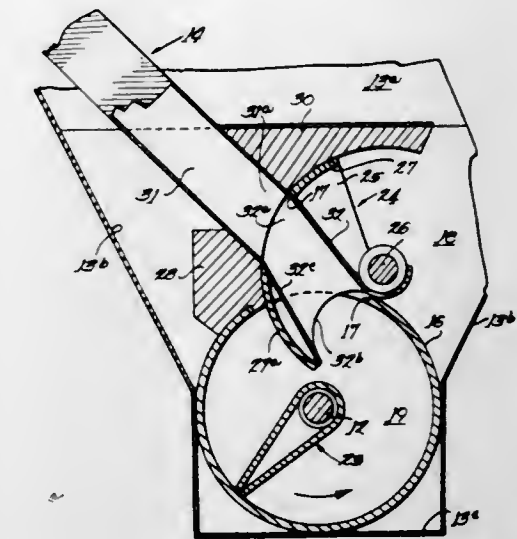
PUMP CONSTRUCTION FOR PUMPING ABRASIVE MATERIALS

Leo C. Reeve, Lombard, Ill., assignor to Portland Cement Association, Skokie, Ill., an unincorporated association
Filed Aug. 15, 1969, Ser. No. 850,413
Int. Cl. F04b 19/22, 23/14; F04d 3/02

U.S. Cl. 417—203

20 Claims

A pump is provided which is capable of handling abrasive plastic materials such as wet concrete. The pump includes a housing having a product inlet port and a



the housing and mounted for rotation as a unit with the impeller and the housing one wall is a product feed means. The feed means, when rotating, is adapted to urge the product towards the inlet port.

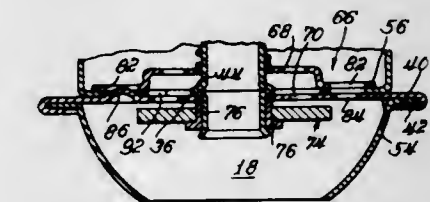
3,561,888

PERCOLATOR PUMP

Denis J. Jordan, Eau Claire, Wis., assignor to National Presto Industries, Inc., Eau Claire, Wis., a corporation of Wisconsin
Filed July 15, 1969, Ser. No. 841,768
Int. Cl. F04f 1/18

U.S. Cl. 417—209

11 Claims



A liquid pump for use in a percolator appliance which pump is mounted on the lowermost end of a hollow stem adapted to fit in the liquid container of the percolator such that the pump seats over a well in the bottom wall of the container in thermal association with a heater assembly and thereby defines a pump well chamber. The liquid pump is designed to pump the liquid in the well of the container up the hollow stem where it falls onto and through a coffee basket supported near the upper end of the stem. A by-pass passageway interconnects the pump well chamber and the liquid container, which passageway may selectively be partially or completely opened to prevent a selected portion of the liquid passing into the chamber from being fed up the stem and through the coffee basket, thereby controlling the strength of the brew.

3,561,889

OUTBOARD MOTOR PUMP

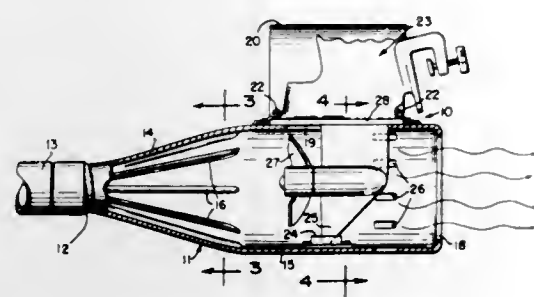
Clifford Aubrey Bellamy, Lobby 5, Securities Bldg., 3rd and Stewart Sts., Seattle, Wash. 98101
Filed Apr. 21, 1969, Ser. No. 817,929
Int. Cl. F04d 13/02

U.S. Cl. 417—237

1 Claim

A pump unit that utilizes a conventional outboard motor as the power source so that a liquid or fluid such

as water can be pumped from one location to another, there being a housing having a shoe or member in the impeller. The rotor cage is provided on each side of its magnetic circuit with two laterally projecting short-circuit



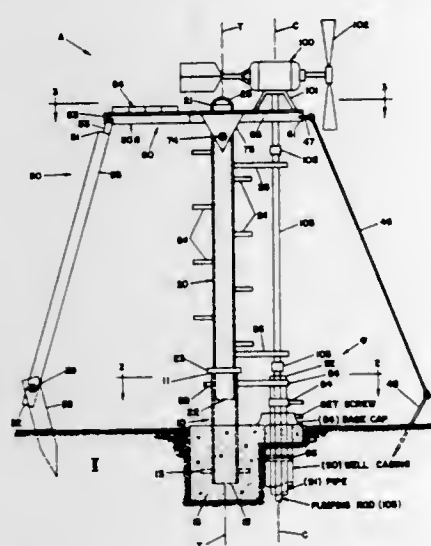
lower portion thereof, and the housing having an opening for receiving a portion of an outboard motor.

3,561,890 WINDMILL TOWER

Martin A. Peterson, Newport, Nebr.
(R.F.D. 1, Rose, Nebr. 68772)
Filed June 5, 1969, Ser. No. 830,675
Int. Cl. F04b 17/00

U.S. Cl. 417—336

10 Claims



An exceedingly stable windmill tower adapted for ease of installation and operation. The stable windmill tower is especially adapted for normally required well servicing operations including, but not limited to, removing the windmill from overlying relationship to the concentric well casing, well pipe, and the pumping rod, by rotating the windmill tower about its vertical axis from ground level by the operator.

3,561,891 AXIAL FANS, ESPECIALLY FOR ELECTRONIC APPLICATIONS

Henri Saint-Amand, Neuilly-sur-Seine, France, assignor to Etudes Techniques et Représentations Industrielles, a company

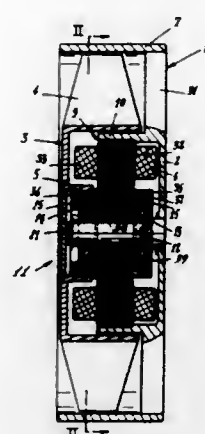
Filed Mar. 14, 1969, Ser. No. 807,221
Claims priority, application France, Mar. 29, 1968, 146,329

Int. Cl. F04d 25/06

U.S. Cl. 417—353

8 Claims

An electric axial fan of the flat type intended primarily for cooling electrical appliances and comprising a casing within which the fan impeller is rotatably mounted and which carries the stator of a squirrel-cage induction motor and a forcibly inserted shaft for supporting by means of ball-bearings the rotor of the motor which drives the fan



collars and the ball-bearings are fitted between said collars and the shaft of the fan casing.

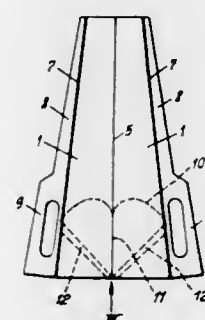
3,561,892 ACCELERATING DEVICE FOR GASEOUS AND LIQUID MEDIA

Werner Achermann and Franz Achermann, both of Rumlangstrasse 7, Zurich, Switzerland
Filed Feb. 13, 1969, Ser. No. 798,966
Claims priority, application Switzerland, Feb. 16, 1968, 2,692/68

Int. Cl. F01b 19/00; F04b 39/10; F16j 3/00

U.S. Cl. 417—566

12 Claims



A device having a hollow pressure member including four side segments which form a pressure chamber having a parallelogram shape and cross section is provided for accelerating a fluid medium. Each of the side segments is articulated with respect to the segments adjacent thereto, thereby forming a collapsible and expandable pressure chamber. Means are provided to move the articulated side segments with respect to each other for causing the movement of the fluid medium into and out of the pressure chamber. A diaphragm means is disposed within the chamber and extends across at least a portion of the cross section of the pressure chamber.

3,561,893 HYDROSTATIC CONTROL EQUIPMENT, PARTICULARLY FOR STEERING SYSTEMS

Johannes Vagn Batstrup, Sonderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark, a company of Denmark

Filed Nov. 19, 1968, Ser. No. 777,054
Claims priority, application Germany, Dec. 14, 1967, D 54,842

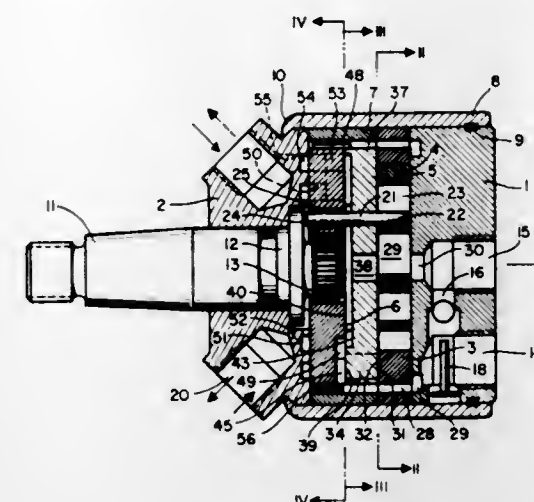
Int. Cl. B62d 5/08; F01c 1/10

U.S. Cl. 418—61

1 Claim

The invention relates to a hydrostatic control unit of the general type used for vehicle steering systems. A

gerotor gear set is used for the metering unit and a pair of plate type valves are cooperable with the gerotor unit. A drive assembly is provided between the gerotor unit and the valves which functions as a drive between the gerotor and one of the valves and as a means for providing limited relative rotational movement between the valves for control purposes.



and the valves which functions as a drive between the gerotor and one of the valves and as a means for providing limited relative rotational movement between the valves for control purposes.

3,561,894

INTAKE CHARGE COOLING SYSTEM FOR ROTARY MACHINE

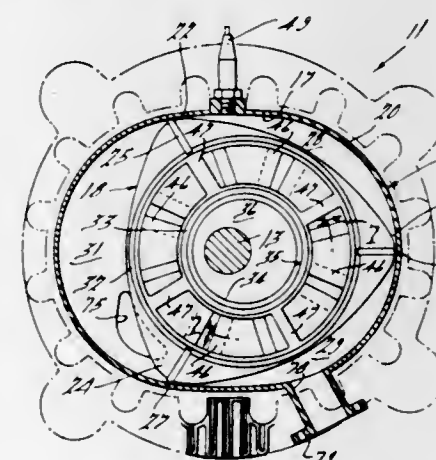
Robert W. King, Sidney, Ohio, assignor to Copeland Refrigeration Corporation, a corporation of Michigan

Filed Apr. 7, 1969, Ser. No. 813,881

Int. Cl. F02b 55/06

U.S. Cl. 418—86

5 Claims



An air cooled rotary piston internal combustion engine. A portion of the engine cooling is effected by passing the induction charge through a hollow, vaned rotor before induction into the combustion portion of the engine.

3,561,895

CONTROL OF FUEL GAS COMBUSTION PROPERTIES IN INSPIRATING BURNERS

Herbert D. Michelson, New York, N.Y., assignor to Esso Research and Engineering Company, a corporation of Delaware

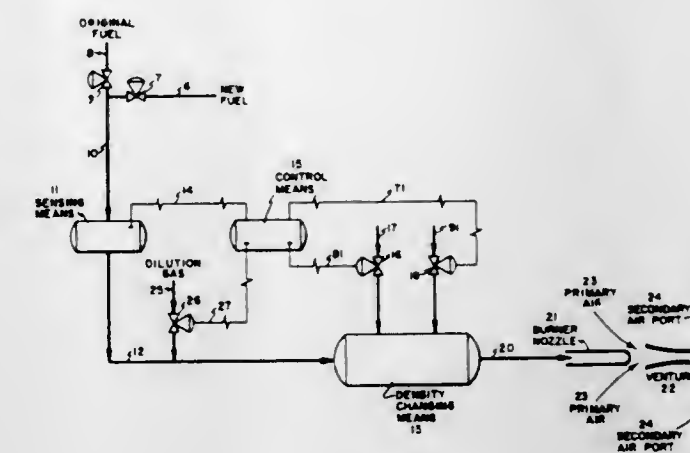
Filed June 2, 1969, Ser. No. 829,424

Int. Cl. F23k 5/00

U.S. Cl. 431—11

19 Claims

Inspired air in inspirating type burners is maintained constant at a given level of firing even though one fuel



may be changed for another by maintaining the momentum flow of fuel through the burner at a substantially constant level, the constant momentum flow being maintained by heating or cooling the fuel in response to the density variation of a new fuel in relation to the density of the original fuel, and supplementally by adding enriching or diluting gases to the new fuel.

3,561,896

PILOT BURNER CONTROL SYSTEM FOR A DOUBLE BURNER OVEN OR THE LIKE AND METHOD OF OPERATING THE SAME

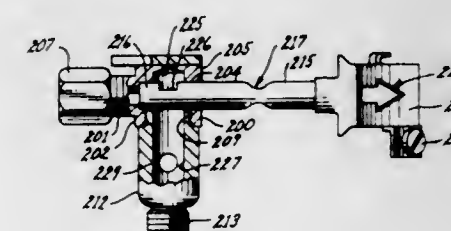
Fred Riehl, Greensburg, Pa., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware

Filed Jan. 14, 1969, Ser. No. 791,009

Int. Cl. F23n

U.S. Cl. 431—12

28 Claims



This disclosure relates to a pilot burner control system for a broil burner of a domestic oven or the like wherein the broil burner and the bake burner are disposed in a single oven cavity that has a control device that is adapted to selectively interconnect a source of fuel to either the bake burner or the broil burner. The pilot burner for the broil burner is adapted to be continuously supplied fuel from the source of fuel and when the control device is set in a position to operate either the bake burner or the broil burner, an air pumping device is energized to force primary air that is not contaminated with combustion products created in the single cavity of the oven directly to the pilot burner to be entrained in the fuel flowing thereto so as to insure that flame means will always exist at the pilot burner means for the broil burner and will not be snuffed out by combustion products during the use of the oven.

3,561,897

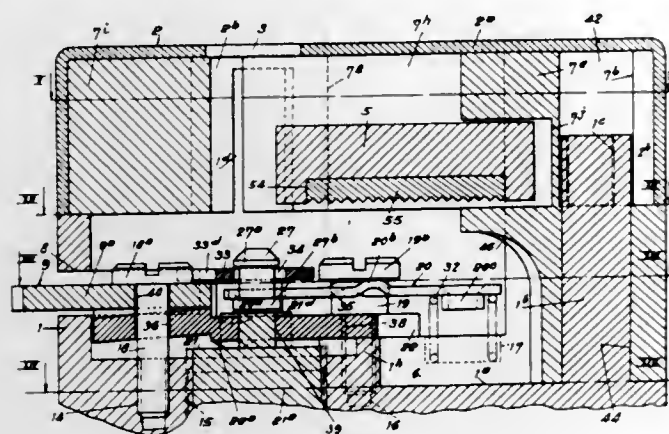
GAS-FUELED LIGHTERS

Robert Raymond Hocq, Boulogne-Billancourt, France, assignor to Societe Franco-Hispano-Americaine FRANCISAM, Paris, France, a French corporation
Filed July 8, 1969, Ser. No. 839,966
Claims priority, application France, July 10, 1968, 158,625

Int. Cl. F23q 2/16

U.S. Cl. 431—130

14 Claims



A gas fueled lighter in which the casing is divided internally into two parts which are separated by a horizontal partition, the bottom part acting as a reservoir for liquid gas and the top part accommodating the operating mechanism which is arranged to be operated by the thumb of a user. The operating mechanism is carried by a lever platform which can be separated en bloc from the casing, and comprises two superimposed parts connected together at one end. The upper part has projecting tongues which position it in the casing and the bottom part acts as an operating lever and has bores in it designed to take the spindles of the lever platform, a flint, and the spindle of the flintwheel, and also has a recess for a flint thrust spring and contains a cam surface which cooperates with a corresponding surface on a valve opening lever.

3,561,898

FORM LOCKING MOUNTING FOR COMBUSTION CHAMBER INJECTOR

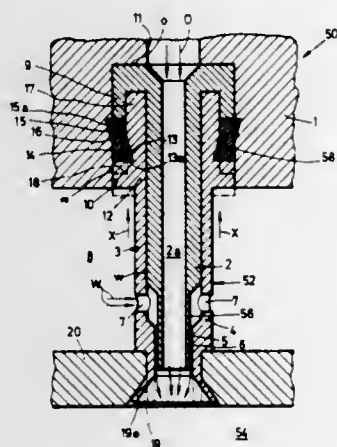
Karl Butter and Armin Theiss, Munich, Germany, assignors to Messerschmitt-Bolkow Gesellschaft mit beschränkter Haftung, Ottobrunn, near Munich, Germany

Filed Apr. 10, 1969, Ser. No. 814,943
Claims priority, application Germany, Apr. 27, 1968, P 17 50 404.0

Int. Cl. F23d 11/44

U.S. Cl. 431—167

7 Claims



A liquid fuel combustion device includes a combustion chamber injection head of double wall construction with

the space between an inner and outer wall forming a conduit for a propellant component. Mounted within the head in a position to span a portion of the inner wall and the outer wall is an injector which comprises an inner cylindrical portion or sleeve having a bore therethrough for the passage of one propellant component. The injector inner sleeve includes a piston head portion in the outer wall which engages over one end of an outer sleeve or tube. The outer sleeve includes an opening located in the space between the inner and outer walls in communication with the first propellant component and it is formed together with the inner sleeve to define an annular space surrounding the inner sleeve which extends axially through a small gap to a flared discharge defined by the outer sleeve at its extension through the inner wall of the head. The two sleeve parts are form-locked together and to the outer wall of the head by a fastening element of relatively soft material which is deformed by pressure and which engages between each sleeve element and the inner wall of the head portion. The inner wall of the head portion and the wall of the inner sleeve are each provided with an annular recess for receiving the deformed material of the fastening element.

3,561,899

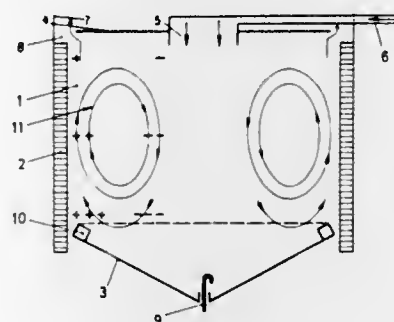
HEATING BOILER

Hans O. Lerris, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark, a company of Denmark
Filed Mar. 25, 1968, Ser. No. 715,685

Int. Cl. F23d 11/04

U.S. Cl. 431—168

8 Claims



The invention relates to a heating boiler of the type having a combustion chamber, a rotary burner, an air inlet for combustion air, and a vent which is connectable to a chimney. A disadvantage of prior art boilers of this type is that the air inlet and vent are so arranged that atmospheric draught conditions causes air to flow through the combustion chamber proper during times when the burner is not operating and thereby causes cooling of the walls of the boiler. This air either flows from the chimney through the combustion chamber to the air inlet pipe, or vice versa.

The invention involves an arrangement between the air inlet pipe and the chimney vent so that the moving air is shunted from one of these elements to the other across the upper part of the combustion chamber when the burner is not operating. This causes the air to bypass the combustion chamber proper and the air thus does not come into cooling contact with the combustion chamber wall except for the upper portion thereof.

When the unit is operating the rotary burner causes a circulatory movement of the air which causes the relatively cool inlet air to be drawn downwardly to the rotary burner through the center of the combustion chamber away from the boiler wall, and causes the hot combustion gases to flow upwardly in contact with the burner wall to the chimney vent.

3,561,900

IGNITER SYSTEM

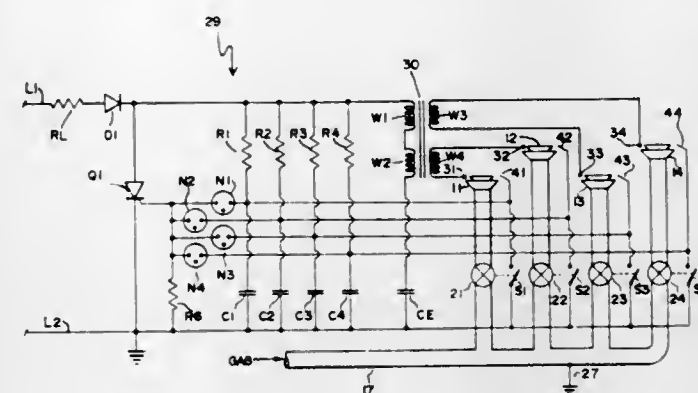
Lyman H. Walbridge, Ashland, Mass., assignor to Fenwal Incorporated, Ashland, Mass., a corporation of Massachusetts

Filed Mar. 10, 1969, Ser. No. 805,719

Int. Cl. F23q 3/00

U.S. Cl. 431—256

11 Claims



The electronic igniter system disclosed herein employs a high voltage spark generating circuit which is adapted to provide igniting sparks to a plurality of burners when any one of the burners is turned on, but not lit. The spark generating circuit can be triggered into operation by any one of a plurality of triggering circuits, there being one triggering circuit for each burner. Associated with each triggering circuit is a means for disabling that triggering circuit when the respective burner is either turned off or is lit.

3,561,901

HEATING APPARATUS

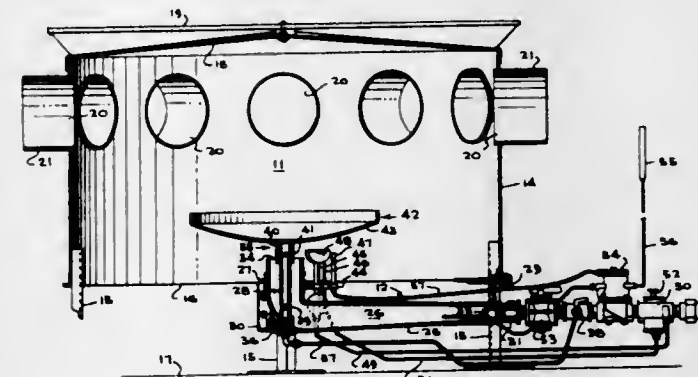
Walter F. Jackson and James F. Wise, Clinton, N.C., assignors to Vann Industries, Incorporated, Clinton, N.C., a corporation of West Virginia

Filed Dec. 20, 1968, Ser. No. 785,483

Int. Cl. F23m 9/00

U.S. Cl. 431—284

16 Claims



A heating apparatus including enclosure means defining a combustion chamber, means for distributing heated air from said combustion chamber, and a burner unit disposed in said combustion chamber comprising a first venturi having an inlet port and an outlet port partially defining a combustion zone, the first venturi having at least one primary air intake port, a first fuel supply line communicating with the inlet port of the first venturi, a second venturi mounted on the first venturi having an inlet port and at least one outlet port communicating with the combustion zone, the second venturi having at least one primary air intake port directly communicating with the interior of the first venturi, a second

fuel supply line communicating with the inlet port of the second venturi, and the first venturi having a larger capacity than the second venturi whereby the second venturi may be operated to provide a low firing rate and the first venturi may be operated with or without the second venturi to provide higher firing rates.

3,561,902

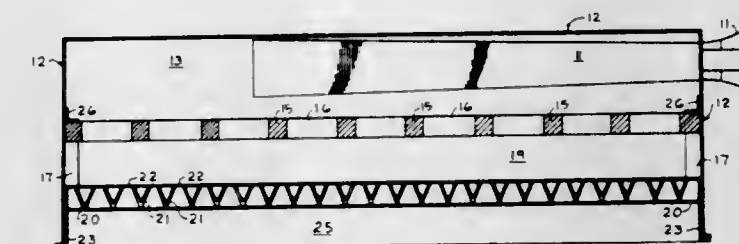
RADIANT BURNER

Wille H. Best, P.O. Box 868, Columbia, S.C. 29202
Filed Sept. 19, 1968, Ser. No. 760,831

Int. Cl. F23d 13/14

U.S. Cl. 431—328

5 Claims



A radiant burner composed of a housing, a gas orifice, a venturi, a plenum, a separating plate with ports therein, a combustion chamber, radiant elements and exhaust openings.

3,561,903

BURNER CHAMBER UNIT FOR A THERMO-ELECTRIC GENERATOR OR THE LIKE

Martin A. Rubinstein, Morrisville, Pa., and Charles Teleki, West Orange, N.J., assignors to General Instrument Corporation, a corporation of Delaware

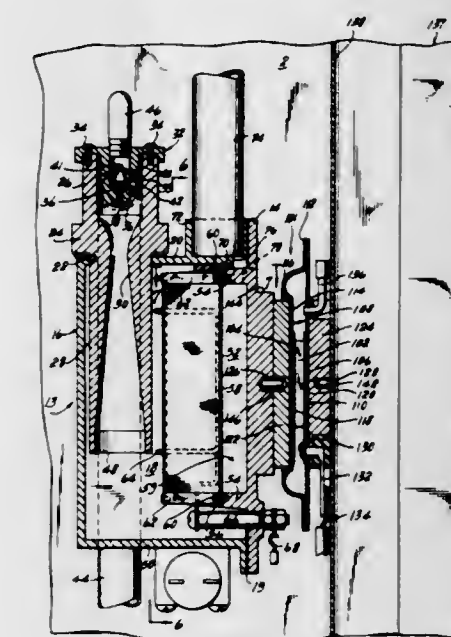
Original application Sept. 20, 1965, Ser. No. 488,483.

Divided and this application July 7, 1969, Ser. No. 870,225

Int. Cl. F23d 13/00

U.S. Cl. 431—350

5 Claims



A thermoelectric generating assembly has a combustion chamber unit in which the space through which the fuel end products of combustion pass includes a plurality of spaced heat-conducting elements extending to the chamber wall and defining fluid communication spaces therebetween, a gas-permeable combustion member being located in the chamber at least in part between those elements.

ERRATA

For Classes 84—380, 137—14, 415—206 and
417—53 see:
Patent Nos. 3,561,904 thru 3,561,907

3,561,904

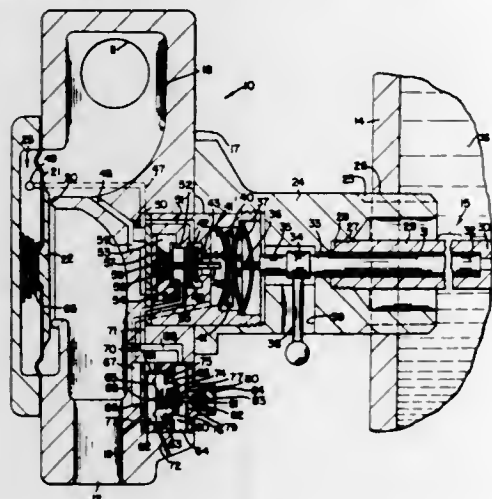
PRESSURE CONTROL METHOD

Jay R. Katchka, Long Beach, Donald McAllister, Palos Verdes Estates, and Edward B. Scharer, Lynwood, Calif., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Application July 31, 1967, Ser. No. 657,152, now Patent No. 3,454,038, dated July 8, 1969, which is a division of application Ser. No. 448,201, Apr. 14, 1965, now Patent No. 3,338,517. Divided and this application Nov. 26, 1968, Ser. No. 779,001

The portion of the term of the patent subsequent to July 8, 1986, has been disclaimed
Int. Cl. F16k 31/365, 31/00

U.S. Cl. 137—14

10 Claims



This disclosure relates to a control device for thermostatically supplying fuel to a burner means at one constant rate during normal demands on the burner means and for thermostatically supplying fuel to the burner means at an increased constant rate during abnormal demands on the burner means, the control device having its fuel flow rate changed by a two stage pressure sensing regulator that controls a main pressure operated valve member of the control.

3,561,905

TENOR JOINT FOR BASSOON

Roy J. Linton, Sr., Elkhart, Ind., assignor to The Linton Company, Elkhart, Ind.
Filed Mar. 5, 1969, Ser. No. 804,398

Int. Cl. G10d 7/00

U.S. Cl. 84—380

2 Claims



A method of making a tenor joint for a bassoon, said joint having a lengthwise bore and integral wing means

extending along and projecting radially away from said base, said wing means having a plurality of spaced openings extending therethrough and into communication with the bore of the joint, said wing means also having a plurality of recesses in the side thereof between pairs of openings, the joint being produced by injection molding from a thermoplastic, such as acrylonitrile butadiene styrene, which is known as Cycolon.

3,561,906

CENTRIFUGAL FAN

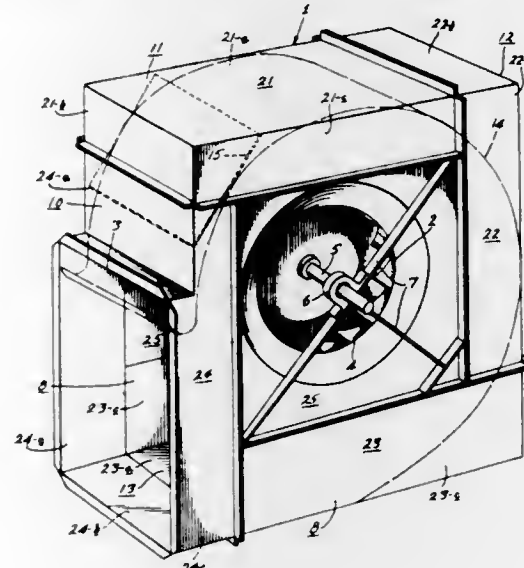
Karl-Erik Fermér, Jonkoping, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Stockholm, Sweden
Filed Jan. 31, 1969, Ser. No. 795,585

Claims priority, application Sweden, Jan. 31, 1968, 1,323/68

Int. Cl. F04d 29/40, 17/08

U.S. Cl. 415—206

2 Claims



A casing for a centrifugal fan comprising a hollow box structure having square corners, one end wall having an exhaust opening at one corner and an angularly disposed shielding plate at the other corner. The fan wheel axis is offset from the center of the box toward said shielding plate. The casing is preferably formed by four uniform-sized box-shaped elements which are abutted and joined as shown in FIG. 1.

3,561,907

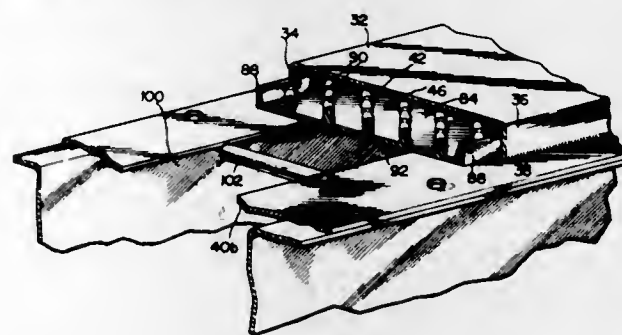
APPARATUS AND METHOD FOR CONVEYING AND ELEVATING SUBSTANCES

David R. Campbell, 4165 South 2200 West, Salt Lake City, Utah 84120
Application Mar. 18, 1968, Ser. No. 713,746, which is a continuation-in-part of application Ser. No. 596,003, Nov. 21, 1966, which in turn is a continuation of application Ser. No. 374,778, June 12, 1964. Divided and this application July 8, 1969, Ser. No. 852,143

Int. Cl. B65g 15/00; F04b 19/14

U.S. Cl. 417—53

2 Claims



A conveying arrangement wherein an endless belt has a working run that travels in an inclined chute having a

top wall and a substantially parallel bottom wall attached thereto by side walls with the bottom wall being discontinuous and interrupted by cut-out portions, the belt having a bearing face slidably disposed on the bottom wall and closing off the cut-out portions so as to complement the top and side walls in achieving a conduit effect in which the working run travels. The belt has a working face provided on its opposite sides with upstanding endless flanges and, intermediate the side flanges, with a pattern of spaced and staggered projecting nubs that extend substantially to the undersurface of the top wall for moving substances through the chute with the belt being driven through the chute at a linear speed greater than the fall back speed of a conveyed substance on the working face of the belt.

ERRATA

For Classes 51—5, 51—239 and 51—287 see:
Patent Nos. 3,561,908, 3,561,909 and 3,561,910

3,561,908

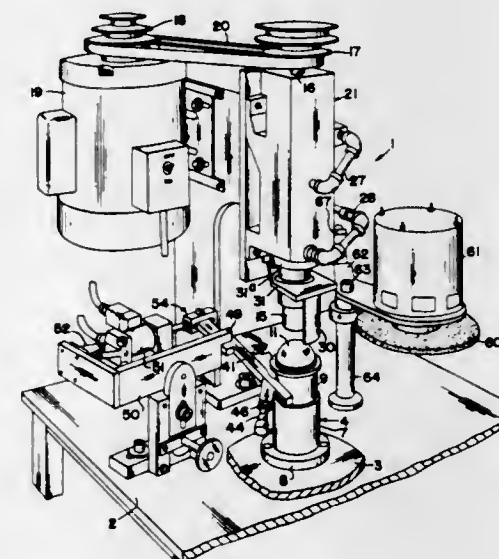
GOLF BALL TRIMMING APPARATUS

Nyles V. Reinfeld, 610 Treese Ave., Akron, Ohio 44313

Filed Apr. 10, 1968, Ser. No. 720,020
Int. Cl. B24b 7/04

U.S. Cl. 51—5

11 Claims



This apparatus includes a rotatable ball support member, a rotatable ball engaging member positionable directly above the ball support member and means for driving the ball engaging member. Other means position the ball engaging member for movement to and from engagement with the ball on the ball support member, a cutter means is provided and a support means carries the cutter means and is pivotally positioned so that control means connecting to the support means can move it to bring the cutter means into and out of engagement with the ball on the ball support member for trimming mold flash, or rind therefrom.

3,561,909

STEADY REST FOR GRINDER

William P. Flohr, Jr., Waynesboro, Pa., assignor to Litton Industries, Inc., Waynesboro, Pa., a corporation of Delaware

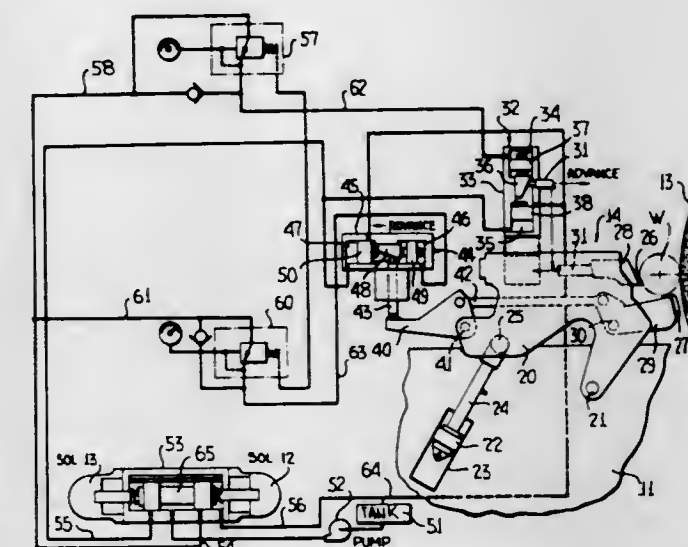
Filed Mar. 28, 1968, Ser. No. 716,716
Int. Cl. B24b 41/06

U.S. Cl. 51—239

8 Claims

The apparatus of this disclosure relates to steady rest actuating means of the type which includes a pressure ac-

tuated floating wedge in engagement with the steady rest plunger. The wedge is shifted in one direction by a hydraulically actuated piston to advance the plunger against the workpiece. It is actuated in the opposite direction for resetting by another hydraulically operated piston. During the grinding operation, the piston is held against the wedge by pressure sufficient to prevent deflection of the work by the advance of the grinding wheel. As initially set up, when the plunger is in contact with the finished diameter on the workpiece, there is some clearance be-



tween the reset piston and the head of the cylinder. As the steady rest shoe wears, the actuating wedge will move farther to the right to advance the plunger to compensate for such wear. The clearance between the reset piston and the head of the cylinder permits the movement of the wedge for this compensation. The lower steady rest shoe is actuated in the same manner except a higher pressure is applied to the actuating piston to overcome any sag in the workpiece and to hold the workpiece in a vertical position best suited to maintain roundness of the workpiece.

3,561,910

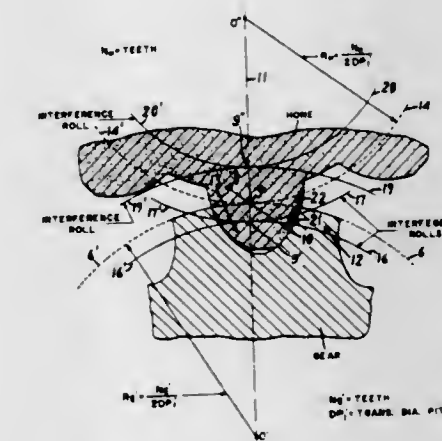
ROLLING CONTACT GEAR HONING METHOD

Guy E. Soper, Williamsport, Md., assignor to Mack Trucks, Inc., Montvale, N.J., a corporation of New York

Filed Nov. 30, 1967, Ser. No. 686,992
Int. Cl. B24b 1/00

U.S. Cl. 51—287

2 Claims



Honing rolling contact gear members having concave tooth profile shapes wherein a hone tooth shape is designed to operate with said gear member without tooth interference as the hone changes its tooth and diameter sizes due to operational wear.

CHEMICAL

3,561,911

PROCESS FOR THE DYEING OF SHAPED ARTICLES MADE OF AROMATIC POLYESTERS OF CELLULOSE TRIACETATE

Karl Fuhr and Hans Rudolph, Krefeld-Bockum, Ernst-Robert Fritze and Otto Schneider, Cologne-Flittard, and Walter Hees, Cologne-Hohenberg, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Dec. 12, 1967, Ser. No. 689,769

Claims priority, application Germany, Dec. 17, 1966, F 50,988

Int. Cl. D06p 3/54

U.S. Cl. 8—4

6 Claims

A process and composition for dyeing aromatic polyesters or cellulose triacetate in an aqueous bath with disperse or ingrain dyestuff wherein an improved carrier is used comprising naphthalene derivatives of the formula



where R_1 is naphthyl or tetrahydro naphthyl which may contain substituents and R_2 is alkyl or acyl.

3,561,912

OXIDATION DYES COMPRISING AROMATIC DIAMINES AND COUPLING COMPONENTS

Karl-Josef Boosen, Dusseldorf-Holthausen, and Peter Berth, Dusseldorf-Benrath, Germany, assignors to Therachemie Chemisch Therapeutische Gesellschaft m.b.H., Dusseldorf, Germany

No Drawing. Filed Oct. 11, 1966, Ser. No. 585,779

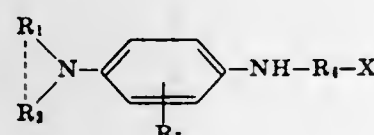
Claims priority, application Germany, Oct. 30, 1965, T 29,697; Sept. 1, 1966, T 31,964

Int. Cl. A61k 3/12

U.S. Cl. 8—10.2

14 Claims

A composition for treatment of human hair comprising a substantially 0.1 to 5.0 weight percent aqueous solution of a developer plus a coupling agent in quantities ranging from substantially equimolar to a slight excess of the developer; said developer having the formula



wherein R_1 and R_2 individually are selected from the group consisting of hydrogen, lower hydroxyalkyls, beta methyl sulfonamidoethyl, hydroxyethyls, lower alkyls and interconnected lower alkyls; R_3 is selected from the group consisting of hydrogen, lower alkyl and lower alkoxy; R_4 is lower alkyl; and X is selected from the group consisting of $-\text{COOH}$, $-\text{SO}_3\text{H}$, $-\text{PO}_3\text{H}_2$ and $-\text{PO}_3\text{H}_2$, their water soluble salts, their acid amides and esters with aliphatic alcohols having 1-4 carbon atoms; said coupling agent being selected from the group consisting of o- and m-phenylenediamine; o- and m-aminophenol; o- and m-toluylenediamine; o-anisidine; 2,4-diaminoanisole; 2,4-diaminophenol; pyrogallol; resorcinol; pyrocatechol; alphanaphthol; aminoresorcinol; 1,5 - aminohydroxy-naphthalene; and 1,8-diaminohydroxynaphthalene; and a method for use thereof.

680

3,561,913

METHOD OF DYEING SYNTHETIC FIBERS

Hideaki Munakata, Kazuo Watanabe, Yoshikazu Arimatsu, and Toshiharu Sugihara, Otsu, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed Nov. 17, 1967, Ser. No. 683,827

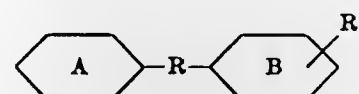
Claims priority, application Japan, Nov. 25, 1966, 41/77,417; Dec. 28, 1966, 42/861

Int. Cl. D06p 1/32

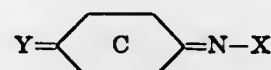
U.S. Cl. 8—32

7 Claims

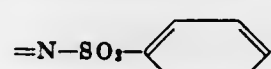
Synthetic fibers—especially polyester fibers, are dyed by means of a reaction product of a compound of the formula



and a compound of the formula



wherein A is an aromatic nucleus, B is an aromatic nucleus or a quinoid ring, R is $-\text{NH}-$ or $-\text{N}=-$, R' is $-\text{OH}$ or $=\text{O}$, C is a quinoid ring, X is a halogen atom and Y is $=\text{O}$, $=\text{N}-X$, $=\text{N}-\text{OCCH}_3$ or



The dyed fibers, of dark shade, are of excellent fastness to light, sublimation, washing and dry-cleaning.

3,561,914

PROCESS FOR DYEING NATURAL NITROGENOUS FIBROUS MATERIAL AND A PREPARATION THEREOF

Heinz Abel and Alfred Berger, Reinach, Basel-Land, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a company of Switzerland

No Drawing. Filed June 25, 1968, Ser. No. 739,637

Claims priority, application Switzerland, July 7, 1967, 9,706/67

Int. Cl. D06p 3/14

U.S. Cl. 8—43

11 Claims

A process for dyeing natural nitrogenous fibers with water-soluble 1:2 metal-complex dyestuffs wherein dyeing is performed at 70 to 85° C. in the presence of (a) a water soluble salt of tetraboric acid and (b) a nitrogen containing polyglycol derivative of an aliphatic compound of high molecular weight in the form of an acid ester of an at least dibasic oxygen acid or a salt thereof.

3,561,915

TEXTILE DYE ASSISTANT COMPOSITIONS

Ralph Matalon, 432 Cherry Hill Blvd., Cherry Hill, N.J. 08034

No Drawing. Continuation-in-part of application Ser. No. 555,678, June 7, 1966. This application Mar. 24, 1967, Ser. No. 625,589

Int. Cl. B01f 19/00; C09b 67/00; C11d 9/30; D06p 1/68

U.S. Cl. 8—84 14 Claims

Textile assistant containing an anionic polar dispersant, a nonpolar dispersant and an aromatic nonpolar swelling agent for hydrophobic fibers for dyeing with disperse and basic dyestuffs.

FEBRUARY 9, 1971

CHEMICAL

681

3,561,916

CELLULOSIC TEXTILE MATERIALS ARE CROSS-LINKED WITH N-METHYLOLACRYLAMIDE USING ONE CATALYST AND A SINGLE REACTION STEP

William Frederick Baltinger, Hillsborough Township, Somerset County, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Sept. 7, 1967, Ser. No. 665,966

Int. Cl. D06m 9/00, 13/40

U.S. Cl. 8—116.3

9 Claims

A method for imparting a durable press finish to cellulosic textile materials by treating with N-methylolacrylamide and zinc nitrate and heating to cure and effect cross-linking, the textile finish for performing the method and the resulting cellulosic textile material.

3,561,917

METHOD FOR DETECTING RELATIVE HUMIDITY OF DRYCLEANING SOLVENTS

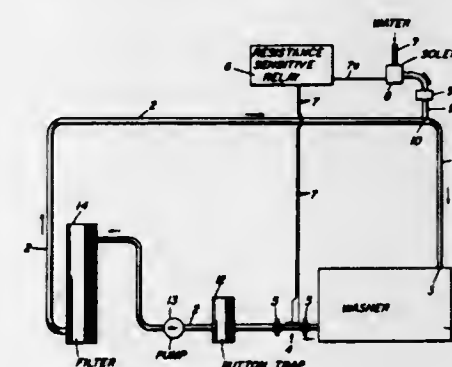
Edwin B. Michaels, Stamford, Clayton A. Wetmore, Norwalk, and Thomas N. Murphy, Stamford, Conn., assignors to Stanford Chemical Industries, Inc., Cincinnati, Ohio, a corporation of Ohio

Original application Dec. 3, 1963, Ser. No. 327,649. Divided and this application Aug. 7, 1967, Ser. No. 683,036

Int. Cl. D06l 1/10; G01n 27/10

U.S. Cl. 8—142

4 Claims



In a drycleaning system, a method for rapidly detecting relative humidity of drycleaning solvent in the washing chamber comprising positioning adjacent to the washing chamber at the outlet conduit a conductivity device through which all of the solvent from the washing chamber passes, said conductivity device comprising an outer tubular electrode and a concentrically mounted inner electrode.

3,561,918

GAS STERILIZATION MEDICAL CASE

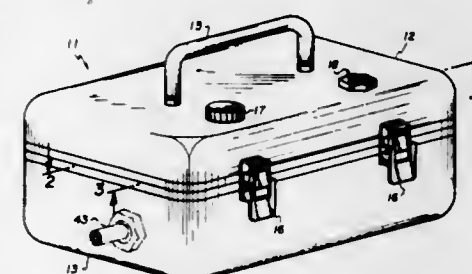
Charles Dean Ray, Timonium, Md., assignor to Hoffmann-La Roche, Inc., Nutley, N.J., a corporation of New Jersey

Filed Feb. 28, 1968, Ser. No. 708,905

Int. Cl. A61l 3/00; B65d 81/18

U.S. Cl. 21—84

6 Claims



A portable apparatus for housing and sterilizing medical implements, having a separable two-piece but gas-tight container comprising a mechanism communicating

with the container interior for applying a sterilizing gas thereto, the container conforming to the size of the implement for which it is intended to house, and further adapted to receive such implement by means of spring clip or other suitable means secured to the inner surface(s) of the container. A window is provided at the top of the container for visually inspecting an indicating device temporarily secured within the container and under the window to determine if a suitable concentration of gas has been provided for sterilization. A relief valve is provided for bleeding off gas within the housing prior to use of the implement therein. Additional provisions adapt the device for use with a disposable gas cartridge should a source of gas not be readily at hand.

3,561,919

IRON OXIDE-FERRITE PRODUCTION PROCESS

Joseph W. Ayers, Easton, Pa. (% Chas. Pfizer & Co., Inc., 235 E. 42nd St., New York, N.Y. 10017)

No Drawing. Continuation-in-part of application Ser. No. 691,714, Dec. 19, 1967, which is a continuation-in-part of application Ser. No. 420,679, Nov. 23, 1964. This application June 13, 1969, Ser. No. 833,151

Int. Cl. C01g 49/00, 49/02

U.S. Cl. 23—51

7 Claims

Process for the preparation of soft and hard ferrites from synthetic non-magnetic iron oxide. Process for manufacturing ferrites, of low silica content directly from this iron oxide scale without resort to purification steps to remove silica from the iron source material. Scale is calcined in the presence of ferrous sulfate heptahydrate or sulfuric acid or a combination of both; the synthetic non-magnetic iron oxide product is then milled to the desired fineness, combined with other ferrite ingredients and formed into ferrites. Synthetic iron oxide product also suitable for use in rouges.

3,561,920

CHEMICAL VAPOR DEPOSITION OF THICK DEPOSITS OF ISOTROPIC BORON NITRIDE

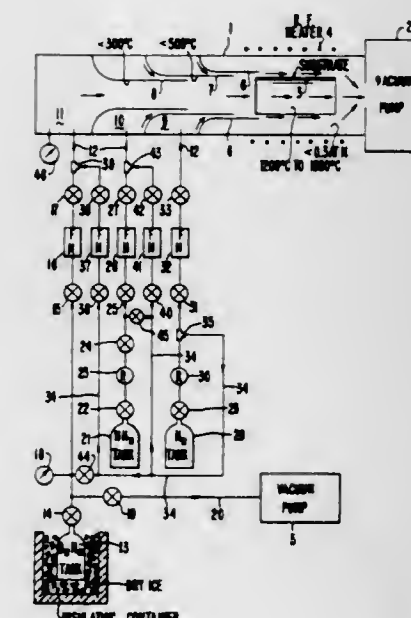
Malcolm L. Kinter, Menlo Park, and Ira Weissman, Palo Alto, Calif., assignors to Varian Associates, Palo Alto, Calif., a corporation of California

Filed May 31, 1968, Ser. No. 733,348

Int. Cl. C01b 1/00, 21/06, 35/00

U.S. Cl. 23—191

7 Claims



Substrate member is heated to a suitable temperature in excess of 1200° C. in a deposition chamber partially evacuated to subatmospheric pressure. Diborane gas is reacted with ammonia gas within a temperature range of

200–300° C. to produce an intermediate gaseous reaction product. The intermediate gaseous reaction product is caused to flow across the heated substrate to cause decomposition of the gaseous reaction product with resultant deposition of a relatively thick deposit of isotropic boron nitride onto the heated substrate. In a preferred embodiment, the substrate member is tubular and coaxially aligned with a gaseous stream of the intermediate gaseous reaction product such that the gaseous stream flows through the interior of the tubular substrate for depositing the boron nitride on the interior surfaces of the tubular substrate. The diborane gas is introduced in a relatively inert carrier gas stream in a concentration of more than 50,000 parts per million diborane gas. The subatmospheric pressure within the deposition chamber is preferably less than $\frac{3}{10}$ of an atmosphere such that the concentration of the intermediate gaseous reaction product is relatively high and the probability that the reaction product will reach the interior wall of the substrate is relatively high to facilitate relatively rapid growth rates of the boron nitride and efficient utilization of the intermediate gaseous reaction product.

3,561,921

MANUFACTURE OF AMMONIA AND SULFUR FROM AMMONIUM SULFIDE SOLUTIONS

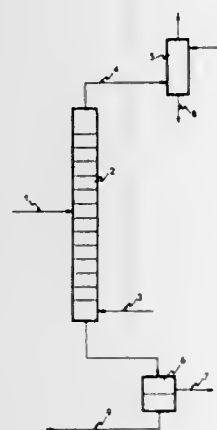
Henri Grubler, Chatillon-sur-Bagneux, and Philippe Renault, Neuilly-sur-Seine, France, assignors to Institut Francalse du Petrole, des Carburants et Lubrifiants, Ruell Malmalson (Hauts-de-Seine), France

Filed June 12, 1968, Ser. No. 736,310

Claims priority, application France, June 23, 1967, 111,809

Int. Cl. C01c 1/00

U.S. Cl. 23—193



Ammonia and sulfur are obtained from ammonium sulfide or ammonium bisulfide solutions by air oxidation at 10–80° C. in the presence of a phosphoric acid ester in the liquid phase. The sulfur is separated and recovered as such by filtration, the ester of phosphoric acid is separated from the aqueous phase by decantation, and the ammonia is recovered as aqueous ammonia.

3,561,922

WASTE SULPHITE LIQUOR RECOVERY

Robert K. Allen, Alliance, John L. Clement, Akron, and Henry P. Markant, Alliance, Ohio, assignors to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey

Continuation of application Ser. No. 487,869, Sept. 16, 1965. This application Sept. 8, 1969, Ser. No. 860,151

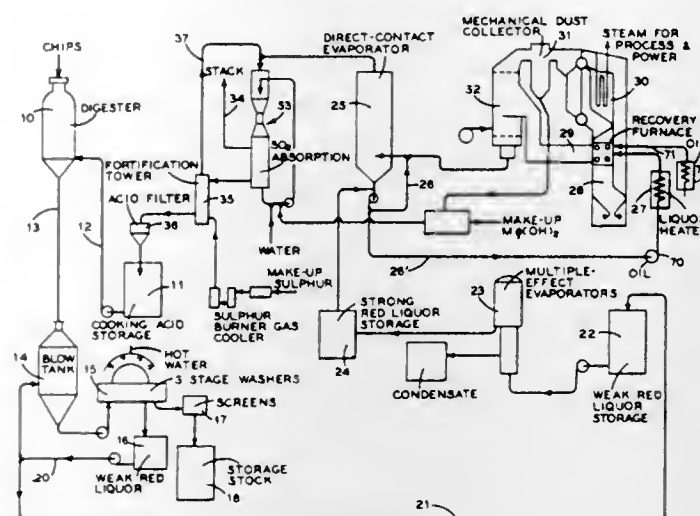
Int. Cl. D21c 11/12; C01f 5/06

U.S. Cl. 23—201

4 Claims

A chemical and heat recovery system wherein magnesium base pulp residual liquor is burned in a fluid

cooled furnace to produce particle-form magnesium oxide and sulphur dioxide. Supplemental fuel is added when necessary with the pulp residual liquor to maintain combustion gas temperatures above a predetermined value



to eliminate carbon particles from the combustion products. Combustion air delivered to the furnace with either or both fuels is closely controlled to avoid formation of sulphur trioxide in the products of combustion.

3,561,923

PROCESS FOR THE PRODUCTION OF CHLORINE

Isamu Takakura, Chiba, Shinzaburo Maeda, Tokyo, Tadashi Namba and Yasuo Niwa, Chiba, Tetsuya Uchino and Klmihiko Sato, Yokohama, and Nobuaki Kunii, Tokyo, Japan, assignors to Asahi Glass Co., Ltd., Tokyo, Japan

No Drawing. Filed Mar. 25, 1968, Ser. No. 715,582

Claims priority, application Japan, Mar. 29, 1967, 42/19,198; Sept. 4, 1967, 42/56,435; Feb. 14, 1968, 43/8,855

Int. Cl. C01b 7/02

U.S. Cl. 23—219

4 Claims

A reaction mass is produced by impregnating a porous inert support with magnesium chloride and alkali metal chloride as well as copper chloride as reaction promoter, said reaction mass is chlorinated by means of hydrogen chloride or ammonium chloride, and then the resulting chlorinated mass is oxidized by oxygen or air to generate chlorine, while at the same time the reaction mass regenerated by the oxidation is recycled to said chlorination stage.

3,561,924

PROCESS FOR THE PREPARATION OF RUTHENIUM CARBONYL

John Paton Candlin, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Mar. 14, 1968, Ser. No. 712,953

Int. Cl. C01g 55/00

U.S. Cl. 23—203

9 Claims

A process for the preparation of tri-ruthenium dodecacarbonyl is performed by reacting a liquid solution of a ruthenium salt, an alkali metal or alkaline earth metal compound of an organic acid or of an enolizable compound with carbon monoxide and hydrogen. Typically temperatures between 100° and 250° C. and up to 300 atmospheres of pressure are used. The tri-ruthenium dodecacarbonyl is extracted from the reaction products.

3,561,925

PRODUCTION OF AMMONIA AND SULFUR FROM AMMONIUM SULFITES OR SULFIDES

André Deschamps, Chatou, and Philippe Renault, Neuilly-sur-Seine, France, assignors to Institut Francals du Petrole des Carburants et Lubrifiants, Ruell, Malmalson, Hauts-de-Seine, France

Filed June 20, 1968, Ser. No. 738,471

Claims priority, application France, June 26, 1967, 111,962

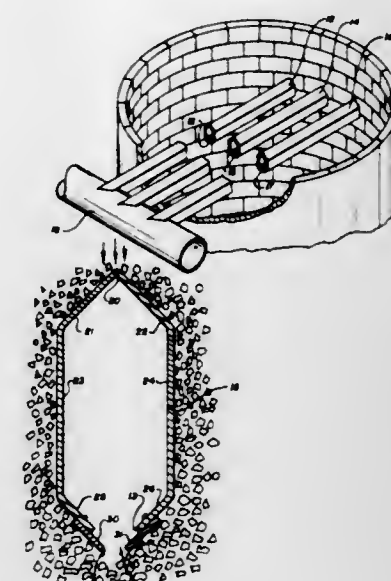
Int. Cl. C01b 17/02; C01c 1/10

U.S. Cl. 23—226

6 Claims

A process for manufacturing ammonia and sulfur which comprises reacting ammonium sulfite or ammonium sulfide with, respectively, a gas containing hydrogen sulfide or sulfur dioxide, at a temperature of about 90 to 180° C. in the presence of a liquid phase containing at least 10% by weight of a compound selected from the group consisting of higher alcohols, polyols, mono- and polyalkylene glycols, esters and ethers of the alcohols, polyols and glycols and phosphoric esters, and recovering sulfur therefrom as well as water and ammonia in the gaseous state.

a uniform flow of the fluid through the bed across the entire lateral extent of the process vessel, thereby control-



3,561,926

ATTITUDE INSENSITIVE GAS GENERATOR

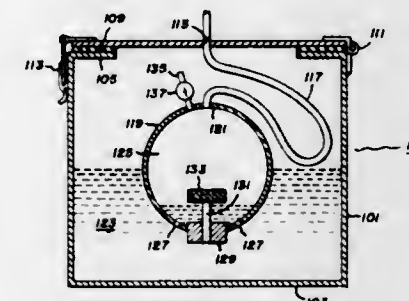
James F. McElroy, Hamilton, Mass., assignor to General Electric Company, a corporation of New York

Filed Apr. 10, 1968, Ser. No. 720,182

Int. Cl. B01j 7/02

U.S. Cl. 23—282

5 Claims



A ball is floated on the surface of a liquid reactant confined within a sealed container. Within the ball is a body providing a reaction surface at which gas is produced when the liquid reactant is brought in contact. A flexible conduit withdraws gas from an upper portion of the ball while apertures are provided in the ball below the level of the liquid reactant.

ling channelling of the fluids and over treatment of some of the solids.

3,561,928

GAS PURIFYING APPARATUS

Fritz Weber, Wahnheide, Germany, assignor to Electro-Isolier-Industrie Wahn, Wilhelm Ruppert, Wahn, Rhineland, Germany

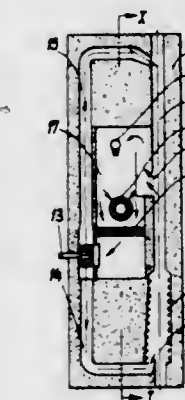
Filed Oct. 27, 1967, Ser. No. 678,719

Claims priority, application Germany, Oct. 31, 1966, P 16 04 865.0

Int. Cl. B01j 9/04; F26b 13/02, 21/06

U.S. Cl. 23—288

10 Claims



FLUID COLLECTION SYSTEM FOR VERTICAL PROCESS VESSELS

John B. Jones, Jr., Denver, Colo., assignor to Paraho Corporation, Washington, D.C., a corporation of Nevada

Filed Jan. 22, 1969, Ser. No. 792,976

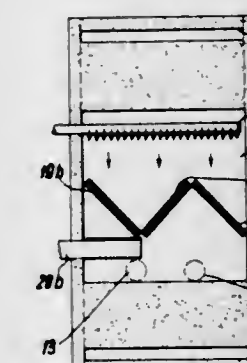
Int. Cl. B01j 9/06

U.S. Cl. 23—283

8 Claims

A fluid collection system for vertical process vessels, in which a fluid is contacted with solid content of the vessel, particularly for large diameter vessels, includes at least one series of elongated collector members symmetrically positioned across the lateral extent of the process vessel, each series being generally near the top of a reaction zone in the vessel, but in position to be completely covered by the solid material. Each of the elongated collector members includes variable opening means across its lateral extent to provide for the collection and the removal of fluids moving through the bed of solids in a direct ratio to the area of the vessel served by a particular increment of inflow into the collector. This provides for

A gas purifying apparatus to be used in connection with the treatment of work with a gas from which products are to be removed before the gas is discharged to the outer atmosphere. A circulating means circulates the gas first into engagement with the work so as to treat the



latter and then along a return away from the work and back into engagement with the work. A discharge means communicates with this return for discharging a fixed fraction of the gas which flows therethrough out to the outer atmosphere. A discharge catalyzer means is situated in the path of flow of this fraction of the gas to the discharge means to remove from this fraction of the gas at least part of the products suspended therein before the fraction of the gas is discharged out through the discharge means. A recirculating catalyzer means is situated in the path of flow of the remainder of the gas flowing through the return so as to remove at least part of the products suspended in this remainder of the gas. The discharge catalyzer means has with respect to this fixed fraction of the gas which flows out through the discharge means an effective surface area which is substantially greater than the effective surface area of the recirculating catalyzer means with respect to the remainder of the gas which is recirculated back into engagement with the work, so that the discharge catalyzer means necessarily operates with an efficiency which is substantially greater than that with which the recirculating catalyzer means operates.

3,561,929
TERNARY RARE-EARTH COMPOUNDS WITH ELEMENTS OF BOTH FIFTH AND SIXTH GROUPS OF THE PERIODIC SYSTEM
Fritz Hulliger, Uerikon, Switzerland, assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed July 29, 1968, Ser. No. 748,228
The portion of the term of the patent subsequent to Apr. 14, 1987, has been disclaimed
Int. Cl. C01f 17/00

U.S. Cl. 23—315 **6 Claims**
New rare-earth compounds having the formula LnXY , in which Ln is yttrium or a rare-earth element except europium and ytterbium, X is sulfur or selenium, and Y is phosphorus or arsenic are prepared at high temperatures either from mixtures of the elements or from the mono-compounds LnX or LnY , which react with the other element. The products may be produced in microcrystalline or single crystal forms and are orthorhombic. The compounds exhibit non-metallic electrical properties and are not transparent. The compounds where Ln is yttrium, lanthanum or lutetium, are non-magnetic while the other compounds show a Curie-Weiss-type paramagnetism around room temperature and probably all will undergo magnetic ordering at temperatures of the order of 10°K .

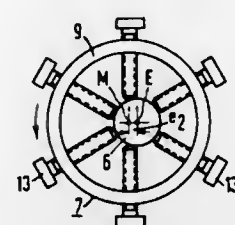
3,561,930
SEPARATION OF CALCIUM SULPHATE HEMIHYDRATE BY A HEATED CENTRIFUGE
Martin Granger Brown and Edward Graham Foster, Norton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
Filed Apr. 24, 1967, Ser. No. 633,176
Claims priority, application Great Britain, May 27, 1966, 23,847/66
Int. Cl. B01d 9/02; C01f 11/46

U.S. Cl. 23—293 **4 Claims**
Method for the separation of a hydraulic binding material, e.g. calcium sulphate hemihydrate, from water. The method involves centrifuging an aqueous slurry of the binding material in a centrifuging zone and removing the separated moist solid material and the separated water from different parts of the zone, at least one surface upon which the separated moist solid material is liable to be deposited being heated to a temperature which is at least 100°C . and at which hydration of the material is substantially prevented. Apparatus for carrying out the method is also described.

3,561,931
ECCENTRIC FEED ROTATION IN ZONE REFINING
Carl-Heinz Vogel, Pretzfeld, and Ludwig Sporrer, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, a corporation of Germany
Filed Aug. 4, 1967, Ser. No. 658,512
Claims priority, application Germany, Aug. 6, 1966, S 105,235
Int. Cl. B01j 17/10

U.S. Cl. 23—301

6 Claims



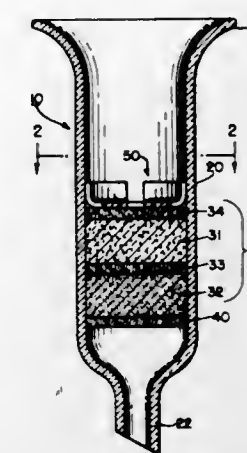
Process of zone melting a semiconductor rod having under process, a recrystallized portion and a supply portion to be recrystallized, each separated from the other by a molten zone, includes supporting the rod substantially vertically by first and second holders respectively located at the free ends of the supply rod portion and the recrystallized rod portion, forming the molten zone in the rod with an annular heating device spaced from and surrounding the rod, relatively moving the rod and the heating device in a substantially vertical direction so as to pass the molten zone along the rod, rotating at least one of the end holders about the substantially vertical axis of the rod portion at the free end of which the end holder is located, relatively moving the end holder towards one another and laterally away from one another at predetermined speeds so as to increase the thickness of the recrystallized rod portion in a direction radially outwardly to the annular heating device and rotating the supply rod portion about an axis eccentric to the substantially vertical axis of the supply rod portion.

Apparatus for carrying out the foregoing method includes substantially vertically spaced end holders supporting between them a vertically extending semiconductor rod having a recrystallized portion and a supply portion to be recrystallized divided by a molten zone, means for relatively displacing the end holders toward one another, an annular heating device surrounding and spaced from the rod and adapted to form the molten zone in the rod, means for displacing the heating device along the rod so as to pass the molten zone along the rod, means for rotating at least one of the end holders about its substantially vertical axis, means for displacing one of the end holders in a direction transverse to the axis thereof so that the recrystallized rod portion is formed with a specific diameter extending in direction toward the annular heating device, and means for rotating the supply rod portion about an axis eccentric to the axis of the supply rod portion.

3,561,932
INDIUM GENERATOR
Irwin J. Gruverman, Needham, and Gregory G. Rocco, Wakefield, Mass., assignors to New England Nuclear Corporation, Boston, Mass., a corporation of Massachusetts
Filed Jan. 26, 1967, Ser. No. 611,963
Int. Cl. B01d 11/02; C01g 15/00, 19/00

U.S. Cl. 23—312 **4 Claims**
A generator of a daughter radionuclide, particularly radioactive indium ($\text{In}^{113\text{m}}$), and a method of loading a particulate substrate of the generator with a parent radionuclide. The daughter radionuclide, which results from

the radioactive decay of its parent, is selectively extracted from the substrate by a mineral acid solvent (eluant),



such as hydrochloric acid (HCl) at a concentration less than one-tenth normal (0.1N).

3,561,933
FLOCCULATION PROCESS
Alfred J. Restaino, Wilmington, Del., and Weldon N. Reed, Pennington, N.J., assignors to Atlas Chemical Industries, Inc., Wilmington, Del., a corporation of Delaware
No Drawing. Application Feb. 13, 1963, Ser. No. 258,119, which is a continuation-in-part of application Ser. No. 177,150, Mar. 2, 1962, both now abandoned. Divided and this application Nov. 10, 1966, Ser. No. 593,320
Int. Cl. B01d 11/02, 21/01; C01f 7/04

U.S. Cl. 23—312 **11 Claims**
1. A process for flocculating solids from their finely divided suspensions in aqueous media which comprises introducing into the suspension a graft copolymer prepared by (1) contacting oxygen with a water-dispersible polymeric substrate selected from the group consisting of starch, casein, algin, dextran, dextrans, polyvinyl alcohol, and a polymeric condensate of a 2 to 3 carbon alkylene oxide, irradiated with high energy ionizing radiation to a dosage of from 0.1 to 30 megarads whereby hydroperoxide groups are introduced into said polymers and (2) subsequently contacting the peroxidized polymeric substrate with an aqueous dispersion of a vinyl monomer capable of free radical induced polymerization in the presence of dissolved catalyst capable of producing free radicals by reaction with hydroperoxides.

3,561,934
SINTERED STEEL PARTICLES CONTAINING DISPERSED CARBIDES
Gary Steven, Pittsburgh, Pa., assignor to Crucible Inc., a corporation of Delaware
Filed Sept. 11, 1967, Ser. No. 666,776
Int. Cl. C22c 29/00

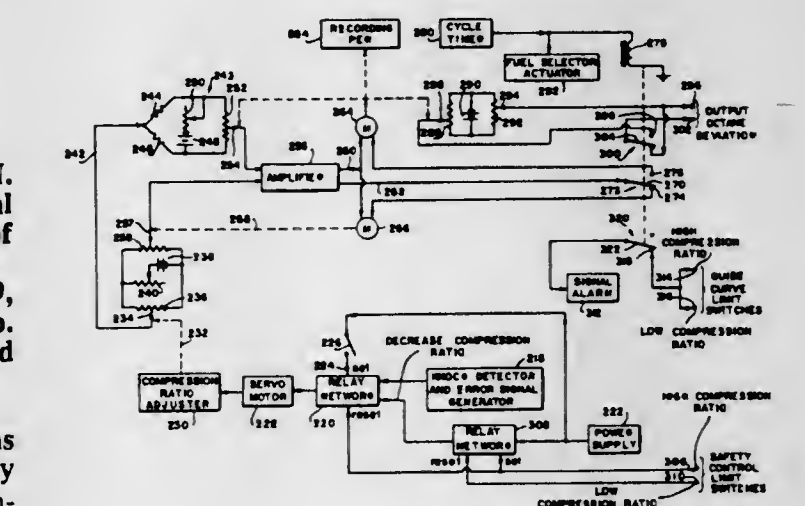
U.S. Cl. 29—182.7 **6 Claims**
The invention relates generally to powdered metal articles and method for producing the same. In more particular aspects, the invention relates to powdered metal articles produced from high speed tool and die steel compositions by hot compacting particles of said compositions. The particles range in size from about -30 or finer standard mesh and contain a reactive metal component such as titanium, vanadium, zirconium, columbium, molybdenum, tungsten or tantalum. The reactive metal component is reacted with a non-metal, which may be carbon, oxygen or nitrogen, to produce a non-metallic dispersion of said reactive metal and non-metal. The article is capable of hardening treatment by conventional austenitizing, quenching and tempering to hard-

ness levels above about 58R_c for die steels and 64R_c for high speed steels. Austenitizing to these high hardness levels may be achieved in very short times on the order of two minutes or less. In addition during hardening treatment the symmetry or out-of-roundness of the article remains substantially unchanged.

3,561,935
AUTOMATED FUEL TEST AND CONTROL APPARATUS
William E. Beal, Pitman, N.J., assignor to Mobil Oil Corporation, a corporation of New York
Application July 17, 1963, Ser. No. 295,733, which is a continuation-in-part of application Ser. No. 160,051, Dec. 18, 1961. Divided and this application Jan. 9, 1969, Ser. No. 790,117
Int. Cl. C101 1/04

U.S. Cl. 44—2

5 Claims



A system for controlling a combustion quality of a fuel, e.g., octane or cetane value, wherein the detonation intensity or time lag of a test fuel powering a standard test engine is compared to a reference value to generate an error signal. The compression ratio of the engine is adjusted in response to a function of the error signal to maintain a predetermined condition of detonation intensity or time lag, and the amount of adjustment of the compression ratio provides a representation of the combustion quality of the fuel. The system also includes means for controlling a process of blending the test fuel to a predetermined specification in response to a signal which is a function of the amount of adjustment of the compression ratio.

3,561,936
JET FUEL COMPOSITION
George W. Eckert, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Mar. 17, 1966, Ser. No. 535,019
The portion of the term of the patent subsequent to Nov. 4, 1986, has been disclaimed
Int. Cl. C101 1/10

U.S. Cl. 44—58 **8 Claims**
An anti-wear jet fuel oil composition containing 100–200 pounds per thousand barrels of trimer acid.

ERRATUM

For Class 44—63 see:
Patent No. 3,561,152

3,561,937

SHAPED POLYESTER HAVING INCREASED ADHESION TO COATINGS

Richard A. Matthews, Roseville, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
No Drawing. Filed Nov. 14, 1968, Ser. No. 775,929
Int. Cl. B29g 5/00; C08g 51/12

U.S. Cl. 51—298

4 Claims

Tensilized shaped polyester strips, such as fibers or films, having increased receptivity to adhesion by resinous materials. The improved receptivity results from immersing a hot amorphous strip in a quench solution of isocyanate dissolved in and reacted with a stoichiometric excess of at least one monohydric alcohol, rinsing the strip to remove excess quench solution from the surface, and thereafter tensilizing the strip. Fibers treated in this manner are especially useful in the manufacture of lofty open low density nonwoven fibrous abrasive products.

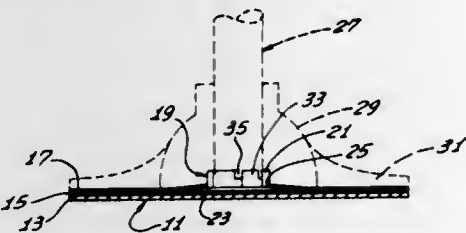
3,561,938

ABRASIVE DISK

Aleck Block and Keith R. Whitcomb, Los Angeles, Calif., assignors to Merit Products, Inc., Los Angeles, Calif., a corporation of California
Filed Feb. 5, 1968, Ser. No. 702,945
Int. Cl. B24d 17/00

U.S. Cl. 51—358

5 Claims



This disclosure describes an abrasive disk and a method of making an abrasive disk which includes impregnating a compressible porous backing sheet matrix having a plurality of segments defining voids with a bonding material which coats the segments to form a backing sheet. The backing sheet is then placed next to a hub and the two are heated and squeezed to compress the backing sheet and cause the bonding material to flow to bond the hub to the backing sheet.

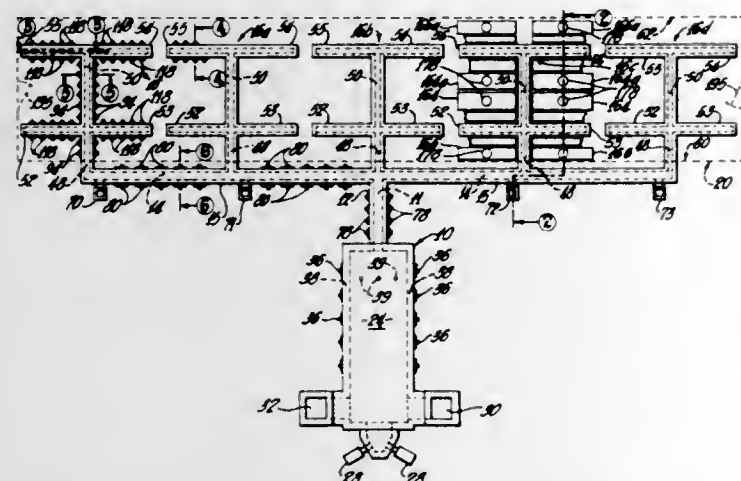
3,561,939

APPARATUS FOR PROCESSING FILAMENT-FORMING MINERAL MATERIALS AND FORMING AND PACKAGING FILAMENTS

Magnus L. Froberg and Roy E. Smith, Newark, Ohio, assignors to Owens-Corning Fiberglass Corporation, a corporation of Delaware
Filed Nov. 22, 1967, Ser. No. 685,204
Int. Cl. C03b 37/00

U.S. Cl. 65—11

5 Claims



This invention relates to a method of and apparatus for processing heat-softenable mineral materials, such as

glass, and involves melting and refining batch material in one melting and refining furnace to a high degree of homogeneity and flowing the refined glass in a multiplicity of paths to deliver the glass at controlled temperatures to a large number of stream feeders or bushings arranged in two parallel rows to facilitate simultaneous attenuation of the groups of streams from the feeders to filaments and packaging strands of the filaments on rotatable collectors. The method involves temperature and humidity control of a moving air environment and substantially uniform distribution of the conditioned air with respect to the stream feeders in the forming room.

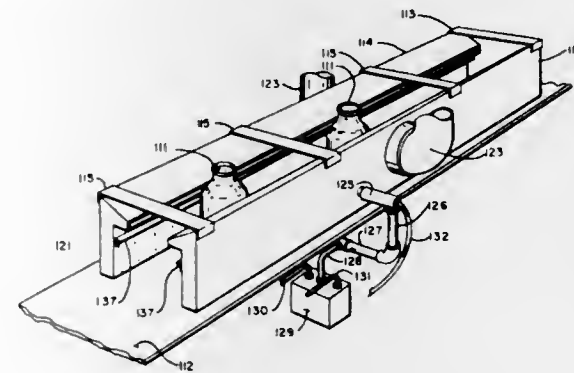
3,561,940

METHOD AND APPARATUS FOR PREPARING GLASS ARTICLES

Addison B. Scholes, Muncie, Ind., assignor to Ball Corporation, a corporation of Indiana
Continuation-in-part of applications Ser. No. 376,073 and Ser. No. 376,243, both June 18, 1964, and Ser. No. 423,629, Dec. 21, 1964, which in turn is a continuation-in-part of application Ser. No. 347,848, Feb. 27, 1964. This application Oct. 2, 1967, Ser. No. 677,492
Int. Cl. C03c 17/00

U.S. Cl. 65—60

8 Claims



This invention pertains to a method of treating a virgin vitreous surface to protect against degrading in strength and other properties. Prior to completion of annealing, the vitreous surface is exposed to stannic chloride vapor in an inert carrier to form a colorless coating of tin oxide on the vitreous surface. Articles so treated form a portion of the invention as does treatment of metal glass-contacting surfaces in a similar manner to curtail abrasion of glass when contacted by such coated surfaces.

The invention also pertains to apparatus for carrying out the method by confining the stannic chloride vapor in a hood with means for carrying the vitreous surface therethrough. A particularly useful apparatus includes inlet and exhaust ports to conduct the vapor only over selected portions of the vitreous surface.

3,561,941

TRIPLE GOB SETTLE BLOWHEAD AND BAFFLE CONSTRUCTION

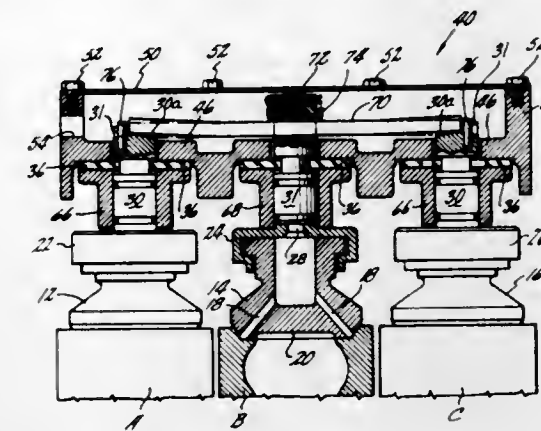
Francis A. Dahms, Tariffville, Conn., assignor to Emhart Corporation, Bloomfield, Conn., a corporation of Connecticut
Filed June 4, 1968, Ser. No. 734,457
Int. Cl. C03b 9/14

U.S. Cl. 65—261

5 Claims

In the blank mold side of a triple gob Hartford I.S. Glassware Forming Machine Section, a settle blowhead and baffle carrier is provided for supporting three settle blowheads or baffles in depending relationship for movement into registration with corresponding openings in three individual blank molds. Two of the three baffles are slidably supported in the carrier for limited vertical floating movement and a single leaf spring urges these

two baffles downwardly below the third so that as the baffles engage their respective blank mold openings, the



spring is resiliently deformed to equalize the closing forces between all three baffles and their respective blank molds.

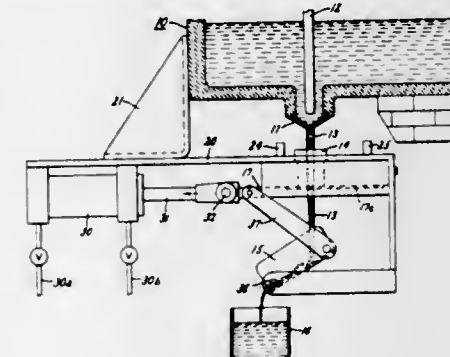
3,561,942

APPARATUS FOR FEEDING MOLTEN GLASS

Robert B. Cleverly, Pittsfield, Mass., assignor to General Electric Company, a corporation of New York
Filed Dec. 4, 1968, Ser. No. 781,127
Int. Cl. C03b 5/38

U.S. Cl. 65—325

4 Claims



This application discloses an improved flow control apparatus for a continuous discharge type glass furnace. The apparatus comprises a guide tube positioned to encircle a free-falling stream of discharged molten glass and a reciprocable shear plate movable across the open bottom end of the guide tube between two spaced-apart rest positions of non-interference with the glass stream. To this end the shear plate is provided with two spaced-apart apertures each of which is in registry with the guide tube in one rest position of the plate. An imperforate intermediate portion of the plate momentarily closes the bottom of the tube while the shear plate is in transit between its rest positions.

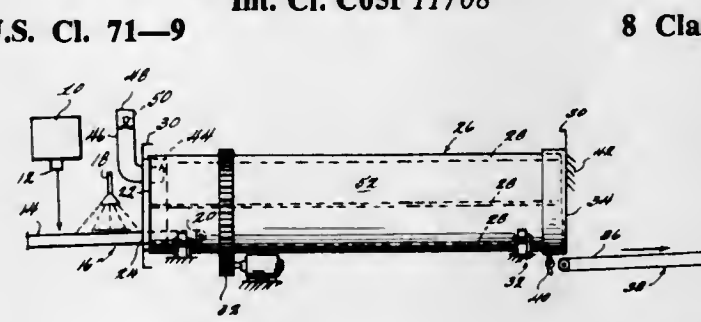
3,561,943

PROCESS FOR PREPARING A SOIL CONDITIONER FROM WOOD WASTES MATERIALS

Charles W. Gay, Jr., 603 W. Las Cruces Ave., and Donald D. Dwyer, 3015 Fairway Drive, both of Las Cruces, N. Mex. 88001
Filed Feb. 2, 1968, Ser. No. 702,703
Int. Cl. C05f 11/08

U.S. Cl. 71—9

8 Claims



Finely divided wood waste material such as ground pine bark or sawdust or the like, separately or in admixture,

is mixed with a microbial source such as ground natural manure, sewage sludge or industrial wastes. To the mixture there is also added water and the total mixture is then heated, with agitation, in the presence of a molecular oxygen containing gas, such as air, in amounts sufficient to cause aerobic decomposition.

3,561,944

SOIL TREATING COMPOSITION

John J. Battistoni and William E. Hibbard, Las Vegas, Nev., assignors to Nevada Enzymes, Inc., a corporation of Nevada
No Drawing. Filed Nov. 26, 1968, Ser. No. 779,224
Int. Cl. C05f 5/00

U.S. Cl. 71—26

10 Claims

An enzymatic soil enhancing composition comprises water, an enzymatic fermentation reaction product prepared from kelp, cane molasses, raw cane sugar, yeast, malt and a magnesium salt, as well as surfactants, urea and ammonium sulfate.

3,561,945

METHOD FOR CONTROLLING THE GROWTH OF ALGAE

Robert W. Kilburn, Lake Wales, Fla., assignor to Aqua Klear, Inc., Lake Wales, Fla.
No Drawing. Continuation-in-part of application Ser. No. 505,017, Oct. 24, 1965. This application July 8, 1968, Ser. No. 743,019
Int. Cl. A01n 11/00

U.S. Cl. 71—67

5 Claims

A method of controlling the growth of aquatic plants such as algae in water by dispersing finely divided alumina therein thereby adsorbing the dissolved phosphate contained in the water which is necessary to the growth of algae.

3,561,946

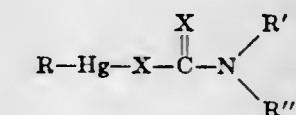
METHOD OF DEFOLIATING PLANTS

Henry G. Braxton, Jr., Franklin Village, Mich., and Evelyn J. Lajiness, Caledonia, Wis., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed Oct. 31, 1968, Ser. No. 772,403
Int. Cl. A01n 9/00

U.S. Cl. 71—70

2 Claims

Organomercury compounds having the formula:



wherein R is phenyl or an alkyl-substituted phenyl group having up to 12 carbon atoms, R' and R'' are alkyl groups having up to six carbon atoms, and X is sulfur which possess herbotoxic properties. Therefore, formulations containing such compounds are useful in controlling undesirable vegetation or in plant defoliation without killing the plant itself.

3,561,947

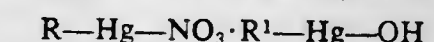
METHOD OF DEFOLIATING PLANTS

Henry G. Braxton, Jr., Franklin Village, Mich., and Evelyn J. Lajiness, Caledonia, Wis., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed Oct. 31, 1968, Ser. No. 772,352
Int. Cl. A01n 9/00

U.S. Cl. 71—70

2 Claims

Organomercury compounds having the formula:



wherein R and R' are phenyl or alkyl-substituted phenyl groups having up to 12 carbon atoms possess herbotoxic

properties. Therefore, formulations containing such compounds are useful in controlling undesirable vegetation or in plant defoliation without killing the plant itself.

3,561,948
HERBICIDAL COMPOSITIONS CONTAINING CERTAIN SUBSTITUTED IMIDAZOPYRIDINES
Christopher Edward Dealtry, Ulverston, Geoffrey Tattersall Newbold, Saffron Walden, and Albert Percival, Hauxton, England, assignors to Fisons Pest Control Limited, Harston, Cambridgeshire, England
No Drawing. Filed Apr. 8, 1966, Ser. No. 541,103
Claims priority, application Great Britain, Apr. 15, 1965, 16,149/65
Int. Cl. A01n 9/02, 9/22

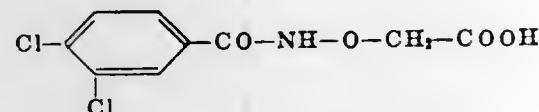
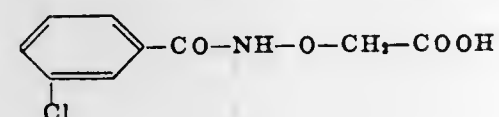
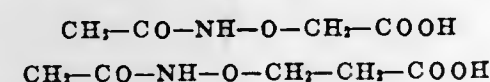
U.S. Cl. 71—92 14 Claims
Substituted imidazopyridines of the type of e.g. 6-chloro-2-trifluoromethylimidazo(4,5-b)pyridine, and their metal salts, ammonium salts, amine salts and N-oxides are valuable herbicides, useful alone or in admixture with known herbicides.

3,561,949
HERBICIDAL METHOD USING 2-CHLORO-3-MERCAPTOPROPYL N,N-SUBSTITUTED THIOLCARBAMATES
William Carter Doyle, Jr., Shawnee Mission, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Original application Mar. 24, 1967, Ser. No. 625,603, now Patent No. 3,510,290, dated May 5, 1970. Divided and this application July 30, 1969, Ser. No. 854,343
Int. Cl. A01n 9/12; C07d 59/00

U.S. Cl. 71—100 3 Claims
By a method of synthesis based on a secondary amine, carbon disulfide and epichlorohydrin there are produced 2,3-epithiopropyl N,N-dialkylthiolcarbamates which are used as selective herbicides, particularly in pre-emergent control of grasses such as brome and volunteer oats.

3,561,950
METHODS OF COMBATING UNDESIRABLE PLANT GROWTH WITH SUBSTITUTED CARBOXAMIDO-OXYALKANOIC ACIDS AND SALTS THEREOF
Ralph P. Neighbors, Olathe, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Application May 26, 1967, Ser. No. 641,487, now Patent No. 3,449,113, dated June 10, 1969, which is a continuation-in-part of application Ser. No. 374,813, June 12, 1964. Divided and this application Nov. 12, 1968, Ser. No. 798,522
The portion of the term of the patent subsequent to Aug. 6, 1985, has been disclaimed
Int. Cl. A01n 9/20; C07c 83/08

U.S. Cl. 71—115 1 Claim
Undesired plant growth is combated by applying to the locus of the plants a carboxamidooxyalkanoic acid having one of the following structural formulas:



In addition there are disclosed the use of other herbicides to which U.S. Pat. 3,449,113 is directed.

3,561,951
METHOD OF FEEDING COPPER CONCENTRATES IN A CONTINUOUS PROCESS FOR SMELTING AND CONVERTING COPPER CONCENTRATES TO METALLIC COPPER
Nickolas J. Themelis, Beaconsfield, Quebec, and Peter Tarassoff, Dollard des Ormeaux, Quebec, Canada, assignors to Noranda Mines Limited, Toronto, Ontario, Canada
Filed Apr. 3, 1967, Ser. No. 627,851
Claims priority, application Great Britain, Apr. 28, 1966, 18,647/66
Int. Cl. C22b 15/00, 15/06, 15/14

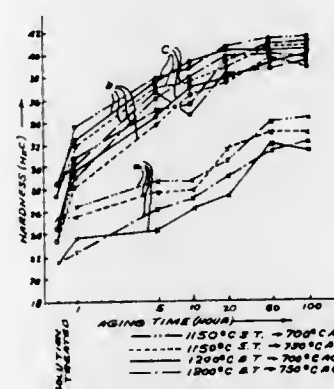
U.S. Cl. 75—73 6 Claims
A continuous process for smelting and converting copper concentrates to metallic copper in which the concentrates are fed into the furnace in the form of pellets so as to cover the surface of the liquid bath in the furnace with a thin layer of pellets and in which the pellets are fed in such a way as to prevent the formation of agglomerates of unsmelted pelletized material.

3,561,952
COPPER-REFINING METHOD
William B. Greenberg, Wynnewood, Pa. (% Greenberg Engineering Co., 211 Rock Hill Road, Bala-Cynwyd, Pa. 19004)
Filed Feb. 5, 1968, Ser. No. 702,973
Int. Cl. C22b 15/00, 15/02, 15/04

U.S. Cl. 75—76 13 Claims
This invention is especially concerned with the production of refined copper from scrap and/or other impure copper having high lead and/or tin content wherein slag formers may be selected from compounds of borates, silicates, phosphates and alkali oxides.

3,561,953
AUSTENITIC HEAT-RESISTING STEEL CONTAINING NICKEL, CHROMIUM AND MANGANESE
Itaru Niimi, Toyota-shi, and Hideyo Yagasaki, Sendai-shi, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan
Filed Mar. 19, 1968, Ser. No. 714,213
Int. Cl. C22c 39/20

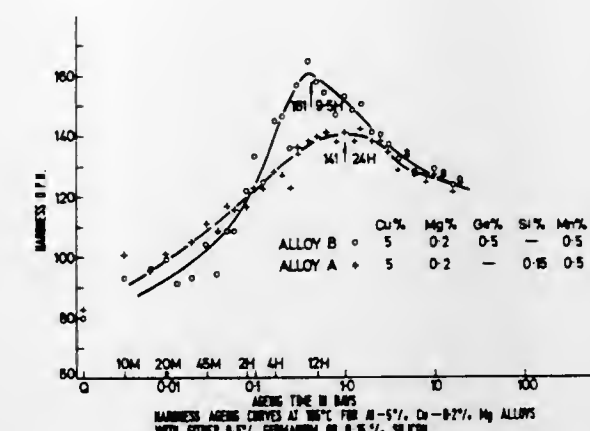
U.S. Cl. 75—128 2 Claims



An austenitic heat-resisting steel, for engine valves and similar applications, capable of withstanding conditions encountered in modern high performance engines requiring hardness, high temperature strength and toughness, consisting essentially of 0.1–0.6% carbon, 0.1–2.0% silicon, 3.0–15.0% manganese, 1.0–15% nickel, 15.0–28.0% chromium, 0.01–2.0% tungsten, 0.01–1.5% molybdenum, 0.01–1.5% vanadium, 0.01–1.5% columbium, 0.2–0.6% nitrogen, 0.001–0.020% calcium, less than 0.008% oxygen, and the balance of iron with incidental impurities.

3,561,954
ALUMINUM-BASE ALLOYS
Greville B. Brook, Beaconsfield, England, assignor to Fulmer Research Institute Limited
Filed Feb. 19, 1968, Ser. No. 707,024
Claims priority, application Great Britain, Feb. 27, 1967, 9,285/67
Int. Cl. C22c 21/00

U.S. Cl. 75—142 14 Claims



An aluminium base alloy is disclosed which contains germanium, magnesium and copper. Preferably, the alloy comprises 0.02% to 0.25% germanium, 0.1% to 0.5% magnesium, and 4.0% to 6.5% copper, with if desired up to 0.5% silicon, up to 1% manganese and up to 0.5% iron.

3,561,955
STABLE NICKEL BASE ALLOY
Harold L. Wheaton, Rolling Meadows, Ill., assignor to Martin Marietta Corporation, a corporation of Maryland
No Drawing. Filed Aug. 30, 1966, Ser. No. 575,975
Int. Cl. C22c 19/00

U.S. Cl. 75—171 11 Claims
A nickel base alloy having a balance of the elements chromium, tungsten, molybdenum, columbium, tantalum, titanium and aluminum to provide strength and stability at high temperatures, ductility at intermediate temperatures and resistance to sulfidation when the components have a hardening factor as follows:

1X% Cr+1.1X% W+1.8X% Mo+3.4X% Cb+1.7X% Ta+4.3X% Ti+6X% Al=55 to 67

and a stability factor as follows:

.66 Ni Matrix+1.70 Co Matrix+4.66 Cr Matrix
+5.66 (W Matrix+Mo Matrix)=less than 2.50

3,561,956
RESISTANCE ALLOYS
John Jephson Norreys, Duffield, Derby, England, assignor to Johnson, Matthey & Co., Limited, London, England, a British company
Filed May 10, 1968, Ser. No. 728,155
Claims priority, application Great Britain, May 11, 1967, 21,853/67
Int. Cl. C22c 5/00

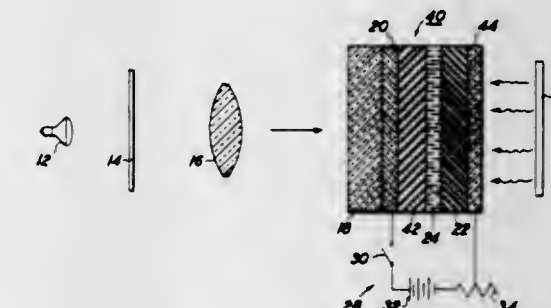
U.S. Cl. 75—172 6 Claims
Resistance alloys made according to this invention have high electrical resistivity and are suitable for making resistance wire having high and constant electrical resistance. The alloys are primarily palladium/vandium alloys and include 0.5 to 11% by weight of one or more of the elements gold, molybdenum or aluminium.

3,561,957
ELECTROPHOTOGRAPHIC PROCESS USING A HIGH INTENSITY ELECTROMAGNETIC RADIATION SOURCE
David H. Perry, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Sept. 23, 1966, Ser. No. 581,489
Int. Cl. G03g 13/04, 13/22

U.S. Cl. 96—1 2 Claims
A method for forming an electrostatic latent image on the surface of a nonphotoconductive dielectric material is disclosed. It has been determined that the charge on the surface of an insulating material may be selectively dissipated, although the material itself is not photoconductive, upon exposure to a high intensity electromagnetic radiation source.

3,561,958
INDUCING FROST DEFORMATION IMAGING BY ELECTROLYTIC DEPOSITION
Benjamin Kazan, Pasadena, Calif., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Apr. 7, 1967, Ser. No. 629,218
Int. Cl. G03g 5/00

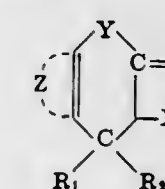
U.S. Cl. 96—1.1 3 Claims



This invention relates to recording information and, in particular, to deformation imaging. The imaging method comprises contacting a photoconductive heat-deformable thermoplastic layer with an electrolyte containing an electrolytically reducible material, exposing the photoconductive thermoplastic layer to sensitizing radiation whereby minute quantities of the reducible material are deposited in imagewise configuration on portions of the photoconductive thermoplastic layer adjacent the electrolyte, uniformly charging the exposed surface of the photoconductive thermoplastic layer and softening the layer until it deforms in imagewise configuration according to the deposited pattern.

3,561,959
SILVER COMPLEX DIFFUSION TRANSFER PROCESS
Jozef Frans Willems, Wilrijk, and Louis Maria de Haes, Edegem, Belgium, assignors to Gavaert-Agfa N.V., Mortsel, Belgium, a Belgian company
No Drawing. Filed Dec. 11, 1967, Ser. No. 689,316
Claims priority, application Great Britain, Dec. 19, 1966, 56,649/66
Int. Cl. G03c 1/48, 5/54

U.S. Cl. 96—29 7 Claims
A silver complex diffusion transfer process carried out in the presence of at least one compound corresponding to the following general formula or to a tautomeric structure thereof:



containing added fat which is useful as a food supplement. The process comprises cleaning, washing, deboning and pulping fresh fish, mixing the pulp with an aqueous emulsion of an edible fat prepared with an edible surfactant, digesting the fat-fish mixture with a proteolytic enzyme for a short period at a controlled, low temperature, the enzyme Bromelain being preferred, heating the digested mixture to terminate the enzyme activity and pasteurize the mixture, and thereafter homogenizing the mixture and drying it to recover the product.

3,561,974

METHOD OF MAKING HIGH PROTEIN BREAD

Francis Frederick Hansen, 224 E. Poplar St., Walla Walla, Wash. 99362
No Drawing. Continuation-in-part of application Ser. No. 447,047, Apr. 9, 1965. This application Sept. 2, 1969, Ser. No. 854,765

Int. Cl. A21d 8/00, 13/06

U.S. Cl. 99—90

4 Claims

There is disclosed a protein bread which is high in all essential proteins of both milk and flour having a texture similar to white bread and a method of making the same wherein flour having a high protein content is used in conjunction with a milk protein concentrate readily dispersible in water and substantially free of fat and extremely low in lactose, with the weight of flour being greater than the weight of the milk concentrate, but with the milk protein exceeding in percentage the protein in the flour. Sodium bicarbonate and an edible acid such as sodium acid pyrophosphate are introduced into the dough as it is being mixed. The bicarbonate of soda raises the pH of the dough out of the acid range into the alkaline range to produce a more workable dough with substantially less water, whereas the sodium acid pyrophosphate reacts principally at temperatures of 100° F. and above and restores the desirable normal acidity corresponding to that of conventional white bread.

3,561,975

ENZYME ADDITIVE FOR PIE DOUGH AND MIX UTILIZING SAME

James E. Luebering, Cincinnati, and Eddy R. Hair, Coleman Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

Filed May 10, 1968, Ser. No. 728,242

Int. Cl. A21d 8/04

U.S. Cl. 99—94

8 Claims

Shortening-coated protase, e.g., papain, is employed as an ingredient in pie dough. As a result of this, the amount of crust shrinkage occurring during baking is reduced, while before baking, good dough handling properties are maintained. A preferred method for coating enzyme is by spray cooling, i.e., by prilling, a suspension of enzyme particles in melted shortening.

3,561,976

METHOD OF TENDERIZING MEAT

Meyer Michael Weber, Milwaukee, Wis., assignor to Midwest Biochemical Corporation, Milwaukee, Wis., a corporation of Wisconsin

No Drawing. Filed Oct. 31, 1966, Ser. No. 590,465

Int. Cl. A22c 21/00

U.S. Cl. 99—107

6 Claims

A method of improving the tenderness of meat by introducing a solution of a proteolytic enzyme activator into the vascular system of a living livestock animal. The animal is slaughtered within a period of five to twenty minutes after introduction of the solution into the vascular system and the activator serves to activate the naturally occurring enzymes in the animal to break down the fibrous materials in the meat and increase the tenderness.

3,561,977

PROCESS OF MAKING SAUSAGE

Harold Rothchild, Kalamazoo, and Ronald H. Olsen, Ann Arbor, Mich., assignors to Dairy Technics, Inc., Kalamazoo, Mich., a corporation of Michigan

No Drawing. Filed Mar. 6, 1967, Ser. No. 620,643

Int. Cl. A22c 11/00

U.S. Cl. 99—109

5 Claims

A frozen stabilized bacterial product consisting of *Pediococcus cerevisiae* mixed with a stabilizing agent, such as glycerol, and a nutrient medium. A process of making a fermented meat product in which the thawed concentrate is mixed with a meat formulation in an amount of at least .1 percent by weight, then the mixture is heated to between 110° F. and 125° F. for from 8 to 15 hours and then the bacterial action is terminated.

3,561,978

METHOD OF PREPARING A FRANKFURTER PRODUCT AND COMPOSITION FOR USE THEREIN

Alan S. Geisler, Ramsey, and Gregory C. Papalexis, Alpine, N.J., assignors to Technical Oil Products, Inc., Moonachie, N.J., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 500,162, Oct. 21, 1965. This application Apr. 15, 1969, Ser. No. 816,399

Int. Cl. A22c 11/00

U.S. Cl. 99—109

6 Claims

The color, taste, and shelf life of frankfurters are improved by incorporating, within the frankfurter meat prior to introducing the same into a casing, a minor amount of sorbitol. In addition, a frankfurter having enhanced peeling characteristics is provided by including within the frankfurter meat a composition comprising minor amounts of sorbitol and dimethylpolysiloxane.

3,561,979

PREPARATION OF SHORTENING DRIED EGG PRODUCTS

William I. Pontius, Western Springs, Joseph G. Endres, Downers Grove, and Leon A. Van Akkeren, Lombard, Ill., assignors to Armour and Company, Chicago, Ill., a corporation of Delaware

Filed June 30, 1966, Ser. No. 561,883

Int. Cl. A231 1/32

U.S. Cl. 99—113

13 Claims

A method for preparing a plastic shortening-dried egg product having improved functional properties useful in baking.

3,561,980

PROCESS FOR PASTEURIZATION OF WHOLE EGGS

John C. Sourby, Hawthorne, and Willibald F. Kohl, Yonkers, N.Y., and Rudolph H. Ellinger, New Canaan, Conn., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,831

Int. Cl. A23b 5/00; A231 3/00

U.S. Cl. 99—161

14 Claims

A process of pasteurizing liquid whole eggs which consists of separating the eggs from the shells and forming a homogeneous mixture. Then a food grade bivalent metal ion material selected from the group consisting of calcium, zinc and mixtures thereof is dissolved therein. Thereafter an alkali polyphosphate material is added thereto and the mixture is then heated to a pasteurization temperature of 125° to 145° F. for from 0.5 to 10 minutes. In the alternative a food grade alkali agent can be incorporated therein to raise the pH thereof from about 0.5 to 2.5 units above the natural pH of the eggs prior to pasteurization.

3,561,981

METHOD FOR COATING CEREAL WITH ICE CREAM PRODUCTS

James E. Roe, Wayne, N.J., Joseph Markus, Hicksville, N.Y., and Edwin C. Breeding, Riverside, Conn., assignors to National Biscuit Company, a corporation of New Jersey

Filed May 15, 1967, Ser. No. 638,440

Int. Cl. A231 1/10

U.S. Cl. 99—166

6 Claims

A ready-to-eat breakfast cereal is prepared which, upon addition of milk, develops the characteristic flavor of ice cream. The product is prepared by first precoating cereal particles, with a binder, which is preferably sugar syrup, and while still tacky, applying a dry flavoring composition, consisting essentially of a dry ice cream product, such as freeze-dried ice cream, spray-dried ice cream, powdered ice cream mixes and in general, any dehydrated ice cream product. The finished goods, after drying, contain 15–66% cereal material, 1–50% sugar, and 5–35% flavoring composition.

3,561,982

METHOD FOR PACKING FOOD IN PLASTIC CONTAINERS

Thomas F. Oeth, Dubuque, Iowa, assignor to Dubuque Packing Company, a corporation of Iowa

Filed Feb. 6, 1968, Ser. No. 703,402

Int. Cl. B65b 25/06; B65d 43/02

U.S. Cl. 99—174

2 Claims



A process of placing food products in rigid plastic containers and sealing the container to completely enclose the food product. Air is removed from the container before sealing by drawing a vacuum or the air may be displaced by another gas. The sealed container is heat processed to render the enclosed food product cooked and semi-perishable or sterile.

3,561,983

COMPOSITIONS HAVING ALKALI METAL TRIPOLYPHOSPHATE AND ALKALI METAL HYDROXIDE AND METHODS OF MAKING SAME

Louis Sair, Evergreen Park, and Irving Melcer, Park Forest, Ill., assignors to The Griffith Laboratories, Inc., Chicago, Ill., a corporation of Illinois

No Drawing. Continuation-in-part of application Ser. No. 658,349, Aug. 4, 1967. This application Feb. 24, 1970, Ser. No. 13,750

Int. Cl. A23b 1/01; A231 3/34

U.S. Cl. 99—222

19 Claims

A particulate composition suitable for use in meat curing media, which composition includes the combination, either as a mechanical mix of controlled stability or as compacted granules of controlled stability, of particular amounts or proportions of alkali metal hydroxide and alkali metal tripolyphosphate.

A package having said particulate composition within a moisture-impervious barrier.

A method of making said compacted granules of said composition under controlled conditions and, if desired, placing said compacted granules within a moisture-impervious barrier.

3,561,984

COMPOSITION FOR GLAZING CERAMIC WARE

Richard Andrew Eppler, Timonium, Md., assignor to SCM Corporation, Cleveland, Ohio, a corporation of New York

No Drawing. Continuation-in-part of abandoned application Ser. No. 625,000, Mar. 22, 1967. This application May 27, 1969, Ser. No. 828,345

Int. Cl. C03c 3/04, 5/02; C04b 33/00

This patent application describes a composition for glazing ceramic ware, preparations useful for making same, process for glazing bodies and substrates with same, and resulting coated ceramic bodies. The composition for glazing is characterized by containing a particulate vitrifiable material, at least a substantial fraction of which is in the particulate vitreous state said vitrifiable material, after melting into a fluent vitreous state, being self-nucleating or autocrystallizable or crystallizable into a substantially dimensionally stable continuous vitreous film in which are dispersed crystals of low thermal expansion. The glazing composition is particularly suited for glazing low expansion ceramic whiteware. Set forth as useful preparations are special particulate lithia-alumina-silica and alkaline earth-alumina-silica systems modified with flux in proportion controlled to restrict the development of a primary low thermal expansion crystalline phase, some of said preparations being modified with zirconia. The glazing process comprises partially coating a ceramic body with the composition for glazing, firing the coated body at a temperature sufficiently high and for a time sufficiently long for converting the composition into a fluent continuous vitreous surface coating, then adjusting the temperature to a value at which crystal growth in the surface coating occurs at a measurable rate, and finally cooling the resultant glazed ware at a rate consistent with keeping the ware integral. The invention shows particular advantage for making glazes of adjustable and low thermal expansion for thermal shock and mechanical shock resistant ceramic whiteware, for example, dinnerware, cookware, ceramic tile, acoustical tiles of the mineral type, sanitary ware, artware, and electrical and technical porcelain. The invention is specially adaptable to conventional "two-fire" glazing practice.

3,561,985

GLASS COLORANT COMPOSITIONS

Erwin C. Hagedorn, Oregon, and Dallas P. Hall, Toledo, Ohio, assignors to Owens-Illinois, Inc., a corporation of Ohio

Continuation-in-part of application Ser. No. 285,088, June 3, 1963. This application Sept. 16, 1966, Ser. No. 579,971

Int. Cl. C03c 3/08

U.S. Cl. 106—54

5 Claims

Colorant-enriched frit glass compositions of the following ingredients are disclosed together with methods of producing colored glasses using same:

Ingredients:	Percent by weight		
	Composition 1	Composition 2	Composition 3
SiO ₂	15-50		
Cr ₂ O ₃	2-10	2-10	
B ₂ O ₃	23-48		
Na ₂ O	X	21-30	10-40
K ₂ O	(1)	0-7	
B ₂ O ₃	10.5-47	49-70	35-70
B ₂ O ₃ + B ₂ O ₅	44-74		
Fe ₂ O ₃		0-10	
CoO		0-8	0-43
MnO		0-18	0-23
PbO, BaO and ZnO		0-15	
NiO			10-18
Fe ₂ O ₃			10-18
ZnO			10-43
CuO			10-28

¹ Less than 25% X.² At least 2%.

3,561,986

BOROSILICATE GLASS COMPOSITION

Heinz Broemer, Hermannstein, Kreis Wetzlar, and Norbert Meiner, Wetzlar, Germany, assignors to Ernst Leltz G.m.b.H., Wetzlar, Germany
No Drawing. Filed May 1, 1967, Ser. No. 634,904
Claims priority, application Germany, July 16, 1966, L 54,091

Int. Cl. C03c 3/08, 3/10

U.S. Cl. 106—53

7 Claims

An optical glass composition is disclosed which consists essentially of 42 to 52 mole percent of the glass formers B_2O_3 and SiO_2 with the mole ratio of B_2O_3 to SiO_2 ranging from 3, 4 to 4, 8. The composition further comprises 36 to 46 mole percent of the oxides of the elements of the group of zinc, cadmium, lead and lanthanum with the percentage of zinc oxide and/or cadmium oxide ranging from 12 to 22 mole percent, the percentage of lead oxide ranging from 8 to 24 mole percent, and the percentage of lanthanum oxide ranging from 2 to 10 mole percent. 10 to 15 mole percent of at least three oxides of the elements of the group of calcium, aluminium, titanium, zirconium, and tungsten.

3,561,987

CHROME BASE PLASTIC REFRACTORY

Louis J. Jacobs, Chicago, Robert E. Fisher, Clarendon Hills, and Carl J. Cherry, Chicago, Ill., assignors to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware
No Drawing. Filed June 13, 1968, Ser. No. 736,592
Int. Cl. C04b 35/42

U.S. Cl. 106—66

10 Claims

A chrome base plastic refractory material employing an acid phosphate binder, such as aluminum phosphate or phosphoric acid, and a coating on the chrome ore particles to prevent reaction between the basic constituents of the ore and the acid binder during storage. The coating solution contains sodium zinc hexameta-phosphate, cupric acetate and sodium nitrite.

3,561,988

METHOD OF TREATING LIME

Norman L. Kelly, Paris, Ontario, Canada, assignor to Domtar Limited, Montreal, Quebec, Canada, a company of Canada
No Drawing. Filed May 16, 1968, Ser. No. 729,551
Claims priority, application Canada, June 8, 1967, 992,566

Int. Cl. C04b 7/34

U.S. Cl. 106—118

6 Claims

A method of improving the rate of plasticity development of a finishing lime by soaking the hydrated lime in the presence of an admixture of a water-soluble compound of barium or strontium.

3,561,989

BLACK Fe-Cr OXIDE PIGMENT COMPOSITION

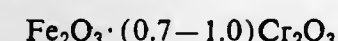
Horst Weber, Leverkusen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed July 1, 1968, Ser. No. 741,258
Claims priority, application Germany, July 13, 1967, F 52,944

Int. Cl. C09c 1/22; C01g 37/14;

U.S. Cl. 106—302

7 Claims

Black enamel and ceramic coloring substance in the form of a Fe-Cr oxide having corundum structure and a molar composition of about



and a process for the production thereof by annealing, e.g. at 1000 to 1300° C., a mixture of oxides and/or

oxide-forming compounds, e.g. heat-decomposable hydroxides, acids, salts, etc., of iron, chromium, sodium and phosphorus, which mixture contains, per gram-atom of iron, the following constituents:

0.7 to 1.0 gram-atom of chromium

0.005 to 0.2 gram-atom of sodium

0.005 to 0.05 gram-atom of phosphorus

and thereafter grinding, washing and drying the annealed material, e.g. to a particle size of about 0.1 to 60 μm , preferably 2 to 20 μm .

3,561,990

FLUORESCENT INK AND METHOD FOR MAKING MATERIALS FLUORESCENT

Hans Dressler, Monroeville, Pa., assignor to Koppers Company, Inc., a corporation of Delaware
No Drawing. Application June 14, 1966, Ser. No. 557,383, now Patent No. 3,452,075, dated June 24, 1969, which is a continuation-in-part of application Ser. No. 433,216, Feb. 16, 1965. Divided and this application May 8, 1968, Ser. No. 749,229

Int. Cl. H01j 31/20

U.S. Cl. 117—33.5

4 Claims

Substrates are made to exhibit fluorescence upon exposure to ultraviolet light through modification of the surface of the substrate by application of a mixture of specific phenylsulfonyl cinnamic type compounds and a suitable carrier.

3,561,991

TRANSFER RECORD SHEET FOR MAKING MULTIPLE COPIES OF A SINGLE HEAT IMPRESSION

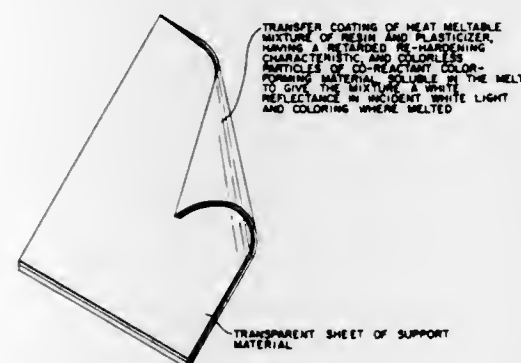
Henry H. Baum, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

Filed Aug. 28, 1968, Ser. No. 756,008

Int. Cl. B41m 5/10

U.S. Cl. 117—36.1

5 Claims



This invention relates to a self-revelation heat-activatable sheet-like transfer printing member comprising a translucent support sheet and a back-coating of heat-tackifiable transfer ink that normally is solid and normally reveals a light-reflecting surface at the interface of the support sheet and the coating, as viewed from the front uncoated side, but is irreversibly darkened when and where heated to the tackifiable condition. The heat-tackified coating is an ink-source for making a transfer print against each of a number of light-colored copy-receiving sheets brought into pressure contact therewith in succession. An image made by a hot image-former applied to the sheet, preferably to the uncoated side, leaves a corresponding dark image against the light surface at the interface, to be seen through the support sheet.

3,561,992

REPRODUCTION TRANSFER SHEET AND METHOD OF MAKING

Edgar Breidhardt, Dusseldorf, Germany, assignor to Ancar A.G., Zug, Switzerland
Continuation-in-part of applications Ser. No. 243,466, Dec. 16, 1962, and Ser. No. 498,978, Oct. 20, 1965.
This application Nov. 9, 1967, Ser. No. 681,696
Claims priority, application Germany, Dec. 14, 1961, R 31,693

Int. Cl. B41m 5/10

U.S. Cl. 117—36.3

9 Claims



The present invention relates to reproduction transfer sheets prepared by coating the upper sides of white or lightly colored sheets with a solution of polyethylene in tetrachloroethylene containing dark colored pigments or dyes, at a temperature not substantially lower than 80° C. After removal of the tetrachloroethylene solvent a white or lightly colored coating of polyethylene mixed with, for example, titanium dioxide, is applied over the initial colored coating in the form of a tetrachloroethylene solution, at a temperature below 80° C. After removal of the solvent, a white or lightly colored coating is applied to the reverse side of the sheet. This coating consists of microcrystalline wax to which titanium dioxide or other light colored pigment may be added as a brightener. If desired, other materials may also be included in the coating, as for example, magnesium stearate for the purpose of increasing the adherence of the coating.

3,561,993

METHOD OF PRODUCING CYCLICALLY EXTENDING LAYERS

Walter Geffcken, Mainz, Germany, assignor to JENAer Glaswerk Schott & Gen., Mainz, Germany, a corporation of Germany

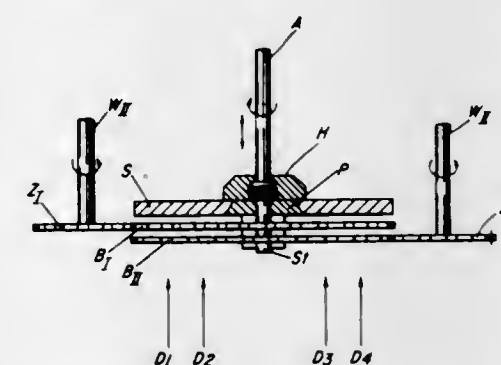
Filed Apr. 10, 1968, Ser. No. 720,146

Claims priority, application Germany, Apr. 11, 1967, J 33,412

Int. Cl. B29d 11/00; B44d 5/06

U.S. Cl. 117—38

6 Claims



It is known to deposit metallic or dielectric layers by vaporization on a straight stripe-formed substrate, whereby the thickness of the layers is linearly increasing along the stripe. Interference filters of such layers show a regular shift of the transmission curve from shorter to longer wavelengths. A recent development shows that it is possible to deposit similar layers in a cyclical form by disposing between the vaporizer and the substrate two diaphragms forming between them a radial slit, whereby these diaphragms are rotated with different speeds relatively to each other about a common axis of rotation. Filters made according to this method have the disadvantage that along one part of the cycle the thickness is

steadily increasing, while along the following part it is steadily decreasing. The disclosure shows how the relative movement of the substrate and the diaphragms must be kept for overcoming the said disadvantage and for getting layers, the thickness of which has a uniform change of thickness along the whole cycle with only one interruption where the wavelength drops from the highest to the lowest value.

3,561,994

METHOD OF MAKING MOISTURE RESISTANT PAPERBOARD

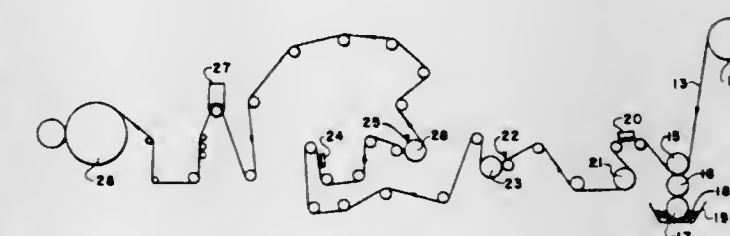
James P. Dwyre, Stamford, Conn., assignor to Westvaco Corporation, New York, N.Y., a corporation of Delaware

Filed May 3, 1967, Ser. No. 635,829

Int. Cl. B65d 5/56; D21h 1/36

U.S. Cl. 117—46

5 Claims



In a liquid container formed of polyethylene coated paperboard, wicking through exposed raw edges on the interior of the carton is substantially reduced by treating the paperboard with small quantities of a moisture resistant material, such as wax, prior to the application of the polyethylene coating. The wax is applied to the paperboard in molten form in the range of approximately 1 to 7 percent by weight of the uncoated paperboard and driven evenly and uniformly throughout the board by the subsequent application of heat.

3,561,995

METHOD OF ACTIVATING A POLYMER SURFACE AND RESULTANT ARTICLE

Sidney Hsi-Lin Wu, Berkley, and Edgar John Seyb, Jr., Oak Park, Mich., assignors to M & T Chemicals Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Apr. 3, 1967, Ser. No. 627,864

Int. Cl. B44d 1/092

U.S. Cl. 117—47

4 Claims

Activated polymer surfaces adaptable for the acceptance of metal deposits are prepared by contacting a clean, non-active, unconditioned polymer surface with a liquid activating composition containing at least one reactive conditioning agent selected from an acidic medium, salts of an acidic medium, a metal hydroxide, a metal oxide, and an oxygen-containing organic medium, in combination with at least one ion of a metal selected from the group consisting of platinum, palladium, silver, gold, iron, nickel, cobalt, copper, and rhodium.

3,561,996

METHOD OF IMPROVING ADHESION OF VINYL ADDITION POLYMER AQUEOUS-BASED COMPOSITION SEALANTS, ETC.

Harold C. Young, Philadelphia, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed May 27, 1968, Ser. No. 732,072

Int. Cl. B44d 1/14

U.S. Cl. 117—62.1

14 Claims

In accordance with the present invention, it has been found that coating the surface of a caulk or painted layer

comprising a thermoplastic polymer, such as a vinyl addition polymer, with certain types of silanes, surprisingly increases the adhesion of the caulk to many substrates, and especially to those of siliceous type, such as glass, ceramics, porcelain, concrete, etc.

3,561,997 PROCESS FOR METAL COATING A PLASTIC LAYER

John Arne Wallinder, Surrey, England, assignor to Perstorp AB, Perstorp, Sweden, a Swedish joint-stock company

No Drawing. Filed Apr. 25, 1968, Ser. No. 724,284
Claims priority, application Great Britain, May 2, 1967, 20,293/67

Int. Cl. B44c 5/02, 1/22

U.S. Cl. 117—68 4 Claims

Method of producing a laminated material containing at least one thin layer of metal, by applying a layer of plastics material containing in a distributed condition 10–40% by weight of a finely divided substance having a particle size between 0.0005–0.01 mm. to at least one side of a foundation sheet, removing said finely divided substance from the free surface of the plastics layer by chemical action, thus obtaining a surface pitted with cavities, and metallizing a thin layer of metal upon said pitted surface.

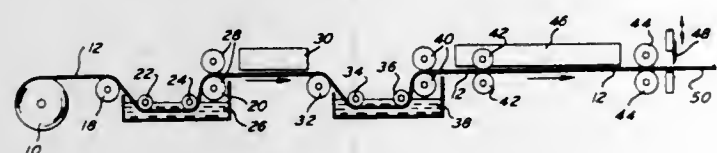
3,561,998 METHOD OF PRODUCING DECORATIVE COARSELY TEXTURED FABRICS HAVING CRUMPLED PAPER YARN

Stuart D. Snyder, 9708 Fulmer St., Philadelphia, Pa. 19115

Filed Mar. 29, 1967, Ser. No. 626,763

Int. Cl. B44d 1/14; D21h 1/28

U.S. Cl. 117—76 14 Claims



A method of making a decorative article utilizing a coarsely textured fabric having crumpled paper yarn with irregular and nonuniform cross sections by soaking in an unplasticized polymer composition, passing the fabric between pressure rollers for removing excess composition therefrom, allowing the fabric to dry and fusing the polymer at least partially by the application of heat, soaking the fabric in a plasticized polymer composition, passing the fabric between pressure rollers to remove excess composition therefrom, and drying the fabric and fusion of the polymer, and the article produced thereby in which the fabric is protected by a thin tough film of vinyl surrounding the individual yarn bundles, thereby retaining the texture of the fabric surface, and providing various color effects and patterns.

3,561,999 METALLIC STEARATE COATED CLAYS AND THE PROCESS OF PRODUCING SAME

Joseph Iannicelli, Macon, Ga., assignor to J. M. Huber Corporation, Locust, N.J., a corporation of New Jersey

No Drawing. Filed Dec. 6, 1967, Ser. No. 688,356

Int. Cl. C08h 17/06; C09c 3/00

U.S. Cl. 117—100 6 Claims

The disclosure covers the coating of kaolin clays with a thin uniform film of water insoluble metallic stearate and the clays so coated. The process includes the steps

of applying an aqueous dispersion of the stearate to the clay, followed by mixing, drying and pulverizing.

3,562,000 PROCESS OF ELECTROLESSLY DEPOSITING METAL COATINGS HAVING METALLIC PARTICLES DISPERSED THEREWITH

Konrad Parker, Park Ridge, Ill., assignor to General American Transportation Corporation, Chicago, Ill., a corporation of New York

Filed Oct. 25, 1968, Ser. No. 770,573

Int. Cl. C23c 3/02

U.S. Cl. 117—130 36 Claims

There are disclosed herein processes for electroless metallizing workpieces to provide thereon an electroless plating metal coating incorporating therein metallic particles, workpieces produced by such processes and plating baths which are useful in the practice of such processes and for producing such workpieces. These processes generally comprise contacting the workpieces with an electroless metallizing bath consisting of an aqueous solution of an electroless metal plating salt and a chemical reducing agent therefor and a quantity of metallic particles, wherein said particles are essentially insoluble in said bath and inert and non-catalytic and non-poisonous with respect thereto and non-displacing with respect to the electroless plating metal ions in said bath, the particles being present in said bath in an amount by weight no greater than about ten times the weight of the electroless plating metal in said bath expressed as free metal, and maintaining the particles in suspension throughout the bath during the metallizing of the workpiece; the metallizing bath may contain nickel ions or cobalt ions or mixtures thereof as a source of metal and may contain hypophosphite anion or an alkylborazane or a borohydride as the reducing agent, or may contain copper ions as a source of metal with formaldehyde as the reducing agent; the metallic particles are selected from chromium, molybdenum, tungsten, boron, titanium, vanadium, zirconium, niobium, tantalum and alloys thereof; the metallic particles have dimensions in the range from about 0.1 micron to 50 microns; these metallic particles may be maintained in suspension in the bath by mechanical agitation, by passing the bath including the particles over the workpiece, by passing streams of minute bubbles of gas through the bath, by agitation and movement of the workpiece within the bath, or by slowly rotating the workpiece in conjunction with the rapid circulation of the bath; additionally, the electroless plating metal coating having the metallic particles incorporated therein may be heat-treated by heating to a temperature in the range from about 200° C. to about 1,300° C. for at least one-quarter hour to bond said electroless metal coating and said metallic particles at the interfaces thereof.

3,562,001 GLOSS COMPOSITION COMPRISING WATER SOLUBLE AND WATER INSOLUBLE MELAMINE FORMALDEHYDE RESINS FOR IMPROVING SURFACE OF ARTICLES MADE FROM MELAMINE RESINS AND METHOD OF APPLICATION THEREOF

Patrick J. McGulre, Mount Vernon, N.Y., assignor to Commercial Decal, Inc., Mount Vernon, N.Y., a corporation of New York

No Drawing. Filed Feb. 20, 1968, Ser. No. 706,769

Int. Cl. B29c 3/00; B32f 27/00, 27/42; B44c 1/20, 3/12

U.S. Cl. 156—242 10 Claims

The gloss, lustre and abrasion resistance of articles molded from melamine resins are improved by means of a composition formed from a water soluble and water insoluble melamine resins, a thickening agent, plasticizer, solvent and catalyst. The composition is applied to the foil used to decorate the ware before application of the foil to the ware.

3,562,002 METHOD AND APPARATUS FOR VAPOR DEPOSITION

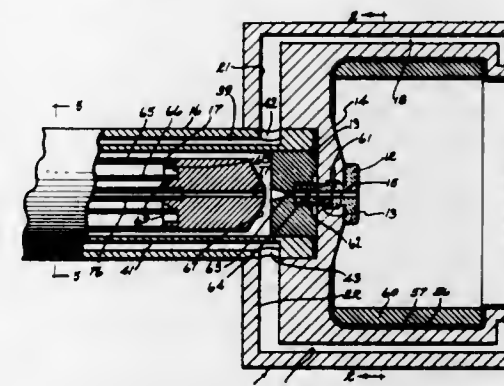
Hugh R. Smith, Jr., Piedmont, Calif., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York

Continuation-in-part of application Ser. No. 637,386, May 10, 1967. This application Apr. 24, 1968, Ser. No. 725,264

Int. Cl. C23c 13/04, 13/12

U.S. Cl. 117—93.3

14 Claims



A method and apparatus are described for feeding wire into a vapor source crucible in a vacuum deposition system to either replenish material vaporized in the crucible or to produce a uniform coating on the wire. The wire is urged into the crucible through a heated guide member upon which vapor will not condense and solidify.

3,562,003 ELECTROSTENCIL

Alfred Fröhlich, Hellerup, Denmark, assignor to Aktieselskabet for Kontor Kemi, Glostrup, Denmark, a corporation

Filed July 7, 1967, Ser. No. 651,778

Claims priority, application Denmark, July 11, 1966, 3,572/66

Int. Cl. H01l 1/06

U.S. Cl. 117—201 10 Claims

A stencil blank includes a stencil sheet which is capable of being perforated by electric sparks, the stencil sheet being juxtaposed with and supported on a backing sheet made of an electrically conductive material. The backing sheet may comprise electrically conductive black glazed paper. The stencil sheet may be formed entirely of an inherently electrically conductive synthetic resin. In a modified form of the invention, the stencil sheet comprises a thin sheet of paper containing finely dispersed carbon particles and coated with a layer of inherently electrically conductive synthetic resin.

3,562,004 SYSTEM FOR FORMING A CONDUCTIVE SURFACE LAYER

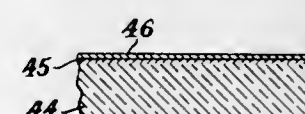
Thomas E. Myers, St. Charles, Ill., assignor to Norma J. Vance

Original application July 30, 1964, Ser. No. 386,213, now Patent No. 3,436,257, dated Apr. 1, 1968. Divided and this application June 3, 1968, Ser. No. 790,179

Int. Cl. H01l 29/18

U.S. Cl. 117—211

2 Claims



An electrically conductive silicate surface is provided in which a normally conductive silicate mass has its surface penetrated by a layer of electrically conductive material, e.g., silicate of a metal selected from the class consisting of titanium, indium, tin and cadmium, which

layer extends integrally into the silicate mass at the surface. Apparatus for producing the conductive silicate article is also provided.

3,562,005 METHOD OF GENERATING PRECIOUS METAL-REDUCING PATTERNS

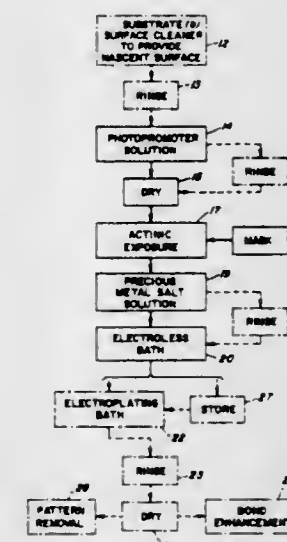
Michael Anthony DeAngelo, Hamilton Square, and Donald Jex Sharp, Princeton, N.J., assignors to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed Apr. 9, 1968, Ser. No. 719,976

Int. Cl. B44d 1/50; H05k 3/12, 3/18

U.S. Cl. 117—212

38 Claims



A pattern capable of reducing thereon a precious metal is generated on a suitable substrate by first coating selected portions of the substrate with a solution, called a photopromoter, which contains a metal salt. The metal salt possesses two characteristics:

- (a) the oxidation state of the salt (i.e., of the metal ion) is alterable (either increasable or decreasable) by exposure of the salt to radiation of the proper wavelength; and
- (b) in either the original or the altered oxidation state (but not in both states) the salt is capable of reducing a precious metal, e.g., a metal of the platinum group such as palladium, platinum or rhodium, from a salt thereof.

The photopromoter-coated substrate is next selectively exposed to the proper wavelength radiation to produce a pattern of the photopromoter salt capable of reducing the precious metal. The remainder of the salt is incapable of reducing the precious metal.

The pattern may then be exposed to a solution containing a salt of the precious metal to reduce thereon the precious metal. Ultimately, the precious metal pattern may be used to reduce electrolessly a metal, such as copper, to produce a metallic pattern, such as an electric circuit pattern.

3,562,006 INFRARED SOURCE

Hugh R. Carlon, Edgewood, Md., assignor to the United States of America as represented by the Secretary of the Army

Original application May 24, 1967, Ser. No. 642,662, now Patent No. 3,450,864. Divided and this application Dec. 27, 1968, Ser. No. 840,542

Int. Cl. H05 3/10

U.S. Cl. 117—213

4 Claims

Structure treated with a coating and pitted with an abrasive thereby emitting infrared spectrum meeting or exceeding Globar emissivities in air. A metal envelope encasing a resistance wire wound upon a core and an insulating material therebetween, axial lead of the ends

of the resistance wire connected to an external source of electrical energy, and the textured and carbon coated external surface of the said metal envelope.

3,562,007

FLAME-PROOF, MOISTURE RESISTANT COATED ARTICLE AND PROCESS OF MAKING SAME

Lawrence G. Bockstie, Jr., Bradford, Pa., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York

No Drawing. Filed Apr. 25, 1968, Ser. No. 724,260

Int. Cl. B44d 1/14; H01b 3/46

U.S. Cl. 117-218

29 Claims

A flame-proof, moisture resistant coating system especially suitable for providing coatings on electrical resistors which meet the Mil. Std. requirements for moisture resistance comprising three coating compositions: said first composition comprising a highly inorganic silicone resin, an inorganic filler and a solvent; said second coating composition comprising an at least partially hydrolyzed tetraalkyl orthosilicate, silicon dioxide, aluminum oxide, inorganic pigments, a suspension agent and a solvent; said third coating composition comprising an at least partially hydrolyzed tetraalkyl orthosilicate, predominantly inorganic silicone resin, suspended resinous particles and a compatible solvent. The invention also includes a process for applying these coating systems to an electrical resistor comprising separately applying said first, second and third coating compositions in the stated order and curing. The invention also includes electrical resistors coated with the above-described coating system.

3,562,008

METHOD FOR PRODUCING A RUTHENIUM COATED TITANIUM ELECTRODE

Aleksanders Martinsons, Wadsworth, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 14, 1968, Ser. No. 767,281

Int. Cl. B01k 3/04, 3/06

U.S. Cl. 117-221

12 Claims

A method for producing a coated anode having a titanium base member comprising the steps of applying a plurality of layers of an organic mixture containing a noble metal compound and a titanium compound to the base member and then heating such layers to a temperature sufficient to volatilize and/or to decompose the organic matter and to form mixed metal oxides. The temperature is below the temperature at which substantial titanium dioxide crystals will form.

3,562,009

METHOD OF PROVIDING ELECTRICALLY CONDUCTIVE SUBSTRATE THROUGH-HOLES

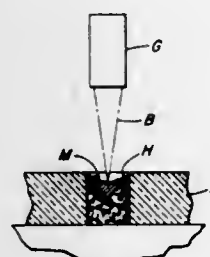
Benjamin Howell Cranston and Richard Allen Wydro, Sr., Trenton, N.J., assignors to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed Feb. 14, 1967, Ser. N. 615,968

Int. Cl. H05k 1/04; C23c 11/00

U.S. Cl. 117-227

2 Claims



This disclosure teaches specifically the method of metallizing a substrate or dielectric through-hole by directing a laser beam or an electron beam on a supply of metal

to vaporize the metal and vapor deposit the metal on the walls of the substrate through-hole. This disclosure also teaches the method of drilling a substrate through-hole with a laser beam or an electron beam and metallizing the through-hole as stated above. Further, this disclosure teaches the method of metallizing a substrate through-hole by placing a supply of metal over a substrate through-hole and engaging the metal supply with a laser beam or an electron beam to melt the supply and flow of melted supply through the through-hole. In addition, the present disclosure teaches the method of metallizing a substrate through-hole by filling the through-hole with metal granules, and engaging the granules with a laser beam or an electron beam to vaporize the granules and vapor deposit the metal on the walls of the through-hole.

3,562,010

PROCESS FOR PURIFYING A METAL LAYER PRECIPITATED CATALYTICALLY ONTO A CARRIER OF GLASS, CERAMIC, METAL OR A HEAT-RESISTANT PLASTIC

Axel Emil Bergstrom, Fregattvagen 7, Lidings, Sweden

No Drawing. Continuation-in-part of application Ser. No. 545,563, Apr. 27, 1966. This application Feb. 17, 1969, Ser. No. 799,937

Claims priority, application Sweden, Apr. 30, 1965, 5,715/65

Int. Cl. C03c 17/06; B44d 1/18

U.S. Cl. 117-227

5 Claims

A process for purifying nickel, chromium or cobalt layers precipitated catalytically in the presence of hypophosphite onto a carrier of glass, ceramic, metal or heat-resistant plastic materials, such as fluorocarbon plastics or silicon plastics, wherein the metal layer is treated at a temperature of between 330° and 420° C. with hydrogen gas, for a length of time sufficient to increase considerably the electrical conductivity of the layer.

3,562,011

INSULATING COATING COMPRISING AN AQUEOUS MIXTURE OF THE REACTION PRODUCT OF CHROMIUM NITRATE AND SODIUM CHROMATE, PHOSPHORIC ACID AND COLLOIDAL SILICA AND METHOD OF MAKING THE SAME

Robert G. Hirst and Daniel W. McMorris, Pittsfield, Mass., assignors to General Electric Company, a corporation of New York

No Drawing. Filed Apr. 26, 1968, Ser. No. 724,636

Int. Cl. C04b 35/14

U.S. Cl. 117-234

15 Claims

Electrically insulating coating for strand annealed magnetic silicon steel is composed of an aqueous mixture of (1) reaction product of chromium nitrate and sodium chromate, (2) phosphoric acid and (3) colloidal silica.

3,562,012

PROCESS FOR THE PREPARATION OF PURE LACTULOSE FROM CRUDE LACTULOSATE SYRUPS

Hans Reinicke, Mannheim, Senta Leonhauser, Ilvesheim, near Mannheim, and Rudolf Weidenhagen, Ulversheim uber Mainz, Germany, assignors to Boehringer Mannheim Gesellschaft mit beschrankter Haftung, Mannheim-Waldhof, and Suddenteutsche Zucker-Aktiengesellschaft, Mannheim, Germany, both corporations of Germany

No Drawing. Filed Nov. 5, 1968, Ser. No. 773,671

Claims priority, application Germany, Nov. 7, 1967, P 16 43 834.9

Int. Cl. C13k 9/00; C13j 1/04

U.S. Cl. 127-46

13 Claims

Process for preparing pure lactulose which comprises introducing into a dilute aqueous solution of a crude lactulose syrup about 0.7 to 4 parts by weight of calcium

oxide per part by weight of lactulose in the crude syrup at a temperature of about 0 to 15° C., allowing the mixture to stand while maintaining the temperature substantially constant, separating off the calcium lactulosate thereby formed while still maintaining this temperature, washing the separated calcium lactulosate with cold water, resuspending the washed calcium lactulosate in water at a temperature of 0 to 15° C., freeing the lactulose from its salt and recovering the free, pure lactulose.

3,562,013

PROCESS OF DEOXIDIZING TITANIUM AND ITS ALLOYS

Floyd Louis Mickelson, Chicago, and Wilbert Joseph Roberts, Oak Lawn, Ill., assignors to The Diversey Corporation, a corporation of Delaware

No Drawing. Filed Oct. 23, 1967, Ser. No. 677,086

Int. Cl. C23g 1/12

U.S. Cl. 134-3

12 Claims

A process of deoxidizing and cleaning titanium and titanium-based alloy surfaces using a treatment bath containing nitric acid, sulfuric acid and a material which supplies the acid fluoride ion. Water and phosphoric acid can be included in the bath.

3,562,014

PIPELINE SCRAPER LAUNCHING SYSTEM

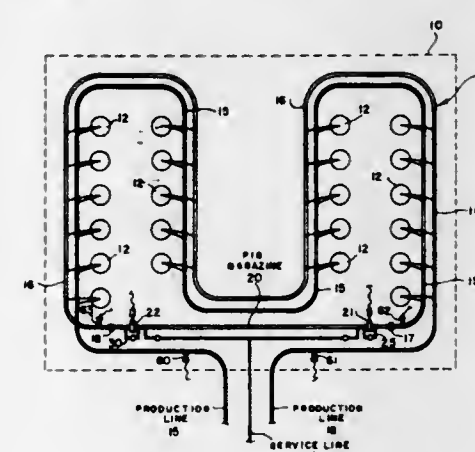
Thomas W. Childers, Woodland Hills, and Joseph A. Burkhardt, Chatsworth, Calif., assignors to Esso Production Research Company

Filed May 16, 1969, Ser. No. 825,284

Int. Cl. B08b 9/04

U.S. Cl. 134-8

25 Claims



A pipeline scraper launcher for submerged oil and gas well production systems. A tubular magazine is arranged in a submerged oil and gas well production system and each end thereof is connected to a production pipeline which extends to the surface. A service conduit connects the interior of the tubular magazine to the surface. A plurality of pipeline scraper pigs are pumped into the tubular magazine through one of the production pipelines. Then, by proper manipulation of valves arranged on the tubular magazine and service conduit and application of fluid pressure, each scraper pig is hydraulically launched from the tubular magazine into either one of the production pipelines.

3,562,015

TREATMENT OF PHOSPHATE TYPE CARRY-OVER ON METAL WORKPIECES

Leslie E. Lancy, Ellwood City, Pa., assignor to Lancy Laboratories, Inc., Zellenople, Butler County, Pa. a corporation of Pennsylvania

Filed July 5, 1968, Ser. No. 742,693

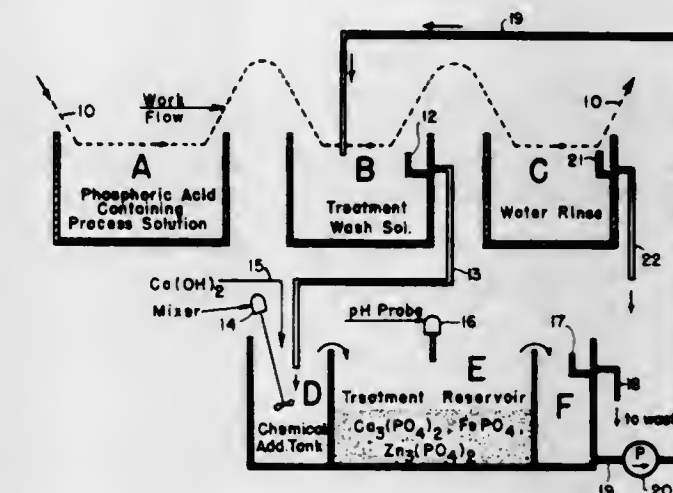
Int. Cl. B01d 21/00; C02b 1/30; C02c 5/00

U.S. Cl. 134-13

9 Claims

A method for removing and neutralizing phosphate type waste or carry-over on workpieces from a metal

finishing bath. The carry-over usually consists of large concentrations of iron or zinc phosphates or both and some free phosphoric acid which has been used for phosphatizing, pickling, or metal surface preparation. An aqueous chemical treatment wash solution is used having a pH of less than about 8 and is applied to surfaces of the workpieces during their movement; the solution as thus contaminated is circulated in a system having a treatment solution reservoir or tank, and is subjected to the introduction of hydrated lime, slaked lime, or powdered limestone, either immediately before its introduction into the reservoir or at the time of its introduction, in an amount determined to be sufficient to pre-



cipitate and settle-out iron and zinc as well as calcium phosphates in the reservoir. Thereafter, the reconditioned solution is moved from the treatment reservoir back to a workpiece treating tank to provide a continuous washing-off of the surfaces of the metal workpieces. Care is taken to assure that the solution as returned to the treating tank is, for all practical purposes, free of dissolved calcium compounds. An alternative is to employ a caustic soda addition to the solution for precipitating the metal phosphates and to employ a small quantity of calcium ion added as a secondary treatment to the solution for the purpose of removing the minor constituent of the carry-over, namely, free phosphoric acid.

3,562,016

CONTINUOUS TREATMENT OF CARRY-OVER ON FERROUS METAL WORKPIECES

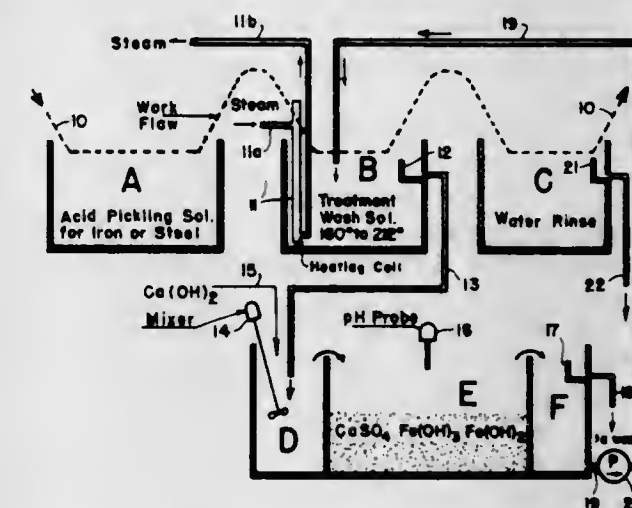
Leslie E. Lancy, Ellwood City, Pa., assignor to Lancy Laboratories, Inc., Zellenople, Pa., a corporation of Pennsylvania

Filed July 5, 1968, Ser. No. 742,747

Int. Cl. B01d 21/00; C02b 1/30; C02c 5/00

U.S. Cl. 134-13

6 Claims



Ferrous metal-containing workpieces which have been subjected to a pickling or other treatment in an acid bath

have potentially polluting iron salt waste or carry-over solution on their surfaces that is fully reacted and neutralized by a calcium containing aqueous chemical solution, without forming undesirable calcium deposits and while enabling efficient precipitation of iron compounds. The workpiece may be subsequently subjected to a rinse water wash without fear of contaminating a stream if the wash water is to be discharged therein. The aqueous treating solution is continuously reconditioned and reused and substantially fully removes, reacts with or neutralizes the waste carry-over on a workpiece that is being moved continuously into an aqueous washing bath.

3,562,017

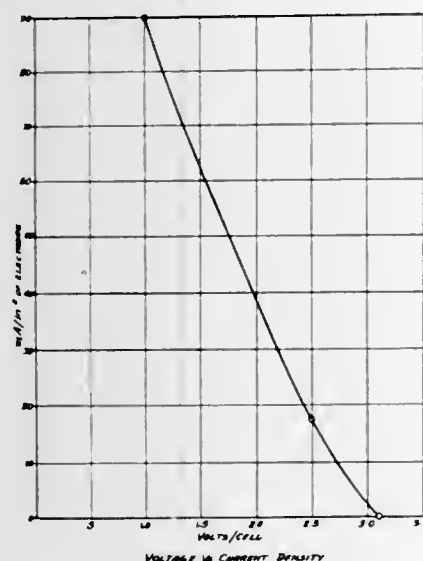
NON-AQUEOUS ELECTROLYTES AND ELECTRO-CHEMICAL BATTERIES CONTAINING THE SAME
Arthur E. Lyall, Bridgewater, N.J., assignor to Gulton Industries, Inc., Metuchen, N.J., a corporation of New Jersey

Filed Sept. 22, 1967, Ser. No. 669,803

Int. Cl. H01m 15/06, 43/06

U.S. Cl. 136—6

10 Claims



Non-aqueous electrolytes, having particular utility for use in lithium-nickel halide batteries, comprising solutions, in an organic solvent selected from the group propylene carbonate, gamma, butyrolactone, N-methyl-2-pyrrolidone and sulfoxides which are liquid at room temperature, notably dimethylsulfoxide, of a solute comprising a salt of hexafluorophosphate, together with a depolarizing agent, especially lithium levulinate; and rechargeable lithium-nickel halide batteries containing said electrolytes.

3,562,018

BATTERY COMPRISING CARBON ELECTRODE WETPROOFED WITH POLYTERPENE RESIN

Ellsworth G. Munck, Parma Heights, and Robert F. Hauser, North Olmsted, Ohio, assignors to Union Carbide Corporation, a corporation of New York

Filed Dec. 29, 1967, Ser. No. 694,600

Int. Cl. H01m 13/02, 27/00

U.S. Cl. 136—83

6 Claims

Gas permeable carbon electrodes for batteries are rendered repellent to battery electrolyte by polyterpene resin on at least the electrochemically active surfaces of the electrodes.

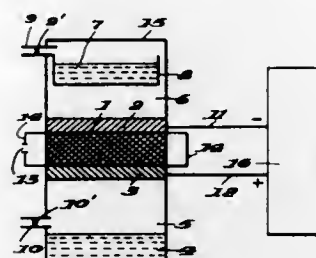
3,562,019
RESERVE FUEL CELL BATTERY
Dieter Spahrler, Frankfurt am Main, Germany, assignor to Varta Aktiengesellschaft, Frankfurt am Main, Germany

Filed Apr. 12, 1968, Ser. No. 720,940
Claims priority, application Germany, July 8, 1967, V 34,028

Int. Cl. H01m 27/00

U.S. Cl. 136—86

17 Claims



Reserve fuel cell battery with liquid oxygen and hydrogen gas yielding materials and electrolyte stored therein.

3,562,020

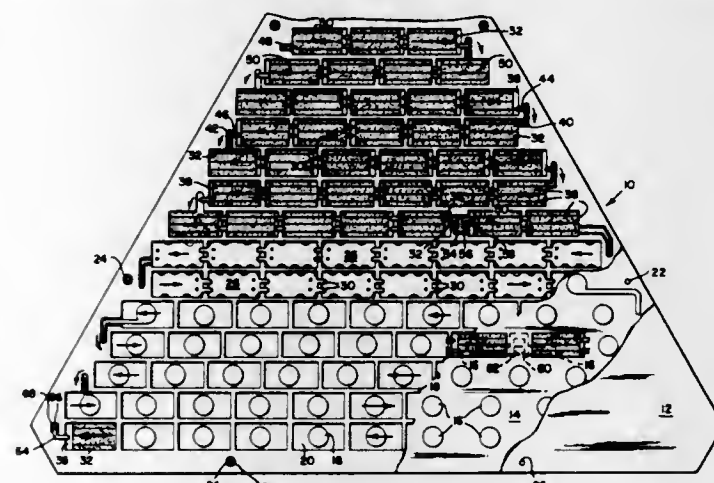
SOLAR CELL ASSEMBLY
Ronald E. Blevins, Torrance, Calif., assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio

Filed May 31, 1966, Ser. No. 553,969

Int. Cl. H01l 15/02

U.S. Cl. 136—89

6 Claims



A solar cell assembly which comprises a substrate, and a grid of electrically insulating material adhesively joined to a surface of the substrate. The grid is formed with an array of openings therein which are shaped to accommodate one or more solar cells along the lateral extent of each opening. Thus, according to one aspect of the invention, the grid serves as a jig for locating and assembling a multiplicity of solar cells in a desired array.

The solar cells are arranged within the openings so as to substantially fill the lateral extent of the openings, and are adhesively joined to the substrate surface. Means are provided for electrically connecting at least a plurality of the solar cells in circuit with each other.

3,562,021

HEATING DEVICE FOR AT LEAST ONE THERMO-ELECTRIC BATTERY ADAPTED TO FURNISH CURRENT FOR A LIMITED TIME PERIOD

Hans-Werner Kämpfer, Rothenbach, Pegnitz, Klaus Biele, Lauf-Kotzenhof, and Rudolf Schlosser, Ruckersdorf, Germany, assignors to DIEHL, Nuremberg, Germany

Filed July 3, 1968, Ser. No. 742,299

Claims priority, application Germany, July 4, 1967, P 15 39 283.3

Int. Cl. H01v 1/00

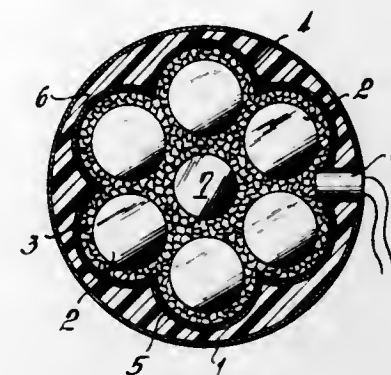
U.S. Cl. 136—205

10 Claims

Heating device for at least one thermoelectric battery adapted to supply current for a limited period of time

which comprises an oxidator, a rapidly combustible heating component surrounding said oxidator, said heating component containing a reducing agent, a melting sub-

in a maximum amount of 0.025%, the balance being cobalt in the proportion of at least 33%, the sum of cobalt and nickel being from 66 to 74% and said sum divided by the percent chromium being from 3.1 to 3.9.



3,562,025

DESCALING COPPER RODS

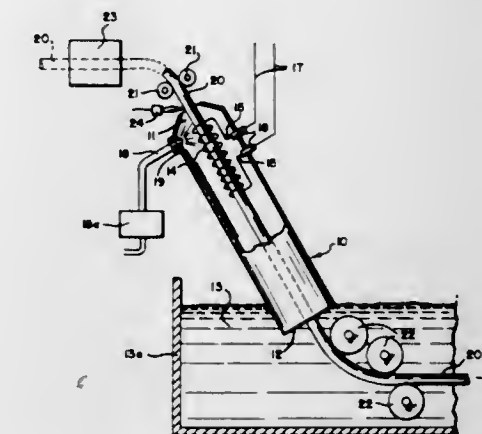
Clermont J. Snyder and Jack P. Moore, Hastings-on-Hudson, N.Y., assignors to Anaconda Wire and Cable Company

Filed Apr. 1, 1969, Ser. No. 812,283

Int. Cl. C21d 1/42

U.S. Cl. 148—13.2

8 Claims



stance surrounding said heating component and a non-melting layer separating said heating component from said melting substance, and which also comprises means for igniting said heating component.

3,562,022

METHOD OF DOPING SEMICONDUCTOR BODIES BY INDIRECT ION IMPLANTATION

Gordon A. Shifrin, Malibu, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Dec. 26, 1967, Ser. No. 693,216

Int. Cl. H01l 7/54

U.S. Cl. 148—1.5

7 Claims

Method of doping a semiconductor body by applying a layer of the desired dopant on the surface of the semiconductor, irradiating this dopant layer with a beam of inert ions to drive atoms of the dopant into the semiconductor body.

3,562,023

MANGANESE COATING BATH WITH MOLYBDENUM

Jack M. Courier, Farmington, Mich., assignor to Whitefield Chemical Co., Inc., Wayne, Mich., a corporation of Michigan

No Drawing. Filed May 15, 1968, Ser. No. 729,354

Int. Cl. C23f 7/10

U.S. Cl. 148—6.15

12 Claims

Composition and method for producing a fine grained manganese-molybdenum phosphate complex as a coating on a metal surface, primarily for break-in wear applications.

3,562,024

COBALT-NICKEL BASE ALLOYS CONTAINING CHROMIUM AND MOLYBDENUM

Gaylord D. Smith, Timonium, Md., assignor, by mesne assignments, to Standard Pressed Steel Company, a corporation of Pennsylvania

No Drawing. Continuation-in-part of applications Ser. No. 452,054, Apr. 30, 1965; Ser. No. 565,088, July 14, 1966; Ser. No. 584,029, Aug. 18, 1966; and Ser. No. 637,613, Apr. 10, 1967. This application Dec. 4, 1967, Ser. No. 687,471

The portion of the term of the patent subsequent to

Dec. 5, 1984, has been disclaimed

Int. Cl. C22f 1/10

U.S. Cl. 148—11.5

10 Claims

Corrosion-resistant alloys which can be work-strengthened to have a combination of very high ultimate tensile strength, yield strength and ductility, the alloys containing as essential elements, by weight, 33 to 37% nickel, 7 to 10.5% molybdenum, 19 to 21% chromium, carbon

3,562,026
METHOD OF QUENCHING EMPLOYING WASH SOLUTION

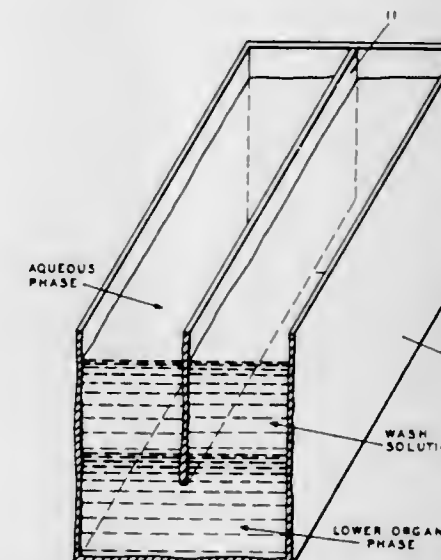
Delbert J. Massey, Des Peres, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed Oct. 24, 1967, Ser. No. 677,698

Int. Cl. C21d 1/62

U.S. Cl. 148—18

18 Claims



Quenching process providing an aqueous wash solution to reduce dragout losses of an organic quenchant heavier

than water. The wash solution floats upon the surface of the organic quenchant but a partition allows part of the organic quenchant surface to remain exposed for quenching. If a water quench is desired to precede the organic quench, an aqueous phase is disposed above the organic phase adjacent the partition and thus isolated from the wash solution.

3,562,027

PIANO PLATE OF LOW LOSS FACTOR

Masayuki Takamura, Hironobu Hayashi, and Kinya Nozaki, Shizuoka-ken, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

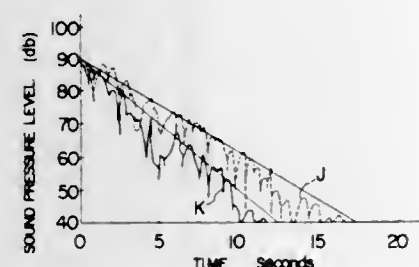
Filed Mar. 13, 1968, Ser. No. 712,652

Claims priority, application Japan, June 15, 1967, 42/38,361

Int. Cl. C22c 37/00; G10c 3/06

U.S. Cl. 148—35

5 Claims



A piano plate made of a cast ferrous metal having a loss factor (Q^{-1}) of from 1.5×10^{-3} to 0.2×10^{-3} , whereby the sound damping effect of a piano in which this plate is installed becomes extremely small, and the acoustical characteristics of the piano are greatly improved. At the same time, a great reduction in weight of the plate can be effected without sacrificing the mechanical strength and the improved acoustical characteristics. Suitable cast ferrous metals are cast steels, spheroidal graphite cast irons, malleable cast irons, and Meehanite cast irons.

3,562,028

TOUGH, HIGH STRENGTH STEEL ARTICLE

William E. Heltmann, Dolton, Ill., and Frank Garofalo, Munster, Ind., assignors to Inland Steel Company, Chicago, Ill., a corporation of Delaware

No Drawing, Filed Aug. 28, 1968, Ser. No. 755,769

Int. Cl. C22c 39/04, 39/30

U.S. Cl. 148—36

7 Claims

Steel article, such as plate, having a relatively high yield strength, e.g. 70,000 p.s.i., together with a relatively high impact resistance, e.g. 15 foot-pound Charpy V-notch impact transition temperature in the range -50° to -100° F. or lower. Microstructure is ferrite plus pearlite. Ferritic grain size is 9.5 ASTM or finer. Composition, in wt. percent:

Carbon	0.02-0.26
Manganese	1.25-1.75
Silicon	0.75-1.5
Nitrogen	0.003-0.015
Aluminum	0.01-0.08
Vanadium	0-0.07
Columbium	0-0.03
Tungsten	0-0.1

Article is hot rolled with at least 25% deformation at finishing temperature above A_1 to give microstructure containing fine grained austenite (9.5 ASTM or finer). Cooling is rapid but controlled to avoid low temperature transformation products in microstructure. Normalizing optional.

3,562,029
PROCESSING OF FIBROUS MAGNESIUM SILICATE COATED SILICON STEEL

James J. Goglio, Leechburg, and Clarence L. Miller, Jr., Pittsburgh, Pa., assignors to Allegheny Ludlum Steel Corporation, Brackenridge, Pa., a corporation of Pennsylvania

No Drawing, Filed Apr. 18, 1968, Ser. No. 722,225

Int. Cl. C04b 35/58; H01f 1/18

U.S. Cl. 148—113

3 Claims

Described herein is an improvement in the processing of silicon steel where the steel is coated prior to heat treatment which involves the application of a coating of fibrous magnesium silicate instead of magnesia which has been used previously and which resulted in the in situ formation of crystalline magnesium silicate.

3,562,030

METHOD OF INDUCTIVELY SURFACE HARDENING ELONGATED STEEL WORKPIECES

Gerhard Seulen and Friedhelm Reinke, Remscheid, and Edgar Stengel, Wuppertal-Hahnerberg, Germany, assignors to AEG-Elotherm G.m.b.H., Remscheid-Hasten, Germany

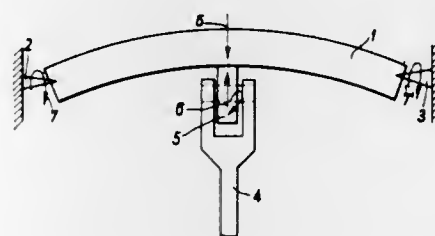
Filed Oct. 20, 1967, Ser. No. 676,806

Claims priority, application Germany, Nov. 18, 1966, A 54,119

Int. Cl. C21d 1/10, 1/42

U.S. Cl. 148—131

3 Claims



Elongated steel workpieces when inductively heated by rotation in heating position, tend to become distorted. This is avoided according to the invention by supporting said workpiece at a point approximately half-way along its length, and subjecting the said workpiece at this point to a biasing load to produce a deflection at the point of support during the process of heating, and hardening the said heated workpiece.

3,562,031

CONTINUOUS SMALL DIAMETER FERROUS TUBE MANUFACTURE

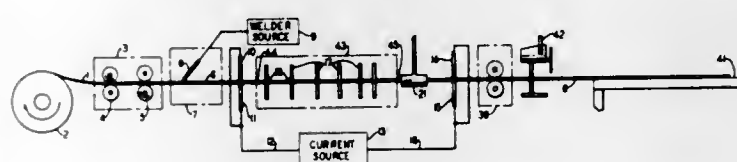
Glenn J. Gibson, 97 Beech Ave., Berkeley Heights, N.J. 07922

Filed Mar. 29, 1968, Ser. No. 717,273

Int. Cl. C21d 9/08

U.S. Cl. 148—154

6 Claims



A process and apparatus for the production of annealed stainless steel tubing in one continuous operation is disclosed. Resistance heating of the tube is employed through current applied by graphite brushes. A quenching step is achieved before the advancing tube contacts the second brush set. The quenching device, brush configuration and

stress-limiting advancement of the tube continuously without buckling or undue stretching are described. Apparatus for practicing the process with bright annealing is disclosed which involves maintaining an envelope of inert gas around the resistance heating stage.

3,562,032

METHOD OF MANUFACTURING AN INTEGRATED SEMICONDUCTOR DEVICE

Jean-Claude Frouin and Michel de Brebisson, Caen, France, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed Feb. 5, 1968, Ser. No. 703,043

Claims priority, application France, Feb. 7, 1967, 93,984

Int. Cl. H01l 7/44, 7/64

U.S. Cl. 148—175

5 Claims

A method for making a monolithic integrated circuit is described. The circuit includes vertical complementary transistors in isolated islands. The emitter of the PNP transistor is diffused simultaneously with the isolation walls defining the islands. The base of the PNP transistor is formed by the island region adjacent the substrate, which acts as a collector. The NPN transistor is the usual double-diffused transistor.

3,562,033

METHOD OF DOPING SILICON WITH GROUP III SUBSTANCE

Juri Jansen, Vasteras, and Lennart Ryman, Grangesburg, Sweden, assignors to Allmänna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden

Filed Feb. 12, 1968, Ser. No. 704,928

Claims priority, application Sweden, Feb. 13, 1967, 1,949/67

Int. Cl. H01l 7/36, 7/44

U.S. Cl. 148—189

5 Claims

Method of diffusing a doping substance from group III of the periodic system into silicon discs for semiconductor devices, in which the silicon discs are subjected both to the action of vapor from the doping substance and to the action of a halogen.

3,562,034

VULCANIZATION OF ALLYLIC HALIDE TERMINATED POLYMERS OF DIOLEFINIC HYDROCARBONS

Douglas C. Edwards, Sarnia, Ontario, Canada, assignor to Polymer Corporation, Sarnia, Ontario, Canada, a body corporate and politic

No Drawing, Filed Nov. 17, 1967, Ser. No. 683,818

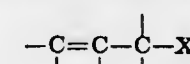
Claims priority, application Canada, Nov. 28, 1966, 976,539

Int. Cl. C08d 3/14

U.S. Cl. 149—19

6 Claims

An aqueous emulsion polymerized undegraded olefinically unsaturated liquid polymer containing molecules of polymerized C_4 - C_8 diolefinic hydrocarbons with a major proportion of said molecules having two separated allylic halide groups represented by the



structure is vulcanized with a substance selected from metals and metal compounds such as zinc, zinc oxide, zinc stearate, ferric chloride or bromide, mercuric acetate and stannic oxide.

The vulcanization is carried out at a temperature of about 60 - 150° C. The product is suitable for use as a rocket fuel binder.

3,562,035
DESENSITIZATION OF DIFLUOROAMINO-SUBSTITUTED PROPELLANT COMPOUNDS USING DINITROGEN TETRAOXIDE

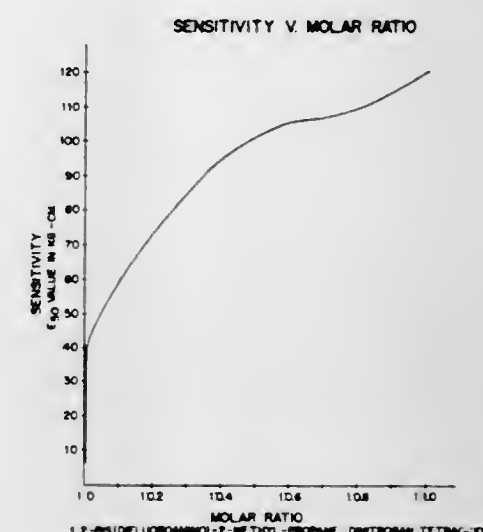
Barry D. Allan, Edgar F. Croomes, and Walter W. Wharton, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army

Filed Sept. 10, 1962, Ser. No. 222,738

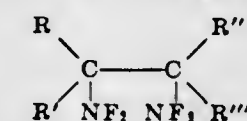
Int. Cl. C06b 19/06

U.S. Cl. 149—74

3 Claims



1. The method of desensitizing to shock a difluoro-amino-substituted compound of the formula



wherein R, R', R'', and R''' are each members selected from the group consisting of hydrogen and branched and straight chain lower alkyl groups of up to four carbon atoms, the total number of carbon atoms present in R, R', R'', R''' not to exceed six; said method comprising admixing with said compound dinitrogen tetroxide in the molar ratio of difluoroamino-substituted compound to dinitrogen tetroxide of 1.0:0.004 to 1.0:0.3.

3,562,036

CONTINUOUS METHOD OF MAKING INDEFINITE LENGTHS OF FLEXIBLE FLAT CONDUCTOR CABLE AND CIRCUITS

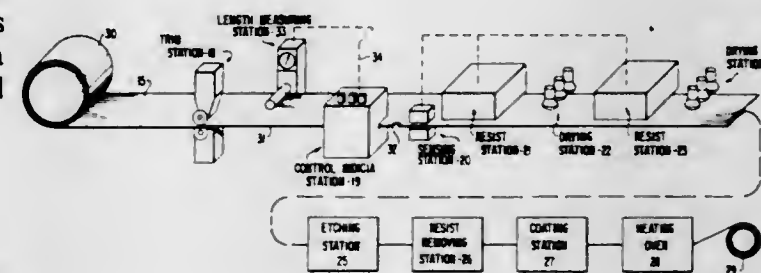
Lawrence R. Travis, Brockton, Mass., assignor to Electro Connective Systems, Inc., Brockton, Mass., a corporation of Massachusetts

Filed July 7, 1967, Ser. No. 651,846

Int. Cl. B44c 1/22; C23f 1/04

U.S. Cl. 156—3

5 Claims

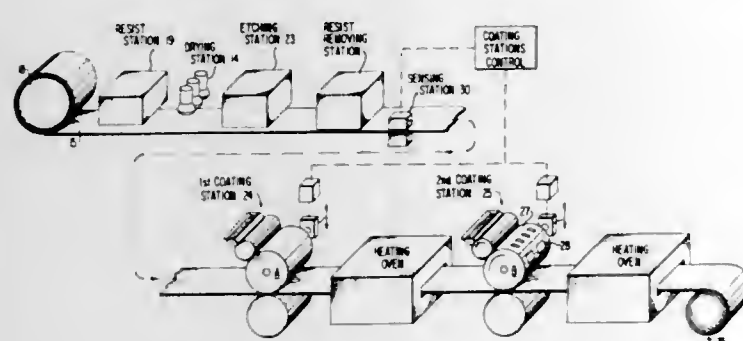


Method of depositing resist on a continuously moving web of conductor metal foil backed by flexible dielectric material wherein a resist pattern is deposited on the foil at one station and a different resist pattern is deposited

on the foil at another station, from which web an indefinite length of flat flexible cable and circuits is formed by etching the foil, the selection of resist deposition being controlled by sensing of previously formed control indicia in the form of openings, such as notches or holes, located along the web at a predetermined transverse position on the web.

3,562,037
CONTINUOUS METHOD OF PRODUCING INDEFINITE LENGTHS OF FLEXIBLE FLAT ELECTRICAL CONDUCTORS
Lawrence R. Travis, Brockton, Mass., assignor to Electro Connective Systems, Inc., Brockton, Mass., a corporation of Massachusetts

Filed July 7, 1967, Ser. No. 651,899
Int. Cl. B46c 1/22; C23f 1/04
U.S. Cl. 156—3 3 Claims



Method of continuously producing indefinite lengths of flexible flat multiple electrical conductors from a web wherein parts of the conductors are exposed for electrical connections, the method including the provision of a control band which is sensed to control the alignment of the web and to control the accurate coating of the conductors to provide a predetermined exposed conductor pattern.

3,562,038
METALLIZING A SUBSTRATE IN A SELECTIVE PATTERN UTILIZING A NOBLE METAL COLLOID CATALYTIC TO THE METAL TO BE DEPOSITED
Charles R. Shipley, Jr., Newton, and Michael Gulla, Framingham, Mass., assignors to Shipley Company, Inc., Newton, Mass., a corporation of Massachusetts
No Drawing. Filed May 15, 1968, Ser. No. 729,431
Int. Cl. B44d 1/18; C23b 5/62

U.S. Cl. 156—3 51 Claims
A process for the deposition of electroless metal on selected areas of a substrate using a colloidal catalyst solution of a metal catalytic to the electroless metal to sensitize the substrate. The catalyst is preferably a noble metal-stannic acid colloid and most preferably a palladium-stannic acid colloid. The process takes advantage of the discovery that the surface of a substrate may be treated to absorb and/or retain a colloidal catalyst to a greater extent than an untreated surface. The process, in one of its simplest embodiments, comprises providing a substrate having treated and untreated surface areas, sensitizing the substrate with a colloidal catalyst, contacting the substrate with a stripper for the adsorbed colloidal catalyst for a time sufficient to strip substantially all of the adsorbed colloid from the untreated surface areas and insufficient to strip the adsorbed colloid from the treated surfaces, and depositing electroless metal selectively over the treated areas of the substrate. The process is especially well adapted for the formation of printed circuit boards and is particularly useful for forming conductive through holes between surfaces of a printed circuit board.

3,562,039
METHOD OF IMPROVING THE SOLDERABILITY OF CONDUCTOR PLATES

Josef Strohmayer, Hans-Hermann Merckenschlager, and August Stumbaum, Munich, Germany, assignors to Siemens Aktiengesellschaft, a corporation of Germany
No Drawing. Filed Oct. 10, 1968, Ser. No. 776,298
Claims priority, application Germany, Oct. 11, 1967, P 16 21 516.0
Int. Cl. B23k 31/02

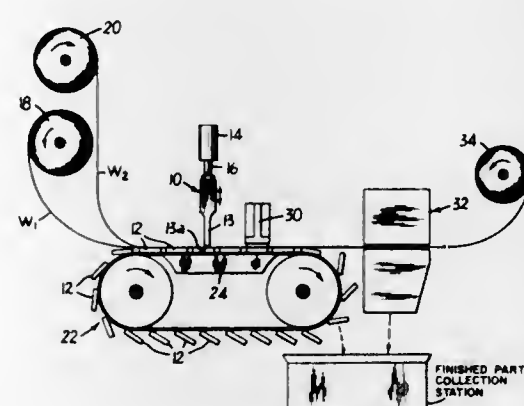
U.S. Cl. 156—18 6 Claims
Through etching, preferably with etchable cupric ions, the solderability of electrical copper conductors can be considerably improved or restored.

3,562,040
METHOD OF UNIFORMLY AND RAPIDLY ETCHING NICHROME
Gerald A. Garies, San Mateo, Calif., assignor to International Telephone and Telegraph Corporation, a corporation of Delaware

Filed May 3, 1967, Ser. No. 635,795
Int. Cl. C09k 3/00; C23b 3/03

U.S. Cl. 156—18 3 Claims
A process for fabricating a Nichrome thin film resistor as an integral part of a semiconductor integrated circuit. The Nichrome resistor is deposited on a layer of silicon dioxide grown or deposited on the semiconductor surface; aluminum contacts are deposited on the Nichrome resistance element and alloyed thereto.

3,562,041
METHOD AND APPARATUS FOR THE ULTRASONIC JOINING OF MATERIALS ACCORDING TO A PATTERN
Clifford A. Robertson, Bay Shore, N.Y., assignor to Cavitron Corporation, Long Island City, N.Y., a corporation of New York
Filed Oct. 26, 1967, Ser. No. 678,435
Int. Cl. B29c 27/08; B32b 31/18
U.S. Cl. 156—73 7 Claims



A method and apparatus for the ultrasonic joining of materials according to a pattern, at least one of which contains a thermoplastic. The elements to be joined are engaged between an ultrasonically vibrating member having an elongated working tip and a back-up or anvil means having a narrow raised surface corresponding to the desired pattern. The pattern is formed by moving the back-up or anvil means and the materials conjointly relative to the working tip so that the materials are joined in accordance with the pattern; as successive parts of the pattern surface traverse the working tip. The elongation of the working tip is in a direction angled to the direction of motion so as to minimize the area of contact at any instant of time between the working tip and the raised pattern surface.

3,562,042
JOINING MOLDINGS OF EXPANDED OLEFIN POLYMERS

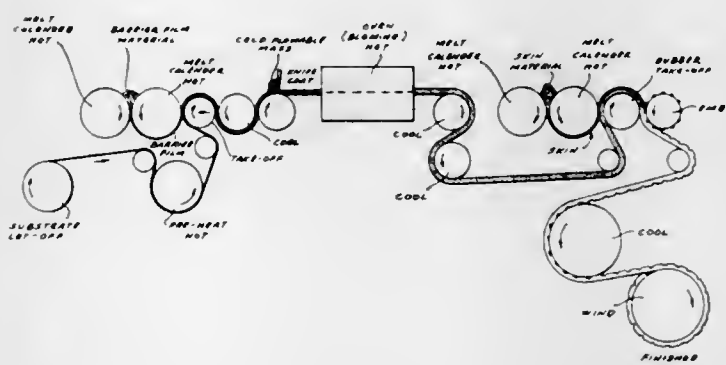
Johann Zizlsperger, Frankenthal, Pfalz, and Hermann Tatzel, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
Filed Apr. 29, 1968, Ser. No. 724,757
Claims priority, application Germany, Apr. 28, 1967, P 17 04 473.4
Int. Cl. B32b 5/18

U.S. Cl. 156—78 4 Claims
Articles having homogeneous foam structure are obtained by welding expanded olefin polymer moldings together at elevated temperature when the expanded olefin polymer still contains expanding agent when subjected to welding and the surfaces to be welded have temperatures which are 5° to 30° C. below the melting point of the olefin polymer.

3,562,043
LAMINATED STRUCTURE AND METHOD OF MAKING THE SAME

Robert G. Eddy, 20 Casablanca Court, Elmhurst, N.Y. 12065
Filed Sept. 12, 1967, Ser. No. 667,181
Int. Cl. B32b 5/18

U.S. Cl. 156—79 13 Claims



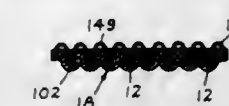
A laminated structure is formed by bonding to a carrier, for instance a textile sheet, a pre-formed, shape-retaining, intermediate layer or film; the carrier face being formed with projecting and recessed portions and the intermediate layer being bonded to the carrier in such a manner as to contact substantially only the projecting portions of the latter. On the free face of the intermediate layer is then formed a layer of hardenable material in flowable condition, which layer must be fusible to the intermediate layer and may contain a blowing agent. The hardenable layer is then hardened (and simultaneously fused to the intermediate layer and also simultaneously blown if a blowing agent is present). Thereby a laminated structure is formed substantially without filling the recessed portions of the carrier face, due to the interposition of the preformed intermediate film or the like.

3,562,044
APPARATUS AND METHOD FOR MANUFACTURE OF FABRIC-LIKE PILE PRODUCTS

George H. Erb, Cuttingsville, Vt., assignor to Velcro S.A., Nyon, Switzerland, a corporation of Switzerland
Filed Mar. 12, 1968, Ser. No. 716,265
Int. Cl. B32b 31/00; C09j

U.S. Cl. 156—155 22 Claims
Method and apparatus for producing pile products useful in the same manner as conventional woven pile fabrics or, with further processing or conversion steps, useful as hook or loop elements of separable fasteners similar to the woven fasteners disclosed in U.S. Pats. 2,717,437

and 3,009,235 to De Mestral. Instead of weaving, pile strands are laid in parallel spaced relation with one another in a single plane, the strands are encapsulated in a matrix of low-melting-point metal alloy which is extruded with the strands as a thin flat sheet of ductile metal with the strands enclosed therein. The matrix is then

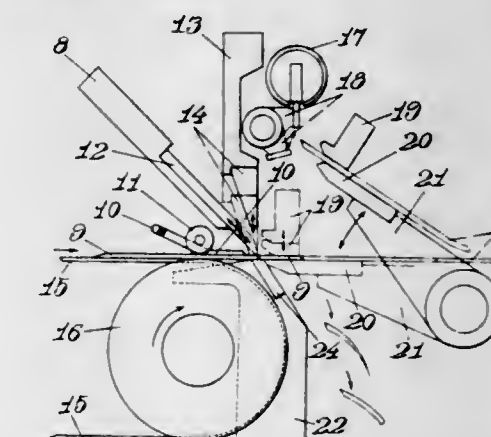


corrugated to shape and hold the enclosed strands in desired pile conformation, portions only of each strand are exposed by removing a part of the matrix, the exposed portions of the strands are then secured to a separately formed base sheet material and finally the remainder of the matrix is removed.

3,562,045
METHOD OF EDGEWISE SPLICING SHEETS OF VENEER

Katsuji Hasegawa, Nagoya, Japan, assignor to Kabushiki Kaisha Meinan Seisakusho, Nagoya, Japan
Filed Sept. 9, 1968, Ser. No. 758,556
Int. Cl. G03d 15/04

U.S. Cl. 156—159 3 Claims



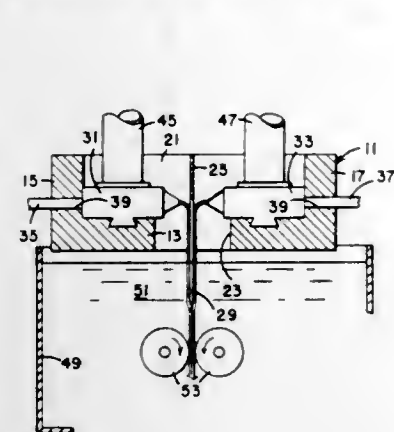
This invention relates to a method of edgewise splicing plural sheets of veneer in non-specified lengths obtained by rotatably peeling a log and clipping off the defective and unusable portions therefrom, wherein each veneer sheet is supported in a predetermined position in a first fixed horizontal plane and the front edge thereof is clipped off while the preceding veneer sheet, which has its rear edge already clipped off, is raised out of said horizontal plane to permit discharge of the clipped off front portion of the following sheet, and then the preceding sheet is returned to said horizontal plane; then both sheets are advanced until the rear edge of the succeeding sheet is in said predetermined position, and then the rear portion of said succeeding sheet is clipped off, and then this succeeding sheet is raised out of the horizontal plane to permit discharge of the clipped off rear portion of said succeeding sheet, and then the next succeeding sheet is advanced to bring the front edge thereof into position to be clipped off. After being clipped off, the rear edge of a preceding sheet is bonded to the front edge of the succeeding sheet.

3,562,046
METHOD AND APPARATUS FOR MAKING NET-LIKE STRUCTURES

Warren H. Guy, Glen Mills, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Sept. 24, 1968, Ser. No. 762,116
Int. Cl. D04h 3/16

U.S. Cl. 156—167 4 Claims
Method for making a net-like structure by combining extruded streams of strand-forming material in crossing

relationship, with the streams being connected to each other at only selected of their locations of crossing whereby the resulting structure includes mesh strands



which are bonded to certain of the strands crossing therewith to form integral, unitary strand junctions and are unconnected to other of such strands at their points of crossing.

3,562,047

METHOD FOR FORMING CYLINDRICAL TANKS
Dominique Carlini, Rousset, France, assignor to Recherches et Applications des Plastiques dans l'Industrie et le Batiment, S.A., Rousset, France, a French company

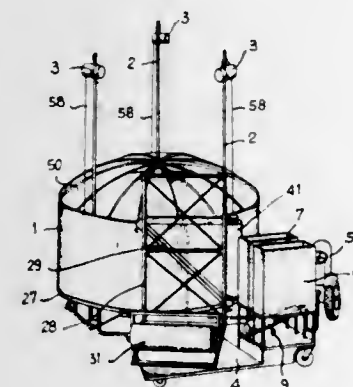
Filed Apr. 11, 1968, Ser. No. 720,710

Claims priority, application France, Aug. 16, 1967, 117,983

Int. Cl. B65h 81/03

U.S. Cl. 156—184

5 Claims



Cylindrical tanks and a method of and apparatus for forming such tanks from reinforced plastic material, the tanks being comprised of vertically stacked cylindrical sections. Each cylindrical section is formed of two thicknesses of resin impregnated fabric which have been successively wound over a mandrel, the thicknesses being vertically displaced to permit overlapping at the joints between sections. As each section is completed, the mandrel is reduced in diameter and the section is raised vertically.

3,562,048

METHOD OF MAKING AN EMBOSSED LAMINATE
Theodore Loew, Schenectady, N.Y., assignor, by mesne assignments, to The Standard Products Company, a corporation of Ohio

Filed Nov. 15, 1967, Ser. No. 683,389

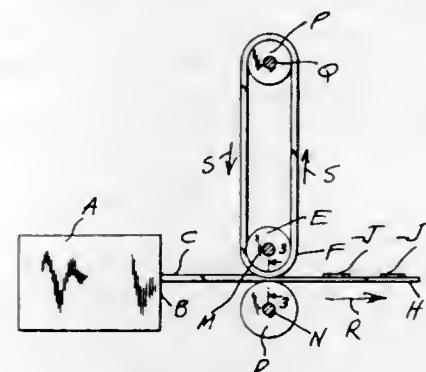
Int. Cl. B31f 7/00

U.S. Cl. 156—209

6 Claims

The disclosure relates to a method of embossing or impressing designs upon an extruded thermoplastic strip,

according to which the strip is passed between a bottom pressure roller and a top roller carrying a decorating belt.



The belt has means thereon to cause embossments or impressions on the extruded polymer.

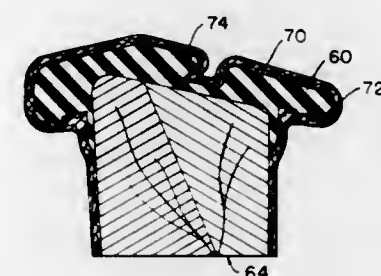
3,562,049

METHOD OF MAKING A MOLD
Richard G. Maher, Detroit, Mich., assignor to Maher Pattern Company, Warren, Mich., a corporation
Filed Oct. 26, 1967, Ser. No. 678,404

Int. Cl. B29c 17/00

U.S. Cl. 156—213

12 Claims



The method comprises making a rigid mold from a rigid pattern, without, in the course of making the rigid mold, destroying the rigid pattern. In the method, the rigid pattern is first formed of a material such as wood. It is desired that the final mold have a cavity with a textured surface to simulate a material such as grained leather. Consequently, a sheet of plastic material having the desired textured surface on one face thereof is formed around the pattern by use of heat and allowed to set to form the desired textured surface exteriorly of the pattern. A flexible mold of a material such as rubber is then formed around the pattern. The pattern is removed from the flexible mold without damage to either the pattern or the mold. A second pattern of flexible material such as rubber is then formed in the first mold. The flexible pattern and flexible mold may be separated without destroying either. Finally, a desired rigid mold is formed around the flexible pattern by laminating alternate layers of resin and glass fibre thereon. The flexible pattern is removable from the rigid mold whereupon the rigid mold is ready for use in casting.

3,562,050

METHOD OF APPLYING A STRIP MEMBER TO A CYLINDRICAL CONTAINER BODY

Walter Thomas Hake, Wyckoff, N.J., and Henry Gilbert Stieglitz, Cary, Ill., assignors to American Can Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 23, 1967, Ser. No. 677,413

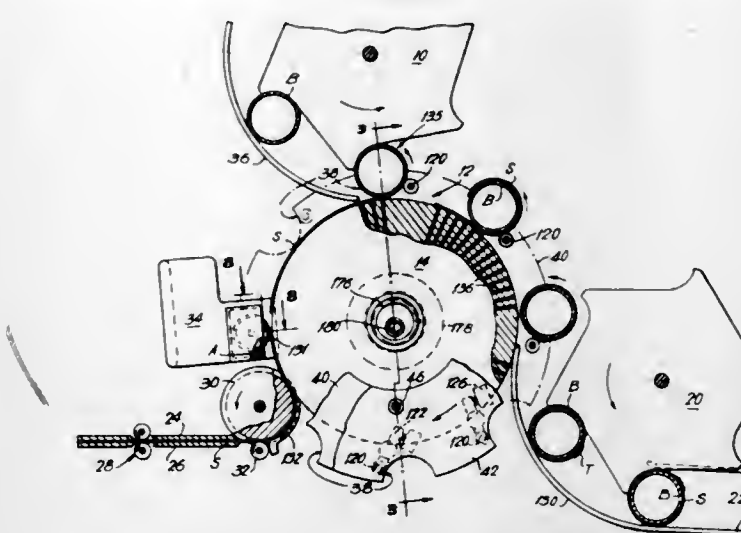
Int. Cl. B29c 17/04

U.S. Cl. 156—215

5 Claims

In applying to container bodies plastic seam release strips which are adapted to be stripped from the sealed container to provide an easy-opening feature, a rotating

container body and a strip member are moved along substantially concentric, parallel paths to a location where the leading end of the strip member is brought



into substantial tangential contact with the rotating body, whereupon the strip member is transferred to and wrapped around the rotating container body.

3,562,051

METHOD OF MAKING A DECORATIVE MOLDED CONTOURED BODY OF POLYVINYL CHLORIDE
David L. Strauss, Fair Lawn, N.J., assignor to Harte & Company, Inc., New York, N.Y., a corporation of New York

Continuation-in-part of abandoned application Ser. No. 687,005, Nov. 30, 1967. This application Oct. 11, 1968, Ser. No. 772,454

Int. Cl. B31f 7/00

U.S. Cl. 156—219

6 Claims

The invention relates to a method of making a decorative, hot-pressed molded, contoured body of poly(vinyl chloride) in mat-like form, by means of a series of sequential steps in which a mass of highly plasticized poly(vinyl chloride) is shaped in a cavity mold, cooled, and thereafter while the shaped mass is still retained in one-half of the cavity mold a printed film of poly(vinyl chloride) is applied to the exposed surface so that the printed surface of the film is ultimately visible as the decorative element of the molded form. In this regard, the printed surface of the film may be applied as the exposed wear surface of the article, or a "reverse" printed film may be applied with the printed surface pressed into the main body of the article, or the printed surface of the poly(vinyl chloride) film may be pressed into the backing surface of the article opposite the wear surface, in the event that the main body of the article is transparent, unfilled, poly(vinyl chloride), so that the printed surface of the film is also visible through the main body of the article.

3,562,052

INTERIOR LINING MATERIALS FOR MOTOR VEHICLE BODIES

Franz Matejcek, Furth, Hubert Schelthauer, Baunach, and Hermann Peter Kayser, Bamberg, Germany, assignors to Schaeffler Teppichboden, G.m.b.H., Bamberg, Germany, a corporation of Germany

No Drawing. Filed May 16, 1967, Ser. No. 638,748

Claims priority, application Germany, May 23, 1966, M 69,591

Int. Cl. B31f 7/00; B32f 5/06

U.S. Cl. 156—221

4 Claims

Novel custom-made interior linings for motor vehicle bodies comprised of a needle stitched fiber fleece of 50 to 600 gm./m.² having a permanently shaped, thermoplastic supporting layer.

ERRATUM

For Class 156—242 see:
Patent No. 3,562,001

3,562,053

APPARATUS AND METHOD FOR HEAT SEALING HEAT SHRINKABLE FILM

Donald C. Lindley, Tulsa, Okla., assignor to

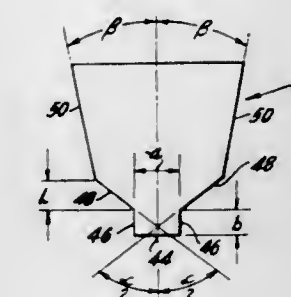
Poly-Version, Inc., Tulsa, Okla.

Filed June 19, 1967, Ser. No. 646,893

Int. Cl. B32b 31/18

U.S. Cl. 156—251

7 Claims



An apparatus for heat sealing shrinkable thermo-plastic films. A specially shaped knife is used which maintains thermal contact during a severing operation.

3,562,054

METHOD OF BONDING A THERMOPLASTIC MATERIAL TO ANOTHER THERMOPLASTIC MATERIAL, BONDED TO A METALLIC PART

Emanuel Wolf, Horgen, Switzerland, assignor to Ironflex AG, a corporation of Switzerland

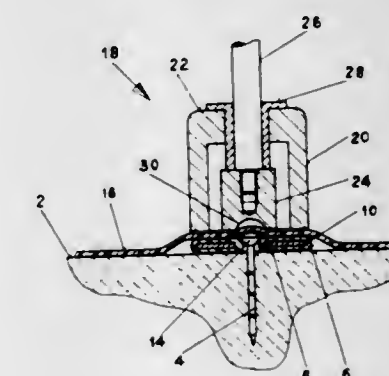
Filed Sept. 5, 1967, Ser. No. 665,393

Claims priority, application Switzerland, Sept. 7, 1966, 12,961/66; Sept. 26, 1966, 13,865/66

Int. Cl. B29c 19/06

U.S. Cl. 156—275

4 Claims



Method and device for attaching a thermoplastic foil at a supporting structure wherein the foil is heat sealed or welded to a holding plate formed by a metallic core and a thermoplastic cover layer. The holding plate is rigidly connected to the supporting structure and subsequently the foil is placed over the holding plate. Welding heat is generated by creating a high frequency field between the metallic core of the holding plate and an electrode placed on the side of the foil facing away from the holding plate. The metallic core of the holding plate forms a counter electrode.

3,562,055

METHOD OF CONSTRUCTING LIQUID-TIGHT SIDE WALL CONTAINERS

Willem Koudstaal, Spijkenisse, Netherlands, assignor to Inland Steel Company, Chicago, Ill., a corporation of Delaware

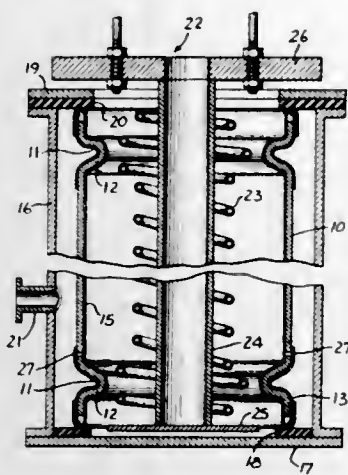
Filed Sept. 11, 1967, Ser. No. 666,830

Claims priority, application Great Britain, Sept. 13, 1966, 40,790/66

Int. Cl. B29c 17/06

U.S. Cl. 156—287

9 Claims



A liquid-tight side wall and method of construction are described in which an inner plastic liner is adhered to the interior of an air-permeable container side wall by the use of vacuum forming and a heat-activatable adhesive.

3,562,056

METHOD OF PRODUCING A SEWER PIPE

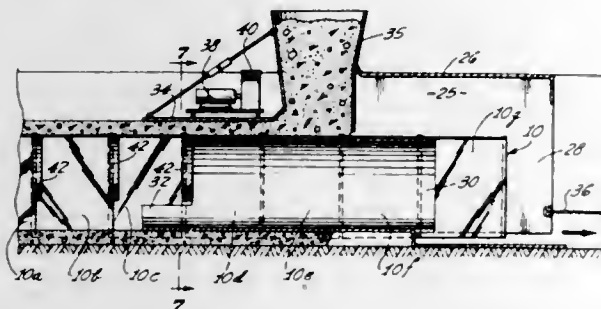
William C. Olson, West Sacramento, Calif., assignor to Thunder Enterprises, Inc., West Sacramento, Calif., a corporation of California

Original application Jan. 27, 1966, Ser. No. 523,418, now Patent No. 3,470,918, dated Oct. 7, 1969. Divided and this application Apr. 25, 1969, Ser. No. 840,885

Int. Cl. B28b 1/08; E04b 1/16

U.S. Cl. 156—293

9 Claims



This invention deals with a method of continuously forming a sewer pipe within a ditch. The method comprises the formation of plastic sheets to conform to the inner cross-sectional configuration of the pipe, moving the apparatus along the bottom of the ditch while feeding the sheets through the apparatus into the ditch and interconnecting said sheets. Concrete is then poured into the ditch onto the successively connected sheets to form the pipe while the apparatus is vibrated.

3,562,057

METHOD FOR SEPARATING SUBSTRATES

Kenneth Wayne McAlister, Tempe, and Warren Rice, Scottsdale, Ariz., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed May 16, 1967, Ser. No. 638,903

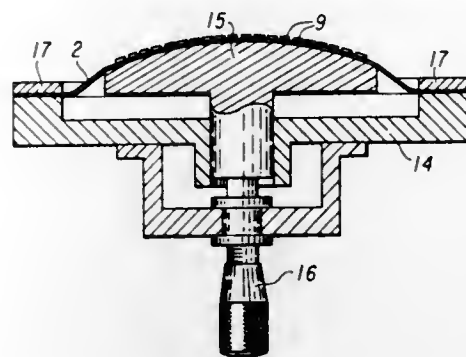
Int. Cl. B01j 17/00; H01l 5/00; H01r 39/00

U.S. Cl. 156—300

10 Claims

Disclosed is a method for breaking a substrate into segments along scribed lines while maintaining the original orientation of the segments and for separating the

segments so that each segment may be individually removed without disturbing any other segment by encapsulating the substrate prior to the breaking thereof and then stretching the encapsulating package to separate the segments.



3,562,058

METHOD FOR BREAKING AND SEPARATING SUBSTRATE MATERIAL

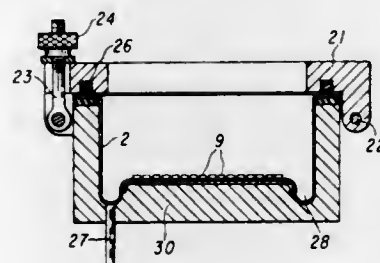
Bobby Gene Boyd, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed May 16, 1967, Ser. No. 638,910

Int. Cl. B01j 17/00; H01l 5/00; H01r 39/00

U.S. Cl. 156—300

10 Claims



Disclosed is a method for maintaining the original orientation of the segments of a broken substrate of material by vacuum packaging the substrate before breaking it into segments and then removing a portion of the vacuum package prior to vacuum forming the remaining portion of the package to cause the segments to be separated.

3,562,059

DECORATION OF POLYETHYLENE AND POLYURETHANE FOAM

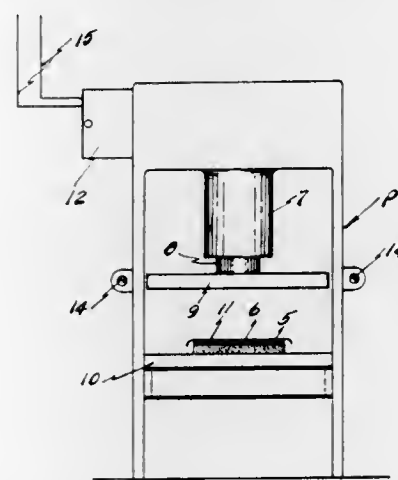
Carl F. Gladen, 3667 Kawkaulin River Drive, Bay City, Mich. 48706

Continuation-in-part of application Ser. No. 326,865, Nov. 29, 1963. This application Aug. 21, 1967, Ser. No. 668,985

Int. Cl. B32b 5/20, 31/12

U.S. Cl. 156—323

3 Claims



A method of decorating plastic foam wherein a printed face of a film strip is placed against the foam, a strip

of woven cloth is applied over the film strip, heat and pressure are applied to the face of the cloth, and the cloth is then stripped.

3,562,060

METHOD OF BONDING WOOD TOGETHER USING PHENOLIC - ALDEHYDE RESIN WITH AN ORGANIC PEROXIDE

Malcom P. Stevens, Bebek, Istanbul, Turkey, assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Original application Jan. 18, 1967, Ser. No. 610,036. Divided and this application Jan. 16, 1969, Ser. No. 816,432

Int. Cl. C09j 3/00

U.S. Cl. 156—335

10 Claims

Faster curing rates and shortened press time in the bonding of wood products with phenolic resin adhesives are developed by the addition of small amounts of lower organic peroxy-compounds to the resin.

3,562,061

METAL WOOL PAD MAKING APPARATUS

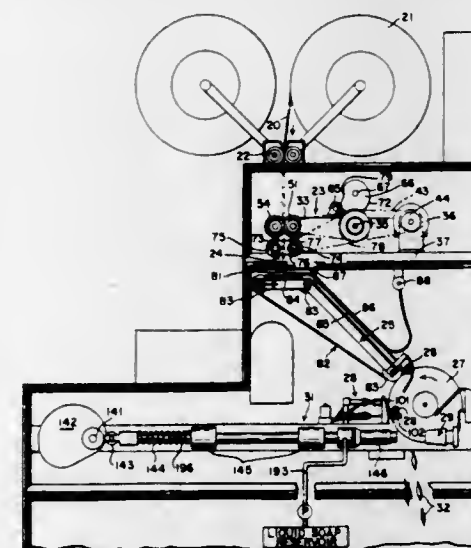
William F. Maidment, Burpham, Guilford, England, assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

Filed May 17, 1966, Ser. No. 550,856

Int. Cl. B05c 7/04; B23p 17/06; B26f 3/02

U.S. Cl. 156—357

19 Claims



Apparatus for continually making soap or detergent impregnated metal wool pads from a continuous web of said metal wool comprising means for positively feeding the web, means for periodically severing strips of predetermined length from the leading end of said web by rupturing the web under tension, means for forming said strips into rolls, cooperating punch and die means operable to confine a rolled strip between them and compress the roll into a pad, means for transferring said rolls from the roll forming means to said punch and die means in predetermined spaced succession, and means for injecting fluid soap or detergent into the compressed pad confined by the punch and die means.

3,562,062

TIRE BUILDING DRUM HAVING A RADIALLY MOVABLE INTERMEDIATE ASSEMBLY

Emerson C. Bryant, South Bend, Ind., assignor to National-Standard Company, Niles, Mich., a corporation of Delaware

Filed June 3, 1969, Ser. No. 829,915

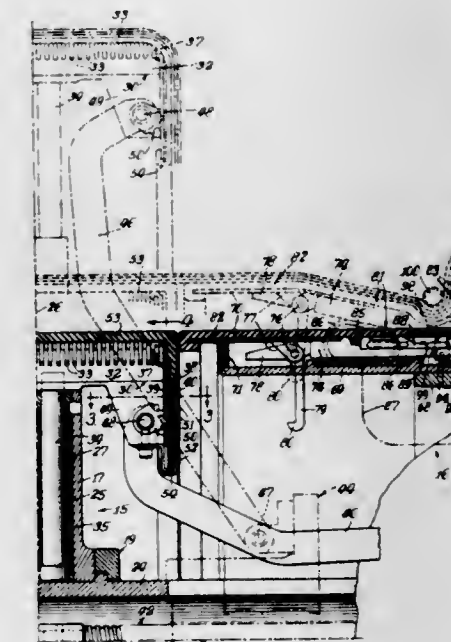
Int. Cl. B29h 17/26

U.S. Cl. 156—401

10 Claims

A tire building machine having an annular intermediate assembly defined by a plurality of circumferentially arranged intermediate sections each having a plurality of

interleaved first supporting members movable radially and circumferentially relative to each other to form substantially cylindrical supporting surfaces of different predetermined radii, and a plurality of second supporting members adjacent the axially outermost of the first supporting members having outer curved edges, and blade means adjacent the second supporting members to provide end supporting cylindrical surface portions of radii substantially the same as the radius of a first predetermined cylindrical surface of the first supporting members, and which blade means together with the outer curved edges of the second supporting members define curved shoulders extending radially inwardly from the outer edges of a second predetermined cylindrical surface of the first supporting members.



Method of building pneumatic tires in which tire carcass material is supported in the form of a tubular cylinder, disposing tire beads inwardly of the ends of the tubular cylinder for encasement by displacing the outer end portions of the tubular cylinder axially inwardly around the tire beads, and radially displacing the intermediate portion of the tubular cylinder while moving the encased tire beads axially toward each other to form the tire carcass material into torus configuration having a substantially cylindrical crown portion and radially inwardly extending sidewall portions, and in which rounded end shoulder portions connect the crown portion with the side wall portions.

3,562,063

APPARATUS FOR WINDING

Roland P. Gibbs, Derby, Kans., assignor to Rock Island Oil & Refining Co., Inc., Wichita, Kans., a corporation of Kansas

Filed Feb. 2, 1968, Ser. No. 702,740

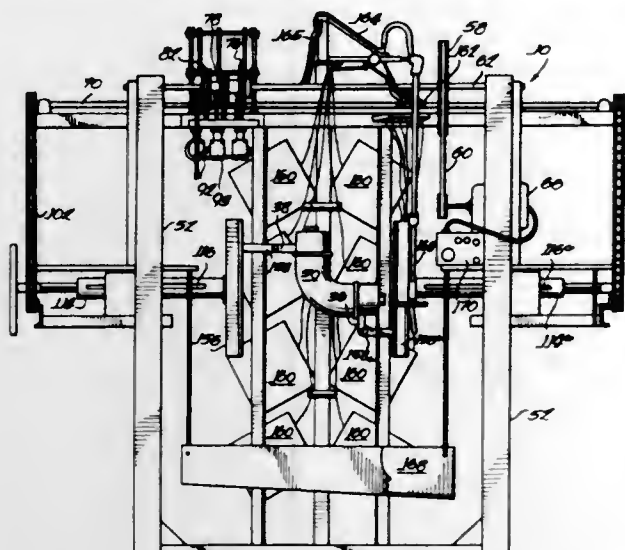
Int. Cl. B31c 1/00, 1/08, 13/00

U.S. Cl. 156—431

20 Claims

A form for a curved pipe is mounted at opposed ends on anchor plates slidably mounted on rotating actuating arms. The anchors are simultaneously adjustable in the vertical plane whereby the form may rock in the vertical plane while rotating. A means for applying a wrap to the curved form then progressively applies a wrap of filamentous reinforcements along the entire curved length of

the form. The rotating form is controlled whereby the filament-receiving portion of the form is rotated about a horizontal axis of rotation at the time of filament application.



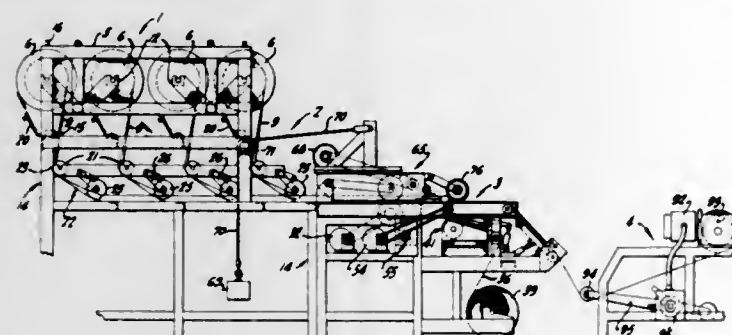
3,562,064

DECORATIVE SHEETING FABRICATING MACHINE AND METHOD

Lee F. Rost, Covina, and William H. Taylor, West Covina, Calif., assignors to ABC Decoration Sales and Leasing Company, Forest City, N.C., a corporation
Filed Mar. 25, 1968, Ser. No. 715,677
Int. Cl. B31f 1/34

U.S. Cl. 156-474

16 Claims



An apparatus and method for forming decorative sheeting which include means for bringing two independent sources of thin, flexible material to a single point for continuously forming such sheeting. The process of forming such sheeting includes the use of two separate bonding materials, one of which is quick acting but forms only a temporary bond and the other of which is slow acting, but forms a permanent bond between the materials from the two separate sources. The apparatus and process also reduces the size of the material from one source to approximate the size of the material from the other source and also ruffling or producing a random appearance of the material from said one source when it is mated with and bonded to the material from said other source.

3,562,065

APPARATUS FOR MAKING WINDOW CAN CLOSURES

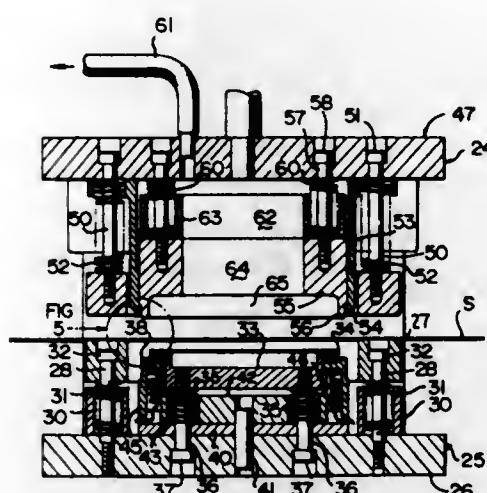
James F. Fox, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Original application Sept. 23, 1966, Ser. No. 581,561, now Patent No. 3,472,417, dated Oct. 14, 1969. Divided and this application Feb. 26, 1969, Ser. No. 802,355
Int. Cl. B32b 31/00; B65d 25/34

U.S. Cl. 156-499

9 Claims

This disclosure relates to an apparatus for forming a composite can end of the type including an outer ring and a sheet of thermoplastic material stretched across and

joined to the ring. The apparatus simultaneously tensions the thermoplastic material and conforms it to the cross sec-



3,562,066

DIE STRUCTURE FOR HOT STAMPING MACHINE

Lloyd G. St. Denny, Camillus, N.Y., assignor to General Electric Company, a corporation of New York
Filed Apr. 28, 1967, Ser. No. 634,744
Int. Cl. B32b 31/20, 31/10

U.S. Cl. 156-515

5 Claims



A die structure for use in a hot stamping machine for providing heat and pressure to a work piece comprising a metal plate having a surface contour conforming to the contour of the work piece and a heat conducting resilient material molded in and contained within a depression in the plate.

3,562,067

LABEL CENTERING APPARATUS

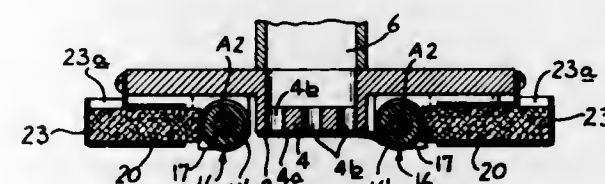
Leo Kuchek, Chicago, Ill., assignor, by mesne assignments, to Compac Corporation, Newark, N.J., a corporation of Delaware

Filed July 16, 1968, Ser. No. 745,330

Int. Cl. B65h 17/22, 9/16

U.S. Cl. 156-542

11 Claims



Label centering apparatus usable with a label applying machine having a label receiving surface thereon, the label centering apparatus including roller means mounted for rotation on opposite sides of the label receiving surface about axes of rotation which are in a plane which is flush with or located inwardly of said label receiving surface so the confronting roller surfaces converge toward

and up to the same, the closest portions of the confronting roller surfaces at the point where they are flush with the label receiving surface being equally spaced from a label centering axis on said label receiving surface and spaced apart a distance equal to the corresponding dimension of the labels to be delivered thereto. The roller means are rotated in opposite directions so they approach the label receiving surface from a position outwardly thereof.

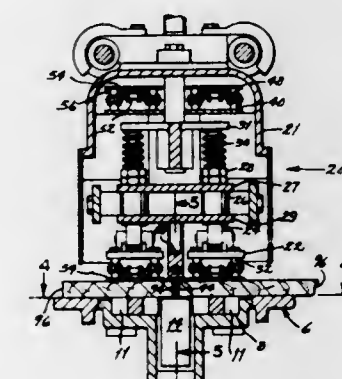
3,562,068

EDGE VENEER APPLICATOR

William H. Schottel, Belleville, Ill.
(2121 Walton Road, St. Louis, Mo. 63114)
Filed Mar. 26, 1968, Ser. No. 716,221
Int. Cl. B32b 31/10, 31/20

U.S. Cl. 156-544

9 Claims



A T-shaped heater strip fitted against the upper heater bar of a veneer splicing machine having pressure chains on each side of the heater bar and feed chains located below the pressure chains and exposed through the work surface of the machine table. Toed-in rollers urge a pair of panels towards the depending leg of the heater strip as the panels are drawn through the machine by the chains. A veneer band is interposed between the edge of each panel and heater strip and these are securely bonded to the panels by heat and pressure.

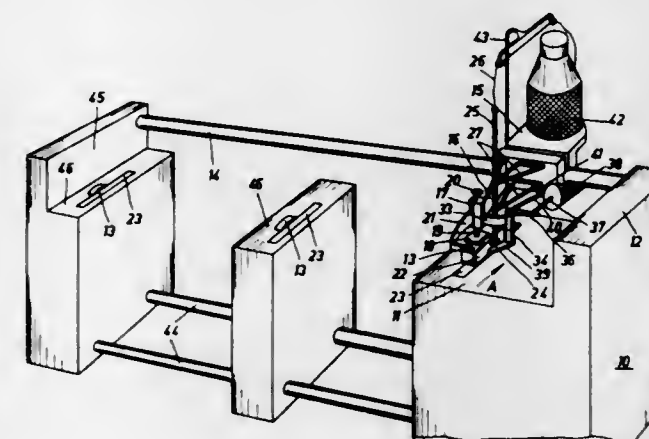
3,562,069

MACHINE FOR THE DIRECT JOINING OF VENEERS OR SIMILAR MATERIAL

Gerhard Ortel, 10 Torfweg, Rietberg, Westphalia, Germany
Filed Feb. 19, 1968, Ser. No. 706,382
Claims priority, application Germany, Feb. 27, 1967, K 61,540
Int. Cl. B32b 31/04

U.S. Cl. 156-546

17 Claims



The invention provides a machine for joining grained thin sheet material, particularly individual veneers or sheets of veneers edgewise along the run of grain. For this

purpose cross ties in the form of threads are adhesively affixed to the sheet material crosswise of the joints and grain. Furthermore, feed means are provided for continuously feeding the veneers on a worktable crosswise of the joints and grain underneath supply means for running a preheated thread coated with an adhesive under pressure onto the surface of the feeding veneers. Braking means are arranged to retard the forward feed of the veneers and close open joints and splits in the grain while the threads are being applied and the adhesive sets.

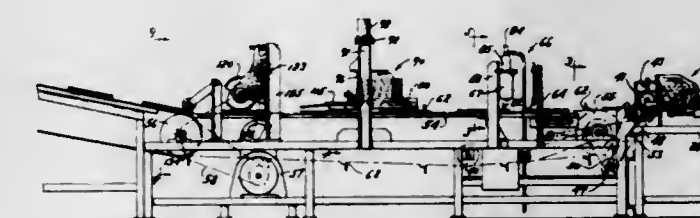
3,562,070

SHINGLE HANDLING APPARATUS

Albert A. Adams, Malvern, and James E. Giegerich, Norristown, Pa., assignors to Certain-Teed Products Corporation, Ardmore, Pa., a corporation of Maryland
Filed Mar. 25, 1968, Ser. No. 715,774
Int. Cl. B27m 3/02; B32b 31/20

U.S. Cl. 156-560

17 Claims



Apparatus for handling shingles of the kind consisting of rectangular sheets with narrow tabs of random width superposed thereon. Hopper feeds shingle sheets one at a time to conveyor provided with mechanism for applying flowable adhesive at laterally spaced locations on each shingle with the locations of adhesive application for one shingle being different from locations of adhesive application for the next shingle. Tab dispensing mechanism is provided for the purpose of placing tabs of random width on only those locations at which adhesive is applied. Pressing means for pressing tabs against the adhesive locations and bundling means are also provided.

3,562,071

APPARATUS FOR AUTOMATICALLY ATTACHING A CARTON TO A DISPLAY CARD

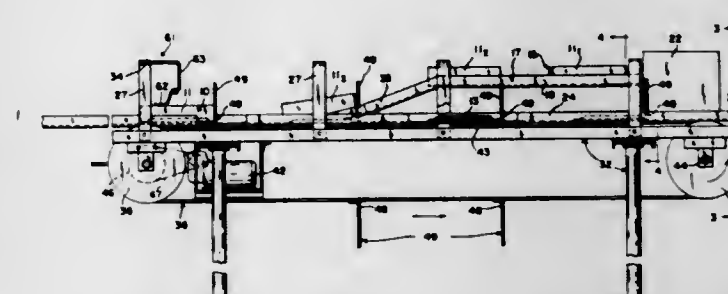
Winston G. Rockefeller, Woodcliff Lake, N.J., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

Filed May 3, 1968, Ser. No. 726,432

Int. Cl. B65c 9/02; B65g 57/11

U.S. Cl. 156-566

12 Claims



Cartons, such as rectangular toothpaste cartons, are automatically located and secured accurately in position upon display cards. The cartons and cards are laterally fed into separate slide guides in the apparatus at different levels, with the carton at the higher level, and associated cards and cartons are advanced longitudinally together in lateral registry along the guides in correct relative location for assembly, by moving conveyor finger means. One

side of the carton and one side of the card engage sides of the guides that lie in a common vertical plane. The upper surface of each card is adhesive coated as it moves along the lower guide. The upper guide descends to deposit each moving carton in turn upon the upper adhesive coated surface of the moving card beneath it, and then as the assembly moves along the lower guide a spring presses the carton firmly against the card to insure a good bond in the moving assembly.

3,562,072

DEVICE FOR LABELING CONICAL AND CYLINDRICAL OBJECTS, ESPECIALLY CONTAINERS, PREFERABLY BOTTLES

Teo Stellmanns and Werner Emmerling, Berlin, Germany, assignors to Johann Weiss Maschinenfabrik und Apparatebau GmbH, Berlin, Germany, a corporation of Germany

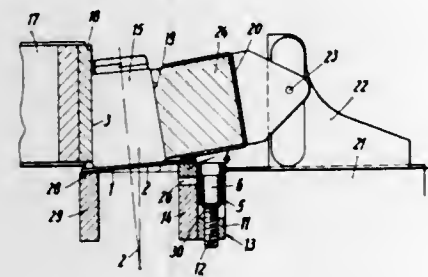
Filed Dec. 10, 1968, Ser. No. 782,670

Claims priority, application Germany, Dec. 22, 1967, P 15 86 407.0

Int. Cl. B32b 31/04; B65c 9/04

U.S. Cl. 156—566

6 Claims



A labeling device having a plane pressing surface which is tiltable into a plane passing through the generatrix of the circumferential surface of the object to be labeled.

3,562,073

APPARATUS FOR FRICTION WELDING A PAIR OF PLASTIC MEMBERS IN A PREDETERMINED ANGULAR RELATION

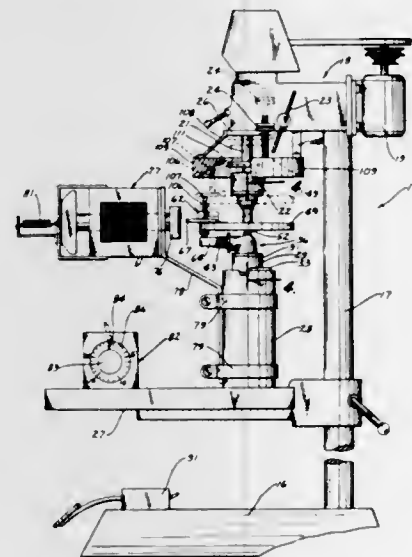
Willis L. Kibler, Detroit, Mich., assignor, by mesne assignments, to McCord Corporation, Detroit, Mich., a corporation of Maine

Filed Jan. 8, 1968, Ser. No. 696,447

Int. Cl. B29c 27/08; B23k 1/06

U.S. Cl. 156—580

5 Claims



The spin welding machine includes a supporting table disposed below an axially movable and rotatable clutch mechanism that includes an annular plate member for pivotally supporting an elbow engaging pawl and a trip

lever therefor. A spring pressed centering member rotatably carried on the plate support projects axially downwardly from the plate support. A plastic housing member having an annular portion for connection with one end of a plastic elbow fitting is held against rotation in a table mounted fixture with the annular portion faced upwardly in coaxial alignment with the plate support. With one end of the fitting received in the annular portion the other fitting end is extended radially of the annular portion. On downward movement of the support plate to a limited position the centering member engages the fitting to maintain a pressure contact of the fitting with the housing annular portion. On lowering of the plate member to an adjusted position for rotation the pawl releasably engages the radially extended end of the fitting and rotates the fitting relative to the housing annular portion. This rotation is continued for a predetermined time period that is terminated with the engagement of the pawl trip lever by a solenoid operated actuating member carried on the table. The actuating member is oriented relative to the housing member so that pawl disengagement from the elbow fitting takes place when the radially extended end portion of the elbow is in a predetermined rotated position relative to the annular portion of the housing member. The plate member is then raised, the spin welded assembly of the elbow and housing member removed from the fixture, and the pawl is automatically reset for the next spin welding operation.

3,562,074

APPARATUS FOR JOINING AND SUBSEQUENTLY STACKING THE PARTS OF A SLIDE FRAME

Peter Mundt, Garmisch-Partenkirchen, Otfried Urban, Kochel am See, and Arnold Neuhold, Garmisch-Partenkirchen, Germany, assignors to GEIMUPLAST Peter Mundt KG.

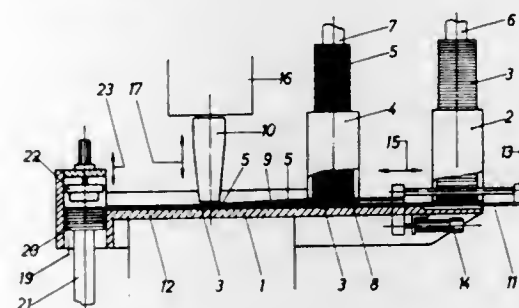
Filed Apr. 22, 1968, Ser. No. 723,070

Claims priority, application Germany, Apr. 28, 1967, P 15 72 658.6

Int. Cl. B29c 27/08; B32b 31/20

U.S. Cl. 156—580

3 Claims



An apparatus for weld-joining a base and cover of a slide frame of plastics material and for threading the welded frames on handling and centering rods comprises separate feed wells for the base and cover, respectively. A lower guideway for the base and an upper guideway for the cover extend from the respective wells and join under the welding horn. Interconnected gates are associated with the respective feed wells.

3,562,075

DELAMINATING DEVICE

Nathaniel Convers Wyeth, Mendenhall, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Jan. 15, 1968, Ser. No. 697,903

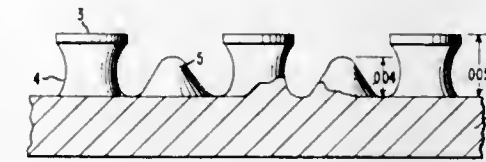
Int. Cl. B32b

U.S. Cl. 156—584

6 Claims

In a device for delaminating a multilayered element having a strippable stratum and a plastic film outer

stratum, a surface gripping member characterized in that its surface has a plurality of spaced protrusions of small surface area which can be forced into the surface of the



element. The gripping member may be in a tool (plier type) on a roller or on a belt of a continuous type delamination machine.

3,562,076

FLOORING WITH DECORATIVE FILLER

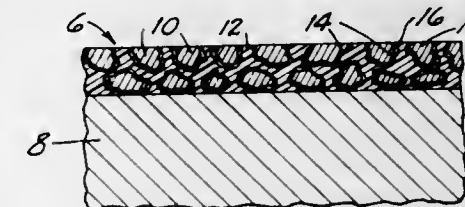
Charles R. Lea, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed Mar. 3, 1967, Ser. No. 620,325

Int. Cl. B32b 19/02; B44f 9/04; F04f 15/17

U.S. Cl. 161—5

7 Claims



Organic polymeric flooring, preferably formed from a transparent epoxy, polyurethane, or polyester polymer containing as a decorative filler granules formed from a translucent base rock having an insoluble pigmented ceramic coating which after wear of the coating from the tops of the granules remains color stable.

3,562,077

COMPONENT FOR USE IN MAKING DECORATIVE STRUCTURES

Raoul Raba, 67 Rue Croulebarbe, Paris, France

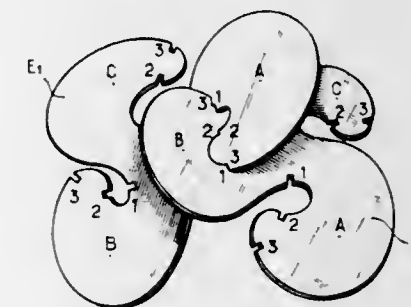
Filed Oct. 25, 1967, Ser. No. 677,903

Claims priority, application France, Oct. 26, 1966, 81,584

Int. Cl. A47g 35/00

U.S. Cl. 161—14

11 Claims



This invention relates to a new component for use in making decorative structures which consists of a thin sheet having curved peripheral edges defining a plurality of lobes symmetrically positioned about a central point. The edges of the lobes are so notched that a plurality of individual sheets can be hooked together to form a decorative structure.

3,562,078

DOUBLE WALLED PLASTIC ARTICLES AND METHOD OF MAKING SAME

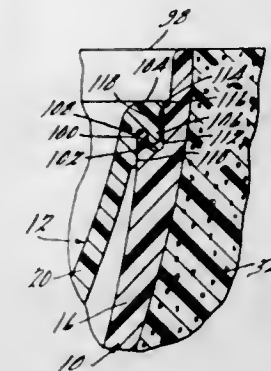
Fred R. Zumstein, Detroit, Mich., assignor to King-Seeley Thermos Co., Ann Arbor, Mich., a corporation of Delaware

Filed Jan. 23, 1969, Ser. No. 793,302

Int. Cl. B23b 1/04; B29 27/08

U.S. Cl. 161—44

11 Claims



A double-walled heat insulating plastic article having walls which are fused together by spin welding and wherein the weld joint has provision for collecting and confining flashing which comes from the bearing surfaces of the walls during the spin welding operation.

3,562,079

COILED-FILAMENT NON-WOVEN FABRICS

Robert N. Steel, South Bend, Ind., assignor to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey

Filed Oct. 27, 1967, Ser. No. 678,751

Int. Cl. D04h 3/07, 13/00

U.S. Cl. 161—47

26 Claims



An elastic non-woven fabric with high multidirectional stretchability, having transversely intersecting warps and fillings composed of resilient highly extensible coil strands of mono-filamentary nature. The fabric is made by forming a first single layer structure of parallel coil strands, forming a second single layer structure of parallel coil strands which overlie and cross the strands of the first layer, and compacting the two coil layers into one another so that the coil strands of each group are entangled with the crossing coil strands of the other group from one side only and are interconnected so as to become a cohesive structure in which the axes of all the coil strands are in a single common plane.

3,562,080

PALLET FOR SUPPORTING HEAVY OR BULKY OBJECTS

Peter J. Jenkins, Sandbach, England, assignor to The Dunlop Company Limited, London, England, a British company

Filed Nov. 13, 1967, Ser. No. 682,030

Claims priority, application Great Britain, Nov. 22, 1966, 52,204/66

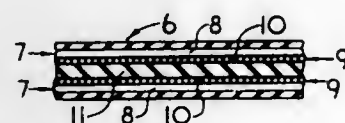
Int. Cl. B32b 5/12

U.S. Cl. 161—57

1 Claim

A pallet for supporting heavy or bulky objects such as packing cases during transit for example from place to place in warehouses, in the form of a flexible rubber or

plastic material having embedded therein two separate cord layers each of individually flexible high modulus parallel cords, and a textile reinforcement or cord rubber or plastic layer sandwiched between the cord layers,



the cords of one cord layer being parallel with the cords of the other cord layer and the separation of the cord layers being sufficient to give the pallet a degree of transverse rigidity.

3,562,081

BINDER COMPOSITION COMPRISING AN AQUEOUS EPOXY EMULSION AND PROCESS OF MAKING GLASS FIBER PRODUCTS

Joseph P. Stalego, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

No Drawing. Filed Feb. 15, 1968, Ser. No. 705,617
Int. Cl. B23b 5/28; C08g 30/04

U.S. Cl. 161—93

8 Claims

Glass fiber mats and laminated glass fiber products made from glass fiber mats wherein the glass fibers are bonded together at their points of contact with a binder composition applied as an aqueous emulsion composed of, as essential ingredients, an epoxy resin, an esterifying acid, a curing agent, a silane bonding aid and a solvent for the epoxy resin; and having a pH from about 7 to 8.5.

3,562,082

FLEXIBLE HIGH-STRETCH LAMINATE WITH SURFACE SKINS AND COILED-FILAMENT NON-WOVEN FABRIC SPACER

Edward C. van Buskirk, South Bend, Ind., assignor to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey

Filed Oct. 27, 1967, Ser. No. 678,676
Int. Cl. D04h 3/07, I3/00

U.S. Cl. 161—47

32 Claims



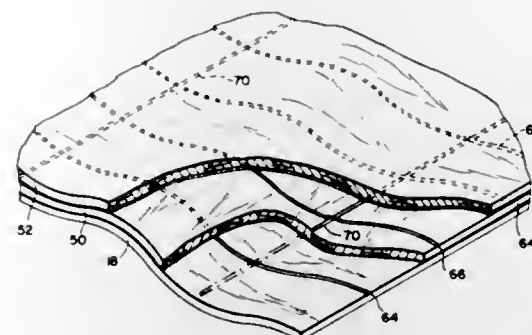
A flexible laminate designed for use in the form of internally open high-stretch sheet materials having high compression resistance. The laminate is composed of two surface layers or skins secured to an intermediate elastic non-woven spacer fabric having high multi-directional stretchability provided by transversely intersecting warps and fillings of resilient highly extensible coil strands of mono-filamentary nature. The spacer fabric is made by forming a first coil strand single layer structure, forming a second coil strand single layer structure so that the coil strand reaches of the latter overlies and cross the coil strand reaches of the first layer on one side of the latter only, and compacting the two coil strand layers into one another so that the coil strand reaches of each layer are entangled with the crossing coil strand reaches of the other layer from one side only and are interconnected so as to become a cohesive structure in which the axes of all the coil strand reaches are in a single common plane. The surface layers or skins may be either permeable or impermeable sheet materials.

3,562,083 PRESTRESSED CORRUGATED PANEL AND METHOD OF MAKING SAME

Fred E. Schroder, 130 Capers St., Greenville, S.C. 29605
Filed Feb. 9, 1968, Ser. No. 704,405
Int. Cl. B32b 3/28, 5/12

U.S. Cl. 161—56

16 Claims



A plurality of layers of plywood are provided with the grain of adjacent layers being substantially perpendicular to one another. The overall structure is corrugated. A plurality of prestressed members are provided extending in mutually perpendicular directions, these prestressed members being sandwiched between the layers of plywood. The entire assembly is bonded together to provide a prestressed panel.

3,562,084

LIGHT WEIGHT BODIES OF COTTON FIBER REINFORCED HYDROUS ALKALINE EARTH METAL SILICATE THERMAL INSULATION MATERIAL

Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Filed May 17, 1967, Ser. No. 639,070
Int. Cl. B32b 5/16

U.S. Cl. 161—89

13 Claims

A synthetically prepared body of molded high temperature thermal insulation material composed essentially of a matrix of chemically combined alkaline earth metal silicate interspersed with cotton fibers tenaciously anchored into the matrix and providing reinforcement and increased structural strength and integrity to the insulation material. The cotton fibers are interspersed in the matrix of the insulation material in the form of individual or wound groupings of filaments, strands or rovings or the like and/or in the form of an open network fabric of interlocked or interwoven cotton fibers such as cotton mesh or cotton netting or the like.

3,562,085

FILAMENT TAPE WINDING

Edwin L. Crandal, 205 Via Jucar, Newport Beach, Calif. 92660, and Charles E. Kaempfen, 3202 Larkstone Drive, Tustin, Calif. 92680

Filed Mar. 8, 1967, Ser. No. 621,614
Int. Cl. B32b 5/28, 5/32, 31/12

U.S. Cl. 161—93

4 Claims

A method for the fabrication of laminated plastic structures using tape winding techniques. A composite tape material is utilized in the present winding process comprising an intermediate layer of resin impregnated reinforcing material imposed between two layers of a substrate material. The method of the present invention comprises the steps of imposing a continuous strip of resin impregnated reinforcing material between two continuous strips of substrate material thereby forming a composite tape; winding the composite tape around a

mandrel until the surface of the mandrel is covered, then curing the composite tape. In the preferred embodiment of the invention, the substrate material is polystyrene foam and reinforcing material is fiberglass impregnated with a curable polyurethane elastomer.

3,562,086

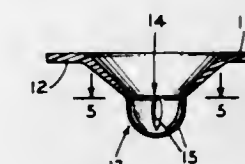
NONSLIP CARPET RUNNER

Abraham I. Kantor, Bloomfield, N.J. (6 Fredon Drive, Box Section No. 185, Livingston, N.J. 07039)
Filed Jan. 15, 1968, Ser. No. 697,973

Int. Cl. A47l 23/22; D06n 7/00

U.S. Cl. 161—125

1 Claim



A nonslip carpet runner comprising a sheet of flexible thermoplastic material with a large number of nipple-like hollow projections along its under surface. Each projection is rigidified by means of a plurality of embossed channels and complementary ribs extending vertically along the projection.

3,562,087

DECAL OR TRANSFER LAYER ADHERED TO A CARRIER LAYER WITHOUT ADHESIVE

John Percy Wiggzell, Bulawayo, Rhodesia, assignor to Vactran Patents (Private) Limited, Bulawayo, Rhodesia, a corporation of Rhodesia

No Drawing. Filed Dec. 7, 1965, Ser. No. 512,215
Claims priority, application Rhodesia, Dec. 17, 1964, 469/64

Int. Cl. B32p 3/00

U.S. Cl. 161—127

7 Claims

Transfers comprising indicia supported on a carrier sheet are prepared from non-porous components which are adhered together without the use of any adhesive. The layers are held together by means of differences between the external or ambient air pressure and the pressure of air between the layers. The transfer layer is thus adapted to be readily removable from the carrier layer by perforating or otherwise rupturing one of the layers to admit air between the layers.

3,562,088

PRESSURE SENSITIVE ADHESIVE TAPE

Nicholas S. Newman, West Newton, Mass., and Donatas Satas, Palatine, Ill., assignors to The Kendall Company, Boston, Mass., a corporation of Massachusetts

Filed Dec. 8, 1967, Ser. No. 689,010

Int. Cl. C09j 7/04

U.S. Cl. 161—151

5 Claims



A thermosettable but temporarily thermoplastic acrylic film is cast upon a layer of thermoplastic film such as polypropylene. A layer of unspun and unbonded textile-length fibers is superimposed upon the acrylic film, and

the multi-ply assembly is subjected to heat and pressure sufficient to cause the films to flow around and encapsulate at least 80% of the fibers, which remain in discontinuous phase. Unlike ordinary laminates, such products are characterized by a single inflection point in the stress-strain curve, and are suitable for bases for adhesive tapes.

3,562,089

DAMPED LAMINATE

Glenn E. Warnaka and Harold T. Miller, Erie, Pa., assignors to Lord Corporation, Erie, Pa., a corporation of Pennsylvania

Continuation-in-part of application Ser. No. 362,823, Apr. 27, 1964. This application Nov. 1, 1967, Ser. No. 683,086

Int. Cl. B32b 7/02

U.S. Cl. 161—166

11 Claims



The magnitude and frequency range of damping provided by a constrained layer damping structure are improved by the addition of an extensional damping layer. If the shear damping layer of the constrained layer structure and extensional damping layer provide peak damping at different temperatures, effective damping will also be provided over a wider temperature range than with the shear or extensional damping layers alone.

3,562,090

VIBRATION DAMPED SANDWICH SYSTEMS

Hermann Oberst and Joachim Ebelt, Hofheim, Taurus, Günther Duve, Frankfurt am Main, and Alfred Schommer, Bad Soden, Taurus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

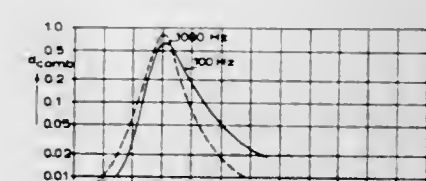
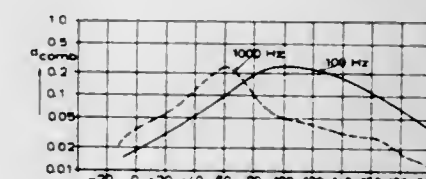
Filed Nov. 18, 1968, Ser. No. 776,678

Claims priority, application Germany, Dec. 5, 1967, P 17 00 122.8

Int. Cl. E06b 3/92, 9/26

U.S. Cl. 161—166

5 Claims



A vibration damped sandwich system comprising two hard plates and interposed between the plates a vibration damping interlayer comprising a graft polymer of styrene

or optionally a mixture of styrene with a copolymerizable carboxylic acid, for example acrylic and/or methacrylic acid, on copolymers of 10 to 30% by weight of vinyl acetate and 90 to 70% by weight of ethylene.

3,562,091

VIBRATION DAMPED SANDWICH SYSTEMS

Hermann Oberst and Joachim Ebigt, Hofheim, Taunus, Günther Duve, Frankfurt am Main, and Alfred Schommer, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

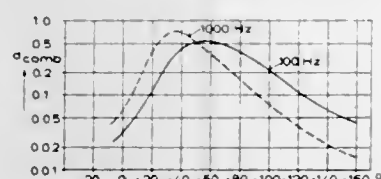
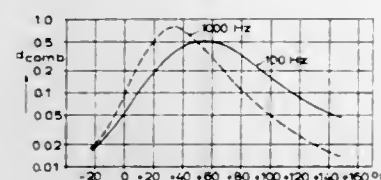
Filed Nov. 18, 1968, Ser. No. 776,690

Claims priority, application Germany, Dec. 6, 1967, P 16 94 224.8

Int. Cl. E06b 3/92, 9/26; C08f 15/40

U.S. Cl. 161—166

4 Claims



A vibration damped sandwich system comprising two hard plates and interposed between the plates a vibration damping interlayer comprising graft polymers of styrene or optionally styrene with small amounts of a copolymerizable carboxylic acid, especially acrylic acid and/or methacrylic acid, on a copolymer of 30 to 40% by weight of vinyl acetate, 30–40% by weight of 2-ethylhexyl acrylate, 30 to 10% by weight of dibutyl maleate and 5 to 15% by weight of crotonic acid.

3,562,092

VIBRATION DAMPED SANDWICH SYSTEMS

Hermann Oberst and Joachim Ebigt, Hofheim, Taunus, Günther Duve, Frankfurt am Main, and Alfred Schommer, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

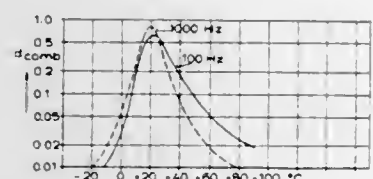
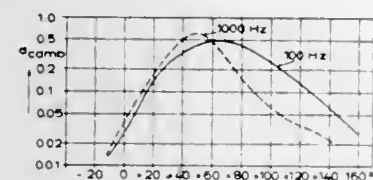
Filed Nov. 18, 1968, Ser. No. 776,691

Claims priority, application Germany, Dec. 6, 1967, P 16 94 227.1

Int. Cl. C08f 15/40; E06b 3/92, 9/26

U.S. Cl. 161—166

4 Claims



A vibration damped sandwich system comprising two hard plates and interposed between the plates a vibration

damping interlayer comprising graft polymers of styrene or optionally styrene with small amounts of a copolymerizable carboxylic acid, especially acrylic and/or methacrylic acid, on a copolymer of 30 to 40% by weight of vinyl acetate, 30–40% by weight of n-butyl acrylate, 30 to 10% by weight of dibutyl maleate and about 10% by weight of crotonic acid.

3,562,093

BICOMPONENT FILAMENTS

James Dennis Griffiths, Coventry, and Colin David May, Kenilworth, England, assignors to Courtaulds Limited, London, England, a British company

No Drawing. Filed Feb. 28, 1967, Ser. No. 619,149

Claims priority, application Great Britain, Feb. 28, 1966, 8,594/66

Int. Cl. D01d 5/28

U.S. Cl. 161—173

5 Claims

A bicomponent filament consisting of a crystalline polymer component and a block copolymer component consisting of segments of a condensation homopolymer and a random condensation copolymer.

3,562,094

LAMINATE OF ELASTOMER AND POLYETHYLENE TEREPHTHALATE ALSO METHOD OF MAKING SAME

Chester T. Chmiel, Newfoundland, N.J., assignor to Uniroyal, Inc., a corporation of New Jersey

No Drawing. Filed Sept. 27, 1965, Ser. No. 490,637

Int. Cl. B32h 27/36, 27/06

U.S. Cl. 161—231

9 Claims

Diolefin polymer elastomers are firmly bonded to poly (ethylene terephthalate) by treating the latter with a negatively substituted acetic acid at a temperature at or in the vicinity of the glass transition temperature of the polyester and then contacting the treated polyester with a diolefin polymer elastomer stock containing reagents capable of reacting to produce resorcinol-formaldehyde type resins.

3,562,095

SANDWICH STRUCTURE COMPRISING THERMOSETTING UNSATURATED POLYESTER CORE AND FACE SHEETS OF CHLORINE CONTAINING THERMOPLASTIC POLYMER

Forrest J. Rahl, Dusan C. Prevorsek, and Hendrikus J. Oswald, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Mar. 21, 1967, Ser. No. 624,710

Int. Cl. B32h 27/08

U.S. Cl. 161—233

10 Claims

A method for providing improved bonding in a sandwich structure which has (1) a thermosetting unsaturated polyester resinous core and (2) thermoplastic face sheets selected from the group consisting of polyvinyl chloride, chlorinated polyvinyl chloride and chlorinated polyethylene, the latter incorporating between about 0.1% and about 20% of a compound having one or more unsaturated $C=C$ groups.

3,562,096

RECOVERY OF SOAP FRACTION FROM RECYCLE IMPREGNATING COOKING LIQUOR IN A CONTINUOUS RAPID PULPING SYSTEM

John F. Tourtellotte, Westfield, N.J., assignor to The Lummus Company, New York, N.Y., a corporation of Delaware

Filed Apr. 21, 1967, Ser. No. 632,578

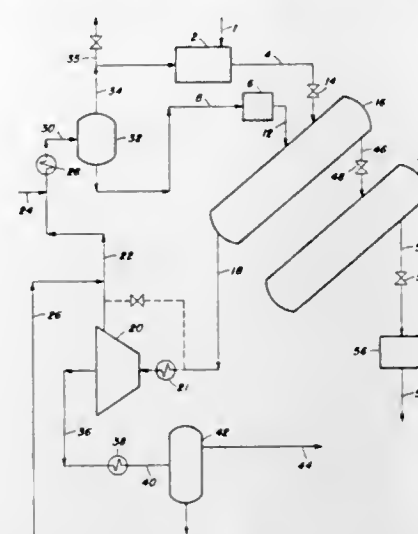
Int. Cl. D21c 11/00

U.S. Cl. 162—16

3 Claims

A process for the delignification of cellulosic material wherein a portion of impregnation liquor is withdrawn

from an impregnation zone, centrifuged to separate the solution, removing excess acid, at least partially drying withdrawn liquor into a soap lean fraction and a soap the web, and applying to a surface of the paper one or rich fraction, and the soap lean fraction is recycled to more sizing agents which are fluorinated carboxylic acids,



the impregnation zone. Tall oil, in the amount of from 10 to 20 gallons per ton of pulp, is obtained from the impregnation liquor.

3,562,097

MULTI-PLY CYLINDER PAPER OF REDUCED MACHINE-TO-CROSS DIRECTION TENSILE STRENGTH RATIO

Romulus S. von Hazmburg, Laguna Hills, Calif., assignor to United States Gypsum Company, Chicago, Ill., a corporation of Delaware

Filed Jan. 30, 1967, Ser. No. 612,351

Int. Cl. D21f 11/08

U.S. Cl. 162—129

4 Claims

An uncreped, multi-ply cylinder machine paper sheet and process of making it having a ratio of machine-to-cross direction dry tensile strength between about 3.35:1 and 4.1:1, said sheet containing 7–20% mineral-fibers with no more than 43% mineral fibers in any one ply.

3,562,098

PROCESS FOR OBTAINING MULTICOLORED EFFECT ON PAPER

Maurice Jacques Plumez, Wheeling, Chester Burton Brown, Chicago, and William Stuart Karro, Franklin, Ill., assignors to Gelgy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Filed Jan. 16, 1969, Ser. No. 791,798

Int. Cl. D21h 5/02

U.S. Cl. 162—134

1 Claim

Multicolored effects are obtained on paper by adding a water insoluble, organic solvent soluble, colorant, such as Solvent Violet 11 or Solvent Red 36, to the pulp prior to the formation of the sheet of paper, forming the paper sheet and then coating or spraying the paper sheet with an organic solvent, such as ethyl alcohol or benzyl alcohol, to dissolve a portion or all of the colorant; alternatively the colorant may be dispersed in an aqueous system and applied to the paper sheet, the sheet dried and then coated or sprayed with said organic solvent.

3,562,099

ERASABLE PAPER AND PROCESS FOR MAKING SAME

William R. Wasko, 201 Cleveland Ave., Cherry Hill, N.J. 08034; and Milton R. Sheppard, 27 Bermuda Circle, and Robert J. Eber, 21 Mullshire Lane, both of Willingboro, N.J. 08046

Filed Jan. 17, 1968, Ser. No. 698,473

Int. Cl. D21h 3/08, 3/20, 3/28

U.S. Cl. 162—135

8 Claims

Process for making erasable paper by forming a paper web, contacting the formed web with a parachmentized

and are preferably perfluorinated carboxylic acids, and are applied alone or in combination with certain additives. The invention also includes the product of the foregoing process.

3,562,100

ERASABLE PAPER AND PROCESS FOR MAKING SAME

William R. Wasko, 201 Cleveland Ave., Cherry Hill, N.J. 08034, and Milton R. Sheppard, 27 Bermuda Circle, Willingboro, N.J. 08046

Continuation-in-part of application Ser. No. 416,791,

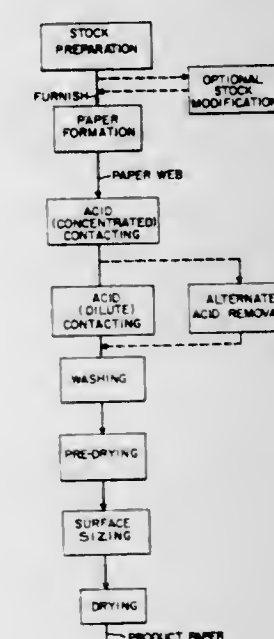
Dec. 8, 1964. This application Jan. 17, 1968, Ser.

No. 698,485

Int. Cl. D21h 3/12

U.S. Cl. 162—135

8 Claims



Process for making erasable paper by forming a paper web, contacting the formed web with a parachmentized solution, removing excess acid, at least partially drying the web, and applying to a surface of the paper one or more sizing agents which are alkanolamine salts of fluorine-substituted aliphatic phosphates, and are applied alone or in combination with certain additives. The invention also includes the product of the foregoing process.

3,562,101

BORON NITRIDE FILLED PAPER

Joseph W. Tereshko, Berea, Ohio, assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 583,093, Sept. 29, 1966. This application Feb. 19, 1969, Ser. No. 800,722

Int. Cl. D21h 3/00

U.S. Cl. 162—138

5 Claims

A thin solution of a resin dissolved in a suitable solvent, for example toluene, said resin selected from the group consisting of polyvinyl chloride epoxy and phenolic resins, is mixed with boron nitride particles. The mixture is heated to drive off the solvent and cure the resin. The resultant boron nitride particles coated with resin are pulverized to a very small particle size, mixed with water and added to the aqueous pulp slurry to produce a paper of enhanced thermal conductivity containing moisture resistant particles.

3,562,102

PAPER CONTAINING ALKYL GLYCIDYL MIXED ESTERS AND AMINE REACTION PRODUCTS THEREOF

Van R. Gaertner, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Original application Dec. 17, 1965, Ser. No. 514,709, now Patent No. 3,459,715. Divided and this application Oct. 31, 1968, Ser. No. 772,401

Int. Cl. D21h 3/44

U.S. Cl. 162—168

10 Claims

Mixed alkyl glycidyl esters of polycarboxylic acid or anhydride-containing adducts of olefinically unsaturated natural oils and of polycarboxylic acid or anhydride-containing copolymers with alpha-olefin compounds, and amine reaction products thereof, which are useful in the preparation of sized cellulosic paper substrates and in the preparation of cured films and solid resinous potting compositions.

3,562,103

PROCESS OF MAKING PAPER CONTAINING QUATERNARY AMMONIUM STARCH ETHERS CONTAINING ANIONIC COVALENT PHOSPHORUS AND PAPER MADE THEREFROM

Kenneth B. Moser and Frank Verbanac, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill., a corporation of Delaware
No Drawing. Filed Dec. 28, 1967, Ser. No. 694,078

Int. Cl. C08b 19/06; D21h 3/28

U.S. Cl. 162—175

9 Claims

Starch suitable for use as beater additive having a quaternary ammonium ether D.S. of 0.005 to 1.5 and about 0.01 to 1 covalent anionic phosphate or ether phosphonate groups per quaternary ammonium ether group, process of making paper with and paper made therefrom.

3,562,104

STOCK FLOW CONTROL SYSTEM FOR A HEADBOX

James W. Taylor, Appleton, Wis., assignor to Beloit Corporation, Beloit, Wis., a corporation of Wisconsin
Filed Apr. 14, 1967, Ser. No. 631,028

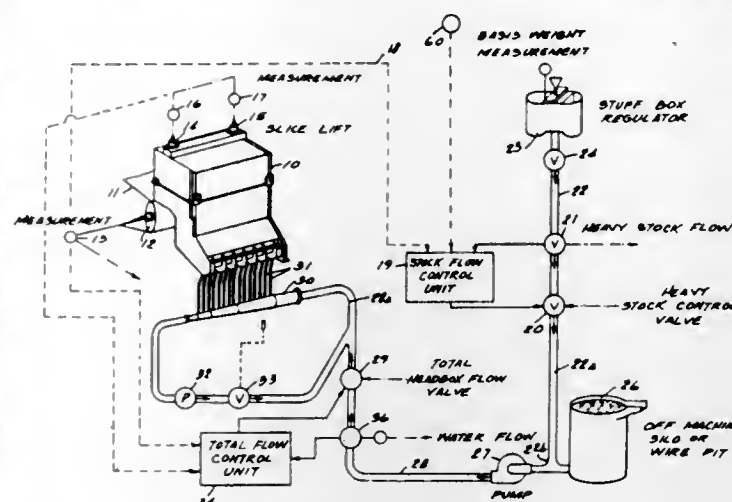
Int. Cl. D21f 1/06, 1/08

U.S. Cl. 162—253

8 Claims

A control system for a headbox controlling the variables effecting the formation, weight and other characteristics of a paper web formed. In the preferred embodiment there is a continuously moving forming wire which receives stock passing through a slice in the headbox. The system includes a sensing device for generating a first control signal indicative of the speed of the forming wire, a transducer device for generating a second control signal indicative of the open area of the slice, and a sensing device for generating a third control signal indicative

of the stock flow from a stock supply chest. The three control signals are supplied to a stock flow control unit and a total flow control unit, which control the flow of



stock from the slice such that the ratio of stock velocity to forming wire speed may be maintained constant or varied at will.

3,562,105

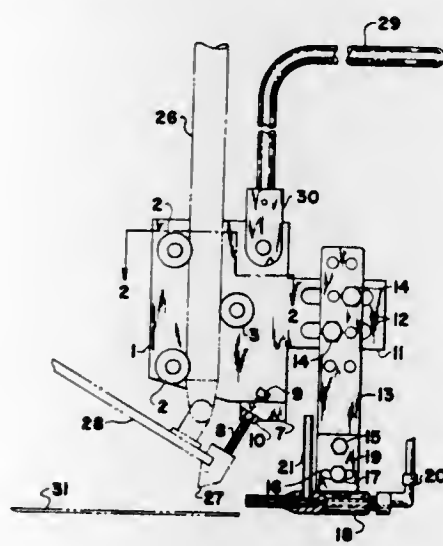
SLICE JET MEASURING APPARATUS

David B. R. Hill, Covington, Va., assignor to Westvaco Corporation, a corporation of Delaware
Filed May 8, 1968, Ser. No. 727,428

Int. Cl. D21f 7/06

U.S. Cl. 162—263

6 Claims



Apparatus for positioning, in the slice jet of a paper machine headbox, a tube for either measuring the velocity of the slice jet or permitting samples of the papermaking stock to be removed from the slice jet.

3,562,106

APPARATUS FOR MAINTAINING THE SLICE OPENING IN A PAPERMAKING HEADBOX

Ralph A. Beck, Thomas G. McKie, and Donal J. Wolf, Beloit, Wis., assignors to Beloit Corporation, Beloit, Wis., a corporation of Wisconsin
Continuation of application Ser. No. 601,987, Dec. 15, 1966. This application Feb. 2, 1970, Ser. No. 7,355

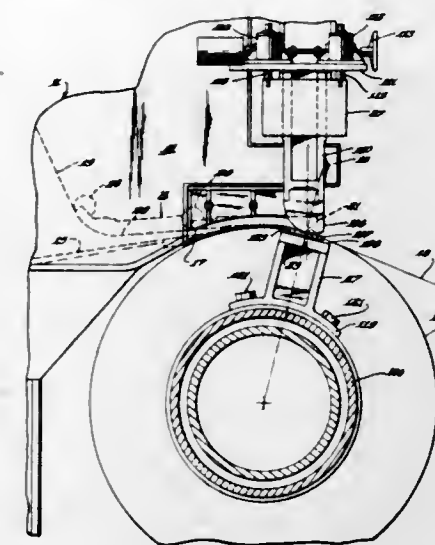
Int. Cl. D21f 1/02

U.S. Cl. 162—317

7 Claims

Adjustable support for slice lip for pressure head box for papermaking machine in which the slice lip has a tip extending across the breast roll and Fourdrinier wire on the roll. A beam is supported on stationary supports independently of the head box to extend across the breast roll in vertically spaced relation with respect to the breast roll and for vertical adjustment relative to the breast roll. Suspension links suspend the slice lip from the beam. The support for the beam comprises adjustable support legs

to which the beam is connected, the support legs having at the bottom ends arcuate shaped end members which are supported by and rockable on bearing blocks which are in turn supported by secured block supports. The arcuate shaped end members of the support legs are sup-



ported on the bearing blocks coincident with the point of intersection of extended radial lines extending from the axis of rotation of the breast roll through the tip of the slice lip. The position of the slice lip may thus be adjusted with respect to the periphery of the breast roll along this radial line to maintain the tip of the slice lip in the same fixed relation with respect to the breast roll, regardless of upward deflection of the slice lip by the upward forces of the stock of the lip.

3,562,107

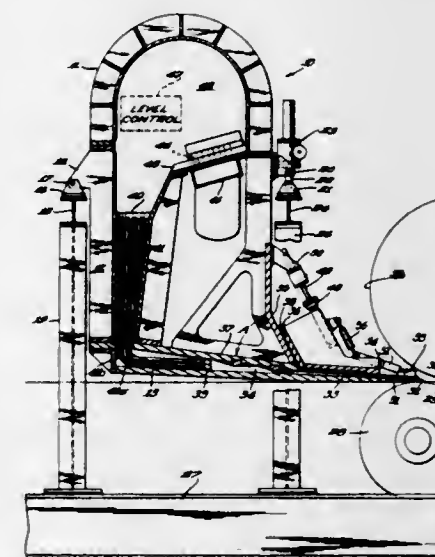
TUBE BANK HEADBOX

John F. Schmaeng, Rockton, Ill., assignor to Beloit Corporation, Beloit, Wis., a corporation of Wisconsin
Filed Aug. 29, 1967, Ser. No. 664,153

Int. Cl. D21f 1/02

U.S. Cl. 162—336

1 Claim



A headbox construction for a papermaking machine wherein the headbox forms a housing having a receiving chamber and an exit chamber and a plurality of tubes or pipes connected between the chambers to direct stock flow to the exit chamber whereupon the stock is delivered to a forming surface. The tubes have one end thereof secured to a perforated plate which, in turn, forms at least a wall portion of the receiving chamber, and the other end of the tubes is secured to a second perforated plate, which in turn, forms at least a wall portion

**3,562,108
VIBRATORY DEFLOCCULATOR FOR PAPERMAKING APPARATUS**

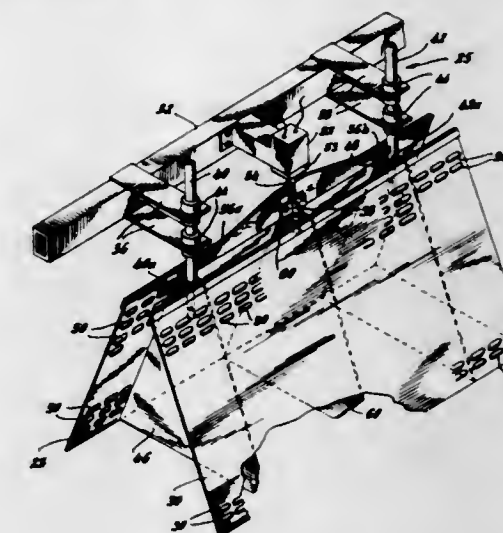
Kasimir Lopus, 118 Skyview Drive, Stamford, Conn. 06902

Filed Jan. 22, 1968, Ser. No. 699,551

Int. Cl. D21f 1/06

U.S. Cl. 162—341

9 Claims



A vibratory deflocculator for breaking up agglomerates of fibers in a paper stock suspension, and which eliminates stapling. The deflocculator is suspended in the stock in, for example, the headbox of the papermaking apparatus; it consists of a pair of perforated plates spaced apart by baffles and disposed in planes which intersect at an angle to the perpendicular. The plates are suspended from a support bar by springs and are vibrated transverse to the direction of stock flow to rapidly pump stock in alternate directions through the perforations.

3,562,109

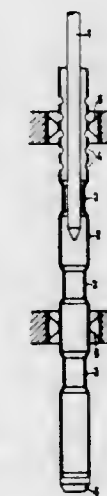
HYDRAULIC FALL-BRAKE OR SHOCK ABSORBER FOR NUCLEAR REACTOR CONTROL RODS

Helmuth Bezold, Hohenschwarz, and Eckhard Steinkamp, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany, a corporation of Germany
Continuation of application Ser. No. 609,061, Jan. 13, 1967. This application June 10, 1968, Ser. No. 751,638
Claims priority, application Germany, Jan. 14, 1966, S 101,449

Int. Cl. G21c 7/20; F16f 9/14

U.S. Cl. 176—36

7 Claims



Hydraulic shock absorber for a control rod in a nuclear reactor is formed of a vertically extending guide tube for guidingly receiving a falling control rod. The

guide tube is cylindrical substantially along the entire length thereof and has longitudinally spaced cylindrical constrictions at the lower end thereof. Openings are provided in the guide tube above the constrictions to permit reactor coolant fluid to pass therethrough.

3,562,110

PRODUCTION OF AMINO ACIDS

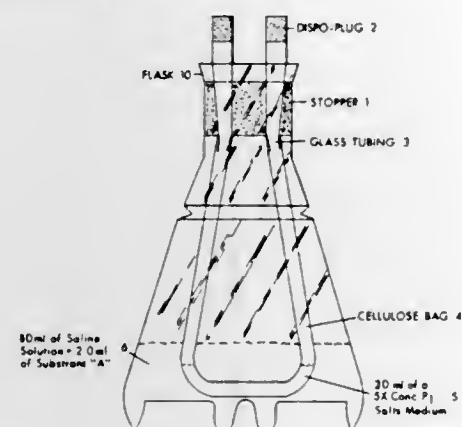
John D. Douros, Jr., Littleton, Colo., Lars A. Naslund, Morganville, N.J., and William J. Lahl, Marysville, Ohio, assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed Jan. 25, 1968, Ser. No. 700,580

Int. Cl. C12d 13/06

U.S. Cl. 195—28

5 Claims



Aerobic fermentation process for the production of extracellular amino acids which uses, as a primary source of carbon, a C₁-C₃₀ n-aliphatic hydrocarbon feed with an aqueous, inorganic salt growth medium, and a micro-organism capable of growth on said n-aliphatic hydrocarbon feed, said process being conducted in the presence of cellulose. It is preferred that the n-aliphatic hydrocarbon be the sole source of carbon in the process, preferred n-aliphatic hydrocarbon feed being comprised primarily of C₁₁-C₃₀ n-paraffins.

3,562,111

PROCESS FOR PRODUCING 2-THIOURIDYLIC ACID

Kiyoshi Nakayama, Sagami-hara-shi, and Haruo Tanaka, Machida-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Filed Sept. 9, 1968, Ser. No. 758,571

Claims priority, application Japan, Sept. 21, 1967, 42/60,159

Int. Cl. C12d 13/06

U.S. Cl. 195—28

10 Claims

A process for producing 2-thiouridylic acid by fermentation which comprises culturing a 2-thiouridylic acid-producing microorganism belonging to the genus *Brevibacterium*, *Corynebacterium*, *Arthrobacter* or *Micrococcus* under aerobic conditions in an aqueous nutrient medium. Either 2-thiouracil or 2-thiouridine is added to the medium as a precursor.

3,562,112

PRODUCTION OF OPTICALLY ACTIVE ANTIPODES

Heinz Gibian, Klaus Kieslich, Hans-Joachim Koch, Horst Kosmol, Clemens Rufer, Eberhard Schröder, and Rosemarie Vössing, Berlin, Germany, assignors to Schering A.G., Berlin, Germany

No Drawing. Filed Sept. 13, 1966, Ser. No. 578,996

Claims priority, application Germany, Sept. 14, 1965, Sch 37,715

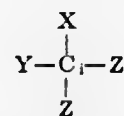
Int. Cl. C07c 167/00; C12d 13/00, 13/06

U.S. Cl. 195—51

28 Claims

A process for the production of optically active compounds, such as intermediates for the production of steroid

hormones, which comprises subjecting an optically inactive compound of the formula:



wherein C₁ is a symmetric carbon atom; X is H or lower-alkyl; Z and Z are a pair of identical groups, separate or joined together, each bearing a functional group convertible to another functional group; and Y is the remainder of the organic molecule; to the microbiological enzyme system of a bacteria, fungi or yeast, thereby converting the functional group of one Z to another functional group, thus converting the C₁ optically inactive carbon atom into a C_a optically active carbon atom.

3,562,113

RAPID MICROBIOLOGICAL PRODUCTION OF ALPHA-GALACTOSIDASE

Sin'itiro Kawamura, Takamatsu, Kagawa-ken, and Tadasi Kasai and Sumizo Tanusi, Mikicho, Kagawa-ken, Japan, assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed June 17, 1968, Ser. No. 737,343

Int. Cl. C07g 7/028

U.S. Cl. 195—66

1 Claim

Purified extracts of sonicated 4-8 hour cultures of *Escherichia coli*, subsp. *communior*, ATCC 7009; provide very high yields of α-galactosidase that hydrolyzes raffinose and other α-galactosides.

3,562,114

APPARATUS FOR INCUBATION CULTURES

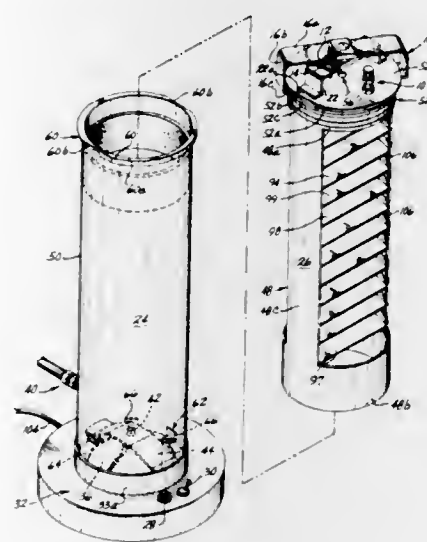
Richard M. Steidl, 444 Yosemite N., Minneapolis, Minn. 55422, and Robert H. Steidl, 17030 15th NW., Seattle, Wash. 98177

Filed Jan. 5, 1970, Ser. No. 716

Int. Cl. G12b 1/00

U.S. Cl. 195—139

3 Claims



This invention comprises an incubator having an inner core assembly having horizontally extending shelves for supporting culture plates in separated stacked relationship to provide air flow and temperature transfer to the center of plates from all surfaces, and wherein the vertical column of shelves of the inner core assembly is supported within a surrounding and also cylinder-like outer canister

assembly thus providing for piston-like action and trapping of the warm canister atmosphere within the canister when the incubator is being moved into an open position for accessing of an individual plate.

3,562,115

FLUIDIZED BED RETORT SURROUNDED BY A FLUIDIZED SAND HEAT EXCHANGER

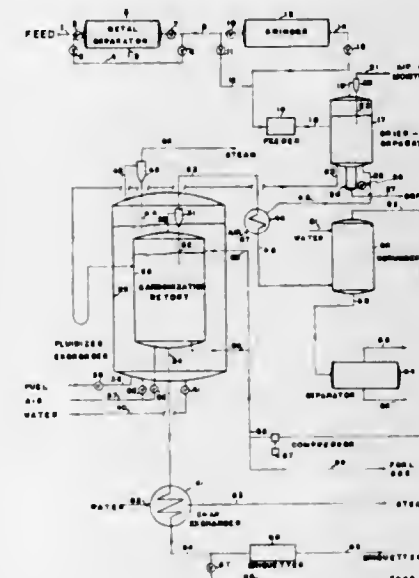
Donald D. Dunlop, Norman, Okla., assignor to Creative Enterprises International, Norman, Okla., a corporation of Oklahoma

Continuation of application Ser. No. 461,916, June 7, 1965. This application Jan. 30, 1969, Ser. No. 800,806

Int. Cl. C10b 3/02

U.S. Cl. 201—1

13 Claims



This invention relates to a method for the conversion of organic material to carbon with the evolution of a combustible gas in a fluidized bed surrounded by a fluidized heat exchanger.

3,562,116

APPARATUS FOR INCREASING THE CONCENTRATION OF A LESS VOLATILE LIQUID FRACTION IN A MIXTURE OF LIQUIDS

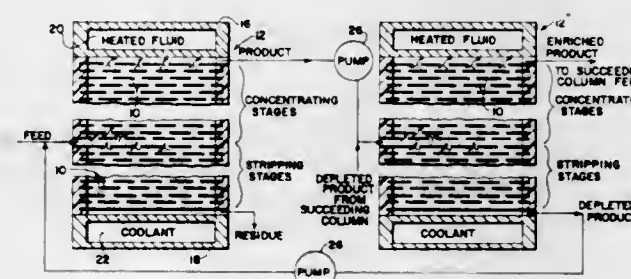
Franklin A. Rodgers, Cambridge, Mass., assignor to Pactide Corporation, Cambridge, Mass., a corporation of Delaware

Filed Nov. 1, 1967, Ser. No. 679,916

Int. Cl. B01d 1/22, 1/26; C02l 1/06

U.S. Cl. 202—200

11 Claims



Apparatus for increasing the concentration of a less volatile liquid fraction in a mixture of the liquid and a more volatile liquid, and particularly for the concentration of heavy water in a mixture including ordinary

water. The apparatus comprises a multiplicity of micro-porous membranes substantially impermeable to the liquids of the mixture and permeable to the vapors of the liquids, sandwiched together to form a column between means located at the ends of the column for creating a temperature gradient across the column. The mixture is introduced into a medial section of the column and circulated toward the hotter end thereof as thin films between adjacent membranes to cause flow of the less volatile (higher boiling point) fraction toward the hotter end of the column and flow of the more volatile (lower boiling point) fraction toward the colder end resulting in stripping or depletion of the lower boiling point fraction in the colder portion of the column and concentration or enrichment in the hotter portion of the column.

3,562,117

METHOD OF COPPER ELECTROPLATING PRINTED CIRCUIT BOARDS

John E. Vander Mey, Stirling, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

Filed Sept. 18, 1967, Ser. No. 668,551

Int. Cl. C23b 5/20

U.S. Cl. 204—24

5 Claims

A copper plating bath composition comprising a mixture of a copper salt and fluoboric acid, each being present in an amount, which upon dissolution in an aqueous bath provides a copper concentration from 5 and 35 grams per liter and from 100 to 700 grams per liter of fluoboric acid. The plating baths of the present invention have particular efficacy in the copper plating of recessed areas, such as perforated substrates for use as printed circuit boards.

3,562,118

METAL PLATED PLASTICS AND PROCESS THEREFOR

Frederick L. Baier, South Plainfield, and Fred H. Ancker, Bound Brook, N.J., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Mar. 24, 1966, Ser. No. 536,986

Int. Cl. C23b 5/64; B44d 1/40

U.S. Cl. 204—30

3 Claims

1. Process for imparting adhesion of metal coatings to propylene polymer substrates in excess of about 5 pounds per inch which comprises incorporating at least one hydrocarbon elastomer containing tertiary aliphatic or allylic hydrogens in a repeating unit thereof into a propylene polymer containing at least about 90 percent propylene and having an annealed crystallinity of at least about 40 percent, said elastomer being incorporated into said propylene polymer in amounts of from about 5 to 25 percent by weight commensurate with the degree of crystallinity of the propylene polymer, oxidizing the surface of the resulting propylene polymer mixture, and thereafter metal plating the oxidized propylene polymer mixture.

3,562,119

PRESENSITIZED ALUMINUM PHOTOLITHOGRAPHIC ETCHED PLATE AND ELEMENTS AND METHOD USED IN THE PREPARATION OF SAME

John W. Krueger, Cottage Grove, Wis., assignor to Wisconsin Alumni Research Foundation, Madison, Wis., a corporation of Wisconsin

Filed Oct. 13, 1966, Ser. No. 586,442

Int. Cl. B44c 1/22; C23b 1/00

U.S. Cl. 204—33

13 Claims

A diazo presensitized photolithographic plate in which a coating of light sensitive diazo compound is applied to the aluminum surface of the plate while scouring the surface of the plate.

3,562,120 PLATING OF SMOOTH, SEMIBRIGHT GOLD DEPOSITS

Robert Duva, Paramus, and Atkin Simonian, Fort Lee, N.J., assignors to Sel-Rex Corporation, Nutley, N.J., a corporation of New Jersey
No Drawing. Filed Sept. 7, 1966, Ser. No. 577,618
Int. Cl. C23b 5/28

U.S. Cl. 204—46 15 Claims
A process and product formed by electrolysis of an aqueous acid gold bath having soluble thallium salt therein for uniform, smooth deposition of pure gold.

3,562,121 ANODISING OF ALUMINIUM AND ITS ALLOYS

James M. Kape, West Molsey, and William B. Hannaby, Wembley, England, assignors to Acorn Anodising Company Limited, London, England, a company of Great Britain
No Drawing. Continuation-in-part of application Ser. No. 598,966, Dec. 5, 1966. This application Jan. 2, 1968, Ser. No. 694,810
Claims priority, application Great Britain, Nov. 22, 1967, 53,097/67
Int. Cl. C23b 9/02

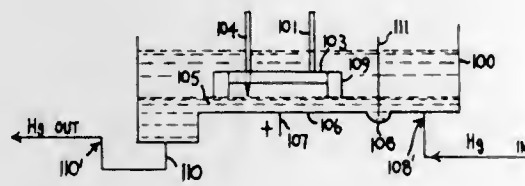
U.S. Cl. 204—58 3 Claims
This invention relates to a method of anodising aluminium and its alloys, for example, in the form of wrought or cast articles in a sulphuric acid electrolyte to which has been added either during or before anodising a substance which will impart nitrate ions to the electrolyte. Such substances include nitric acid and soluble nitrates and nitrites.

3,562,122 PREPARATION OF PLATINUM METAL OXIDE REDUCTION CATALYST

James O. Thieme and Richard L. Every, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Dec. 21, 1967, Ser. No. 692,343
Int. Cl. B01j 11/08; B01k 1/00
U.S. Cl. 204—61 11 Claims
A method of preparing oxides of the platinum group of metals useful as reduction catalysts comprising passing an electric current through a molten solution of an oxygen-producing fused salt electrolyte using as the anode the metal of the desired oxide, to form on the anode a mixture of the metal and metal oxide which flakes off, is collected and separated from the fused salt electrolyte.

3,562,123 OPERATION OF ALKALI METAL CHLORINE CELLS

William W. Carlin, Portland, and Carl W. Raetzsch, Corpus Christi, Tex., assignors to PPG Industries Inc., Pittsburgh, Pa., a corporation of Pennsylvania
Filed Apr. 11, 1967, Ser. No. 630,055
Int. Cl. C01d 1/08; C01b 11/26
U.S. Cl. 204—99 8 Claims



Improved mercury cell operation is achieved by removing from a mercury cell during operation a side

stream of amalgam. Amalgam removed from an operating mercury cell is typically denuded and then subjected to electrolysis to cause metal impurities in the mercury resulting from the denuding operation to be plated out on the cathode of the electrolytic cell used for such electrolysis. In the electrolytic cell used for purification the mercury forms the anode of the cell. Mercury substantially depleted of metal ion impurities is returned to the mercury cell from which it was removed thereby enhancing the operation of the main mercury cell by the removal of said metal ion impurities.

3,562,124 COMPOSITION FOR CORROSION PROTECTION

Edward Leon, East Aurora, and Joseph A. Pawlak, Cheektowaga, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
No Drawing. Filed Aug. 2, 1968, Ser. No. 749,615
Int. Cl. C23f 13/00
U.S. Cl. 204—148 15 Claims

A composition suitable for the protection of corrodible metallic surfaces which comprises a binder and a filler, the filler being present in an amount sufficient to impart corrosion resistant characteristics to the composition. The filler is constituted by a mixture of conductive metal particles which are more anodic than the metal of the metallic surface to be protected and comminuted refractory ferro alloys, the refractory ferro alloy being present in an amount sufficient to enhance the corrosion protection and effectiveness of the metal particles. Various binder materials, both organic and inorganic may be used and the filler is preferably a mixture of zinc particles and the refractory ferro alloy.

3,562,125 METHOD FOR THE RADIATION PRODUCTION OF FILMS FROM UNSATURATED POLYESTER RESINS

Rene Leopold Eduard Van Gasse, Schoten, Antwerp, Belgium, assignor to N.V. Chemische Industrie Synres, Hoek van Holland, Netherlands, a corporation of the Netherlands
Continuation of application Ser. No. 651,518, July 6, 1967. This application Feb. 24, 1970, Ser. No. 14,733
Claims priority, application Netherlands, July 8, 1966, 6609608
Int. Cl. B01j 1/10; C08f 1/00, 21/00
U.S. Cl. 204—159.15 3 Claims
A method for the almost complete polymerization of unsaturated polyester resins in a very short time to produce films from such resins. The ratio of equivalence between unsaturated monomer and olefinically unsaturated bonds in the polyester chain ranges between 1.0 and 1.7. Polymerization is effected by radiation with high energy electrons, the radiant energy being higher than 1×10^8 erg/g./sec.

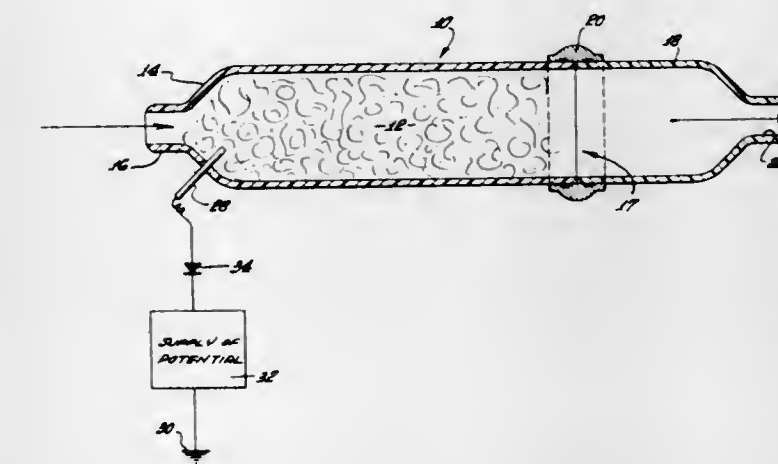
3,562,126 FIXING OF ELECTROPHORETIC DEPOSITS

Irving J. Hess, Philadelphia, Pa., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Nov. 14, 1968, Ser. No. 775,905
Int. Cl. B01k 5/00; C23b 13/00
U.S. Cl. 204—181 1 Claim
In fixing by exposure to radiant heat an electrophoretically produced deposit upon an anodized surface, the process is expedited (or, alternatively, the required temperature is reduced) by depositing upon the said deposit, prior to heating, an auxiliary black deposit of carbon which has very high absorptivity and so receives the

radiant heat faster than the non-black deposit. The auxiliary coating is removed after completion of the heating operation.

3,562,127 TREATMENT OF EXHAUST GASES CONTAINING NITROGEN OXIDES AND OTHER NOXIOUS COMPOUNDS

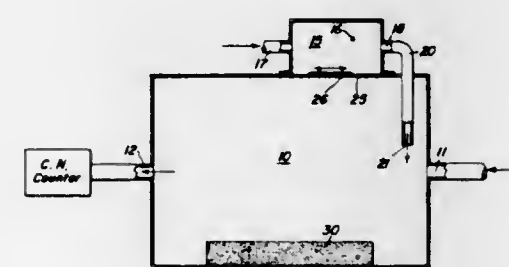
Thomas C. Wootton, El Monte, and William F. Mangold, West Covina, Calif., assignors to Scientific Industries of California, El Monte, Calif., a corporation of California
Filed May 28, 1969, Ser. No. 828,649
Int. Cl. B03c 3/00
U.S. Cl. 204—164 4 Claims



A method of treating gases containing noxious oxides, particularly oxides of nitrogen, without subjecting said gases to catalytic action, wherein the gases are intimately contacted with a porous body composed of fibers plated with gold, the porous body being negatively charged.

3,562,128 APPARATUS FOR GAS CONVERSION AND FOR MEASURING AMMONIA AND SULFUR DIOXIDE CONTAMINANTS IN A GAS

Peter E. Coffey, Ballston Spa, N.Y., assignor to General Electric Company, a corporation of New York
Filed Dec. 26, 1967, Ser. No. 693,336
Int. Cl. B01k 1/00; G01h 31/00, 33/00
U.S. Cl. 204—193 1 Claim



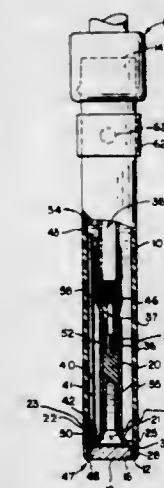
A gas conversion apparatus is disclosed for use in conjunction with a condensation nuclei counter in the detection and measurement of ammonia and sulfur dioxide in a gas such as air. The apparatus includes a reaction chamber substantially filled with acid vapor, a separate corona discharge chamber, means for passing clean gas through the corona discharge chamber wherein ions are produced therein and means for injecting the ionized gas into the reaction chamber, means for passing the gas to be analyzed through the reaction chamber with the ionized gas to produce ammonium salt condensation nuclei, and means to

3,562,129 CATION-SPECIFIC ELECTRODE SYSTEM

Wilhelm Simon, Oberembrach, Switzerland, assignor to Gebrüder Moller Glasblaserie, Inhaber Willi Moller, Zurich, Switzerland
Filed Aug. 3, 1967, Ser. No. 658,284
Claims priority, application Switzerland, Aug. 9, 1966, 11,428/66
Int. Cl. G01n 27/46
U.S. Cl. 204—195 13 Claims
The present invention concerns an electrode system used for measuring cation activities and having a membrane in which said membrane comprises a cation specific component which forms a complex with the cation, the activity of which is to be determined, and which cation specific component is selected from the group comprising nonactin and its homologues, gramicidin and valinomycin. These electrode systems show unexpected selectivity and especially have a very high specificity for potassium ions over sodium ions. The invention furthermore is directed to a process for producing the said electrode system in which a membrane, which comprises the ion specific component and an inert material, is produced by impregnating the inert carrier material with a solution of the ion specific component.

3,562,130 PLASTIC ION SENSITIVE COMBINATION ELECTRODE

Duane W. Hoole, Hnntington Beach, and Gerald L. Klein, Orange, Calif., assignors to Beckman Instruments, Inc., a corporation of California
Filed Apr. 12, 1968, Ser. No. 720,994
Int. Cl. G01n 27/46
U.S. Cl. 204—195 9 Claims



Ion sensitive combination electrochemical electrodes formed primarily of plastic without the use of glass within the structures are disclosed. In one embodiment an ion sensitive membrane such as a LaF₃ crystal is in contact with a copper tube containing an electrolyte, the copper tube being bonded to the LaF₃ crystal. The copper tube and lateral surface of the LaF₃ are coated with a plastic to provide electrical insulation and a seal against liquid. A second embodiment includes a plastic tube supporting a silver chloride coated silver wire with an electrolyte being disposed within the tube in contact with a LaF₃ crystal. A compression ring is formed about the plastic tube and the LaF₃ crystal to provide a biasing force holding the tube and the crystal in a sealed relationship. In each embodiment a flush sensing surface including a liquid junction structure is provided.

3,562,131

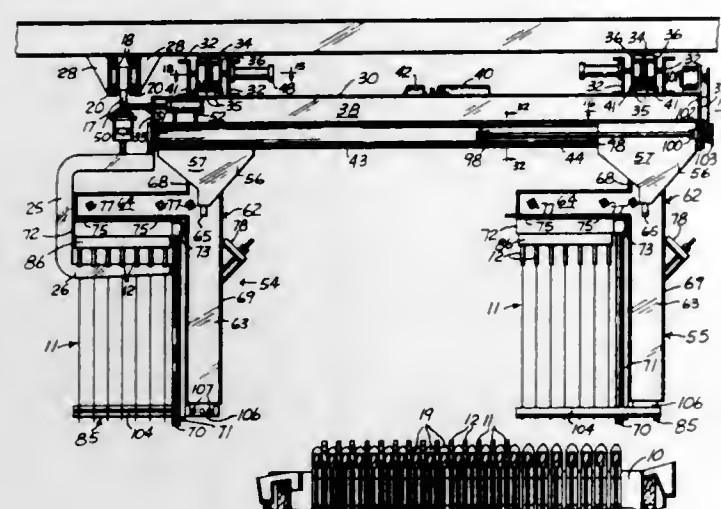
CATHODE HANDLING EQUIPMENT

Peter M. Jasberg, Kellogg, Idaho, assignor to The Bunker Hill Company, Kellogg, Idaho, a corporation of Delaware

Filed Mar. 21, 1968, Ser. No. 715,018
Int. Cl. B65g 49/00

U.S. Cl. 204—198

16 Claims



Cathode handling equipment for use in connection with electro-winning operations utilizing electrolytic cells wherein metal is periodically deposited and removed from plate-like cathodes. The present structure provides an automated mechanism for pulling and replacing groups of cathode units in the cell, transferring cathodes between a cell and an overhead conveyor. The cathode handling equipment is mounted on a bridge capable of travelling along the length of the row of cells, being properly indexed at each cell. The cathode handling units can be indexed to handle differing groups of cathode units within the respective cells.

3,562,132

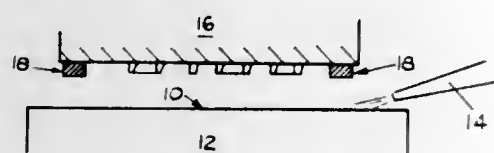
ELECTROLYTIC MARKING OF METAL OBJECTS

Albert Edward Godbehere, Sheffield, England, assignor to Edward Pryor Development Limited, Sheffield, England, a company of Great Britain, and Northern Ireland

Filed Apr. 8, 1968, Ser. No. 719,543
Int. Cl. B01k 3/04; C23b 5/72

U.S. Cl. 204—224

5 Claims



The invention is concerned with electrolytically marking the surface of metal objects. Apparatus for carrying out the invention includes an electrode having an operative face bearing markings with which it is desired to mark said surface. Flooding means is provided for flooding the surface with electrolyte. And means are provided for applying electric current to sustain electrolytic action.

3,562,133

CIRCUIT FOR UNIFORMLY ANODIZING THIN-FILM RESISTORS

Robert C. Ward, Winston-Salem, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

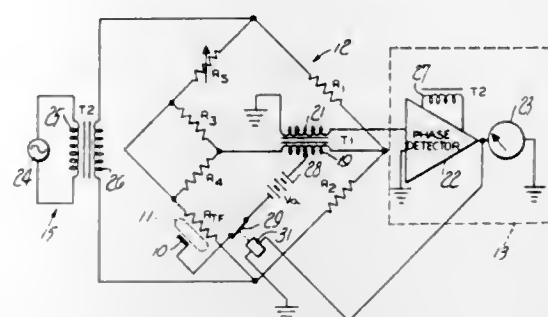
Filed Nov. 18, 1968, Ser. No. 776,396
Int. Cl. B01k 3/00

U.S. Cl. 204—228

9 Claims

A thin-film resistor is anodized to increase its resistance to a preselected value while connected as one arm of a

bridge circuit which utilizes an A.C. voltage for a resistance measurement. Opposite ends of the primary winding of a transformer are connected across the measuring diagonal of the bridge. A D.C. anodizing current source is connected to a center tap of the primary transformer winding and to the thin-film resistor through an electrolyte.



The resistance values of the bridge are such that the anodizing current flowing to the center tap of the transformer winding divides and flows in equal amounts in opposite directions through the winding. The anodization current, therefore, flows uniformly through all parts of the thin-film resistor to anodize the resistor uniformly and maintain its linearity.

3,562,134

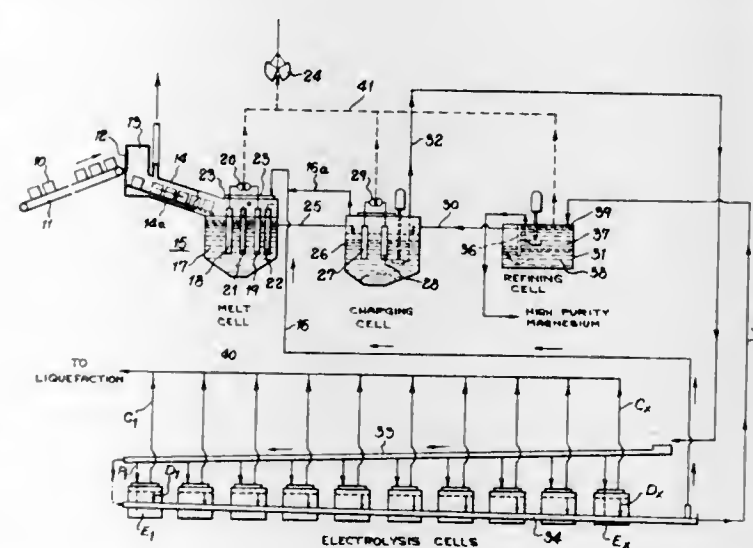
CONTINUOUS PROCESS FOR PRODUCING MAGNESIUM METAL FROM MAGNESIUM CHLORIDE

Frank E. Love, Henderson, Nev., assignor to National Lead Company, New York, N.Y., a corporation of New Jersey

Original application June 8, 1966, Ser. No. 556,108, now Patent No. 3,418,223, dated Dec. 24, 1968. Divided and this application Sept. 3, 1968, Ser. No. 801,879
Int. Cl. B01k 3/00; C22d 3/02

U.S. Cl. 204—239

3 Claims



Apparatus for the continuous production of magnesium metal and chlorine gas from magnesium chloride, comprising heated and interconnected melt and charging cells for providing a molten magnesium chloride containing electrolyte, a refining cell, a series of aligned electrolysis cells having overflow weirs for said molten electrolyte, a pair of oppositely inclined feeder and delivery launders extending along said electrolysis cells the former for feeding said molten electrolyte from said charging cell to said electrolysis cells, and the latter for delivering molten magnesium metal containing electrolyte from said electrolysis cells to said refining cell, the refining cell having a

semi-wall for isolation and withdrawal of the molten magnesium metal and for recycling the electrolyte to the refining cell.

3,562,135

ELECTROLYTIC CELL

Borut Marincek, Kusknacht, Switzerland, assignor to Swiss Aluminium Ltd., Chippis, Switzerland, a joint-stock company of Switzerland

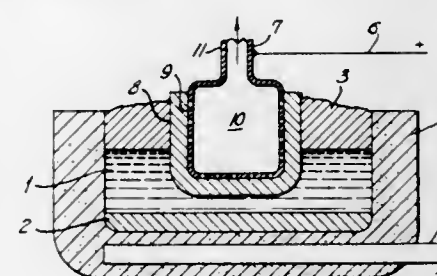
Filed May 15, 1967, Ser. No. 638,249

Claims priority, application Switzerland, May 17, 1966, 7,275/66

Int. Cl. B01k 3/04, 3/06; C22d 3/02

U.S. Cl. 204—243

4 Claims



A cell for the electrolysis of molten oxides, especially of alumina, in which the anode is separated from the melt being electrolyzed by a layer of an oxygen-ion-conducting material, for example zirconium oxide stabilised with calcium oxide or other oxides, which is resistant to the melt at the temperature of the electrolysis.

3,562,136

IGNEOUS-ELECTROLYSIS MULTICELL FURNACES, FOR THE PROTECTION OF THE INNER LAYER IN CONTACT WITH MOLTEN SALTS

Giuseppe de Varda and Alberto Vajna de Pava, Milan, Italy, assignors of seventy percent to Montecatini Edison S.p.A., Milan, Italy, and thirty percent to Giuseppe de Varda

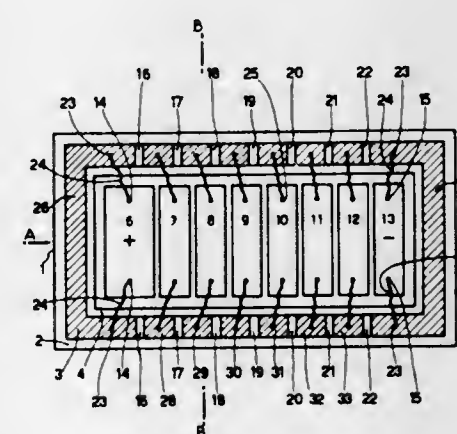
Filed Mar. 25, 1968, Ser. No. 715,806

Claims priority, application Italy, Mar. 24, 1967, 14,105/67

Int. Cl. C22d 3/02

U.S. Cl. 204—243

10 Claims



Described is a furnace for the electrolysis in molten bath of electrolytically aggressive salts, in particular a multicell furnace having bipolar electrodes, for the production of aluminum or of magnesium, having an electrolysis vat the bottom and the walls whereof comprise a layer of electrically conducting material, in particular of carbonaceous material, internally (that is on the bath side) coated with a layer of refractory material substantially insulating the electrical current. In order to eliminate or reduce the bypass of electric current through the layer

of said refractory material and the increase of corrosion resulting therefrom on said bottom and on said walls by the molten mass of the bath penetrating into the respective porosities or cracks, the furnace is characterized in that the vat layer or layers, being better electrical conductors, are made discontinuous along the dimension corresponding to the direction of the electrolysis current, by at least one separating baffle, diaphragm or transverse layer made of practically electroinsulating refractory material thus dividing the vat into portions. The terminal electrodes are electrically connected with the corresponding vat portions made of conducting, e.g. carbonaceous material, by means outside the electrolytical bath.

3,562,137

SYSTEM FOR ELECTROCHEMICAL WATER TREATMENT

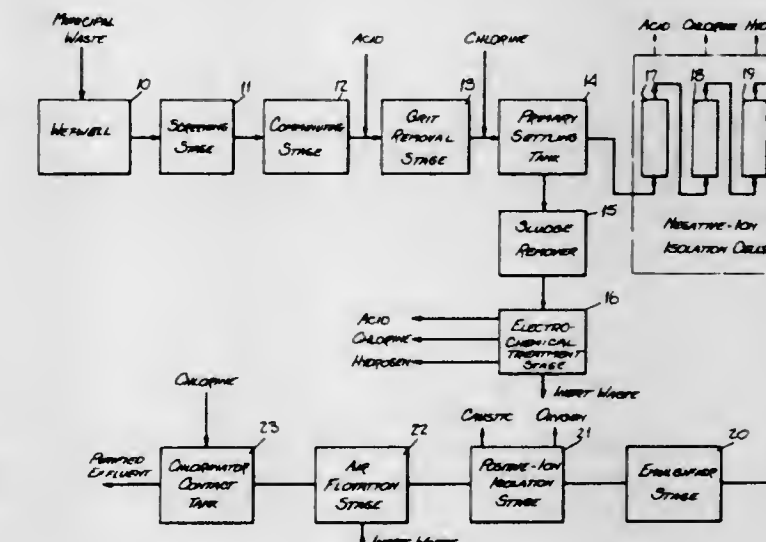
Newton P. Gehring, Largo, Fla., assignor to Fischer & Porter Co., Warminster, Pa., a corporation of Pennsylvania

Filed Jan. 22, 1968, Ser. No. 699,415

Int. Cl. B01d 13/02; B01k 3/00

U.S. Cl. 204—258

15 Claims



An electrochemical technique for water-purification and waste-water treatment, in which waste water containing dissolved and suspended organic and inorganic matter is fed into one or more negative-ion isolation electrolysis cells, each of which includes an anion-permeable membrane surrounding an anode. The cells are serially arranged and act to increase the pH factor of the waste water in a stepwise manner to an extent causing pH-sensitive salts to precipitate, dissolved constituents being demineralized and organic matter being oxidized. Electrolysis is accompanied in the cell by electrolysis, causing hydrogen and oxygen bubbles to evolve, the hydrogen bubbles effecting coagulation and flotation of the suspended and precipitated matter and at the same time scavenging the outer surface of the membrane to prevent fouling and scaling thereof, the inner surface being scavenged by the oxygen bubbles.

The outflow of the negative-ion cells is supplied to a positive-ion isolation chamber provided with cation-permeable membranes. This chamber, through the combined action of electrolysis and electrolysis, functions to decrease the pH factor of the waste water, as well as to further oxidize organic matter, oxygen and hydrogen bubbles generated therein serving to scavenge the surfaces of the cation-permeable membranes. The output of the positive-ion chamber is supplied to an air-flotation unit or other means to separate the coagulated and suspended solids from the ion-treated water, thereby yielding purified water.

3,562,138

STRUCTURAL ELEMENT FOR USE IN AN ELECTROLYTIC CELL

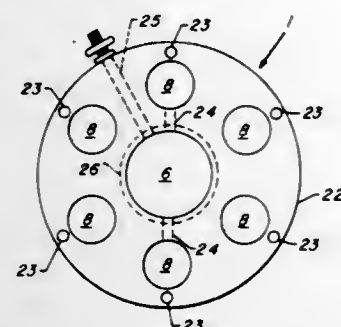
Rudolf H. Hausler, Arlington Heights, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Dec. 18, 1968, Ser. No. 784,632

Int. Cl. B01k 3/00

U.S. Cl. 204—279

12 Claims



A structural element of an electrolytic cell comprising an electrically insulating solid element perforated by parallel holes, one of which is centrally located in the member and the remainder of which are symmetrically positioned around said central hole. Two of the opposing symmetrically positioned holes are connected to said central hole by passageways, and either a semipermeable diaphragm or an electrode is positioned transversely across said central hole. A plurality of these structural elements can be linearly arranged to allow the introduction and withdrawal of anolyte, catholyte, and coolant, in the alternative to the cavities bounded by the structural elements and the diaphragms and electrodes contained therein, thereby forming a series of electrolytic cells.

3,562,139

CATIONIC-ANIONIC ION-EXCHANGE MEMBRANE

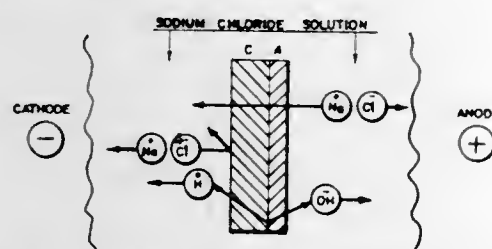
Frank B. Leitz, Weston, Mass., assignor to Ionics, Incorporated, Watertown, Mass.

Filed Aug. 5, 1968, Ser. No. 750,312

Int. Cl. B01k 3/10

U.S. Cl. 204—296

6 Claims



Method and apparatus for the deionization of electrolyte solutions wherein alternatingly oriented anion-cation bilaminate ion-exchange membranes define the chambers of a multichamber electrodialysis cell and wherein the anion exchange laminae of each of said membranes bound the salt diluting chambers and the cation exchange laminae bound the salt concentrating chambers. A direct electric current is passed transversely through all of said chambers and membranes which current is periodically reversed.

3,562,140

SEQUENTIAL SPUTTERING APPARATUS

James R. Skinner, Cupertino, and Lawrence F. Herte, Palo Alto, Calif., assignors, by mesne assignments, to Eversharp, Inc., Milford, Conn., a corporation of Delaware

Filed Oct. 23, 1967, Ser. No. 677,160

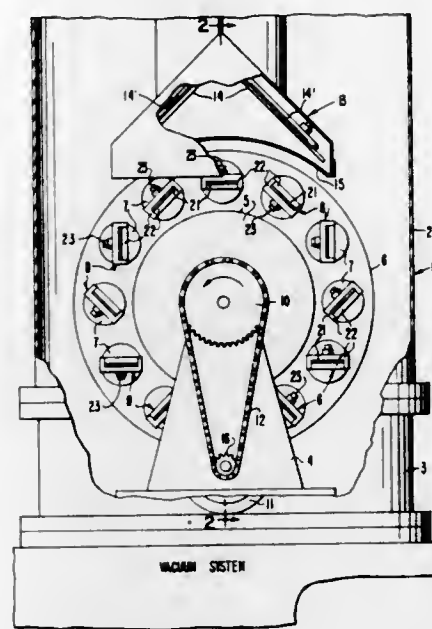
Int. Cl. C23c 15/00

U.S. Cl. 204—298

6 Claims

Increased production yields with relative savings in time and expense are made possible with sputtering ap-

paratus used in coating selected surfaces of objects, such as the cutting edges of razor blades in which provision is made for sequentially presenting a plurality of objects to cathode-sputter targets for coating. Twelve bayonets, each adapted to hold as many as 1500 razor blades, are equally spaced about the periphery of a rotatable drum. By means of an epicyclic chain and gear train, each



bayonet rotates 1/2 revolution with respect to the drum during each revolution of the drum. This permits the coating of opposing surfaces of each of the objects to be coated in a maximum of two drum revolutions which, in the instant case, is 36 minutes for coating the cutting edges of double edged razor blades with 600 Å. of chromium.

3,562,141

VACUUM VAPOR DEPOSITION UTILIZING LOW VOLTAGE ELECTRON BEAM

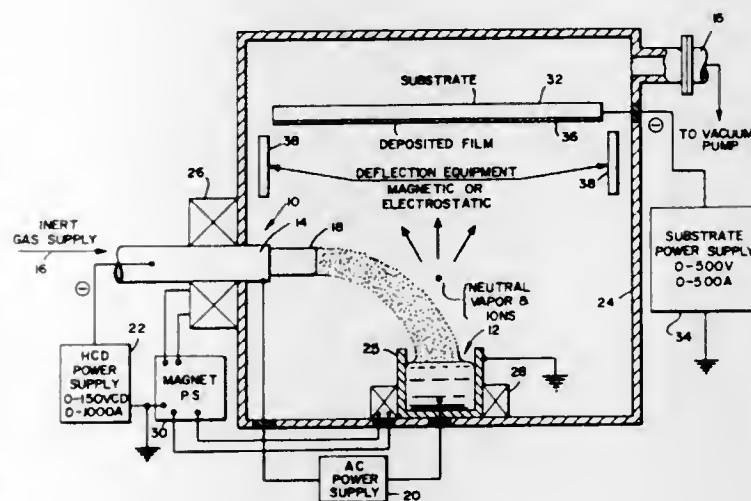
John R. Morley, Rutland St., Carlisle, Mass. 01741

Filed Feb. 23, 1968, Ser. No. 707,863

Int. Cl. C23c 15/00

U.S. Cl. 204—298

5 Claims



Rapid deposition rates and efficient material utilization are achieved in a vacuum vapor deposition system by a low voltage, high current electron beam arrangement for heating the material to a sufficiently high temperature

for vaporization, for ionizing the vaporized material in order to impart a positive charge thereto and for electrostatically and/or electromagnetically attracting the ionized, vaporized material to a substrate, at which deposition of the material occurs.

3,562,142

R.F. SPUTTER PLATING METHOD AND APPARATUS EMPLOYING CONTROL OF ION AND ELECTRON BOMBARDMENT OF THE PLATING

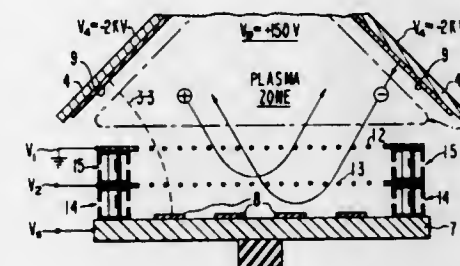
Lawrence T. Lamont, Jr., Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California

Filed Oct. 30, 1968, Ser. No. 771,797

Int. Cl. C23c 15/00

U.S. Cl. 204—298

3 Claims



An R.F. sputter plating method and apparatus is disclosed. The plating apparatus includes a partially evacuated deposition chamber containing a pair of electrodes excited with radio frequency energy to produce a radio frequency plasma discharge in the region therebetween. The R.F. discharge defining electrodes are operated at a floating potential such that, by the nature of the plasma discharge, a relatively high negative self-bias potential is established on the R.F. electrodes. A target material is placed on the R.F. electrodes to be sputtered by ion bombardment, such ions emanating from the plasma discharge. A collector electrode is disposed to receive the sputtered target material to plate the collector electrode or items carried thereon. A pair of transparent grid structures are disposed intermediate the collector electrode and the plasma discharge region. A first one of the grid structures, adjacent the plasma discharge, is operated at ground potential to prevent perturbation of the discharge, whereas the second grid structure disposed intermediate the first grid structure and the collector structure is operated at a potential positive with respect to the discharge for repelling positive ions. The collector structure is operated at a potential negative with respect to the self-bias potential on the target electrodes to repel electrons emanating from the discharge region, whereby ion and electron bombardment of the items being plated is controlled.

3,562,143

LIQUID DISENGAGING SYSTEM

Kenneth I. Jagel, Jr., Mantua Township, Gloucester County, David Liederman, Pennsauken Township, Camden County, and Lester J. Skowronek, Tenafly, N.J., assignors to Mobil Oil Corporation, a corporation of New York

Filed May 27, 1968, Ser. No. 732,338

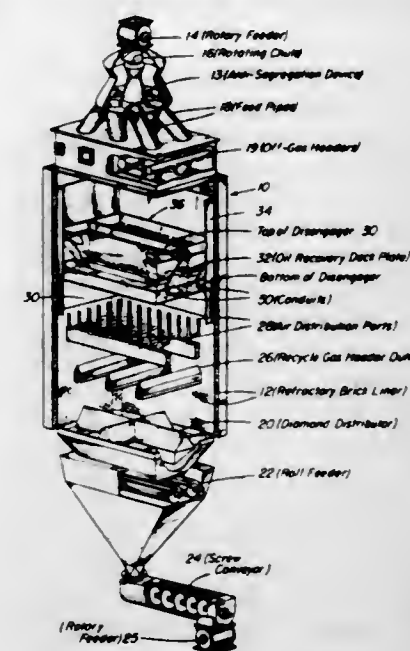
Int. Cl. C10g 1/02; C10b 1/04

U.S. Cl. 208—11

4 Claims

The efficiency and yield of the gas combustion retorting process for recovering valuable hydrocarbons from oil shale is improved by disengaging a mixture of gas and

oil from the downwardly moving shale, separating the oil from the gas in a shale-free area and returning the



gas to the shale bed at a level above that at which said mixture was disengaged.

3,562,144

HYDROCRACKING PROCESS

Edward T. Child, Fishkill, and Donald A. Messing, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 24, 1968, Ser. No. 739,183

Int. Cl. C10g 13/02, 37/02

U.S. Cl. 208—59

10 Claims

A two-stage hydrocracking process in which a hydrocarbon charge stock which may contain more than 1000 p.p.m. nitrogen is hydrocracked in a first stage containing a sulfided nickel tungsten on a support composed of at least one amorphous inorganic oxide and a modified crystalline zeolite and that portion of the product boiling above the motor fuel range is hydrocracked in a second stage containing a noble metal catalyst.

3,562,145

STABLE HYDROCARBON LUBRICATING OILS AND PROCESS FOR FORMING SAME

William G. Franz, Woodbury, and Michael T. Smilski, Mantua Township, Gloucester County, N.J., assignors to Mobil Oil Corporation, a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 616,197, Feb. 15, 1967. This application Aug. 15, 1969, Ser. No. 850,667

Int. Cl. C10g 37/00, 39/00

U.S. Cl. 208—96

8 Claims

Hydrocarbon lubricating oil resistant to deterioration upon exposure to light and air is formed by contacting selected high boiling hydrocarbons with a hydrocracking catalyst and hydrogen, separating a lubricating oil fraction from the product and extracting the fraction in multiple stages with a solvent selective for cyclic hydrocarbons.

3,562,146

STEAM CRACKING PROCESS

Richard M. Deanesly, Hinsdale, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Dec. 12, 1968, Ser. No. 783,254

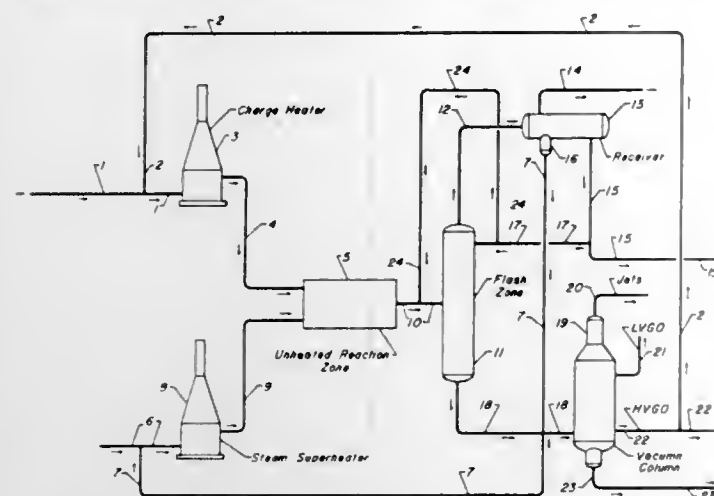
Int. Cl. C10g 9/36

U.S. Cl. 208—130

5 Claims

A process for steam-thermal cracking a hydrocarbonaceous charge stock containing an asphaltic, nondistillable

residuum. The charge stock, including a lower-boiling, normally liquid diluent is heated to a temperature below that at which thermal cracking is effected, while the steam is separately superheated to a temperature above about



950° F. The thus-heated streams are mixed just prior to the introduction thereof to a reaction chamber. The recycled diluent is a portion of the thermally-cracked product effluent.

3,562,147

CATALYTIC REFORMING OF HYDROCARBONS
Ernest L. Pollitzer, Skokie, and John C. Hayes, Palatine, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed Apr. 24, 1968, Ser. No. 723,897
Int. Cl. C10g 35/08

U.S. Cl. 208—139

7 Claims

Concerns an improvement in a continuous process for the catalytic reforming of a gasoline fraction to produce a high octane reformate stream. Catalyst utilized comprises a platinum group metallic component, a rhenium component, a halogen component, and a sulfur component, all of which are composited with an alumina carrier material. Improved process involves continuously contacting the gasoline fraction, hydrogen, and about 50 to 3000 wt. p.p.m. of equivalent sulfur, based on the hydrocarbon fraction, with the catalyst at reforming conditions—particularly, a pressure of about 100 to 350 p.s.i.g. Points of improvement involves: overall stability, catalyst life before regeneration, and rate of deposition of carbonaceous deposits on the catalyst.

3,562,148

CONVERSION OF HYDROCARBONS WITH A CATALYST COMPRISING A HALOGEN COMPONENT COMBINED WITH A SUPPORT CONTAINING ALUMINA AND FINELY DIVIDED CRYSTALLINE ALUMINOSILICATE PARTICLES

Roy T. Mitsche, Island Lake, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Application May 9, 1968, Ser. No. 728,070, which is a continuation-in-part of application Ser. No. 517,845, Dec. 30, 1965. Divided and this application Mar. 19, 1969, Ser. No. 808,685

The portion of the term of the patent subsequent to Sept. 2, 1986, has been disclaimed
Int. Cl. B01j 11/12; C10g 35/08

U.S. Cl. 208—139

12 Claims

Hydrocarbons are converted with a catalyst comprising a halogen component combined with a support containing alumina and finely divided crystalline aluminosilicate particles. Key feature of the process involves the preparation of the catalyst from an aluminum hydroxyl halide sol to which finely divided particles of crystalline aluminosilicate are added, thereby effecting some basic enhancement of the ability of the resultant catalyst to accelerate hydrocarbon conversion reactions

that depend on carbonium ion intermediates: that is, the acidity level of the resultant composite is markedly increased. In addition, this catalyst can be combined with a Group VI or Group VIII metallic component and utilized in a process designed to accelerate a wide variety of reactions of the type which have heretofore utilized dual-function catalysts such as hydro-cracking, reforming, isomerization, etc.

3,562,149

PROCESS FOR PRODUCING LUBRICATING OIL BY HYDROGEN TREATMENT

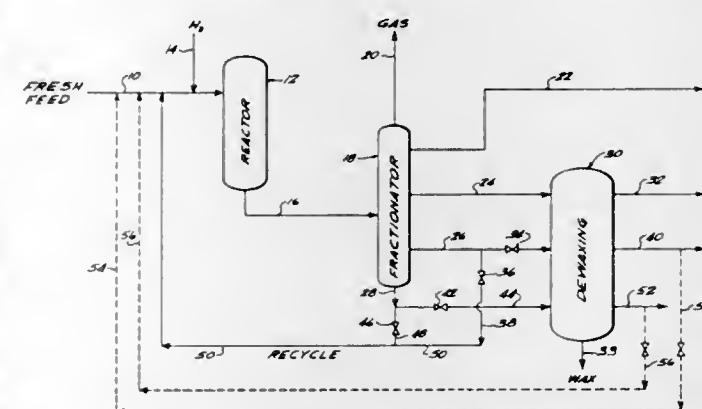
Millard C. Bryson, Conway, and Harry C. Stauffer, Cheswick, Pa., and James R. Murphy, Huntington Station, N.Y. (all % Gulf Research & Development Co., P.O. Box 2038, Pittsburgh, Pa. 15230)

Continuation-in-part of application Ser. No. 601,587, Dec. 14, 1966. This application Aug. 19, 1969, Ser. No. 858,245

Int. Cl. C10g 23/02

U.S. Cl. 208—143

5 Claims



A process for hydrotreating crude lubricating oil stocks to produce lubricating oils with desired yield-viscosity distribution and viscosity index by recycling a selected fraction to the hydrotreating operation.

3,562,150

REMOVAL OF METAL CONTAMINANTS FROM CATALYSTS WITH HYDROGEN PEROXIDE

Harry A. Hamilton, Natrona Heights, Howard G. McIlvried, Pittsburgh, and Raynor T. Sebulsky, Verona, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Filed June 16, 1967, Ser. No. 651,343
Int. Cl. C10g 23/02; B01j 11/02, 11/68

U.S. Cl. 208—216

8 Claims

Removal of metal contaminants, such as nickel and vanadium, from a catalyst is effected by treatment of the catalyst with hydrogen peroxide in the liquid state.

3,562,151

DEMETALATION WITH CYANIDE ION

Gordon E. Langlois, Lafayette, Lloyd J. Olson, Oakland, and Charles E. Rudy, Jr., El Cerrito, Calif., assignors to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Filed Oct. 10, 1968, Ser. No. 766,650
Int. Cl. C10g 17/00, 29/02

U.S. Cl. 208—251

9 Claims

A process for the removal of iron from iron-contaminated hydrocarbon oil by contacting the oil with a treating agent comprising an aqueous solution of cyanide ion. Iron may be selectively removed from an oil contaminated with nickel and vanadium as well as iron. A refinery foul water may be the source of the cyanide ion.

ERRATUM

For Class 210—10 see:
Patent No. 3,561,598

3,562,152

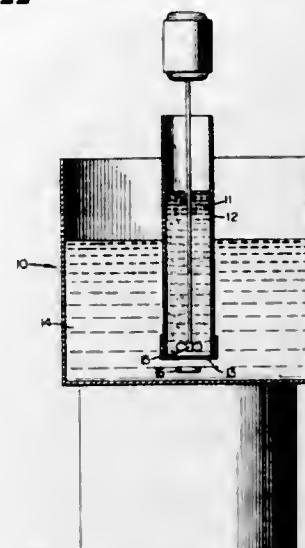
OSMOSIS, REVERSE OSMOSIS PROCESS

Richard R. Davison, Bryan, Tex., assignor to Research Corporation, New York, N.Y., a nonprofit corporation of New York

Filed May 29, 1968, Ser. No. 733,161
Int. Cl. B01d 13/00

U.S. Cl. 210—22

2 Claims



Water is transferred between aqueous solutions by contacting an aqueous saline solution on one side of a semipermeable membrane, the other side of which is in contact with an aqueous solution of a polyelectrolyte at a higher osmotic pressure, whereby water diffuses across the membrane from the saline solution to the polyelectrolyte solution.

3,562,153

OIL ABSORBENT COMPOSITIONS

Paul R. Tully, Lowell, Robert J. Lippe, Methuen, and William J. Fletcher, Saugus, Mass., assignors to Cabot Corporation, Boston, Mass., a corporation of Delaware

No Drawing. Filed Feb. 5, 1970, Ser. No. 9,058
Int. Cl. E02b 15/04

U.S. Cl. 210—36

19 Claims

A composition and process is provided for the removal of oily contaminants from water systems. Absorbent materials are treated with certain hydrophobic colloidal solids. The treated material is then contacted with the contaminated water and preferentially absorbs the oil therefrom.

3,562,154

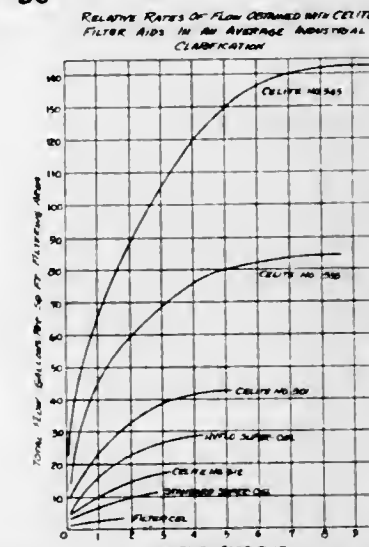
HIGH EFFICIENCY FILTER AID

Donald William Davis, Clinton, and James Michael Baloga and Bruce Chamberlin Olmsted, Jr., Somerville, N.J., assignors to Johns-Manville Corporation, New York, N.Y., a corporation of New York

Filed May 26, 1965, Ser. No. 458,883
Int. Cl. B01d 15/00

U.S. Cl. 210—36

7 Claims



Simultaneously improved flow rate and turbidity removal by adding to the turbid solution to be filtered an

animal protein gelatin or glue, or by coating a filter aid with an animal protein gelatin or glue.

3,562,155

FILTER PRESS

Karl A. Rademacher, Wuppertal-Barmen, and Hans J. Heinrich, Ennepetal, Germany, assignors to T. Shriver & Company, Inc., Harrison, N.J.

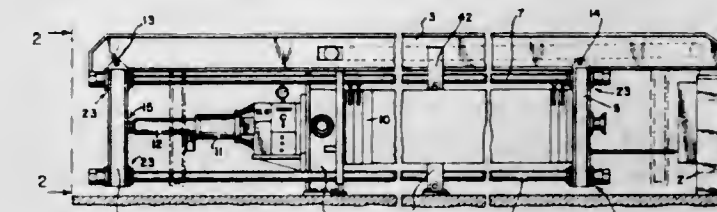
Filed Feb. 25, 1969, Ser. No. 802,179

Claims priority, application Germany, Oct. 23, 1968, G 6 803 483

Int. Cl. B01d 25/00

U.S. Cl. 210—224

9 Claims



A filter press is disclosed which provides for high pressure working of a plurality of filter chambers without breaking the filter press parts, especially the structure forming these chambers. Three links arranged in series between a single cylinder/piston drive unit and a pressure plate, which acts on one end of a series arranged pack of filter plates, provides a very delicate fit between the pressure plates and the pack of filter plates to provide for an avoidance of pressure strains on the plates to prevent them from being broken.

3,562,156

FIRE EXTINGUISHING COMPOSITION COMPRISING A FLUOROALIPHATIC SURFACTANT AND A FLUORINE-FREE SURFACTANT

Vernon L. Francen, Roseville, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Continuation-in-part of application Ser. No. 722,630, Apr. 19, 1968. This application June 12, 1969, Ser. No. 840,102

Int. Cl. A62c 1/12; A62d 1/00

U.S. Cl. 252—8.05

12 Claims

Compositions are disclosed which form tough, durable, rapidly-forming and spreading films on the surface of hydrocarbon liquids comprising in combination a water-soluble fluoroaliphatic surfactant and a water-soluble synthetic imputrescible hydrocarbon-congruous organic fluorine-free surfactant and water. The films formed by these compositions are especially effective in suppressing the vaporization of hydrocarbon liquids into the air and are, therefore, useful for extinguishing liquid hydrocarbon fires.

3,562,157

INHIBITING BACTERIAL GROWTH WITH MALEALDEHYDE

Merwin Frederick Hoover, Bethel Park, Pa., assignor to Calgon Corporation, Pittsburgh, Pa.

No Drawing. Filed Sept. 20, 1967, Ser. No. 669,258

Int. Cl. C09k 3/00

U.S. Cl. 252—8.55

2 Claims

The use of malealdehyde as a bacteriostatic and bactericidal agent is disclosed.

3,562,158

TEXTILE SOFTENING COMPOSITIONS

Denis Varsanyi, Arlesheim, Basel-Land, and Willy Roth, Strengelbach, Aargau, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 560,855, June 27, 1966. This application Oct. 4, 1967, Ser. No. 672,725

Claims priority, application Switzerland, June 30, 1965, 9,158/65

Int. Cl. C08h 9/06; C09g 1/08; D06m 13/36

U.S. Cl. 252—8.8

5 Claims
Certain new tris-amino-s-triazines and N,N-bis-(bis-amino-s-triazinyl)-alkylamines are textile softening agents. Compositions containing these and other new tris-amino-s-triazines and N,N-bis-(bis-amino-s-triazinyl)-alkylamines and certain 1,4-bis-(bis-amino-s-triazinyl)-piperazines are also useful for other surface treating purposes, particularly as floor waxes and shoe polishes.

3,562,159

SYNTHETIC LUBRICANTS

Thomas W. Mastin, Willoughby, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio, a corporation of Ohio

No Drawing. Filed June 26, 1968, Ser. No. 740,072

Int. Cl. C10m 3/42

U.S. Cl. 252—32.7

9 Claims

Novel synthetic lubricants contain a carboxylic acid ester of lubricating viscosity as the basic liquid and, as additives, an acylated alkylene polyamine, a basic alkaline earth metal sulfonate, a metal phosphorodithioate, and (optionally) a basic alkaline earth metal salt of a phosphosulfurized hydrocarbon, an ester of a hydrocarbon-substituted succinic acid, and a basic alkaline earth metal salt of an alkylphenol sulfide. The lubricants must contain no more than about 15% (by weight) mineral oil.

3,562,160

LUBRICATING OIL COMPOSITION

John Frederick Ford, Camberley, Surrey, and John Michael Woodl, Ashford, Middlesex, England, assignors to The British Petroleum Company Limited, London, England, a corporation of England

No Drawing. Original application Mar. 24, 1965, Ser. No. 442,522. Divided and this application Dec. 19, 1967, Ser. No. 708,743

Int. Cl. C10m 1/32, 1/44

U.S. Cl. 252—49.9

1 Claim

Lubricating compositions are provided comprising a lubricating base oil and a phosphorus- and nitrogen-containing polymeric additive, the polymeric additive being prepared by a combined phosphorylation/polymerisation reaction of an alphaolefin having up to twenty carbon atoms with a phosphorus halide in the presence of a Friedel-Crafts polymerisation catalyst, the molar ratio of olefin to phosphorus halide being 100:0.1-25, and the Friedel-Crafts polymerisation catalyst being present in at least a 1.5:1 molar excess over the phosphorus halide to obtain a phospho-halogenated polymer which is, thereafter, reacted with an amine.

3,562,161

POLYALKYLENE GLYCOL ESTERS OF ETHYLENE-DIAMINETETRAACETIC ACID AS LUBRICANT DISPERSANTS

Frederick F. Caserio, Jr., Laguna Beach, and Ting-I Wang, Fullerton, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Oct. 8, 1968, Ser. No. 775,981

Int. Cl. C10m 1/32

U.S. Cl. 252—51.5

4 Claims

A new class of compounds and a series of novel lubricant compositions are disclosed. Polyalkylene glycol-ethyl-

enediaminetetraacetic acid addition compounds which are useful as dispersants in polyalkylene glycol lubricant fluids as sludge dispersants and lubricant fluid compositions including such compounds are described.

3,562,162

ELECTRICAL INSULATING MATERIAL AND METHOD OF MAKING

John J. Pitha, Lenox, Mass., assignor to General Electric Company, a corporation of New York

Filed Nov. 14, 1966, Ser. No. 593,851

Int. Cl. H01b 3/14

U.S. Cl. 252—63.2

7 Claims

Electrically insulating arc-interrupting material suitable for making cores for current-limiting fuses is composed of an extrudable mixture of hydrated alumina, bentonite, and an inorganic binder solution such as aluminum phosphate-phosphoric acid. Kaolin may be added to the mixture to increase the strength of the final reaction product.

3,562,163

COMPOSITION FOR CONDITIONING PLASTIC PARTS FOR ADHESION

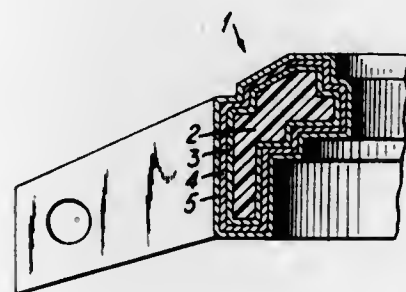
William H. Young, Trumbull, Bela Csuthy, Prospect, and Joseph Guldess, Watertown, Conn., assignors to Timex Corporation, Waterbury, Conn., a corporation of Delaware

Original application May 28, 1965, Ser. No. 459,544, now Patent No. 3,356,144. Divided and this application Mar. 6, 1969, Ser. No. 816,472

Int. Cl. C09k 3/00

U.S. Cl. 252—79.2

1 Claim



An improved composition for use in conditioning plastic parts of the ABS resinous type for adhesion purposes including an aqueous solution of a mixture of molybdic, phosphoric, sulfuric acids and a water-soluble dichromate salt.

3,562,164

PRODUCTION OF FREE FLOWING WASHING POWDER MIXTURES

Friedrich Bittner, Mozartstrasse 38, Bad Soden, Germany; Artur Schaller, Fritz-Roesslerstrasse 12, Rheinfelden, Baden, Germany; and Edmund Simmersbach, Haus Ne. 24, Willaringen-Egg, Kreis Sackingen, Germany

No Drawing. Filed Mar. 27, 1968, Ser. No. 716,333

Claims priority, application Germany, Mar. 25, 1967, D 52,634

Int. Cl. C11d 7/54

U.S. Cl. 252—95

6 Claims

Production of free flowing washing powder mixtures containing wash active substances, active oxygen containing substances, builders and other usual components, such as fillers and optical brighteners, by spraying a melt consisting of at least one compound forming a component of the washing powder mixture which is fusible in

its own water of crystallization and which solidifies to a solid phase with excess water unto the upper portion of an upright chamber and blowing the remaining components of the mixture into the spray cone of the melt in the form of a solution, slurry or powder and permitting the resulting mixture to fall down through the chamber to form a granulate.

3,562,165

PROCESS FOR PREPARING A DRY COMPACTED DETERGENT COMPOSITION

Renato Altieri, 2-A Via Guattani,

Rome, Italy

No Drawing. Filed Mar. 23, 1967, Ser. No. 625,411

Claims priority, application Italy, Mar. 24, 1966, 6,659/66

Int. Cl. C11d 7/56

U.S. Cl. 252—99

4 Claims

A soap-like compact detergent, consisting of a mixture of dry-compacted powder components is produced by mixing the components in the dry state, milling the mixture and compacting the resulting powder in dies with a minimum pressure of about 30 kg./cm.².

3,562,166

BUILT DETERGENT COMPOSITIONS

Denzel Allan Nicholson, Springfield Township, Hamilton County, Ohio, and Darrel Campbell, King of Prussia, Pa., assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Dec. 24, 1968, Ser. No. 786,766

Int. Cl. C11d 3/36

U.S. Cl. 252—152

9 Claims

Built detergent compositions containing an organic synthetic detergent and a builder which is ethane-1,2-dicarboxy-1,2-diphosphonic acid, ethane-1,2-dicarboxy-1,2-dihydroxy-1,2-diphosphonic acid, ethene-1,2-dicarboxy-1-phosphonic acid, and dialkyl (P,P')ethane-1,2-dicarboxy-1,2-diphosphonic acid or alkali metal or ammonium salts thereof in a proportion of detergent to builder of 5:1 to about 1:20.

3,562,167

SOLID TRANSPARENT DETERGENT COMPOSITIONS AND METHOD OF MAKING THE SAME

Melvin E. Kamen, North Bergen, N.J., and Isidore Ugelow, West Babylon, N.Y., assignors to Revlon, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 28, 1966, Ser. No. 591,394

Int. Cl. C11d 9/26, 9/46, 17/00

U.S. Cl. 252—121

10 Claims

Solid transparent detergent compositions comprising a sodium soap of a saturated fatty acid, a C₂-C₃ polyhydric alcohol, and a polyalkoxy ether of an alkyl phenol. Method of making such compositions by dispersing said soap and polyalkoxy ether in said alcohol at elevated temperatures.

3,562,168

ALKALINE EARTH AND AMINE SALTS OF PHOSPHATE ESTER SURFACTANTS IN DRY CLEANING COMPOSITIONS

Clayton A. Wetmore and Edwin B. Michaels, Fairfield, Conn., assignors to Stamford Chemical Industries, Inc., Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Sept. 2, 1966, Ser. No. 576,814

Int. Cl. C11d 1/34, 1/78, 3/44

U.S. Cl. 252—152

1 Claim

Detergent compositions adapted for incorporation into a drycleaning solvent consisting essentially of a mixture

of (a) the substantially neutral alkaline earth metal salt of a member selected from the group consisting of phosphoric acid esters of oxyethylated higher alkyl phenol and phosphoric acid esters of oxyethylated higher aliphatic monohydric alcohols, said oxyethylated esters containing from about 1 to 15 oxyethyl groups, and said alkaline earth metal being selected from the group consisting of calcium, magnesium, and the mixtures thereof, and (b) the substantially neutral lower alkylamine and lower alkanolamine salt of said phosphoric acid esters.

3,562,169

DETERGENT COMPOSITIONS CONTAINING OLIGOMERIC ESTER CHAIN CONDENSATES OF ETHANE-1-HYDROXY-1,1-DIPHOSPHONIC ACID AS BUILDERS

James B. Prentice, Bataville, Ind., assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Dec. 23, 1968, Ser. No. 786,372

Int. Cl. C11d 3/36

U.S. Cl. 252—152

5 Claims

Built detergent compositions containing an organic synthetic detergent and a builder which is an oligomeric ester chain condensate of ethane-1-hydroxy-1,1-diphosphonic acid in a proportion of detergent to builder of 5:1 to about 1:20, by weight.

3,562,170

SURFACE ACTIVE AGENT COMPOSITIONS

Vahan Zorayan, Enghien-les-Bains, and Guy Vanlerberghe, Montjay-la-Tour, France, assignors to L'Oreal, Paris, France

No Drawing. Continuation-in-part of application Ser. No. 525,345, Feb. 7, 1966. This application Jan. 13, 1969, Ser. No. 790,838

Claims priority, application Luxembourg, Mar. 30, 1965, 48,285

Int. Cl. C11d 1/12

U.S. Cl. 252—152

10 Claims

A biodegradable surface active composition that does not irritate the eyes comprising an aqueous solution of a compound having the formula



in which R is an alkyl or alkenyl group and M is a cation.

3,562,171

OXYGEN CARRIER FOR DETERGENT COMPOSITIONS

Robert A. Guida, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Dec. 31, 1968, Ser. No. 789,003

Int. Cl. C11d 7/54

U.S. Cl. 252—186

10 Claims

A fast dissolving, nonsegregating oxygen carrier for granular detergents is disclosed, consisting essentially of 4.5% to 59% finely divided peroxyhydrate salt imbedded in 20% to 88% of a water-soluble waxy solid, said waxy solid adhering to 4.5% to 50% of granular borax substrate, said substrate having a bulk density of 0.03 to 0.56 g./cc. and a particle size between 0.074 mm. and 3.36 mm. A process for preparing the oxygen carrier is also disclosed in which the waxy solid is dissolved in a volatile organic solvent, the peroxyhydrate salt is slurried into the solution, and the slurry is sprayed onto a falling curtain of the granular borax.

3,562,172

PHOTOCHROMIC COMPOUND AND COMPOSITION CONTAINING THE SAME

Hisatake Ono and Chiaki Osada, Asaka-shi, Japan, assignors to Fuji Photo Film Co. Ltd., Tokyo, Japan

Filed Oct. 28, 1969, Ser. No. 871,872

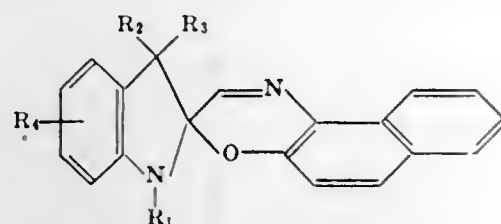
Claims priority, application Japan, Oct. 28, 1968, 43/78,465

Int. Cl. G02b 5/20

U.S. Cl. 252—300

10 Claims

Photochromic compositions containing, and photochromic compounds per se, represented by the formula:



wherein R_1 represents $-(CH_2)_nCOOH$, $-(CH_2)_nCN$ or $-(CH_2)_nCOOR$ (wherein R is an alkyl group having 1 to 5 carbon atoms; n is 1 to 4); R_2 and R_3 represent an alkyl group having 1 to 5 carbon atoms or a phenyl group; and R_4 represents a hydrogen atom, an alkyl group having 1 to 5 carbon atoms; a halogen atom, a nitro group, a cyano group, or an alkoxy group having 1 to 5 carbon atoms or a carboxyl group, and said carboxyl group may be substituted with an alkyl group having 1 to 5 carbon atoms.

3,562,173

LASER MATERIALS

Mani L. Bhaumik, Pasadena, and Mustafa A. El-Sayed, Los Angeles, Calif., assignors, by mesne assignments, to Xerox Corporation, a corporation of New York

No Drawing. Filed Oct. 29, 1964, Ser. No. 407,543

Int. Cl. C09k 1/02; F21k 2/00

U.S. Cl. 252—301.2

11 Claims

A liquid laser material including a solution of a rare-earth chelate having a triplet state and a sensitizer compound, that is an aromatic aldehyde or ketone, having a triplet state above the chelate triplet state and adapted for fast, diffusion-controlled energy transfer from it to the rare-earth chelate.

3,562,174

METHOD OF PREPARING A LANTHAMIDE ACTIVATED YTTRIUM, GADOLINIUM, OR LANTHANUM OXY-SULFIDE LUMINESCENT MATERIAL
Roelof Egbert Schuil, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed Mar. 29, 1968, Ser. No. 717,243

Claims priority, application Netherlands, Mar. 31, 1967, 6704591

Int. Cl. C09k 1/14

U.S. Cl. 252—301.4

5 Claims

Prepare europium activated yttrium or lanthanum oxy-sulfide by heating europium oxide and yttrium oxide and lanthanum oxide in a melt of sodium or potassium thiocyanate.

3,562,175

GADOLINIUM OXIDE PARTICLE GROWTH IN LITHIUM OXIDE FLUX

Robert L. Hickok, Richmond Heights, Ohio, assignor to General Electric Company, a corporation of New York

No Drawing. Filed Sept. 11, 1968, Ser. No. 759,208

Int. Cl. C01f 17/00; C09k 1/10

U.S. Cl. 252—301.4

11 Claims

Crystalline particles of gadolinium oxide, such as the phosphor activated with europium can be grown into a size suitable for color television applications and other

uses by firing in a flux of lithium oxide at a temperature below about 1200° C. Yttrium oxide can be partially substituted for up to about 50 molar percent of the gadolinium oxide. The initial oxide, such as the phosphor prepared by firing mixed gadolinium and europium oxalates precipitated from the nitrates and being best described as porous aggregates of perhaps 4 microns in diameter in which the individual or primary particles are about 1 micron or less in diameter, can be converted to a mixture of individual or primary particles and highly compact polycrystalline particles of from 4 to 10 microns.

3,562,176

PRODUCTION OF THIXOTROPIC GELS AND COMPOSITION THEREFOR

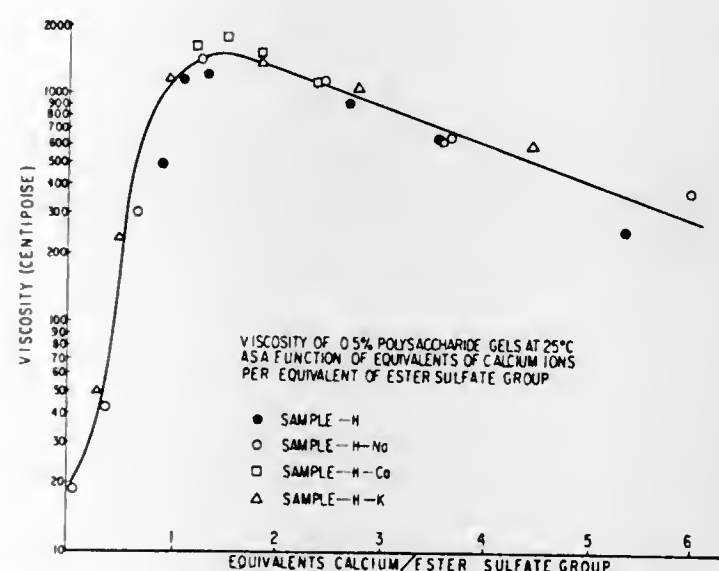
Dimitri J. Stancioff, Camden, and Richard G. Cash and John Blethen, Rockland, Maine, assignors to Marine Colloids, Inc., Springfield, N.J., a corporation of Delaware

Filed Nov. 28, 1967, Ser. No. 686,115

Int. Cl. B01j 13/00; A01n 17/10; C08k 17/12

U.S. Cl. 252—316

11 Claims



A composition and a method are provided for making an aqueous thixotropic gel reproducibly to substantially optimum predetermined characteristics of static viscosity and thixotropy. The composition consists essentially of (1) a polysaccharide extracted from a marine plant, which polysaccharide contains sulfate groups, (2) a water-soluble compound of sodium or potassium which is a sequestrant for calcium, and (3) a water-soluble compound of calcium which dissolves in water and releases calcium ions at a substantially slower rate than that at which the sequestrant dissolves. The thixotropic gel is useful as a vehicle for dispersed substances.

3,562,177

AMMONIA CONTAINING SILICA-AND-ORGANO-SILICA-AEROGEL THICKENING AGENTS AND THEIR PREPARATION

Harry Telcher and Ralph Marotta, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Original application Dec. 9, 1966, Ser. No. 600,359, now Patent No. 3,455,826, dated July 15, 1969. Divided and this application Jan. 3, 1969, Ser. No. 821,524

Int. Cl. B01j13/00; C09c 3/00

U.S. Cl. 252—316

5 Claims

The present invention provides a novel thickening agent which comprises (a) finely divided particles of an

amorphous, hydrophilic silica aerogel having at least one silanol group per square millimicron of surface area thereof and (b) containing at least 0.10% by weight ammonia, based on the weight of such aerogel, but less than 2.5% by weight ammonia. The ammonia provides a coating on said aerogel by being hydrogen bonded by hydrogen bonding between the silanol group of the aerogel and the nitrogen atom of the ammonia. The process of preparing the above thickening agent comprises the steps of contacting such aerogel with the ammonia for a period of time and under certain pressure and temperature conditions, e.g. 1 p.s.i.g. and 70° C. respectively, until the aerogel is coated, i.e. hydrogen bonded, with ammonia.

3,562,178

COMPLEXES OF V OR N OR Nb CONTAINING NO WITH ORGANOALUMINUMS AS OLEFIN REACTION CATALYSTS

William B. Hughes and Ernest A. Zuech, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 635,656, May 3, 1967. This application Jan. 2, 1968, Ser. No. 694,875

Int. Cl. C07c 3/62

U.S. Cl. 252—429

10 Claims

A catalyst active for the olefin reaction including olefin disproportionation comprising a compound of vanadium or niobium complexed with NO and a selected complexing agent (e.g., benzoic acid) and combined with an organo-aluminum compound (e.g., methylaluminum sesquichloride).

3,562,179

APPARATUS FOR DEWATERING A BITUMINOUS EMULSION

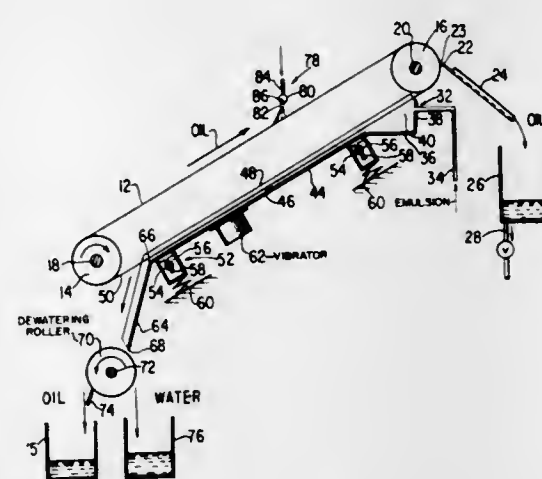
Lubomyr M. O. Cymbalisty, Edmonton, Alberta, Canada, assignor of thirty percent to Cities Service Athabasca, Inc., a corporation of Delaware; thirty percent to Imperial Oil Limited, a corporation of Canada; thirty percent to Atlantic Richfield Corporation, a corporation of Pennsylvania, and ten percent to Royalite Oil Company, Limited, a corporation of Canada

Filed June 17, 1968, Ser. No. 737,730

Int. Cl. B01d 17/00, 19/00

U.S. Cl. 252—360

6 Claims



The method of the present invention comprises flowing a bituminous emulsion or froth between two closely and uniformly spaced surfaces while periodically varying the distance between the two surfaces, thus imparting shearing energy to the emulsion and thereby coalescing the water contained in the emulsion. The distance between the surfaces is preferably varied by vibrating at least one of the surfaces relative to the other in a direc-

tion perpendicular to the planes of the surfaces. The apparatus comprises a longitudinally extending and longitudinally movable flat surface, a longitudinally extending flat surface mounted in opposing uniform spaced relationship to said movable surface, means for feeding the emulsion between the two surfaces and means for periodically varying the gap or distance between the surfaces thereby imparting a shearing energy to the emulsion. More particularly the apparatus comprises an upper pulley rotatably mounted on a horizontal axis at an acute angle above the lower pulley and spaced therefrom, a continuous endless belt mounted on and between the pulleys and driven by one of the pulleys, a flat plate mounted in variable spaced relationship to the endless belt, a means for feeding emulsion or froth into the space between the plate and the belt, and a means for periodically varying the space between the plate and the belt whereby the plate and the moving belt opposite the plate apply controlled shearing and water coalescing action to the emulsion.

3,562,180

METALLIC SALTS OF MIXED ACIDS AS STABILIZERS FOR RIGID VINYL RESIN COMPOSITIONS

Edward L. White, Freehold, and William D. Lang, Rahway, N.J., assignors to National Lead Company, New York, N.Y., a corporation of New Jersey

No Drawing. Filed July 31, 1968, Ser. No. 748,945

Int. Cl. C08f 45/62

U.S. Cl. 252—400

8 Claims

Lead salts of mixed saturated monocarboxylic aliphatic acids containing from 8 to 14 carbon atoms, lead salts coformed with alkaline earth salts of said mixed acids and process therefor, as stabilizers for rigid vinyl halide resin compositions.

3,562,181

SUPPORTED CATALYSTS FOR DIMERIZATION OF ACRYLONITRILES AND PROCESS OF USING THE SAME

William Joseph Linn and Alvin Barber Stiles, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed July 19, 1967, Ser. No. 654,329

Int. Cl. C07c 121/20, 121/30

U.S. Cl. 252—430

5 Claims

The catalytic efficiency of ruthenium compounds made by the reaction of soluble ruthenium compounds with salts of weak acids in water for the production of dinitriles from acrylonitrile in the presence of hydrogen is enhanced by adsorption of the catalysts on charcoal or γ alumina.

3,562,182

CATALYST WHICH CAN BE USED IN THE POLYMERIZATION OF EPIHALOHYDRINS

Henry L. Hsieh, Bartlesville, Okla., and Francis X. Mueller, Jr., Louisville, Ky., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Original application Feb. 23, 1968, Ser. No. 707,455, now Patent No. 3,457,197, dated July 22, 1969. Divided and this application Apr. 1, 1969, Ser. No. 812,413

Int. Cl. C08d 1/14

U.S. Cl. 252—431

2 Claims

A catalyst formed by contacting (a) an organoaluminum compound such as triisobutylaluminum, (b) an organozinc compound such as diethylzinc, (c) a chelating agent such as acetylacetone, and (d) water. This catalyst has been found useful in the polymerization of epihalohydrins and in the copolymerization of epihalohydrins with other oxirane compounds.

3,562,183
METHOD OF OBTAINING VANADIUM-CONTAINING CATALYSTS FOR THE VAPOR-PHASE OXIDATION OF AROMATIC HYDROCARBONS
 Alberto Sonz, Milan, Italy, assignor to Aziende Colori Nazionali Affini ACNA S.p.A., Milan, Italy, a corporation of Italy

Filed July 25, 1967, Ser. No. 655,871
 Int. Cl. B01j 11/82

U.S. Cl. 252-440 **1 Claim**
 Described is a method for the preparation of catalysts on the basis of vanadium-containing active products, for the oxidation of naphthalene to phthalic anhydride. The process is characterized in that an aqueous solution containing the compounds V_2O_5 , SO_3 and K_2O with $V_2O_5/SO_3/K_2O$ molar ratios comprised between 1/6/2 and 1/10/6, is adsorbed at a temperature comprised between 10° and 90° C. onto a natural or artificial porous support. The impregnated support is then subjected to a thermal treatment of calcination in a current of air.

3,562,184
CATALYSTS USEFUL IN POLYMER PRODUCTION
 Charles G. Dodd, Sylvania, and Peter Christopher Fletcher, Maumee, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio

No Drawing. Filed Jan. 3, 1967, Ser. No. 606,541
 Int. Cl. B01j 11/40
U.S. Cl. 252-455 **7 Claims**
 A glass-ceramic catalyst formed by thermal crystallization from a silicate glass composition having dissolved or dispersed therein chromium ions calculated as Cr_2O_3 .

3,562,185
OXIDATION CATALYSTS CONTAINING VANADIUM PENTOXIDE AND TITANIUM DIOXIDE
 Wilhelm Friedrichsen and Guenter Poehler, Ludwigshafen (Rhine), and Otto Goehre, Wilhelmsfeld, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

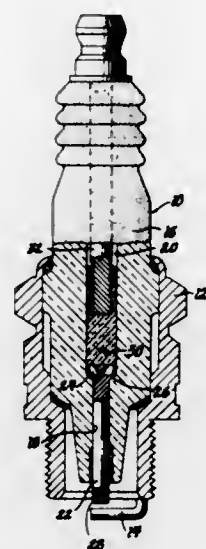
No Drawing. Filed Dec. 27, 1967, Ser. No. 693,712
 Claims priority, application Germany, Jan. 4, 1967, P 16 42 921.3
 Int. Cl. B01j 11/06, 11/32

U.S. Cl. 252-456 **6 Claims**
 Catalysts containing vanadium pentoxide and titanium dioxide for the oxidation of aromatic and unsaturated hydrocarbons to carboxylic acids, consisting of an inert non-porous carrier which is coated with a porous composition containing 1 to 15% by weight of vanadium pentoxide and 85 to 99% by weight of titanium dioxide in a layer having a thickness of 0.02 to 2 mm., particularly 0.05 to 1 mm., the catalysts having a content of vanadium pentoxide of 0.05 to 3% by weight and the composition containing vanadium pentoxide and titanium dioxide having been applied in dissolved or suspended form to a carrier which has been heated to a temperature of 160° to 500° C., particularly 270° to 500° C.

3,562,186
CERAMIC-TO-METAL CONDUCTIVE GLASS SEAL AND SPARK PLUG USING SAME
 Patrick N. Kesten and Richard A. Webb, Davison, and William M. Flock, Flint, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Continuation-in-part of application Ser. No. 846,728, Aug. 1, 1969. This application Mar. 2, 1970, Ser. No. 15,963
 Int. Cl. H01b 1/02; H01b 13/20
U.S. Cl. 252-513 **10 Claims**
 This invention relates to an improved ceramic-to-metal conductive glass seal for ceramic insulators and more

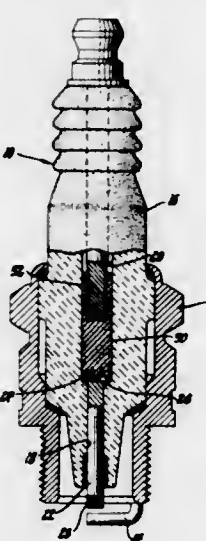
particularly to compositions comprising glass, iron, copper, and aluminum which are suited for use in the center-bore of spark plugs. The improved seal of our invention comprises a mixture on a weight basis of about 50-65 parts iron, 1-4 parts copper, 3-5 parts aluminum, and 30-45 parts glass; a preferred embodiment comprises about 56 parts iron, 2 parts copper, 3 parts aluminum,



and 39 parts glass. The addition of a filler material such as mullite enables the broadening of the range of our composition to about 35-55 parts iron, 1-4 parts copper, 3-5 parts aluminum and 30-50 parts glass, the filler being present in an amount of about 5-15 parts; a preferred embodiment comprises about 45 parts iron, 2 parts copper, 3 parts aluminum, 40 parts glass and 10 parts mullite.

3,562,187
SPARK PLUG CONDUCTIVE GLASS SEAL
 Harold H. Abdella, Davison, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed June 26, 1968, Ser. No. 740,369
 Int. Cl. C03c 3/04; H01b 1/02
U.S. Cl. 252-513 **5 Claims**

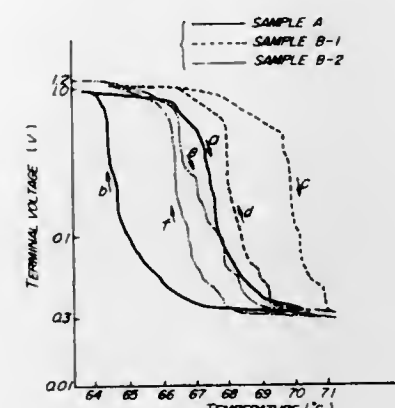


A hermetic ceramic-to-metal conductive glass seal for use in spark plugs and the like containing glass, iron and aluminum is disclosed. A specific glass seal in accordance with this invention is formed from a composition which contains 50 parts by weight glass, 38 parts by weight iron and 4 parts by weight aluminum.

3,562,188
CRITICAL TEMPERATURE RESISTOR DEVICES CONTAINING VANADIUM OXIDE AS A PRINCIPAL CONSTITUENT AND METHOD FOR PREPARING THE SAME

Tomokuni Mitsuishi, Kodaira-shi, Seikichi Akiyama, Kokubunji-shi, Sakichi Ashida, Fuchu-shi, and Hisao Futaki, Musashino-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan

Filed May 15, 1968, Ser. No. 729,288
 Claims priority, application Japan, May 17, 1967, 42/30,814
 Int. Cl. H01b 1/06
U.S. Cl. 252-518 **9 Claims**



A critical temperature resistor device contains vanadium oxide as a main constituent and the vanadium oxide consists of fine crystalline particles of VO_2 whose crystal sizes are arranged in a range not exceeding 50μ to improve a hysteresis phenomenon.

3,562,189
PROCESS FOR CELLULAR POLYMERS CONTAINING IMIDE GROUPS

William J. Farrissey, Jr., North Branford, Alexander McLaughlin, Meriden, and James S. Rose, Gullford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed June 19, 1967, Ser. No. 647,184
 Int. Cl. C08g 22/44, 53/08
U.S. Cl. 260-2.5 **11 Claims**

High temperature resistant condensation polymers are prepared in a one-shot procedure by admixing at ambient temperatures polycarboxylic acids or polycarboxylic anhydrides with an organic polyisocyanate in the presence of a dipolar aprotic organic solvent. The use of the latter permits the polymerization to proceed without the need to apply external heat.

3,562,190
COMPOSITE CASTABLE COMPOSITION

Giffin D. Jones and Burton D. Brubaker, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 11, 1968, Ser. No. 711,916
 Int. Cl. C08f 47/10; C08j 1/26

U.S. Cl. 260-2.5 **11 Claims**
 A moldable, deformable composition of matter comprising (A) solid foamed clay fragments which have closed cell interiors and broken or open cell exteriors intermixed with (B) a settable liquid resin and (C) a liquid readily convertible to a gas at a moderate increase in temperature which composition autogenously sets to a shaped cellular light-weight insulating material and the use of such material to provide thermal insulation.

3,562,191
PLASTISOL COMPOSITION
 Donald A. Glessler, Muncie, Ind., assignor to Ball Corporation, Muncie, Ind., a corporation of Indiana

No Drawing. Continuation of application Ser. No. 378,995, June 29, 1964. This application June 11, 1968, Ser. No. 744,598
 Int. Cl. C08f 47/10; C08v 1/20
U.S. Cl. 260-2.5 **5 Claims**
 Closure having as the sealing portion thereof a solvent resistant, cellular plastisol gasket formed from a vinyl polymer, a phenolformaldehyde resin, a filler, at least one plasticizer, and a blowing agent, and said gasket composition which is bondable directly to metal surfaces.

3,562,192
INTERPOLYMER OF 2,3-DICHLORO-1,3-BUTADIENE AND BLENDS THEREOF WITH CHLORINATED RUBBER

Wendell R. Conard, Kent, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Filed May 8, 1968, Ser. No. 727,701
 Int. Cl. C08d 9/16

U.S. Cl. 260-3.5 **16 Claims**
 The product described herein comprises a terpolymer of 2,3-dichloro-1,3-butadiene, acrylonitrile and a third comonomer selected from chlorostyrene, α -methylstyrene and ethyl acrylate. Copolymers of dichlorobutadiene with either acrylonitrile or chlorostyrene are known. However, while these have good adhesive properties, they do not have the desired solubility properties, and they must be degelled and require heating prior to application. In contrast the terpolymers of this invention have improved solubility and can be applied "cold," that is without prior heating.

3,562,193
COMPOSITION CONTAINING POLYMER LATEX, AROMATIC OIL, CURED ELASTOMERIC AGGREGATES AND CURING AGENTS

Robert Ernest Leeks, Reading, and Alfred John Demers, Peabody, Mass., assignors to Borden, Inc., New York, N.Y., a corporation of New Jersey

Filed Nov. 25, 1966, Ser. No. 597,059
 Int. Cl. C08d 9/04, 9/16

U.S. Cl. 260-4 **5 Claims**
 This invention relates to the method of and composition produced by the steps of admixing a polymer latex elastomeric when cured, with an emulsified highly aromatic oil which is compatible with said polymer latex, and aggregates described, combining with said binder cured elastomeric aggregates having an average particle size less than about one inch in its greatest dimension and a curing agent for said polymer latex.

3,562,194
OIL-MODIFIED ALKYD RESIN THIXOTROPIC PAINT AND PROCESS FOR THE PREPARATION THEREOF

Wilhelm Offermann, Dusseldorf, and Heinz Linden and Jurgen Plapper, Dusseldorf-Hokhausen, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf-Hokhausen, Germany, a corporation of Germany

No Drawing. Filed Feb. 17, 1969, Ser. No. 799,980
 Claims priority, application Germany, Feb. 17, 1968, P 16 44 836.5

U.S. Cl. 260-22 **13 Claims**
 Thixotropic oil-based paint containing from 0.1 to 3% by weight, based on the finished paint, of an additive which is a salt of a reaction product of a polyvalent inorganic acid such as sulfuric, phosphoric, or boric, and an ester defined as follows:

(a) an ester of low epoxide oxygen content of an unsaturated aliphatic carboxylic fatty acid and a saturated alcohol, or
(b) an ester of low epoxide content of an unsaturated fatty alcohol and a carboxylic acid.
The process for preparation of the thixotropic paint is accomplished by admixing the additive with an oil-based paint.

3,562,195

FLUORIDE ELASTOMER COMPOSITION

Philip J. Reiner, Woodland Hills, and Orville F. Markles, Jr., Hawthorne, Calif., assignors to North American Rockwell Corporation

No Drawing. Filed Dec. 4, 1967, Ser. No. 687,429

Int. Cl. C08f 29/22, 37/16

U.S. Cl. 260—23.5

10 Claims

A novel elastomeric composition of matter wherein said composition comprises a copolymer of vinylidene fluoride and hexafluoropropylene and a terpolymer of ethylene and propylene.

3,562,196

OLEFIN POLYMER DISPERSION PREPARATION USING OILS AND WAXES AS ANTIFOAMS

Thomas Charles Bissot, Grand Island, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed July 11, 1968, Ser. No. 743,959

Int. Cl. B01b 1/02; C08f 47/16

U.S. Cl. 260—23

5 Claims

An improved process for the preparation of olefin polymer dispersions, such as ethylene/vinyl acetate copolymer dispersions, is provided. The improvement comprises adding vegetable oils or refined solid or liquid hydrocarbons derived from petroleum such as paraffin waxes or light and heavy mineral oils to suppress foam at a specific time during solvent evaporation.

3,562,197

WATER-INSOLUBLE AMMONIUM POLYPHOSPHATES AS FIRE-RETARDANT ADDITIVES

Paul G. Sears, Lexington, Ky., and Howard L. Vandersall, Ballwin, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 514,657, Dec. 17, 1965, which is a continuation-in-part of application Ser. No. 301,918, Aug. 13, 1963. This application Jan. 26, 1968, Ser. No. 700,753

Int. Cl. C08c 11/70; C09d 5/18; C09k 3/28

U.S. Cl. 260—28.5

10 Claims

Improved intumescent coating compositions are prepared by the use of a substantially water-insoluble ammonium polyphosphate having the formula



wherein n is an integer having an average value greater than 10 and m/n has an average value between about 0.7 and about 1.1.

3,562,198

EPOXIDE RESIN SOLUTION

Robert J. Slocumbe, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Oct. 26, 1967, Ser. No. 678,181

Int. Cl. C08g 51/04

U.S. Cl. 260—37

5 Claims

A solution, in an inert, organic liquid solvent, comprising an epoxide resin which has been partially cured by a hydrocarbon amine curing agent; the method of preparing the partially cured resin in a liquid media; and the method of preparing moldable grains comprising filler particles enveloped by the partially cured resin which comprises mixing the solution with the particles, treating the mixture with a liquid which is miscible with the sol-

vent of said solution and is a non-solvent for the partially cured resin, and recovering the grains.

3,562,199

ANNEALING OF ARYLENE SULFIDE POLYMERS

Harold Wayne Hill, Jr., and James T. Edmonds, Jr., Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 492,333, Oct. 1, 1965, which is a continuation-in-part of application Ser. No. 327,143, Nov. 27, 1963. This application Feb. 6, 1969, Ser. No. 797,267

Int. Cl. C08g 23/00, 51/04

U.S. Cl. 260—37

23 Claims

The physical properties of shaped bodies of arylene sulfide polymers are improved by annealing at a temperature below the melting point of the polymer.

3,562,200

POLYETHYLENE TEREPHTHALATE CONTAINING ETHYLENE COPOLYMERS

Michael Edward Benet Jones, Runcorn, and Eric Nield and Charles Richard Hart, Welwyn Garden City, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Aug. 22, 1968, Ser. No. 754,741

Int. Cl. C08g 39/10, 51/04

U.S. Cl. 260—40

16 Claims

Thick walled-shaped articles of crystallised poly(ethylene terephthalate) containing finely dispersed discrete particles of a rubbery copolymer of ethylene and an ethylenically unsaturated ester, e.g., an alkyl acrylate, hydroxyalkyl acrylate or vinyl alkanoate; compositions suitable for conversion to these shaped articles and methods of producing the shaped articles from the compositions.

3,562,201

UNSATURATED POLYESTER RESIN/MONOMER MOULDING COMPOSITIONS

Alan Crowe and David Philip Fry, Cardiff, Glamorgan, Wales, assignors to British Resin Products Limited, London, England

No Drawing. Filed Mar. 12, 1969, Ser. No. 806,741

Int. Cl. C08g 51/04

U.S. Cl. 260—40

6 Claims

A process for the preparation of moulded articles by means of extrusion or injection moulding a free flowing unsaturated polyester resin/monomer composition, wherein the composition comprises an unsaturated polyester, a copolymerisable monomer and a primary absorbent filler which releases the absorbed unsaturated polyester resin/monomer system under pressure and/or shear during the injection or extrusion moulding process.

3,562,202

CURING AN ALPHA-OLEFIN POLYMER WITH A QUINONE DIOXIME AND A ZINC SALT

Donald B. Smith, Reading, and James C. MacKenzie, Wellesley Hills, Mass., assignors, by mesne assignments, to Polymer Dispersions, Inc., New York, N.Y., a corporation of Ohio

No Drawing. Continuation-in-part of applications Ser. No. 767,776, Oct. 17, 1958, and Ser. No. 812,595, May 12, 1959. This application Dec. 26, 1962, Ser. No. 247,346

Int. Cl. C08f 1/84, 45/04

U.S. Cl. 260—41

21 Claims

1. A process for improving the high temperature properties of a polymeric material chosen from the group consisting of the homo-polymers of the aliphatic monoolefinic hydrocarbon monomers and mixtures thereof, co-

polymers formed from the aliphatic mono-olefinic hydrocarbons, and mixtures thereof, so as to produce a material having exceptional flexibility and strength, which process comprises compounding said polymeric material with a curing agent comprising between about 0.1 and 25% by weight of said polymeric material of a zinc salt chosen from the group consisting of zinc salts of carboxylic acids and zinc salts of inorganic acids, and above about 0.1% by weight of said polymeric material of a compound having the formulation



wherein R is an organic group having a quinoid structure, and R_1 is chosen from the group consisting of hydrogen, a metal which permits curing activity by said compound upon heating, and an organic grouping chosen from the group consisting of alkyl, aryl, arylalkyl, acyl, or aroyl, and curing the resulting mixture at a temperature above about 160° C.

3,562,203

STYRENE RESINS OF CONTROLLED PROPERTIES

Louis Grunin, Spring Valley, and George B. Duhnkrack and William P. Kinnehan, Jr., Suffern, N.Y., and Philip Gilbert, Fairfield, N.J., assignors to Koppers Company, Inc., a corporation of Delaware

No Drawing. Original application Oct. 5, 1966, Ser. No. 584,382, now Patent No. 3,493,636, dated Feb. 3, 1970. Divided and this application Sept. 10, 1969, Ser. No. 856,812

Int. Cl. C08f 45/04

U.S. Cl. 260—41

2 Claims

Lustrous pearlized sheets for use in button blank manufacture are made from a styrene-divinylbenzene copolymer formed by a prepolymer syrup having a latent gel structure. Pearlized pigment particles are added to the pre-polymer syrup and subjected to movement in order to effect systematic orientation of the particles.

3,562,204

THERMOPLASTIC ELASTOMERIC COMPOSITION COMPRISING BLOCK COPOLYMERS AND RANDOM COPOLYMERS

Adriaan W. van Breen, Delft, Netherlands, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 22, 1966, Ser. No. 603,723

Int. Cl. C08f 19/08, 33/08

U.S. Cl. 260—41.5

6 Claims

New compositions having increased hardness and stiffness comprise 100 parts by weight of block copolymers of monovinyl arenes and conjugated dienes, and 2–200 parts by weight of random copolymers of the same monomer types containing 50–90% condensed monovinyl arene content.

3,562,205

COATING COMPOSITION FOR ADHERING SYNTHETIC RESINS TO METAL SUBSTRATES

Douglas S. Richart, Reading, Pa., assignor to The Polymer Corporation, Reading, Pa., a corporation of Pennsylvania

Continuation-in-part of application Ser. No. 539,803, Apr. 4, 1966. This application May 12, 1969, Ser. No. 823,595

Int. Cl. C08f 29/18; C08g 41/02

U.S. Cl. 260—41

7 Claims

A coating composition consisting essentially of polyvinyl chloride or polyamides; finely divided metals, metal oxides or metal salts and finely divided non-film forming nitrogen-containing organic compounds in which the compound has at least two nitrogen atoms or the nitrogen

atom is linked to another atom of the compound by a multiple bond with the nitrogen compound evolving less than about 20 milliliters of gas per gram at the fusion temperature of the resin. The composition is applied to metals and then heated to form a protective coating without the need for a primer.

3,562,206

PROCESS FOR PRODUCING ULTRAHIGH MOLECULAR WEIGHT POLYAMIDES

Bernard Silverman, Raleigh, N.C., and Leslie E. Stewart, Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Dec. 15, 1967, Ser. No. 690,781

Int. Cl. C08f 45/56; C08g 20/20

U.S. Cl. 260—45.7

3 Claims

Linear polyamides having an $[\eta]$ above 3.5 and a viscosity average molecular weight above 100,000 are provided. These polyamides are especially useful as molding resins. They are produced by a method of solid state polymerization, i.e., heating lower molecular weight polymer having an amine to carboxyl end ratio of at least 1.1 at a temperature of between 130° C. and 200° C., in the absence of oxygen.

3,562,207

POLYMERIC MATERIALS CONTAINING CAGED BORON-NITROGEN COMPOUNDS

Jerome H. Ludwig, Cleveland, and Kenneth J. Witsken, Cincinnati, Ohio, assignors to Emery Industries, Inc., Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Feb. 23, 1968, Ser. No. 707,414

Int. Cl. C08f 45/60; C08g 51/60; C09k 3/16

U.S. Cl. 260—45.8

15 Claims

Polymeric materials treated with caged boron-nitrogen containing compounds are provided, along with a method for imparting improved properties to polymeric materials by treating them with caged boron-nitrogen containing compounds. The caged boron-nitrogen containing compounds are incorporated in or used to treat the surface of polyvinyl chloride, polyethylene, vinyl chloride-vinyl acetate copolymers, polyethylene terephthalate and the like. Examples of caged compounds used in this invention are 3,7,10-trimethyl-2,8,9-trioxo-5-aza-1-boratricyclo [3.3.3.0] undecane; 3-hydroxymethyl-7,10-dimethyl-2,8,9-trioxo-5-aza-1-boratricyclo [3.3.3.0] undecane stearate; and 4,4,7,10-tetramethyl-2,8,9-trioxo-5-aza-1-boratricyclo [3.3.3.0] undecane.

3,562,208

ADDITIVES FOR REDUCING THE INFLAMMABILITY OF HIGH ORGANIC POLYMERS

Hans-Joachim Kötzsch, Rheinfelden, and Egon Bierwirth, Oberlar, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany, a corporation of Germany

No Drawing. Filed June 18, 1968, Ser. No. 737,867

Claims priority, application Germany, June 30, 1967,

D 53,484

Int. Cl. C08c 27/64; C08d 11/64; C08f 45/62

U.S. Cl. 260—45.75

5 Claims

Flame retardants for incorporation into high organic polymers comprising products obtained by a Diels-Alder synthesis from hexachlorocyclopentadiene and a vinyl, allyl or methallyl ester or the corresponding mixed esters of bivalent to tetravalent carboxylic acids and the resultant improved polymer products.

3,562,209

ALPHA-OLEFIN POLYMERS CONTAINING
POLYESTER STABILIZERS

Richard D. Cassar, West Chester, Pa., and Jackson S. Boyer, Claymont, Del., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Mar. 10, 1969, Ser. No. 805,835
Int. Cl. C08f 45/58

U.S. Cl. 260—45.85 14 Claims
A solid substantially crystalline alpha-monoolefin polymer composition having improved resistance to ultraviolet degradation comprising a solid crystalline alpha-monoolefin polymer containing a polyester of a polymethylated muconic acid selected from the group consisting of α,β' -dimethylmuconic acid, α,α' -dimethylmuconic acid, α,α',β' -trimethylmuconic acid, α,β,β' -trimethylmuconic acid, $\alpha,\alpha',\beta,\beta'$ -tetramethylmuconic acid and mixtures thereof with a polyethylene glycol of a molecular weight in the range of 100 to 1000, said polyester having a molecular weight in the range of 600 to 20,000.

3,562,210

ELASTOMERIC COMPOSITION CONTAINING
PHOSPHITE ESTER AND POLYESTER STABILIZERS

Richard D. Cassar, West Chester, Pa., and Jackson S. Boyer, Northridge, Del., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Mar. 10, 1969, Ser. No. 805,871
Int. Cl. C08f 45/58

U.S. Cl. 260—45.85 7 Claims
An elastomer composition having improved resistance to ultraviolet initiated discoloration comprising an elastomer containing 0.5 to 10.0 parts by weight per 100 parts of elastomer of a synergistic mixture of certain aryl and alkaryl phosphite esters with a polyester of a polymethylated muconic acid selected from the group consisting of α,β' -dimethylmuconic acid, α,α' -dimethylmuconic acid, α,α',β' -trimethylmuconic acid, α,β,β' -trimethylmuconic acid, $\alpha,\alpha',\beta,\beta'$ -tetramethylmuconic acid and mixtures thereof with a polyethylene glycol of a molecular weight in the range of 100 to 1000, said polyester having a molecular weight in the range of 600 to 20,000.

3,562,211

PLASTIC SURFACE COVERINGS OF IMPROVED
ULTRAVIOLET LIGHT STABILITY

Richard D. Cassar, West Chester, Pa., and Jackson S. Boyer, Northridge, Del., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Mar. 10, 1969, Ser. No. 805,872
Int. Cl. C08f 45/58

U.S. Cl. 260—45.85 14 Claims
Plastic surface covering compositions having improved ultraviolet stability comprising a plasticized solid vinyl chloride polymer resin containing an ultraviolet stability improving quantity of a polyester of a polymethylated muconic acid selected from the group consisting of the cis-cis, cis-trans, or trans-trans isomers of α,α' -dimethylmuconic acid, α,β' -dimethylmuconic acid, α,α',β' -trimethylmuconic acid, α,β,β' -trimethylmuconic acid, $\alpha,\alpha',\beta,\beta'$ -tetramethylmuconic acid and mixtures thereof with a polyethylene glycol of a molecular weight in the range of 100 to 1000, said polyester having a molecular weight in the range of 600 to 20,000.

3,562,212

RANDOM POLY-m-CARBORANYLENILOXANE
COPOLYMERS

Santad Kongpricha, Joliet, Ill., and Hansjuergen A. Schroeder and Stelvio Papetti, Hamden, Conn., assignors to Olin Corporation, a corporation of Virginia
No Drawing. Filed June 19, 1969, Ser. No. 834,896
Int. Cl. C08f 11/04

U.S. Cl. 260—46.5 8 Claims
Random poly - m - carboranylenesiloxane copolymers

having pendant trifluoropropyl and hydroxyl moieties are provided by reacting a 1,7-bis[alkoxyalkyl(or aryl)]trifluoropropylsilyl-m-carborane with a selected trichlorosilane and a dichlorosilane in the presence of a reaction catalyst to produce a copolymer having pendant chlorine atoms and subsequently hydrolyzing the aforementioned copolymer to yield the desired product. These random poly - m - carboranylenesiloxane copolymers containing pendant trifluoropropyl and hydroxyl moieties are mixed with fillers, antioxidants, catalysts and cross-linking agents and cured at room temperature to provide compositions useful as thermoresistant and solvent resistant seals, gaskets, etc.

3,562,213

LATENT CURE ACCELERATION OF EPOXY
RESINS USING IMIDAZOLE SALTS OF HYDROXY
POLYCARBOXYLIC ACIDS

Michael J. Collis, Teddington, England, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed May 8, 1968, Ser. No. 727,679
Claims priority, application Great Britain, May 8, 1967, 21,212

U.S. Cl. 260—47 7 Claims
Room temperature-stable epoxy resin mixtures are disclosed. These mixtures comprise a polyepoxide, a polycarboxylic acid anhydride and a curing catalyst which is a salt of an imidazole compound and an organic hydroxy polycarboxylic acid containing at least one asymmetric carbon atom. A process for preparing resinified products from such mixtures is also disclosed.

3,562,214

RESINS BASED ON AROMATIC CYANIC ACID
ESTERS AND POLYEPOXIDE COMPOUNDS

Rolf Kubens, Leverkusen, Heinz Schultheis, Cologne-Stammheim, Rudolf Wolf, Dusseldorf, Ernst Grigat and Hans-Dieter Schmlake, Cologne-Stammheim, and Rolf Putter, Dusseldorf, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation
No Drawing. Filed May 8, 1968, Ser. No. 727,695
Claims priority, application Germany, June 1, 1967, F 52,573

U.S. Cl. 260—47 6 Claims
Synthetic resins based on aromatic cyanic acid esters having at least two cyanic acid ester groups per molecule and polyepoxides and process for producing the same.

3,562,215

LOW TEMPERATURE, LATENT EPOXY RESIN
CURING SYSTEM

Neal E. Moore, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
No Drawing. Filed June 9, 1967, Ser. No. 644,797
Int. Cl. C08g 30/14

U.S. Cl. 260—47 6 Claims
A multicomponent curing system stable in the presence of epoxy resin under normal shelf conditions and capable of curing the resin at acceptable rates by in situ generation of curing agents below about 200° F. including a room temperature stable compound decomposable to form an amine having at least one active hydrogen atom, such as 3-phenyl-1,1-dimethyl urea, an OH containing organic compound, such as ethylene glycol, and an organo lead or organo mercury compound, such as lead octoate or phenyl mercuric hydroxide.

3,562,216

PROCESS OF MANUFACTURE OF POLYETHER
UREAS AND THIOUREAS PREPARED BY REACTING
HEMIFORMALS OF POLYVALENT ALCOHOLS WITH UREA OR THIOUREA

Hans von Portatius, Marl, Germany, assignor to Chemische Werke Hüls Aktiengesellschaft, Marl, Germany, a corporation of Germany
No Drawing. Filed July 13, 1965, Ser. No. 471,761
Claims priority, application Germany, July 24, 1964, C 33,485
Int. Cl. C08g 9/10, 9/34

U.S. Cl. 260—51.5 30 Claims
Polyether urea and thiourea condensation products produced by the action of hemiformals of polyvalent alcohols, possibly in mixtures with hemiformals of monovalent alcohols, with urea and/or thiourea, and in the presence of acid or basic catalyst.

3,562,217

CROSSLINKED AROMATIC AMIDE-IMIDE POLYMERS
FOR HIGH TEMPERATURE RESISTANT WIRE ENAMELS

Edmund J. Zalewski and John L. Simonian, Schenectady, N.Y., assignors to Schenectady Chemicals, Inc., Schenectady, N.Y., a corporation of New York
No Drawing. Filed May 31, 1968, Ser. No. 733,273
Int. Cl. C08g 20/32

U.S. Cl. 260—63 24 Claims
Cross-linked aromatic-amide-imide polymers are prepared by reacting trimellitic anhydride, trimelic acid and an aromatic diisocyanate, preferably diphenylmethane diisocyanate. Preferably there is added terephthalic acid and/or pyromellitic dianhydride or benzophenone dianhydride. The products are useful as wire enamels giving good appearance with heavy builds on the wire and exceptionally high cut-through temperatures.

3,562,218

COPOLYMERS OF ACETYLENIC ACRYLATES
AND METHACRYLATES

Gaetano F. D'Alelio, South Bend, Ind., assignor to Gelco Chemical Corporation, Ardsley, N.Y., a corporation of New York
No Drawing. Filed June 28, 1968, Ser. No. 740,973
Int. Cl. C08f 15/18

U.S. Cl. 260—67 13 Claims
The copolymers disclosed herein are of acetylenic acrylates and methacrylates having the formula $\text{CH}_2=\text{C}(\text{R})\text{COO}-\text{Z}-\text{C}\equiv\text{CH}$ wherein R represents hydrogen or methyl and Z represents a divalent hydrocarbon radical of at least 2 carbon atoms. Polymerization of the acetylenic acrylates and methacrylates in free radical polymerizations generally result in crosslinked or gelled products since the free radicals will activate polymerization through the acetylenic as well as through the acrylic unsaturation. Therefore the copolymers are advantageously prepared by anionic polymerization. The comonomers are those which are copolymerizable with acrylates and methacrylates in anionic polymerizations. Typical comonomers are styrene, its homologs and derivatives, monounsaturated acrylates and methacrylates, acrylonitrile, vinyl esters, vinyl chloride, vinylidene chloride, monoolefins, etc. The copolymers are particularly valuable for post-treatment and postreactions, such as bromination, decarboxylation, thermal and radical cross-linking, Mannich reaction with an aldehyde and ammonia or a mono- or di-substituted amine, or reactions with nitrile oxides, aldehydes, ketones, epoxides, sodamide, etc. The copolymers can be tailored to give ultimate properties according to the type and the proportion of comonomers and the proportion of acetylenic groups as well as the type of postreactant or post-treatment.

3,562,219

PROCESS FOR THE PREPARATION OF A
POLYESTERIMIDE RESIN

Karl Schmidt, Hofweg 45, Hamburg, Germany, and Dietrich Wille, Minsbekweg 20, Hamburg-Poppenbützel, Germany
No Drawing. Filed Oct. 5, 1966, Ser. No. 584,329
Claims priority, application Germany, Oct. 9, 1965, B 84,039

U.S. Cl. 260—76 11 Claims
A process for the preparation of a polyesterimide resin comprising the steps of reacting at least one polybasic carboxylic acid or a reactive derivative thereof with at least one polyhydric alcohol and at least one primary amine or reactive derivative thereof to form a polycondensation product containing, in addition to ester groups, at least one five-membered imide ring. The number of primary amino groups employed is in excess of the primary amino groups bound in the cyclic imide group or groups, and/or at least one polyfunctional compound containing secondary amino groups is present in the reaction mixture. The process is characterized in that the reaction between the resin-forming components is carried out in the presence of at least 0.3% by weight of at least one conventional esterification catalyst, calculated on the weight of the resin produced.

3,562,220

BASE-MODIFIED AROMATIC POLYAMIDES

Carl K. McMillin, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Dec. 15, 1967, Ser. No. 690,785
Int. Cl. C08g 20/00

U.S. Cl. 260—78 2 Claims
Composition comprising an aromatic polyamide modified by the presence of tertiary amino or quaternary ammonium groups wherein the tertiary amino or quaternary ammonium groups are present as divalent repeat units co-condensed with divalent aromatic amide radicals or as an amide compound containing at least three aromatic rings said compound being in admixture with the aromatic polyamide. Such a composition is dyeable with acid dyes and is especially suitable for use in the form of fibers from which dyed fabrics having high temperature resistance can be made.

3,562,221

ACCELERATING ANIONIC POLYMERIZATION
OF LACTAMS

Adolf Steinhöfer, Helmut Doerfel, and Georg Falkenstein, Ludwigshafen (Rhine), and Wolfgang-Dieter Jeserich, Lambshelm, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Jan. 15, 1968, Ser. No. 697,612
Claims priority, application Germany, Jan. 19, 1967, P 17 20 261.8

U.S. Cl. 260—78 7 Claims
A process for accelerating anionic polymerization of lactams in the presence of alkaline polymerization catalysts and activators at from 80° to 200° C. in the presence or absence of inert solvents, in which N-(N',N'-diphenylcarbamoyl)-lactams having four to thirteen members in the lactam ring are used as activators.

3,562,222

COPOLYAMIDES OF 5-t-BUTYLISOPHTHALIC ACID

James S. Ridgway, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 458,482, May 24, 1965. This application June 11, 1968, Ser. No. 736,022

The portion of the term of the patent subsequent to May 14, 1985, has been disclaimed
Int. Cl. C08g 20/00

U.S. Cl. 260—78

5 Claims

High shrinkage polymers useful in production of hosiery and crimped conjugate yarns are provided by linear random copolyamides of (A) at least one aliphatic diamine having the formula $\text{NH}_2(\text{CH}_2)_n\text{NH}_2$ in which n is an integer from 2 to 10, (B) at least one aliphatic dicarboxylic acid having the formula $\text{HOOC}(\text{CH}_2)_m\text{COOH}$ in which m is an integer from 4 to 20 and (C) 5-t-butylisophthalic acid. Even greater shrinkage results when a portion of the aliphatic diamine component (A) is replaced with 1,4-cyclohexanebis(methylamine). Fibers made from the novel copolyamides are also useful for tire reinforcement due to their low flatspotting tendency over wide ranges of temperature and humidity.

3,562,223

CROSS-LINKED RESINS

Michel Bargain, Lyon, Andre Combet, Rhone, and Pierre Grosjean, Sainte-Foye-les-Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France, a French body corporate

No Drawing. Filed July 8, 1968, Ser. No. 743,025

Claims priority, application France, July 13, 1967, 114,381

Int. Cl. C08g 20/00

U.S. Cl. 260—78

5 Claims

Cross-linked resins of good thermal stability useful inter alia for making multicellular materials, for bonding metals, and for making laminates and moulded articles are made by reacting, e.g. by heating together, an unsaturated bis-imide with a diprimary diamine in a ratio of 1:2:1 to 50:1.

3,562,224

POLYAMIDE POLYMERIZATION PROCESS

Rajindar K. Kochhar, Overland Park, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 610,016, Jan. 18, 1967. This application Aug. 7, 1969, Ser. No. 848,341

Int. Cl. C08g 20/14

U.S. Cl. 260—78

8 Claims

Lactams having at least 7 ring members are polymerized in the presence of water and carbon dioxide.

3,562,225

METHOD OF INHIBITING PREMATURE VULCANIZATION OF DIENE RUBBERS WITH BIS-THIOIMIDES

Aubert Yaucher Coran, Creve Coeur, Mo., and Joseph Edward Kerwood, St. Albans, W. Va., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

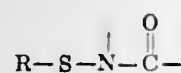
No Drawing. Continuation-in-part of applications Ser. No. 459,466, May 27, 1965; Ser. No. 549,730, May 12, 1966; and Ser. No. 579,493, Sept. 15, 1966, now abandoned in view of continuation-in-part application Ser. No. 714,445, Mar. 20, 1968; and continuation of application Ser. No. 646,202, June 15, 1967. This application Jan. 15, 1968, Ser. No. 697,615

Int. Cl. C08f 27/06

U.S. Cl. 260—79.5

10 Claims

New compounds with a nucleus of



where the dangling valence on the nitrogen is linked to a second carbonyl and R is alkyl, aryl, or cycloalkyl are inhibitors of premature vulcanization of diene rubbers. The R may be substituted to give a bis-sulfenimide of the formula $\text{R}'-\text{S}-\text{R}-\text{S}-\text{R}'$ where R is an alkane, arylene, or cycloalkane and R' is an imide. A combination of a vulcanization accelerator and an inhibitor of this invention is an improved rubber additive which allows longer and safer processing time for rubber.

3,562,226

FRICTION REDUCING

Owen C. Gayley, Coraopolis, M. Frederick Hoover, Bethel Park, and Leonard J. Persinski, Pittsburgh, Pa., assignors, by mesne assignments, to Calgon Corporation, a corporation of Delaware

No Drawing. Continuation of abandoned application Ser. No. 595,620, Nov. 21, 1966. This application Aug. 13, 1969, Ser. No. 854,016

Int. Cl. C08f 15/00, 15/40

U.S. Cl. 260—80.3

5 Claims

Reduction of friction loss in oil well fracturing is accomplished through the addition of small amounts of copolymers of acrylamide and dimethyl diallyl ammonium chloride or other diallyl ammonium compounds, with and without crosslinking by N, N' methylene bisacrylamide.

3,562,227

PROCESS FOR SEPARATING POLYMERIZATION SOLVENT MEDIA FROM ELASTOMERIC POLYMER

Giovanni di Drusco, Bologna, and Paolo Galli, Ferrara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

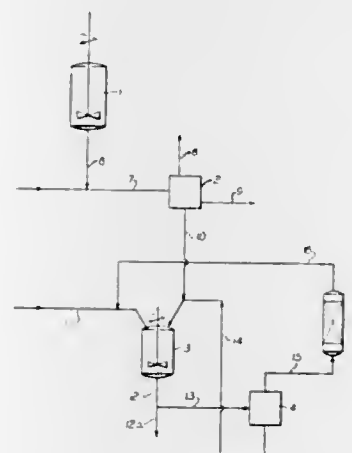
Filed Dec. 23, 1966, Ser. No. 604,345

Claims priority, application Italy, Dec. 30, 1965, 29,170/65

Int. Cl. C08f 15/40

U.S. Cl. 260—80.78

1 Claim



Process for separating and recovering liquid polymerization medium from elastomeric polymers produced therein comprising, in sequence, (a) first contacting the polymer solution or suspension with a liquid which is a nonsolvent for the polymer to effect initial phase separation between the polymer and the polymerization medium; (b) second, extracting residual medium from the polymer by contacting it with a liquid which is a nonsolvent for the polymer but a solvent for the medium; (c) third, separating the polymer from the liquid phase, as by centrifuging, and recycling said polymer to the second step (b) until the desired residual content of medium in the polymer is obtained; and (d) passing the liquid phase from step (c) through an adsorption column

to separate the medium from the extracting liquid by selective adsorption and recycling the thus regenerated extraction liquid for further use in said extraction step (b).

3,562,228

COPOLYMERIZATION OF OLEFINS

Demetrios N. Matthews, Pequannock, and Frederick C. Loveless, Oakland, N.J., and Robert J. Kelly, Columbia, S.C., assignors to Unroyal, Inc., New York, N.Y., a corporation of New Jersey

No Drawing. Filed Mar. 25, 1968, Ser. No. 715,569

Int. Cl. C08f 15/40

U.S. Cl. 260—80.78

10 Claims

EPM or EPDM is made in improved yield in inert hydrocarbon solvent medium with a four-component catalyst system:

- vanadium oxytrichloride
- alkylaluminum sesquichloride
- 2-nitropropane or beta-methylanthraquinone, and
- an acid-scavenger which is an organic Lewis base containing a hetero atom (N, O, S, Se or Te), e.g. di-n-butylamine, ethyl acetate, acetone, etc.

component (c) serves as an activator for spent or dying catalyst and component (d), the acid acceptor, increases or prolongs the effectiveness of the activator.

3,562,229

PROCESS FOR THE PREPARATION OF COPOLYMERS FROM ETHYLENE AND VINYL ESTERS

Johann Bauer, Gerhard Beier, and Eduard Bergmeister, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie GmbH, Munich, Germany, a corporation of Germany

No Drawing. Filed Oct. 18, 1968, Ser. No. 768,876

Claims priority, application Germany, Oct. 23, 1967, P 17 45 565.1

Int. Cl. C08f 1/13, 1/62, 15/40

U.S. Cl. 260—80.81

3 Claims

This invention relates to a process for the preparation of copolymerizes from ethylene and vinyl esters and possibly other olefinically unsaturated organic compounds in an aqueous emulsion utilizing a redox polymerization catalyst system comprising inorganic and/or organic peroxides, hydrogen and a colloidal dispersed noble metal of the VIII subgroup of the periodic table wherein the polymerization is conducted at pressures under 100 atmospheres and said vinyl ester is a vinyl ester of a branched chain monocarboxylic acid having at least 9 carbon atoms and is employed in an amount of from 10 mol-percent to 80 mol-percent. The invention also relates to the copolymer so produced which has an excellent cold stability and elasticity.

3,562,230

BROMINATION OF COPOLYMERS OF NON-TERMINAL ACETYLENIC METHACRYLATES AND PRODUCTS PRODUCED THEREBY

Gaetano F. D'Alelio, South Bend, Ind., assignor to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Filed June 28, 1968, Ser. No. 740,863

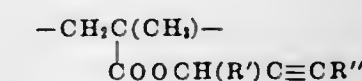
Int. Cl. C08f 15/18

U.S. Cl. 260—85.5

9 Claims

The process disclosed herein involves the bromination of copolymers of non-terminal acetylenic methacrylates and the brominated products produced thereby. Acetylenic methacrylate polymers upon dibromination of the acetylene group give ethylenic dibromo derivatives which are hydrolytically stable. In comparison the derivative obtained upon dibromination of a polymer of allyl meth-

acrylate has dibromopropyl methacrylate repeating units which are susceptible to hydrolysis of the bromine. Thus where it is desired to impart flame resistant properties to a polymer it is possible to impart both flame resistance and hydrolytic stability by dibromination of corresponding copolymers containing repeating units of the formula



wherein R' is H or R'', and R'' is a hydrocarbon radical of 1-8 carbons. Where higher proportions of bromine are desired and hydrolytic stability is of less importance, tetrabromination can be effected.

3,562,231

BROMINATION OF PROPARGYL METHACRYLATE POLYMERS AND PRODUCTS PRODUCED THEREBY

Gaetano F. D'Alelio, South Bend, Ind., assignor to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Filed June 28, 1968, Ser. No. 740,862

Int. Cl. C08f 15/18

U.S. Cl. 260—85.5

9 Claims

The process disclosed herein is the bromination of polymers of propargyl methacrylate and the brominated products produced thereby. Propargyl methacrylate has a terminal acetylenic group which upon bromination gives an ethylenic dibromo derivative which is hydrolytically stable. In comparison the derivative obtained upon dibromination of a polymer of allyl methacrylate gives dibromopropyl methacrylate repeating units whereas the dibromination of propargyl methacrylate gives dibromoallyl methacrylate repeating units. In view of the ethylenic group in the dibromoallyl radical, the bromine atoms are very resistant to hydrolysis whereas the bromine in the dibromopropyl radical is much more susceptible to hydrolysis. Moreover, the bromination of a terminal acetylenic group proceeds with much greater facility and more thoroughly under milder conditions than is the case when the acetylenic group is a non-terminal acetylenic such as 2-butyne-1-yl acrylate or methacrylate.

3,562,232

CONTINUOUS POLYMERIZATION OF ACRYLONITRILE AND MONO-ETHYLENICALLY UNSATURATED QUATERNARY AMMONIUM SALTS

Peter Adrian Jarovitzky, Stamford, and Joseph Jacinto Pellon, New Canaan, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Oct. 31, 1968, Ser. No. 772,408

Int. Cl. C08f 15/22

U.S. Cl. 260—85.5

5 Claims

In the process of continuously polymerizing acrylonitrile with a monoethylenically unsaturated quaternary ammonium salt in an aqueous acidic reaction mass containing a water-soluble inorganic free radical generating polymerization catalyst to produce polymers containing 50 to 70 percent acrylonitrile and 30 to 50 percent monoethylenically unsaturated quaternary ammonium salt, the improvement comprising performing said polymerization in the presence of a concentration of nitrate ions in said reaction mass equal to at least 80 percent of that stoichiometrically equal to the concentration of monoethylenically unsaturated quaternary ammonium salt in solution therein and sufficient to keep said reaction mass fluid.

3,562,233

PROCESSES FOR COPOLYMERISING VINYLIC ARYL COMPOUNDS WITH EPOXY ESTERS OF α,β -UNSATURATED ACIDS

Françoise Lanos, Paris, and Françoise Katzanavas, Bagneux, France, assignors to Societe Nationale des Petroles d'Aquitaine, Courbevoile, France, a corporation of France

No Drawing. Filed Oct. 14, 1968, Ser. No. 767,459

Claims priority, application France, Oct. 20, 1967, 125,267

Int. Cl. C08f 1/11, 19/10

U.S. Cl. 260—86.7

15 Claims

In a process for the preparation of a soluble copolymer of a vinylic aryl compound and an epoxy ester of an α,β -unsaturated acid, copolymerisation of a mixture of the monomers is carried out in suspension at a temperature of 20° to 100° C., in the presence of at least one suspension agent and at least one polymerisation catalyst, the epoxy ester being present in a molar ratio of less than 20% with respect to the monomer mixture, and the organic phase and the aqueous phase being in a ratio by volume of 0.2 through 0.8.

3,562,234

PRODUCTION OF A GRANULATE OF A GIVEN PARTICLE SIZE FROM SAPONIFIED ETHYLENE-VINYL ACETATE COPOLYMERS

Raoul Resz, Cologne-Stammheim, Walter Oetke, Leverkusen, Rudolf Erdmenger, Bergisch Gladbach, and Herbert Bartl, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

Filed May 15, 1967, Ser. No. 638,362

Claims priority, application Germany, July 29, 1966, F 49,830

Int. Cl. C08f 27/14

U.S. Cl. 260—87.3

3 Claims

Process for the production of partially or completely saponified ethylene-vinyl acetate copolymers having a particle size of 0.1 to 0.7 mm. and apparatus therefor, the process involving gelling hot saponification solution containing organic solvent by cooling, extruding gelled solution to form filaments of specified diameter, producing particles of specified length from said filaments, removing organic solvent and saponification catalyst from said particles and isolating resulting copolymer particles.

3,562,235

MULTISTAGE EMULSION POLYMERIZATION OF ALKYL ACRYLATES AND ALKYL METHACRYLATES

Charles F. Ryan, Warminster, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 526,038, Feb. 9, 1966. This application June 7, 1968, Ser. No. 735,191

Int. Cl. C08f 15/18

U.S. Cl. 260—885

13 Claims

Thermoplastic acrylic polymer compositions prepared in multi-stage emulsion fashion are provided. For example, the polymer particles have rubbery, cross-linked cores of alkyl acrylates at least partially sheathed by increasingly harder thermoplastic copolymer sheaths of alkyl acrylates and alkyl methacrylates with some penetration between the layers. The compositions may be extruded, blown and/or formed into film or sheet.

3,562,236

ACETYLENIC METHACRYLATES

Gaetano F. D'Alelio, South Bend, Ind., assignor to Gelgy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Filed June 28, 1968, Ser. No. 740,864

Int. Cl. C08f 3/62

U.S. Cl. 260—89.5

10 Claims

The compounds disclosed herein are acetylenic methacrylates having the formula



wherein Z represents a divalent hydrocarbon radical having at least 2 carbon atoms. Because of their terminal acetylenic radical these compounds are very reactive and capable of producing various acetylenic derivatives. Moreover, the methyl group in the methacrylate portion of the ester gives this compound much greater stability than possessed by the corresponding acrylates. This stability is particularly useful when it is desirable to produce reaction on the acetylenic group but not on the ethylenic. Moreover, the terminal acetylenic makes possible certain reactions which cannot be effected with compounds in which the acetylenic group is not a terminal group. Furthermore the presence of the methyl group in the methacrylate portion of the ester gives sufficient greater polymerization tendency, as compared with the acrylate, that the ethylenic group can be polymerized with less stringent conditions and thereby reduces the tendency for reaction of the anionic initiator with the ester group; the molecular weights and conversions are thereby higher. This increased selectivity of ethylenic polymerization over acetylenic makes it possible to prepare linear homopolymers and thereby to avoid the necessity to resort to copolymerizations with monoethylenic compounds such as styrene, and monounsaturated acrylates and methacrylates.

3,562,237

PREPARATION OF VINYL CHLORIDE POLYMERS

Jean Claude Thomas, Lyon, Rhone, France, assignor to Produits Chimiques Pechiney - Saint-Gobain, Paris, France

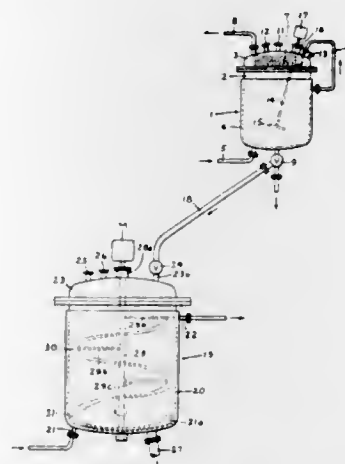
Continuation-in-part of application Ser. No. 347,147, Feb. 25, 1964. This application Nov. 30, 1964, Ser. No. 414,697

Claims priority, application France, Apr. 30, 1964, 972,927

Int. Cl. C08f 1/04, 3/30

U.S. Cl. 260—92.8

1 Claim



Method and apparatus for the polymerization in mass of vinyl chloride and mixtures thereof with vinyl acetate, wherein the monomer is prepolymerized in a first autoclave, under controlled temperature and pressure and at a relatively rapid rate for a relatively short time, until polymerization has been completed to about 7 to 15%. The flowable mixture of monomer and polymer is then rapidly transferred to a second autoclave wherein polymerization to the desired degree, say 70%, is completed at

a slower rate and for a more extended time. The second autoclave is of a type having a tank with vertical axis of symmetry and a helical mixing blade rotating on the axis of symmetry and closely adjacent the walls of the tank, but radially spaced from its axis of rotation. Thereby a tubular column of mixture is continuously moved vertically in contact with the temperature-controlled walls of the tank, and returns in a central generally cylindrical column along the axis of rotation. Precise and uniform temperature control are thus effected, and granulometry is improved.

3,562,238

SUSPENSION POLYMERIZATION PROCESS FOR VINYL CHLORIDE POLYMERS

Clarence E. Parks, Bay Village, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York

No Drawing. Filed Sept. 16, 1968, Ser. No. 762,313

Int. Cl. C08f 1/11, 3/30

U.S. Cl. 260—92.8

5 Claims

In the suspension polymerization of vinyl chloride polymers, undesirable polymer build-up on the walls of polymerization reactors is reduced when the polymerization reaction is conducted in the presence of small amounts of magnesium hydroxide.

3,562,239

PREPARATION OF TiCl_3 COMPONENT OF OLEFIN POLYMERIZATION CATALYST

Martijn H. de Jong and Pieter van Prooljen, Rotterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 21, 1967, Ser. No. 647,613

Claims priority, application Netherlands, June 30, 1966, 6609092

Int. Cl. C08f 3/08

U.S. Cl. 260—93.7

7 Claims

Titanium trichloride for use as catalyst component in stereoregular olefin polymerization is prepared by gradual addition of a solution of titanium tetrachloride in inert diluent to a solution of trialkyl aluminum in inert diluent. The mixture is prepared and held at a temperature below -30° C. and most advantageously below -50° C. until addition is complete, is thereafter gradually warmed up to not above 80° C. until conversion to TiCl_3 is complete, and is then heated to an elevated temperature at which the TiCl_3 is converted to the violet form.

3,562,240

POLYMERIZING CONJUGATE DIENES

André Milletto, Pau, and Jean Teitgen, Arthez-de-Bearn, France, assignors to Societe Nationale des Petroles d'Aquitaine, Courbevoile, France

No Drawing. Filed Nov. 18, 1968, Ser. No. 776,789

Claims priority, application France, Nov. 20, 1967, 128,872

Int. Cl. C08d 1/24, 1/36; C08f 1/62

U.S. Cl. 260—94.3

4 Claims

Polymerization or copolymerization of conjugate dienes in aqueous emulsion is improved in that the conversion of monomer is increased up to a value of 70% to 90%, while the commercial quality of polymers obtained is the same or even somewhat better than that of conventional corresponding polymers. This result is obtained by always keeping the rate of polymerization at at least 6% of monomer per hour, until 70% to 90% of monomer are converted into polymer. The required rate is controlled by continuously introducing a polymerization catalyst system and a chain-limiting agent over the whole period of polymerization. Optionally this control is also effected by adding a supplemental amount of emulsifier to the emulsion when about the half of the monomer is polymerized.

3,562,241

PROCESS FOR THE PRODUCTION OF 1-OLEFIN POLYMERS HAVING INCREASED MELT INDEX

Donald R. Witt, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Nov. 15, 1965, Ser. No. 507,673

Int. Cl. C08f 1/66

U.S. Cl. 260—94.9

3 Claims

Pretreatment of a chromium oxide polymerization catalyst with a 4-10 carbon atom-containing branched chain aliphatic olefin prior to the utilization of the catalyst for the preparation of a 1-olefin polymer and thereafter carrying out the 1-olefin polymerization in a liquid branched chain paraffin reaction medium and in the presence of hydrogen results in the production of higher melt index 1-olefin polymers.

3,562,242

PROCESS FOR THE TREATMENT OF POLYETHYLENE

Adrien Nicco, Bethune, and Bernard Lambert, Lens, France, assignors to Ethylene-Plastique, Paris, France, a French society

No Drawing. Filed Aug. 28, 1968, Ser. No. 755,780

Claims priority, application France, Sept. 14, 1967, 121,006

Int. Cl. C08f 29/04, 45/67

U.S. Cl. 260—94.9

5 Claims

A method of improving the optical properties of polyethylene which comprises incorporating an aluminium alcoholate into molten polyethylene, allowing the resulting mixture to solidify, and contacting the solidified mixture with an aqueous reagent at a temperature from 60° C. up to but not including the melting point of the polyethylene in the mixture.

3,562,243

PROCESS FOR SEPARATION OF ROSIN ADDUCTS FROM MIXTURES WITH ROSIN

Paul H. Aldrich, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 669,722, Sept. 22, 1967. This application Dec. 22, 1969, Ser. No. 883,682

Int. Cl. C09f 1/02

U.S. Cl. 260—111

5 Claims

A process for separation of all adducts of rosin from a mixture comprised of adducted rosin and non-adducted rosin is disclosed.

3,562,244

8-L-ORNITHINE VASOTOCIN AND INTERMEDIATES THEREFOR

Miklos Bodanszky, Princeton, and Miguel A. Ondetti, Highland Park, N.J., assignors, by mesne assignments, to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Sept. 12, 1963, Ser. No. 308,368

Int. Cl. C07c 103/52; C07d 27/52

U.S. Cl. 260—112.5

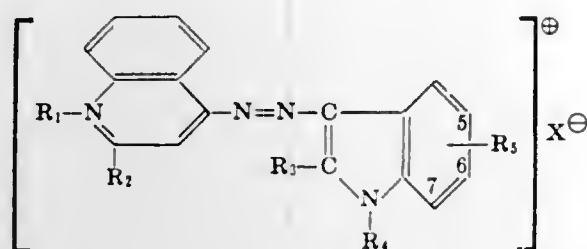
1 Claim

8-L-ornithine vasotocin, 8-L-ornithine vasopressin, process for their synthesis and intermediates therefor. A process for converting ornithine peptides (e.g., 8-L-ornithine vasotocin and 8-L-ornithine vasopressin) into the corresponding arginine peptides by treatment with 1-guanyl-3,5-dimethylpyrazole, HNO_3 , and other guanylating agents.

3,562,245

BASIC QUINALDINIUMAZOINDOLE DYESTUFFS
Reinhard Mohr and Johann Ostermeier, Offenbach (Main), Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Apr. 4, 1968, Ser. No. 718,921
Claims priority, application Germany, Apr. 8, 1967, F 52,071

Int. Cl. C09b 29/36; D06p 1/04, 1/10
U.S. Cl. 260—146 5 Claims
Azo-dyestuffs of the formula



wherein R_1 represents methyl or ethyl, R_2 represents methyl, R_3 represents hydrogen, methyl or phenyl, R_4 represents hydrogen or methyl, R_5 represents hydrogen, fluorine, chlorine, bromine, lower alkyl, lower alkoxy, cyano or nitro, and X^- represents an anion, said dyestuffs being suitable for the dyeing or printing of tanned cellulose fibres, silk, leather or fully synthetic fibres and yielding dyeings or prints of a very good tinctorial strength and of very good fastness properties to light and to wet processing.

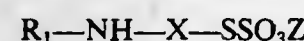
3,562,246

MONO- AND DISAZO DYES AND THE 1:1 AND 1:2 METAL COMPLEXES THEREOF CONTAINING ONE OR MORE THIOSULFATE GROUPS

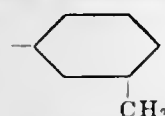
Frederick E. Barwick III and Gordon A. Geselbracht, Charlotte, N.C., assignors to Martin Marietta Corporation, a corporation of Maryland

No Drawing. Filed Sept. 25, 1967, Ser. No. 670,435
Int. Cl. C09b 29/24, 45/14, 45/24
U.S. Cl. 260—148 5 Claims

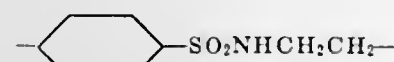
Azo dyes and 1:1 and 1:2 metal complexes thereof are disclosed, said dyes being characterized in having in their molecules at least once the radical of



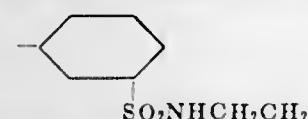
wherein X is phenylene, ethylene, propylene,



in which the $-CH_2-$ is bonded to the $-SSO_3Z$, chlorophenylene in which the Cl is ortho to the $-SSO_3Z$, methoxyphenylene in which the methoxy is meta to the $-SSO_3Z$,



in which a methylene is bonded to the $-SSO_3Z$, or



in which a methylene is bonded to the $-SSO_3Z$; Z is H, Na or K; and R_1 is 8-hydroxy-6-sulfo-2-naphthyl, 5-hydroxy-7-sulfo-2-naphthyl, 6,8-disulfo-2-naphthyl, 5,7-disulfo-2-naphthyl, 6-sulfo-2-naphthyl, 8-sulfo-2-naphthyl, 5-sulfo-2-naphthyl, 8-hydroxy-4,6-disulfo-1-naphthyl, 7-sulfo-2-naphthyl, or 4-sulfo-1-naphthyl. The dyes are particularly useful for making wet-fast dyeings on cotton and regenerated cellulose textile fabrics.

3,562,247

MONOAZO DYES CONTAINING PHTHALIMIDES
Johannes Dehnert, Ludwigshafen (Rhine), Walter Grosch, Mannheim, and Gerhard Gnad, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Sept. 11, 1968, Ser. No. 759,230
Claims priority, application Germany, Sept. 13, 1967, P 16 44 068.9

Int. Cl. C09d 29/06 6 Claims
U.S. Cl. 260—152
Disperse dyes derived from aminophthalimides and 2-naphthylamine. They are especially useful for dyeing synthetic linear polyamides.

3,562,248

BISAZO PIGMENTS DERIVED FROM COUPLERS OBTAINED BY CONDENSING 8-AMINO-2-NAPHTHOLS WITH DICARBOXYLIC ACID CHLORIDES
Freeman B. Jones, Jr., East Lansing, Mich., and Santokh S. Labana, Webster, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Feb. 1, 1967, Ser. No. 613,294

Int. Cl. C07c 107/08; C07d 87/54; C09b 33/08
U.S. Cl. 260—184 5 Claims
Bisazo compounds are disclosed as are monochromatic and polychromatic electrophoretic imaging processes using these compounds. A typical member of this group is N,N'-bis 1-(1'-naphthylazo)-2-hydroxy-8-naphthyl adipdiamide.

3,562,249

ARYLENE - BIS - (DI - (LOWER ALKOXYCARBONYL) - BENZENE - AZO - 2 - HYDROXY - 3 - CARBAMOYL-NAPHTHALENE) PIGMENTS
Ernfred Schnabel, Reinach, near Basel, and Emil Stocker, Riehen, near Basel, Switzerland, assignors to J. R. Geigy A.G., Basel, Switzerland
No Drawing. Filed Dec. 18, 1967, Ser. No. 691,228
Claims priority, application Switzerland, July 11, 1967, 9,888/67

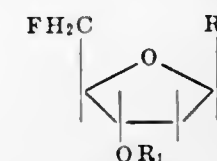
Int. Cl. C08g 51/14; C09b 33/04; C09d 11/00
U.S. Cl. 260—184 6 Claims
Pigments are disclosed herein which consist of, per molecule, two benzene-azo-2-hydroxy-3-carbamoyl-naphthalene dyestuff radicals in which each of the two benzene nuclei is substituted by two carboxylic acid ester groups, especially two lower alkoxy-carbonyl groups, one of which is in o-position to the azo bridge and the other is in p-position to the former ester group, and the carbamoyl groups of which moieties are linked by a bridge member bonded to the two nitrogen atoms of said carbamoyl groups; these novel pigments are distinguished by pure, vivid shades, great colour strength and very good fastness properties. The pigment in which the carboxylic acid ester groups are methoxycarbonyl groups and the bridging member is phenylene is distinguished by an unexpected carmine-red shade of great purity and strength of colour. These pigments are suitable for the pigmentation of polymeric organic material, particularly plastics such as polyvinylchloride and of printing inks for the graphic industry and in finely distributed form also for the pigmentation of curable resins and cellulose esters.

3,562,250

2',5'-DIDEOXY-5'-FLUORO NUCLEOSIDES AND PROCESS FOR PREPARING SAME
Peter Langen and Gotthard Kowolik, Berlin, Germany, assignors to Deutsche Akademie der Wissenschaften Zu Berlin, Berlin-Adlershof, Germany
No Drawing. Filed July 30, 1968, Ser. No. 748,595
Int. Cl. C07d 51/52, 51/54

U.S. Cl. 260—211.5 10 Claims
A cytostatic composition capable of substantially in-

hibiting the DNA synthesis of ascites tumor cells in vitro, having the formula:



wherein R_1 is a hydrogen atom or an acetyl radical and R_2 is selected from the group consisting of 5-alkyl and 5-halogen substituted 2,4-dihydroxy-pyrimidine, 5-alkyl and 5-halogen substituted 2-hydroxy-4-amino-pyrimidine, and purine substituted in 2-position, 6-position or 2 and 6 position with an amine or hydroxyl group.

These compounds may be obtained by reacting 5'-aryl-sulphonyl- or 5'-mesyl-substituted 2'-deoxyribonucleoside in a solvent medium with an alkali metal fluoride, separating the thereby-formed alkali metal arylsulphonate from the residual reaction mixture, evaporating the residual reaction mixture at reduced pressure, and recovering the compound from the dry residue by taking up the dry residue with a mixture of polar and non-polar solvents, followed by chromatographic separation of the compounds from the thus-formed solution.

3,562,251

CERTAIN 2,3-DIHYDRO-1,4-BENZODIAZEPINE-3-CARBOXAMIDE DERIVATIVES

Rodney Ian Fryer, North Caldwell, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 11, 1967, Ser. No. 629,921
Int. Cl. C07d 53/06 4 Claims

U.S. Cl. 260—239 4 Claims
2,3-dihydro-3-(N-substituted-carbamoyl)-7-nitro-1,4-benzodiazepines which are useful as anticonvulsants and a process for their preparation from 2,3-dihydro-7-nitro-1,4-benzodiazepin-2-ones by means of transamidation with ammonia and amino compounds. Also included are intermediates in this process.

3,562,252

DIAZOTRICYCLODECANES

Leo A. Paquette, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed July 16, 1962, Ser. No. 210,196
Int. Cl. C07d 53/00 3 Claims

U.S. Cl. 260—239.3 3 Claims
1,3,7-bis(2-hydroxyethyl)-3,7-diazatricyclo[4.2.2.2⁵]-dodecane-4,8-dione.

3,562,253

1,4-DIALKYL-2,5-PIPERAZINEDIONE-3,6-DITHIOACETATES, -DITHIOLS, -DISULFIDES AND -TETRASULFIDES

Patrick Willoughby Trown, Suffern, N.Y., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed July 15, 1968, Ser. No. 744,694
Int. Cl. C07d 93/44 8 Claims

U.S. Cl. 260—239.3 8 Claims
This disclosure describes compounds of the class of 1,4-dialkyl-2,5-piperazinedione-3,6-dithioacetates, -dithiols, -disulfides and -tetrasulfides useful as antifungal and antiviral agents.

3,562,254

PRODUCTION OF CAPROLACTAM STARTING WITH CYCLOHEXANONE

Desmond Sheehan, Hamden, Anthony F. Velturo and Walter A. Gay, Cheshire, William P. Hegarty, Hamden, and Donald D. Threlkeld, Cheshire, Conn., assignors to The Techni-Chem Company, Wallingford, Conn., a corporation of Connecticut

Filed Apr. 24, 1969, Ser. No. 818,980
Int. Cl. C07d 41/06 4 Claims

U.S. Cl. 260—239.3 4 Claims
A continuous process for the production of caprolactam, including acetylation of cyclohexanone with acetic anhydride and ketene (which reacts with acetic acid formed in the acetylation reaction). The cyclohexenyl acetate formed is then nitrated with concentrated nitric acid and the resulting nitrocyclohexanone separated by distillation. Acetic anhydride is recycled to the acetylation reaction, and acetic acid together with makeup acetic acid is pyrolyzed to ketene, which is also used in the acetylation reaction. The nitrocyclohexanone is then cleaved with ammonium hydroxide to form the ammonium salt of 6-nitro caproic acid, which is then reduced with hydrogen and a hydrogenation catalyst to produce 6-amino caproic acid. This intermediate is then separated by removing ammonia, which is recycled with makeup ammonia to the cleavage reaction. The aqueous 6-amino caproic acid is then heated in dilute aqueous solution, 5% to 25% w./v., to cyclize to caprolactam. The caprolactam is then extracted with an organic solvent, such as trichloroethylene, and the unconverted aqueous amino caproic acid recycle to the cyclization step. Solvent is then removed and the caprolactam purified by known means. An important part of the process is that there is no ammonium sulfate formed, which in earlier processes was an undesirable by-product. The ammonia used in the cleavage reaction is recycled and there is no large loss of raw material.

3,562,255

17-PROPARGYLAMINES OF STEROIDAL DITHIOKETALS

Donald W. Oliver, King of Prussia, and Gerhard R. Wendt, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 29, 1969, Ser. No. 820,335
Int. Cl. C07c 173/00 23 Claims

U.S. Cl. 260—239.5 23 Claims
13-alkyl-17 α -aminopropargyl-17-hydroxygon-4-en-3-one, cyclic ethylene thioketals and alkanooates, optionally halo-substituted at C-4, (I) and their salts are useful biocidally as trichomonocides and amebicides, and pharmacologically as bronchodilators. Compounds (I) are prepared by treating the corresponding 13-alkyl-17 α -ethynyl-17-hydroxygon-4-en-3-one, cyclic ethylene thioether (II) with formaldehyde and an appropriately-substituted secondary amine.

3,562,256

1,3-DIALKYL-5-(SUBSTITUTED ARYLSULFONYL)-TETRAHYDRO-1,3,5-TRIAZINE-4-THIONES

Fred E. Boettner, Huntingdon Valley, and Michael C. Seidel, Levittown, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed June 9, 1967, Ser. No. 644,779
Int. Cl. C07d 55/14; A61k 27/00 1 Claim

U.S. Cl. 260—239.7 1 Claim
Disclosed herein is a class of novel compounds; namely, 1,3-dialkyl-5-(substituted arylsulfonyl)-tetrahydro-1,3,5-triazine-4-ones and thiones. These compounds are particularly useful for the control of hyperglycemia and consequently exhibit exceptional hypoglycemic activity. In addition, processes for the preparation of these hypoglycemic compounds are described along with pharmaceutical compositions and methods of lowering blood sugar in animals by the administration of such compounds.

3,562,257

BENZOTHIAZEPINE DERIVATIVES

Hiroshi Kugita and Hirozumi Inoue, Tokyo-to, and Mune-yoshi Ikezaki and Satoshi Takeo, Oomiya-shi, Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan, a corporation of Japan

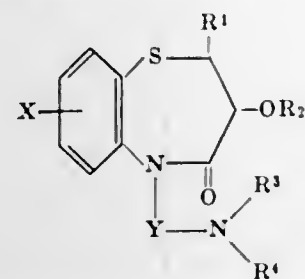
No Drawing. Filed Oct. 17, 1968, Ser. No. 768,550

Claims priority, application Japan, Oct. 28, 1967, 42/69,545, 42/69,546; June 17, 1968, 43/41,789, 43/41,790, 43/41,791

Int. Cl. C07d 43/40

U.S. Cl. 260—239.3

Benzothiazepine derivatives of the formula:



wherein R¹ is a phenyl group which may be substituted with 1 to 3 lower alkyl groups, lower alkoxy groups or halogen atoms, R² is a hydrogen atom or a lower alkanoyl group, R³ and R⁴ are each a lower alkyl group, X is a hydrogen atom or a halogen atom and Y is an alkylene group of 2 or 3 carbon atoms, and their non-toxic acid-addition salts. The compounds are useful as antidepressants, tranquilizers and coronary vasodilators.

3,562,258

N¹-[p-AMINO BENZENE SULFONYL]-N³-[4,5-DIMETHYL OXAZOLYL-(2)] GUANIDINE

Werner Loop, Hamburg-Lokstedt, and Horst Baganz, Friedrich-Wilhelm Kohlmann, and Hans Schultze, Moorrege, near Utersen, Germany, assignors to Nordmark-Werke G.m.b.H., Hamburg, Germany, a corporation of Germany

No Drawing. Filed Feb. 10, 1969, Ser. No. 798,165

Int. Cl. A61k 27/00; C07d 85/46

U.S. Cl. 260—239.9

1 Claim

The present invention is related to N¹-[p-amino-benzene sulfonyl]-N³-[4,5-dimethyl oxazolyl-(2)] guanidine, pharmaceutical compositions comprising the same, and to a process for the treatment of bacterial dysenteritides.

3,562,259

7-METHYL-1,2-METHYLENE-4-CHLORO STEROIDS AND PROCESS FOR THE PRODUCTION THEREOF

Helmut Hofmeister, Hermann Steinbeck, and Rudolf Wiechert, Berlin, Germany, assignors to Schering AG, Berlin and Bergkamen, Germany

No Drawing. Filed Dec. 3, 1968, Ser. No. 780,872

Claims priority, application Germany, Dec. 7, 1967, P 16 43 054.9

Int. Cl. C07c 169/18

U.S. Cl. 260—239.55

30 Claims

4-chloro-7-beta-methyl-1-alpha,2-alpha-methylene-4-pregnene or androstene-3-one compounds which may also be substituted by hydroxy or oxy in the 11-position and may have various substituents in the 17-position including also the corresponding delta^{4,6}-7-methyl compounds. The compounds are useful for treatment of gynecological complaints.

The compounds are made by reacting a corresponding steroid which is 6-beta, 7-beta-methylene substituted with a halogen acid followed by reduction to remove the halogen from the 7-beta-halogen-methyl group and followed further if desired by dehydrogenation to form a 6-7 double bond.

3,562,260

2-CARBONYL-ESTRATRIENES AND METHOD OF THEIR PREPARATION

Pietro De Ruggieri, Carmelo Gandolfi, and Umberto Guzzi, Milan, Italy, assignors to Ormonoterapia Richter S.p.A., Milan, Italy, a corporation of Italy

No Drawing. Filed Aug. 16, 1966, Ser. No. 572,665

Claims priority, application Italy, Aug. 23, 1965, 18,855/65

Int. Cl. C07c 169/10, 173/00

U.S. Cl. 260—239.55

19 Claims

Novel 2,3-disubstituted cholesta-1,3,5(10)-trienes and estra-1,3,5(10)-trienes and methods for their preparation. These compounds are useful as estrogens, anti-cholesterolemic agents, hypophyse blocking agents and anti-androgens.

3,562,261

MONO- AND DI-NICOTINATES OF PHOTSENSITIVE QUATERNARY AMMONIUM COMPOUND AND PRODUCTION THEREOF

Masaru Banno and Shigeo Yasui, Okayama, Okayama Prefecture, Japan, assignors to Eisai Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed Jan. 22, 1968, Ser. No. 699,324

Int. Cl. C07d 31/36

U.S. Cl. 260—240.1

2 Claims

This invention is concerned with novel mono- and di-nicotinates of certain photosensitive quaternary ammonium compounds prepared by reacting the corresponding photosensitive quaternary ammonium halide with nicotinic acid in the presence of silver oxide. The novel nicotinates have an excellent water-solubility and pharmacological and biotical activities with relatively low toxicity and can be used as medicaments as well as active ingredients of various hygienic preparations for external applications.

3,562,262

TERTIARY AMINOPROPYL β-QUATERNARY 3,4,5-TRIMETHOXYBENZOATES

Kurt Schmidt, Zell, near Esslingen (Neckar), and Ernest Gunther, Eitorf (Sieg), Germany, assignors to Krewel Leuffen G.m.b.H. Arzneimittelwerk, Eitorf, near Cologne, Germany

No Drawing. Continuation-in-part of application Ser. No. 384,516, July 22, 1964. This application Aug. 21, 1967, Ser. No. 661,789

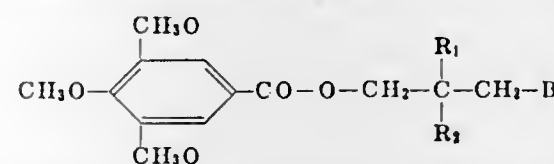
Claims priority, application Germany, July 24, 1963, K 50,328

Int. Cl. C07d 87/36

U.S. Cl. 260—247.2

8 Claims

The specification discloses tertiary amino propyl β-quaternary esters of 3,4,5-trimethoxybenzoic acid that exhibit a high CNS damping effect, in the form of sedative, coronary blood vessel enlarging, blood pressure reducing, intestinal spasmolytic properties, and the respective therapeutic indices are excellent and toxicity low. The esters of the invention have the general formula:



in which R₁ and R₂ represent alkyl (at least one of which is greater than methyl), aralkyl or aryl residues, and B represents a dialkyl amino residue, a saturated N-heterocyclic ring, or a morpholino group. R₁ and R₂ may represent, for instance, the following substitution pairs: methyl-propyl, ethyl-ethyl, ethyl-benzyl and ethyl-phenyl. B may represent, for example, dimethyl amino, diethyl amino, pyrrolidino, piperidino or morpholino groups.

3,562,263

2-SUBSTITUTED-2-OXAZOLINES AND 2-SUBSTITUTED-5,6-DIHYDRO-1,3,4-OXAZINES AND THEIR PREPARATION

Morton H. Litt and Alan J. Levy, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed July 13, 1964, Ser. No. 382,342

Int. Cl. C07d 87/06

U.S. Cl. 260—244

17 Claims

This invention relates to a novel process for the preparation of 2-substituted cyclic iminoethers. More particularly this invention relates to a novel process for the preparation of 2-substituted oxazolines and oxazines by the vapor phase cyclodehydration of N-(ω-hydroxyalkyl)-amides in the presence of a catalyst. These compounds are valuable intermediates for the preparation of useful polymers.

3,562,264

TRANS-DIHYDROXY-BIS-HYDROXYCARBONYL-ETHYLENE SALTS

Yoichi Sawa, Suita, Hajime Fujimura, Kyoto, Toru Masuda, Nishinomiya, and Yutaka Yamakawa, Kyoto, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Feb. 13, 1968, Ser. No. 705,004

Claims priority, application Japan, Feb. 13, 1967, 42/9,132

Int. Cl. C07d 51/64, 87/22

U.S. Cl. 260—246

3 Claims

The morpholine and piperazine salts of trans-dihydroxy-bis-hydroxycarbonyl-ethylene (dihydroxy fumaric acid) are useful as antipyretic, analgesic and anti-inflammatory agents of low toxicity. Unlike acetyl salicylic acid, they cause no gastroenteric disorders; unlike dihydroxy fumaric acid they are stable to elevated temperature and humidity.

3,562,265

2-METHYLSULFONYL-4,6,8-TRISUBSTITUTED-[5,4-d]-PYRIMIDINES

Masuo Murakami, Shigemi Kawahara, Sanae Ishida, and Mikio Ohno, Tokyo, and Hiroshi Horiguchi, Tokorozawa-shi, Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

No Drawing. Filed Aug. 15, 1967, Ser. No. 660,590

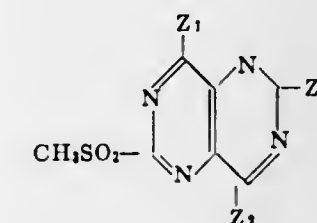
Claims priority, application Japan, Aug. 16, 1966, 41/53,408; Jan. 18, 1967, 42/3,453

Int. Cl. C07d 87/40

U.S. Cl. 260—246

6 Claims

Novel substituted 2-methylsulfonylpyrimido-[5,4-d] pyrimidines of the formula:



wherein each of Z₁ and Z₂ is selected from the group consisting of diethanolamino, piperidino and morpholino groups and Z₃ is selected from the group consisting of halogen and diethanolamino, piperidino and morpholino groups. The novel pyrimidines have coronary vasodilating activity and attain high blood levels by oral administration.

3,562,266

QUATERNARY AMMONIUM HALIDES HAVING A 2-CHLORO CYCLOHEXYL OR 2-CHLORO ALKYL SUBSTITUENT

Francesco Minisci, Milan, and Remo Galli, Cremona, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy, a corporation of Italy

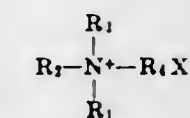
No Drawing. Continuation of application Ser. No. 541,068, Apr. 8, 1966. This application May 26, 1969, Ser. No. 828,814

Int. Cl. C07d 87/30

U.S. Cl. 260—247

11 Claims

The present invention relates to quaternary ammonium halides having a chlorine atom on a carbon atom adjacent to that one bound to the nitrogen atom and represented by the formula



wherein X is a halogen selected from Cl, Br, I; R₁ and R₂ are alkyl or cycloalkyl, equal or different, saturated or unsaturated or together with the ammonium nitrogen form a heterocyclic ring; R₃ is an alkyl, containing a chlorine atom in the β position in respect of the ammonium nitrogen; R₄ is an alkyl or an aralkyl; and R₁, R₂, R₃ and R₄ containing from 1 to 20 carbon atoms. Quaternary ammonium halides are useful as surfactants.

3,562,267

DERIVATIVES OF 3-(5-NITROFUR-2-YL)-5-AMINOISOXAZOLES

Graham Arton Howarth, Wilmslow, and William Hoyle, Bramhall, England, assignors to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 10, 1966, Ser. No. 571,412

Claims priority, application Great Britain, Aug. 18, 1965, 35,447/65, 35,448/65

Int. Cl. C07d 85/22, 87/38; C03d 93/10

U.S. Cl. 260—247.5 25 Claims
3-(5-nitrofur-2-yl)-5-aminoisoxazoles having a nitrile, ester, amide or urea function in the 4-position are antibacterial agents. They are prepared through condensation of 5-nitro-2-furohydroxamoyl halide with a cyanomethyl-nitrile, a cyanomethylester, cyanomethylamide or a cyanomethylurea under basic conditions.

3,562,268

3-MORPHOLINO- AND 3-PIPERAZINO-1,2,8,9-TETRAAZAPHENALENES

Karl J. Doebl, Ossining, and John E. Francis, Pleasantville, N.Y., assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 718,227, Apr. 2, 1968, which is a continuation-in-part of applications Ser. No. 445,762, Apr. 5, 1965; Ser. No. 539,303, Apr. 1, 1966; and Ser. No. 583,980, Oct. 3, 1966. This application Mar. 24, 1969, Ser. No. 810,005

Int. Cl. C07d 51/02

U.S. Cl. 260—247.5

20 Claims

3-morpholino- and 3-piperazino-1,2,8,9-tetraazaphenalenes, optionally substituted in the 4,5,6,7 and/or 9 positions and their salts are cardiovascular agents and can be prepared from the corresponding 1,2,8,9-tetraazaphenalenes. A representative embodiment is 3-N-(2,6-dimethylmorpholino)-9-methyl-1,2,8,9-tetraazaphenylene.

3,562,269

TRIS(m- OR p-AZIDOSULFONYL-PHENYL)-ISOCYANURATES

Henri Ulrich, Northford, Conn., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Mar. 10, 1969, Ser. No. 805,824

Int. Cl. C07d 55/14

U.S. Cl. 260—248

3 Claims

This invention is of a novel group of tris(m- or p-azidosulfonylphenyl)-isocyanurates optionally having halo

and/or alkyl substituents in the phenyl ring, one of the positions ortho in respect to azidosulfonyl being unsubstituted. Compounds of the invention are useful as blowing agents in high polymers, and as cross-linkers in photoresist systems and elastomers.

3,562,270

FLUORINATED 1,2,4-BENZOTRIAZINES

Theodor Wagner-Jauregg, Zofingen, Switzerland, and Egon Fitz, Dornbirn, Austria, assignors to Siegfried Aktiengesellschaft, Zofingen, Switzerland, a corporation of Switzerland

No Drawing. Filed Sept. 27, 1968, Ser. No. 763,394
Claims priority, application Switzerland, Sept. 27, 1967, 13,518/67

Int. Cl. C07d 55/10

U.S. Cl. 260—249.5

4 Claims

This invention is directed to fluorinated 3-amino substituted 1,2,4-benzotriazine derivatives having pharmaceutical and particularly antiplogistic activity, and to the method of producing same by reducing the corresponding fluorinated 3-amino substituted 1,2,4-benzotriazine-1-oxide derivatives.

3,562,271

3-CYCLOAMINO-1,2,8,9-TETRAAZAPHENALENES

Karl J. Doebel, Ossining, and John E. Francis, Pleasantville, N.Y., assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 718,227, Apr. 2, 1968, which is a continuation-in-part of applications Ser. No. 445,762, Apr. 5, 1965; Ser. No. 539,303, Apr. 1, 1966; and Ser. No. 583,980, Oct. 3, 1966. This application Mar. 24, 1969, Ser. No. 810,006

Int. Cl. C07d 51/04

U.S. Cl. 260—250

12 Claims

3-cycloamino-1,2,8,9-tetraazaphenalenenes optionally substituted in the 4, 5, 6, 7 and/or 9 positions and their salts are cardiovascular agents and can be prepared from the corresponding 1,2,8,9-tetraazaphenalenenes. A representative embodiment is 3-N-piperidino-1,2,8,9-tetraazaphenalenene.

3,562,272

PREPARATION OF 4-ARYL-2(1H)-QUINAZOLINONES

Hans Ott, Pfeffingen, Basel-Land, Switzerland, assignor to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Filed Apr. 15, 1969, Ser. No. 816,383

Int. Cl. C07d 51/48

U.S. Cl. 260—251

5 Claims

The invention discloses preparation of 1-substituted-4-aryl-2(1H)-quinazolinones by subjecting their corresponding 1-substituted-4-aryl-quinazolin-2(1H)-thiones to hydrolysis in the presence of an alkali metal hydroxide at temperatures in the range of from 50° C. to 150° C.

3,562,273

TRIS (HYDROXYMETHYL)AMINOMETHANE THEOPHYLLINE ACETATE

Carlos Ferrer Salat, Jorge Ferrer Batlles, and Juan Colome Riera, Barcelona, Spain, assignors to Laboratorios Ferrer, S.L., Barcelona, Spain, a corporation of Spain

No Drawing. Filed Feb. 17, 1967, Ser. No. 616,780

Claims priority, application Spain, Feb. 17, 1966, 323,195

Int. Cl. C07d 57/52

U.S. Cl. 260—253

1 Claim

The present invention relates to compositions of tris (hydroxymethyl) aminomethane with monocarboxylic aminated organic acids such as theophylline-acetic acid, thioctic acid, orotic acid and pangamic acid, the method of manufacturing the same, and the method of treating acidosis by administration of the same.

3,562,274
N-HETEROCYCLIC N,N'-DIGLYCIDYL COMPOUNDS

Juergen Habermeyer, Allschwil, and Daniel Porret, Binningen, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a company of Switzerland

No Drawing. Filed July 29, 1969, Ser. No. 845,889
Claims priority, application Switzerland, Aug. 13, 1968, 12,138/68

Int. Cl. C07d 51/20

U.S. Cl. 260—257

4 Claims

New 5,5-disubstituted 1,3-diglycidyl-barbituric acids (1,3-diglycidyl-5,5-diethyl barbituric acid and 1,3-diglycidyl-5-ethyl-5-phenyl barbituric acid) are prepared by a reaction known per se of 5,5-disubstituted barbituric acids with epichlorohydrin in the presence of tertiary amines or quaternary ammonium salts and subsequent dehydrohalogenation with alkali. (The easy accessibility is surprising because the 5-unsubstituted barbituric acid can only be converted into a mono-glycidyl derivative even when treated with a large excess of epichlorohydrin.) The new diepoxides are as a rule liquid viscous and can be cured with the conventional curing agents, such as dicarboxylic acid anhydrides or polyamines to form shaped articles with good mechanical and electrical properties.

3,562,275

HETEROCYCLIC N,N'-DIGLYCIDYL COMPOUNDS

Juergen Habermeyer, Allschwil, and Daniel Porret, Binningen, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a corporation of Switzerland

No Drawing. Filed July 24, 1969, Ser. No. 844,603
Claims priority, application Switzerland, Aug. 2, 1968, 11,641/68

Int. Cl. C07d 51/30

U.S. Cl. 260—260

4 Claims

New 1,3-diglycidyl-5,5-dialkyl-5,6-dihydro-uracils (1,3-diglycidyl-5,5-dimethyl-5,6-dihydro-uracil and 1,3-diglycidyl-5,5-dimethyl-6-isopropyl-5,6-dihydro-uracil) are prepared by the reaction, known per se, of 5,5-dialkyl-5,6-dihydro-uracil with epichlorohydrin in the presence of a tertiary amine or of a quaternary ammonium salt, followed by dehydrohalogenation with alkali. (The easy access is surprising because the 5-unsubstituted dihydro-uracils can be converted only into the monoglycidyl derivatives even when a large excess of epichlorohydrin is used). As a rule, the new diepoxides are liquid-viscous and can be cured with the usual curing agents, such as dicarboxylic acid anhydrides or polyamines to form shaped articles with good mechanical and electrical properties.

3,562,276

DIARYLCYCLOPROPANE PIPERAZIDES POSSESSING ENHANCED ANTIHISTAMINIC, ANTISEROTONINIC AND ANTIEXUDATIVE ACTIVITY

Uberto Teotino and Davide Della Bella, Milan, Italy, assignors to Whitefin Holding S.A., Lugano, Switzerland

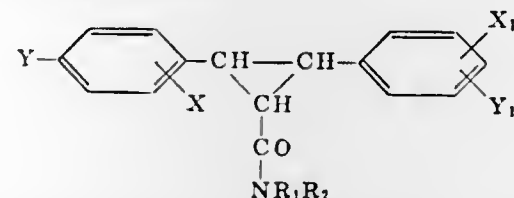
No Drawing. Filed Jan. 17, 1967, Ser. No. 609,754
Claims priority, application Great Britain, Jan. 26, 1966, 3,510/66

Int. Cl. C07d 51/64, 51/66, 51/68, 51/70, 51/72

U.S. Cl. 260—268

4 Claims

There is provided novel diarylcyclopropane derivatives of the following formula:



wherein X, Y, X₁ and Y₁ are hydrogen, lower alkyl, halogen, trifluoromethyl or lower alkoxy; R₁ and R₂ taken together with the nitrogen atom to which they are at-

tached are piperidinyl, pyrrolidinyl, morpholinyl, simple or substituted piperazinyl where the substituent is a lower alkyl group; and the non-toxic, pharmaceutically acceptable acid addition salts thereof exhibiting antihistaminic, antiserotoninic and antiexudative activity.

3,562,277

KETONIC DERIVATIVES OF PHENYL PIPERAZINES

Holger Victor Hansen, Morris Plains, Jerome Marshall Cinnamon, North Caldwell, and William Orosnik, Plainfield, N.J., assignors to Shulton, Inc., Clifton, N.J., a corporation of New Jersey

No Drawing. Filed Sept. 6, 1967, Ser. No. 665,724

Int. Cl. C07d 51/70

U.S. Cl. 260—268

8 Claims

The compounds of this invention are 1-(alkoxylated-o-amino- and o-nitro-phenyl)-ω-(4-aryl substituted phenyl-1-piperazinyl) ketones and related alkanol and alkane derivatives. The compounds of this invention are central nervous system depressants and may be used as sedatives or tranquilizers. These compounds are also useful as antipyretic agents.

3,562,278

1-[2-(2-SUBSTITUTED-3-INDOLYL)ETHYL]-4-SUBSTITUTED-PIPERAZINES

Sydney Archer, Bethlehem, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 733,250, May 31, 1968, which is a continuation-in-part of application Ser. No. 634,899, May 1, 1967. This application Sept. 16, 1969, Ser. No. 858,499

Claims priority, application Canada, Apr. 16, 1968, 17,589

Int. Cl. C07d 51/70

U.S. Cl. 260—268

17 Claims

Novel 1-[2-(2-substituted - 3 - indolyl)ethyl]-4-substituted-piperazines having psychomotor depressant activity.

3,562,279

SUBSTITUTED 7,8-DIHYDRO - 6 - METHOXY-6,14-ENDO(ETHENO OR ETHANO)MORPHIDE - 7 - KETONES AND N-CYCLOALKYLMETHYL - 7,8-DIHYDRO - 6 - METHOXY-6,14-ENDO(ETHENO OR ETHANO)NORCOCODIDE-7-KETONES

John Johnston Brown, Pearl River, N.Y., Robert Allis Hardy, Jr., Ridgewood, N.J., and Carol Nora Roth, nee Carol Therese Nora, Houston, Tex., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Continuation-in-part of application Ser. No. 671,123, Sept. 27, 1967, which is a continuation-in-part of application Ser. No. 634,116, Apr. 27, 1967. This application May 15, 1969, Ser. No. 825,029

Int. Cl. C07d 43/28; A61k 27/00

U.S. Cl. 260—285

10 Claims

This disclosure describes compounds of the class of substituted 7,8 - dihydro-6-methoxy-6,14-endo(etheno or ethano)morphide-7-ketones and N-cycloalkylmethyl-7,8-dihydro-6-methoxy - 6,14 - endo(etheno or ethano)norcocodide-7-ketones which possess analgesic activity.

3,562,280

SUBSTITUTED 1,2,3,4-TETRAHYDROISOQUINOLINES

Willy Leimgruber, Montclair, and Fausto Eugenio Schenker, Bloomfield, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Aug. 30, 1967, Ser. No. 664,269

Int. Cl. C07d 35/10

U.S. Cl. 260—289

6 Claims

Novel pharmacologically active 8-(lower alkoxy)-1,2,3,4-tetrahydroisoquinolines, 8-(lower alkoxy)-1 and/or 2-(lower alkyl)-1,2,3,4-tetrahydroisoquinolines and inter-

mediates therefor, are prepared utilizing, for example, 8-isoquinolinol as a starting material. The pharmacologically active compounds of the invention are useful as hypotensive agents.

3,562,281

BIS-PIPERIDYL-ALKANES

Lincoln Harvey Werner, Summit, and Robert Paul Mull, Florham Park, N.J., assignors to Ciba Corporation, Summit, N.J., a corporation of Delaware

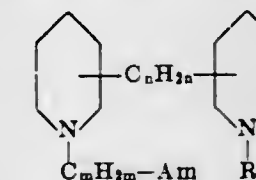
No Drawing. Continuation-in-part of application Ser. No. 686,827, Nov. 30, 1967, which is a continuation-in-part of application Ser. No. 612,357, Jan. 30, 1967. This application June 26, 1969, Ser. No. 836,992

Int. Cl. C07d 29/36

U.S. Cl. 260—293.4

9 Claims

Basically substituted bis-piperidyl-alkanes, e.g. those of the formula



n=1-7, m=2-7

Am=sec. or tert. amino group

R=H, aliphatic, araliphatic or aromatic radical

acyl derivatives, quaternaries and salts thereof are antibacterial and antiparasitic agents.

3,562,282

TRANSITION METAL COMPLEXES OF SUBSTITUTED 2 - BENZIMIDAZOLECARBAMIC ACID, ALKYL ESTERS AND THEIR PREPARATION

Hein L. Kloppe, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

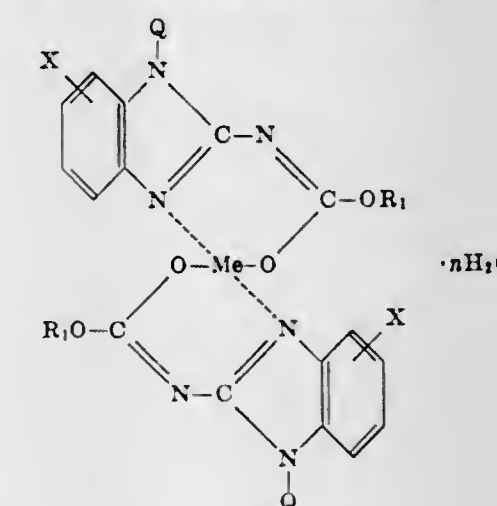
No Drawing. Continuation-in-part of abandoned application Ser. No. 721,061, Apr. 12, 1968, which is a continuation-in-part of abandoned application Ser. No. 629,900, Apr. 11, 1967, which in turn is a continuation-in-part of application Ser. No. 548,034, May 6, 1966. This application Mar. 5, 1969, Ser. No. 804,710

Int. Cl. C07d 49/38

U.S. Cl. 260—299

13 Claims

Transition metal complexes of substituted 2-benzimidazolecarbamic acid, alkyl esters of the following formula are useful as mite ovicides and fungicides:



where

Q is



and X, R₁, R₂, R₃, R₄, Z, n and Me are as defined hereinafter.

An exemplary species of the general class is the complex: 1 - (butylcarbamoyl) - 2 - benzimidazolecarbamic acid, methyl ester 2:1 manganese complex.

3,562,297

ALKANOLAMINE DERIVATIVES

Ralph Howe and Leslie Harold Smith, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed Oct. 16, 1967, Ser. No. 675,295
Claims priority, application England, Nov. 3, 1966, 49,368/66

Int. Cl. C07c 103/30

U.S. Cl. 260—347.3

5 Claims

The disclosure relates to 1-acylamino-phenoxo-3-amino-2-propanol derivatives, processes for their manufacture and pharmaceutical compositions containing them. The said compounds possess β -adrenergic blocking activity and are useful in the treatment of heart diseases. Representative of the compounds disclosed is 1-(4-propionamidophenoxy)-3-isopropylamino-2-propanol.

3,562,298

DIMERIC AZIDOPHOSPHA (III)-CARBORANES

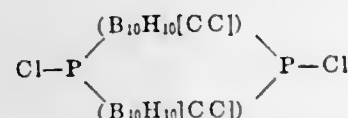
Roy P. Alexander, Killingworth, and Hansjuergen A. Schroeder, Hamden, Conn., assignors to Olin Corporation, a corporation of Virginia
Continuation-in-part of applications Ser. No. 323,278 and Ser. No. 323,416, both Nov. 13, 1963. This application Oct. 9, 1967, Ser. No. 678,769

Int. Cl. C07c 117/00; C07d 107/02

U.S. Cl. 260—349

2 Claims

Dimeric azidophospha (III)-carboranes are prepared by reacting a dimeric halophospha (III)-carborane, such as:



with an alkali metal azide such as sodium azide in the presence of an inorganic liquid and at a temperature ranging from about -20°C . to about $+80^{\circ}\text{C}$. The dimeric azidophospha (III)-carboranes can be condensed with a diphosphine to yield valuable polymeric materials which, when compounded with inert mineral fillers and pressure molded, are suitable for use in high pressure and high temperature applications.

3,562,299

PROCESS FOR PREPARING ANTHRAQUINONE DYE STUFFS

Edwin Dennis Harvey, Manchester, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed June 30, 1967, Ser. No. 650,261
Claims priority, application Great Britain, July 11, 1966, 30,972/66

Int. Cl. C09b 1/06, 1/22, 1/50

U.S. Cl. 260—371

3 Claims

An improved process for the manufacture of anthraquinone compounds containing hydroxymethyl groups which comprises reacting the corresponding compounds containing sulphonc acid groups with formaldehyde and a reducing agent in an alkaline medium.

3,562,300

LIQUID NEOALKYLPOLYOL ESTERS OF MIXTURES OF NEO- AND STRAIGHT OR BRANCHED CHAIN ALKANOIC ACIDS AND THEIR PREPARATION

Tai S. Chao, Homewood, Ill., and Manley Kjonas, Hammond, Ind., assignors to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Oct. 9, 1967, Ser. No. 673,932

Int. Cl. C07c 53/00, 53/22

U.S. Cl. 260—398

16 Claims

Neoalkylpolyol esters of mixtures of straight chain fatty acids or branched chain fatty acids which are not neo

acids, and neoalkyl fatty acids are prepared by a novel process which results in a product having superior low temperature properties and oxidation stability. The novel process of this invention comprises partially esterifying a neoalkylpolyol with a mixture of straight chain or branched chain carboxylic acids and a neoalkyl fatty acid, removing unreacted acid from the mixture before the esterification is complete, and adding straight or branched chain fatty acid sufficient to complete the esterification.

3,562,301

OIL REVERSION

Frederick H. Fryer and George B. Crump, Indianapolis, Ind., assignors to Standard Brands Incorporated, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 370,675, May 27, 1964. This application Sept. 4, 1968, Ser. No. 757,450

Int. Cl. C11b 3/04, 5/00

U.S. Cl. 260—398.5

10 Claims

The invention relates to a method of refining edible vegetable and marine oils. Vegetable and marine oils tend to revert in flavor and odor on storage. Treating such oils with small amounts of hydrogen chloride under substantially anhydrous conditions substantially prevents the oils from undergoing reversion on storage. Also, when oils which have reverted are treated with small amounts of hydrogen chloride under substantially anhydrous conditions the original bland flavor of the oils is restored.

3,562,302

PREPARATION OF FATTY ACID AMIDES FROM NITRO-NITROALKANES AND NITROALKANONE OXIMES

Alan F. Ellis, Murrysville, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Filed Dec. 9, 1968, Ser. No. 782,430

Int. Cl. C09f 7/00, 7/08

U.S. Cl. 260—404

10 Claims

Fatty acid amides, such as valeramide, are prepared by the reaction of a 1-nitro-2-nitrosoalkane or a 1-nitroalkanone-2 oxime with an anhydrous mineral acid, such as sulfuric or phosphoric acid, at intermediate temperatures of, for example, about 70°C . for relatively short contact times. The lower fatty acids, such as acetic acid, are useful as solvent mediums.

3,562,303

PROCESS OF INCREASING THE GREEN STRENGTH OF HIGH-CIS POLYISOPRENE RUBBERS AND FACILITATING THE FABRICATION THEREOF

Floyd M. Smith and Robert S. McFadden, Akron, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Continuation-in-part of application Ser. No. 498,096, Oct. 19, 1965. This application Feb. 8, 1968, Ser. No. 703,886

Int. Cl. C08c 11/18

U.S. Cl. 260—41.5

6 Claims

A rubbery high-cis polymer or copolymer of isoprene is compounded with from about 0.1 to 0.3 of the amount of sulfur, and from about 0.1 to about 0.5 of the amount of accelerator, normally requisite to effect vulcanization of the polymer or copolymer. The mixture is then briefly masticated at temperatures on the order of $275-350^{\circ}\text{F}$.

cooled to temperatures below the vulcanizing range, and compounded at this lower temperature with sufficient additional vulcanizing agents to effect vulcanization at conventional vulcanizing temperature. The re-compounded material is then extruded, calendered or otherwise formed into sheets, tire tread plies, coated bead wires, coated cord plies or other similar components which are build into assemblies such as tires etc. and finally vulcanized at ordinary vulcanizing temperatures. The rubbery material, after the initial mastication, has greatly enhanced green strength which greatly facilitates the forming and building operations.

3,562,304

ABLATIVE COMPOSITION OF MATTER

Jerry Tucker, Waco, Tex., assignor to North American Rockwell Corporation

No Drawing. Filed Feb. 13, 1968, Ser. No. 705,030

Int. Cl. C08c 11/16

U.S. Cl. 260—41.5

9 Claims

A thermal insulating ablative composition comprising an ethylene propylene terpolymer, a reactive terminated polybutadiene polymer, asbestos, a curing agent, and other optional flame retardants.

3,562,305

STABILIZED COMPOSITIONS OF ORGANOTIN (CARBOXYORGANO MERCAPTIDES) AND DIORGANOTIN BIS(CARBOXYLATES) AND THE PREPARATION THEREOF

Samuel Hoch, Brooklyn, N.Y., assignor to Tenneco Chemicals, Inc., a corporation of Delaware

No Drawing. Original application Oct. 5, 1967, Ser. No. 673,007. Divided and this application Sept. 9, 1969, Ser. No. 856,486

Int. Cl. C07f 7/22; C08f 45/62

U.S. Cl. 260—429.7

15 Claims

A stabilizer for vinyl halide resin compositions comprises an organotin mercaptoacid ester, such as dibutyltin bis-(isooctyl thioglycolate), and a small amount of an organotin carboxylate, such as dibutyltin dipelargonate or dibutyltin bis-(monoisooctyl maleate). These stabilizers, which, unlike the untreated organotin mercaptoacid esters, do not decompose rapidly on standing at room temperature, are at least as effective as stabilizers for vinyl halide resin compositions as the organotin mercaptoacid esters.

3,562,306

PREPARATION OF ZINC DIHYDROCARBON-SUBSTITUTED DITHIOPHOSPHATE

Eli W. Blaha and Roger W. Watson, Highland, Ind., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Filed Jan. 16, 1969, Ser. No. 791,772

Int. Cl. C07f 3/06

U.S. Cl. 260—429.9

8 Claims

Zinc dihydrocarbon-substituted dithiophosphates, and in particular zinc diaryl dithiophosphates, are prepared by neutralizing the dihydrocarbon-substituted dithiophosphoric acid with zinc oxide in the presence of a neutralization promoter which is a zinc salt such as zinc nitrate, zinc chloride, zinc sulphate, and the like; the zinc salt may be added as such or formed in situ by the addition of nitric acid, hydrochloric acid or sulfuric acid to the mixture of the dihydrocarbyl dithiophosphoric and sufficient zinc oxide to neutralize the dithiophosphoric acid and to form promoting amounts of the inorganic zinc salt.

3,562,307

COBALT ADDITION COMPOUNDS AND PROCESS FOR PRODUCING THE SAME

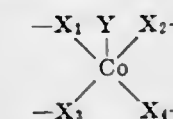
Giacome Costa, Via Virgilio 17/1, and Giovanni Mestroni, Strada di Guardiella 10/1, both of Trieste, Italy
No Drawing. Filed Feb. 16, 1968, Ser. No. 705,891
Claims priority, application Italy, Feb. 17, 1967, 12,762/67

Int. Cl. C07j 15/06

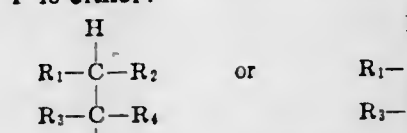
U.S. Cl. 260—439

7 Claims

Organometallic tetradentate-complexes of cobalt having the formula



wherein X_1 , X_2 , X_3 and X_4 , which may be the same or different and which form part of the same or different chelating agent, each represents a nitrogen, oxygen, sulphur or phosphorus atom, with the proviso that X_1 , X_2 , X_3 and X_4 cannot simultaneously represent four nitrogen atoms, and Y is either:



wherein R_1 , R_2 , R_3 and R_4 , which may be the same or different, each represents a substituted or unsubstituted, saturated or unsaturated hydrocarbon radical having from 1 to 8 carbon atoms, a halogen or hydrogen atom, or a hydroxyl, ester or cyanide group are disclosed as well as a novel process for preparing same. These complexes are useful as catalysts in organic reactions such as oxidations, oxoreactions and nitrosations.

3,562,308

PROCESS FOR PRODUCING ORGANOMETALLIC CHELATED COBALT COMPLEXES

Giacomo Costa, Via Virgilio 17/1, and Giovanni Mestroni, Strada di Guardiella 10/1, both of Trieste, Italy

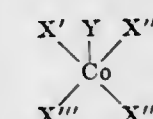
No Drawing. Filed July 22, 1968, Ser. No. 746,295
Claims priority, application Italy, July 25, 1967, 18,755/67

Int. Cl. C07j 15/06

U.S. Cl. 260—439

5 Claims

Process for preparing organometallic tetradentate complexes of cobalt by reacting a tetradentate cobalt complex having the formula:



wherein X' , X'' , X''' and X'''' , which may be the same or different, each represents an oxygen, nitrogen, phosphorus or sulphur atom with the proviso that all four are not nitrogen atoms, Y represents a hydrogen atom or an alkali metal atom with a hydrocarbon polyhalide, there being at least two molecules of the reactant cobalt complex for each molecule of the hydrocarbon polyhalide, so as to produce the desired polynuclear organometallic compound is disclosed. These compounds serve as useful intermediates for making effective organic cobalt catalysts.

3,562,309

NITROFORM SALT OF CERTAIN METALS

John R. Lovett, Edison, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Nov. 30, 1960, Ser. No. 72,799

Int. Cl. C07f 5/02, 5/06

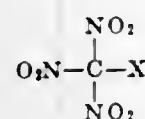
U.S. Cl. 260—448

14 Claims

1. A nitroform salt of a metal selected from the group consisting of lithium, beryllium, boron, magnesium and aluminum.

5. Alkyl aluminum salt of nitroform.

7. Process for preparing a light nitroform salt of a metal selected from the group consisting of lithium, beryllium, boron, magnesium and aluminum, which comprises reacting an organo-metallic compound of the metal with a nitroform reactant having the formula:



wherein X represents atomic constituents selected from the group consisting of hydrogen, bromine, chlorine, iodine, and sulfate, the organo radical in the organo-metallic compound of the metal being selected from the group consisting of alkyl, phenyl, alkyl-aryl, naphthyl and cyclo-alkyl hydrocarbon radicals, and recovering a resulting nitroform salt of the metal.

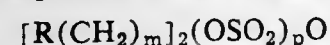
3,562,310

NOVEL POLYSULFATES AND METHODS FOR THEIR PREPARATION

Louis G. Anello, Basking Ridge, and Richard F. Sweeney, Randolph Township, Morris County, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Aug. 11, 1967, Ser. No. 659,867
Int. Cl. C07c 141/02, 141/06

U.S. Cl. 260—457 10 Claims
Polysulfate compounds of the formula:



wherein R is

(a) a haloalkyl group having from 1 to 20 carbon atoms in which the terminal carbon atom is substituted with members selected from the group consisting of fluorine, chlorine, bromine and hydrogen atoms and each carbon atom other than the terminal carbon atom, when present, is substituted with halogen atoms selected from the group consisting of fluorine and chlorine, or

(b) a perhalocycloalkyl group having from 3 to 6 carbon atoms in which each halogen atom is a member selected from the group consisting of fluorine and chlorine,

with the proviso that at least one fluorine atom is attached to each carbon atom in the haloalkyl or perhalocycloalkyl group; *m* is an integer of from 1 to 3 and *p* is an integer of from 2 to 6, are prepared by reacting a fluoroalkyl or fluorocycloalkyl iodide corresponding to the general formula:



wherein R and *m* have the afore-stated meanings, with sulfur trioxide in at least about the stoichiometric proportions for the reaction.

The novel polysulfates may be readily hydrolyzed to the corresponding alcohols using a dilute mineral acid. Corresponding monosulfates known to the prior art may not be hydrolyzed to the corresponding alcohols in this manner but require the use of highly corrosive concentrated mineral acids or the use of alkaline conditions to carry out the hydrolysis.

The novel polysulfates may also be directly converted to the corresponding fluoroalkyl or fluorocycloalkyl acrylate or methacrylate compounds by contacting the polysulfates with acrylic or methacrylic acid at temperatures from about 80 C. to about the boiling point of the reaction mixture for a period of about 1–24 hours. The corresponding monosulfates may not be similarly directly esterified to the acrylate or methacrylate compounds.

3,562,311

POLYFUNCTIONAL DIMERS

James D. McClure, San Francisco, Calif., assignor to Shell Oil Company, New York, N.Y., a Delaware corporation

No Drawing. Filed Feb. 18, 1963, Ser. No. 259,428
Int. Cl. C07c 121/20

U.S. Cl. 260—465.8 8 Claims
2-methyleneglutaronitrile is prepared via tertiary phosphine catalyzed dimerization of acrylonitrile.

3,562,312

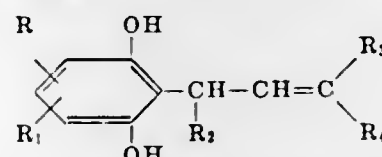
MANUFACTURE OF 2-SUBSTITUTED RESORCINOL DERIVATIVES

Albert Eschenmoser, 9 Bergstrasse, Kusnacht, Switzerland, and Theodor Petrzilka, 6 Rigistrasse, Erlenbach, Switzerland

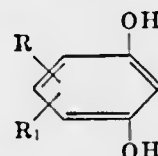
No Drawing. Filed Oct. 24, 1967, Ser. No. 677,720
Claims priority, application Switzerland, Nov. 4, 1966, 15,965/66

Int. Cl. C07c 39/10, 65/04, 69/88

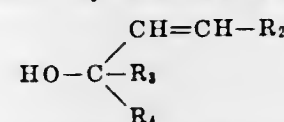
U.S. Cl. 260—473 7 Claims
Preparation of 2-substituted resorcinol derivatives of the general formula



where R is hydrogen, carboxyl or carbalkoxy, R₁ is hydrogen or alkyl, R₂ is hydrogen or alkyl, and R₃ and R₄ each is hydrogen, alkyl, alkenyl or alkynyl or in which two of the groups R₂, R₃ and R₄ are linked together to form a 5- or 6-membered ring, by condensing a resorcinol of the general formula



wherein R and R₁ have the same meanings given above, with an unsaturated allyl alcohol of the general formula



wherein R₂, R₃ and R₄ have the same meanings given above, in the presence of an N,N-dimethylformamide dialkyl acetal.

3,562,313

INTERMEDIATES FOR BENZOIC ACID LACTONES

Alexander D. Cross, % Syntex International A.T.S.A., Apartado Postal M-10063, Mexico City 1, Mexico, and John H. Fried and Ian T. Harrison, both % Syntex Research, 3401 Hillview Ave., Palo Alto, Calif. 94304

No Drawing. Continuation-in-part of application Ser. No. 560,851, June 27, 1966. This application May 6, 1968, Ser. No. 727,085

Int. Cl. C07c 65/02, 69/76

U.S. Cl. 260—473 3 Claims
Novel benzoic acid ketones and hydroxy ketones which are intermediates of benzoic acid lactones useful as estrogenic and anabolic agents.

3,562,314

PRODUCTION OF 2,7-OCTADIENYL CARBOXYLATES

Thomas M. Shryne, 60 Los Cerros, Walnut Creek, Calif. 94598

No Drawing. Filed Dec. 27, 1966, Ser. No. 604,592
Int. Cl. C07c 69/14, 69/44, 69/54

U.S. Cl. 260—485 7 Claims
2,7-octadienyl esters of organic mono- and dicarboxylic acids are produced by a dimerization-addition reaction of

carboxylic acid with 1,3-butadiene in the presence of a palladium carboxylate, preferably palladium acetate, as the catalyst and in the absence of catalyst promoter. The 2,7-octadienyl carboxylate monoesters are useful as boundary modifiers in lubricating oil compositions and the diesters are useful as plasticizers for resins.

3,562,315

HYDROUS REACTION OF ORGANIC HALIDES AND CARBOXYLIC ACID AMIDES

Jane P. Cookson, Marshall Township, Allegheny County, and Joseph S. Matthews, O'Hara Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Filed May 25, 1967, Ser. No. 641,151
Int. Cl. C07c 67/02

U.S. Cl. 260—493 8 Claims
A method of making an alcohol and its carboxylic acid ester from the reaction of an organic halide, a carboxylic acid amide and water at an elevated temperature.

3,562,316

PROCESS FOR THE CYCLIZATION OF UNSATURATED ORGANIC COMPOUNDS

Marc Julia, Paris, France, assignor to Rhone-Poulenc S.A., Paris, France, a French body corporate

No Drawing. Filed June 5, 1967, Ser. No. 643,389
Claims priority, application France, June 8, 1966, 64,698

Int. Cl. C07c 5/00, 43/20, 67/04

U.S. Cl. 260—497 6 Claims
Organic compounds having two carbon-carbon double bonds in the 1,5- or 1,6-position are cyclized by treatment with a mercuric compound and a proton acid or Lewis acid.

3,562,317

PENTACYCLOALKANECARBOXYLIC ACIDS

George L. Dunn, Wayne, and John R. E. Hoover, Glenside, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Application Jan. 6, 1966, Ser. No. 519,021, which is a continuation-in-part of application Ser. No. 442,475, Mar. 24 1965. Divided and this application July 24, 1968, Ser. No. 747,085

Int. Cl. C07c 61/12

U.S. Cl. 260—514 4 Claims
Pentacyclo[4.2.0.0^{2,5}.0^{3,8}.0^{4,7}]octanes, pentacyclo

[5.2.0.0^{2,5}.0^{3,8}.0^{4,8}]

nonanes and pentacyclo[6.2.0.0^{2,6}.0^{3,10}.0^{8,9}]decanes, substituted with an amino or aminomethyl group, are prepared from known simpler substances, including pentacycloalkanecarboxylic acids. The products are antiviral agents.

3,562,318

CATALYTIC OXIDATION PROCESS OF MONO-ARYL COMPOUNDS

Bruno J. Barone, Houston, and Louis J. Croce, Seabrook, Tex., assignors to Petro-Tex Chemical Corporation, Houston, Tex., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 598,140, Nov. 10, 1966. This application Dec. 1, 1966, Ser. No. 598,172

Int. Cl. C07c 63/02

U.S. Cl. 260—524 11 Claims
Oxidation of aromatic compounds such as p-xylene to acids such as terephthalic acid under controlled reaction conditions and in the presence of a methylenic ketone or aldehyde and as a catalyst a combination of cobalt and at least one ion of a metallic element having a valence of greater than +1 but having only a single valence.

3,562,319

OXIDATION OF CELLULOSIC MATERIAL TO PRODUCE ORGANIC ACIDS

David L. Brink, Berkeley, Calif., assignor to The Regents of the University of California

Filed June 20, 1966, Ser. No. 558,747

Int. Cl. C07c 51/18

U.S. Cl. 260—528 8 Claims

Cellulosic material is oxidized under elevated pressure and temperature, by oxygen in an aqueous medium under acidic conditions inherently resulting from the acids liberated from the material. Organic acids are thus directly produced from the material by such oxidation. Wood residue is economically disposed of by the process without creating smog or smoke problems.

3,562,320

PROCESS FOR PRODUCING METHACRYLIC ACID

George E. Woodward, Freeport, Tex., and Richard W. Hein, Ridgefield, Conn.; said Hein assignor to Escambia Chemical Corporation, Pace, Fla., a corporation of Delaware

No Drawing. Filed Apr. 25, 1967, Ser. No. 633,413

Int. Cl. C07c 57/04

U.S. Cl. 260—531 12 Claims

Methacrylic acid is produced by dehydrating alpha-hydroxyisobutyric acid in the liquid phase under the influence of heat and a catalyst which is a metal salt of alpha-hydroxyisobutyric acid. The process is desirably carried out at a temperature in excess of about 180° C., while maintaining the alpha-hydroxyisobutyric acid in the liquid state. The metal salt of alpha-hydroxyisobutyric acid is obtained by reacting the acid with a metal hydroxide or metal salt which will react with the alpha-hydroxyisobutyric acid to produce the corresponding metal salt of the acid. Desirably, the process is carried out in the presence of a polymerization inhibitor for the methacrylic acid which is formed during the process.

3,562,321

PREPARATION OF OXYGENATED HYDROCARBONS

Walter L. Borkowski and John J. van Venrooy, both of Media, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

Filed Oct. 10, 1961, Ser. No. 144,221

Int. Cl. C07c 51/00, 29/00

U.S. Cl. 260—533 6 Claims

This invention relates to a process for producing oxygenated hydrocarbons such as alcohols, glycols, aldehydes, acids and the like by reaction of hydrocarbons with ferric chloride to form chlorohydrocarbons and hydrolysis of the chlorohydrocarbons.

3,562,322

PREPARATION OF OXALIC ACID

Jacques Boichard, Bernard Pierre Brossard, Michel Louis Marie Joseph Gay, and Raymond Marc Clement Janin, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France, a French body corporate

Filed June 24, 1966, Ser. No. 560,151

Claims priority, application France, July 1, 1965, 23,136; Dec. 6, 1965, 41,078

Int. Cl. C07c 51/32

U.S. Cl. 260—533 7 Claims

Oxalic acid is prepared from ethylene by oxidation with nitric acid. The concentration of the nitric acid is maintained at least 16% throughout the reaction which is effected in the presence of a palladium or mercury catalyst.

3,562,323

ALKANESULFONYL CHLORIDE PROCESS
Shigeto Suzuki, San Francisco, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

Filed Oct. 3, 1966, Ser. No. 583,676
Int. Cl. C07c 143/70, 149/06

U.S. Cl. 260—543

15 Claims

Alkanesulfonyl chlorides are produced in an integrated process in which: (a) a lower t-alkylthiol is reacted with an alkene containing non-quaternary carbon-carbon double bond unsaturation yielding a t-alkyl-alkyl sulfide; (b) the sulfide is oxidized with chlorine and water yielding the alkanesulfonyl chloride and a lower tertiary alkyl chloride; and (c) the t-alkylthiol is regenerated and recycled to the process by reacting the chloride with hydrogen sulfide in a vapor phase reaction catalyzed by phosphoric or sulfuric acid disposed upon an inert solid inorganic oxide.

3,562,324

CHLOROCARBANES AND A METHOD FOR THE PRODUCTION THEREOF

Theodore L. Heying, North Haven, and Hansjuergen A. Schroeder, Hamden, Conn., assignors to Olin Corporation, a corporation of Virginia

Continuation-in-part of application Ser. No. 283,488, May 27, 1963. This application Nov. 27, 1964, Ser. No. 414,947

Int. Cl. C07f 5/02

U.S. Cl. 260—543

17 Claims

Ortho, meta and para chlorocarbonanes are prepared by reacting chlorine at a temperature of about -20°C . to about $+140^{\circ}\text{C}$. with ortho, meta, or para carborane in the presence of a chlorinated hydrocarbon solvent. The chlorinated carboranes of this invention are useful in the preparation of polymers suitable as fuels in solid propellant compositions.

3,562,325

2-[N,N-(AMINO LOWER ALKYL)-(ARYLSULFONYL)]-AMINO BENZOPHENONES AND DERIVATIVES

Rodney Ian Fryer, North Caldwell, Earl Reeder, Nutley, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Original application Ser. No. Sept. 22, 1965, Ser. No. 489,381, now Patent No. 3,431,304. Divided and this application Sept. 10, 1968, Ser. No. 758,683

Int. Cl. C07c 143/78

U.S. Cl. 260—556

8 Claims

Aniline derivatives having a leaving group on the nitrogen atom are described. Preferred compounds also contain an alkyl amino alkyl group on the foresaid nitrogen atom. The leaving group is preferably a tosyl group. These compounds are useful as intermediates in the preparation of benzophenone compounds having valuable therapeutic properties.

3,562,326

SUBSTITUTED FORMAMIDINES

Angelo John Speziale, Creve Coeur, and Lowell R. Smith, Chesterfield, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

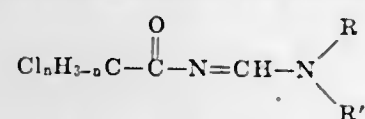
No Drawing. Filed June 17, 1968, Ser. No. 737,345

Int. Cl. C07d 103/44

U.S. Cl. 260—561

7 Claims

Substituted formamidines of the formula



wherein n is a whole number from 1 to 3, inclusive, wherein R and R' are like or unlike and are aliphatic containing from 1 to 4 carbon atoms, inclusive, and containing

from 0 to 3 chloro substituents, inclusive. R' can also be phenyl or monochloro- or dichloro substituted phenyl. The compounds exhibit pre-emergent phytocidal activity.

3,562,327

PRODUCTION OF ALKYLENE GLYCOL DI-(ACRYLAMIDE-N-METHYL)ETHERS

Harro Petersen, Frankenthal, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), and Rheinland-Pfalz, Germany

No Drawing. Filed Apr. 16, 1969, Ser. No. 816,803

Claims priority, application Germany, Apr. 19, 1968,

P 17 68 240.5

Int. Cl. C07c 103/30

U.S. Cl. 260—561

7 Claims

Production of alkylene glycol di-(acrylamide-N-methyl) ethers by reaction of acrylamide-N-methylol compounds with dialcohols in the presence of phthalic acid. The products are valuable starting materials for the production of plastics, resins and plasticizers.

3,562,328

PROCESS FOR THE PRODUCTION OF CYCLOHEXANONE OXIME

Eizo Yasui, Takeo Kawaguchi, Takashi Matsubara, and Toshiro Hirose, Nagoya-shi, Japan, assignors to Toa Gosei Chemical Industry Co., Ltd., Tokyo, Japan

No Drawing. Filed Feb. 28, 1967, Ser. No. 619,182

Claims priority, application Japan, Feb. 28, 1966,

41/11,645; Mar. 18, 1966, 41/16,569

Int. Cl. C07c 171/00

U.S. Cl. 260—566

14 Claims

A process for producing cyclohexanone oxime by the oxidation of cyclohexanone in the presence of ammonia and hydrogen peroxide using as a catalyst tungstic acid, isopolytungstic acid, heteropolytungstic acid or a salt thereof. The oxidation is conducted in the presence of a soluble tin compound or a polyhydric alcohol, preferably, in an aqueous medium at normal pressure and at temperature of $5-50^{\circ}\text{C}$. to improve the yield for cyclohexanone oxime and prevent the insolubilization of the catalyst under the reaction conditions. The yield of cyclohexanone oxime is about 92%.

3,562,329

DIBENZO[a,d]CYCLOHEPTEN-5-ONE OXIMES

Harry Louis Yale, New Brunswick, and Francis A. Sowinski, Edison, N.J., assignors, by mesne assignments, to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Application Jan. 22, 1965, Ser. No. 432,932, now Patent No. 3,448,102, dated Jan. 3, 1969, which is a division of abandoned application Ser. No. 266,011, Mar. 18, 1963. Divided and this application

Nov. 29, 1968, Ser. No. 780,184

Int. Cl. C07c 131/08

U.S. Cl. 260—566

2 Claims

Dibenzo[a,d]cyclohepten-5-one oximes which are useful in the preparation of various 5-(substituted amino-lower alkyl)-5,6-dihydrodibenz[b,f]azocines.

3,562,330

2-PHENOXY-4- AND 5-PHENYL-BUTYL AND -PENTYL-AMINES AND SALTS

Ivan C. Nordin, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich., a corporation of Michigan

No Drawing. Filed July 18, 1968, Ser. No. 745,694

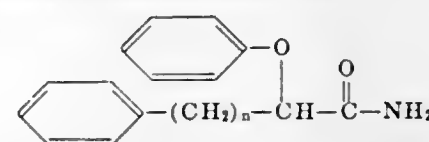
Int. Cl. C07c 93/06

U.S. Cl. 260—570.5

5 Claims

The novel amine compounds, specifically 2-phenoxy-4-phenylbutylamine, 2-phenoxy-5-phenylpentylamine

and their acid addition salts, are provided by chemically reducing 2-phenoxyphenylamides (II):



(II)

where n is 2 or 3. The products have pharmacological properties and are useful antiarrhythmic agents.

3,562,331

AMINO-LOWER-ALKOXY-DIBENZO[a,d]CYCLOHEPTENE-5-CARBINOLS

John W. Schulenberg and Sydney Archer, Bethlehem, N.Y., assignors to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Original application Oct. 16, 1964, Ser. No. 404,506, now Patent No. 3,350,405, dated Oct. 31, 1967. Divided and this application Apr. 24, 1967, Ser. No. 632,902

Int. Cl. C07c 93/06

U.S. Cl. 260—570.7

7 Claims

Dibenzo[a,d]cyclohepten-5-ones and 10,11-dihydro derivatives thereof substituted on one of the benzene rings by an amino-lower-alkoxy group are prepared by reacting the corresponding hydroxydibenzo[a,d]cyclohepten-5-ones with an amino-lower-alkyl halide. The 5-carbonyl group is subsequently converted by reduction, Grignard and dehydration reactions to the groups CH_2 , $\text{CH}(\text{OH})$, $\text{C}(\text{lower-alkyl})(\text{OH})$, $\text{C}(\text{phenyl-lower-alkyl})(\text{OH})$, $\text{C}(\text{lower-alkylidene})$, $\text{C}(\text{phenyl-lower-alkylidene})$, $\text{CH}(\text{lower-alkyl})$ or $\text{CH}(\text{phenyl-lower-alkyl})$. The compounds are useful as antidepressant agents.

3,562,332

FLUORO-ALKYL-SUBSTITUTED POLYNITROAMINES

Josef J. Schmidt-Collerus, Denver, Colo., Don N. Gray, Towson, Md., and Claibourne D. Smith, Eugene, Oreg., assignors to the United States of America as represented by the Secretary of the Air Force

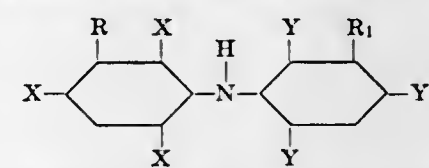
No Drawing. Filed Jan. 28, 1964, Ser. No. 340,836

Int. Cl. C07c 87/60

U.S. Cl. 260—576

3 Claims

1. The compounds having the formula:



where R and R_1 each represents a fluoro-alkyl radical having from 1 to 5 carbon atoms, X represents a nitro radical and Y is selected from the group consisting of hydrogen and a nitro radical.

3,562,333

FLUORO-ALKYL-SUBSTITUTED POLYNITRO AROMATIC AMINES AND NITRAMINES

Josef J. Schmidt-Collerus, Denver, Colo., and Don N. Gray, Towson, Md., assignors to the United States of America as represented by the Secretary of the Air Force

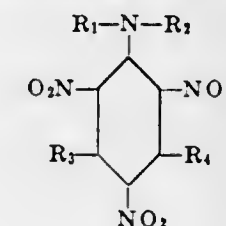
No Drawing. Filed Jan. 28, 1964, Ser. No. 340,837

Int. Cl. C07c 87/60

U.S. Cl. 260—577

6 Claims

1. The compounds having the formula:



where R_1 is selected from the group consisting of hydrogen and a nitro radical; and R_2 , R_3 and R_4 are each selected from the group consisting of hydrogen, a monovalent lower alkyl radical, and a fluoro-substituted monovalent lower alkyl radical provided that at least one of the substituents R_2 , R_3 and R_4 is fluoro-substituted monovalent lower alkyl radical.

3,562,334

PRODUCTION OF STABLE DICHLOROACETAL-DEHYDE

Sidney Berkowitz and John H. Blumbergs, Highland Park, N.J., assignors to FMC Corporation, a corporation of Delaware

No Drawing. Filed Sept. 21, 1964, Ser. No. 398,110

Int. Cl. C07c 45/24

U.S. Cl. 260—601

2 Claims

A high-purity dichloroacetaldehyde (DCA) is obtained which is stable against linear polymerization by maintaining the hydrogen chloride concentration at no greater than 0.5% by weight, maintaining the monochloroacetaldehyde concentration at no greater than 1% and by maintaining the DCA product free of metal impurities; if metal impurities are present, they can be neutralized by addition of effective amounts of either 2-benzothiazyl disulfide, thiourea or ethanolamine.

3,562,335

4,4'-BIS(CHLOROALKOXY)BIPHENYLS

David R. Gildersleve, Kent, England, assignor to Pfizer Inc., New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 589,207, Oct. 25, 1966. This application Mar. 19, 1969, Ser. No. 808,657

Claims priority, application Great Britain, June 23, 1966,

28,140/66

Int. Cl. C07c 43/28

U.S. Cl. 260—613

3 Claims

Antiviral agents of the formula:



wherein X and Z are each alkylene of 2 to 7 carbons, and the preparation thereof.

3,562,336

SYNTHESIS OF NAPHTHALENE DERIVATIVES

Peter H. Nelson, Los Altos, Calif., assignor to Syntex Corporation, Panama, Panama, a corporation of Panama

No Drawing. Filed July 24, 1968, Ser. No. 747,071

Int. Cl. C07c 43/20

U.S. Cl. 260—613

4 Claims

2-(6-methoxy-2'-naphthyl)propanal is synthesized from 6-methoxy-2-acetylnaphthalene by treatment with a phosphonium ylid, sulfonium ylid or a phosphonate carbanion followed by acid hydrolysis to the aldehyde which is converted into 2-(6'-methoxy-2'-naphthyl)propanol by reduction and into 2-(6'-methoxy-2'-naphthyl)propionic acid by oxidation, these compounds have anti-inflammatory activity.

3,562,337

DETERGENT

Vincent Lamberti, Upper Saddle River, and Henry Lemaire, Leonia, N.J., assignors to Lever Brothers Company, New York, N.Y., a corporation of Maine

No Drawing. Original application Oct. 22, 1965, Ser. No. 502,299, now Patent No. 3,427,248, dated Feb. 11, 1969. Divided and this application Aug. 7, 1968, Ser. No. 764,362

Int. Cl. C07c 43/00, 43/04

U.S. Cl. 260—615

7 Claims

The specification is concerned with polyolethers or polyolpolyethers which may be prepared, among other

methods, by reacting a long chain epoxide or long chain glycidyl ether with a polyhydroxy compound.

3,562,338

PROCESS FOR PRODUCING 4,4'-BIS(2,6 DIHYDRO-CARBYLPHENOL)

Edward F. Zaweski, Royal Oak, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Continuation-in-part of application Ser. No. 553,024, May 26, 1966. This application June 21, 1967, Ser. No. 647,614

Int. Cl. C07c 39/12, 49/62

U.S. Cl. 260—620

19 Claims

Reaction of a phenol such as 2,6-di-tert-butylphenol with oxygen in the presence of an alkali metal hydroxide followed by reaction of the product formed with additional phenol, preferably the same type phenol, in a substantially oxygen-free system yields a bisphenol (e.g., 4,4'-bis(2,6-di-tert-butylphenol)). Product quality and yields are improved if the reaction product is acidified after the bisphenol has formed, but before allowing the reaction product to contact oxygen.

3,562,339

PREPARATION OF NITROALKANES FROM VICINAL NITROALKYL NITRATES

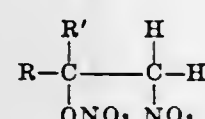
John M. Larkin, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed May 29, 1968, Ser. No. 732,886

Int. Cl. C07c 79/04

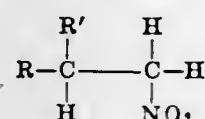
U.S. Cl. 260—644

14 Claims

A method for preparing 1-nitroalkanes by reacting a vicinal nitroalkyl nitrate corresponding to the formula:



with an alkali borohydride at a temperature of from 30 to 200° F. and subsequently acidifying. In preferred embodiments the vicinal nitroalkyl nitrate is reacted with an alkali borohydride and an alkali agent such as sodium hydroxide and thereafter acidified to provide the desired product. The nitroalkanes so prepared correspond to the formula:



and are useful as plasticizers, gasoline and lubricant additives, herbicides, pesticides and nematocides. Further they are useful as intermediates in the preparation of nitroalcohols, amino alcohols and diamines.

3,562,340

HALOGENATED β -CAROTENE PRECURSORS

Joseph Donald Surmatis, West Caldwell, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey
No Drawing. Original application Dec. 4, 1964, Ser. No. 416,128, now Patent No. 3,408,414, dated Oct. 29, 1968. Divided and this application July 11, 1968, Ser. No. 743,979

Int. Cl. C07c 23/10

U.S. Cl. 260—648

2 Claims

A process for producing trans- β -carotene from oxenin or isooxenin by conversion to a phosphine or to a phosphite and intermediates formed in this process.

3,562,341

POLYFLUORINATED 1,3-DIENES HAVING FLUORINE SUBSTITUENTS IN THE 1,1,2-POSITION, THEIR POLYMERS, AND METHODS FOR MAKING THE SAME

Paul Tarrant and Marvin R. Lilyquist, Alachua County, Fla., and Alan M. Lovelace, Dayton, Ohio, assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Continuation of application Ser. No. 504,698, Apr. 28, 1955. This application July 29, 1968, Ser. No. 753,831

Int. Cl. C07c 21/20, 17/34

U.S. Cl. 260—653.3

7 Claims

This invention relates to incompletely polyfluorinated 1,3-dienes capable of forming cross-linked polymers and having fluorine substituents in at least the 1,1,2-position, and to synthesis for their preparation. More particularly, the invention relates to a synthesis for 1,1,2-trifluorobutadiene-1,3, and to the compounds 1,1,2,4,4-pentafluorobutadiene-1,3, and 1,1,2,4,4-pentafluoro-3-methylbutadiene-1,3.

3,562,342

ISOMERIZATION OF ALKYL AROMATICS

Gayle P. Hebert, Port Neches, and Jerry C. Perciful, Groves, Tex., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 27, 1968, Ser. No. 779,612

Int. Cl. C07c 15/02, 15/08

U.S. Cl. 260—668

11 Claims

A process for the isomerization of alkyl aromatic streams under hydroisomerization conditions using a catalyst comprising nickel and tungsten as the metals or sulfides, and a mixture of a decationized crystalline zeolite and an amorphous inorganic oxide.

3,562,343

CATALYTIC ISOMERIZATION OF 2-PHENYLALKANES

Ronald L. Poe, Robert W. Wotring, Jr., and Claude D. Butler, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware

No Drawing. Filed Dec. 16, 1968, Ser. No. 784,228

Int. Cl. C07c 15/02, 5/28

U.S. Cl. 260—668

5 Claims

A 2-phenylalkane stream containing isomerization inhibitor impurities is contacted with gaseous HCl until the 2-phenylalkane stream is saturated with the gaseous HCl. The HCl saturated 2-phenylalkane stream is then heated in the presence of an aluminum chloride catalyst for a sufficient period of time until a substantial amount of the 2-phenylalkane has been isomerized to other isomers.

3,562,344

PARAXYLENE RECOVERY

Robert J. Hengstebeck, Valparaiso, Ind., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana

Filed May 21, 1969, Ser. No. 826,637

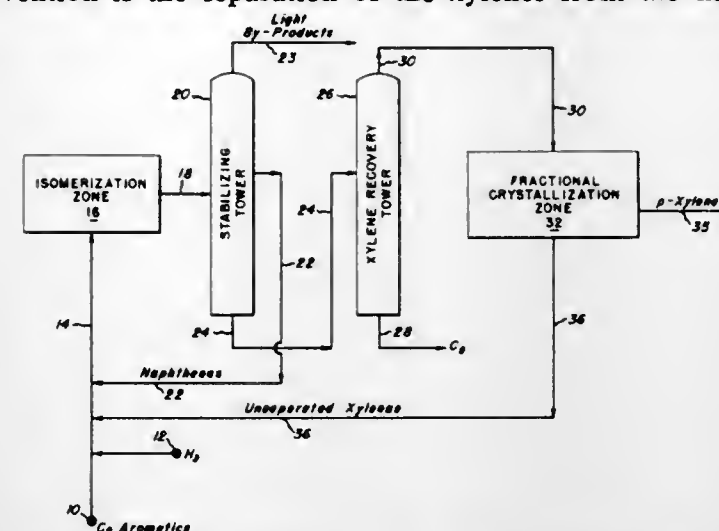
Int. Cl. C07c 15/08

U.S. Cl. 260—668

3 Claims

In an isomerization zone, C₈ aromatics are converted into xylene isomers and naphthenes. Conventional isomerization techniques are used to produce the xylenes and naphthenes, and conventional fractional crystallization techniques are then used to separate paraxylene from other

isomers of xylenes. The distinguishing feature of my invention is the separation of the xylenes from the naph-



thenes before crystallization and then recycling the naphthenes to the isomerization zone.

3,562,345

CRYSTALLINE ALUMINOSILICATE-ALUMINA COMPOSITION AND TRANSALKYLATION THEREWITH

Roy T. Mitsche, Island Lake, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed Sept. 18, 1968, Ser. No. 760,691

Int. Cl. C01b 33/28; C07c 3/50, 3/58

U.S. Cl. 260—672

11 Claims

A composition comprising as essential components thereof a crystalline aluminosilicate containing alumina fixed in combination therewith, and a method of preparation. The composition preferably comprises mordenite containing alumina fixed in combination therewith and is particularly effective as a catalyst with respect to the transalkylation or disproportionation of toluene to form benzene and polymethylbenzene products.

3,562,346

PROCESS FOR DEHYDROGENATION, DEHYDROCYCLIZATION AND HYDRODEALKYLATION OF HYDROCARBONS

Viktor Sergeevich Smirnov, Kutuzovskiy prospekt 26, kv. 556; Vladimir Mikhailovich Gryaznov, Leninskoye MGU zona L, kv. 11; Alexandr Petrovich Mischenko, Khersonskaya ulitsa 7, korpus 4, kv. 115; and Antonina Alexandrovna Rodina, Ljussinovskaya ulitsa 53/12, kv. 53, all of Moscow, U.S.S.R.

No Drawing. Filed Mar. 8, 1968, Ser. No. 711,535

Claims priority, application U.S.S.R., Mar. 8, 1967, 1,139,894; Mar. 9, 1967, 1,140,205; Apr. 28, 1967, 1,157,508, 1,157,509, 1,157,510

Int. Cl. B01j 11/08; C07c 5/18; C10g 35/06

U.S. Cl. 260—673.5

22 Claims

Palladium alloyed with copper, gold, boron, or a Group VIII metal is employed for hydrodealkylation and for dehydrogenation to produce aromatics, diolefins, and mono-olefins.

3,562,347

PROCESS FOR EXTRACT-ISOMERIZATION OF XYLENE ISOMERS

Yoshiro Ito, Tamotsu Ueno, Takashi Nakano, and Kazuo Okamoto, Okayama-ken, Japan, assignors to Japan Gas-Chemical Company, Inc., Tokyo, Japan, a Japanese body corporate

Filed Dec. 11, 1968, Ser. No. 782,994

Claims priority, application Japan, Dec. 15, 1967, 42/80,410

Int. Cl. C07c 7/10, 15/08

U.S. Cl. 260—674

10 Claims

In a process for extracting m-xylene as a complex of m-xylene, hydrogen fluoride and boron trifluoride by adding hydrogen fluoride and boron trifluoride to a mixture of xylenes and subjecting the extract phase to decomposi-

tion and isomerization, a process for extract-isomerizing m-xylene, characterized by substitute-feeding of a certain portion of hydrogen fluoride and boron trifluoride to be fed into an extracting apparatus in the form of a complex of isomerization reaction product.

3,562,348

PRODUCTION OF ALUMINUM-FREE HYDROCARBON

David M. Jenkins, Penn Hills Township, Allegheny County, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

Filed Sept. 11, 1968, Ser. No. 759,037

Int. Cl. C07c 11/02

U.S. Cl. 260—677

8 Claims

Organo-aluminum compounds are removed from a hydrocarbon stream by hydrolysis with water, alone, by forming a hydrocarbon-water admixture, separating gases from the admixture in an upper zone and flowing the hydrocarbon-water admixture to intermediate and lower zones for separation of the hydrocarbon from an aqueous aluminum slurry. The process is conducted at elevated temperatures below the boiling point of water.

3,562,349

PROCESS AND REACTOR FOR REMOVING OLEFINS FROM ACETYLENIC AND OLEFIN-CONTAINING GASEOUS HYDROCARBON MIXTURES

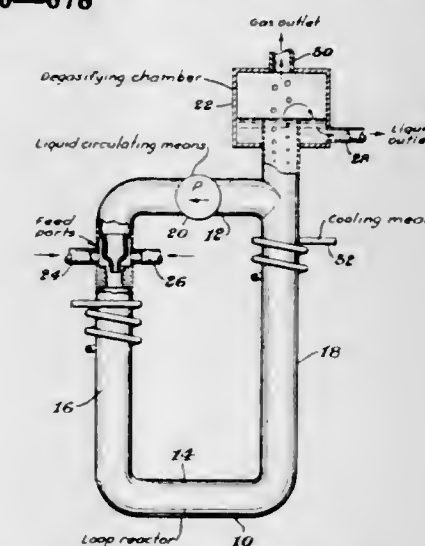
Chester E. Pawloski, Bay City, and Russell L. Stewart, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Dec. 22, 1967, Ser. No. 692,892

Int. Cl. C07c 11/24, 11/22

U.S. Cl. 260—678

5 Claims



Olefins are substantially removed from an acetylenic and olefin-containing gaseous hydrocarbon mixture by chlorinating said mixture in the presence of the liquid chlorination products of said mixture wherein the temperature is below about 60° C. The process is conducted in a novel reactor and the resulting gaseous product is useful as a welding and cutting gas.

3,562,350

PROCESS FOR MANUFACTURING CONJUGATED DIOLEFINS FROM ALKYL-1,3-DIOXANES

Bernard Juguin, Rueil Malmaison, and Bernard Torck, Chatou, France, assignors to Institut Français du Pétrole des Carburants et Lubrifiants, Rueil Malmaison, Hauts-de-Seine, France

No Drawing. Filed Dec. 12, 1968, Ser. No. 783,436

Claims priority, application France, Dec. 13, 1967, 132,357

Int. Cl. C07c 1/20; B01j 11/83

U.S. Cl. 260—681

11 Claims

A process for manufacturing conjugated diolefins from an alkyl-1,3-dioxane which comprises passing said dioxane, at a temperature of about 250 to 500° C., over a catalyst comprising a compound of an element selected from

Groups II-A and II-B of the Periodic Table and a precursor of phosphoric anhydride deposited on a silica carrier, the Group II-A and Group II-B element, expressed as the oxide, being present in an amount of about 2 to 20% by weight, based on the total catalyst and the phosphoric anhydride precursor, expressed as P_2O_5 , being present in an amount of about 2 to 20% by weight, based on the total catalyst, the molar ratio of P_2O_5 to the Groups II-A and II-B metal oxide being about 0.1 to 0.6, said process being conducted in the presence of a steam diluent having a phosphoric acid content of about 0.001 to 0.1% by weight, expressed as P_2O_5 , the ratio by volume of water to the dioxane, calculated in the liquid state being about 0.1 to 15, and recovering the conjugated diolefins.

3,562,351

DIMERIZATION PROCESS

Joseph K. Mertzweiler and Horace M. Tenney, Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Nov. 16, 1967, Ser. No. 683,493

Int. Cl. C07c 3/10

U.S. Cl. 260—683.15

3 Claims

A Group VIII water-soluble metal salt impregnated upon a suitable support such as aluminum oxide, silica, activated carbon or the like, is heat-treated in an inert atmosphere at a temperature sufficient to remove water and absorbed oxygen from the supported metal salt, but insufficient to oxidize the metal salt to its oxides. This catalyst is then activated by treating it with an organometallic compound R_nM , wherein M is a metal selected from the group consisting of lithium, magnesium, calcium, strontium, zinc, cadmium, boron, and aluminum, and R is a monovalent organo or hydrocarbon radical containing from 1–20 carbon atoms, and n is an integer ranging from 1–3 equal to the valence of M.

Catalysts activated in this manner have been found to have surprisingly increased activity for dimerizing and codimerizing monoolefins and, particularly, in the codimerization of propylene with normal butene wherein the selectivity to C_7 's in the reaction mixture is remarkably enhanced.

3,562,352

POLYSILOXANE-POLYURETHANE BLOCK COPOLYMERS

Emery Nyilas, Bedford, Mass., assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware

No Drawing. Filed Sept. 6, 1968, Ser. No. 758,141

Int. Cl. C08g 41/04, 47/10

U.S. Cl. 260—824

29 Claims

Block-copolymers of a polyurethane and a polysiloxane having direct silicon to nitrogen linkages, a method for their formation and articles formed therefrom. The copolymers are formed by a condensation type reaction between reactive terminal groups of the polysiloxane and the urethane-amide groups of the polyurethane. Inasmuch as the reaction involves only the amino groups of the polyurethane, both polyether and polyester urethanes may be used. The preferred block-copolymers are those having a minor portion of poly(dialkylsiloxane) segments and a major portion of polyurethane segments. These copolymers are characterized by a high degree of blood compatibility and consequently, are useful in providing blood contact surfaces for devices used for direct implantation into the body or for extracorporeal circulation of blood such as circulatory assist devices including auxiliary ventricles and intra-aortic balloons, and various types of blood pumps.

3,562,353
ALPHA-AMINO ACID POLYAMIDE-ORGANOSILICON COMPOSITIONS

Sui-Wu Chow, Somerville, and Joseph Sylvan Byck, Old Bridge, N.J., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Department of Health, Education, and Welfare

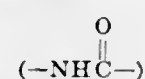
No Drawing. Filed June 9, 1969, Ser. No. 831,716

Int. Cl. C08g 20/08, 41/04, 47/10

U.S. Cl. 260—824

9 Claims

This invention relates to alpha-amino acid polyamide-organosilicon compositions characterized by a polymeric segment or block that is comprised of recurring methylene groups and substituted methylene groups linked to each other through amide linkages



and is chemically bonded to a silicon atom of a siloxane to form block copolymers. The compositions are stable to heat and light and are useful as protective coatings, casting materials, molding materials and elastomers.

3,562,354

POLYVINYL CHLORIDE BASED COATINGS CONTAINING GLYCIDYL METHACRYLATE AND VINYL ACETATE FOR METALLIC OBJECTS

Jean Golstein, Brussels, Belgium, assignor to Solvay & Cie, Brussels, Belgium

No Drawing. Filed May 1, 1968, Ser. No. 725,913

Claims priority, application Belgium, May 3, 1967, 43,181

Int. Cl. C08g 45/04

U.S. Cl. 260—836

11 Claims

A resinous coating composition which is designed for use in the coating of metallic objects by the technique of fluid bed coating or electrostatic coating comprising a polyvinyl chloride based resin which is obtained by the polymerization of a glycidyl ester of an unsaturated acid and of vinyl acetate in the presence of porous grains of polyvinyl chloride.

3,562,355

BLOCK COPOLYMER BLENDS WITH CERTAIN POLYURETHANES OR ETHYLENE-UNSATURATED ESTER COPOLYMERS

Geoffrey Holden, Los Alamitos, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Mar. 20, 1968, Ser. No. 714,405

Int. Cl. C08g 41/04; C08f 15/00, 19/00

U.S. Cl. 260—859

5 Claims

Block copolymer compositions are provided having substantially improved physical properties by incorporation of certain polyester urethanes.

3,562,356

BLOCK COPOLYMER BLENDS WITH CERTAIN ETHYLENE-UNSATURATED ESTER COPOLYMERS

David D. Nyberg, Sunnyvale, and Willis R. Hendricks, Palos Verdes Estates, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

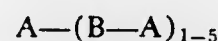
No Drawing. Continuation-in-part of application Ser. No. 490,119, Sept. 24, 1965. This application Nov. 19, 1968, Ser. No. 777,134

Int. Cl. C08f 29/50

U.S. Cl. 260—876

6 Claims

Compositions exhibiting improved flex cracking resistance and improved resistance to solvent action and ozone comprising (A) a block copolymer of the formula



wherein each A is a polymer block of a monovinyl arene and each B is a polymer block of a conjugated diene, and hydrogenated derivatives thereof, and (B) is a copolymer of ethylene with either an acrylate or a vinyl carboxylate.

3,562,357

METHOD FOR INCREASING YIELD OF COPOLYMERS OF BUTENE-1 WITH LONG CHAIN OLEFINS

Raymond Eichenbaum, Providence, R.I., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Dec. 11, 1968, Ser. No. 783,125

Int. Cl. C08f 15/40

U.S. Cl. 260—878

2 Claims

Copolymers of butene-1 and C_{10} – C_{18} alpha olefins have low brittle temperatures. Yield of polymer is increased by first reacting Ziegler-Natta catalyst with the C_{10} – C_{18} alpha olefin at 10–40° C. for 4–20 hours, and then introducing the catalyst and prepolymer, thus obtained, into the main butene-1 polymerization.

3,562,358

GRAFT POLYMERIZATION OF VINYL HALIDE MONOMERS AND DIENE POLYMERS

Sheldon F. Gelman, Danbury, Conn., assignor to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 7, 1967, Ser. No. 681,074

Int. Cl. C08f 15/02

U.S. Cl. 260—879

26 Claims

Vinyl halide polymers which exhibit improved processing characteristics without sacrificing physical properties are prepared by polymerizing vinyl halide monomer in the presence of from about 0.05% to about 0.75% by weight based on the total weight of monomer of a diene polymer having available unsaturation such as polybutadiene, styrene/butadiene copolymer or natural rubber. The monomer is preferably 100% vinyl chloride through minor amounts of other ethylenically unsaturated monomers can also be used.

3,562,359

GRAFT POLYMERIZATION OF VINYL HALIDE ON AN ELASTOMER IN THE PRESENCE OF A MERCAPTAN

Sheldon F. Gelman, Danbury, Conn., assignor to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 7, 1967, Ser. No. 681,099

Int. Cl. C08f 15/02

U.S. Cl. 260—879

79 Claims

Vinyl halide polymers which exhibit improved processing characteristics without sacrificing physical properties are prepared by polymerizing vinyl halide monomer in the presence of: (1) an aliphatic mercaptan in an amount based on —SH equivalence of from about 0.000075 to about 0.05 equivalence —SH per mole of monomeric material, and (2) from about 0.01 to about 1% by weight of a polymerizable organosolvent soluble unsaturated diene elastomer such as polybutadiene, styrene/butadiene copolymer, or natural rubber. The monomer is preferably 100% vinyl chloride though minor amounts of other ethylenically unsaturated monomers can also be used. The mercaptan is preferably a polymercaptan having at least 3 and more preferably from 3 to 5 mercaptan groups per molecule.

3,562,360

GRAFT COPOLYMERS OF FIBER-FORMING ACRYLONITRILE POLYMERS AND POLYMERIC 2,2-DISUBSTITUTED PROPIOLACTONE

Charles King and Frederick Theodore Wallenberger, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Original application Apr. 27, 1966, Ser. No. 545,545, now Patent No. 3,379,794, dated Apr. 23, 1968. Divided and this application Mar. 8, 1968, Ser. No. 711,486

Int. Cl. C08f 29/56

U.S. Cl. 260—898

7 Claims

This invention relates to new polymeric compositions derived from acrylonitrile which are graft copolymers of a fiber-forming acrylonitrile polymer and a polymeric 2,2-disubstituted propiolactone. Fibers thereof exhibit enhanced recovery and improved modulus when hot and wet.

3,562,361

O,O-DILOWER ALKENYL PHENOXYACETYL PHOSPHONATES

Delta W. Gier, Laurinburg, N.C., assignor to Chemagro Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 449,640, Apr. 20, 1965, which is a continuation-in-part of application Ser. No. 412,263, Nov. 18, 1964. This application Oct. 17, 1967, Ser. No. 675,356

Int. Cl. A01n 9/36; C07f 9/40

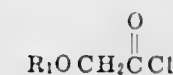
U.S. Cl. 260—941

7 Claims

Compounds of the formula



where R_1 is alkyl, phenyl, alkyl phenyl, chloroalkyl, cyanoalkyl, allyl, or methallyl and R_2 is mono, di or trihalophenyl, phenyl, alkyl phenyl, ring halo methyl phenyl, alkoxyphenyl are prepared by (1) reacting a compound having the formula $(\text{R}_1\text{O})_3\text{P}$ with a compound having the formula



or (2) by reacting a compound having the formula



with a compound having the formula



The products are useful as desiccants and as herbicides. The allyl compounds are particularly effective as selective herbicides for broad leaf plants.

3,562,362

PHOSPHORUS CONTAINING ALKYL THIO METHYL CARBOXYLATES

Charles Kezerlian, Orinda, Calif., assignor to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

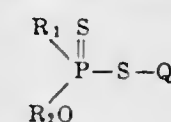
No Drawing. Filed Nov. 8, 1967, Ser. No. 681,576

Int. Cl. C07f 9/16, 9/40

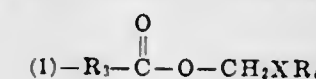
U.S. Cl. 260—942

8 Claims

Certain substituted phosphorus containing alkyl thio methyl carboxylates of the formula:

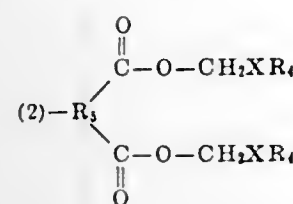


in which R_1 is alkyl or alkoxy, R_2 is alkyl and Q is:



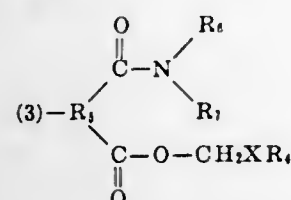
in which:

R_3 is alkylene, C_1-C_4 ; X is sulfinyl or thio and R_4 is alkyl, C_1-C_4 ; or



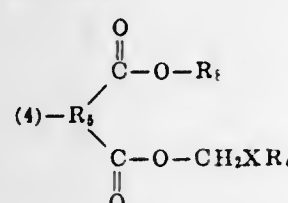
in which:

X and R_4 are as defined and R_5 is a trivalent saturated hydrocarbon, C_1-C_3 ; or



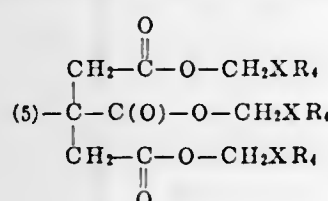
in which:

X , R_4 and R_5 are as defined and R_6 and R_7 are hydrogen, alkyl C_1-C_6 , aryl, halo or cyano substituted alkyl or aryl, or tetrahydrofurfuryl or when R_6 and R_7 are taken together, an alkylene, C_2-C_6 , ethyleneoxyethylene or ethylenethioethylene groups; or



in which:

X , R_4 and R_5 are as defined and R_8 is alkyl C_1 to C_3 or halogen, aryl, haloaryl substituted derivatives thereof; or



in which:

X and R_4 are as defined and the use of these compounds as insecticides and acaricides.

3,562,363

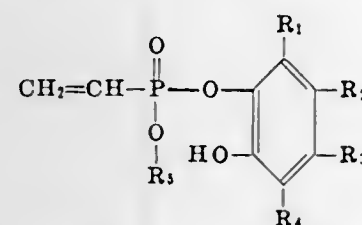
O-CATECHOL O-HYDROCARBYL-VINYL PHOSPHONATES AND PROCESS FOR MAKING SAME

David I. Randall, Easton, Pa., assignor to GAF Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Mar. 22, 1967, Ser. No. 624,995
Int. Cl. C07f 9/40; A01n 9/36

U.S. Cl. 260-953

11 Claims

The compounds are esters and half esters of vinylphosphonic acid represented by the following structural formula:



wherein R_1-R_4 are either hydrogen, alkyl, alkoxy, or halo and two of the substituent groups may form a condensed ring and R_5 is either hydrogen, an aromatic, a cycloaliphatic, or an aliphatic group, wherein the carbon atom linked to the oxygen is not tertiary. The compounds possess plant growth regulating properties, e.g., control of

apical dominance, and may also be employed as monomers for the production of polymers. The compounds are produced from the catechol and substituted catechol cyclic esters of vinylphosphonic acid, with the half esters being produced by hydrolysis of the cyclic ester and the esters being produced by transesterification of the cyclic ester with a suitable alcohol.

3,562,364

REMOTE PROPELLANT CASTING PROCESS

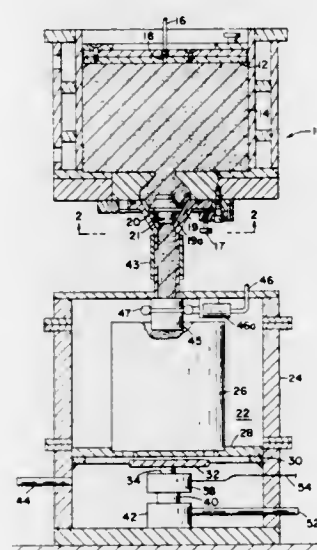
Ford J. Caudle, Athens, Ala., Joe S. Foster, Newtown, Pa., Bobby K. Nipp, Knoxville, Tenn., and Solon H. Morring, New Hope, and Russell T. Smith, Decatur, Ala., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Filed May 6, 1968, Ser. No. 726,936

Int. Cl. C06b 21/00

U.S. Cl. 264-3

3 Claims



A novel process and apparatus for casting high energy solid propellants without exposure to personnel. The process involves vacuum casting of the propellant mix from a propellant mixer bowl into a rocket motor case underneath the mixer bowl by pulling a vacuum on the mixer bowl from the structure containing the rocket motor case in order to open a discharge valve located between the mixer bowl and the rocket motor. Channeling is prevented and air excluded by the use of a follower plate resting on top of the propellant mix.

3,562,365

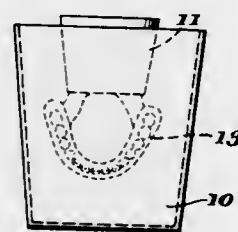
PROCESS FOR MOULDING DENTURES

Derek E. Redgwell, 24 Manor Road, Guildford, Surrey, England
Filed Sept. 4, 1968, Ser. No. 757,359
Claims priority, application Great Britain, Sept. 6, 1967, 40,665/67

Int. Cl. A61c 13/00; B29c 1/02

U.S. Cl. 264-16

2 Claims



A method in which a cavity is first formed in a moulding material in a flask by using a wax model of the article attached to a plug, the plug then being removed and the wax melted out, moulding dough then being inserted in

quantity in excess of the cavity and forced in by a second smaller plug so that excess material passes out around the second plug, the dough then being cured with the second plug clamped in position.

3,562,366

METHOD OF REPAIRING WINDSHIELDS

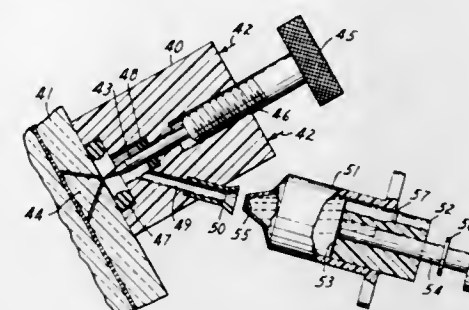
William E. Sohl, Landau, Ontario, Canada, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed Dec. 18, 1968, Ser. No. 784,732

Int. Cl. B29c 27/04

U.S. Cl. 264-23

4 Claims



Pock marks in automotive windshields are extinguished by completely filling with liquid resin under high frequency vibration and polymerizing the resin, all while leaving the windshield in place.

3,562,367

PROCESS FOR PRODUCING THERMOPLASTIC RESIN FOAM

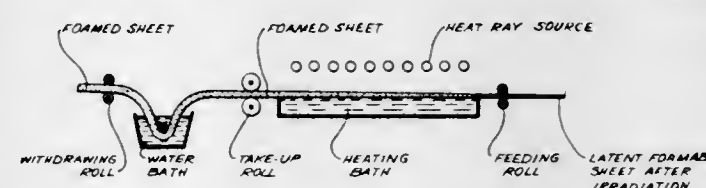
Yasuo Shinohara, Toshimasa Takahashi, and Kenji Yamaguchi, Ohtsu-shi, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan
Filed Feb. 25, 1965, Ser. No. 435,285

Claims priority, application Japan, Feb. 27, 1964, 39/10,606; Mar. 9, 1964, 39/12,870; Sept. 25, 1964, 39/54,303; Sept. 29, 1964, 39/54,738; Oct. 15, 1964, 39/58,329

Int. Cl. B29d 7/02, 7/14; H05b 7/16

U.S. Cl. 264-25

9 Claims



The production of a foamed thermoplastic resin by applying an ionizing radiation to a sheet which is formed of an olefinic resinous composition and a foaming agent, and thereafter floating the sheet on a heated bath while irradiating it from above with heat rays.

3,562,368

GAS RELEASE FROM CELLULOSE CASING BY MULTIPLE PERFORATIONS

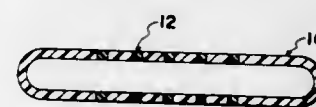
Douglas J. Bridgeford, Danville, Ill., assignor to Tee-Pak, Inc.

Filed Dec. 13, 1967, Ser. No. 690,161

Int. Cl. B29d 23/04

U.S. Cl. 264-36

9 Claims



A method of venting fluids from artificial tubular casings made by the viscose process comprises perforating multiple small holes in a discrete area of the cellulose xanthate casing during regeneration thereof. The holes

are later filled with a suitable liquid, gel-forming dope (e.g., a 16% cellulose, low degree of polymerization, viscose) or with a solid suspension or slurry of water swellable material (e.g., low alkali unregenerated cellulose xanthate) in a water-miscible organic solvent (e.g., acetone) or by securing a solid film patch such as cellulose onto the gel casing with an adhesive such as alpha-cyano-methyl acrylate monomer.

3,562,369

PRODUCING A CRINKLED AND FIBRILLATED RIBBON BY HOT MELT DRAWING TECHNIQUES

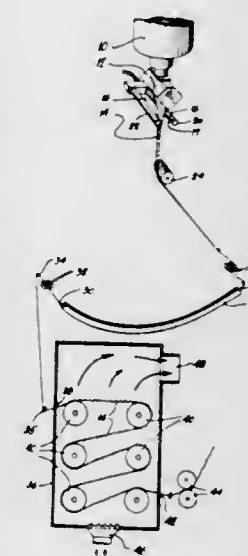
Sohinder Nath Chopra, 1222 Cadieux St., St. Bruno, Quebec, Canada, and Hilaire Marcel Turmel, 260 Garceau St., Drummondville, Quebec, Canada

Filed Jan. 11, 1968, Ser. No. 697,209

Int. Cl. B29d 7/02, 7/24, 27/00

U.S. Cl. 264-41

2 Claims



A method for producing a fibrillated and crinkled thermoplastic textile product. The method involves the extrusion of a foamed thermoplastic ribbon under tension sufficient to produce hot-melt drawing. The fibrillated thermoplastic ribbon is then molecularly oriented and subsequently heat relaxed so as to produce the crinkled characteristics.

3,562,370

METHOD OF PRODUCING CELLULAR BODIES HAVING HIGH COMPRESSIVE STRENGTH

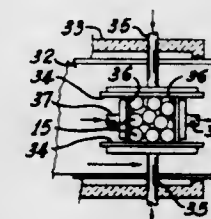
Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Continuation-in-part of application Ser. No. 378,216, June 26, 1964, which is a continuation-in-part of application Ser. No. 132,827, Aug. 21, 1961. This application Sept. 29, 1966, Ser. No. 582,903

Int. Cl. B29d 27/00

U.S. Cl. 264-45

5 Claims



The production of cellular bodies constituting glass foam pellets in end to end abutting engagement laterally bonded together by a tightly adhering expandable binder. The binder may be a foamable organic resin or a foamable inorganic material. Examples of such materials being partially foamed polystyrene beads or a foamed oxy-chloride oxy-sulfate cement.

3,562,371

HIGH TEMPERATURE GAS ISOSTATIC PRESSING OF CRYSTALLINE BODIES HAVING IMPERMEABLE SURFACES

Edward A. Bush, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York

No Drawing. Filed Oct. 16, 1968, Ser. No. 768,166

Int. Cl. C04b 35/64, 41/02

U.S. Cl. 264—65

11 Claims

Crystalline metal and ceramic bodies that have previously been sintered to the extent that the only porosity remaining in the body is closed porosity are isostatically hot pressed to a still higher density by surrounding the body which is maintained at sintering temperature with a gas at a pressure of at least 10,000 p.s.i. The gas must be inert to the body being pressed and must not permeate said body during the hot isostatic pressing step. While prior isostatic hot pressing processes have required the use of an impermeable container or an additional coating layer for the work piece neither are required in the present process.

3,562,372

METHOD OF SHAPING WHILE COOLING THE NECK PORTION OF A BLOW MOLDED PLASTIC BOTTLE

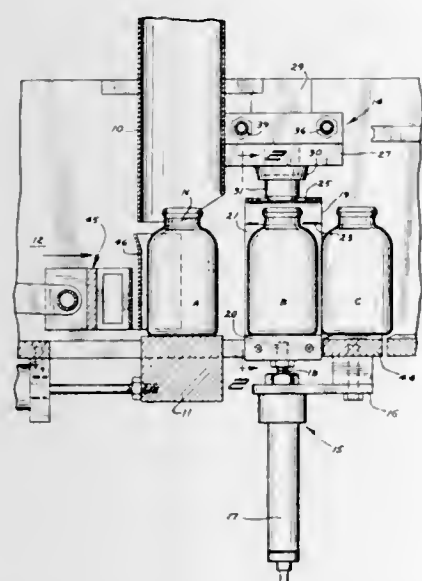
Gilmore T. Schjeldahl, Northfield, Harry R. Carlsen and James A. Warren, Minneapolis, and Charles Eumurian, St. Paul, Minn., assignors to Giltech Corporation, Northfield, Minn., a corporation of Minnesota

Filed May 8, 1968, Ser. No. 727,603

Int. Cl. B29c 17/07, 25/00

U.S. Cl. 264—94

3 Claims



Cooling of the neck portion of a plastic bottle after blow molding by discharging the bottle from the blow mold and immediately inserting a chilled gage into the bottle neck portion so that such portion will shrink onto the gage and have its internal diameter conform to the gage.

3,562,373

METHOD OF MANUFACTURING PELLETS OF THERMOPLASTIC MATERIAL

James Logrip, Norristown, Pa., assignor to Norristown Rug Manufacturing Company, Norristown, Pa., a partnership of Pennsylvania

Filed Mar. 6, 1969, Ser. No. 804,949

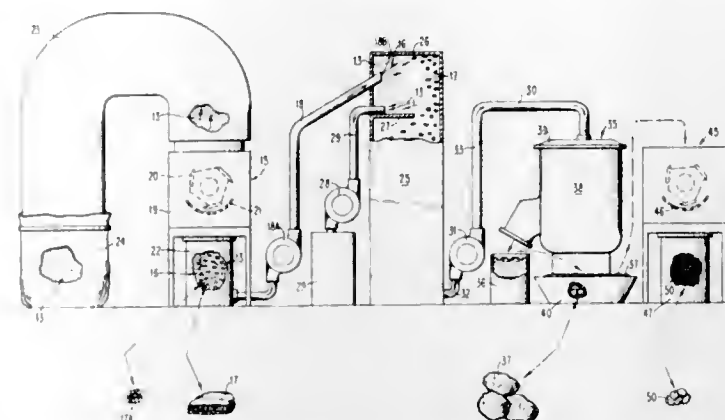
Int. Cl. B01j 2/00

U.S. Cl. 264—118

9 Claims

A method of manufacturing pellets for charging extruders, molds, etc. from fabric supported sheet vinyl. The supported sheet vinyl is typically a foamed waste which is chopped into a mass or mix of discrete particles. As the sheet vinyl supported foam is chopped, some fly

is separated therefrom, and thereafter, as the discrete-sized particles are transported for storage purposes, additional fly is removed. The mix is then blended, the blending action causing heating due to mechanical agitation. Upon



the blended mix reaching approximately 320° F., it attains a viscous mud-like consistency and is then spread out to permit cooling and then broken into rock-like chunks. Thereafter the chunk-like agglomerate is chopped to form pellets.

3,562,374

METHOD FOR MANUFACTURING FIBROUS CONFIGURATION COMPOSED OF A PLURALITY OF MUTUALLY ENTANGLED BUNDLES OF EXTREMELY FINE FIBERS

Miyoshi Okamoto and Koji Watanabe, Otsu-shi, Yasuhiko Nukushina, Koyoto-shi, and Makoto Konosu, Otsu-shi, Japan, assignors to Toray Industries, Inc., Tokyo, Japan, a company of Japan

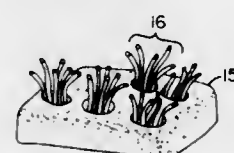
Filed Oct. 17, 1967, Ser. No. 675,982

Claims priority, application Japan, Oct. 17, 1966, 41/67,882; Oct. 21, 1966, 41/68,903

Int. Cl. B29d 27/00; D04h 1/64

U.S. Cl. 264—128

10 Claims



An improved method for manufacturing fibrous configuration used for artificial leather or the like by forming a web mainly composed of a plurality of highly oriented fibrous composites containing at least two different components, forming a felt from the web by entangling the plurality of highly oriented fibrous composite, treating the web with elastic materials and eliminating at least one of the component with suitable solvent.

3,562,375

PROCESS FOR THE SIMULTANEOUS MOLDING AND DECORATION OF ARTICLES MADE OF THERMOSETTING RESINS

François Guy and Marc Brueder, Rumilly, France, assignors to Plastorex S.A., Rumilly, France, a French body corporate

Filed Mar. 25, 1968, Ser. No. 715,918

Claims priority, application France, Apr. 5, 1967, 101,553

Int. Cl. B29c 9/00; B29g 1/00

U.S. Cl. 264—131

5 Claims



This process for the simultaneous molding and decoration of articles comprises pre-molding resin to give a preform without effecting complete curing of the resin,

applying a decorated sheet on the preform and completing the molding, the decorated sheet, prior to application on the preform, being sprinkled with a layer of a thermosetting resin which is in the form of fine grains or powder and compatible with that constituting the preform, said layer being attached to the sheet by exposure to steam. The sheet is applied on the preform in such manner that the layer is remote from the preform.

3,562,376

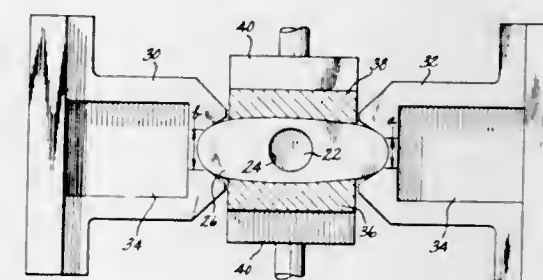
COMPRESSION MOLDING OF WOODEN ARTICLES
Harold L. Hamelster, Richfield Springs, N.Y., and Erwin Reitter, Jr., Wilmington, Del., assignors to Remington Arms Company, Inc., Bridgeport, Conn., a corporation of Delaware

Filed Oct. 25, 1968, Ser. No. 770,527

Int. Cl. B29g 1/00; B29j 5/04

U.S. Cl. 264—134

9 Claims



A wooden article having a curved and varying cross-section and a process of compression molding the article to substantially final dimensions and surface smoothness. The wooden article, e.g., a gun stock, is shaped or formed to within about 10% of its final dimensions and then is treated with a plastic primer means so as to fill up the surface pores and cracks. The primed gun stock is then compressed by heated dies under pressure to mold portions, e.g., the two side faces, to final dimensions. The dies are then cooled while the stock is still held under compression and then the dies are released and the stock removed. The sequence is repeated with a second set of dies which are adapted to compression mold the non-molded portions and to overlap the original molded surface so as to blend in the final surface and thus avoid any flashing. The stock can also be checkered during one of the compression molding operations.

3,562,377

METHOD OF FORMING IRRIGATION PIPE

James B. Zetzsche, Jr., 1405 Marsh St., San Luis Obispo, Calif. 93401

Original application June 20, 1966, Ser. No. 558,786, now Patent No. 3,449,791, dated June 17, 1969. Divided and this application Apr. 15, 1969, Ser. No. 816,356

Int. Cl. B29c 17/14

U.S. Cl. 264—155

10 Claims



A method of forming controlled size orifices within an elongated length of pipe including the steps of moving the pipe along a predetermined path, inserting a piercing tool through one wall of the pipe, orientating the piercing tool at an acute angle to the pierced pipe wall, and rotat-

ing the piercing tool about an axis perpendicular to the pierced wall and intersecting the piercing tool within the pierced wall so as to effect a permanent deformation of the material of the pierced wall so as to define an orifice therethrough upon a withdrawal of the piercing tool.

3,562,378

PROCESS FOR SPINNING COMPOSITE ACRYLIC FIBERS

Yoshimasa Fujita, Kazumi Nakagawa, Keitaro Shimoda, and Koji Miyashita, Saidaiji, Japan, assignors to Japan Exlan Co., Ltd.

No Drawing. Continuation-in-part of application Ser. No. 687,934, Sept. 6, 1967, which is a division of application Ser. No. 402,932, Oct. 9, 1964. This application Aug. 20, 1968, Ser. No. 753,859

Claims priority, application Japan, Oct. 14, 1963, 38/55,198

Int. Cl. D01d 5/22

U.S. Cl. 264—168

2 Claims

Acrylic composite fibers having latent coily crimps, useful in the manufacture of bulky yarn products having a high degree of flexibility, are prepared by spinning two different acrylonitrile polymers to obtain an acrylic composite fiber, stretching the fiber, subjecting the fiber to structure collapsing treatment, heat-treating the fiber in a relaxed state, and restretching the fiber.

3,562,379

METHOD OF CASTING A SIMULATED MARBLE BUILDING PRODUCT

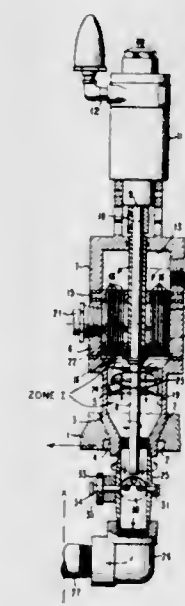
Ray Brown Duggins, Chadds Ford, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Original application Aug. 31, 1966, Ser. No. 576,303, now Patent No. 3,488,246, dated Jan. 6, 1970. Divided and this application Dec. 19, 1968, Ser. No. 794,838

Int. Cl. B29f 3/12; D06n 7/04

U.S. Cl. 264—171

7 Claims



A process for casting a simulated marble building product including mixing and initiating polymerization of an organic polymerizable material possessing a relatively high viscosity with at least one discrete coherent additional stream of a compatible second material of a differing color, said additional stream having a relatively low viscosity, accumulating the two coextensive separately identifiable materials of predetermined proportions and applying a limited, controlled low order mixing action to progressively displace the second stream in a predetermined reproducible three dimensional configuration

throughout the polymerizing mass, extruding the patterned mass through an extrusion orifice and solidifying the extrudate in a mold assembly to preserve the reproducible, three dimensional, irregular pattern and predetermined color relationship simulating natural stone or marble.

3,562,380

WEB-SPINNING FIBERS AND FILMS OF BENZ-IMIDAZO-BENZOPHENANTHROLINE POLYMERS
Michael Dunay, Fanwood, and James A. Parker, Plainfield, N.J., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Mar. 21, 1969, Ser. No. 809,367
Int. Cl. D01f 7/04

U.S. Cl. 264—184

7 Claims

Processes are provided for producing shaped articles such as fibers or films from sulfuric acid solutions of benzimidazo-benzophenanthroline polymers by extruding the solution into a coagulation medium which may be dimethylformamide, dimethylacetamide, N-methyl-2-pyrrolidone, or mixtures thereof. To improve physical properties the coagulated articles may be subsequently hot drawn.

3,562,381

PROCESS FOR PRODUCING ARTICLES OF POLYVINYL ALCOHOL

Ichiro Sakurada, Masakatsu Taniguchi, Kyoto, Akira Utsuo and Yasumasa Chonan, Tokyo, and Ayako Totani, Takatsuki-shi, Japan, assignors to Nihon Hikaku Kabushiki Kaisha, Tokyo, Japan, a Japanese corporation
No Drawing. Filed Oct. 8, 1968, Ser. No. 765,998
Int. Cl. D01f 7/00

U.S. Cl. 264—185

4 Claims

A method of manufacturing articles such as fibers in which collagen, gelatin or glue are blended with aqueous polyvinyl alcohol solution, the resulting dope then being extruded into a coagulation bath.

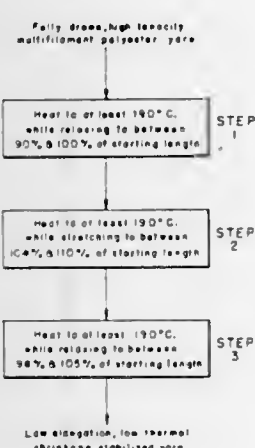
3,562,382

YARN TREATMENT PROCESS

James E. Fowler, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C., a corporation of South Carolina
Continuation-in-part of application Ser. No. 519,323, Jan. 7, 1966. This application Apr. 7, 1969, Ser. No. 826,748
Int. Cl. D02g 3/48; D02j 1/22

U.S. Cl. 264—290

4 Claims



A process for reducing the thermal shrinkage of fully drawn, high tenacity, multifilament polymeric synthetic yarns having substantial thermal shrinkage, by a multiple heat treatment of a running length thereof at substantially constant temperatures each below the sticking temperature of the yarn, which heat treatment consists essentially

of the steps of (1) first heating the yarn uniformly for at least about 10 seconds to at least 190° C. while continuously overfeeding it a constant amount so that the yarn shrinks to a length between 90% and 98% of its starting fully drawn length, (2) then heating the yarn uniformly for at least about 10 seconds to at least 190° C. while continuously underfeeding it a constant amount so that the yarn stretches to about 104–110% of its starting fully drawn length, and (3) thereafter heating the yarn uniformly for at least about 10 seconds to at least 190° C. while continuously overfeeding it a constant amount so that the yarn shrinks from its stretched length to about 98–105% of its starting fully drawn length.

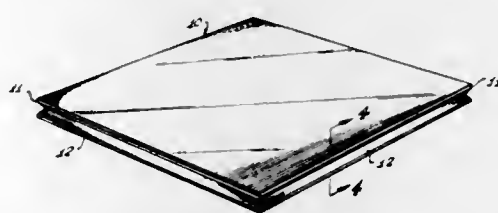
3,562,383

METHOD FOR PREVENTING EDGE DEFECTS IN COMPRESSION STRETCHED ACRYLIC SHEETS

Ronald L. Ayres, Saugus, Calif., assignor to Fortin Plastics, Inc., Saugus, Calif.
Filed Sept. 9, 1968, Ser. No. 758,395
Int. Cl. B29c 17/02, 17/08, 24/00

U.S. Cl. 264—296

8 Claims



A method which comprises providing an acrylic blank with a circumferential groove having a depth of at least 5% of the initial thickness of the blank and thereafter compressing the blank to cause the acrylic material to flow outwardly from the center of the blank to produce a compression-stretched sheet having less thickness than the blank. This method reduces edge defects in compression stretched acrylic sheets.

3,562,384

IMMUNOLOGICAL INDICATOR AND TEST SYSTEM

Edward Robert Arquilla, Pasadena, Calif., assignor to Miles Laboratories, Inc., Elkhart, Ind., a corporation of Indiana
No Drawing. Continuation-in-part of application Ser. No. 301,655, Aug. 12, 1963. This application June 28, 1966, Ser. No. 560,997
Int. Cl. G01n 31/00, 31/08

U.S. Cl. 424—12

5 Claims

The immunological indicator disclosed is made by attaching chemical coupling agents to microbial cells which serve as indicator particles. Any antigenic material can then be chemically attached thereto in order to form a specific indicator system for that antigenic material. A wide range of microbial cells and coupling agents may be used to form indicator systems which allow immunological tests to be conducted through the mechanisms of agglutination or inhibition of agglutination, and through a chromatographic technique.

3,562,385

DENTAL ANTIPLAQUE AND ANTICALCULUS COMPOSITIONS

Philip L. Block, New Brunswick, Eugene E. Howe, Somerset, and Myron J. Lover, Mountainside, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Filed Dec. 23, 1968, Ser. No. 786,868
Int. Cl. A61r 7/16

U.S. Cl. 424—54

5 Claims

Compositions for the removal of dental plaque and calculus containing combinations of one, two or three of

the active agents: dextranase, 1,6-bis-(2-ethylhexyl-biguanido)hexane dihydrochloride and sodium hexamethaphosphate together with or without added detergents, surfactants and antimicrobial ingredients.

3,562,386

WAXLIKE SOLID MATERIALS

Shigeo Kawamura, Urawa, and Keishiro Shirahama and Koji Tomuro, Tokyo, Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan
Filed Mar. 14, 1966, Ser. No. 534,150

Claims priority, application Japan, July 5, 1965, 40/39,967

Int. Cl. A61k 27/00, 9/02

U.S. Cl. 424—80

17 Claims

A solid low melting-point, wax-like, single-phase material is obtained by dissolving one part by weight of sorbitol into a total of about 0.3 to 4 parts by weight of glycerine and/or an alkylene diol having two to six carbon atoms under mild heating and then permitting solidification. It is useful as a suppository and may carry medicaments.

3,562,387

MINK VIRUS ENTERITIS VACCINE AND METHOD FOR THE PRODUCTION THEREOF

Lloyd H. Lauerman, Jr., Middleton, Wis., assignor, by mesne assignments, to The Mogul Corporation, a corporation of Ohio
No Drawing. Filed Dec. 1, 1967, Ser. No. 687,152

Int. Cl. C12k 5/00, 7/00, 9/00

U.S. Cl. 424—89

10 Claims

A vaccine for protecting the Mustelidae family against virus enteritis and the Felidae family against panleukopenia. The vaccine is prepared from mink enteritis virus propagated in kitten kidney tissue cultures. The tissue culture propagated mink enteritis virus is harvested in one to six days after cell infection, and then inactivated.

3,562,388

TREATMENT FOR MAMMALS INFECTED WITH PATHOGENIC BACTERIA

Khe Slang Liem, Van Houtenlaan, Weesp, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Sept. 16, 1969, Ser. No. 858,509

Int. Cl. A61k 27/00

U.S. Cl. 424—180

8 Claims

Compositions containing lactulose have been found to be effective in the treatment of mammals infested with pathogenic gram negative bacilli such as the Salmonella species.

3,562,389

TREATMENT OF PSORIASIS WITH WALNUT POD EXTRACT

Keith R. Comfort, 25 Pickering Ave., Fremont, Calif. 94536

No Drawing. Filed Oct. 30, 1968, Ser. No. 772,013

Int. Cl. A61k 27/00

U.S. Cl. 424—195

2 Claims

Natural fluid extract of walnut hulls is used in treatment of psoriasis by applying the fluid to afflicted areas of the skin.

3,562,390

COMPOSITIONS AND METHODS EMPLOYING CHEMOSTERILANT HALOETHYL ETHYLENEGLYCOL PHOSPHITES

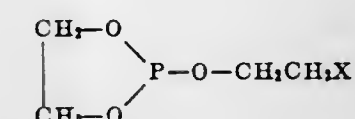
Philip C. Hamm, Glendale, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Oct. 23, 1967, Ser. No. 678,153

Int. Cl. A01n 9/36

U.S. Cl. 424—209

4 Claims

Compounds of the following formula are insect chemosterilants:



wherein X is halogen (Cl, Br, F and I).

3,562,391

METHOD OF SUPPRESSING INFLAMMATION IN MAMMALS

Adolph Edward Sloboda, New City, N.Y., and Victor John Bauer, Montvale, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed June 17, 1969, Ser. No. 834,161

Int. Cl. A01n 9/12

U.S. Cl. 424—322

5 Claims

This disclosure describes compositions of matter useful for suppressing inflammation in mammals and the method of suppressing inflammation in mammals therewith, the active ingredients of said compositions of matter being certain substituted 1-phenyl-1-alkyl-2-thioureas.

3,562,392

PACKAGE FOR BUNDLE OF GOODS

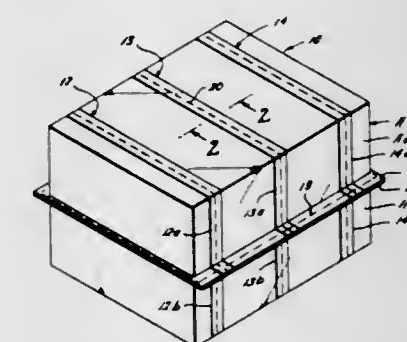
William Gordon Mylius, % Del Industries, 407 N. Bryan, Houston, Tex. 77011

Filed Jan. 31, 1969, Ser. No. 795,520

Int. Cl. B65d 75/30, 85/62

U.S. Cl. 206—46

1 Claim

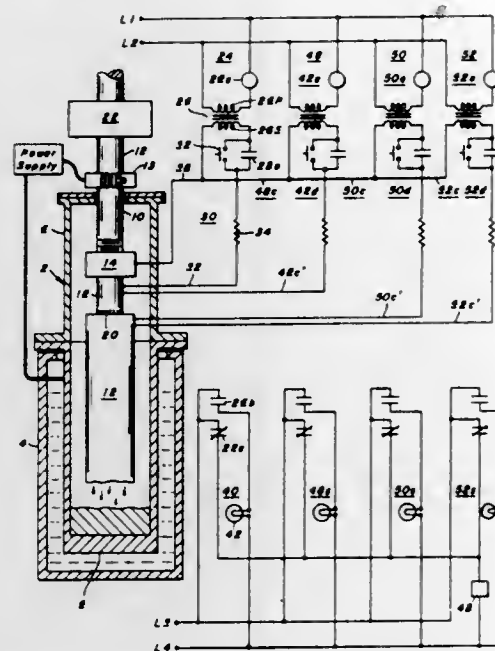


A package formed of a thin layer of polyethylene material surrounding the bundle for rendering same waterproof and having one or more tie bands encircling the bundle for tying it together. Each tie band is formed by folding a portion of the polyethylene material over an adjoining portion of the polyethylene material. The folds of the tie band or bands are fused together at points along the longitudinal dimension thereof.

ELECTRICAL

3,562,393 DETECTOR CIRCUIT FOR CONSUMABLE ELECTRODE FURNACE

Harold S. Jackson, Troy, N.Y., and Jack W. Skinner, New Kensington, Pa., assignors to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 21, 1969, Ser. No. 854,355
Int. Cl. F27d 11/02; H05b 3/00
U.S. Cl. 13-9



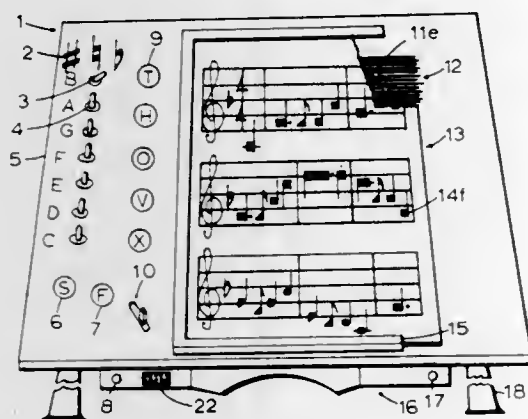
Detector circuitry for indicating progress of melting of an electrode in a consumable electrode furnace having an isolated alternating current source transformer coupled to a detector circuit which is series connected to the electrode, and signaling alarm means in an isolated circuit relationship.

ERRATUM

For Class 13-18 see:
Patent No. 3,561,029

3,562,394 ELECTRONIC MUSICAL INSTRUMENT WITH FINGER-DEPRESSABLE NOTE HEADS ON MUSICAL SCORE

Paul Edwin Kiepe, 113 Village Lane, Boise, Idaho 83702
Filed Feb. 18, 1969, Ser. No. 800,094
Int. Cl. G09b 15/04; G10h 5/00, 1/00
U.S. Cl. 84-1.01



An electrically operated musical device with controls and tones resembling an electric organ, whose tunes are programmed by exchangeable scores that the performer plays by finger pressure seriatim upon their semiattached note heads. When in playing position, a score adapted for the device, that may be a page in a book of such scores, is—in effect—its

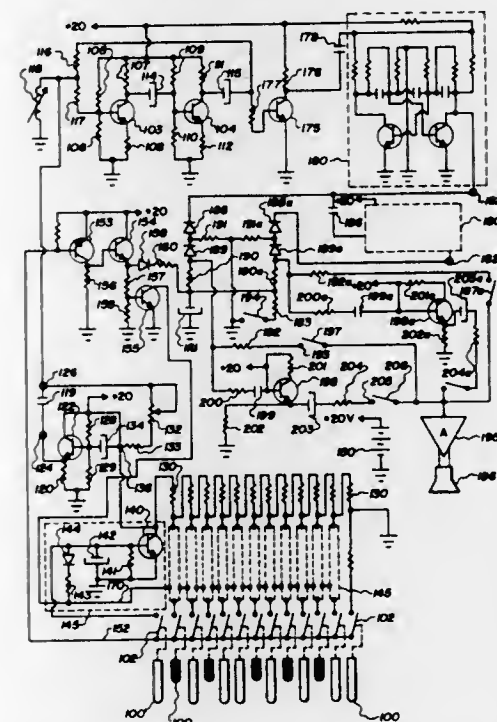
9 Claims

keyboard, being in preferred size somewhat larger than conventional sheet music to make room for note heads big enough for the finger tips. Finger pressure upon each such note head transfers its effect to subjacent metallic connective pieces. Each such metallic piece, when it descends, connects electrically across an appropriate pair of subjacent conductor bars that interconnect with the pitch-determining electronic elements of an associated control console and oscillator-amplifier-loudspeaker system. The performer need not know the code of musical scoring to play a tune; the score in playing position determines for him what note sequence will issue forth as he touches the note heads one after the other.

3,562,395 MONOPHONIC MUSICAL TONE SYSTEM WITH SINGLE KEYED OSCILLATOR, PEDAL CLAVIER, AND PERCUSSION ARRANGEMENT

Richard H. Peterson, 11748 Walnut Ridge Drive, Palos Park, Ill. 60464
Filed July 2, 1969, Ser. No. 838,577
Int. Cl. G10h 1/02, 5/06
U.S. Cl. 84-1.01

3 Claims



In a monophonic musical instrument, a single oscillator is used to selectively produce any of several musical notes. Electronic switches are used to tune the oscillator, and a memory system is provided so that percussive sounds can be produced. Tuning, and signal gating functions are controlled by a single, one pole, one throw, keyswitch associated with each playing key of the instrument.

3,562,396 ELECTRONIC GATING AND COMPONENT ASSEMBLY FOR ELECTRONIC MUSICAL INSTRUMENT

Richard H. Peterson, 11748 Walnut Ridge Drive, Palos Park, Ill. 60464
Filed July 24, 1969, Ser. No. 844,383
Int. Cl. G10h 1/00

U.S. Cl. 84-1.01

10 Claims

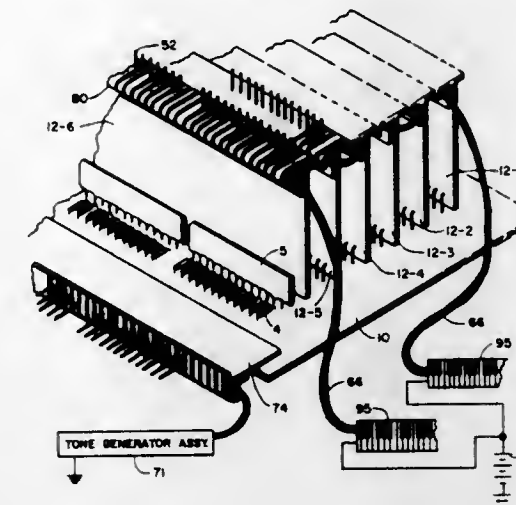
Many hundreds of electronic components, including semiconductors and resistors, that comprise the electronic gating and switching circuitry for an electronic organ, are assembled in a compact geometrical space, and arranged to minimize problems of electrostatic coupling between input and output conductors. All components are wired using wire

FEBRUARY 9, 1971

ELECTRICAL

769

with solder-through insulation. The wiring is routed in channels in a manner permitting dip soldering of all components operations of a player piano while reproducing, through tape recording means, the musical sounds of an authentic piano.

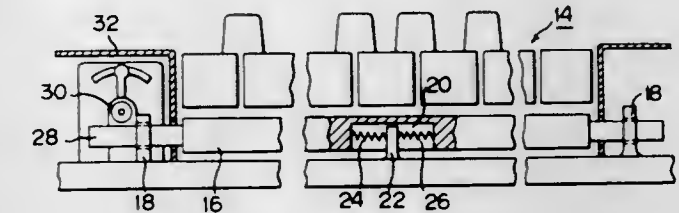


3,562,399 ELECTRONIC MUSICAL INSTRUMENT WITH MANUAL ROD CONTROLLED SPECIAL EFFECTS AS VIBRATO AND THE LIKE

Takao Yamauchi, and Shuji Muraki, Hamamatsu-shi, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
Filed May 9, 1968, Ser. No. 728,219
Claims priority, application Japan, Apr. 20, 1967, May 29, 1967, 42/42190; 42/44925
Int. Cl. G10h 1/02

U.S. Cl. 84-1.25

6 Claims



and cable connections. Several hundred connections are soldered in each dipping operation.

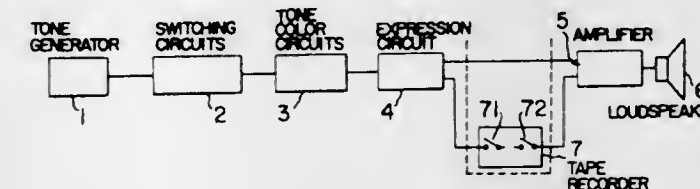
3,562,397 ELECTRONIC MUSICAL INSTRUMENT WITH BUILT-IN TAPE RECORDER

Yasuji Uchiyama, Hamakita-shi, and Mikio Ogi and Maki Yamashita, Hamamatsu-shi, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
Filed May 6, 1968, Ser. No. 726,945

Claims priority, application Japan, May 6, 1967, 42/28,503; 42/28,502; 42/28,504
Int. Cl. G10h 3/04; G11b 31/00

U.S. Cl. 84-1.02

6 Claims



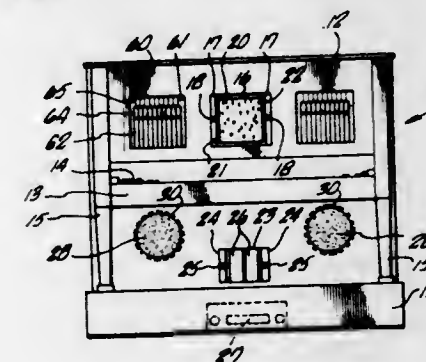
A tape recorder is variously connectable by switching to one or more parts of the electrical circuitry of an electronic musical instrument, the switching being readily controllable by the instrument player, whereby a musical piece being played can be recorded and subsequently reproduced through a part of the circuitry and the loudspeaker(s) of the instrument, and, moreover, the instrument can be simultaneously played as a recording is being so reproduced through the same loudspeaker(s).

3,562,398 PLAYER PIANO SIMULATOR WITH BUILT-IN TAPE RECORDER

Le Roy Benjamin, 501 N. Highland, Hollywood, Calif. 90036
Filed Feb. 20, 1969, Ser. No. 800,928
Int. Cl. G10f 5/00

U.S. Cl. 84-1.03

14 Claims



A model player piano is disclosed that simulates certain

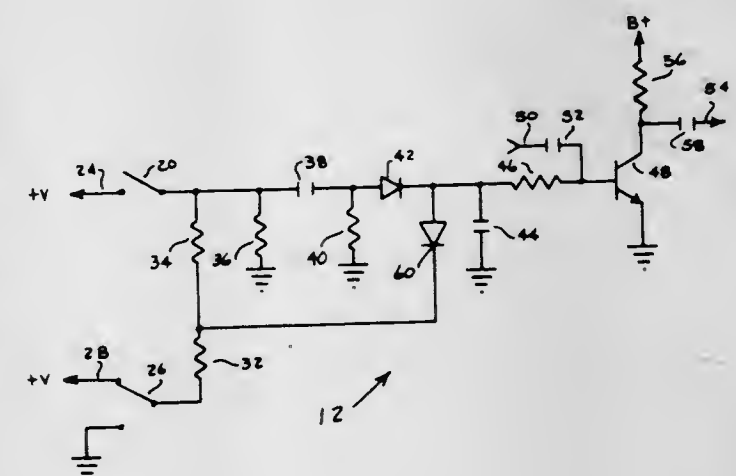
An electronic musical instrument comprising a manual keyboard for selectively switching the tones, a manually operable rod movably mounted in front of said manual keyboard and extending throughout substantially the full width thereof, and an electric transducer actuated by the movement of said manually operable rod to produce certain musical effect such as vibrato, tremolo or the like. The transducer may be a variable impedance or transformer, a light-shutter-photocell arrangement, or a switch adapted to influence the tone generators.

3,562,400 PERCUSSION KEYS WITH PEDAL SUSTAIN FOR ELECTRONIC MUSICAL INSTRUMENT

Royce L. Cutler, Houston, Tex., assignor to G-C Electronics, Inc., a corporation of Texas
Filed Feb. 20, 1968, Ser. No. 706,918
Int. Cl. G10h 1/02

U.S. Cl. 84-1.26

4 Claims



A percussive musical note is simulated. A switch passes a pulse to an RC circuit which differentiates the leading edge. The formed signal simulates a percussive instrument. A second switch adds a sustained voltage to the pulse. A diode blocks part of the discharge path of the RC circuit and extends its decay time. Hence the note may be short or sustained.

3,562,401

LOW TEMPERATURE ELECTRIC TRANSMISSION SYSTEMS

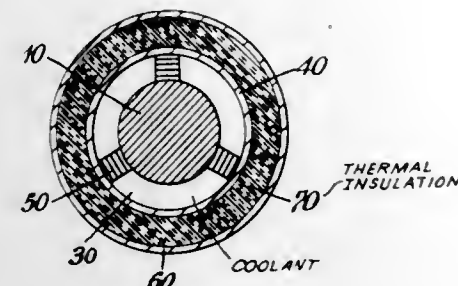
Hugh M. Long, Tonawanda, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Continuation of application Ser. No. 642,612, Feb. 27, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 395,953, Sept. 11, 1964, now abandoned. This application Mar. 3, 1969, Ser. No. 806,011

Int. Cl. H01b 7/34, 9/04

U.S. Cl. 174-15

5 Claims



This invention provides a low temperature electrical transmission system which is defined by an elongated conduit having at least one electrical conductor internally positioned within said conduit, an outer jacket surrounding said elongated conduit and a circulating cryogenic dielectric cooling liquid located between the electrical conductor and the elongated conduit for simultaneously cooling and electrically insulating the conductor from the conduit and from the outer jacket. Thermal insulation is positioned between the outer jacket and conduit to prevent heat leakage.

3,562,402

ELECTRICALLY AND MAGNETICALLY SHIELDED LAY-IN WIREWAY APPARATUS

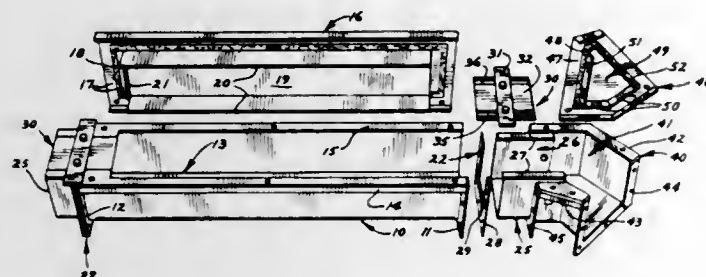
John Michael Dwyer, Elk River, Minn., assignor to Federal Cartridge Corporation, Minneapolis, Minn., a corporation of Minnesota

Filed July 3, 1968, Ser. No. 742,377

Int. Cl. H05k 9/00

U.S. Cl. 174-35

5 Claims



A shielded duct assembly comprised of a plurality of individual elements, each having completely removable cover portions to allow wires and the like to be placed or laid directly therein after the elements have been assembled to form a continuous duct. Complete magnetic and electrostatic shielding is accomplished through the establishment of a continuous current conducting path through means disposed in the sealing gaskets for the removable cover portions and intermediate adjacent individual members of the duct assembly and the further establishment of a parallel, continuous magnetic flux conductive path through the use of suitably configured joint forming members intermediate the ends of individual conduit sections whereby magnetic flux energy is shunted toward the interior of the duct in areas of flux concentration occurring at laterally outwardly opening joints, or discontinuities in the duct assembly.

3,562,403

RESIN COATED WOODEN POLES AND LIGHT STANDARDS INCORPORATING SAME

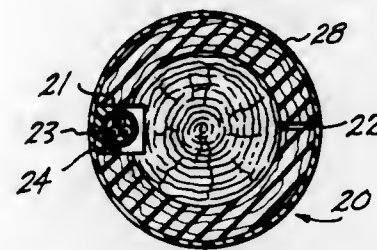
Victor C. Monahan; Gerald L. Monahan, Tacoma, and Clyde Y. Cundy, Olympia, Wash., assignors to Cascade Pole Company, Tacoma, Wash., a corporation of Washington

Filed Mar. 20, 1968, Ser. No. 714,628

Int. Cl. H02g 7/20

U.S. Cl. 174-45

10 Claims



Resin coated, preservative impregnated wooden poles having one or more longitudinal kerfs, for stress relieving and ventilation purposes, at least one kerf being cut to a depth slightly greater than the thickness of the sapwood of the pole. A shielded electrical conduit is emplaced in one such kerf and covered by a wood putty or like filler restoring the surface profile of the pole, and the pole is encased to a thickness of at least about one-tenth inch with a sprayed-on resin mix, such as a mixture of chopped glass fibers and catalyzed polyester resin. Modifications include a covering of cellophane, paper or the like applied between the pole and the plastic coating especially when an oil-base preservative is used, and a top cap to prevent entrance of moisture and to ventilate the interior of the pole. Various luminaire support arms and techniques for mounting thereof on the pole are also disclosed.

3,562,404

SEMICONDUCTOR DEVICE

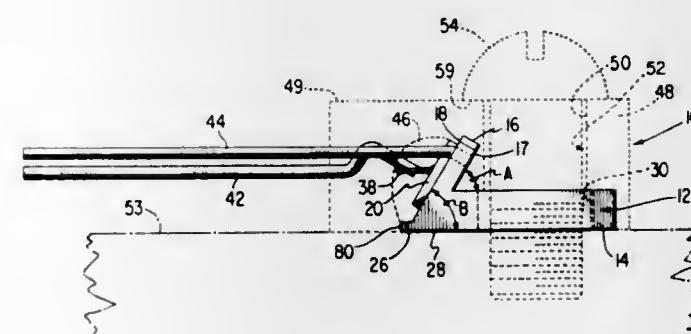
Robert J. Satriano, Colonia, N.J., assignor to RCA Corporation of America, a corporation of Delaware

Filed Dec. 31, 1968, Ser. No. 788,182

Int. Cl. H01l 1/12

U.S. Cl. 174-52

5 Claims



A semiconductor device comprises a substrate including two connected transverse portions having an acute included angle. Mounted on a first surface of one of the substrate portions is a semiconductor pellet. The pellet, and portions of the substrate, with the exception of a second substrate surface, are encapsulated within a solid encapsulating material. An opening extends through the device from a surface of the encapsulating material to the substrate second surface. The substrate first surface is transverse to the said encapsulating material surface and at an acute angle with the substrate second surface.

3,562,405

FLAME- AND/OR EXPLOSION-PROOF CASINGS

Ernest Stanley Ashford, Nutley, Sussex, and Lawrence Dilger, South Croydon, Surrey, England, assignors to Veeder Industries Inc., Hartford, Conn., a corporation of Connecticut

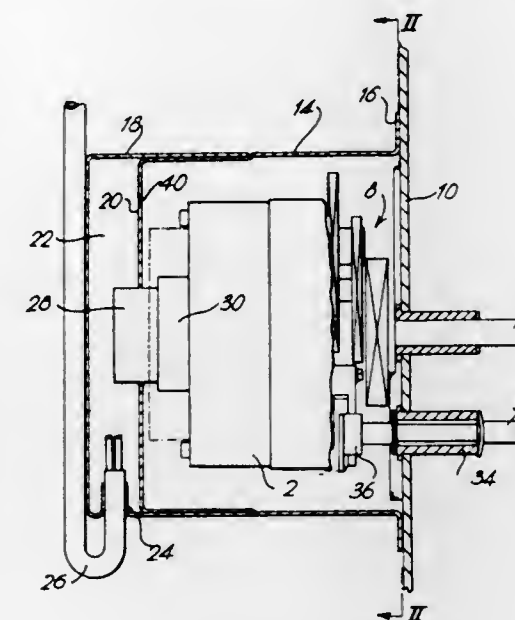
Filed Jan. 27, 1969, Ser. No. 842,410

Claims priority, application Great Britain, Jan. 26, 1968, 4245/68

Int. Cl. H05k 5/04

U.S. Cl. 174-52

5 Claims



A motor drive assembly for use in fuel-dispensing installations comprising a structural base plate, a pair of elongated outwardly projecting bushings integrally mounted within openings in the base plate, a drive motor subassembly mounted on the base plate having an output shaft extending through one of the bushings, and a sheet metal casing of generally tophat configuration enclosing the motor and having a peripheral flange welded to the base plate for enclosing the motor. A motor switch is mounted within the casing, a switch-operating shaft is rotatably mounted in the other bushing for operating the motor switch and an electrical lead cable to the motor extends through a funnellike opening in the casing having an inwardly projecting flange to which the lead cable is bonded.

3,562,406

END COUPLING FOR FAIRED CABLE

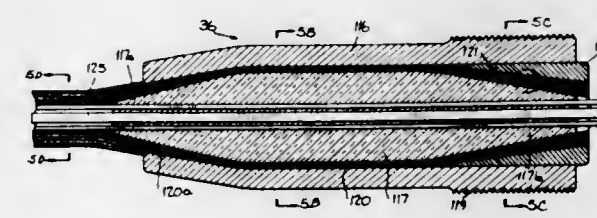
Edwin C. Uhlig, and Robert C. Kohn, South Bend, Ind., assignors to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey

Original application Nov. 22, 1967, Ser. No. 685,076. Divided and this application Jan. 21, 1969, Ser. No. 810,064

Int. Cl. H02g 15/02; F16g 11/05

U.S. Cl. 174-74

8 Claims



An end coupling for connecting faired underwater guidance cables to associated structures, e.g. submerged detection and exploration devices, is disclosed. The cable body, which has the cross-sectional contours of an airfoil, includes a relatively less flexible, resin and filament forward strength member, preferably generally channel-like or U-shaped in cross section, and a relatively more flexible, syntactic foam aft or tail member. In the manufacturing process, extra lengths of the filaments are left to protrude from the ends of

the final cable body, and the coupling construction includes separable telescoping elements between which the filaments may be threaded and clamped.

3,562,407

HEIGHT-ADJUSTABLE, INSULATING COLLAR CLIP FOR ANCHORING WIRE TO ELECTRIC LIVESTOCK FENCE POSTS

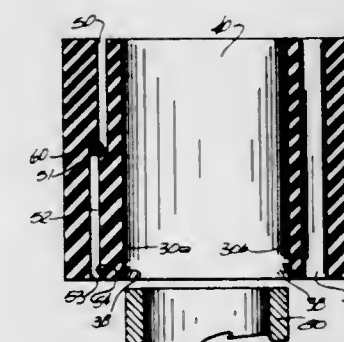
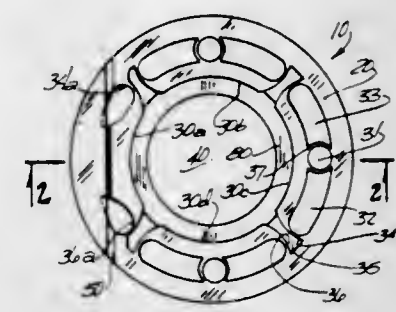
Robert E. Beebe, 2050 N. 94th St., Omaha, Nebr. 68134

Filed Apr. 18, 1969, Ser. No. 817,413

Int. Cl. H01b 17/16; A01k 3/00

U.S. Cl. 174-175

6 Claims



This invention provides a novel insulating collar clip, for retaining the electric wire, which collar clip is positioned on the livestock fence post by forcing it down around the outside surface of the post, and is adjustably movable up and down the post with manual force so as to humanely contain livestock of various sizes and ages within the perimeter of said electric fence; this, without requiring multiple strands of wire, or resetting of fence posts to various heights.

3,562,408

HAPTICON VISUAL SUBSTITUTION SYSTEM

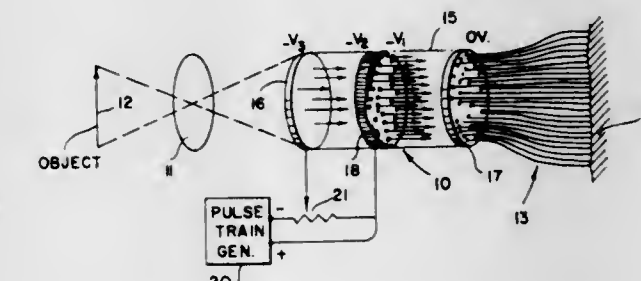
Carter C. Collins; Frank A. Saunders, Mill Valley, and Julius M. Madey, San Anselmo, Calif., assignors to The Institute of Medical Sciences, San Francisco, Calif.

Filed Mar. 5, 1969, Ser. No. 804,550

Int. Cl. H04n 7/18, 9/02

U.S. Cl. 178-5.2

22 Claims



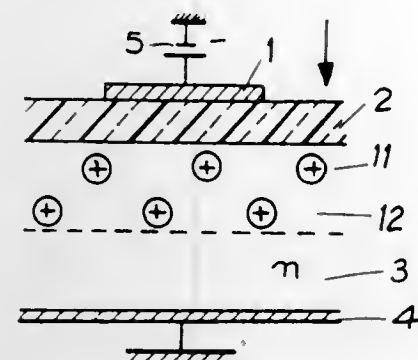
A multiple anode photomultiplier image tube is provided employing an image intensifier structure and an array of anodes for converting visible information into patterned electrical signals. A modulating source associated with the tube assures that the electrical signals exhibit particular characteristics; and such signals are conveyed to an array of electrodes in contact with the skin of a subject, to be perceived by the subject as a conceptual image. The photomultiplier

3,562,425

IMAGE SIGNAL GENERATING SYSTEM

Raymond Poirier, Paris, France, assignor to CSF-Compagnie Generale De Telegraphie Sans Fil, a corporation of France
Filed Aug. 2, 1967, Ser. No. 657,937
Claims priority, application France, Aug. 10, 1966, 72,712
Int. Cl. H04n 3/14

U.S. Cl. 178-7.2



A metal oxide semiconductor photosensitive capacitor, which comprises a negatively biased metal layer, deposited on a layer of insulating material transparent to photons. This latter layer rests on a layer of doped semiconductor material, which has an ohmic contact. A load resistance connects this contact to ground. Said load collects the current flowing across the diode during negative pulses canceling the biasing. The intensity of this current is a linear function of the photon flux received by the capacitor.

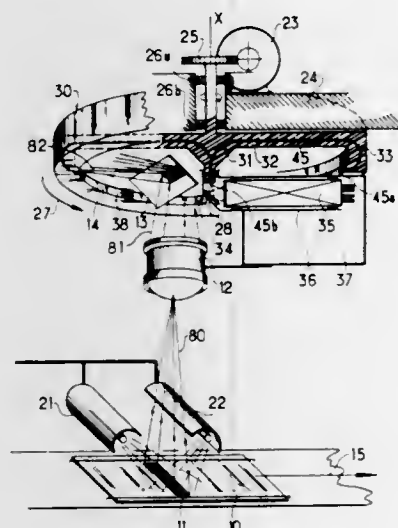
3,562,426

FACSIMILE SCANNER WITH ROTATING OPTICAL FIBER AND OPTICAL CORRECTION

Jean Lavergne, Epinay-sur-Orge, France, assignor to C.I.T. Compagnie Industrielle des Telecommunications, Paris, France

Filed Mar. 29, 1968, Ser. No. 717,344
Claims priority, application France, Apr. 4, 1967, 101,497
Int. Cl. H04n 1/04

U.S. Cl. 178-7.6



Facsimile apparatus wherein a mark on a flat document is correlated with an electrical signal through an optical link comprising essentially a wide angle objective lens projecting an image from said document on a first plane mirror, a cylindrical surface receiving said image from said first plane mirror, at least one optical fiber rotating about the axis of said cylindrical surface with an extremity close to said surface, a second plane mirror receiving an image from said optical fiber and an electro-optical device detecting the image from said second plane mirror.

3,562,427

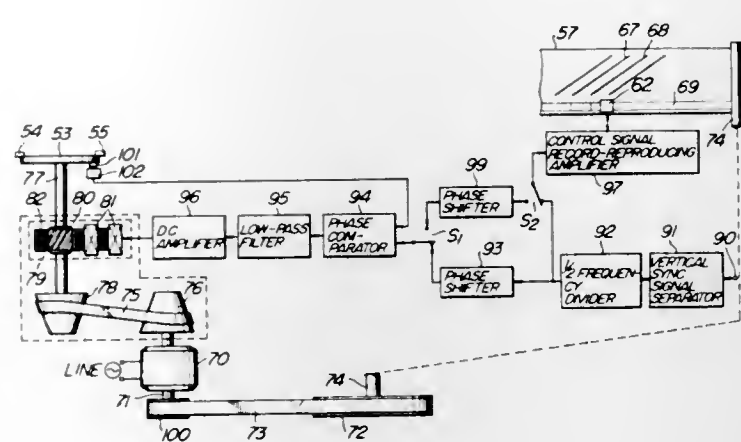
ROTATION CONTROL DEVICE

Osahiko Yano; Keiziro Mihara, Osaka; Toshiomi Yabu, Sakai-shi, and Kaoru Imanishi, Osaka, Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan, a corporation of Japan

Filed Nov. 13, 1967, Ser. No. 682,083
Claims priority, application Japan, Nov. 17, 1966, 41/76,000
Int. Cl. F16h 7/08; G11b 15/50

U.S. Cl. 178-6.6

10 Claims



A rotation control device having two pulleys, at least one of which is a conical pulley, mounted on a driving shaft rotating at a constant speed and a driven shaft to be driven in a fixed relation with the phase of a reference signal, and a torque-transmitting belt trained around the pulleys. In the device, a signal representing the phase difference between the reference signal and a signal detected in synchronism with the phase of rotation of the driven shaft is utilized to impart a brake torque to the driven shaft for varying the engaging position between the belt and the conical pulley to thereby ensure rotation of the driven shaft at a predetermined number of rotations.

3,562,428

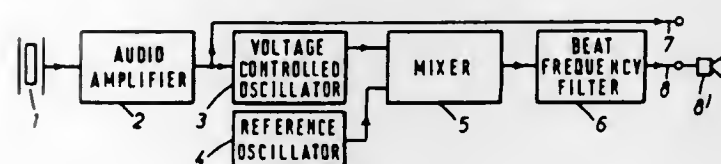
ARRANGEMENTS FOR USE IN THE EXAMINATION OF SOUND WAVE PATTERNS

Bertrand Julian Starkey, and Robert John Felix Edwards, Dartmouth, Nova Scotia, Canada, assignors to E.M.I. Cosor Electronics Limited, Nova Scotia, Canada

Filed July 12, 1967, Ser. No. 652,892
Claims priority, application Great Britain, Nov. 16, 1966, 50427/66
Int. Cl. A61b 7/04

U.S. Cl. 179-1

1 Claim



A transducer circuit for use in a stethoscope. Signals which are in an inaudible or difficult to hear frequency range are converted to signal variations in an easily heard frequency range by using modulating and mixing techniques.

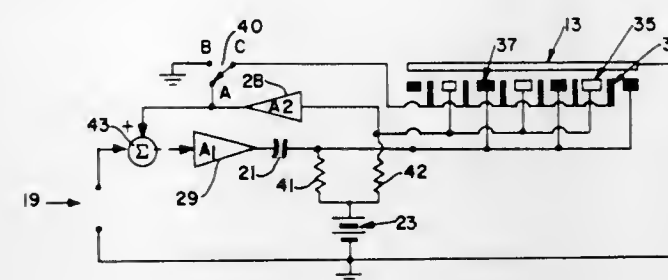
3,562,429

SOUND TRANSMITTER WITH FEEDBACK AND POLARIZATION CIRCUITRY

Roger A. West, Stanford, Calif., assignor to Teachout West Electro-Acoustics, San Francisco, Calif., a partnership
Filed Apr. 29, 1968, Ser. No. 724,729
Int. Cl. H04r 19/00

U.S. Cl. 179-1

4 Claims



A sound transmitter system utilizing a solid electrolyte battery as a permanent polarization source, and utilizing motional and remote feedback systems.

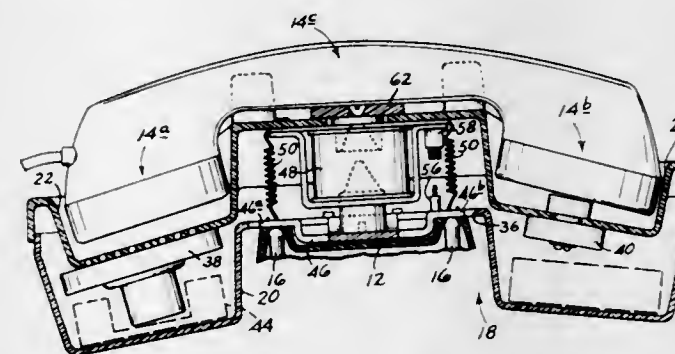
3,562,430

TELEPHONE ANSWERING DEVICE

Claude M. Faust; Albert H. Campbell, Portland, and Harold R. Burt, Beaverton, Oreg., assignors to Ford Industries, Inc., Portland, Oreg., a corporation of Washington
Continuation of application Ser. No. 534,152, Mar. 14, 1966, now abandoned. This application Oct. 30, 1968, Ser. No. 777,972
Int. Cl. H04m 1/00

U.S. Cl. 179-1

8 Claims



A telephone answering device adapted to be seated on and supported by the base of a telephone and to cradle the telephone's handset. The device includes apparatus for communicating with the transmitting and receiving transducers in the telephone's handset, and adjusting means for adjusting the position of the telephone's switch buttons in response to the presence or absence of a handset cradled in the device and to the occurrence of an incoming telephone call.

3,562,431

ASYNCHRONOUS COMMUNICATIONS SYSTEM

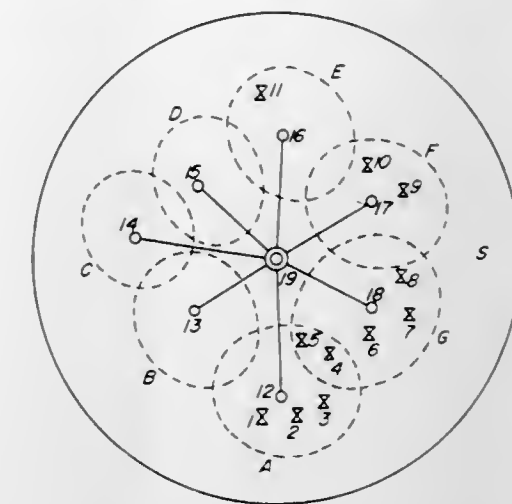
Hiroshi Inose, and Toshiharu Aoki, Tokyo, Japan, assignors to Hitachi, Ltd. and Hiroshi Inose, Tokyo, Japan
Filed Aug. 6, 1968, Ser. No. 750,511
Claims priority, application Japan, Aug. 7, 1967, 42/50314
Int. Cl. H04j 3/12

U.S. Cl. 179-15

10 Claims

An asynchronous communication system for mobile and fixed radio communications which includes a plurality of subscriber's stations, a plurality of trunk stations and a central station, in which the subscriber's speech and associated audible signals are first modulated into three-level delta modulation pulses, then coded into a frequency-time address assigned to those subscribers, transmitted by radio, received by one of the nearby trunk stations, address decoded first to identify the subscriber, then demodulated to voice band signals, transmitted to the central office having stored program control features, switched in accordance with the di-

aled information to establish connection to the other subscriber's stations, transmitted to another of the trunk stations nearby the other subscriber's stations, first modulated into three-level delta modulation, then coded into address codes



assigned to the other subscriber's stations, transmitted by radio, received by the other subscriber's stations by means of address codes, then demodulated into speech and sent to other subscribers.

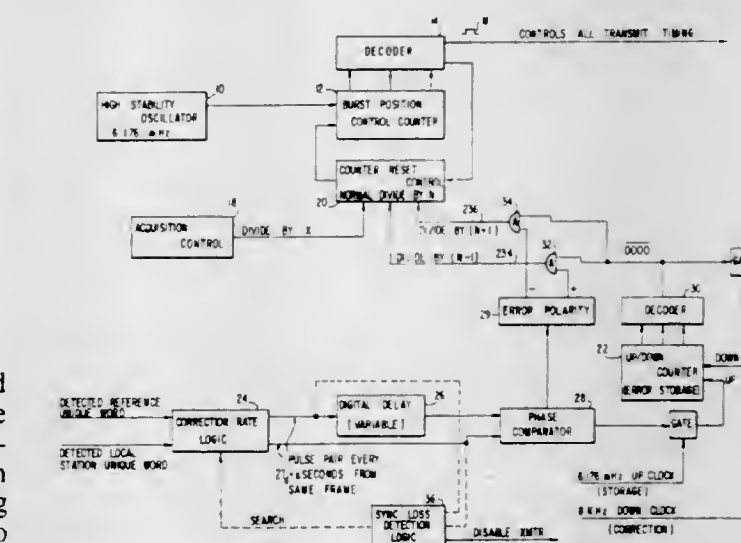
3,562,432

SYNCHRONIZER FOR TIME DIVISION MULTIPLE ACCESS SATELLITE COMMUNICATION SYSTEM

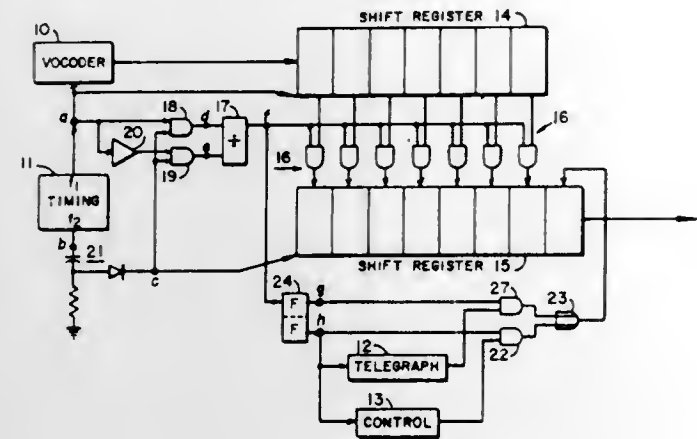
Ova G. Gabbard, McLean, Va., assignor to Communications Satellite Corporation, a corporation of Washington, D.C.
Filed Nov. 16, 1966, Ser. No. 594,921
Int. Cl. H04j 3/06; H04b 1/00

U.S. Cl. 179-15

22 Claims



channel. A predetermined number of vocoder digits are stored in a shift register at a relatively high bit rate. These bits are then transferred in parallel to a second shift register via a series of AND gates which are gated on at a relatively low bit rate. The telegraphic and control signals are al-



ternately inserted into the second shift register at the relatively low bit rate. The second shift register is then shifted at a rate which is the sum of the high bit rate and the low bit rate. A transmission line is connected to the output of the second shift register for transmitting the multiplexed information

3,562,434

INTEROFFICE SIGNALING SYSTEM EMPLOYING SELECTED ONES OF THE TOUCH-TONE TELEPHONE FREQUENCIES FOR ESTABLISHING INTEROFFICE CONNECTIONS

Kazuya Ohzeki; Kimizo Shirabe, and Haruo Mochizuki, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

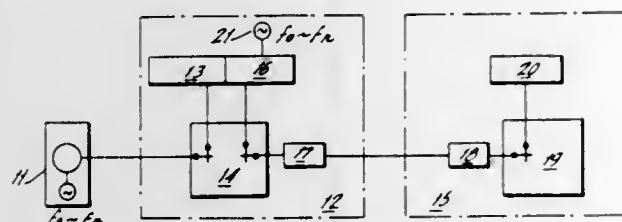
Filed Apr. 1, 1968, Ser. No. 717,771

Claims priority, application Japan, Mar. 31, 1967, 42/19877

Int. Cl. H04q 1/45; H04m 7/00

U.S. Cl. 179-16

3 Claims



A system for providing interoffice connections as may be necessary to couple calling and called parties within a telephone network employing multifrequency signals of the Touch-Tone telephone type wherein the multifrequency signals employed to establish interoffice connections are identical with selected ones of the multifrequency signals generated by the Touch-Tone type telephone handsets to eliminate the need for frequency conversion operations and additional receivers for handling all operating frequencies and further allowing register circuits at the office of the called subscriber to remain on line until a connection is established or until any other operating function is completed.

3,562,435

SWITCHING SYSTEM WITH AUTOMATED MAIN DISTRIBUTING FRAME

Amos E. Joel, Jr., South Orange, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Dec. 27, 1968, Ser. No. 787,378

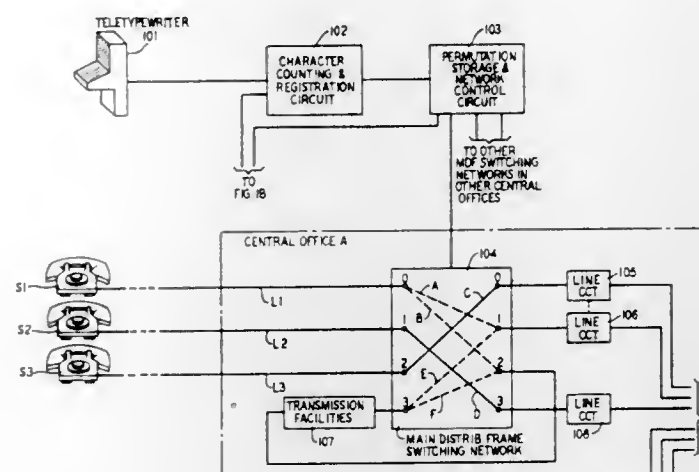
Int. Cl. H04q 1/18; H04m 3/00

U.S. Cl. 179-16

15 Claims

A telephone system comprising conventional station apparatus (outside plant) and associated conductors and con-

ventional central office equipment (inside plant) and associated conductors is provided with a main distributing frame switching network upon which the outside plant conductors and inside plant conductors are terminated. Control circuitry is provided including a memory which is responsive to signals from a teletypewriter for selectively interconnecting the outside plant conductors with the inside plant conductors by exclusive linkage paths. The switching network is rearrangeable, and circuitry is provided to detect the idle or



active state of all conductors and to inhibit the execution of network interconnection commands during the active state of any affected conductor.

In another aspect of the disclosure, a junctor circuit is associated with the inside plant and outside plant side of the main distributing frame switching network and is controllable from a test desk so as to provide access selectively to a station circuit or to a central office circuit, or in the alternative, to provide simultaneous access to both circuits via serial insertion of the junctor circuit therebetween.

3,562,436

METHOD FOR SUPERVISION TO DETERMINE THE STATES OF COMMUNICATION LINES

Rudolf O. H. Lutgenau, Coburg, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

Filed Oct. 13, 1967, Ser. No. 675,114

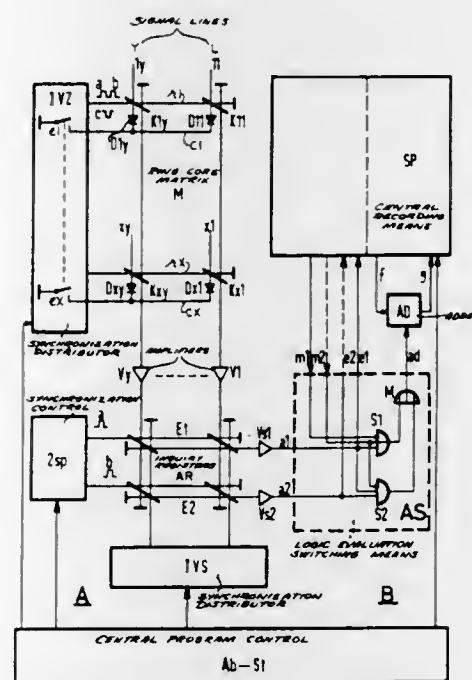
Claims priority, application Germany, Oct. 21, 1966,

S106,622

Int. Cl. H04m 3/22

U.S. Cl. 179-18.6

8 Claims



mine the states of a plurality of signal lines. Inquiry elements are operatively associated with the signal lines and are selectively connected in cyclic manner to the supervisory and evaluation circuits to provide a scanning method for successive evaluation of the signal lines. A reset pulse series is employed wherein every second inquiry pulse is preceded by a first reset pulse, and succeeded by a second reset pulse. The supervisory and evaluation apparatus provides for the evaluation of each signal line using inquiry results obtained at four different times over two reset pulse series.

3,562,437

CONDITION SENSING CIRCUIT FOR TELEPHONE SUBSCRIBERS' LINES

Pierre R. L. Marty, Paris, and Roger L. Dousset, Seine, France, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

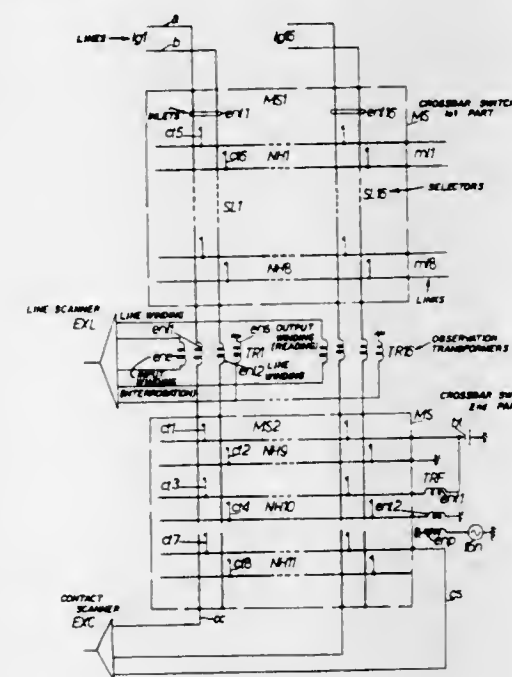
Filed Mar. 8, 1968, Ser. No. 711,580

Claims priority, application France, Mar. 13, 1967, 98472

Int. Cl. H04m 3/22

U.S. Cl. 179-18

4 Claims



Subscriber junctors for semielectronic telephone exchanges. The junctor, instead of using relays, utilizes a terminal crossbar switch. The subscriber lines are connected to the verticals of the crossbar switch through inlet connections. The verticals of the crossbar switch split into two separate parts. The lines are connected directly to the vertical of the first part. A first group of outlets on the first part of the crossbar switch is directly accessible from the inlets of the first part and leads towards common equipment in the exchange. An observation circuit is in series with each of the verticals where the crossbar switch is split. The observation circuit is sensitive to currents flowing along the lines when the lines are looped. Thus, the observation circuits on being scanned determine whether the associated line circuit is looped. There are two outlets on the second part of the crossbar switch. One leads to a current supply circuit for idle lines. The second leads to a current supply circuit for lines in a "false call" condition. Scanners connected to the second part of the switch determine whether the line is idle or free. The information secured by the scanners of the first part of the switch and the second part of the switch indicates whether the line is idle, busy or in a "false call" condition.

3,562,438

INTRAPLANT RADIO COMMUNICATION SYSTEM

Joseph J. Radomski, Shillington; Paul B. Day, Kenhorst, and Arthur H. Phillips, Reading, Pa., assignors to Gai Tronics, Inc., Reading, Pa.

Filed Sept. 7, 1967, Ser. No. 666,138

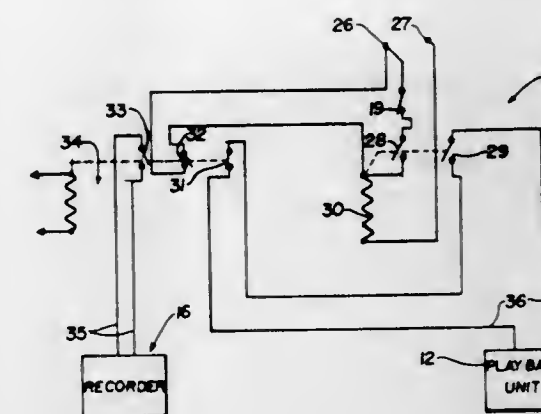
Int. Cl. H04m 11/02

U.S. Cl. 179-41

4 Claims

This invention relates to an intraplant communication system which provides, in addition to telephone communica-

tion, radio channels of communication whereby communication may be had with roving watchmen or watchengineers who carry portable transceivers. The supplementary radio communication comprises a number of portable transceivers



3,562,439

TELEPHONE IN-BAND SIGNALLING SYSTEM

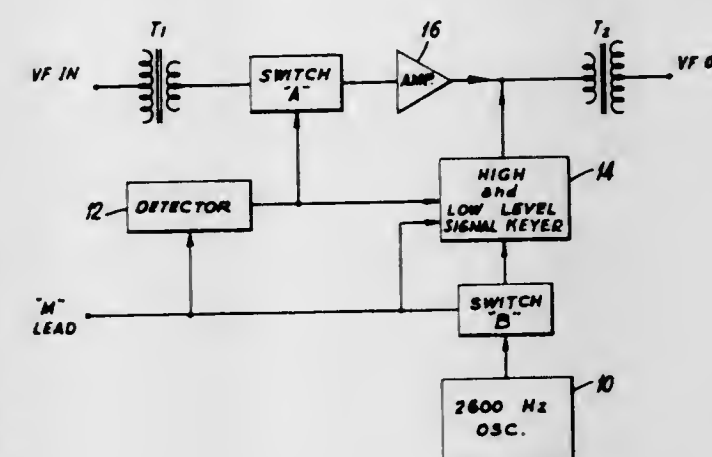
Leo K. Lugten, Riverside, Calif., assignor to Electronic Communications, Inc.

Filed June 24, 1968, Ser. No. 739,388

Int. Cl. H04m 1/50

U.S. Cl. 179-84

5 Claims



A telephone inband signalling system converts first and second DC signal levels by detecting a change in either direction between the signals to produce a voltage of predetermined time duration which exceeds the time between dial pulses. This latter voltage is employed to simultaneously (a) short the voice path, thereby preventing feedback to the calling party, and (b) enhance the tone of a 2600 Hz. oscillator. The oscillator is then on-off in response to the dial pulses coming over the input. At the end of the conversation, a muted 2600 Hz. tone is continuously transmitted indicating an idle line.

3,562,440

AUTOMATIC TELEPHONE DIALING APPARATUS

William C. Broekhuysen, New York, N.Y., assignor to G-V Controls Inc., Livingston, N.J., a corporation of New Jersey

Filed May 17, 1967, Ser. No. 639,175

Int. Cl. H04m 1/38

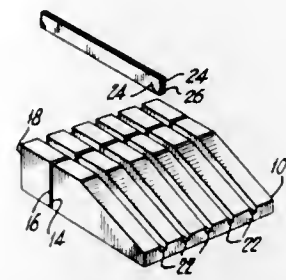
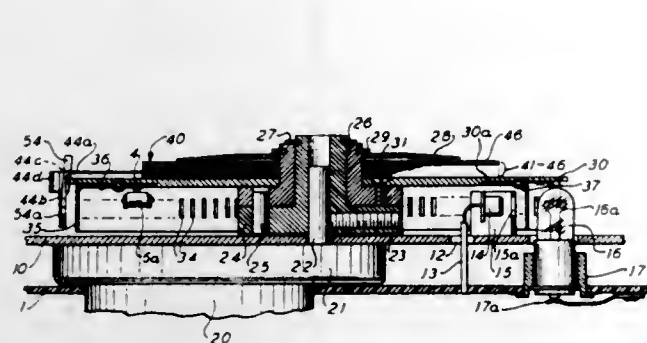
U.S. Cl. 179-90

16 Claims

A single-address automatic telephone pulse-dialer employs a rotatable member with arcuately arranged indices; an elec-

trical circuit connectable to the telephone line is opened and closed once per index passage past a reference position, and

formed from a single block of material by first cutting slots in the block, next inserting isolators in the slots, then coating



the isolators with a wear-resistant material, and then grinding away the lower surface of the block to form discrete pieces.

means coupled to the rotatable member suspend the switching while preselected groups of successive indices pass that position.

3,562,441

RECORDING AND/OR REPRODUCING APPARATUS WITH CIRCUIT TO INSERT AC SIGNAL INTO AMPLIFIER TO INDICATE BATTERY CONDITION

Hermann Bretschneider, Vienna, Austria, assignor to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware, by mesne assignments

Filed Sept. 7, 1967, Ser. No. 666,049

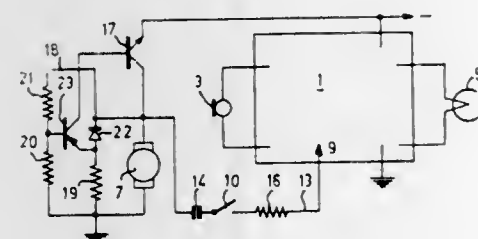
Claims priority, application Austria, Sept. 9, 1966,

A/8519/66

Int. Cl. G11b 15/46, 19/28

U.S. Cl. 179-100.1

11 Claims



A battery operated tape recorder includes a speed control element in series with the tape drive motor. The speed control element produces an AC signal voltage in the audio frequency range in the motor circuit. A manually operable switch establishes an AC connection between the motor circuit and the recorder amplifier for coupling the audio frequency signal to the recorder loudspeaker. The condition of the battery can be easily checked by merely operating the manual switch. The presence or absence of an audio tone indicates the condition of the battery.

3,562,442

MULTI-TRACK MAGNETIC RECORDING HEADS AND METHOD OF CONSTRUCTION THEREFOR

Charles B. Pear, Jr., Centerport, N.Y., assignor to Potter Instrument Company, Inc., Plainview, N.Y., a corporation of New York

Filed Oct. 4, 1968, Ser. No. 775,228

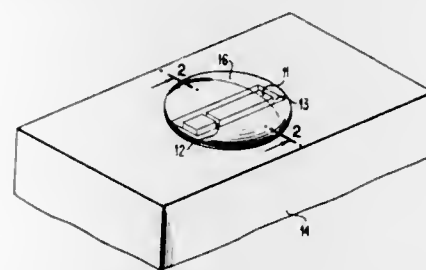
Int. Cl. G11b 5/28, 5/42

U.S. Cl. 179-100.2

4 Claims

The specification and drawings disclose a multiple track magnetic head in which long-wearing pole tip pieces are

A recording head assembly includes a glass-gapped ferrite head bonded into a ceramic slider with a glass. Infrared



COMPOSITE RECORDING/PLAYBACK HEAD WITH TWO TRIM ERASE HEADS ORIENTED AT AN ANGLE TO THE RECORD/PLAYBACK HEAD

Jules Bos, Jacob Koorneef, and George Ludwig Walther, Emsingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware, by mesne assignments

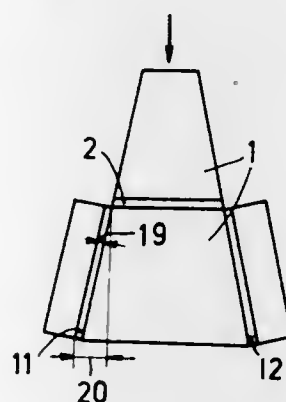
Filed Sept. 14, 1967, Ser. No. 667,713

Claims priority, application Netherlands, Sept. 15, 1966, 6613008

Int. Cl. G11b 5/26, 5/28

U.S. Cl. 179-100.2

6 Claims



A composite magnetic recording and/or playback head having an effective gap and two erasing gaps located on either side of the effective gap, the erasing gaps each occupying an angle of between 0 and 90° with the direction of the track covered by the effective gap.

3,562,444

RECORDING HEAD ASSEMBLY

Helen M. Hoogendoorn; Herbert E. Liberman; Bernt Narken, and Brian Sunners, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Feb. 29, 1968, Ser. No. 709,457

Int. Cl. G11b 5/24, 5/42

U.S. Cl. 179-100.2

2 Claims

bonding is employed. The infrared absorption properties of the glass are increased by the addition of cupric oxide.

3,562,445 PREAMPLIFIER FOR HIGH FIDELITY SYSTEM UTILIZING A MOVING COIL STEREOPHONIC PICKUP CARTRIDGE

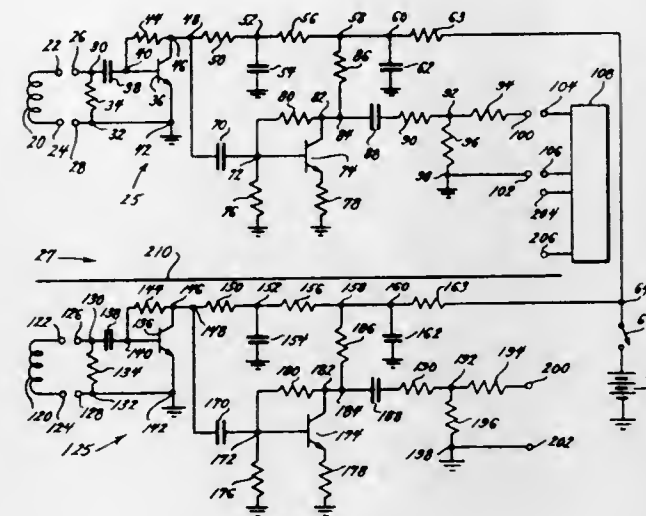
Neil R. McCanney, Ferguson, Mo., assignor to Pits Music Co., d.b.a. Best Sound Company, St. Louis, Mo., a corporation

Filed Sept. 23, 1968, Ser. No. 761,683

Int. Cl. G11b 3/00; H03f 13/00

U.S. Cl. 179-100.4

7 Claims



A preamplifier for a high fidelity system, which utilizes a moving coil, stereophonic, pickup cartridge, provides dynamic damping of the moving coils of that stereophonic, pickup cartridge by interposing an essentially resistive, low impedance, electrical interface between that cartridge and input of that preamplifier. Also, that preamplifier provides an overall gain which is greater than the desired overall gain, so an essentially resistive interface can be used between the output of that preamplifier and the input of the amplifier to which that preamplifier is connected.

3,562,446

ACOUSTICAL-ELECTRICAL TRANSDUCER AND SUPPORT ASSEMBLY

Konrad Wolf, Bad Voslau, Austria, assignor to Akustische U. Kino-Geräte Gesellschaft M.B.H., Vienna, Austria

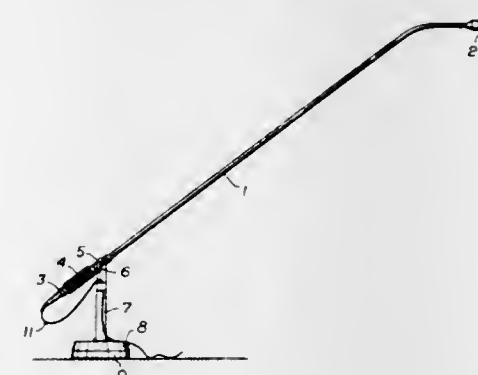
Filed Feb. 7, 1968, Ser. No. 703,673

Claims priority, application Austria, Feb. 13, 1967, D1383/67

Int. Cl. H04r 1/00

U.S. Cl. 179-152

4 Claims



An acoustical-electrical transducer and support assembly is composed of an elongated tubular member which supports a microphone capsule of a condenser microphone at one end and the preamplifier of the microphone at the other end with electrical circuitry extending through the tubular member connecting the capsule and the preamplifier. A counterweight member is movably positionable on the end of the tubular member opposite the microphone capsule and incor-

porates the preamplifier. The tubular member and its attached parts are pivotally supported on a support member at the center of gravity of the assembly. In this arrangement the microphone capsule can be selectively positioned about the support member with its preamplifier disposed in a spaced nonobstructing location on the tubular member.

3,562,447 HOOK SWITCH FOR ONE-PIECE STANDING TELEPHONE

Martinus C. W. Bakhuizen; Leif Branden, and Erling Trolsen, Tyreso, Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden, a corporation of Sweden

Filed July 24, 1968, Ser. No. 747,211

Claims priority, application Sweden, Oct. 6, 1967, 13725/67

Int. Cl. H04m 1/08

U.S. Cl. 179-167

5 Claims



A standing one-piece telephone instrument has protruding from the bottom of its base an actuating means extending along substantially the entire peripheral outline of the bottom. This actuating means is operated by the weight of the instrument when the same is placed upon a surface. Linkages coupled to spaced-apart portions of the actuating means operate the ON-OFF switching assembly of the instrument so that the instrument is switched OFF when any part of the actuating means along the length thereof rests on the surface and is switched ON when the instrument is lifted.

3,562,448

COMMON CONTROL DIGITAL ECHO SUPPRESSION

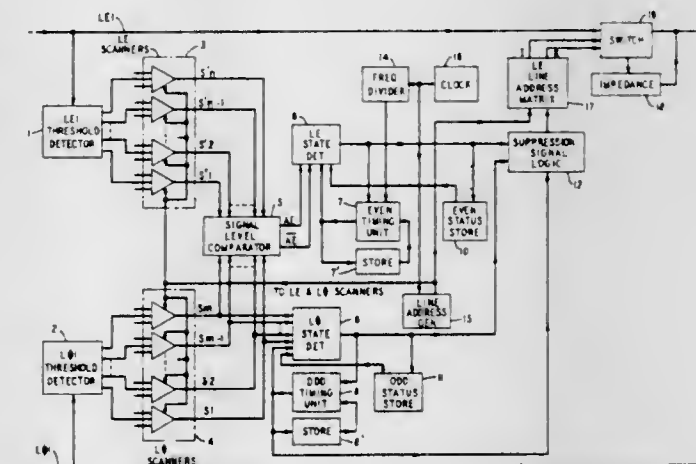
Carl J. May, Jr., Holmdel, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York

Filed June 21, 1968, Ser. No. 738,924

Int. Cl. H04b 3/24

U.S. Cl. 179-170.6

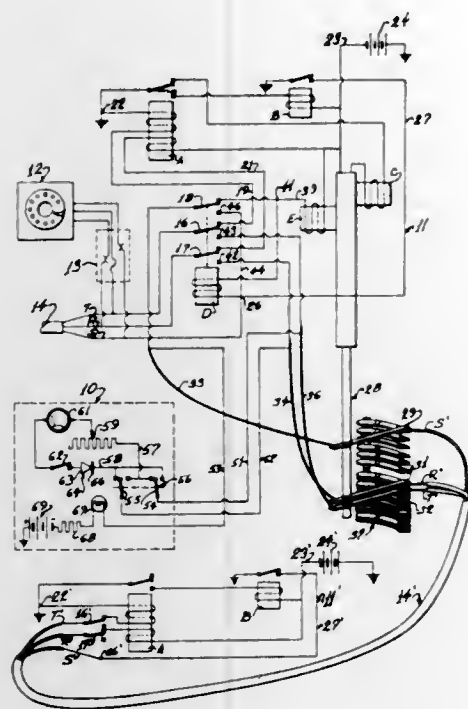
21 Claims



A method of, and apparatus for, accomplishing signal controlled digital echo suppression for a plurality of two-way transmission circuits is disclosed. Analogue signal levels on each line of each associated transmit-receive pair are digitized in the time slot allocated for that pair and applied to common time-shared logic which includes a time-divided memory. The common logic combines the digitized signal level information with code signals representing the past signal bearing statuses of the lines, and timing signals stored in the time-divided memory to determine if the respective present activity statuses of the pair are such that echo suppression is required.

3,562,449
**PROCESS AND APPARATUS FOR TESTING TELEPHONE
 SELECTOR CIRCUITS AND THE LIKE**
 Henry A. Quick, 3413 Tal-Heim Circle, Birmingham, Ala.
 Filed Dec. 22, 1967, Ser. No. 692,801
 Int. Cl. H04m 3/22
 U.S. Cl. 179-175.21

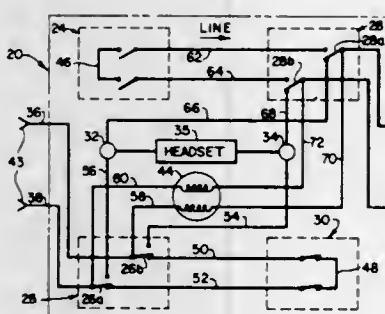
2 Claims



Process and apparatus for testing the continuity and polarity of telephone selector trunk lines and the operation of the dial responsive relay in selectors wired to such trunk lines. A current limiting test circuit adapted to selectively pass current in a selected direction only is directly connected between the tip and ring wiper contacts of a selector switch connected to dialing apparatus, the "cut through" or "D" relay being blocked open. The sleeve wiper contact is connected to a battery through a current indicating device such as a lamp.

3,562,450
NOISE SOURCE LOCATOR
 Howard L. Rosen, Star Rt. 159, Buckingham, Va. 23921
 Filed Oct. 16, 1967, Ser. No. 675,618
 Int. Cl. H04b 3/46
 U.S. Cl. 179-175.3

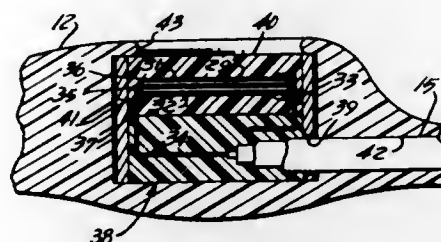
2 Claims



A device to be connected in series with a communication system line carrying signals, such as a telephone line, to permit rapid detection of the location of the source of unwanted noise on the line.

3,562,451
**MICROPHONE AND HEADSET FOR UNDERWATER
 SWIMMER**
 Walter W. Mullen, Jr., and Ollie G. Kirkpatrick, Panama City, Fla., assignors to the United States of America as represented by the Secretary of the Navy
 Filed June 11, 1968, Ser. No. 736,213
 Int. Cl. H04r 17/00
 U.S. Cl. 179-187

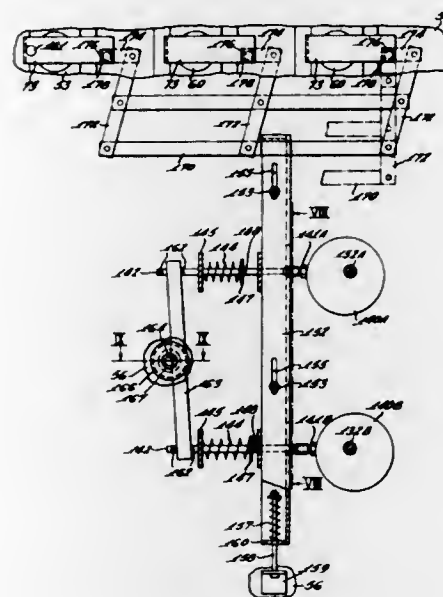
5 Claims



An improved headset and microphone construction for use in aqueous environments of high ambient pressure and a method of manufacture thereof.

3,562,452
**INTERLOCK BETWEEN CIRCUIT INTERRUPTERS AND
 DRAWOUT FUSE DRAWERS OF INDOOR POWER
 CENTER**
 Thomas H. Keogh, Pittsburgh, and Adolph E. Krupit, Allison Park, Pa., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
 Filed Oct. 18, 1968, Ser. No. 768,817
 Int. Cl. H01h 9/26, 9/22
 U.S. Cl. 200-50

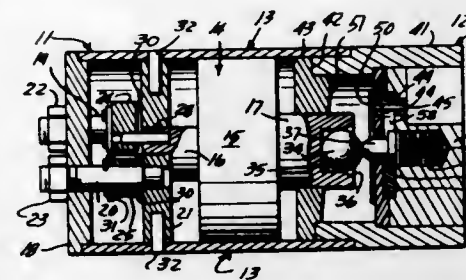
14 Claims



An interlock between fuse drawout drawers and circuit interrupters of an indoor power center has cams rotatable by the circuit interrupter operating members to actuate cam followers having enlarged diameter portions, a rocking bar operatively connected adjacent its ends to the cam followers, and a stationary stop positioned intermediate the ends of the rocking bar to permit pivoting of the rocking bar by a cam follower when either operating member is actuated to close a circuit interrupter but to interfere with transverse translation of the rocking bar and thus prevent displacement of both cam followers when the operating members are actuated in an attempt to close both switches simultaneously. Ganged interfering arms are rotatable between positions wherein they obstruct withdrawal of the fuse drawers and wherein the fuse drawers may be withdrawn, and means for preventing closure of either circuit interrupter when a fuse drawer can be withdrawn and for preventing withdrawal of a fuse drawer when either circuit interrupter is closed includes a longitudinally reciprocable interlocking bar having keyhole openings receiving said cam followers and parallel crank linkage means operatively connecting said interfering arms and said interlocking bar.

3,562,453
APOGEE SWITCH WITH MAGNETIC ACTUATOR
 Sydney R. Crockett, Oxnard, Calif., assignor to the United States of America as represented by the Secretary of the Navy
 Continuation-in-part of application Ser. No. 779,330, Nov. 27, 1968. This application Dec. 8, 1969, Ser. No. 883,079
 Int. Cl. H01h 35/14
 U.S. Cl. 200-61.45

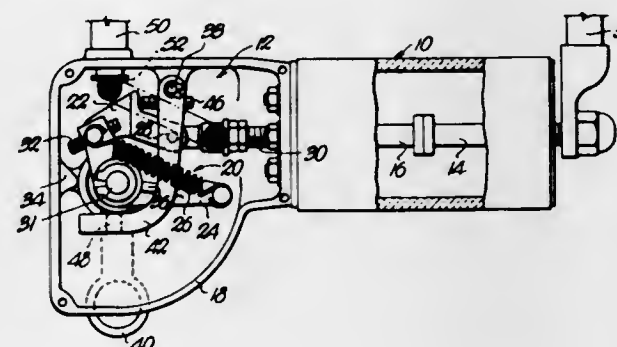
5 Claims



A switch responsive to conditions which occur when a missile reaches apogee. It includes a cylinder provided with a movable weight having a cage at one end in which a conductive sphere is locked prior to launch. Some time after launch a decrease in acceleration unlocks the cage. At apogee the sphere being free of the cage is attracted by magnetism to a ring contact encircling the plunger which closes an electrical circuit.

3,562,454
**POSITIVE SWITCH CONTACT OPERATING
 MECHANISM FOR UNDERGROUND SWITCH**
 Philip G. Chance, Centralia, Mo., assignor to A. B. Chance Company, Centralia, Mo., a corporation of Missouri
 Filed July 11, 1969, Ser. No. 841,059
 Int. Cl. H01h 21/00
 U.S. Cl. 200-67

4 Claims



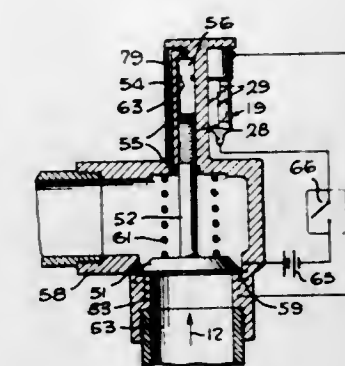
A positive switch contact operating mechanism for a vacuum interrupter unit of the type having a pair of contacts, one of which is moved relative to the other by a toggle or similar nondirect operating mechanism and wherein auxiliary lever structure assures opening of the contacts. The auxiliary lever structure is used to apply a direct force to the movable contact during opening of the switch to break a weld of the contacts which may have occurred. Alternatively, the lever structure is designed to render the toggle mechanism inoperative and preclude full movement of the operating arm from its nonoperated location to its operated location in the event that the lever structure is incapable of breaking the contact weld. This latter feature affords a visual indication of the position of the contacts and precludes any false impression that the contacts have been disengaged unless this, in fact, has occurred.

3,562,455
**MECHANICAL DISPLACEMENT TYPE FLOW SWITCH
 WITH FLUID STATE MAINTENANCE HEATING MEANS**
 Malcolm M. McQueen, 19430 Marilla, Northridge, Calif. 91324
 Filed Mar. 27, 1968, Ser. No. 716,510
 Int. Cl. H01h 35/40
 U.S. Cl. 200-81.9

7 Claims

In a mechanical displacement type flow switch employing a mass adapted to be displaced by a flowing medium, the im-

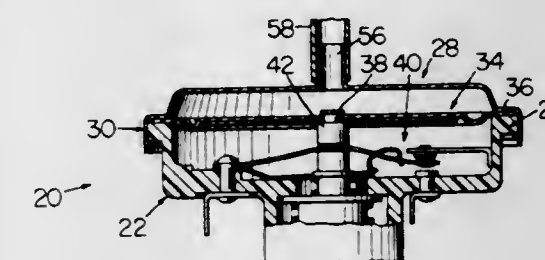
provement comprising heating means for maintaining the medium in a fluid state in a region adjacent the mass, thereby



affording the mass freedom of operative movement in the medium.

3,562,456
**PRESSURE RESPONSIVE SWITCH CONSTRUCTION
 AND METHOD OF MAKING THE SAME**
 Gilbert Rogers, Grove City, Ohio, assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
 Filed May 7, 1968, Ser. No. 727,239
 Int. Cl. H01h 35/40
 U.S. Cl. 200-83

5 Claims



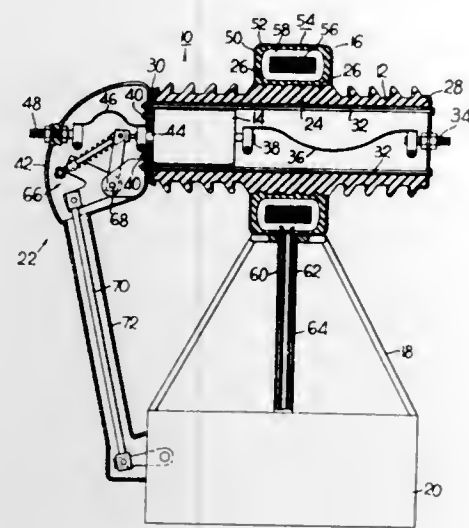
This application discloses a switch construction produced by forming a switch housing base of plastic material with a relatively thick circumferential base rim having an outward base flange with an inward hooker base flange surface. A switch means is mounted on the housing base. A closure is also made of plastic material with a relatively thin circumferential closure rim having an inward closure hooker flange inside said closure rim. A diaphragm is made with a circumferential rim which is placed on the base rim and base flange. The closure hooker flange is then placed on the diaphragm rim and on the outward base flange. Then the closure rim and base rim are pressed together to force the closure hooker flange past the base flange and into closing hooking engagement with the hooker base flange surface to close and assemble the switch construction.

3,562,457
**COMBINED VACUUM CIRCUIT BREAKER AND
 CURRENT TRANSFORMER DEVICE**
 Henry L. Peek, Wellesley, Mass., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
 Filed Nov. 14, 1967, Ser. No. 682,782
 Int. Cl. H01h 9/56
 U.S. Cl. 200-144

2 Claims

One or more vacuum circuit breakers are mounted inside a horizontally disposed hollow skirted porcelain insulator tube having sealed ends. The insulator tube extends through and is

supported by current transformer means which have the shape of an annular torus. The current transformer means is supported on a framework which is grounded to the current



transformer means. Circuit breaker operating means, including an electrically insulating rod, extend between the circuit breaker or breakers and the lower portion of the framework.

3,562,458

DEVICE FOR FORCE-CONSTRAINED JOINING OF ARC BAFFLE PLATE WITH STATIONARY CONTACT

Joachim Hannich, and Gert Fisher, Amberg, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany, a corporation of Germany

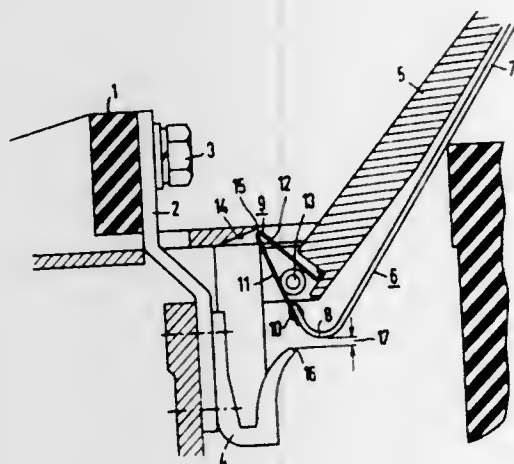
Filed June 11, 1969, Ser. No. 832,210

Claims priority, application Germany, June 20, 1968, P 17 65 621.2

Int. Cl. H01h 33/00

U.S. Cl. 200-144

5 Claims



A V-shaped spring has one free end affixed to an arc baffle plate, another free end abutting the removable arc chamber and a vertex abutting and sliding on an inclined plane formed on a base member. The spring moves the arc baffle plate toward a stationary contact during mounting of the arc chamber, thereby force-constrainedly joining the arc baffle plate with the stationary contact.

3,562,459 CIRCUIT INTERRUPTER WITH IMPROVED CONTACT STRUCTURE

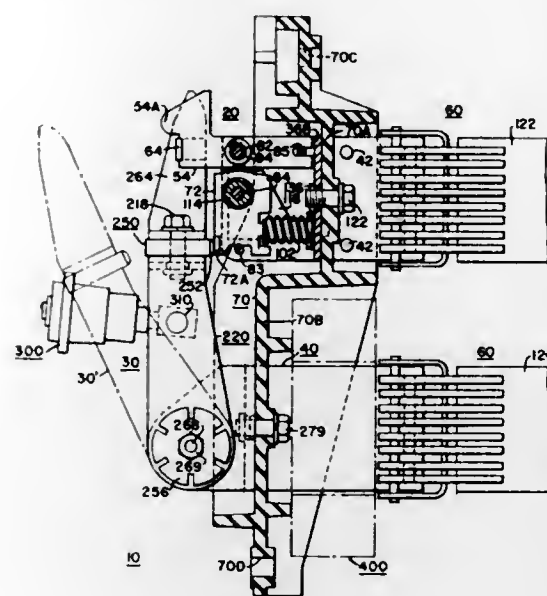
Fred Bould, and Richard Hauser, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 24, 1968, Ser. No. 770,297

Int. Cl. H01h 9/38, 33/12

U.S. Cl. 200-146

7 Claims



A circuit interrupter, such as a circuit breaker, comprising a relatively stationary contact structure which is adapted to be engaged by movable contact means mounted on a pivotally mounted switch or contact arm.

3,562,460

DOUBLE CONTACT DISCONNECT SWITCH STRUCTURE WITH CONTACTS IN GAS-TIGHT SEALED RELATIONSHIP WITH A TUBULAR SUPPORT

Gerhard Koerner, Schriesheim, Germany, assignor to Aktiengesellschaft Brown Boveri & Cie, Baden, Switzerland, a joint stock company

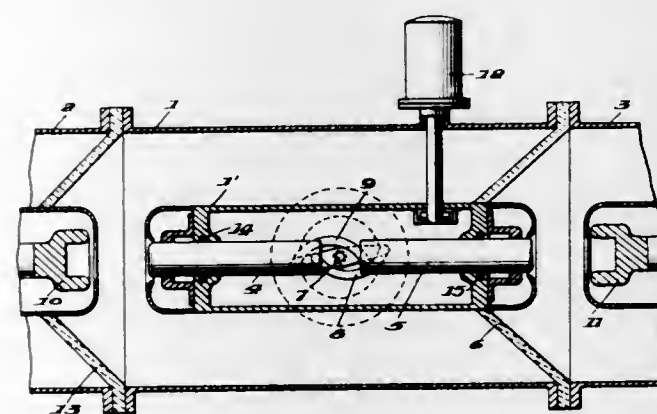
Filed Mar. 15, 1968, Ser. No. 713,448

Claims priority, application Germany, Apr. 6, 1967, B91944

Int. Cl. H01h 33/74

U.S. Cl. 200-148

4 Claims



A disconnect switch for use in compressed-gas switch installations comprises two gaps arranged electrically in series within a tubular casing. Each gap which is designed for the rated isolation voltage is constituted by a fixed contact member and a movable contact member, the two movable contact members are arranged for movement in opposite directions longitudinally of themselves by means of a common actuating mechanism to engage and be disengaged from their respective fixed contact members, the two movable contact members are supported within one section of the casing established by means of a transversely placed bulkhead of

insulating material, and the two stationary contact members are located in adjacent sections of the casing.

3,562,461

GAS RESERVOIR ARRANGEMENT IN HIGH VOLTAGE SWITCH

Karl Kriechbaum, Kassel, Germany, assignor to Licentia Patent - Verwaltungs - G.m.b.H., Frankfurt, Germany

Filed June 26, 1969, Ser. No. 836,721

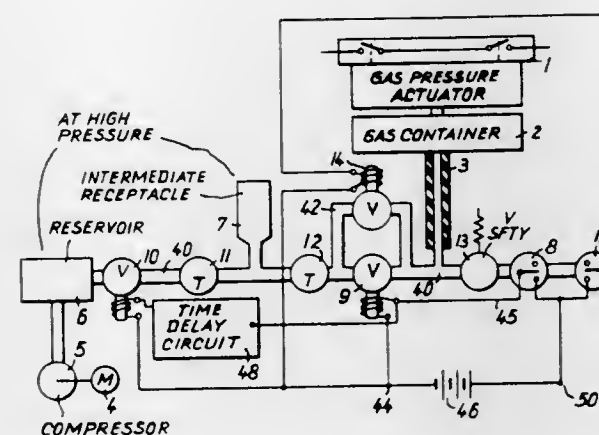
Claims priority, application Germany, June 28, 1968,

P 17 65 677.8

Int. Cl. H01h 33/54

U.S. Cl. 200-148

9 Claims



A gas operated electrical switch for opening and closing high voltage electrical lines has a gas container containing gas at the operating pressure for actuating the switch and a reservoir containing gas at a higher pressure for resupplying the container of gas after a switch actuation. The pressure reducing means includes a small intermediate receptacle which holds gas at substantially the same pressure as in the reservoir in a quantity which is sufficient to raise the pressure in the container back to the operating pressure after a first switch actuation so as to permit a second switch actuation immediately thereafter.

3,562,462

TILT SWITCH WITH FLAT SPRING CENTERING MEANS

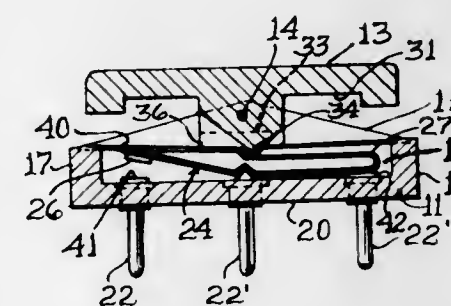
Eric L. Long, Highland Park, Ill., assignor to Cherry Electrical Products Corporation, Highland Park, Ill., a corporation of Illinois

Filed Apr. 29, 1968, Ser. No. 724,809

Int. Cl. H01h 21/24

U.S. Cl. 200-153

2 Claims



A switch having a tiltable actuator for pivoting a switch blade about a pivot terminal post in a make and break movement with respect to a pair of associated terminal contacts. A flat spring engages a cooperating flat portion on the bottom-side of the actuator, and serves to bias the actuator to the center, untilted position.

The title has been changed to: "Tilt Switch With Flat Spring Centering Means."

3,562,463

RACK AND PINION OPERATING MEANS FOR ENCLOSED CIRCUIT DISCONNECT DEVICES WITH SNAP ACTION AND POSITIVE KICKOFF FEATURES

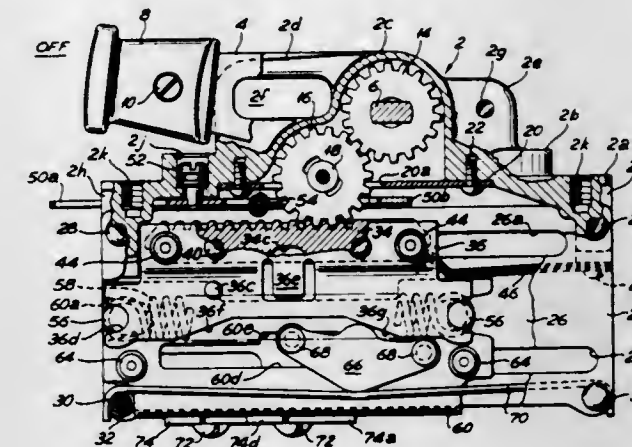
Allan P. Charbonneau, Wauwatosa, and Allan P. Weber, New Berlin, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware

Filed Sept. 6, 1968, Ser. No. 758,094

Int. Cl. H01h 3/40, 5/06

U.S. Cl. 200-153

5 Claims



A rack and pinion stored energy handle operator mounted to an enclosure body to provide snap-action actuation of a knife switch within the enclosure. Resistance of the switch contacts to fully engage or disengage is overcome by separate positive drive features which automatically couple the movable contact structure directly to the handle.

A modification eliminates the stored energy feature to permit the same basic operator to control an automatic circuit breaker having built-in snap-action, the modified operator having a shock absorbing feature to prevent damage to the circuit breaker handle under adverse operation.

3,562,464

CAM ACTUATED SWITCH HAVING MOVABLE AND FIXED CONTACTS ON CIRCUIT BOARD

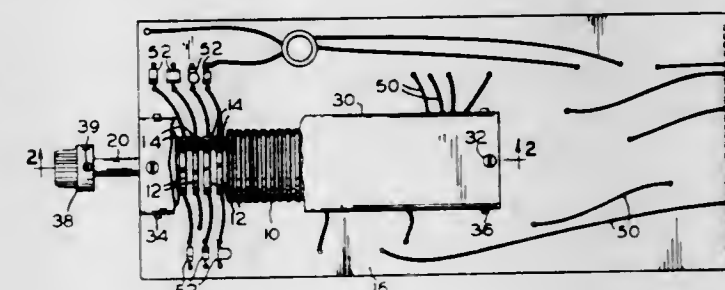
Charles Howard Vollum; Willem H. Verhoff, and Anthony E. Sprando, Portland, Oreg., assignors to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon

Filed Oct. 7, 1968, Ser. No. 765,597

Int. Cl. H01h 1/18, 3/42

U.S. Cl. 200-153

6 Claims



A cam actuated switch apparatus is described in which both its movable and fixed switch contacts are mounted on a printed circuit board providing the electrical circuit to which the switch contacts are connected. One embodiment of the switch apparatus employs a cam actuator in the form of a rotatable drum having cam elements projecting from the periphery thereof for engagement with the movable contacts. In another embodiment the cam actuator is in the form of a sliding cam member which moves parallel to the surface of the printed circuit board to actuate the movable contacts thereon. As a result of mounting all the switch contacts directly on the printed circuit board there is a considerable reduction in lead inductance, capacitance, and series resistance, which enables the present switch apparatus to be

used with circuits of higher frequency response. In addition, this also greatly reduces the number of soldered connections for the switch which makes it faster and less expensive to install and easier to repair, and provides the switch with greater reliability.

3,562,465

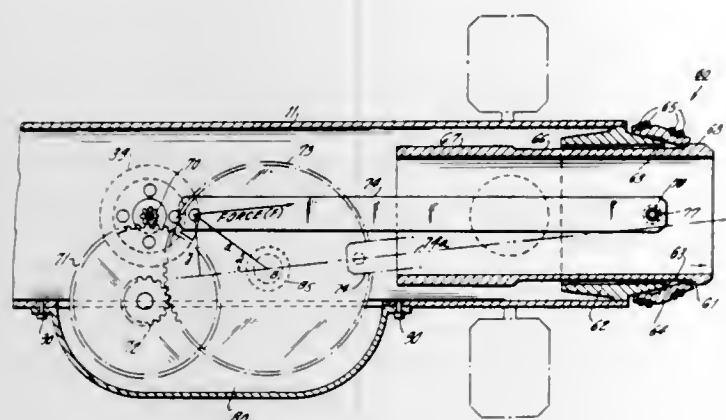
TELESCOPIC SWITCH FOR ISOLATED PHASE BUS

Joseph A. Turgeon, Toronto, Ontario, Canada, assignor to I-T-E Circuit Breaker (Canada) Limited, Port Credit, Ontario, Canada, a limited liability company of Canada
Filed Oct. 21, 1968, Ser. No. 769,078

Int. Cl. H01h 1/44, 15/10, 3/40

U.S. Cl. 200-163

11 Claims



A telescopic switch for an isolated phase bus system is disclosed. The switch includes a hollow cylindrical blade which resides within one section of hollow bus and telescopes between first and second positions to engage and disengage, respectively, the jaw contacts on a second section of the bus. The mechanism for moving the blade includes a gear reduction assembly located substantially internally of the bus which houses the hollow blade. The gear reduction assembly includes a driven gear connected to an external driving shaft through an insulator, and a driving gear linked to the blade in a dead center crank arrangement to achieve high mechanical advantage at the end of the closing stroke. A single external drive shaft is connected in tandem through insulators to the gearing assembly of each of the phases whereby the telescopic switches of all phases may be operated simultaneously.

3,562,466

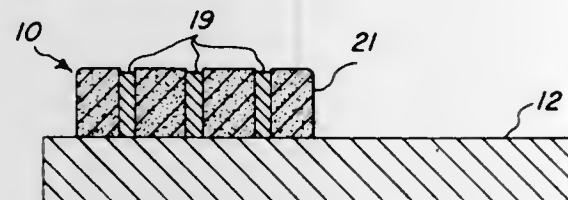
MAKE-AND-BREAK COMPOSITE ELECTRICAL CONTACTS

Peter E. McElligott, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Sept. 2, 1969, Ser. No. 854,418

Int. Cl. H01h 1/06

U.S. Cl. 200-166

6 Claims



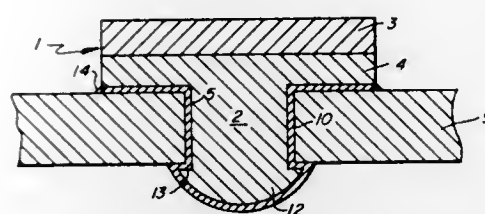
A composite electrical contact construction having a compressible carbon matrix with silver or a similar metal embedded therein. The silver area is recessed a slight distance below the carbon area on the contacting surface of the contact construction.

3,562,467
ELECTRICAL CONTACT
Victor G. Mooradian, Summit, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Newark, N.J., a corporation of Delaware
Filed June 4, 1969, Ser. No. 830,433

Int. Cl. H01h 1/02

U.S. Cl. 200-166

3 Claims



An electrical contact of the rivet type comprising a metal head and a metal shank, the head being a bimetallic head composed of a layer of contact metal, e.g. silver, and a backing layer of another metal from which extends the rivet shank and which is preferably of the same metal composition as the metal backing layer, both the shank and the backing layer, including the under surface and the peripheral sides of the backing layer being coated with a layer of metal solder having a lower melting point than the contact metal, the backing layer and the shank.

3,562,468

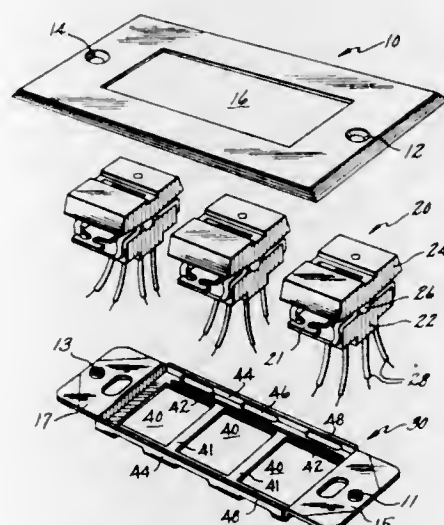
SWITCH MOUNTING MEANS

Joseph P. Stefani, Warwick, R.I., assignor to General Electric Company, a corporation of New York
Filed Oct. 30, 1968, Ser. No. 771,732

Int. Cl. H02b 1/10

U.S. Cl. 200-168

1 Claim



Means for mounting a wiring device in a supporting bracket is provided. More specifically, a mounting strap is formed with end portions which can be easily bent with a screwdriver or similar tool to engage receiving openings formed in a mounting bracket to securely mount the wiring device to the bracket.

3,562,469

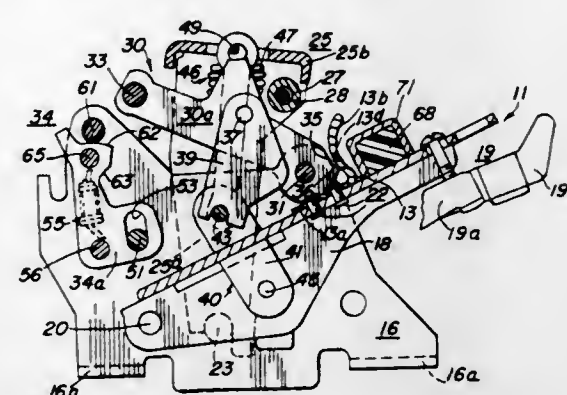
MOLDED-CASE ELECTRIC CIRCUIT BREAKER WITH CONTACT ARM LATCH

Ronald G. Peck, Cedar Rapids, Iowa, assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan
Filed Nov. 18, 1968, Ser. No. 776,412

Int. Cl. H01h 3/20, 9/20

U.S. Cl. 200-169

6 Claims



The circuit breaker has three ganged movable contact arm structures movable as a unit between open and closed positions by a spring-powered toggle mechanism coupled to a center one of the contact arm structures. The toggle mechanism includes a releasable cradle member which is released upon overload or a fault to permit the toggle mechanism to drive the contact arm structures to open position. A manual operating mechanism is provided for resetting the toggle mechanism when the contact arm structures are in the contact open position and for releasing the reset toggle mechanism for effecting closure of the contacts. During the closing operation, the cradle member interlocks with a latch on the center contact arm structure until the manual operating mechanism defeats the interlock by bending the latch by a camming action.

3,562,470

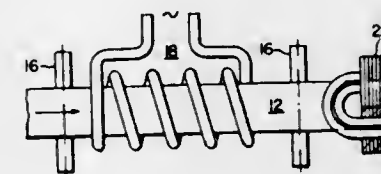
INDUCTION HEATING APPARATUS

George F. Bobart, and William A. Emerson, Ellicott City, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 24, 1969, Ser. No. 835,951

Int. Cl. H05b 5/00, 9/02

U.S. Cl. 219-10.43

6 Claims



Disclosed herein in a continuous heating line is an induction heating apparatus for the supplemental discrete heating of corner edges of thick elongated metal workpieces of rectangular cross section in conjunction with heating by other means along such line, in behalf of temperature uniformity sectionally of the workpieces, which apparatus includes induction heating coil means affiliated with laminations concentrating and directing the magnetic flux produced by such coil means diagonally through such corner edges.

3,562,471

MICROWAVE OVEN AND ANTENNA STRUCTURE THEREFOR

Edward A. White, Fort Wayne, Ind., assignor to Technology Instrument Corporation, Newbury Park, Calif., a corporation of California
Filed Mar. 4, 1969, Ser. No. 804,176

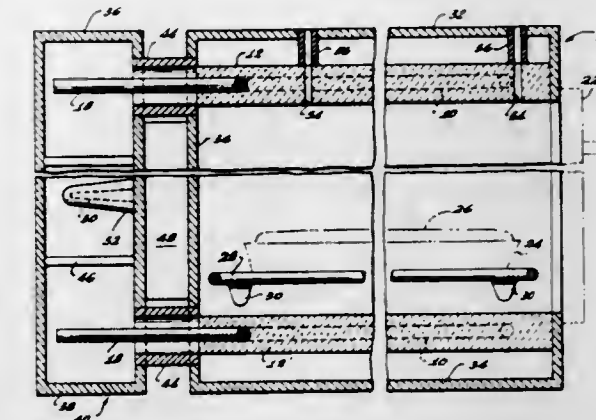
Int. Cl. H05b 9/06, 9/02

U.S. Cl. 219-10.55

7 Claims

The invention in different forms is shown as a serpentine antenna embedded in a microwave-transparent plate, nested

in one surface of such a plate, and deposited on one surface of such a plate. A pair of such plate-antenna structures are mounted in the top and bottom of an oven cavity. The center of each antenna has an integral probe extending through openings in the back wall of the cavity and into the arms of a waveguide T. Energy from a magnetron is injected into the leg of the T, and divides between the arms to excite the an-



tennas which then radiate microwave energy into the cavity. The material of the plates serves to absorb some microwave energy, whereby to present a desired minimum load to the magnetron when it is operating while the cavity is empty. The actual oven enclosure for cleaning purposes is that defined by the plates and the portions of the walls and door between the plates. These surfaces are flat, whereby they can quickly be cleaned with a minimum of effort.

3,562,472

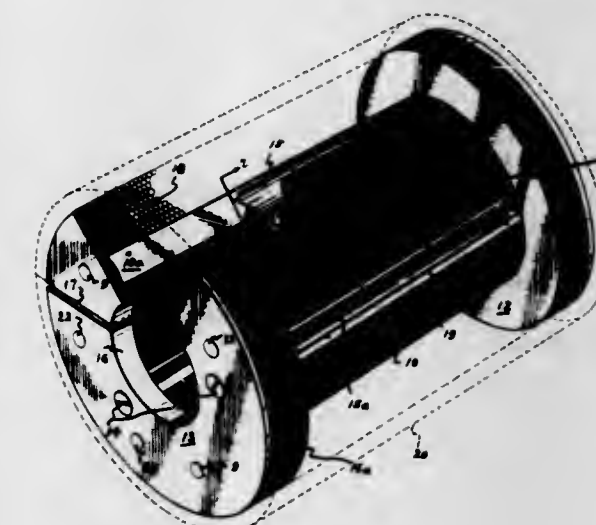
INDUCTION HEATER FOR ROTATING GODET

Maurice W. Cannon, and Jerome B. Tankersley, III, Roanoke, Va., assignors to General Electric Company, a corporation of New York
Filed Aug. 20, 1969, Ser. No. 851,603

Int. Cl. H05b 5/00, 9/06

U.S. Cl. 219-10.61

5 Claims



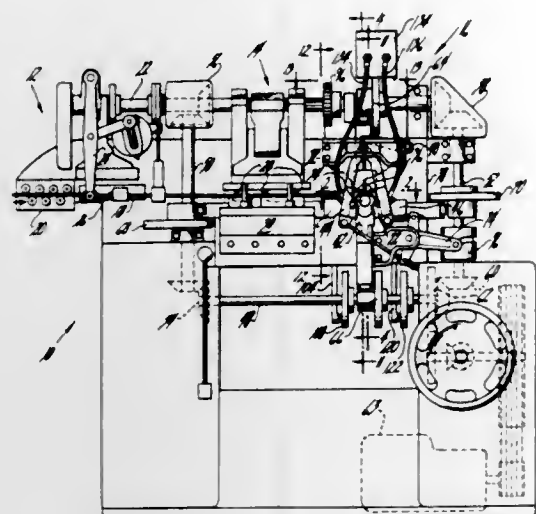
An induction heater for heating a rotating godet in a synthetic fiber processing device, the heater having a tubular, radially laminated magnetic core clamped between two transversely laminated, circular end flanges of magnetic material having inset portions extending over the ends of the core and an alternating current excited winding filling the space between the flanges, the tubular core also being aligned with openings in the flanges permitting the passage of a shaft therethrough for supporting and rotating a cylindrical godet, which surrounds the lateral surface and one end of the heater by which hysteresis and eddy currents are induced in the godet, the core laminations preventing induced heating of the core, and the circular flanges preventing the magnetic flux drag between the core and the godet.

3,562,473 MACHINE FOR PRODUCING BEARINGS AND THE LIKE FROM STRIP STOCK

Erman V. Cavagnero, and Joseph F. Loftus, Torrington, Conn., assignors to The Torrington Manufacturing Company, Torrington, Conn., a corporation of Connecticut
Filed Apr. 16, 1968, Ser. No. 721,672
Int. Cl. B23k 1/16

U.S. Cl. 219-64

23 Claims



A high production machine of the vertical four-slide type for intermittently advancing strip stock, severing blanks therefrom, forming the same into bearing races and welding end portions thereof together. The machine has a projecting horizontal mandrel with three work stations therealong respectively for preforming, forming, and preheating and/or welding. A cutoff anvil, transfer pins, broaching tools, and an expandable mandrel section are provided all with rear motion drive action and a welding mechanism is adapted for both preheat and weld operation adjacent the expandable mandrel section. A bearing race discharge track extends from the welding station to an induction furnace.

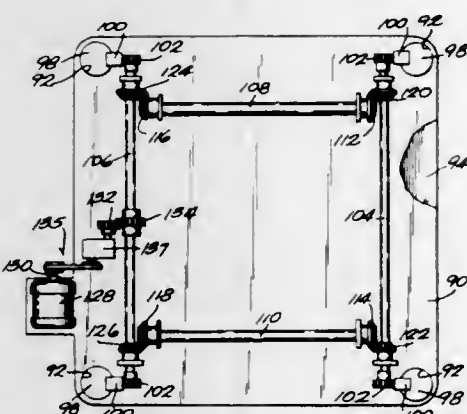
ERRATUM

For Class 219-69 see:
Patent No. 3,562,702

3,562,474
ARRANGEMENT FOR MAINTAINING PARALLELISM
BETWEEN RELATIVELY MOVABLE MEMBERS OF AN
ELECTRICAL DISCHARGE MACHINING APPARATUS
Robert F. Sellmann, 9534 N. 60th St., Milwaukee, and William A. Sellmann, 11421 N. Parkview Drive, Mequon, Wis.
Filed Oct. 18, 1967, Ser. No. 676,132
Int. Cl. B23b 1/08; B30b 1/24

U.S. Cl. 219-69

5 Claims



This disclosure relates to a gear connection which insures movement, in precise parallelism throughout a range of

movement, of one generally planar member of substantial planar size with respect to a second parallel planar member of comparable size.

In one specific embodiment, the gear connection is used in electrical discharge machining (hereinafter referred to as EDM) of a hard plate for a die set. The die plate is used as the electrode of the EDM unit and is moved with respect to the hard plate in accordance with the degree of electrical discharge erosion. The electrode is a score rule projecting edgewise from the die plate, and capped by an electrode tip releasably engaged on, and relatively wider than, the score rule edge. Movement of the die plate is guided on posts and the posts are interconnected by gearing on the die plate to maintain parallelism.

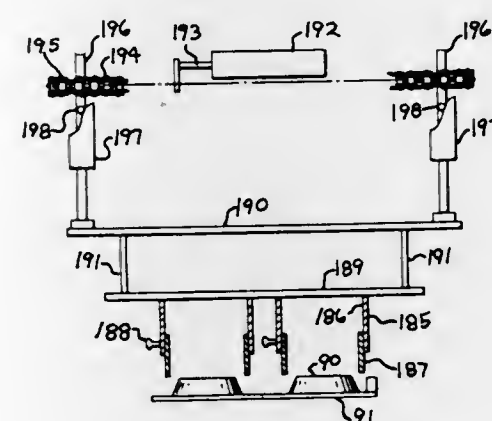
In another embodiment, one of the planar members is driven with respect to the other through the gearing connection so that throughout movement the planar members are maintained in parallelism and are thus capable of exerting a uniform pressure throughout the area between their opposed surfaces.

3,562,475 APPARATUS FOR COMPACTING PARTICULATE MATERIAL

William J. Angelotti; James R. Proffitt, Jr.; Nathaniel R. Reyburn, and Louis L. San Frotello, Erie, Pa., assignors to Owens-Illinois, Inc., a corporation of Ohio
Original application Nov. 30, 1966, Ser. No. 598,064. Divided and this application Jan. 2, 1969, Ser. No. 838,363
Int. Cl. H05b 5/00, 9/06

U.S. Cl. 219-10.67

3 Claims



An apparatus for aiding in the heat retention of a material that is increased in temperature by dielectrical heating energy. A plurality of nonmetallic annular-shaped hollow forms for encompassing each charge of thermosetting plastic material. The annular forms adapted for positioning between the electrodes of a heating device and possessing an adjustable feature.

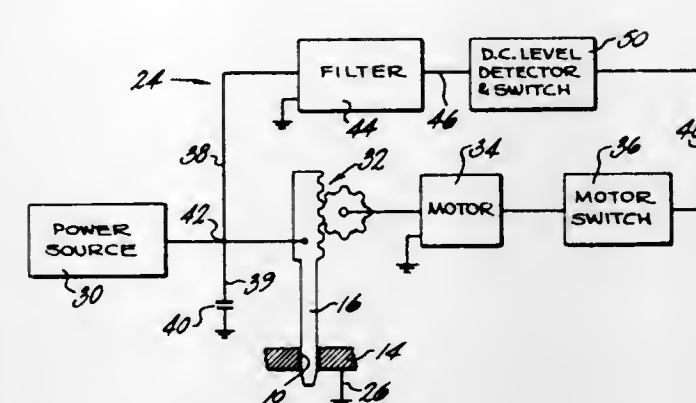
3,562,476
ELECTRODE DEPTH OF TRAVEL CONTROL FOR
ELECTRICAL DISCHARGE MACHINING APPARATUS
Gary F. Rupert, Ypsilanti, Mich., assignor to Raycon Corporation, Ann Arbor, Mich., a corporation of Michigan
Filed Mar. 25, 1968, Ser. No. 715,888
Int. Cl. B23p 1/08

U.S. Cl. 219-69

8 Claims

An electromechanical control system for controlling the depth of travel of the electrode in the electrical discharge machining of through holes in workpieces. The control system prevents the possibility of shallow holes due to a foreshortened machining pass and also inhibits the unwanted machining of nearby surfaces caused by a machining pass which is too deep, by causing the tapered tip of the electrode

to advance just far enough beyond breakthrough point to force applied to the welding electrodes is substantially twice enable the unworn portion of the electrode to machine the the force applied in normal resistance welding while the ap-



hole to a uniform diameter. The control system responds to changes in the DC level of the filtered gap voltage (the voltage between electrode and workpiece) which occur while the tip of the electrode is breaking through the wall of the workpiece.

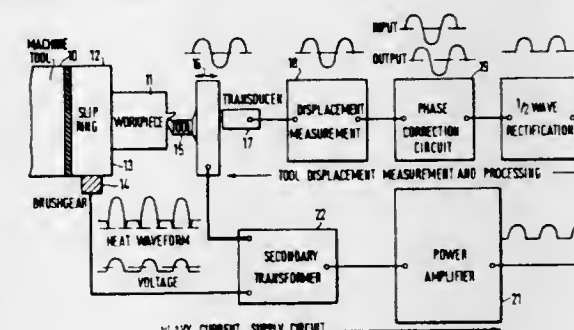
3,562,477 MACHINE TOOLS

Bernard Ronald Macmanus, Brighton, Sussex, England, assignor to National Research Development Corporation, London, England, a corporation of Great Britain
Filed Jan. 17, 1969, Ser. No. 792,105

Claims priority, application Great Britain, Feb. 5, 1968, Oct. 9, 1968, 5643/68; 47912/68
Int. Cl. B23p 1/00

U.S. Cl. 219-68

8 Claims



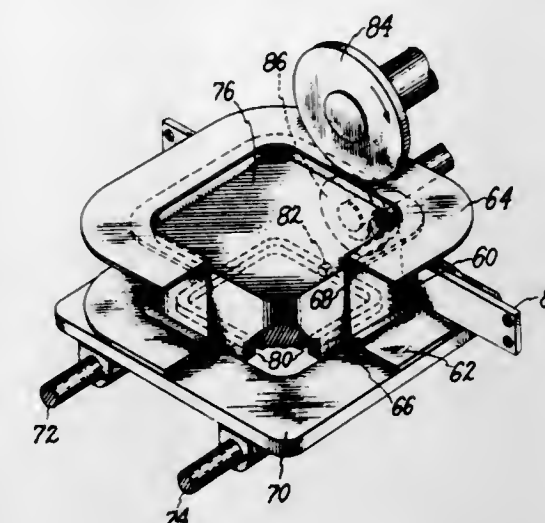
A method of controlling and reducing the amplitude of vibration of a machine tool during machining of a workpiece comprises measuring the frequency of vibration of a machine tool during use of the machine tool, producing pulses of electrical current at the frequency of the vibration, and applying the pulses of current to the cutting zone, in a predetermined phase relationship to the tool vibration, so as to heat the cutting zone, thereby reducing or at least limiting the amplitude of vibration.

3,562,478
RESISTANCE WELDING APPARATUS FOR PRODUCING
SUBSTANTIALLY CREVICE-FREE WELDS
Moreland P. Bennett, and Giuliano V. Giusti, Pittsfield, Mass., assignors to General Electric Company, a corporation of New York
Filed July 13, 1965, Ser. No. 471,669
Int. Cl. B23k 1/106

U.S. Cl. 219-82

1 Claim

A resistance welding technique for welding two overlapped sheet metal members to obtain a substantially crevice-free weld. A pair of resistance welding electrodes, with at least one of the resistance electrodes having a beveled face, are applied to opposite sides of the overlapped sheet metal members with the beveled electrode extending beyond the edge of one of the overlapped sheet metal members. Welding force and current are applied to the electrodes with such current and force being first concentrated, by the beveled electrode, on the edge of one of the sheet metal members. The welding



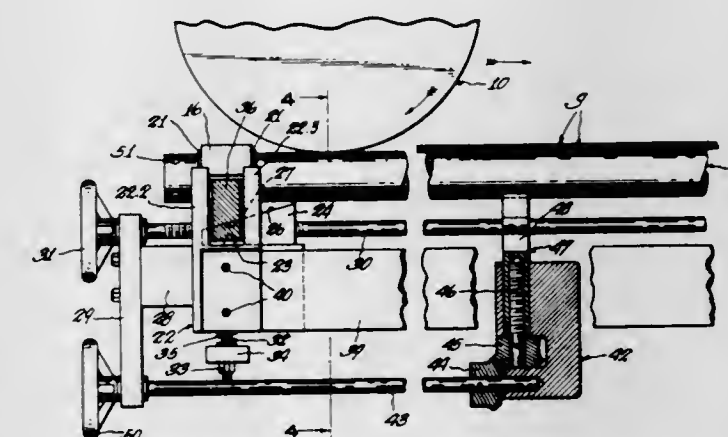
plied current is substantially the same as that used in normal resistance welding.

3,562,479 RESISTANCE WELDING APPARATUS

Richard N. Karl, Cortland, and Francis A. Bodenheimer, Warren, Ohio, assignors to The McKay Machine Company, Youngstown, Ohio
Filed Feb. 4, 1969, Ser. No. 796,498
Int. Cl. B23k 1/106, 1/130

U.S. Cl. 219-82

8 Claims



Resistance welding apparatus of the type providing a pair of electrodes between which welding current may be passed through stock disposed between the electrodes. One of the electrodes aforesaid is a roller electrode which bears against and rolls along the stock to be welded and the other is an elongated backup electrode extending in the direction of travel of the roller electrode.

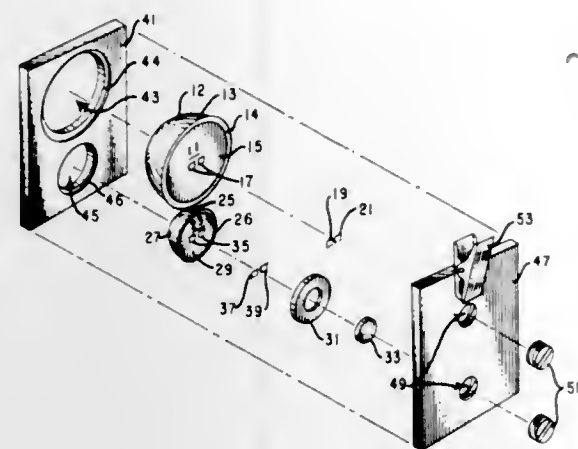
3,562,480
THERMOLUMINESCENT DOSIMETER BADGE
Alvin Korba, Aiken, S.C., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed July 25, 1969, Ser. No. 844,821
Int. Cl. G01t 3/00

U.S. Cl. 250-83.1

6 Claims

A personnel dosimeter for detecting neutron radiation over a wide range of energies including two hemispheres of hydrogenous material with a ⁶LiF phosphor and a ⁷LiF phosphor imbedded in each hemisphere. One hemisphere having all of its surfaces covered with cadmium while the other hemisphere having only its curved surface covered with

cadmium. Each ^6LiF , ^7LiF set of phosphors in each hemisphere measures different spectra of incident and body



reflected neutrons. The difference in these measurements is correlatable to neutron dose over a wide range of neutron energies.

3,562,481

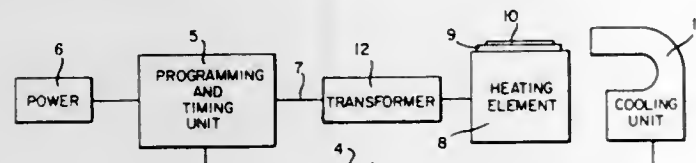
SUBSTRATE SOLDERING SYSTEM

Laurice J. West, 5 Jadewood Drive, Levittown, Pa. 19056
Filed Apr. 29, 1969, Ser. No. 820,086

Int. Cl. B23k 1/02

U.S. Cl. 219-85

4 Claims



An apparatus and process are disclosed for simultaneously soldering a plurality of junctions on a micro printed circuit board, comprising a first time-controlled voltage generator, the output of which is applied to a heating element during a preheat period, a second time-controlled voltage generator to maintain the temperature of the solder at a specified temperature, and a time-regulated cooling unit which cools the soldered circuit board after the soldering period, each operating in sequence as controlled by switching circuitry.

3,562,482

SELF-ALIGNING ELECTRODE TIP HOLDER

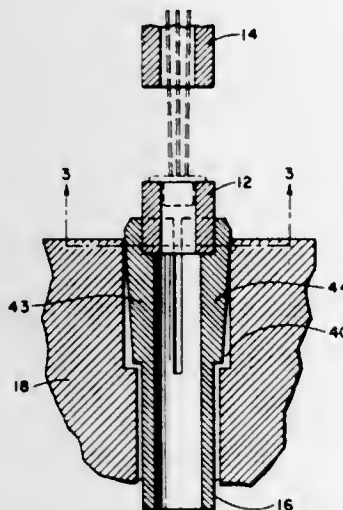
Andrzej Friedberg, Chambly, Quebec, and Andreas Keusch, Ville Brossard, Quebec, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed July 16, 1968, Ser. No. 745,277

Int. Cl. B23k 11/10

U.S. Cl. 219-86

7 Claims



The invention relates to an electrode holding and self-aligning device on a transistor encapsulation welding machine

for insuring parallelism between the contact surfaces of top and bottom electrodes. The device consists of a hollow cylindrical taper, the wall of which is partly sectioned by elongated equally distanced slots. The upper end of the taper is provided with a recess for receiving the bottom electrode. The bottom assembly consisting of electrode and electrode holding device is inserted in a cavity situated in the base of the welding machine. When the top electrode assembly is forced under suitable pressure onto the bottom electrode assembly, the taper self-adjusts in the cavity thereby bringing the contact surface of the bottom electrode into parallelism with the contact surface of the top electrode.

3,562,483

EQUALIZING WELDING GUN AND TILTING SUPPORTING STRUCTURE

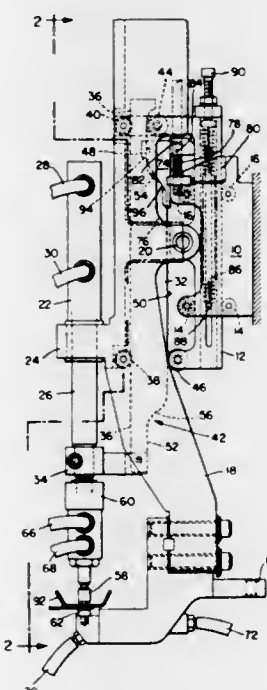
William H. McMordie, Philadelphia, Pa., assignor to The Budd Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Aug. 1, 1968, Ser. No. 749,489

Int. Cl. B23k 11/10

U.S. Cl. 219-89

5 Claims



A welding gun and supporting structure having a plurality of cams and cam followers for controlling the movement of the welding gun between a welding position and a stored position and when in the welding position, freeing the welding tip for equalizing on the object to be welded during the welding cycle. The fluid pressure actuating cylinder for moving the electrodes and applying pressure during the welding cycle is also utilized as the power source for moving the welding gun and supporting structure between the stored position and the welding position.

3,562,484

WELDING CART FOR WELDING A PLURALITY OF STUDS TO A BEAM FLANGE, OR OTHER SURFACE

Robert W. Murdock, Vermilion, Ohio, assignor to TRW Inc., Cleveland, Ohio, a corporation of Ohio, by mesne assignments

Filed June 24, 1963, Ser. No. 289,987

Int. Cl. B23k 9/20

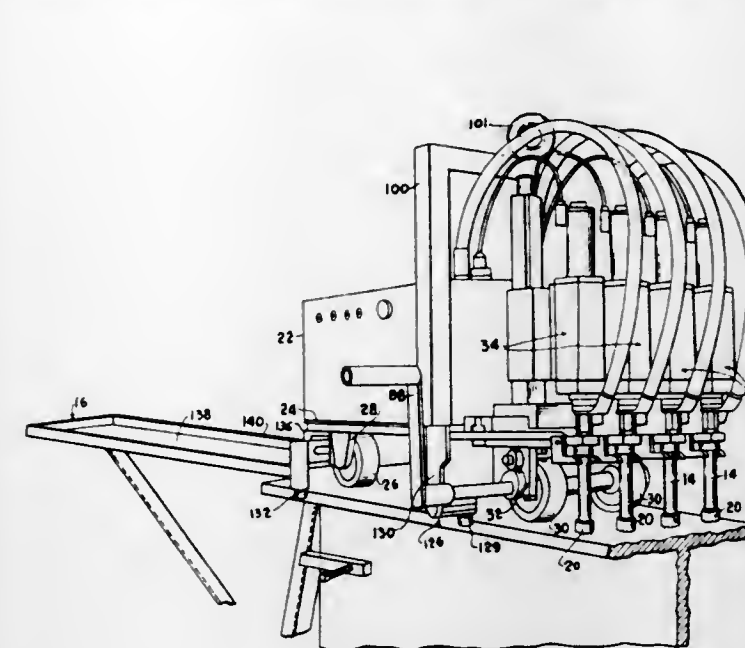
U.S. Cl. 219-98

7 Claims

7. apparatus for welding a plurality of studs to a beam in a predetermined pattern, said apparatus comprising a frame, a plurality of welding tools carried by said frame and having chucks to receive the studs, rear wheel means supporting a rear portion of said frame, a pair of front wheels, a pair of cams rotatable about a common axis in a fixed position relative to said front wheels and engageable with a portion of

said frame for raising and lowering said frame, whereby said tools are raised and lowered to facilitate loading of said chucks, and a crank for simultaneously turning said cams to

a work piece to be cut, welded or otherwise treated; the electrode is held by an insulating sleeve which is heat-conductive



place different portions of said cams of different thicknesses in engagement with said frame portion, said crank extending outwardly from said machine beyond said frame.

3,562,485

STUD WELDING CONTROL CIRCUIT

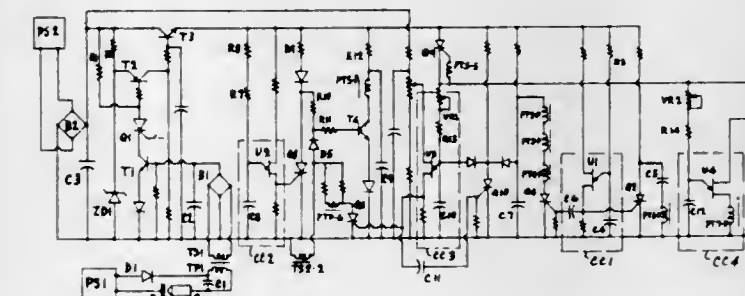
Paul A. Glorioso, Amherst, Ohio, assignor to TRW Inc., Cleveland, Ohio, a corporation of Ohio, by mesne assignments

Filed May 8, 1968, Ser. No. 727,429

Int. Cl. B23k 9/20

U.S. Cl. 219-98

5 Claims



A solid state control circuit and alternating current power sources for stud welding apparatus are provided. The power sources include three-phase power for the pilot arc and single-phase power for the welding arc. The controls for stud welding apparatus where such power sources are utilized would be expected to be quite complex and costly. The controls according to the instant invention, however, are relatively simple and substantially no more involved than those heretofore employed with welding equipment using capacitors as the welding arc power source.

3,562,486

ELECTRIC ARC TORCHES

Bruce O. Hatch, Lebanon, and Henry J. Betourney, Claremont, N.H., assignors to Thermal Dynamics Corporation, a corporation of New Hampshire

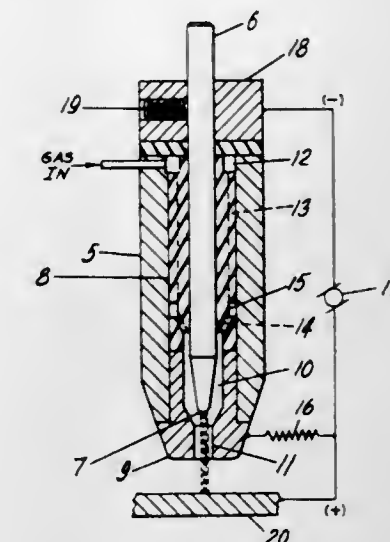
Filed May 29, 1969, Ser. No. 828,837

Int. Cl. B23k 9/00

U.S. Cl. 219-121

9 Claims

An electric arc torch using a plasma forming stabilizing gas to maintain an arc between the tip of the torch electrode and



and also serves as the gas manifold in such a way as to permit operation at high power levels without reaching prohibitive temperatures at the electrode tip.

3,562,487

SYSTEMS FOR GENERATING A CONSTANT CURRENT WITHIN LIMITED VOLTAGE RANGES

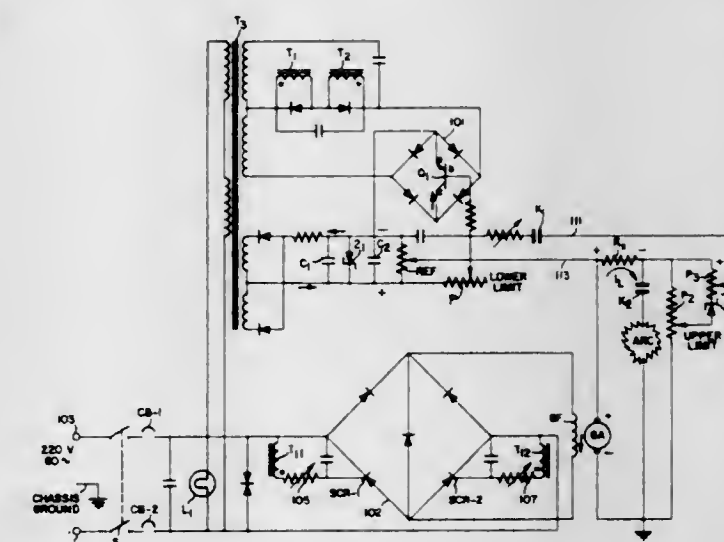
Jerome W. Nelson, Upper Arlington, and Wallace Leroy Gahm, Columbus, Ohio, assignors to Esso Research and Engineering Company, Elizabeth, N.J., a corporation of Delaware

Filed June 8, 1966, Ser. No. 556,013

Int. Cl. B23k 9/10

U.S. Cl. 219-131

16 Claims



Apparatus for generating a substantially constant current while allowing a predetermined amount of variation in a gated voltage suitable for use in electric arc welding employed in automatic pipe welding operations.

3,562,488

THREAD SINGEING DEVICE FOR TWISTING AND SPOOLING MACHINES

Willy Heimes, Krefeld, Germany, assignor to Palitex Project-Company GmbH, Krefeld, Germany

Filed Aug. 13, 1969, Ser. No. 849,825

Claims priority, application Germany, Jan. 25, 1969,

P 19 03 742.4

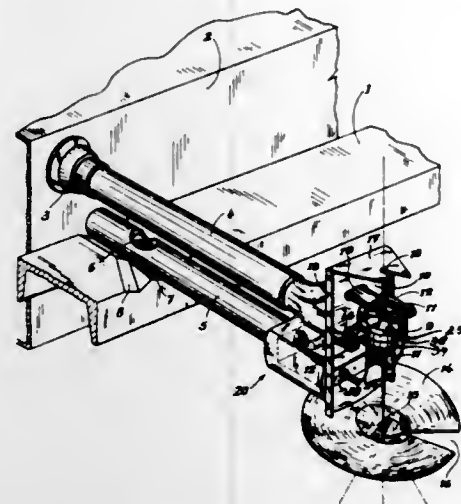
Int. Cl. D02j 3/16

U.S. Cl. 219-388

11 Claims

A thread singeing device for twisting and spooling machines with an electrically heatable singeing head which head comprises a plurality of longitudinally slotted hollow

cylinders one extending around the other, while the end faces of said hollow cylinders are engaged by an annular slotted disc each consisting of a high heat-resistant insulating materi-



al, and while the unit composed of said cylinders and annular discs is encased by two slotted annular bodies supported by arms connected to a plate.

3,562,489 HEATED GODET

Erich Lenk, Remscheid-Lennep, Germany, assignor to Bar-mag Barmer Maschinenfabrik Aktiengesellschaft, Wupper-tal, Germany

Filed Oct. 22, 1969, Ser. No. 868,399

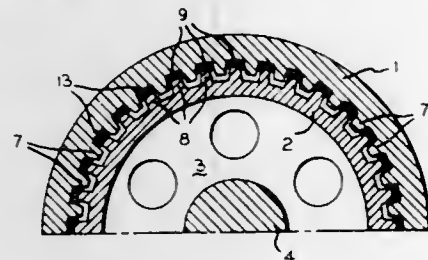
Claims priority, application Germany, Oct. 24, 1968,

P 18 04 777.3

Int. Cl. B21b 27/06

U.S. Cl. 219-469

11 Claims



Heated godets or rollers for the conveyance and heating of filaments or foils, especially of synthetic polymer material. Godets are operable at peripheral velocities at which the centrifugal force at the periphery is greater than the earth gravitational "g" and have hermetically sealed annular space partially filled with liquid.

3,562,490

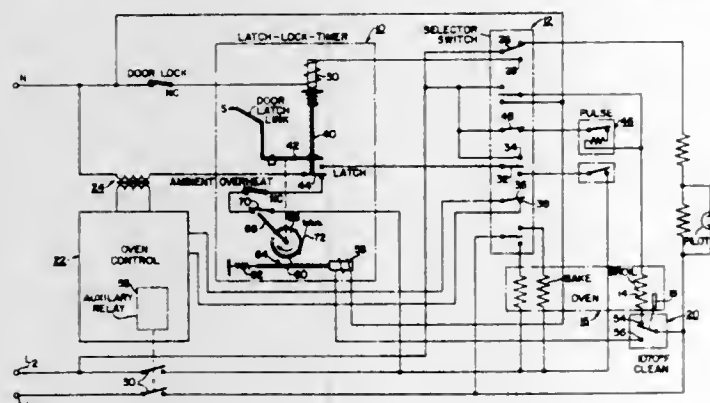
HEAT-CLEANING CONTROL SYSTEM FOR OVEN
James A. Leach, Shelby, Ohio, assignor to Westinghouse Elec-tric Corporation, Pittsburgh, Pa., a corporation of Pennsyl-vania

Filed Apr. 25, 1968, Ser. No. 724,024

Int. Cl. H05b 1/02

U.S. Cl. 219-492

3 Claims



The titled apparatus in which the oven is maintained in a heat-cleaning temperature range for a period corresponding

to a selected number of cycles of the oven clean-temperature thermostat.

3,562,491 MASTER CONTROLLED COPY COUNT METHOD AND APPARATUS

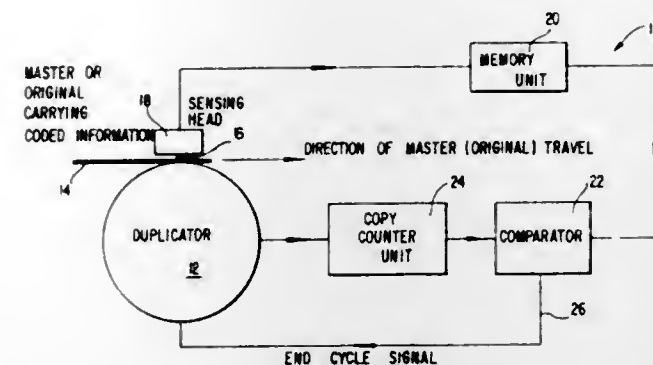
Henry A. Branfield, Chesham, England, assignor to A. B. Dick Company, Chicago, Ill., a corporation of Illinois

Filed Oct. 19, 1967, Ser. No. 676,470

Int. Cl. G06k 5/00; G06f 7/38; B41i 11/08

U.S. Cl. 235-61.91

34 Claims



This invention relates to duplicator control units generally, and more particularly to a novel master controlled copy count method and apparatus for controlling automatically the number of copy sheets produced during the duplicating run of a duplicating machine in accordance with a code provided on a master sheet for such duplicating machine. In accordance with the method of this invention, the novel apparatus disclosed senses the code from the master sheet and controls either the programming circuit for the duplicating machine in accordance with a code-sheet count comparison or directly controls the sheet counter for the duplicating machine in accordance with the sensed code.

3,562,492 TAPE READER

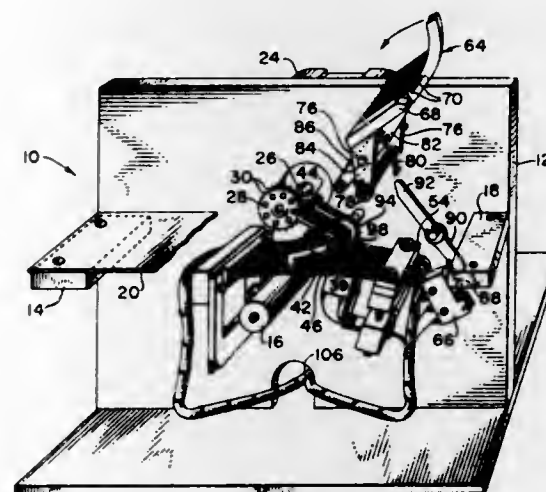
Stan A. Kirkowski, Jersey City; Vincent Chan, San Pedro, Calif., and William V. Johnson, West Orange, N.J., assignors to The Western Union Telegraph Company, New York, N.Y., a corporation of New York

Filed Jan. 24, 1966, Ser. No. 522,640

Int. Cl. G06k 7/04; H01h 23/14

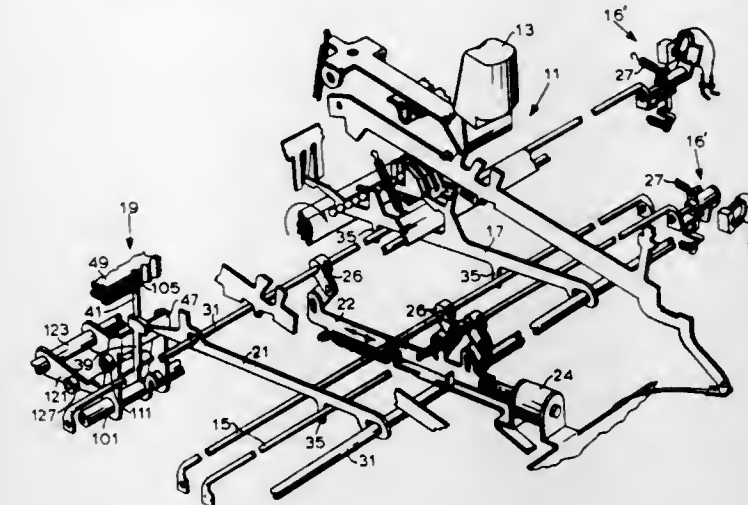
U.S. Cl. 235-61.11

7 Claims



A tape reading device wherein a perforated tape travels in either direction upon a plurality of sensing star wheels. As the wheels penetrate the perforations in the tape, a circuit is energized causing signals to emanate. Associated therewith a motion sensing wheel penetrates the tape at equally spaced perforations so as to provide a continuous indication of the movement of the tape.

3,562,493
PERFORATED TAPE READER
Bernard J. Malkowski, Dearborn Heights, and John E. Hylan, Birmingham, Mich., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Nov. 21, 1967, Ser. No. 684,683
Int. Cl. B41j 5/36; G06k 7/04; G11b 23/00
U.S. Cl. 235-61.11



A reader for reading information represented by apertures in a tape, the apertures being arranged in the form of a binary code. The tape is step fed to a reading station to present the tape apertures to a plurality of sensing pins which are biased to sense the presence and absence of tape apertures at the station. The pins are alternately released and retracted by cyclically operable means, and movable with the pins are interposers in the form of arms which are individually fulcrumed to pivot relative to the pins. Those ones of the pins which sense tape apertures, allow the interposers to move into effective positions where they are rockable by a second cyclically operable means, the rocking of the interposers indicating the sensing of tape apertures at the station. The rocking interposers move corresponding ones of code bars which rotate bails to activate transducers, thus converting a mechanical reading of information apertures to electrical signals.

3,562,494 CODE DETECTING AND CONTROL CIRCUIT FOR SORTING ARTICLES

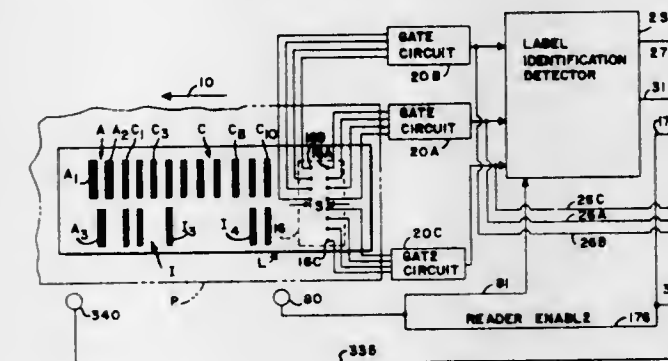
Warren J. Schmidt, Sunnyvale, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed Nov. 24, 1967, Ser. No. 685,565

Int. Cl. G01n 21/30; G06k 7/10, 19/00

U.S. Cl. 235-61.11

9 Claims



A code detecting and control circuit in which a reader senses label identification indicia to first determine whether the label viewed is the intended label and then samples destination code indicia during clock pulse time initiated by clock pulse marks on the label. Prearranged sets of light sensing devices in the reader not only read the indicia on the label but check the width of clock pulse marks and the space between successive clock pulse marks to verify the authenticity of the marks controlling time sampling of the destination code indicia.

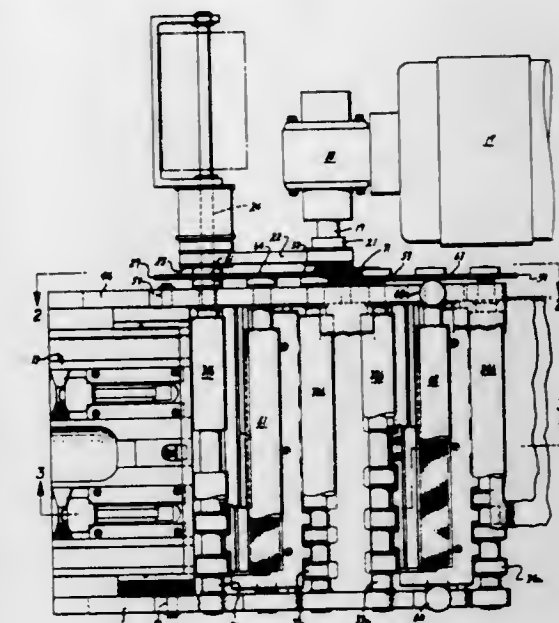
3,562,495
PUNCHCARD READ-FEED MECHANISM
Vincent Gripl, Jr., Burlingame, Calif., assignor to Rollin J. Lobaugh, Inc., a corporation of California, by mesne assignment

Filed Nov. 22, 1967, Ser. No. 685,737

Int. Cl. G06k 7/06; G03b 1/56; B65h 27/00

U.S. Cl. 235-61.11

7 Claims

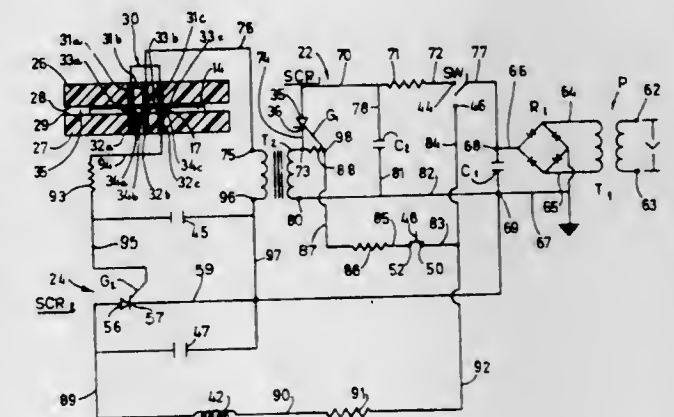


A punchcard read-feed mechanism having a plurality of opposing pairs of card feed rollers wherein only one roller of each pair is directly associated with a main power source through appropriate gearing while the other rollers of each pair are not associated with any gearing and are driven by the first-mentioned rollers of each pair, making it possible where desirable to mount all of the nongear driven rollers on a separate carrier which is separable from the structure supporting the gear-driven rollers whereby cleaning and clearing the mechanism is greatly facilitated. A card switch mechanism as part of the punchcard read-feed mechanism having an actuator arm disposed at the center of the card read mechanism whereby the card read switch is operated by any card passing through the read-feed mechanism regardless of its column width.

3,562,496
DATA-SENSING DEVICE
Charles R. Fisher, 5913 Renwood Drive, Parma, Ohio 44129
Filed Jan. 4, 1968, Ser. No. 695,624
Int. Cl. G06k 7/06

U.S. Cl. 235-61.11

24 Claims



A data-sensing device for sensing indicia on an indicia carrying member, such as an individual card or continuous tape. The device comprises at least one pair of oppositely disposed terminals which are electrically connected to a power source.

A signal control arrangement is provided for selectively transmitting electrical energy to the terminals from the power source causing a spark to pass through an aperture in the indicia member or through the material of the indicia member and to an indicating arrangement provided to indicate the presence of the spark.

3,562,497

POSTAL ADDRESS DEVICE

Francisco Lopes Gastal, Rua Goncalves Chaves 759, Pelotas, RGS, Brazil, and Raul Da Silva Veitas, Rua Santa Lucia, 100, Rio De Janeiro, GB, Brazil

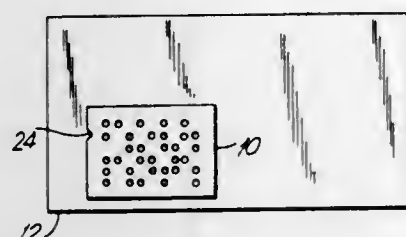
Filed Aug. 16, 1967, Ser. No. 661,090

Claims priority, application Brazil, Aug. 9, 1967, 182,209

Int. Cl. G06k 19/08

U.S. Cl. 235-61.12

9 Claims



A rectangular metal foil or seal is used on envelopes, postcards and the like and is provided with coded arrangements of perforations indicating an address.

3,562,498

REVERSIBLE COUNTER APPARATUS

Peter James Darling, Biggin Hill, and Albert Norman John Uren, Bromley, England, assignors to National Research Development Corporation, London, England

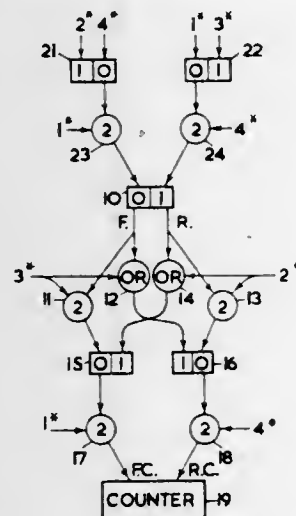
Filed Jan. 8, 1968, Ser. No. 696,319

Claims priority, application England, Jan. 9, 1967, 1067/67

Int. Cl. G06m 3/14; H03k 21/06; G06n 1/22

U.S. Cl. 235-92

5 Claims



A reversible counter apparatus for counting complete cycles of sequential changes in input signals which pass through a sequence of first, second, third and fourth distinct conditions in each complete cycle of changes, for keeping an accurate count of complete cycles of changes in adverse conditions. It comprises a first sequential gating means for producing an output whenever the input signals change from the fourth condition to the first condition with no intervening occurrence of the second condition, a second sequential gating means for producing an output whenever the input signals change from the first condition to the fourth condition with no intervening occurrence of the third condition, first bistable means connected to both gating means, second bistable means connected to the first bistable means and having inputs connected to set it in response to any occurrence of the third condition while the first bistable means is set and to reset it on any occurrence of the second condition and also whenever said first bistable means is reset, third bistable means connected to the first bistable means and having inputs connected to set it on any occurrence of the second condition while the first bistable means is reset and to reset it

on any occurrence of the third condition and also whenever the first bistable means is set, and a reversible counter connected to the second and third bistable means. The invention is applicable to laser range finders and distance-measuring apparatus using fringe-counting techniques. Visual indicators may be provided to allow incremental parts of cycles to be measured.

3,562,499

BATTERY OPERATED TIMING DEVICE

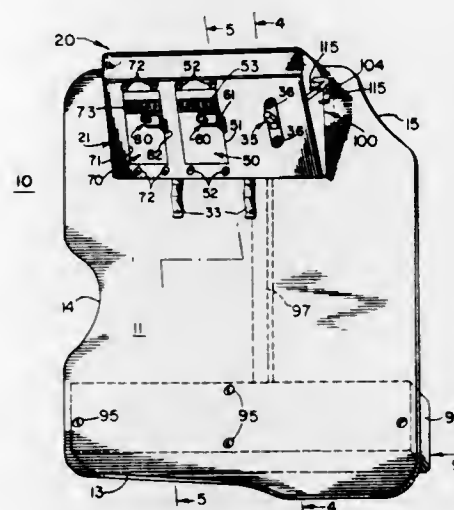
Carl S. Spetzler, Chicago, Ill. (240 S. Castanya Way, Mento Park, Calif. 94025), and Carl L. Dunbar, Des Plaines, Ill. (88 Petrie Circle, Streamwood, Ill. 60103)

Filed Feb. 8, 1968, Ser. No. 703,918

Int. Cl. G04c 23/50

U.S. Cl. 235-92

11 Claims



There is disclosed a portable writing board comprising a flat board having a size and shape to be conveniently supported upon a limb of the user and adapted to receive paper thereon for writing purposes, timing apparatus mounted on the board for producing a train of timing pulses at an output thereof, a first timing pulse counter mounted on the board and including an input and an indicator output, a second timing pulse counter mounted on the board and including an input and an indicator output, and switching apparatus mounted on the board for connecting the timing apparatus output alternately to the input of the first counter and the input of the second counter, the switching apparatus including a manual operator effective when operated by the user of the writing board to apply the train of timing pulses alternately to one or the other of the inputs whereby the counters are driven alternately by the timing apparatus.

3,562,500

COMPOSITE PROFILE APPARATUS AND METHOD

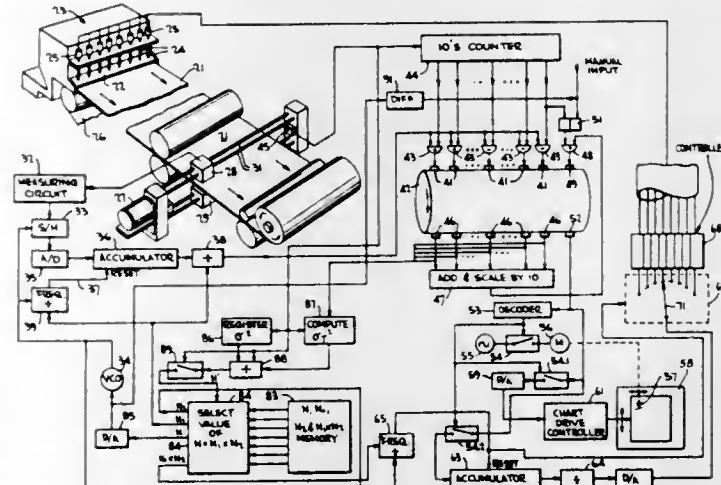
Michael P. Grant, Columbus, Ohio, assignor to Industrial Nucleonics Corporation, a corporation of Ohio

Filed Feb. 16, 1968, Ser. No. 706,144

Int. Cl. G01d 21/00

U.S. Cl. 235-151.3

25 Claims



Disclosed are a system for and method of analyzing a property of a moving sheet in response to sampled data derived

from a plurality of scans of a transducer for the property across the sheet. A composite profile of the plural scans is obtained by averaging the property values for corresponding across the sheet points over several scans. To preserve computer memory, the average values of a plurality of samples within each scan are derived and then stored. The number of sampling points within each scan is determined either on an a priori basis or in response to the ratio over the several scans of the total variance of the process to a predetermined, desired variance of the average of the property determined from the sampled values within each scan. The number of sampling points comprising a single average is selected as an odd number.

3,562,501

COMPUTER CONTROL OF CHROMATOGRAPHS

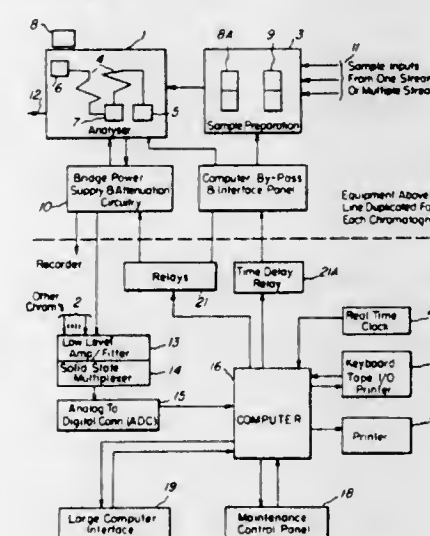
Francis C. Mears, Canoga Park, Calif., assignor to Mobil Oil Corporation, a corporation of New York

Filed June 16, 1966, Ser. No. 558,048

Int. Cl. G06f 9/00

U.S. Cl. 235-151.35

16 Claims



A digital computer system for controlling and monitoring chromatographic columns including detector means for providing analogue signals representative of the component peaks of the sample streams applied to each chromatographic column, and attenuating means for automatically attenuating the analogue signals in response to signals from the computer. Multiplexing means are provided for sequentially applying the analogue signals of the columns to an analogue to digital converter which, in turn, applies the digital signals to the digital computer. The system also includes means for generating a weighted slope to smooth out noise.

3,562,502

CELLULAR THRESHOLD ARRAY FOR PROVIDING OUTPUTS REPRESENTING A COMPLEX WEIGHTING FUNCTION OF INPUTS

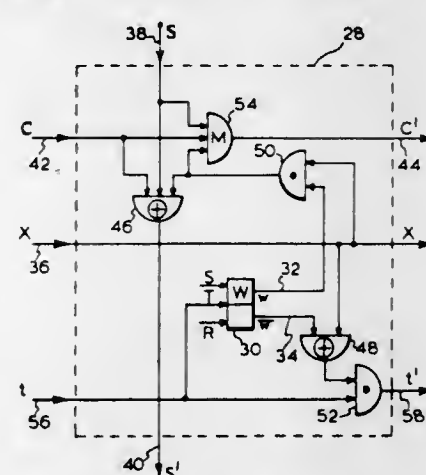
William H. Kautz, Woodside, Calif., assignor to Stanford Research Institute, Menlo Park, Calif., a corporation of California

Filed Aug. 14, 1967, Ser. No. 660,271

Int. Cl. G06f 7/38; G06k 9/06

U.S. Cl. 235-152

12 Claims



A digital logic network for indicating whether a number of inputs, after appropriate weighting, is more or less than a

particular threshold. The network utilizes an array of identical cells, each connected only to the immediately adjacent cells, to provide a two-dimensional arrangement adapted for realization by integrated semiconductor technology.

3,562,503

CHECKING CIRCUIT FOR STABILIZED OPERATIONAL AMPLIFIERS

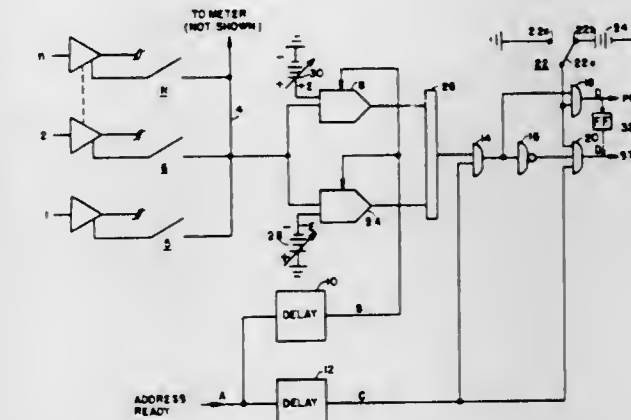
Earl G. Carson, Franklin Park, and Ben D. Conger, West Long Branch, N.J., assignors to Electronics Associates, Inc., Long Branch, N.J., a corporation of New Jersey

Filed Apr. 18, 1968, Ser. No. 722,355

Int. Cl. G06g 7/06; G06f 1/00

U.S. Cl. 235-153

1 Claim



The specification discloses a circuit arrangement enabling automatic balance checking of operational amplifiers in an analogue computer by sequential connection of the stabilizer amplifier outputs to comparator means whose output, if any, controls an indicator and a stepping, or a stepping alone, to the next amplifier to be checked developing thereby a record or other indication of those amplifiers in need of rebalance.

3,562,504

DIGITAL AUTOMATIC GAIN CONTROL

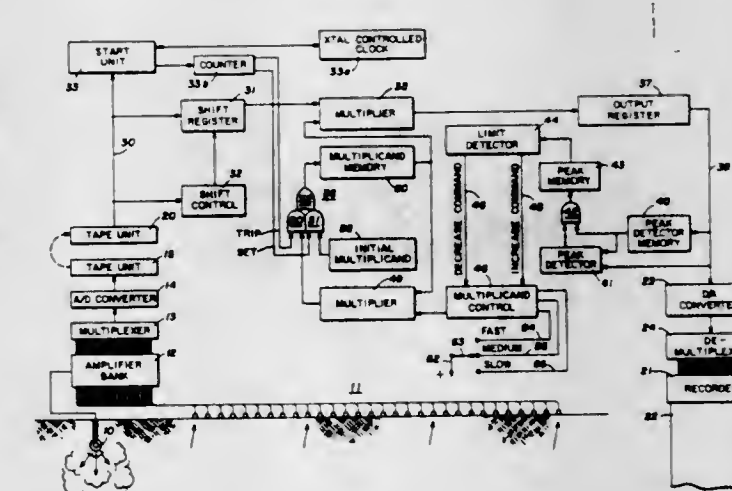
Ralph A. Harris, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Nov. 8, 1967, Ser. No. 681,352

Int. Cl. H03k 13/24

U.S. Cl. 235-154

10 Claims



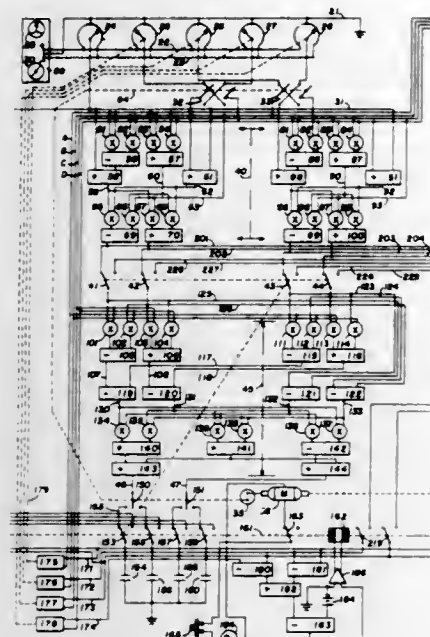
Digital representations of signals controlled as to amplitude in accordance with stepped gain changes are restored to the original level followed by digital automatic gain control and conversion to analogue form with gain changing at a controlled rate in direction dependent upon the difference between a given signal peak and an upper or a lower preset limit.

3,562,505

METHOD AND SYSTEM FOR GENERATING
CONDITIONS REPRESENTATIVE OF REAL AND
COMPLEX ZEROSCarl A. Barlow, Jr., Dallas, and Eric L. Jones, Dallas, Tex.,
assignors to Texas Instruments Incorporated, Dallas, Tex., a
corporation of DelawareFiled Apr. 1, 1965, Ser. No. 444,554
Int. Cl. G06f 7/38; G06g 7/32

U.S. Cl. 235-156

21 Claims



Roots of a function $f(z)$ of a single complex variable quantity z are determined by generating a first sequence of physical conditions, each member of the sequence representing approximations of a root quantity according to the recursive relation

$$z_n = \frac{z_{n-2}f(z)_{n-1} - z_{n-1}f(z)_{n-2}}{f(z)_{n-1} - f(z)_{n-2}}$$

where n is an index of the conditions in each sequence. The first sequence is terminated at a first root quantity. Subsequent sequences of the conditions are generated with elimination in each of the subsequent sequence of the effect of all earlier generated root quantities.

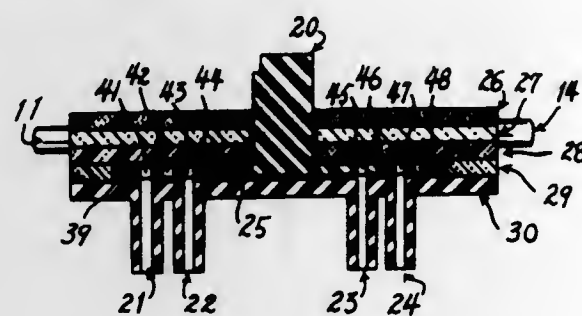
3,562,506

FLUIDIC DECIMAL DECODING DEVICE

Martin Chang, Pointe Claire, Quebec, Canada (485 Allan St.
Hawkesbury, Ontario, Canada)Filed Sept. 9, 1968, Ser. No. 758,435
Int. Cl. G06c 11/00

U.S. Cl. 235-201

3 Claims



A pure fluid digital decoding device operated in a decimal code basis so that both the operation and the construction cost of pure fluidic systems can be greatly simplified is shown.

The present invention employs an array of four binary converter stages in a series in combination with a two-leg NOR/OR gate to constitute a decimally recurrent fluid circuit. It further employs a specially designed fluid switch of which the signal outputs from the array of converter stages will be screened before they enter a four-leg NOR-gate. The fluid

switch can be preset at any of a set of 10 numbers from zero to nine to allow the four-leg NOR-gate to produce an output stream upon the converter stages obtaining a predetermined count.

A fluid switch in a decimal code system applicable as a fluid element in a decoding mechanism, and an integrated fluid circuit panel comprising the fluid switch is also illustrated.

3,562,507

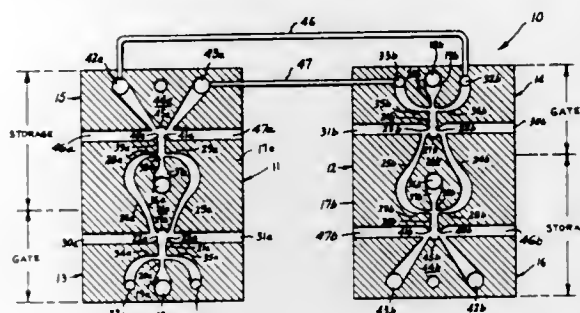
PURE FLUID SHIFT REGISTER

Robert Arvid Kantola, Scotia, N.Y., assignor to General Electric Company, a corporation of New York
Filed Nov. 27, 1968, Ser. No. 779,423

Int. Cl. G06d 1/08

U.S. Cl. 235-201

9 Claims



A pure fluid shift register including a pair of series connected circuit elements, each of which comprises an amplifier gate and a binary storage stage with each gate having two opposed control inlets which act upon a clocked power stream inlet and two outlets which are in communication with the control inlets of the corresponding storage portion of the respective circuit elements, and with each storage portion having a constant power supply stream, two outlets, and the usual attachment wall configuration, the latter outlets of the storage portion of the first circuit element being connected to the gate portion inputs of the second circuit element of the shift register.

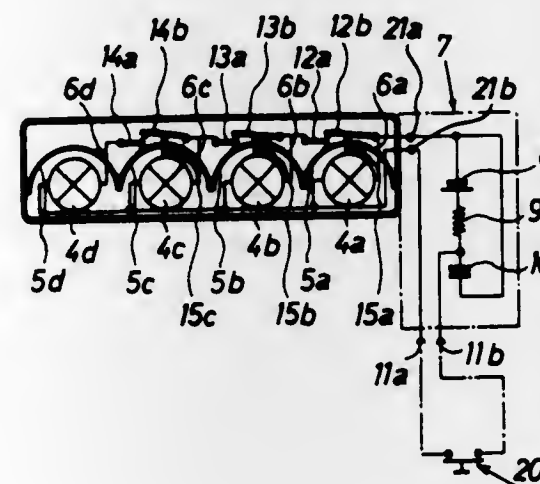
3,562,508

FLASH UNIT

Franz Hoffacker, Langenfeld, Germany, assignor to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Feb. 6, 1967, Ser. No. 614,092Claims priority, application Germany, Feb. 18, 1966,
P 14 97 388.7
Int. Cl. F21k 5/02

U.S. Cl. 240-1.3

6 Claims



Flash unit whose flash circuit comprises a series of parallel branches each having a flashbulb, and means for firing the flashbulb of the first branch. Each but the first branch further comprises a switch which is normally open but is closed on partial or complete melting of a switch opening member which is heated in response to firing of the flashbulb in the preceding branch of the flash circuit. This renders the flash-

bulb of the second branch ready for firing on renewed actuation of the firing means.

3,562,509

ANTIDEPPOSITION CIRCUIT

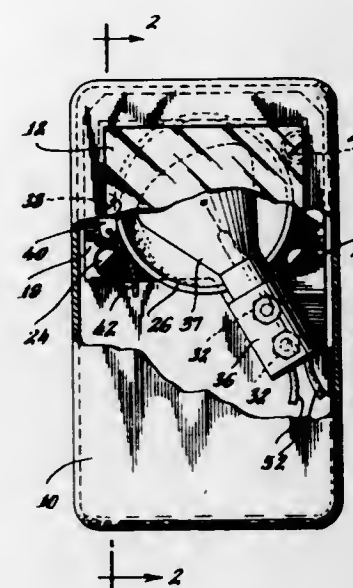
William G. Kahl, Jr., Brookfield, Conn., assignor to Arrowhead Enterprises, Inc., Bethel, Conn., a corporation of Connecticut

Filed July 8, 1968, Ser. No. 743,067

Int. Cl. G02b; F21v 33/00

U.S. Cl. 240-4.2

6 Claims



The deposition of dust on a mirror exposed to ambient air is prevented by mounting the mirror on a metallic plate which is positively charged. As more dust particles are positive than negative, such an arrangement is very effective in preventing the deposition of dust on the mirror surface.

ERRATUM

For Class 240-25 see:
Patent No. 3,561,682

3,562,510

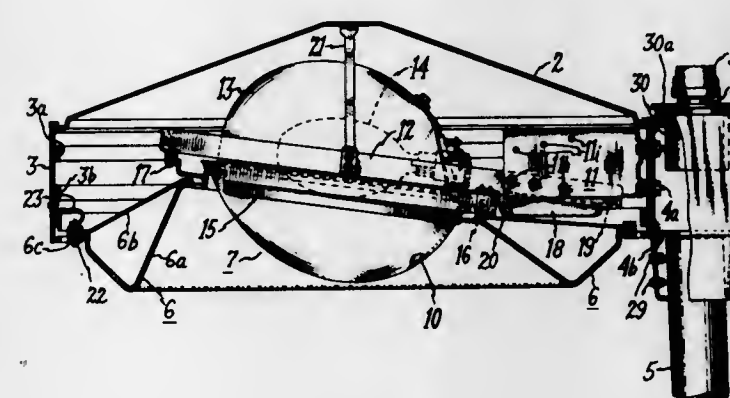
LUMINAIRE

Samuel L. Baldwin, Flat Rock, N.C., assignor to General Electric Company, a corporation of New York
Filed June 20, 1968, Ser. No. 738,508

Int. Cl. F21s 1/10

U.S. Cl. 240-25

13 Claims



Luminaire for street or area lighting purposes comprises a basic functional lighting unit selectively enclosed by interchangeable housings of different shapes and secured at one side to a post-top slipfitter adapted to contain a photoelectric control device and to support a plurality of such luminaires in desired arrangement on a common support, with the luminaires controlled by the same control device.

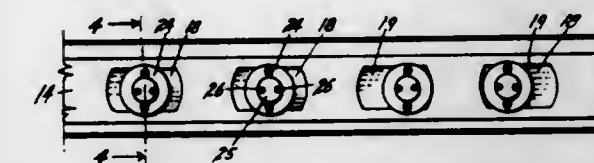
3,562,511

ADJUSTABLE SOCKET MOUNTINGS FOR
FLUORESCENT LIGHTING FIXTURESMelbourne C. Reeves, Denver, Colo., assignor to Sechrist Corporation, Denver, Colo., a corporation of Delaware
Filed Sept. 30, 1968, Ser. No. 763,822

Int. Cl. H05b 33/02

U.S. Cl. 240-51.12

3 Claims



An elongated socket-supporting element, for assembly in a fluorescent lighting fixture, to adjustably support a plurality of fluorescent lamp sockets. The socket-supporting element is provided with a plurality of elongated, aligned, spaced-apart socket guide holes and has a slidable plate, provided with a fluorescent lamp socket, covering each hole. The slide plates can be shifted toward and away from each other to receive lamp terminals of various spacings. More particularly the device is applicable for adjusting the socket spacings in the socket-supporting element to accommodate the various terminal spacings of conventional U-shaped, hot-cathode fluorescent lamp tubes.

ERRATUM

For Class 240-53 see:
Patent No. 3,561,683

3,562,512

ELECTRIC LIGHTING FIXTURE FOR CEILING
MOUNTED LIGHTSHiroshi Oshima; Yasutaka Morishita, and Isao Kuribayashi,
Kadoma, Osaka, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan, a corporation of Japan

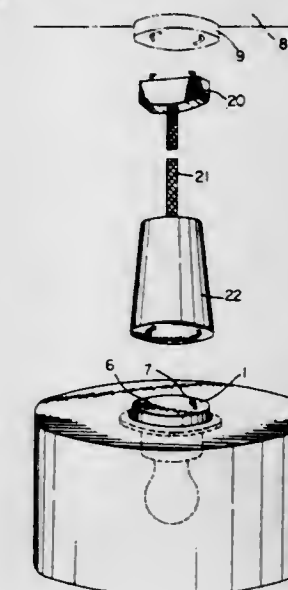
Filed Mar. 29, 1968, Ser. No. 717,352

Claims priority, application Japan,

Int. Cl. F21s 1/06

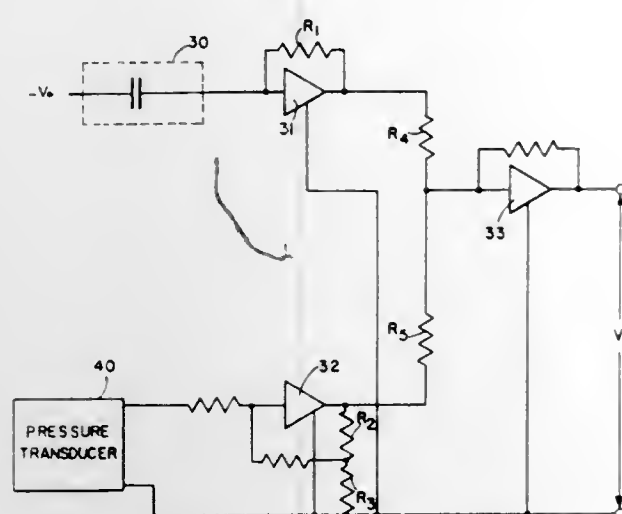
U.S. Cl. 240-78

2 Claims



An electric lighting fixture comprising a pair of cooperating mounting assemblies, one of which carries a socket for an electric light bulb, and the other of which is adapted to be mounted on the ceiling. The two mounting assemblies include two cooperating pairs of terminal elements, each of which has a lateral projection thereon so that when the two mounting assemblies are fitted together and turned slightly, the lateral projections on the terminal elements overlap each other so as to both mechanically and electrically connect the two mounting assemblies. The lower mounting assembly also includes a peripheral flange which supports the inner edge of a lamp shade adapted to fit down over the lower mounting assembly.

ries in proportion to the variations in the total pressure of the fluid independent of its composition. The second detector produces an output which varies in proportion to variations in the total pressure of the mixture, independent of its com-



position. The two signals are then combined to produce an output signal which varies linearly with the amount of the selected component, independent of variations in the total pressure of the mixture.

3,562,522 NONDISPERSIVE IR ANALYZER AND METHOD FOR CALIBRATING

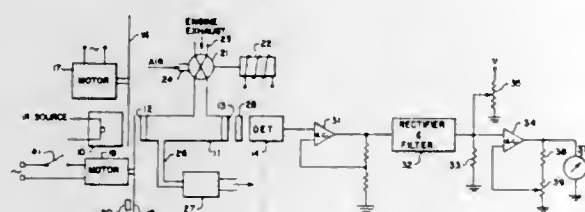
Carl N. Cederstrand, Brea; James C. Davis, Fullerton; Charles A. Keenan, Huntington Beach, and Jerrold H. Randall, Corona Del Mar, Calif., assignors to Beckman Instruments, Inc., a corporation of California

Filed Sept. 18, 1968, Ser. No. 760,501

Int. Cl. G01n 21/26

U.S. Cl. 250—43.5

5 Claims



A nondispersive infrared analyzer having a source, flow cell, filter and detector is disclosed. The inlet to the flow cell may be switched from one of two intakes and the outlet is connected to a jet pump. With air flowing through the cell the zero suppression control is adjusted to reduce the signal input to the DC amplifier to zero. The calibration blade is started and the span control adjusted to provide a given up-scale reading of the meter. The analyzer is then calibrated to provide a reading directly in concentration of the desired constituent.

3,562,523 METHOD FOR DETERMINING RESIDUAL OIL CONTENT OF A FORMATION USING THERMAL NEUTRON DECAY MEASUREMENTS

Jasper E. Richardson, Houston, Tex., and Richard E. Wyman, New Orleans, La., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Apr. 26, 1967, Ser. No. 633,963

Int. Cl. G01v 5/00

U.S. Cl. 250—43.5

4 Claims

A method for determining residual oil in a formation that has been reduced to residual oil by water drive or water-flooding. The method measures the thermal neutron decay first with the formation water and then with water having a materially different capture cross section substituted for the formation water at least within the radius of investigation of the logging tool.

3,562,524 APPARATUS FOR MEASURING THE CONCENTRATION OF ALCOHOL VAPOR IN ALVEOLAR AIR

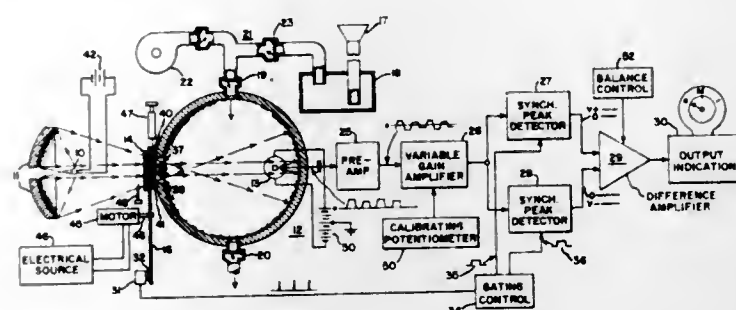
Donald F. Moore, and Walter S. Beeman, Liverpool, N.Y., assignors to General Electric Company, a corporation of New York

Filed Dec. 11, 1968, Ser. No. 782,964

Int. Cl. G01n 21/26

U.S. Cl. 250—43.5

13 Claims



Apparatus for measuring the concentration of ethyl alcohol in alveolar air, and depending upon the unique infrared absorption characteristics of ethyl alcohol vapor is disclosed. Infrared radiation of two spectral selections—one strongly absorbed and the other relatively unabsorbed—is introduced in sequence into an absorption chamber containing alcohol vapor. The sequenced illumination is balanced in an electrical comparator in the absence of alcohol and imbalance is used to measure the concentration of alcohol vapor within the chamber.

The absorption chamber forms a light-integrating sphere to multiply the infrared absorption path length and to provide a uniform level of interior illumination. The single source of illumination of the chamber is focused into two separated beams by means of a split ellipsoidal mirror into which separate relatively small and simple filters may be introduced. The optical paths through the chamber to the simple detector are balanced by the integrating effect of the sphere. Filters employing vinylidene chloride-vinyl chloride copolymer, crystalline calcium fluoride and polytrifluoromonoethoxyethylene are treated. Simple self-calibration means are provided. The apparatus is applicable to law enforcement problems.

3,562,525 X-RAY FLUORESCENCE GAUGING EMPLOYING A SINGLE X-RAY SOURCE AND A REFERENCE SAMPLE FOR COMPARATIVE MEASUREMENTS

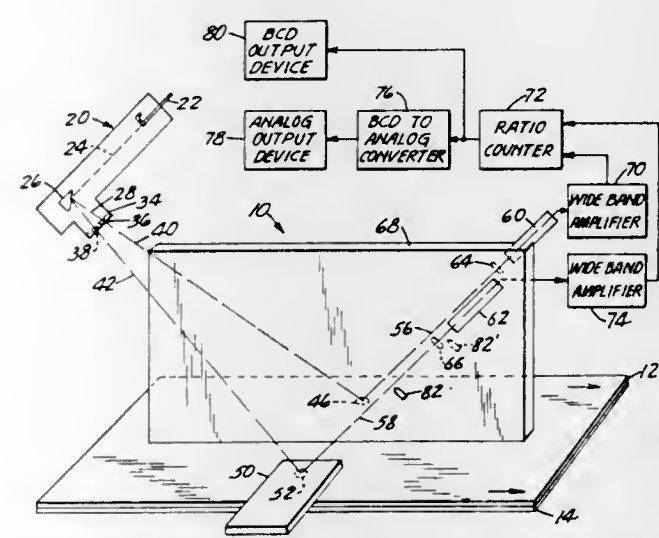
Nikiforos Constantine, St. Paul, and Larry L. Hobbs, Maplewood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed June 29, 1967, Ser. No. 649,911

Int. Cl. G01t 1/16

U.S. Cl. 250—51.5

5 Claims



An X-ray fluorescence gauge wherein an X-ray beam is separated into two beams for concurrently irradiating a coat-

ing and base and a reference sample each of which contain elements capable of producing fluorescent characteristic radiation when irradiated by one of the X-ray beams is shown. A pair of detectors receive the characteristic fluorescent radiation, with at least the characteristic radiation from the coating and base element passing through a filter, and the outputs from the detectors are applied to a ratio counter which includes means for indicating the ratio of radiation counts.

3,562,526 NEUTRON-GAMMA RAY WELL LOGGING APPARATUS EMPLOYING SPACED GAMMA RAY DETECTORS

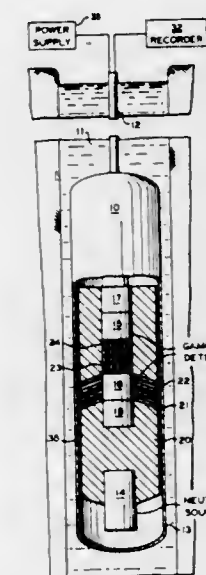
Bobby L. Lawson, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Oct. 17, 1967, Ser. No. 675,915

Int. Cl. G01t 1/20; G01v 5/00

U.S. Cl. 250—71.5

8 Claims



A neutron-gamma ray well-logging device comprises a neutron source and two spaced gamma ray detectors. The detectors are shielded so that only gamma rays which emerge from the formations at a predetermined angle are allowed to strike the first detector. Only gamma rays which are emitted from the first detector at a predetermined angle are allowed to strike the second detector.

ERRATUM

For Class 250—83 see:
Patent No. 3,562,480

3,562,527 INSULATED SIGNAL COUPLER

Jean Claude Adam Chalmowicz, Greenford, England, assignor to Mining & Chemical Products Ltd., Middlesex, England, a British company

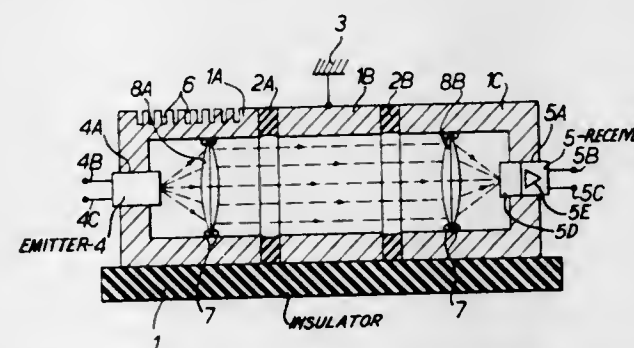
Filed July 17, 1968, Ser. No. 745,496

Claims priority, application Great Britain, July 17, 1967, 32,824

Int. Cl. G01t 1/00

U.S. Cl. 250—83

5 Claims



A signal-coupling device for signal coupling but electrically insulating two parts of an electronic circuit. The device has a

gallium arsenide diode and a photoelectric receiving cell both in a housing in which is also a lens system which collimates the radiation from the gallium arsenide diode and focusses the collimated radiation onto the receiving cell. The housing is in several parts, one of which is electrically insulated from the others.

3,562,528 ANGULAR TRACKER RESPONSIVE TO PENETRATING RADIATION

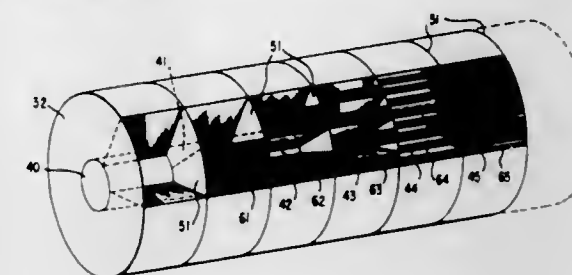
William B. Joyce, Basking Ridge, N.J., assignor to Industrial Nucleonics Corporation, a corporation of Ohio

Filed May 9, 1967, Ser. No. 637,214

Int. Cl. G01t 1/16

U.S. Cl. 250—83.3

22 Claims



Disclosed is a system for deriving a direct digital indication of the position of a penetrating radiation source, e.g., a gamma-ray or X-ray source. A detector array having multiple channels with the same field of view is irradiated by the source. Each channel includes a different number of radiation-receiving areas to derive the digital indication. The detector array, in certain embodiments, is shielded with a slit plate or shadow mask. In another embodiment, a single multiple detector channel is shielded with a shadow mask and step changes in illumination of each detector drive a position indicating counter.

3,562,529 INFRARED THERMOGRAPH PRODUCING COLOR IMAGES BY SELECTIVE INSERTION OF COLOR FILTERS BETWEEN A SCANNING LIGHT SOURCE AND A LIGHT SENSITIVE SURFACE

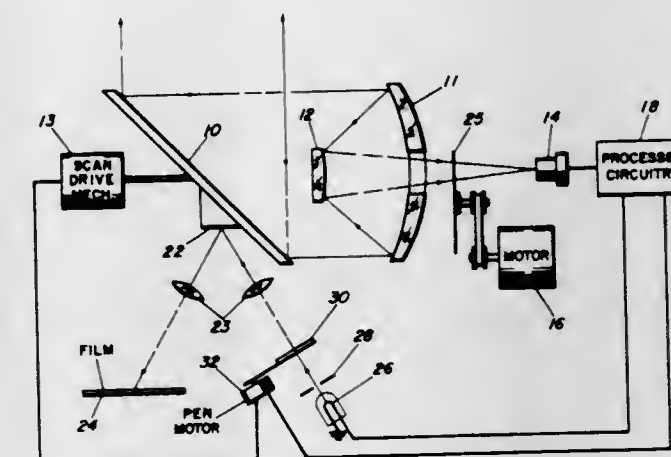
Nelson E. Engborg, Greenwich; Robert Bowling Barnes, Stamford, and Maggio Charles Banca, Greenwich, Conn., assignors to Barnes Engineering Company, Stamford, Conn., a corporation of Delaware

Filed July 3, 1968, Ser. No. 742,224

Int. Cl. H01J 39/00

U.S. Cl. 250—83.3

10 Claims



An infrared thermograph is provided which synchronously scans an infrared detector over a field of view and a constant brightness light over a light sensitive surface. The constant brightness light source is modulated by a filter means in accordance with signals developed by the infrared detector to produce a thermal image of the field of view of the thermograph on the light sensitive surface. A number of different

visual displays, including color, are provided depending on the type of filters used.

3,562,530

METHOD AND APPARATUS OF PRODUCTION OF NONCONTAMINATED PLASMOIDS

Terenzio Consoli, LaCelle Saint Cloud, and Lucien Slama, Massy, France, assignors to Commissariat A L'Energie Atomique, Paris, France

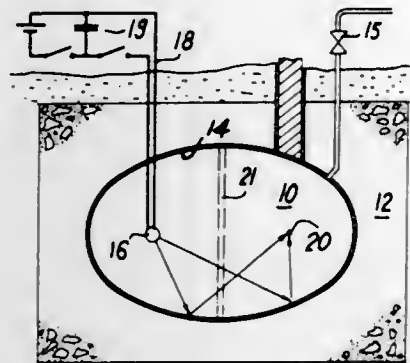
Filed Jan. 22, 1968, Ser. No. 699,584

Claims priority, application France, Feb. 2, 1967, 93498

Int. Cl. G21g 3/00

U.S. Cl. 250—84.5

17 Claims



A method for producing and/or heating a plasmoid, consisting in disposing a target at a first conjugate focal point of a closed chamber which constitutes a mirror system and in producing at least at a second focal point which is conjugate with said first focal point a substantial release of electromagnetic energy in the form of a pulse of very short duration, said energy being focused on said target which is thus heated to a high temperature.

3,562,531

NUCLEONIC MEASURING APPARATUS WITH AUTOMATIC FIRE SAFETY RADIATION SOURCE SHUTTER CLOSING AND LOCKING MEANS COMPRISING A SPRING RETAINED BY A FUSIBLE BARRIER WHICH MELTS AT HIGH TEMPERATURES

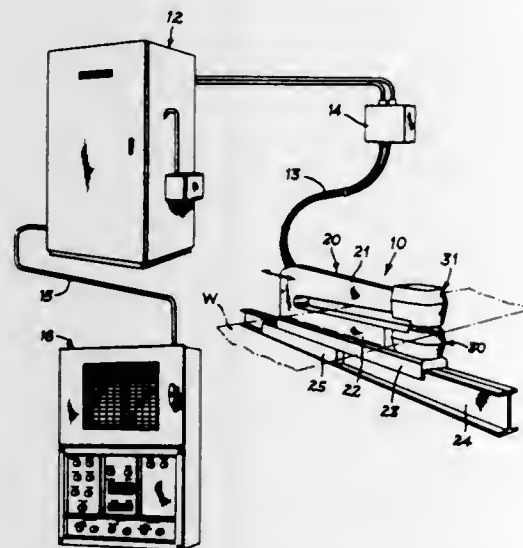
George J. Trachevski, Dublin, and Ernest A. Auburn, Hilliard, Ohio, assignors to Industrial Nucleonics Corporation, a corporation of Ohio

Filed Apr. 27, 1967, Ser. No. 634,363

Int. Cl. G01t 1/17

U.S. Cl. 250—106

7 Claims



A nucleonic measuring instrument wherein a housing contains a radiation source and has an aperture controlled by a shutter which is spring loaded to a closed position for confining and shielding the radiation and is movable by a motor to an open position for releasing the radiation, the motor being supplied with power through a heat-sensitive element so that it is deenergized and the shutter closes in response to a

predetermined high ambient temperature such as may be caused by a fire, and a spring steel shutter lock is retained in a retracted position by a barrier of meltable metal which is adapted to melt and release the spring lock at a still higher ambient temperature for locking the shutter in its closed position.

3,562,532

METHOD AND MEANS FOR CHANGING RADIOACTIVE SOURCES

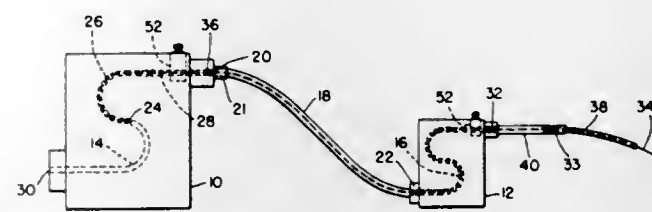
Michael P. Santoro, Newtown Square, and Stephen Boyko, Phoenixville, Pa., assignors to Automation Industries, Inc., a corporation of California, by mesne assignments

Filed Oct. 26, 1967, Ser. No. 678,269

Int. Cl. G21f 5/00

U.S. Cl. 250—106

1 Claim



Method and means are provided to permit use of a radioactive source capsule with storage units of different sizes. An extension cable is detachably connected to a main cable holding the source capsule. The extension cable is detached from the main cable when the source capsule is disposed within the smaller unit and is attached to the main cable when the source capsule is disposed within the larger unit.

3,562,533

VARIABLE POLARIZATION OPTICAL HETERODYNE TRANSCIEVER

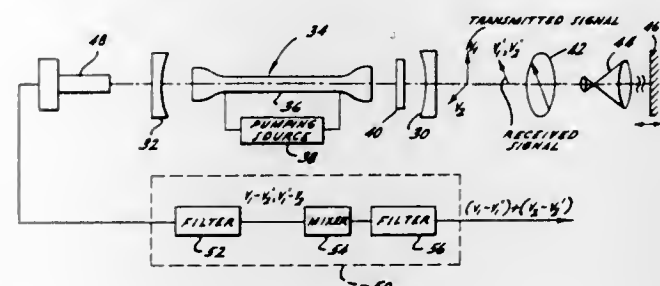
Walter M. Doyle, Laguna Beach, and Wesley Duane Gerber, Santa Ana, Calif., assignors to Philco-Ford Corporation, Philadelphia, Pa., a corporation of Delaware

Filed May 23, 1968, Ser. No. 731,376

Int. Cl. H04b 9/00

U.S. Cl. 250—199

8 Claims



A laser system that utilizes a single laser as a transmitter, a local oscillator and a preamplifier. The polarizations of the normal laser oscillations and the polarization of the received signal are made different so that the received signal in passing through the laser alters the polarization of the laser output signal. Means are provided for converting the polarization modulation into an electrical signal representative of the modulation of the receiver signal.

3,562,534

PHOTOELECTRIC LEVEL CONTROL SYSTEM WITH LAMP OPERATED AT ALTERNATE BRIGHTNESS UTILIZING SEPARATE PHOTOCELL AND SCR

Jay H. Jarrett, and Jerome L. Lorenz, Columbus, Ohio, assignors to Ranco Incorporated, Columbus, Ohio, a corporation of Ohio

Filed May 19, 1969, Ser. No. 825,847

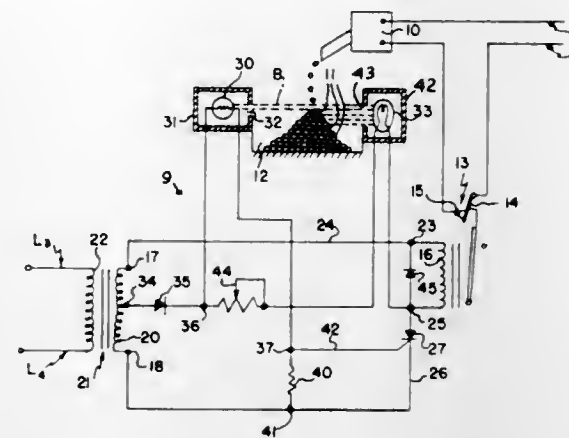
Int. Cl. G01j 1/32; H01j 39/12; H03k 3/42

U.S. Cl. 250—205

2 Claims

An electric lamp projects a light beam on a level at which a body of material is to be maintained and onto a light sensi-

tive resistance element. When the beam is unobstructed the element triggers an SCR which conducts and initiates depositing of material until the material obstructs the beam whereby the element deactivates the SCR to terminate depositing of material. The lamp is energized by a center tap



transformer winding connected to the lamp filament so that the lamp is energized by a full wave AC rectified to DC when the SCR conducts and by one-half wave AC rectified when the SCR is nonconducting whereby the lamp intensity is high during depositing of material and low during the period the light is obstructed by material.

3,562,535

RADIATION SENSITIVE DEVICE FOR FLOW TUBE USING MOVING FLUID TIGHT SEAL

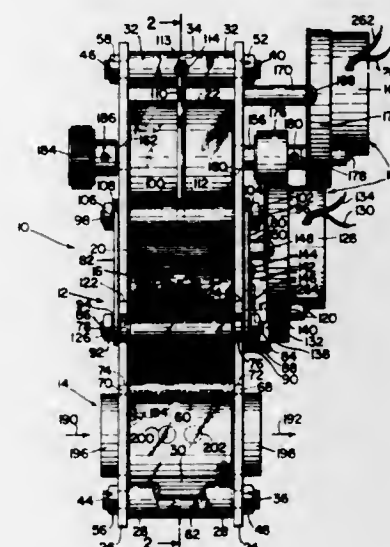
Alton Leger, Jr., Roslyn, and Howard I. Oshry, Huntingdon Valley, Pa., assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Feb. 14, 1969, Ser. No. 799,339

Int. Cl. G01n 21/26

U.S. Cl. 250—218

8 Claims



A transparent film under tension is employed to provide a moving fluid tight seal over and about an opening formed in the wall of a flow tube containing moving matter that is to be continuously analyzed. This seal allows a different clean portion of a transparent film to be continuously brought over the aforementioned opening and thereby provide a clean window through which a source of radiant energy can be directed as this radiant energy is passed into and out of the moving matter in the flow tube and thence to an optical radiant energy detecting and analyzing utilitarian means, such as a turbidimeter.

ERRATUM

For Class 250—219 see:
Patent No. 3,561,846

3,562,536

RADIATION SENSITIVE SEMICONDUCTOR WAFER IDENTIFICATION SYSTEM

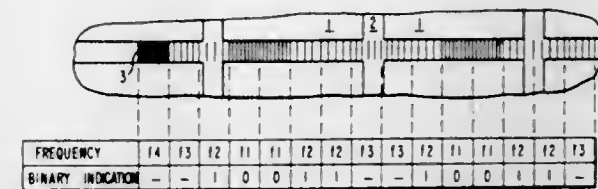
Rolf H. Brunner, and Ollie C. Woodard, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Aug. 30, 1968, Ser. No. 756,540

Int. Cl. G08c 9/06

U.S. Cl. 250—219

8 Claims



Placement of coded indicia as etched lines in the kerf area of a semiconductor wafer. Scanning and image rotation are used to read out the indicia, which may be binary or frequency coded. Placement of the etched lines at a different angle from the circuit lines allows illumination of the etched lines with minimum interference from the circuit lines.

3,562,537

ELECTRO-OPTICAL DECORRELATION OF WAVEFRONT DISTORTION DUE TO ATMOSPHERIC SCINTILLATION

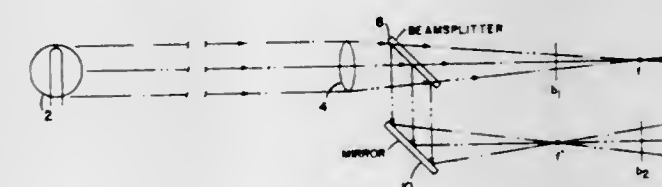
Walter E. Miller, Jr., Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army

Filed Sept. 3, 1969, Ser. No. 854,845

Int. Cl. H01j 3/14, 39/12

U.S. Cl. 250—220

5 Claims



A device for determining the angular position of a light source wherein light from the source is received by a lens, split into two paths, and detected by quadrant detectors placed before the focal point of the first path and after the focal point of the second path. The out-of-focus image (blur circle) received by one detector is inverted with respect to the image received by the other detector. The blur circles received by the detectors contain variations in intensity due to atmospheric scintillation. By comparing the light intensity received by the quadrants of each detector, the effects due to atmospheric scintillation are canceled, and the true angular position of the light source with respect to the axis of the detectors may be determined.

3,562,538

MACHINE TOOL SYSTEM AND OPTICAL GAUGING APPARATUS THEREIN

Harry W. Mergler, Cleveland, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio, a corporation of Ohio

Filed Sept. 30, 1968, Ser. No. 763,848

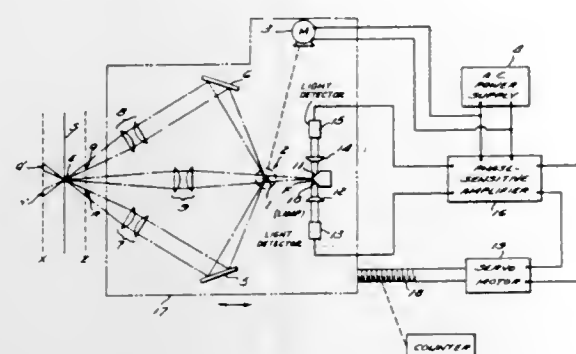
Int. Cl. B26d 5/34

U.S. Cl. 250—222

13 Claims

In this system an optical gauging apparatus produces two time-displaced light beams which are directed at opposite acute angles to a nonspecular reflecting surface on the workpiece and are focused on the same point. A lens system focused on this same point receives diffuse reflections from the workpiece surface and focuses these reflections at the knife edge intersection of two oppositely-inclined reflecting

surfaces. A pair of detectors are positioned to receive the respective reflections from these reflecting surfaces and to operate a phase-sensitive amplifier. The amplifier output signal operates a servomotor to adjust the position of the op-



tical gauging apparatus so as to position the focus of its two light beams on the workpiece surface and also produces a signal for causing another servomotor to adjust the position of a cutting tool with respect to the workpiece.

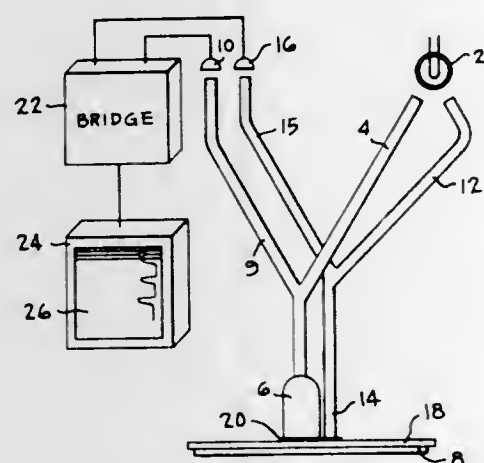
3,562,539

APPARATUS FOR SCANNING THIN-LAYER AND OTHER CHROMATOGRAMS

Morton Beroza, Silver Spring, and Kenneth R. Hill, Severna Park, Md., assignors to the United States of America as represented by the Secretary of Agriculture
Filed Aug. 28, 1968, Ser. No. 755,891
Int. Cl. G02b 5/14, 5/16

U.S. Cl. 250-227

5 Claims



An apparatus for scanning thin-layer and other chromatograms containing a fiber optic scanning head consisting of randomly mixed glass fibers, half of which conducts light to a small defined area of the chromatogram and half of which conducts the reflected light to a photo-sensing cell for recording of its response on a strip chart recorder. A second fiber optic head scans the blank area adjacent to the spots to correct for background differences on the plate or other chromatogram supporting means.

3,562,540

APPLIANCE WITH SOLID-STATE LIGHT-ACTUATED CONTROL MEANS

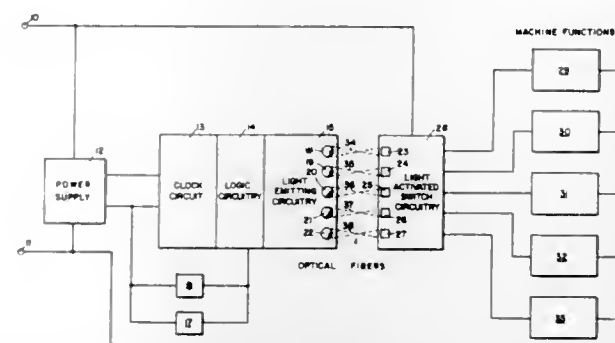
James Arthur Hirsch, Indianapolis, Ind., assignor to P.R. Mallory & Co., Inc., Indianapolis, Ind., a corporation of Delaware
Continuation of application Ser. No. 530,713, Feb. 28, 1966.
This application Apr. 10, 1969, Ser. No. 816,178
Int. Cl. H01j 5/16; H03k 19/52

U.S. Cl. 250-227

5 Claims

A light-actuated solid-state control means for an appliance

employing solid-state switching devices for programming the



sequence of operations of the appliance.

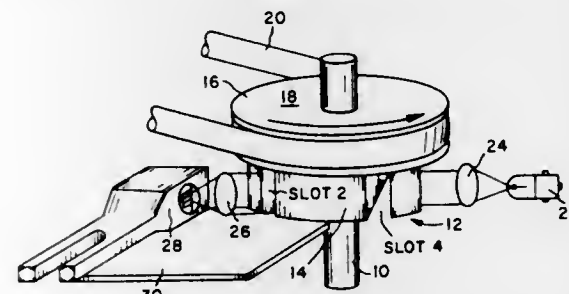
3,562,541

SYNCHRONIZING LIGHT CHOPPER COMPRISING CYLINDRICAL DISC WITH PLURALITY OF CHANNELS

Karl F. Schroeder, Berwyn Heights, Md., assignor to Neotec Corporation, a corporation of Delaware
Filed June 28, 1968, Ser. No. 740,899
Int. Cl. G01d 5/36; H04n 3/02

U.S. Cl. 250-233

4 Claims



A synchronizing light chopper which is rotatable and has a mechanical member in the form of a cylinder with a multiplicity of slots cut therethrough. One of the slots is wider than the others and permits a longer light pulse therein which is used to reset the flip-flop to its initial zero state. Thus, synchronization is ensured in spite of spurious, unwanted trigger pulses.

3,562,542

AUTOMATIC STARTING SYSTEM FOR INTERNAL COMBUSTION ENGINES INCLUDING THROTTLE CONTROL MEANS

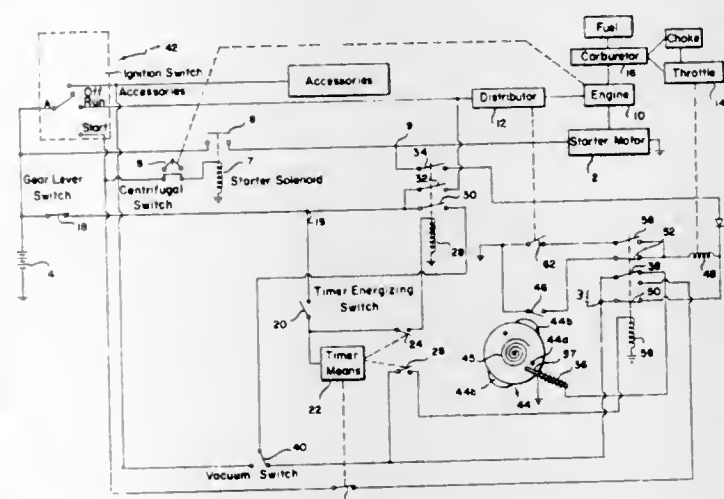
Frank A. Redmond, R.F.D. 4 Overlook Hills, Wintersville, Ohio 43952

Filed Aug. 15, 1969, Ser. No. 850,592

Int. Cl. F02n 1/108

U.S. Cl. 290-38

14 Claims



An automatic system for starting an internal combustion engine, characterized by the provision of normally deener-

gized solenoid means operable to actuate the throttle means to prime the engine, first circuit means operable to energize the solenoid means to prime the engine prior to the starting thereof, second circuit means operable to energize both the starter motor and the solenoid to prime the engine during starting, and timer means for alternatively activating said first and second circuit means in succession, respectively. In accordance with the invention, a pair of periodically operable switches are connected in said first and second circuit means, respectively, one of said periodic switches being driven by rotary motor means, such as a spring driven rotor, and the other being driven by the distributor rotor.

3,562,543

PROCEEDING OF CONSTRUCTION OF AN ELECTRICAL NETWORK

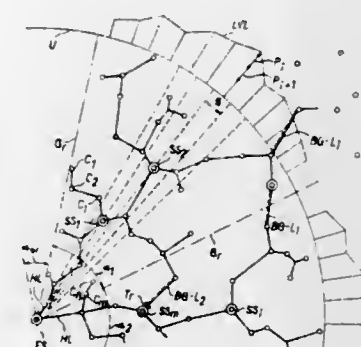
Joze Sacer, Neuenhof, Switzerland (4153 Reinach/B1 Ziklackenstr., 24, Switzerland)

Filed Mar. 23, 1966, Ser. No. 538,457

Int. Cl. H02j 1/00

U.S. Cl. 307-11

7 Claims



An electrical power supply network having a main power supply line extending from a power supply station to consumer or distributing stations according to a predetermined geometrical configuration designed to result in the distribution of electricity in the most economical manner.

3,562,544

METHOD AND APPARATUS FOR BANG-BANG CONTROL OF REACTANCE TO RESTORE STABILITY IN MINIMUM TIME IN A POWER SYSTEM INVOLVING TIE LINES

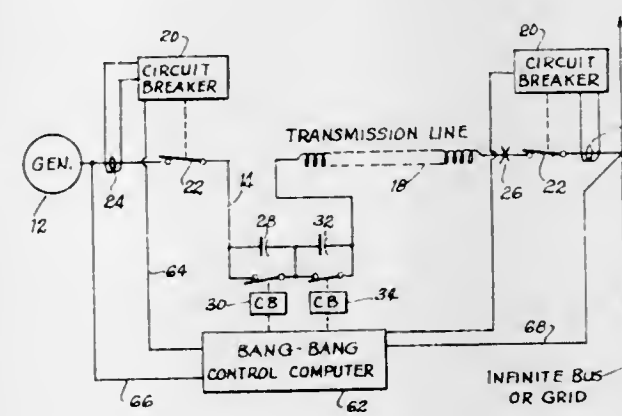
Daniel K. Reitan and Rama Rao Nagavapur, Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis., a corporation of Wisconsin

Filed May 21, 1969, Ser. No. 826,452

Int. Cl. H02j 1/00

U.S. Cl. 307-85

11 Claims



The present invention restores a generator or generating station to its original condition of steady state equilibrium following a transient disturbance involving the momentary opening and subsequent reclosure of the circuit breakers in a

tie line between the generator and a large power grid. Simultaneously with the reclosure of the breakers, a first capacitive reactance is connected in series with the line, to increase its power handling capability, so that the leading power angle of the generator will be reduced. Before the generator reaches its original power angle, an additional capacitive reactance is introduced in series with the line, to cause reverse power flow along the line, so that power is supplied to the generator by the grid. Thus, the generator is accelerated so that it returns to its original power angle and angular velocity. Both capacitive reactances are then short circuited or otherwise removed from the line so that the original condition of steady state equilibrium is restored.

3,562,545

AUTOMATIC GENERATOR SYNCHRONIZING AND CONNECTING SYSTEM AND SYNCHRONIZER APPARATUS FOR USE THEREIN

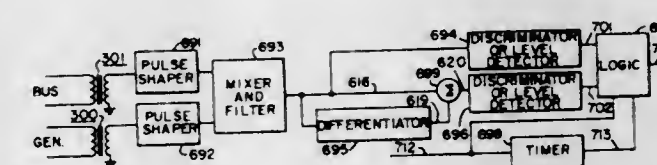
Tibor Rubner, Pittsburgh, Pa.; Andre Wavre, Monroeville, Pa., and John H. Bednarek, Murrysville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Jan. 4, 1968, Ser. No. 695,684

Int. Cl. H01j 3/00

U.S. Cl. 307-87

11 Claims



The synchronizing system includes a voltage acceptor having an overvoltage-undervoltage detector which measures the voltage of the oncoming generator and the voltage on the bus and readies a circuit for operation when these voltages are within permissible limits. Further, a voltage matcher is provided to cause the voltages to come within acceptable limits. A speed matcher is used to change the frequency of the bus. A synchronizer gives a closing signal to a circuit breaker at a definite time (corresponding to the circuit breaker closing time) before the two voltages are in phase.

3,562,546

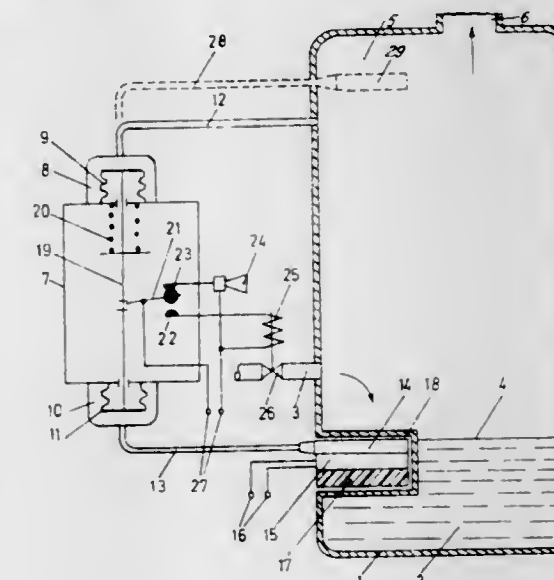
APPARATUS FOR LIMITING THE LEVEL OF A LIQUID IN A CONTAINER

Asger Kraemer, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark, a company of Denmark
Filed Apr. 15, 1969, Ser. No. 816,328

Int. Cl. H01h 37/00

U.S. Cl. 307-117

6 Claims



The invention relates to control apparatus for limiting the level of the liquid in a container to a predetermined level. A

thermostatic element combined with a heating element comprises an assembly which senses and is subjected to a relatively lower temperature when surrounded by a liquid in the container than it does when the liquid level is lower than the level of the assembly. The mode of operation is based on the thermostatic element operating an electrical switch, through pressure responsive means, which controls the supply of liquid to the container. The switch has on and off positions which correspond to the upper and lower temperatures to which the thermostatic element is subject. The absolute values of the upper and lower temperatures to which the thermostatic valve may be subjected may vary substantially depending on the temperature of the liquid and the ambient temperature but the temperature differential between the absolute temperatures is substantially constant. The invention involves the providing of pressure compensating means so that it is only the temperature differential between the upper and lower temperatures to which the thermostatic element is subjected that causes the switch to be actuated to its on or off position.

3,562,547

PROTECTION DIODE FOR INTEGRATED CIRCUIT

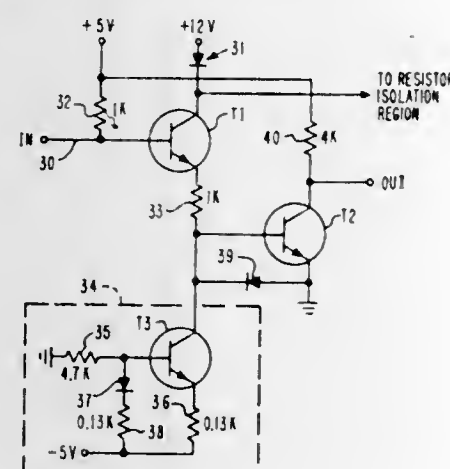
Gerald D. Brode, Sayre, Pa.; James F. Malia, Owego, and William K. Mead, Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Apr. 17, 1967, Ser. No. 631,533

Int. Cl. H02h 7/20; H011 19/00

U.S. Cl. 307-202

9 Claims



A transistorized single-ended receiver circuit and a double-ended receiver circuit are provided with a protective diode to limit current resulting from overvoltage at the input during operation or normal voltage at the input whenever the receiver circuits are deenergized.

3,562,548

CIRCUIT ARRANGEMENT WITH SEMICONDUCTOR ELEMENTS

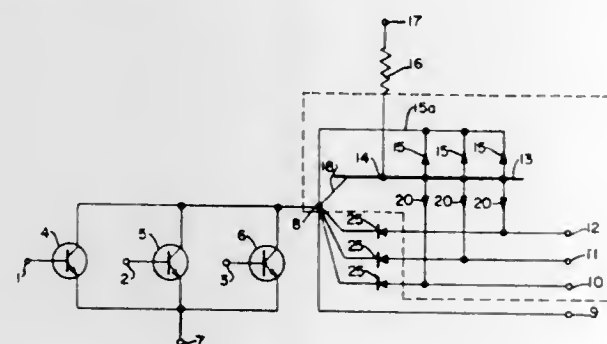
Dietrich Armgarth, Dresden, Germany, assignor to Arbeitss-telle Fur Molekularelektronik, Dresden, Germany

Filed Apr. 5, 1968, Ser. No. 719,121

Int. Cl. H03k 19/40

U.S. Cl. 307-214

5 Claims



A switching circuit for performing logic operations in which the collector electrodes of a plurality of input

transistors are joined into a nodal point and the emitter electrodes are connected in parallel while the base electrodes serve as separate inputs. The nodal point is then connected to the collector electrode of an inversely operated multiemitter transistor, the base electrode of which is returned to a source of potential while the emitter electrodes thereof form output terminals.

3,562,549

SEMICONDUCTOR LOGIC CIRCUIT

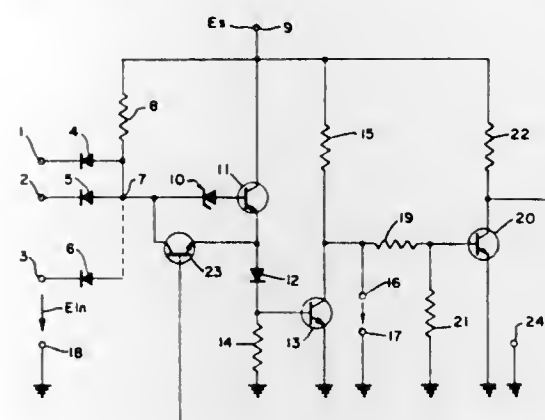
Juergen Teichmann, Dresden, Germany, assignor to Arbeitss-telle Fur Molekularelektronik, Dresden, Germany

Filed May 21, 1968, Ser. No. 730,869

Int. Cl. H03k 19/36, 5/08

U.S. Cl. 307-215

8 Claims



A plurality of diode inputs is connected through a Zener diode clipper and amplifier circuit with a subsequent output stage so that the Zener voltage determines the initial shifting voltage level. To change this initial level, a conventional negator controls a transistor connected in parallel with said clipper and amplifier circuits, and turns off the latter in dependence on the output condition.

3,562,550

METHOD OF AND APPARATUS FOR GENERATING HYPERBOLIC FUNCTIONS

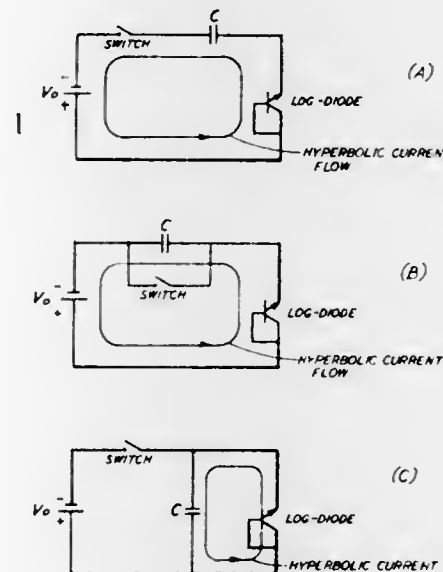
Harry Fein, 832 Quarter Mile Road, Orange, Conn. 06477

Filed Sept. 25, 1967, Ser. No. 670,338

Int. Cl. G06g 7/12; G06f 15/34

U.S. Cl. 307-229

11 Claims



Apparatus for and methods of electrically simulating a hyperbolic function are disclosed. The function generator comprises suitably interconnected capacitor, constant voltage source and nonlinear circuit element; charging or discharge current of the capacitor being supplied through the nonlinear element which may be a transistor connected as a diode. Discharge of the capacitor is controlled by a suitably connected solid state switch.

3,562,551

UNIT DISTANCE COUNTER

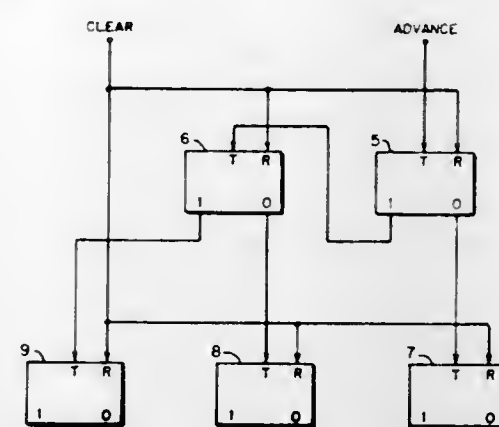
Franklin H. Fowler, Jr., Fullerton, Calif. assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Filed Sept. 20, 1967, Ser. No. 669,317

Int. Cl. H03k 21/00

U.S. Cl. 307-220

5 Claims



A unit distance counter having $(n-1)$ digit conventional counters, an n digit register, and controls for changing the contents of the register when a count is sensed. The conventional counters and register are made up of flip-flop units.

3,562,552

RMS TO LOG CONVERTER CIRCUIT

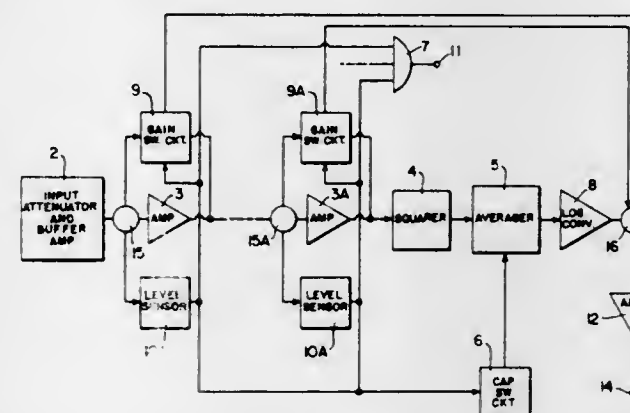
Louis J. Baudino, Jr., Littleton, and James A. Bright, Denver, Colo., assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Feb. 16, 1968, Ser. No. 705,963

Int. Cl. G06g 7/24

U.S. Cl. 307-229

13 Claims



There is provided a circuit which operates upon a complex input waveform to produce an output signal which is a DC log signal proportional to the RMS value of an AC input signal.

3,562,553

MULTIPLIER CIRCUIT

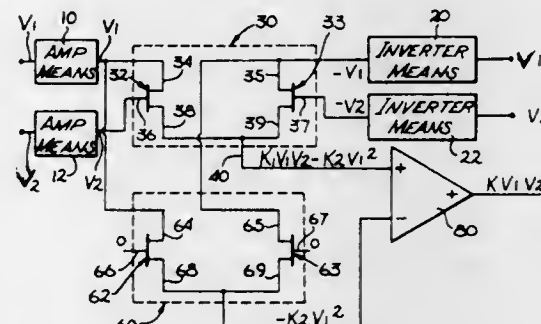
Allen R. Roth, 333 Carousel Place, Anaheim, Calif. 92806

Filed Oct. 21, 1968, Ser. No. 769,336

Int. Cl. G06g 7/12

U.S. Cl. 307-229

5 Claims



A multiplier including field effect transistor (FET) devices

wherein an FET correction means is employed to substantially minimize nonlinearity and error in multiplier operation.

3,562,554

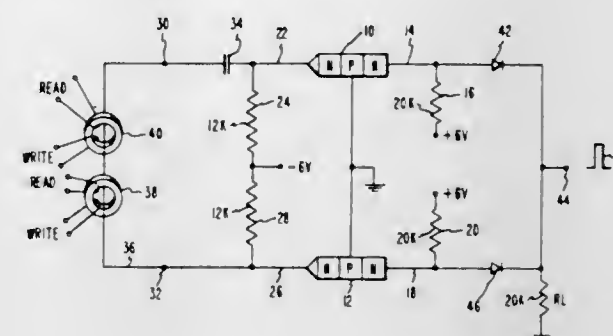
BIPOLAR SENSE AMPLIFIER WITH NOISE REJECTION
John L. Von Feldt, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 15, 1968, Ser. No. 697,711

Int. Cl. H03k 5/20

U.S. Cl. 307-236

9 Claims



A circuit for amplifying bipolar sense signals which exceed a predetermined threshold level and rejecting noise signals below the threshold level. A pair of transistors of the same conductivity type are connected in a common base configuration. Both transistors are biased into saturation. The degree of saturation is determined by the ratio of collector and emitter bias currents. The emitters of the transistors are connected to the sense line of a magnetic core memory. A sense signal below the predetermined threshold level will not drive either transistor out of saturation. A sense signal above the threshold level will drive one of the transistors out of saturation to produce an output signal in the form of a voltage increase on the collector of that transistor. The other transistor will be driven further into saturation and will not produce an output signal. The noise rejection level of the circuit is the minimum level of a sense signal required to drive a transistor out of saturation. Once a transistor is taken out of saturation and into the active region, it acts as a high gain voltage amplifier.

3,562,555

MEMORY PROTECTING CIRCUIT

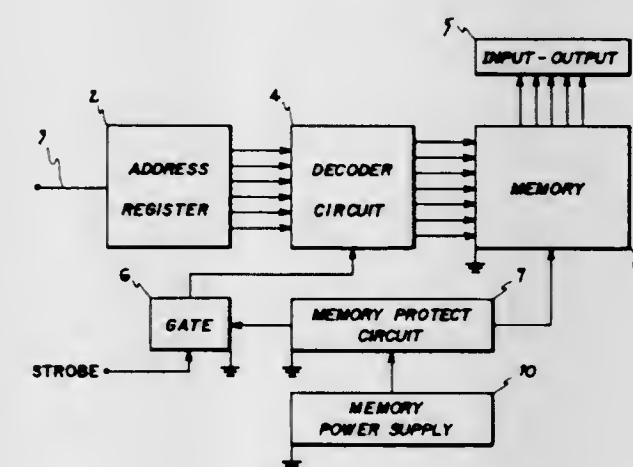
Richard W. Ahrons, Somerville, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Sept. 1, 1967, Ser. No. 665,126

Int. Cl. H03k 1/12

U.S. Cl. 307-238

8 Claims



A circuit for monitoring the power supply for a memory system which is arranged to inhibit operation of the memory system during a power supply failure while maintaining a temporary supply of power to the memory system.

3,562,556

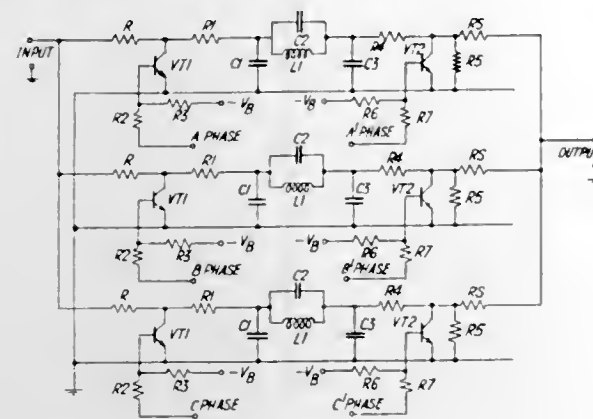
N-PATH FREQUENCY TRANSLATION SYSTEM
Donald Robert Barber, Bishop's Stortford, and Michael John Gingell, Harlow, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Dec. 9, 1966, Ser. No. 605,949
Claims priority, application Great Britain, Dec. 9, 1965, 52293/65

Int. Cl. H03k 1/16

U.S. Cl. 307—295

15 Claims



The invention provides a frequency translation system having N-paths which are identical and connected in parallel. Each of the paths includes at least one input modulator unit, a filter unit and at least one output modulator unit. The modulator units sample in turn a given input frequency spectrum for a set period of time determined by the number of paths N. The input and output modulator units are unbalanced. The output of each of the paths is connected to a summation unit to produce output frequency spectrums which are either an erect or inverted translation of the input frequency spectrum.

3,562,557

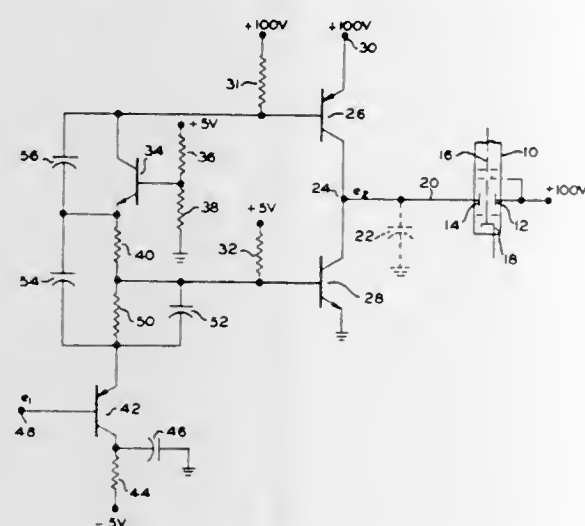
COMPLEMENTARY TRANSISTOR CIRCUIT FOR DRIVING AN OUTPUT TERMINAL FROM ONE VOLTAGE LEVEL TO ANOTHER, INCLUDING TRANSISTOR COUPLING MEANS BETWEEN COMPLEMENTARY TRANSISTORS

John M. P. Gates, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon
Filed Feb. 28, 1968, Ser. No. 708,855

Int. Cl. H03k 17/00

U.S. Cl. 307—255

7 Claims



A circuit for driving a cathode ray tube deflection blanking plate or the like comprises a pair of complementary transistors having their collector electrodes coupled to such blanking plate, and having their respective emitters coupled to positive and negative voltage points. Means interconnect

the transistor bases for coupling a signal therebetween. The transistors are biased so that one is normally cut off while the other is in saturation. An input provided to one such transistor reverses the states of both transistors so that the transistor which was previously cut off now saturates, and the previously conducting transistor is cut off. The cathode ray tube blanking plate is thereby rapidly driven from one voltage level to another.

3,562,558

DELAY LINE CONTROL GATED MICROLOGIC CLOCK GENERATOR

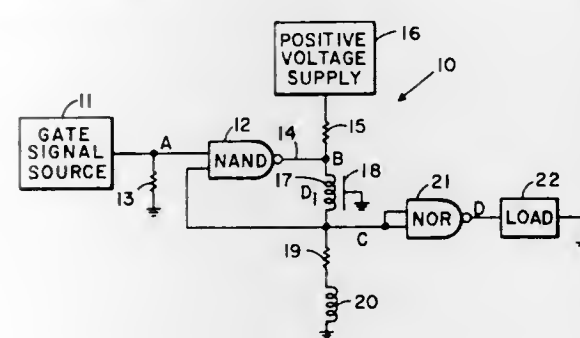
Floyd M. Totten, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa

Filed Oct. 21, 1968, Ser. No. 769,285

Int. Cl. H03k 5/00

U.S. Cl. 307—269

8 Claims



A delay line and logic control gated micrologic circuit clock signal pulse train generator with each pulse waveform clock signal in synchronism with its initiating gate trigger signal. A NAND gate receives an activating gate trigger signal and immediately a voltage shift in NAND gate output with this is then passed through a delay line coil both to output path means and also back as an additional input inhibit for the NAND gate at a predetermined delay determined by the delay line. The immediately resulting voltage shift at the NAND gate output is again passed through the delay line coil with the same delay to then remove the inhibit signal from the NAND gate with again an immediate shift in the NAND gate output voltage, and with the pulse generating cycle continually repeating itself with precise pulse width and spacing between pulses in a pulse train in synchronism although delayed from the start of the activating gate trigger signal with the pulse train cycle generating action continued just so long as the activating gate trigger signal is applied.

3,562,559

P-MOS MULTIVIBRATOR

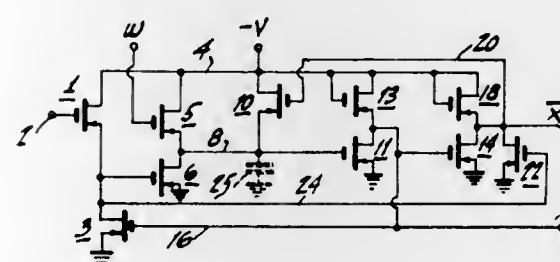
Aldoph Karl Rapp, Princeton, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Nov. 29, 1967, Ser. No. 686,411

Int. Cl. H03k 3/26

U.S. Cl. 307—279

6 Claims



A multivibrator circuit in either monostable or astable form using transistors of similar conductivity types, which circuit lends itself to be manufactured in integrated form. The entire multivibrator can be fabricated using only insulated-gate field-effect transistors of one conductivity type.

3,562,560

TRANSISTOR-TRANSISTOR LOGIC

Hiroyuki Osako, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan

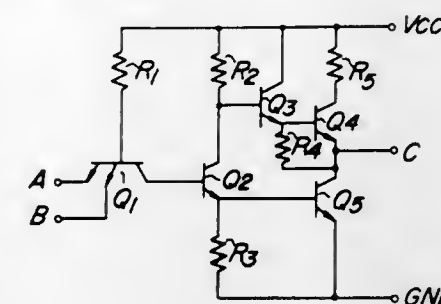
Filed Aug. 21, 1968, Ser. No. 754,213

Claims priority, application Japan, Aug. 23, 1967, 42/53,739

Int. Cl. H03k 19/08

U.S. Cl. 307—303

8 Claims



Transistor-transistor logic, wherein a PN junction is formed in the semiconductor substrate to assure a sufficient transient current to flow when the two transistors at the output stage become transiently "on," said PN junction being reversely biased to exhibit a barrier capacitance and said capacitance being coupled in parallel with the circuit, thereby sufficient circuit operation and high reliability being obtained with a simple structure.

3,562,561

SHUNT-TYPE NEGATIVE IMPEDANCE CONVERTER WITH BOTH SHORT AND OPEN CIRCUIT STABILITY

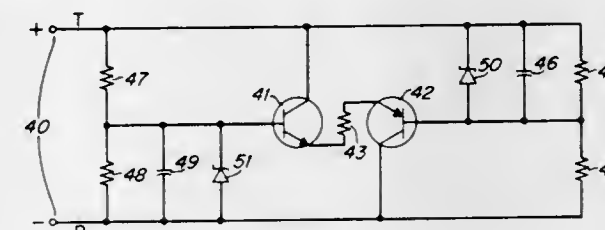
Carsten H. Klosterman, Winfield, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York

Filed Mar. 21, 1969, Ser. No. 809,093

Int. Cl. H03k 3/26; H03f 15/00; H03j 3/20

U.S. Cl. 307—313

3 Claims



A shunt type negative impedance converter (NIC) which is normally only short circuit stable is also made open circuit stable by internal circuit action so that it can be used in shunt across telephone trunk circuits to cancel the resistance of central office battery feed resistors. It includes two transistors of opposite conductivity type with a resistive voltage divider and a Zener diode controlling the base biasing voltage of the PNP transistor. Whenever a telephone subscriber goes on-hook, presenting a substantially open circuit to the converter, the action of the voltage divider and the Zener diode causes both transistors to switch to their nonconducting states.

3,562,562

PNEUMATICALLY OPERATED IGNITION MEANS AND ACTUATOR THEREFOR

Kenneth G. Kreuter, Goshen, Ind., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware

Filed July 9, 1968, Ser. No. 743,443

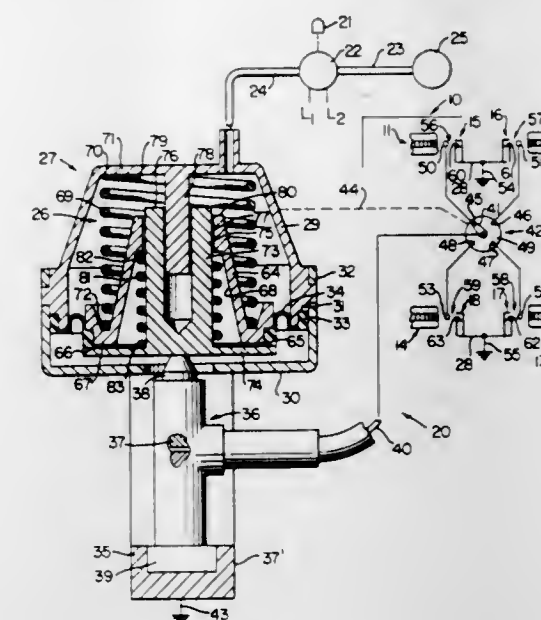
Int. Cl. H01v 7/00

U.S. Cl. 310—8.3

8 Claims

This disclosure relates to an ignition means for a cooking apparatus or the like which has a plurality of pilot burner means associated with respective main burner means of a cooking apparatus, the ignition means comprising piezoelectric crystal means which has its stresses altered in a

repetitive manner by a pneumatically operated actuator that cycles itself automatically to provide repetitive impacts on the crystal means to produce an ignition spark output that



is distributed in series to all of the pilot burner means in sequence to assure that all of the pilot burner means are ignited once the ignition means is rendered operative.

ERRATUM

For Class 310—8.7 see:
Patent No. 3,561,831

3,562,563

CIRCUMFERENTIALLY SLOTTED TUBULAR PIEZOELECTRIC TRANSFORMER

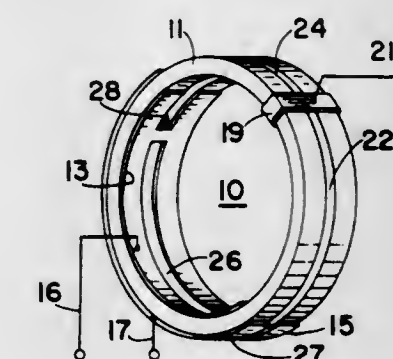
Hugo W. Schaft, Des Plaines, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Mar. 26, 1969, Ser. No. 810,484

Int. Cl. H01v 7/00

U.S. Cl. 310—9.5

17 Claims



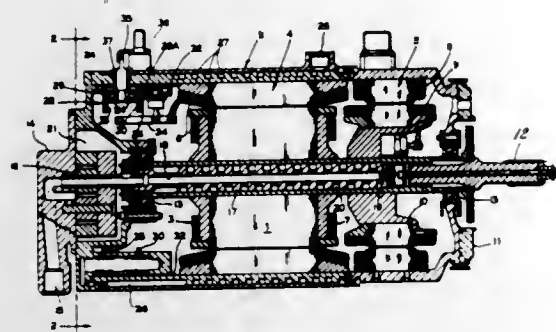
The output power limitations of a piezoelectric transformer operating in the hoop mode of vibration caused by dimensional ratio restrictions are overcome by forming the transformer out of a cylinder of piezoelectric material and cutting a plurality of circumferential slots into the cylinder to form a plurality of interconnected ring transformers, each having an optimal axial dimension.

ERRATA

For Classes 310—9.6, 316—46 and 310—49 see:
Patent Nos. 3,561,832, 3,561,833 and 3,561,834

3,562,564

BRUSHLESS OIL-COOLED GENERATOR
 Frederick M. Potter, Little Silver, N.J., assignor to The Bendix Corporation, a corporation of Delaware
 Filed Nov. 10, 1969, Ser. No. 875,135
 Int. Cl. H02k 9/19; H02m 7/06
 U.S. Cl. 310—54 10 Claims



A brushless DC oil cooled generator utilizing delta windings displaced by 30 electrical degrees, feeding through a full wave rectifier system to a common bus. Also improved means are provided for cooling and mounting the rectifiers.

ERRATUM

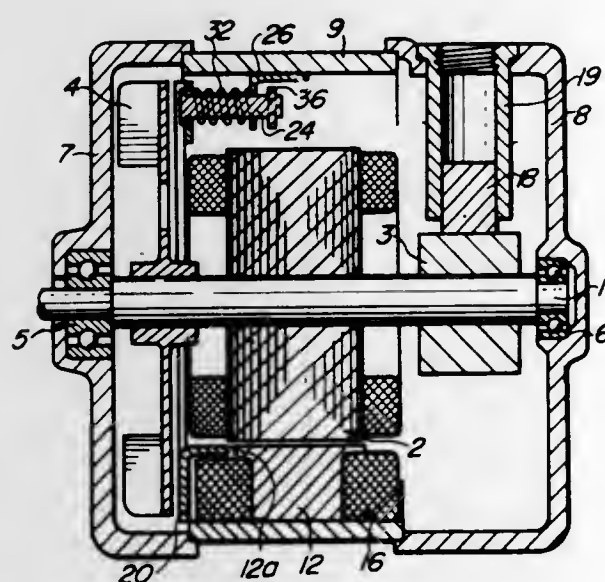
For Class 310—66 see:
 Patent No. 3,561,835

3,562,565

DC MOTOR CONTAINING A BRAKE MEANS
 Toshimitsu Higashino, Inazawa-shi, and Sinichi Inagaki, Anjo-shi, Japan, assignors to Nippon Denso Kabushiki Kaisha, Karlya-shi, Japan, a corporation of Japan
 Filed Sept. 8, 1969, Ser. No. 856,068
 Claims priority, application Japan, Nov. 27, 1968, Dec. 12, 1968, 43/87229; 43/108645
 Int. Cl. H02k 7/12

U.S. Cl. 310—77

3 Claims



A DC motor which contains a novel brake means within it, said brake means comprising a magnetic disc which is pressed against the cooling fan of the motor by means of springs when the motor is not energized, but which is automatically separated from the fan by the magnetic force produced by the field windings when the motor is energized thereby to relieve the braking force.

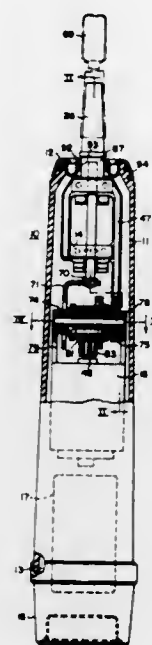
POWER OPERATED TOOTHBRUSH PRODUCING EITHER OSCILLATORY OR RECIPROCATORY MOTIONS

Paul J. Kircher, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Feb. 16, 1967, Ser. No. 616,646
 Int. Cl. H02k 7/06

U.S. Cl. 310—80

7 Claims



A power operated toothbrush capable of providing two distinct modes of operation. An electrically reversible motor unit including an output shaft imparts movement to mode generating mechanism which produces either oscillatory or reciprocatory motion depending on the polarity of the motor unit which is controlled by means of a double-pole, double-throw switch supported in the outer wall of a casing of a size, shape and weight making it suitable for being handheld and for housing the mode generating mechanism and the power unit.

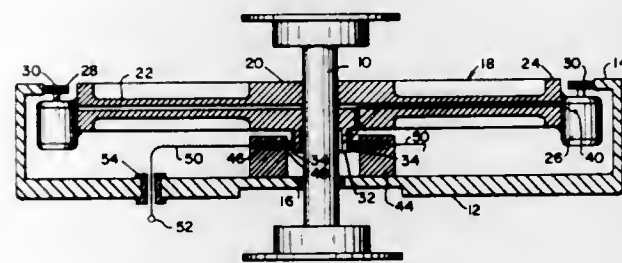
3,562,567

CYCLIC LOAD DRIVE

Eugene P. Carini, 800, 28th Ave., Vero Beach, Fla. 32960
 Filed Jan. 29, 1970, Ser. No. 6,840
 Int. Cl. H02k 7/00

U.S. Cl. 310—112

7 Claims



An electric drive system wherein the driven member comprises an integral unit including a plurality of electric motors, suitable torque transmitting means and means for intermittently delivering electric power to the motors. The electric motors are rigidly mounted to the periphery of the driven member, the motors thus rotating with the driven member.

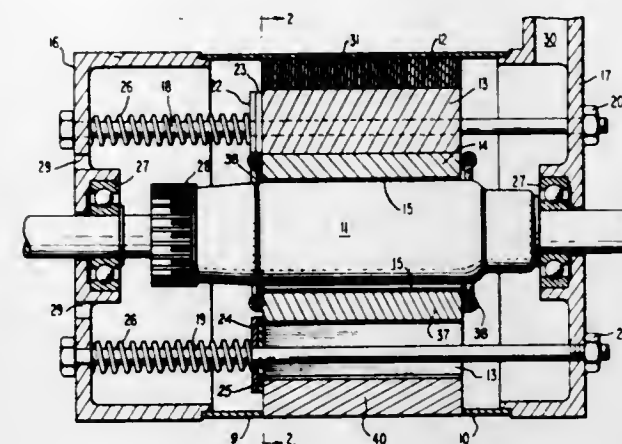
3,562,568

HIGH PERFORMANCE DYNAMOELECTRIC MACHINE WITH PERMANENT MAGNET STATOR
 Robert A. Susdorf, and Fredrick J. Armstrong, Fort Wayne, Ind., assignors to General Electric Company, a corporation of New York

Filed June 9, 1969, Ser. No. 831,466
 Int. Cl. H02h 21/26

U.S. Cl. 310—154

18 Claims



High-performance dynamoelectric machine capable of rapid response to fast changing operational requirements and conditions incorporates stator having magnetic poles and shell. Each pole comprises two axially extending separated pole pieces connected to shell by two or more axially extending permanent magnets. Pole pieces are separated transversely by a space in which a conductor is disposed. Conductors are connected to form a short-circuited winding. Low inertia rotor includes a magnetic core having stub shafts secured to ends thereof and a commutator on one stub shaft. Conductors in circuit with commutator extend axial length of rotor core and are embedded in insulating material compatible with other insulation used, to maintain the conductors in place but permit effective dissipation of heat from the rotor assembly. Baffles may be used to force cooling fluid over and around the movable member to provide increased heat dissipation.

3,562,569

DYNAMO-ELECTRIC MACHINES HAVING VACUUM CAST WINDING INSULATION
 Paul Koechlin, Belfort, France, assignor to UNELEC, Paris, France, a business firm under French law
 Filed Oct. 31, 1968, Ser. No. 772,334
 Claims priority, application France, Nov. 3, 1967, 2,777
 Int. Cl. H02k 3/48

U.S. Cl. 310—214

2 Claims



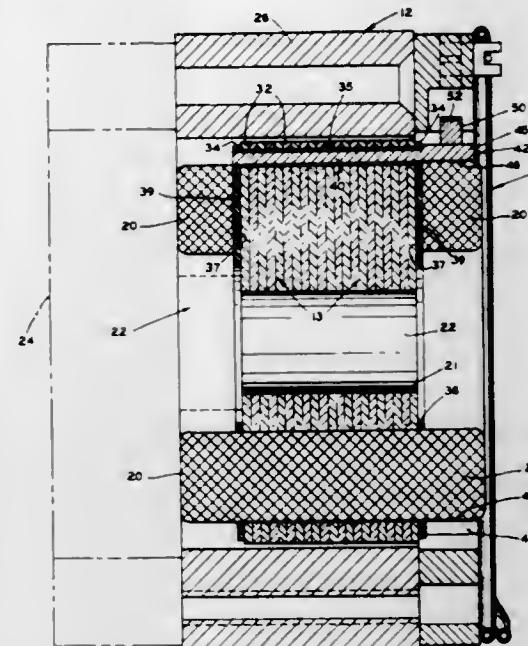
A rotor structure having a thin jacket of closely wrapped nonmagnetic strandlike material, such as fiberglass tape, non-magnetic steel wires, fiber strands, or the like are wrapped around the rotor structure, the closely wrapped material being impregnated with the insulating material in hardened condition, so that, during manufacture, the wrapping may serve as a mold for vacuum casting of liquid insulation to fill all interstitial spaces between the windings.

3,562,570

ARMATURE-COMMUTATOR ASSEMBLY AND METHOD OF ASSEMBLING AN ARMATURE-COMMUTATOR
 George Frank, Cupsaw Lake, N.J., assignor to The Bendix Corporation, a corporation of Delaware
 Filed Jan. 20, 1970, Ser. No. 4,254
 Int. Cl. H02k

U.S. Cl. 310—234

7 Claims



An armature-commutator assembly and method of assembling an armature-commutator of a type formed of ferromagnetic lamina or sheet metal plates having slots defined by radially extending teeth with a hole extending axially through each tooth of each lamina. The axially extending holes in each tooth of the assembled armature lamina providing a longitudinally extending channel opening in which an insulating tubing may be inserted so as to extend therethrough for receiving therein a shank or stem portion of a commutator bar. In assembling the armature-commutator, the stem portion of each of the commutator bars are initially only partially inserted into the insulating tubing in the channel holes in the commutator teeth so that appropriate connections may be then made between electrical terminal ends of coil windings wound in the slots of the armature defined by the radially extending teeth of the armature. The stem portions of the commutator bars thereafter are fully inserted into the insulating tubing in the channel holes in the armature teeth with projecting head portions of the commutator bars being provided at free end portions of the bars so as to form an effective commutator surface at one end of the armature assembly. The armature-commutator assembly is then potted and machined to meet the requirements of the dynamoelectric machine in which the same is to be utilized.

ERRATA

For Classes 313—65 and 313—85 see:
 Patent Nos. 3,562,516, 3,562,517 and 3,562,518

3,562,571

MERCURY-VAPOR DISCHARGE LAMP WITH AMALGAM-TYPE VAPOR-PRESSURE REGULATOR AND INTEGRAL FAIL-SAFE AND FAST WARM-UP COMPONENT

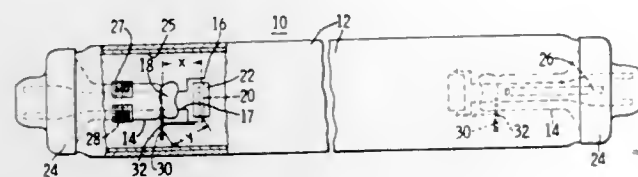
George S. Evans, Caldwell, and Chalmers Morehead, Upper Montclair, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
 Filed June 12, 1969, Ser. No. 832,665
 Int. Cl. H01j 61/24

U.S. Cl. 313—109

10 Claims

The time required for an amalgam-regulated fluorescent lamp to stabilize and reach its rated light output under "cold-start" conditions is reduced by providing a small auxiliary body of amalgam on a selected portion of a metal conductor that is attached to one of the electrode structures within the lamp and is so arranged that it serves the dual function of a

"fail-safe" component. The auxiliary body of amalgam is so located with respect to the adjacent cathode that it is rapidly heated and releases mercury vapor as soon as the lamp is energized. The "fail-safe" conductor is preferably made of



wire mesh or sheet metal and provides a conductive path from one of the leads to the stem which causes an arc to impinge upon and puncture the stem when the cathodes are devoid of emission material and the lamp has thus reached the end of its useful life.

3,562,572

INDICATOR TUBE HAVING IMPROVED ELECTRODE SUPPORTS

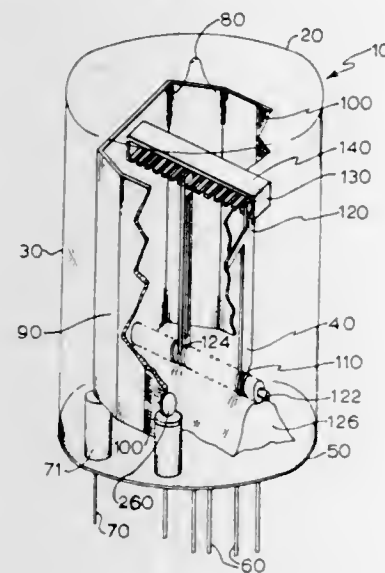
William M. Hennessey, Somerville, N.J., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Continuation of application Ser. No. 743,916, July 3, 1968, now abandoned. This application Mar. 19, 1970, Ser. No. 19,545

Int. Cl. H01k 7/04; H01j 1/88

U.S. Cl. 313-109.5

9 Claims



The disclosure is of a cold cathode, gas-filled indicator tube which includes an anode electrode and a stack of cathode electrodes in the form of characters which face the sidewall of the envelope as a viewing window. The envelope includes a base or stem which is generally flat and carries tube pins which are connected directly to the lower ends of the cathode electrodes. The upper ends of the cathodes carry tabs which slip into, and are held in, a tray which has an open side and a slotted bottom wall. The tray may be made up of two identical parts, each having an open sidewall for receiving cathode tabs.

3,562,573

GLOW SUPPRESSION IN INDICATOR TUBES

Frederick Gustav Adolf Haegle, Exeter, South Devon, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Oct. 3, 1968, Ser. No. 764,696

Claims priority, application Great Britain, Oct. 12, 1967, 46,533/67

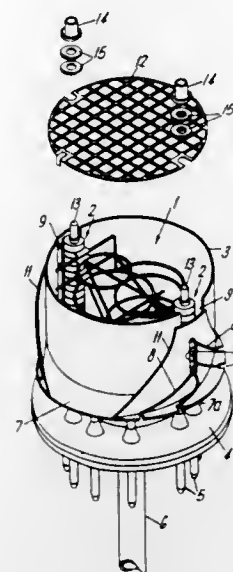
Int. Cl. H01j 61/66; H01k 7/04

U.S. Cl. 313-109.5

5 Claims

An insulating shield is interposed between the anode cup

and extending portions of cathode leads in a glow discharge indicator tube to prevent the spread of discharge along the



leads. The leads pass through an aperture in the anode cup and shield.

3,562,574

ARTICLES PLATED WITH OR COMPRISED OF SILVER-PALLADIUM ALLOYS

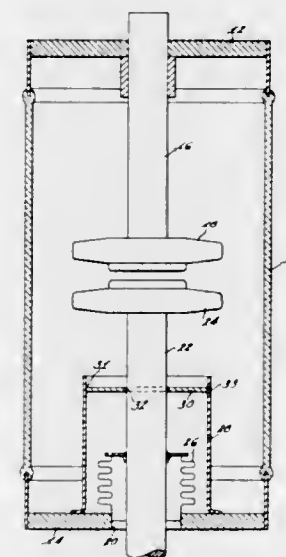
Henry J. Wesoloski, 299 Blue Hill Parkway, Milton, Mass.

Original application May 4, 1965, Ser. No. 453,009, now abandoned. Divided and this application July 25, 1968, Ser. No. 761,379

Int. Cl. H01j 1/02

U.S. Cl. 313-146

3 Claims



A high voltage vacuum switch having a sealed envelope with a pair of relatively movable electrodes within the envelope between which arcing occurs. One of the electrodes is reciprocally movable in an axial direction within the envelope and is guided by a rigidly supported washer during axial movement, the washer having a plating of silver-palladium alloy for gettering gas within the envelope. The alloy is formed by depositing silver on the washer and depositing palladium on the silver and heat treating both of the metals to effect diffusion.

3,562,575

ELECTRON BEAM TUBE CONTAINING A MULTIPLE CATHODE ARRAY EMPLOYING INDEXING MEANS FOR CATHODE SUBSTITUTION

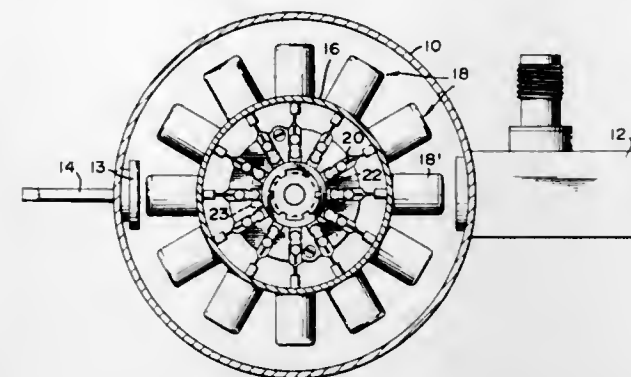
T. O. Paine, administrator of the National Aeronautics and Space Administration, with respect to an invention of Lloyd J. Derr, Los Angeles, Calif.

Filed Sept. 9, 1969, Ser. No. 856,415

Int. Cl. H01j 9/02

U.S. Cl. 313-236

10 Claims



An indexing mechanism for an electron beam tube having many electron guns arranged on a turret, which rotates the turret to replace the gun being used when it fails, and to rotate the turret to serially activate the cathodes of the guns during construction of the tube. One indexing apparatus employs an indexing wheel fixed to the turret, a stack of bimetallic washers, and a heater for making the washers buckle to move a pawl member toward the indexing wheel to advance it. Another indexing apparatus includes an indexing wheel fixed to the turret, a thermal motor that can rotate a shaft, a latch arm on the shaft that pivots out of engagement with the indexing wheel during the first few degrees of shaft rotation, and a pair of driving members that rotate the wheel after the latch arm disengages from it.

3,562,576

THREE-ELEMENT ELECTRON DISCHARGE TUBE

Alexander Rusterholz, Zurich, Switzerland, assignor to Patenhold Patentverwertung and Electro-Holding A.G., Glarus, Switzerland

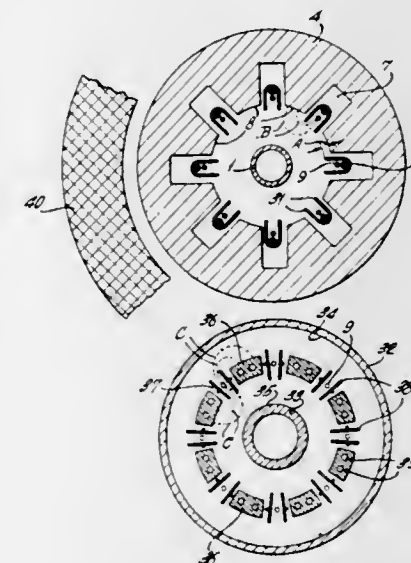
Filed Mar. 12, 1968, Ser. No. 712,451

Claims priority, application Switzerland, Mar. 15, 1967, 3725

Int. Cl. H01j 1/46, 21/10

U.S. Cl. 313-299

9 Claims



In a high-vacuum electron tube, an elongated cylindrical control electrode is surrounded by an anode electrode including a plurality of segmental elongated partial anode surfaces extending parallel to and concentric with the axis of said control electrode and a plurality of incandescent cathode wires are disposed also parallel to said axis and each within the space intervening between adjacent anode

surfaces. A magnetic field extending in a direction parallel to said axis within the space enclosed by said control electrode and said anode surfaces acts to deflect the electron streams emitted by said cathodes towards the adjacent anode surfaces and to thereby reduce the number of electrons reaching the control electrode. This in turn reduces the power necessary to drive the tube, in particular for tubes operated at a positive control potential (class-C operation). In order to achieve a desired amplification factor of the tube, individual shielding means interposed between each of the cathodes and the adjoining anode surfaces project into the space between the latter and the control electrode to an extent such as to cause, with the current flow through the tube being equal to zero, the electric field strength at said cathodes resulting from unity voltage upon the control electrode to be a predetermined multiple of the electric field strength at said cathodes resulting from unit voltage upon the anode, respectively.

3,562,577

ELECTRODE WIRE FEEDING MEANS FOR WELDING APPARATUS

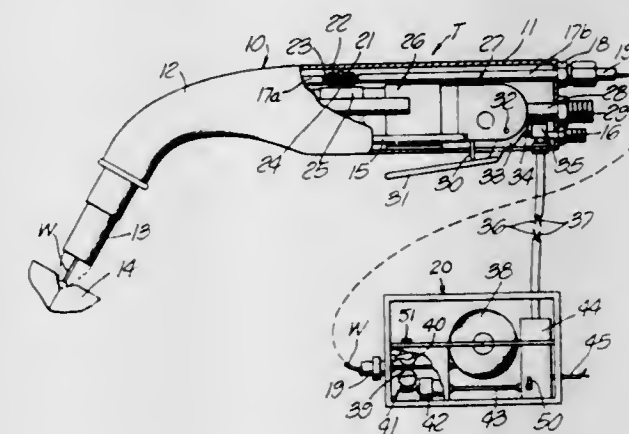
Milo M. Kensrue, Santa Ana, Calif., assignor to M.K. Products, Inc., a corporation of California

Filed July 11, 1968, Ser. No. 744,006

Int. Cl. H05b 31/18

U.S. Cl. 314-71

9 Claims



Electrode wire-feeding means for electric arc-welding apparatus in which the electrode wire is conducted through a flexible conduit from a remote wire source to a manually operable welding gun at the point of use, first wire feed rollers at the gun being driven by an air motor controlled at the gun to regulate the rate of wire feed and pull the wire through the flexible conduit, second wire feed rollers being provided at the wire source driven by an electric motor, known in the industry as a "torque motor," for applying a propelling force to the wire, such force having a maximum limit as determined by the maximum stalled output torque of the motor, this motor having an energizing circuit controlled by a switch at the gun, and including selective switch controlled means operable at the remote station for changing the value of the maximum stalled output torque of the electric motor depending upon whether a relatively large or small sized wire is being used.

3,562,578

VERTICAL DEFLECTION CIRCUIT OF TELEVISION RECEIVER

Michiaki Takahashi, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan

Filed Apr. 22, 1969, Ser. No. 818,358

Claims priority, application Japan, Apr. 25, 1968, 27380

Int. Cl. H01j 29/76

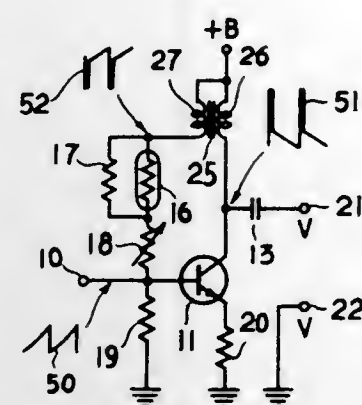
U.S. Cl. 315-27

14 Claims

A vertical deflection circuit of a television receiver having a transformer of which a primary winding is connected to a collector of a vertical deflection output transistor, a thermosensitive resistance element such as a thermistor which is connected between a second winding of the said transformer and a base of the said transistor. The thermosensitive re-

sistance element controls a direct current bias to a base of the transistor and at the same time, controls feedback quanti-

a solid-state lamp-failure detector. The detector senses the failure of the main lamp and automatically energizes the spare lamp, an indicating lamp and a release means to permit



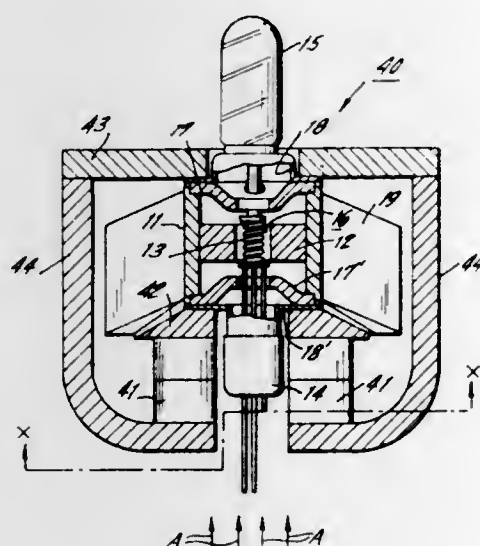
ties of an alternating current positive feedback to the base of the transistor.

3,562,579

ELECTRON DISCHARGE DEVICE EMPLOYING INEXPENSIVE PERMANENT MAGNETS OF SIGNIFICANTLY REDUCED SIZE

Shigeki Kakizawa, and Tetsuro Otani, Tokyo-to, Japan, assignors to Nippon Electric Company, Limited, Tokyo-to, Japan

Filed May 23, 1969, Ser. No. 827,217
Claims priority, application Japan, June 11, 1968, 43/40057
U.S. Cl. 315-39.71 4 Claims



An electron discharge device preferably of the type employed as a heating or cooking means. The magnetic path employed in the device comprises permanent magnet members and associated pole pieces for generating a magnetic field in the interaction space between the anode and cathode electrodes. The magnets are aligned with the longitudinal axis of the device and are positioned as close as possible to the interaction space to increase the flux density of the magnetic field and thereby permit significant reductions in the size of the permanent magnets.

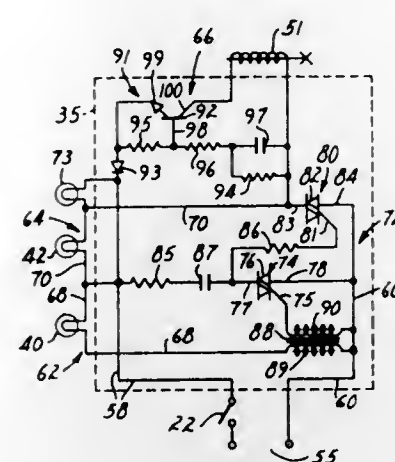
3,562,580

LAMP-FAILURE DETECTION AND CHANGE DEVICE

Jack P. Blomgren, Maplewood; Stanley L. Ross, White Bear, and Peter A. Lind, Minnetonka, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed Jan. 10, 1969, Ser. No. 790,279
Int. Cl. H05b 39/10, 41/46
U.S. Cl. 315-88 9 Claims

A device for use in a light projector to automatically replace an expired main lamp with a spare lamp. The main lamp and the spare lamp are socketed in a lamp-changing mechanism which is actuated in response to the operation of



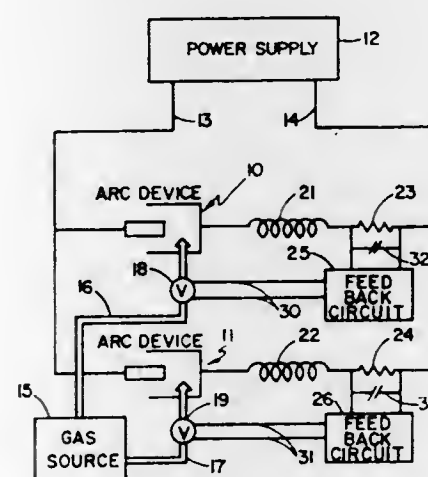
the lamp changing mechanism to remove the main lamp from a focus position in the projector and advance said spare lamp into the focus position.

3,562,581

MEANS FOR AND METHOD OF STABILIZING A PLURALITY OF GASEOUS ELECTRIC ARC DISCHARGE DEVICES

Otto K. Sonju, Woburn, Mass., assignor to Arco Corporation, Cincinnati, Ohio, a corporation of Delaware

Filed Mar. 25, 1968, Ser. No. 715,663
Int. Cl. H01j 7/24
U.S. Cl. 315-111 15 Claims



A method of and apparatus for providing stabilization of gaseous electric arc devices by effecting suitable changes in the voltage-versus-current (V-I) characteristics of such arc devices. Stable V-I characteristics of such electric arc devices are obtained by controlling the rate of gas flow through each electric arc device as a function of the arc current. The rate of gas flow through each arc is controlled by deriving for each such arc a control signal from its arc current and actuating a valve in its gas supply means via feedback circuit means to cause the gas flowing there through to vary as a linear function of its arc current.

3,562,582

LIGHT OPERATED CHARACTER GENERATOR AND DISPLAY DRIVER

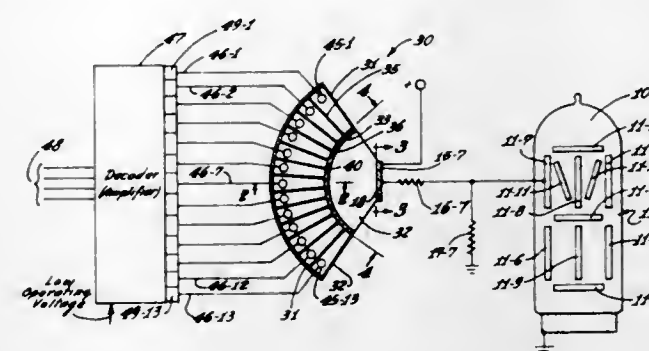
Robert S. Broyles, 1810 S. Broadway 23, Oceanside, Calif.

Filed Oct. 16, 1968, Ser. No. 767,992
Int. Cl. H01j 39/12; H05b 41/18, 41/44
U.S. Cl. 315-153 20 Claims

A circuit for control of a segmented glow discharge tube is specifically disclosed, wherein each segment is triggered for glow discharge through a photoconductive element. The element, when illuminated, connects the respective segment to a

voltage source. The illumination may be controlled through a BCD-decimal decoder and through a particular optical reem-

semiconductor material positioned between a fixed contact plate having a fixed contact on its free end and a moving contact plate having a moving contact on its face and, is capable of suppressing or extinguishing the arc which occurs at the opening and closing of the thermostat contacts.



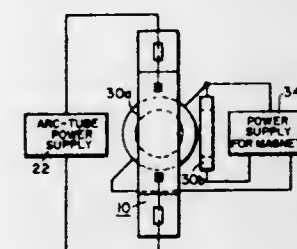
coder providing selective illumination to the photoconductive elements.

3,562,583

MAGNETICALLY ROTATING CONSTRICTED ARC-DISCHARGE DEVICE

Robert J. Zollweg, Monroeville, and Walter J. Burnham, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Jan. 27, 1969, Ser. No. 794,203
Int. Cl. H01j 17/14
U.S. Cl. 315-344 10 Claims



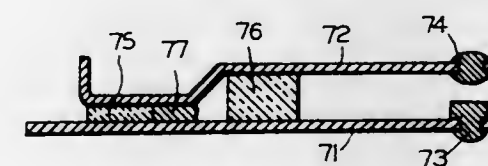
A combination comprising a constricted arc-discharge device having electromagnetic means associated therewith to rotatably direct a resultant magnetic flux generally transverse to and intersecting the constricted arc-discharge maintained during operation. The magnetic flux interacts with the constricted arc-discharge causing it to rotate about the longitudinal axis of the arc-tube. The luminous efficiency of the combination is very high, and the rotation of the discharge prevents early failure of the device.

3,562,584

ARC-SUPPRESSING SWITCHING DEVICE

Koichi Yoshimura, Osaka-Fu, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka-Fu, Japan

Filed Oct. 22, 1968, Ser. No. 769,684
Claims priority, application Japan, Oct. 24, 1967, Oct. 24, 1967, Dec. 28, 1967, Dec. 28, 1967, 42/69117; 42/69118; 42/157, 42/159
Int. Cl. H02h 7/22
U.S. Cl. 317-11 5 Claims

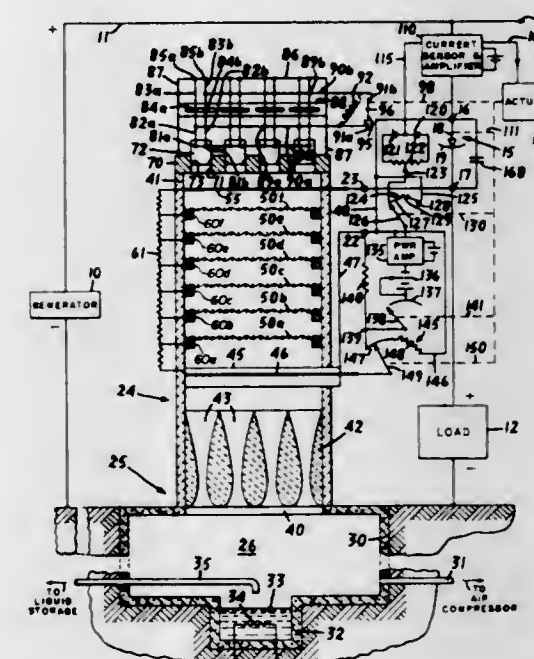


An arc-suppressing switching device particularly for application to bimetallic element containing thermostats of electric blankets, electric irons, electric cookers, electric foot warmers, and the like. The switching device has a high dielectric constant material, electric resistance material or

3,562,585 ELECTROGAS-DYNAMIC SYSTEMS ADAPTED FOR CIRCUIT BREAKING AND OTHER PURPOSES

Meredith C. Gourline, West Orange, N.J., assignor to Gourline Systems, Incorporated, Livingston, N.J., a corporation of Delaware

Filed Aug. 29, 1968, Ser. No. 756,220
Int. Cl. H02h 7/22 17 Claims



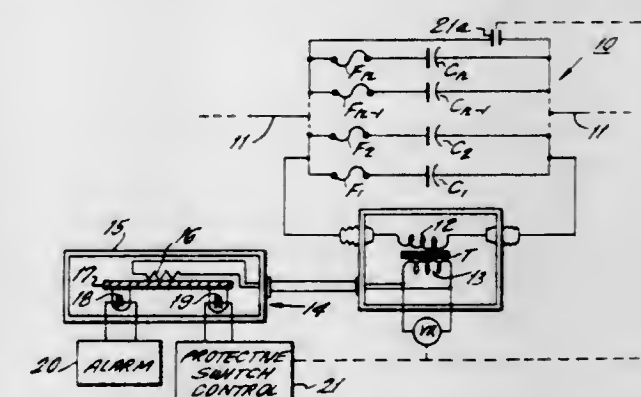
An electrogas-dynamic tube is coupled in parallel with a switch for interrupting high voltage direct current. In course of opening the switch, a flow of ionized fluid in the tube conducts current to prevent arcing across the switch contact or to suppress an arc if it develops.

3,562,586

THERMAL ANALOGUE PROTECTION FOR CAPACITORS

William A. Carter, Devon, and Otto Jensen, Malvern, Pa., assignors to I-T-E Imperial Corporation, Philadelphia, Pa., a corporation of Delaware

Filed Nov. 15, 1968, Ser. No. 776,097
Int. Cl. H02h 7/16 5 Claims



A capacitor protection system is provided having the primary winding of a potential transformer connected across a series capacitor bank to be protected and the secondary winding of the potential transformer connected to a thermal

analogue device which reproduces the thermal characteristics of the capacitor and operates capacitor switching means when dangerous thermal conditions are reached. An inverse time voltage relay is also connected across the secondary winding to initiate protective capacitor switching responsive to high current faults. The thermal analogue device simulates the internal thermal conditions of the capacitor based on the principle that the power loss in the capacitor is proportional to the square of the voltage across the capacitor. Voltage comparison circuits are also provided between groups of capacitors in banks having multiple groups to detect blown fuses associated with respective capacitor groups.

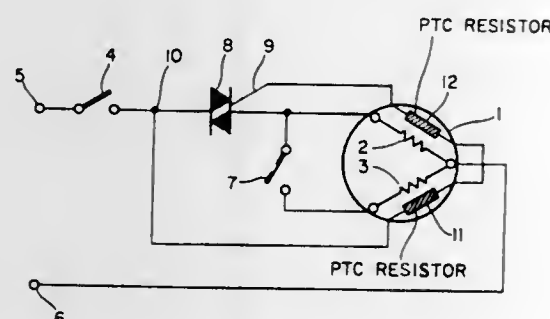
3,562,587

OVERHEATING CONTROL DEVICE FOR ALTERNATING CURRENT MOTOR

Sven Forst, Costa Mesa, Calif., assignor to Danfoss, A/S, Nordborg, Denmark, a company of Denmark
Filed Sept. 19, 1968, Ser. No. 760,786
Claims priority, application Germany, Oct. 7, 1967,
P 16 13 734.1
Int. Cl. H02h 7/08, 5/04

U.S. Cl. 317-13

2 Claims



The invention relates to an overheating control device for an alternating current motor. The device comprises a symmetrical controlled semiconductor valve in the motor lead and PTC resistor means thermally coupled to the motor windings. The PTC resistor means is connected to the control electrode of the semiconductor valve and concomitant with a temperature rise in the motor windings, the current flowing through the PTC resistor means decreases to effect a closing of the semiconductor valve.

3,562,588

SAFETY ARRANGEMENT FOR NONSTATIONARY ELECTRICAL APPLIANCES CONNECTED TO GROUNDED SUPPLY NETWORKS

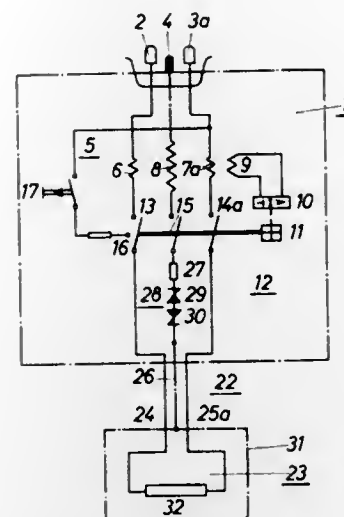
Horst Zielasko, Nordenham-Einswarden, Germany, assignor to Felten & Guillaume Schaltanlagen GmbH, Krefeld, Germany
Filed Nov. 17, 1969, Ser. No. 877,395
Claims priority, application Germany, Nov. 15, 1968,
P 18 09 025.0
Int. Cl. H02h 3/16

U.S. Cl. 317-18

10 Claims

A safety arrangement for the protection of life and matter against damage from electrical current applied to nonstationary electrical appliances connected to grounded supply networks. A core-balance protective switch with a nominal tripping current below 50 milliamperes precedes the appliances. The protective conductor of the safety arrangement leads, over at least one switch contact of the protective switch, to one or several primary windings of the balance transformer of the core-balance protective switch. The total number of turns of these primary windings is at least double the number of turns of one of the primary windings for the connection of one of the phase conductors or of the neutral conductor of the supply network. In the core-balance protective switch a voltage dependent resistor arrangement is connected in series to the protective conductor with such characteristic that its resistivity is high at low voltages but

very small at higher voltages. This voltage dependent resistor arrangement consists of two identical single voltage



dependent resistors with oppositely directed characteristics, connected in series to each other and to a limiting resistor.

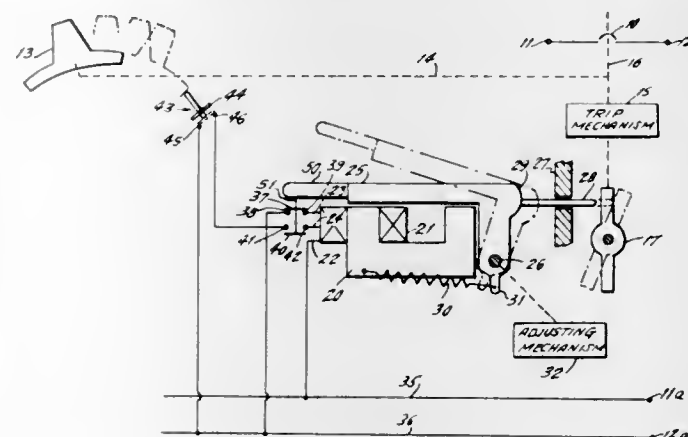
3,562,589

ELECTRICALLY RESETTING UNDERVOLTAGE TRIP FOR CIRCUIT BREAKERS

Felix Myers, and John C. Lucas, Cherry Hill, N.J., assignors to I-T-E Imperial Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Sept. 9, 1968, Ser. No. 758,498
Int. Cl. H01h 3/24

U.S. Cl. 317-31

10 Claims



An undervoltage trip structure for circuit breakers which has an electrical closing coil which moves an armature which in turn operates the trip mechanism of the circuit breaker. The undervoltage coil is then connected in a circuit so that, when the circuit voltage is appropriate, a first portion of the closing coil will operate the armature to permit the tripping mechanism of the circuit breaker to be relatched, whereby the circuit breaker can be closed. After relatching of the trip mechanism, a second circuit is closed connecting the full closing coil in series with the circuit voltage, whereby if an undervoltage or zero voltage exists in the circuit, the armature will be released and the trip mechanism operated before the circuit breaker main contacts have an opportunity to reclose.

3,562,590

ELECTRIC IGNITER CONSTRUCTION

Richard K. Mitts, Fullerton; Wilbur F. Jackson, Rolling Hills, and James R. Willson, Garden Grove, Calif., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Mar. 17, 1969, Ser. No. 807,509
Int. Cl. F23g 7/10

U.S. Cl. 317-98

12 Claims

An electric igniter assembly including a hollow casing in which the major length of the igniter element is enclosed so that only a small portion is disposed in proximity to a gas

burner; the electrical connectors for the igniter element and connections between the chips and the tracks are kept or the electrodes that are attached to power leads are disposed derly and short by running at right angles to the tracks. By remote from the flame issuing from the gas burner as well as



being fixedly supported in the casing which includes shock absorbent material to reduce possibilities of breakage of the igniter element.

placing edges of the chips at 45° to the tracks, there is no crossover problem for the interconnections.

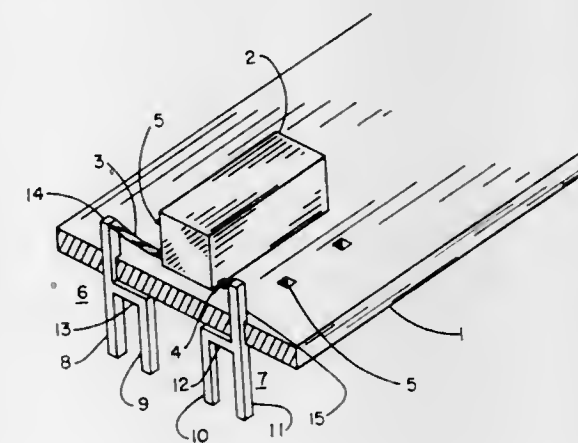
3,562,591

PACKAGING OF MICROLOGIC ELEMENTS

James L. Schmidt, Red Bank, N.J., assignor to Electronic Associates Inc., Long Branch, N.J., a corporation of New Jersey
Filed Dec. 5, 1968, Ser. No. 781,459
Int. Cl. H05k 1/04

U.S. Cl. 317-101

3 Claims



An apparatus for packaging micrologic components having "chair" shaped pins which reduce the space required for a two wire wrap connection from two levels to one while providing easily changeable component mounting.

3,562,592

CIRCUIT ASSEMBLY

Reginald Benjamin William Cooke, Bishop's, Stortford, Francis Brian Robinson, Cuffley, and Peter Ernest Radley, Walden, Essex, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Apr. 24, 1969, Ser. No. 819,071
Claims priority, application Great Britain, May 7, 1968,
21470
Int. Cl. H05k 1/04

U.S. Cl. 317-101

9 Claims

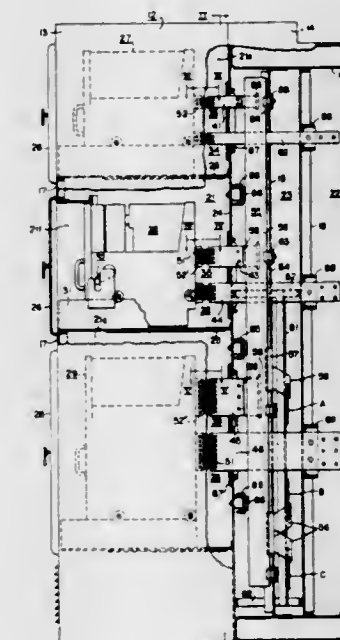
This is a hybrid integrated circuit assembly with an insulating substrate having two sets of conductive or resistive tracks disposed on both sides of integrated circuit chips. The inter-

3,562,593 METAL-ENCLOSED SWITCHGEAR WITH VERTICALLY DISPOSED CONDUCTORS

Fred Bould, Edgewood, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 31, 1968, Ser. No. 788,168
Int. Cl. H02b 1/20, 11/12

U.S. Cl. 317-103

9 Claims



In order to enable horizontally extending main phase bus bars in metal-enclosed switchgear to be made in standardized unit lengths, it is necessary that the breaker compartment widths be made a constant dimension. This is achieved by keeping the horizontal distance between poles of the breaker units a constant value irrespective of the current rating of the breakers. The primary disconnect contact system of the removable breaker units is so constructed that the extra conductor cross section required as the current capacity is increased is obtained by changing the vertical dimensions of the current carrying members and keeping the horizontal dimensions substantially constant.

3,562,594

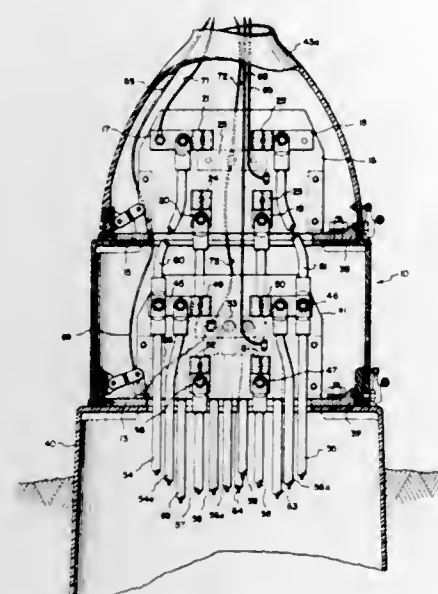
PULLBOX EXTENSION AND ELECTRIC METER HOUSING

Richard Sterling Jones, 3922 S. 775 West, Bountiful, Utah, and George Michael Stevenson, 2080 W. 5900 South, Roy, Utah 84067

Continuation-in-part of application Ser. No. 770,915, Oct. 28, 1968, now abandoned. This application May 12, 1969, Ser. No. 823,886

Int. Cl. H02b 9/00; H02g 7/20
U.S. Cl. 317-106

7 Claims



A pullbox extension in the form of a kilowatt hour meter housing with an open bottom adapted for mounting above a subterranean pullbox to contain a kilowatt hour meter. The top of the pullbox extension is adapted for the securement of a second kilowatt hour meter and a second meter housing.

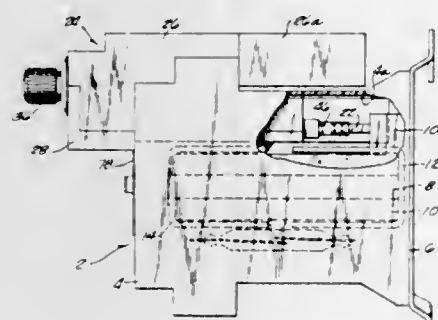
3,562,595

PLUG-IN SOLID-STATE TIMER MODULE FOR CONVERTIBLE REED RELAY

William C. Swanson, and David R. Stewart, Milwaukee, Wis., assignors to Cutter-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware

Filed May 5, 1969, Ser. No. 821,682
Int. Cl. H01h 47/18; H02b 1/04
U.S. Cl. 317-113

4 Claims



A molded cover and case are secured together to retain a printed timing circuit board therein and the assembly is inserted into the housing of a reed relay in the space normally provided for several reed switch modules and a connector module. A second board containing several resistors is housed in an external portion of the case. An auxiliary instantaneous pole unit is optionally provided and has plug-in connections to the printed circuit board, and all wiring terminals are of the pressure plate type.

3,562,596

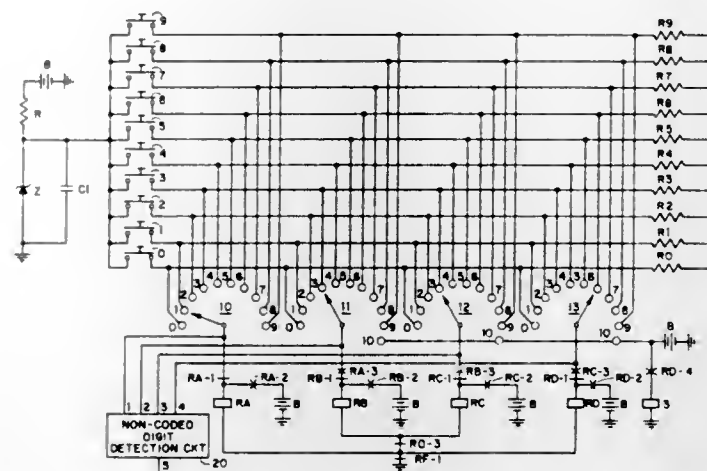
NONCODED DIGIT DETECTION CIRCUIT FOR ELECTRICAL COMBINATION LOCK

Joseph Scheuer, Laurent, Quebec, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed July 16, 1968, Ser. No. 745,322
Int. Cl. H01h 47/00

U.S. Cl. 317-134

4 Claims



This disclosure relates to an electrical combination lock of the type comprising n key circuits each having a digit key, m digit selecting switches each having n inputs connected to an associated digit key and one wiper output which is positioned to contact one of the inputs in accordance with a preselected code, and a chain of m relays connected to an associated selecting switch, each relay having a contact in the operating path of the following relay and such relays being sequentially operated one by one to open the electrical lock.

In accordance with the invention, the above electrical lock is provided with a gate circuit having a first input connected to the wipers of the selecting switches, a second input connected to the key circuits and an output circuit adapted to open the operating path of the chain of relays when a non-coded digit is keyed thus restoring the electrical combination lock to normal.

3,562,597

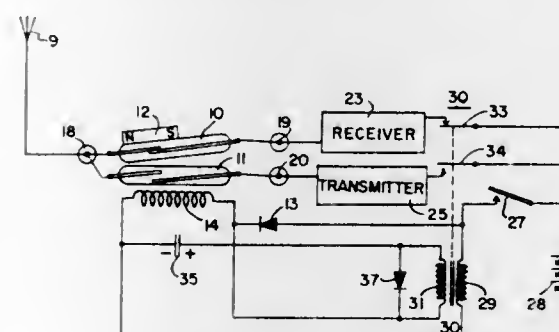
RF COAXIAL RELAY

Winston Wayne White, Hillside, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Continuation-in-part of application Ser. No. 772,319, Oct. 31, 1968, now abandoned. This application Sept. 10, 1969, Ser. No. 856,581

Int. Cl. H01h 51/27, 1/66, 47/00
U.S. Cl. 317-137

9 Claims



A radio frequency (RF) coaxial relay for connecting either of two coaxial terminals coupled, respectively, to a radio receiver and a radio transmitter, to a third coaxial terminal coupled to an antenna, includes a pair of magnetically actuated reed switches located within a cast nonmagnetic conductive housing. The reed contacts are capable of carrying high currents but are incapable of switching high currents, so that a sequencing circuit is provided so that the contacts of the reed switch coupled to the transmitter do not switch the transmitter when power is applied therefrom. In addition, the

switch leaves of the reeds are copper-plated in order to cause the RF resistance of the reed switches to be low.

3,562,598

SEMICONDUCTOR CONTROLLED SAFETY TIME DELAY RELAY

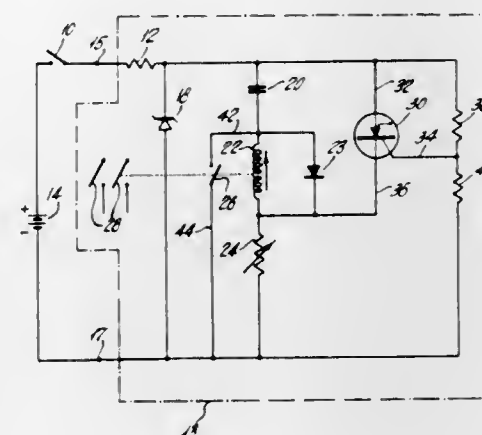
Arthur E. Dodd, Port Washington, N.Y., assignor to Servo Corporation of America, Hicksville, N.Y., a corporation of New York

Filed June 20, 1968, Ser. No. 738,445

Int. Cl. H01h 47/18

U.S. Cl. 317-142

4 Claims



A solid-state circuit is described for controlling a railroad signal delay device wherein the time element is formed by a capacitor and a resistor. A polarized relay is employed in a discharge circuit formed by the capacitor, a semiconductor switch and the coil of the relay. Expiration of the time element operates to close the switch in the discharge circuit. The coil of the relay is so oriented in the circuit that during capacitor charging, the magnetic bias is effectively increased, whereas during the discharge initiated by the closing of the semiconductor switch, the bias is overcome.

3,562,599

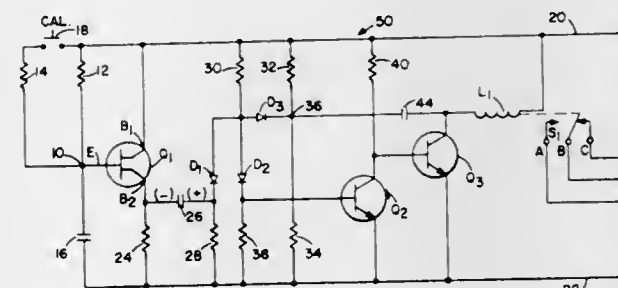
CYCLING DELAY CIRCUIT TESTING DEVICE

David R. Dreitzler, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army.

Filed Dec. 13, 1968, Ser. No. 783,590
Int. Cl. H01h 47/32

U.S. Cl. 317-142

5 Claims



A voltage cycling testing device for a delay circuit. A unijunction relaxation oscillator delivers a trigger pulse to a monostable multivibrator which activates a relay to apply power to a circuit under test. The unijunction transistor is activated periodically for a predetermined time period by a resistance-capacitance network. The relay is deactivated each time the multivibrator switches back to its stable state.

3,562,600

TRIGGER CIRCUIT CONTROLLED DEVICE FOR SHUTTER SPEED ADJUSTMENT IN PHOTOGRAPHIC CAMERAS

Karl-Heinz Koenig, Stuttgart, Germany, assignor to Zeiss Ikon Aktiengesellschaft, Stuttgart, Germany, a corporation of Germany

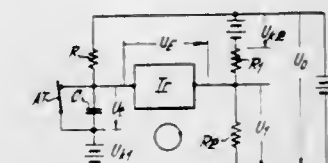
Filed Aug. 7, 1968, Ser. No. 750,911

Claims priority, application Germany, Aug. 19, 1967, Z13,000

Int. Cl. H01h 47/32; G03b 9/00

U.S. Cl. 317-142

4 Claims



The trigger circuit controlled device of the invention performs an adjustment of the shutter speed in photographic cameras and includes in a bridge circuit a variable chargeable capacitor, a number of transistors and means forming compensation and comparison voltage sources which provide that the shutter speed adjustment is independent of the battery voltage which energizes the bridge circuit and also is independent of ambient temperature changes.

3,562,601

APPARATUS FOR SUPERVISING STARTING OF VEHICLE

Karl Adler, Grenchen, and Georges Ducommun, Feldbrunn, Switzerland, assignors to Bivator S.A., Geneva, Switzerland

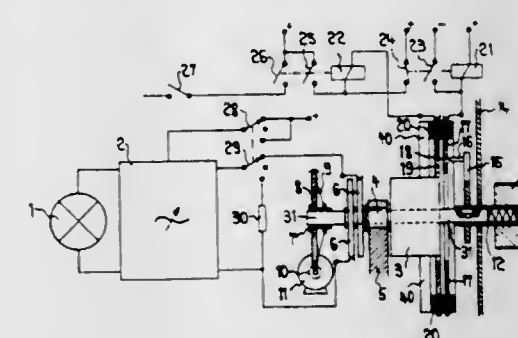
Filed Mar. 24, 1969, Ser. No. 809,644

Claims priority, application Switzerland, Apr. 9, 1968, 5404/68

Int. Cl. H01h 47/22

U.S. Cl. 317-146

15 Claims



An apparatus for supervising starting of a vehicle, wherein the frequency of a flickering luminous indicator has to be adjusted manually to a predetermined value for allowing starting the vehicle, the initial conditions of the apparatus being automatically changed after each use so that said manual adjustment has always to be done under variable conditions.

3,562,602

CONTROL CIRCUIT AND METHOD OF CONTROL FOR LATCHING RELAY

John G. Mlacak, Kanata, Ontario, and Doron Cohen, Brampton, Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Dec. 13, 1967, Ser. No. 690,354

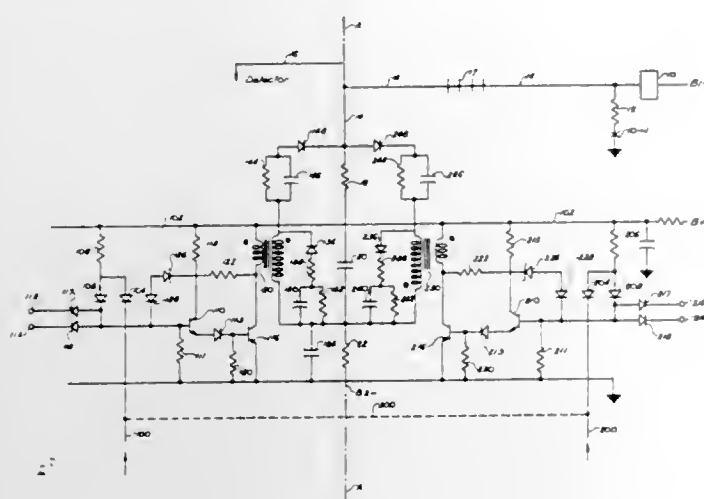
Int. Cl. H01h 47/04

U.S. Cl. 317-154

11 Claims

Circuitry is designed to allow a change in potential level to

cause latching or to cause unlatching of an electromechanical relay, with the change in potential level being amplified



3,562,603

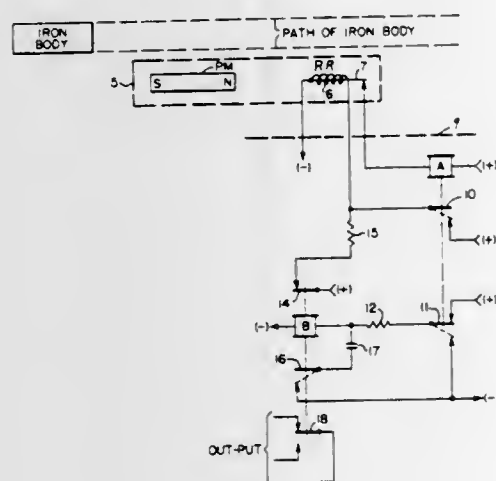
MAGNETIC REED PROXIMITY DETECTOR

Willis R. Smith, Rochester, N.Y., assignor to General Signal Corporation, Rochester, N.Y., a corporation of New York
Filed Oct. 30, 1968, Ser. No. 771,825

Int. Cl. H01h 47/00; B61h 11/08, 13/04

U.S. Cl. 317-157

7 Claims



This device detects the proximity of magnetic objects, and comprises a permanent magnet associated with a spaced reed relay which has its contact normally held in an actuated position by the flux from the magnet. Such contact is released when flux from the magnet is diverted to a different path by the presence of a magnetic body; but restoration of normal flux from permanent magnet does not actuate the contact. A coil surrounding the reed relay contact is energized from a repeater relay when the reed contact is released. Thus, oscillation occurs during the detection of an object but stops during the absence of such object. Relay means is provided to be responsive to the steady state condition of the repeater relay, but to be unresponsive to an oscillatory condition. Such relay means, when responsive to the steady state of the reed relay contact, also provides a slight holding effect in addition to the normal flux from the permanent magnet to render the reed relay contact less responsive to the diversion of flux from the permanent magnet; but, when the reed relay contact is once released, such holding effect is removed so that the oscillatory condition is steadily maintained until the magnetic object is removed and the diversion of flux is stopped. This provides a positive acting and a sensitive proximity detector for relatively high speed operation.

3,562,604 SEMICONDUCTOR DEVICE PROVIDED WITH AN INSULATING LAYER OF SILICON OXIDE SUPPORTING A LAYER OF ALUMINUM

Karel Jakobus Block Van Laer, and Frans Victor Willem Ten Bloemendal, Mollenhutseweg, Nijmegen, Netherlands, assignors to U. S. Philips Corporation, New York, N.Y., a corporation of Delaware, by mesne assignments

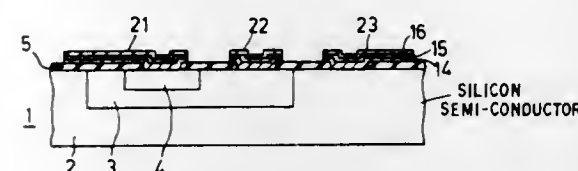
Filed May 8, 1968, Ser. No. 727,487

Claims priority, application Netherlands, May 18, 1967, 6706868

Int. Cl. H01l 3/00

U.S. Cl. 317-234

7 Claims



A semiconductor device comprising a semiconductor body containing an insulating layer of silicon oxide and on top of the silicon oxide a layer of aluminum, which may become rough or uneven when the device is subjected to a thermal treatment. To avoid the latter, the aluminum layer is covered with a titanium layer and a second aluminum layer on top of the titanium.

3,562,605

VOID-FREE PRESSURE ELECTRICAL CONTACT FOR SEMICONDUCTOR DEVICES AND METHOD OF MAKING THE SAME

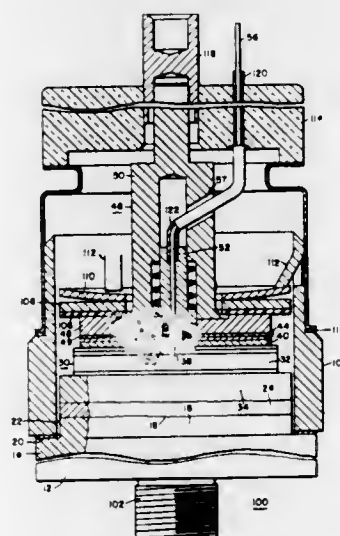
Herbert E. Ferree, Greensburg, and Chang K. Chu, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Feb. 10, 1969, Ser. No. 797,931

Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317-234

5 Claims



An electrically and thermally conductive partially deformable member is employed in a pressure electrical contact assembly to provide an intimate electrical and thermal contact relationship between the member and adjacent components in physical contact with it. The partially deformable member may be utilized between a pressure electrical contact to the semiconductor element and the element itself or between the backup electrode affixed to the element and the support member upon which the backup electrode is disposed. This intimate contact relationship improves the forward voltage drop characteristic of the device and distributes the force loading uniformly over the surfaces of the components to which it is in physical contact.

3,562,606 SUBSURFACE GALLIUM ARSENIDE SCHOTTKY-TYPE DIODE AND METHOD OF FABRICATING SAME

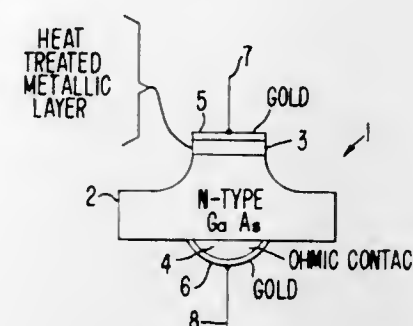
John Heer, West Newbury, and James A. Trincherà, Hamilton, Mass., assignors to Varian Associates, Palo Alto, Calif., a corporation of California

Filed Aug. 13, 1969, Ser. No. 849,751

Int. Cl. H01l 9/00, 7/36

U.S. Cl. 317-234

6 Claims



A Schottky-type diode is fabricated by depositing a metallic layer of an alloy of silver with zinc and indium on the surface of an n-type gallium arsenide wafer. The wafer is heat treated at 650° C. in a reducing atmosphere to form a subsurface junction displaying Schottky-type barrier characteristics and having improved stability.

3,562,607

OVERLAY-TYPE TRANSISTOR WITH BALLAST RESISTOR

Alfons Matthijs Reinier van Iersel, Mollenhutseweg, Nijmegen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware, by mesne assignments

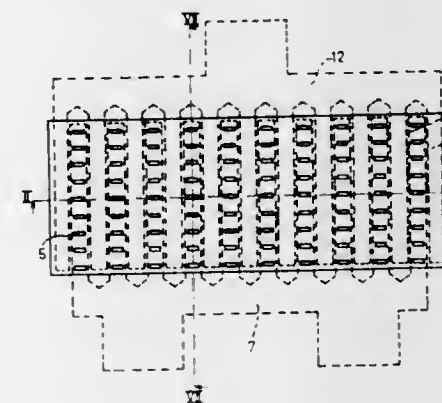
Filed May 8, 1968, Ser. No. 727,562

Claims priority, application Netherlands, May 12, 1967, C 706641

Int. Cl. H01l 11/00

U.S. Cl. 317-235

6 Claims



An overlay type transistor with a ballast resistor to avoid hot spots is described. The resistor comprises a layer of resistance material on each emitter zone, and the emitter contacts comprise a conductive strip on each resistor and overlying the emitter zones whereby the resistance through the thickness of the resistance layer is utilized.

3,562,608

VARIABLE INTEGRATED COUPLER

Robert C. Gallagher, Normandy, and James R. Cricchi, Catonsville, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Mar. 24, 1969, Ser. No. 809,668

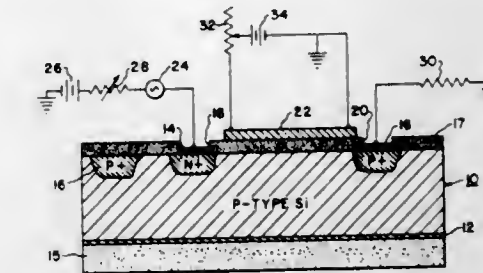
Int. Cl. H01l 11/14

U.S. Cl. 317-235

8 Claims

Described is an integrated circuit variable coupler utilizing metal oxide semiconductor (MOS) techniques, wherein the

degree of coupling or capacitance of the coupler is a function of the size of the depletion region of a PN junction which can



be varied by a voltage applied across a thin film resistor deposited on an oxide layer.

3,562,609

SOLID STATE LAMP UTILIZING EMISSION FROM EDGE OF A P-N JUNCTION

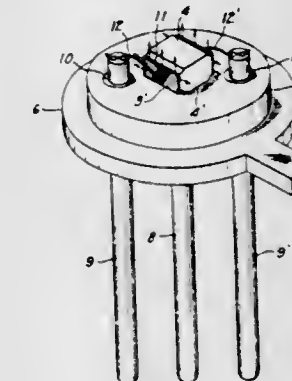
Arrigo Addamiano, Willoughby, and Lester M. Hertz, Euclid, Ohio, assignors to General Electric Company, a corporation of New York

Filed June 4, 1968, Ser. No. 734,303

Int. Cl. H01l 15/00

U.S. Cl. 317-235

5 Claims



The diffusion of P-type dopants into N-type silicon carbide in order to create junctions produces a surface layer of P-type material all over and around the silicon carbide platelet. By cutting the silicon carbide perpendicular to the plane of the platelet, PNP slices are obtained. When ohmic contacts are made to the opposite P-type layers and to the N-type core, light may be emitted edgewise from both junctions. The PNP double junctions can be connected for simultaneous operation on DC or for alternate operation on AC. The N-type core is mounted on a header, and the edges of the P-type layers are recessed at the mounting surface so as to insulate the P-type layers from the header. In a method of making the lamp, a column of the N-type core, flanked by the P-type layers, is cut to form pairs of aligned transverse notches through the P-type layers, and the column is then severed at each pair of notches thus forming the aforesaid edge recesses of the P-type layers at the N-type core mounting surface.

3,562,610

CONTROLLED RECTIFIER WITH IMPROVED SWITCHING CHARACTERISTICS

Thomas G. Stehney, Rillton, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation of application Ser. No. 641,367, May 25, 1967, now abandoned. This application July 1, 1969, Ser. No. 841,689

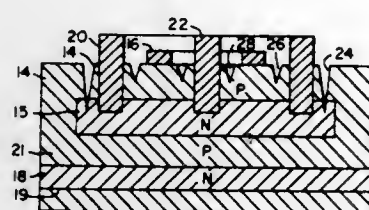
Int. Cl. H01l 5/02

U.S. Cl. 317-235

1 Claim

This invention relates to a gate controlled PNP semiconductor device having turnoff capability, and more particularly to a turnoff thyristor having both low current gain

characteristics and high reverse gate to cathode emitter also features adaptability of interconnection of two motors voltage characteristics. In this device an emitter region is and two power supplies, in various mode to accommodate



formed in a base region by diffusion and gate contacts are alloyed through the emitter region to the base region.

3,562,611

STATIC SWITCHING CONTROLLERS FOR EFFECTING REPETITIVE CONNECTION TO AND DISCONNECTION FROM AN INDUCTIVE LOAD OF A DC SOURCE

David Gurwicz, Gateshead, England, assignor to Sevcon Engineering Limited, Dunham, England

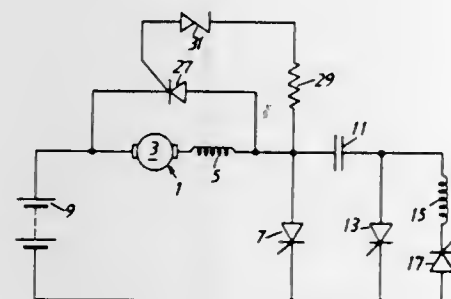
Filed May 5, 1969, Ser. No. 821,904

Claims priority, application Great Britain, May 13, 1968, 22,592/68

Int. Cl. H02k 23/08; H02p 5/06

U.S. Cl. 318—246

10 Claims



Static switching controller using a thyristor to connect a DC source to a load there being provided control means to render the thyristor conducting, a commutating capacitor adapted to be charged from the source and to reverse bias the thyristor to terminate conduction thereof and means for preventing decay of the charge on the capacitor to a level below that required to commutate the thyristor, there being further provided a unidirectional load shunting current path which in the interval between successive periods of conduction of the thyristor operates to permit charging of the capacitor to a relatively high voltage level.

3,562,612

THYRISTOR POWERED REVERSIBLE DUAL MOTOR DRIVE WITH VOLTAGE AND CURRENT FEEDBACK

William A. Munson, Williamsville, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

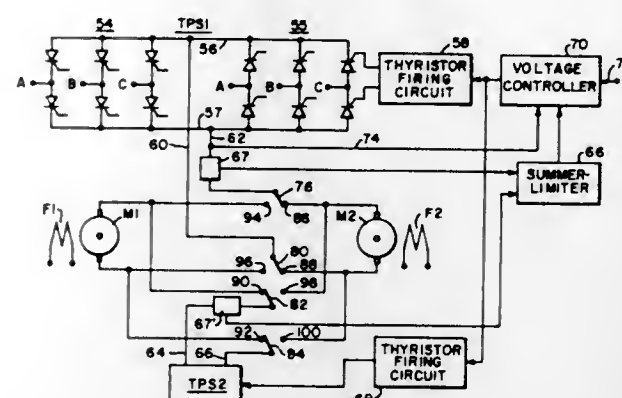
Filed Oct. 21, 1968, Ser. No. 769,262

Int. Cl. H02p 1/58

U.S. Cl. 318—106

6 Claims

Described is a thyristor power system for a pair of motors which drive a common shaft. Two power supplies, a motor controller, and an internal system of feedback networks are so arranged that the motors are automatically regulated to provide substantially equal load division. The arrangements



emergency loss of a one motor or one power supply, or to accommodate special cases of loading.

3,562,613

TIMEPIECE DRIVEN BY NUCLEAR ENERGY

Karl Adler, Grenchen, and Georges Ducommun, Feldbrunn, Switzerland, assignors to Baumgartner Freres S.A., Solothurn, Switzerland

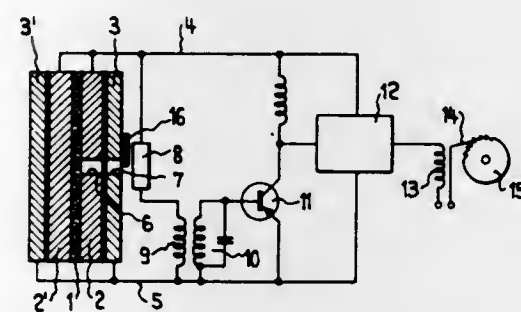
Filed Apr. 11, 1969, Ser. No. 815,356

Claims priority, application Switzerland, Apr. 17, 1968, 5,663

Int. Cl. H02k 33/00

U.S. Cl. 318—130

22 Claims



A timepiece driven by nuclear energy, wherein the radiation of a radioactive source serves at the same time for producing the electric power for energizing a counting circuit and for control of a counting frequency or recombination frequency determining the advance of the timepiece.

3,562,614

STARTING SWITCHING MEANS FOR A SINGLE-PHASE ASYNCHRONOUS MOTOR

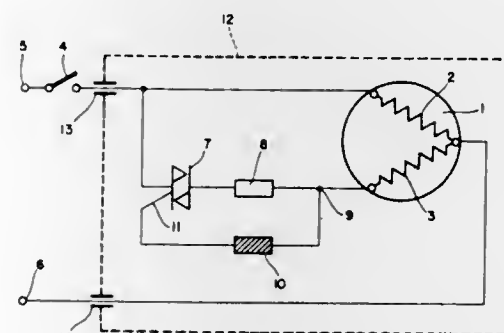
Asger Gramkow, Augustenborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark, a corporation of Denmark

Filed July 10, 1968, Ser. No. 743,725

Int. Cl. H02p 1/44

U.S. Cl. 318—221

1 Claim



The invention relates to starting switch means for a single phase asynchronous motor having a symmetrical controlled

semiconductor valve as a starting switch. The valve and an ohmic resistor is in series with the starting winding of the motor. A PTC resistor is connected to the control electrode of the valve and is arranged parallel to the valve and the ohmic resistor. The starting switching means is enclosed, along with the electric motor, in the housing of a refrigeration unit.

3,562,615

PHASE CONTROL DEVICE FOR DC MOTOR

Takuya Nasu, Hirakata-shi; Osahiko Yano, Kadoma-shi, and Masahiro Deguchi, Yao-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan

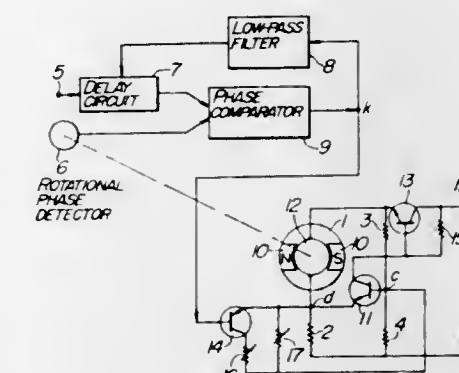
Filed June 26, 1968, Ser. No. 740,372

Claims priority, application Japan, June 29, 1967, 42/42229

Int. Cl. H02p 5/16; H03d 13/00

U.S. Cl. 318—314

8 Claims



A device for controlling the rotation of a rotary shaft driven by a DC motor so that the rotary shaft can rotate with a rotational phase which is in synchronism with the phase of a predetermined signal. The device is provided with a speed regulator so that the motor can drive the rotary shaft at approximately the number of revolutions corresponding to the oscillation frequency of the predetermined signal, and a signal representative of the phase difference is applied to the speed regulator so as to positively and steadily drive the motor in phasic synchronism and eliminate the hunting while and after the motor is pulled in.

3,562,616

CONTROL SYSTEMS FOR ELECTRIC MOTORS

Royston David Elliott, Basingstoke, England, assignor to Lansing Bagnall Limited, Basingstoke, England, a British company

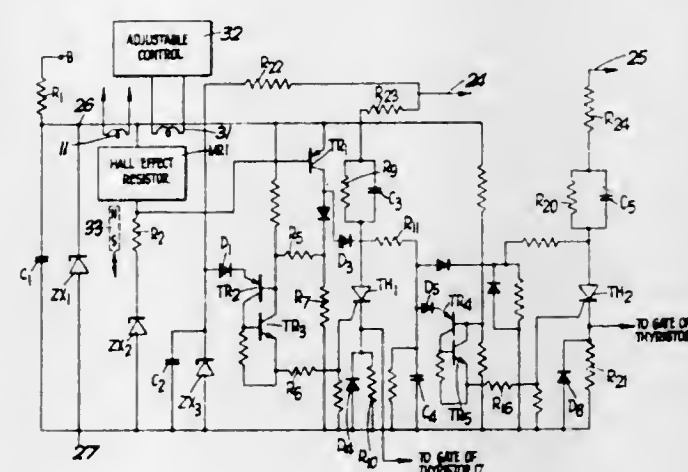
Filed Jan. 7, 1969, Ser. No. 789,478

Claims priority, application Great Britain, Jan. 9, 1968, 1304/68

Int. Cl. H02p 5/16, 5/18

U.S. Cl. 318—332

4 Claims



A motor drive circuit in which a direct current motor is fed with pulses of current by means of a controlled rectifier connected as a power switch between a power source and the

motor. The conduction of the rectifier is controlled by a potential divider one element of which is a flux-responsive resistor adjacent a conductor of armature current. The divider is energized with a constant voltage thereby avoiding use of a free-running pulse generator as a source of trigger pulses for the rectifier. A coil adjacent the resistor provides additional flux through the resistor for controlling the pulse rate of the motor.

3,562,617

MALFUNCTION DETECTOR CIRCUIT FOR A SOLID STATE ELECTRIC MOTOR CONTROLLED VEHICLE

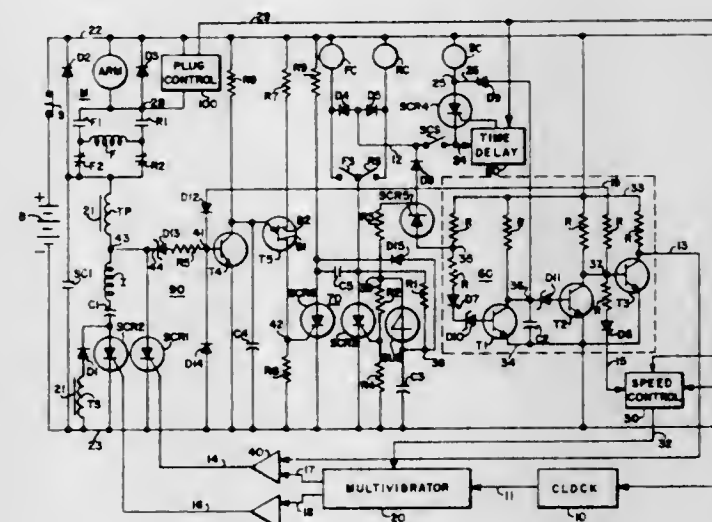
Roger D. Meier, Menominee Falls, and Philip H. Rusch, Wauwatosa, Wis., assignors to Square D Company, Park Ridge, Ill., a corporation of Michigan

Filed Apr. 4, 1969, Ser. No. 813,520

Int. Cl. H02h 7/09

U.S. Cl. 318—341

10 Claims



A control circuit for a battery powered vehicle including circuits for detecting the failure of a pair of contacts in a high-speed circuit to open, the failure of a silicon controlled rectifier which supplies current pulses to the traction motor to switch to a nonconductive state within a predetermined time interval and the failure of a silicon controlled rectifier in a circuit that controls the direction of rotation of the motor to block current flow through the direction controlling circuit. The circuit is arranged to interrupt or prevent energization of the traction motor when any of the above recited failures is detected.

3,562,618

TORQUE CONTROL CIRCUIT FOR ELECTRIC MOTORS

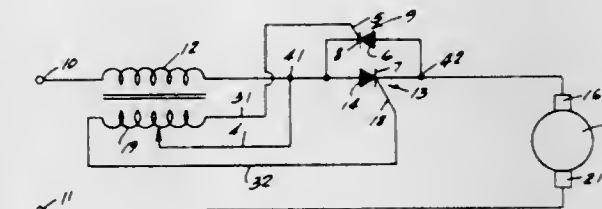
Athanase N. Tsergas, Des Plaines, Ill., assignor to Ram Tool Corporation, Chicago, Ill., a corporation of Illinois

Filed Nov. 3, 1967, Ser. No. 680,492

Int. Cl. H02p 5/06

U.S. Cl. 318—246

2 Claims



A torque control circuit wherein a silicon controlled rectifier is connected in series with the field and armature of an electric motor and is gated by a pickup winding which is magnetically coupled to the field of the motor such that the motor speed depends upon motor load current.

3,562,619

A CONTROL SYSTEM FOR SELECTIVELY POSITIONING AN OUTPUT MEMBER

Hisamoto Hyoguchi; Taka-aki Kanamori, and Yasutugu Kuroda, Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

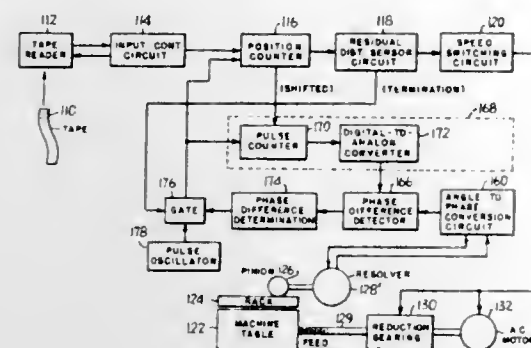
Filed Dec. 18, 1968, Ser. No. 784,842

Claims priority, application Japan, Dec. 22, 1967, 42/82342

Int. Cl. G05b 1/06

U.S. Cl. 318—603

4 Claims



During movement of a machine table, pulses of fixed repetition frequency are counted to be converted to a phase angle which is, in turn, compared with a phase angle corresponding to the movement of the movable table until a difference between them reaches zero. The pulses are also counted by a position counter to decrease a digital value registered in it. As the counter decreases in value the table automatically switches its speed from a high to a moderate magnitude and then to a low speed when the counter clears the table stops at its command position. Also, after having reached a predetermined distance from the command position, the table can progressively decelerate in accordance with the value remaining in the counter.

3,562,620

CONTROL SYSTEM FOR OVERCOMING STICKTION, FRICTION IN ELECTRIC MOTORS

Arthur K. Haslehurst, Northworthy, 11 Louvain Road, Derby, England

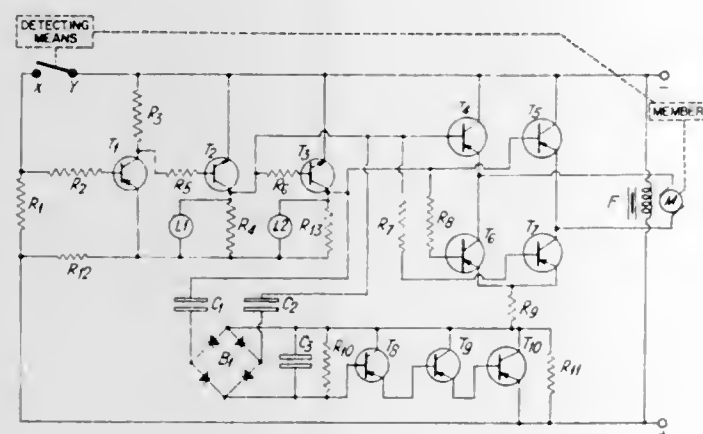
Filed Mar. 8, 1968, Ser. No. 711,802

Claims priority, application Great Britain, Mar. 11, 1967, 11,503/67

Int. Cl. G05f 1/08

U.S. Cl. 318—616

12 Claims



A positional control system comprises an electric motor, circuit means responsive to the position of the member to be controlled and operative to cause the motor to oscillate the member rapidly about the desired position, and damping means to limit the amplitude of the oscillation to an acceptable level.

3,562,621

INRUSH CURRENT LIMITING CIRCUIT FOR RECTIFIER CIRCUITS WITH CAPACITIVE LOAD

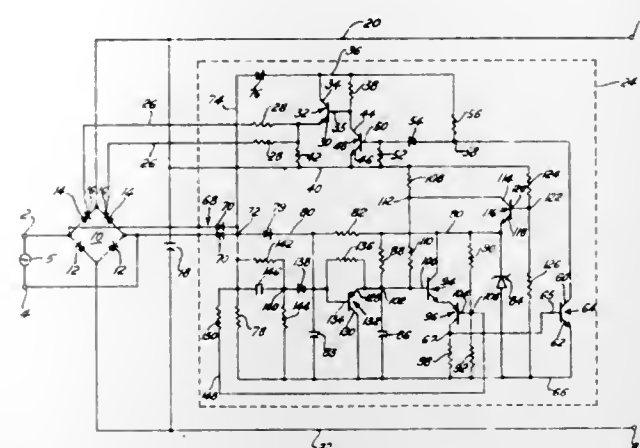
Johannes M. Schaefer, Wilton, Conn., assignor to Technipower Incorporated, South Norwalk, Conn., a corporation of Connecticut

Filed July 26, 1967, Ser. No. 656,277

Int. Cl. H02n 3/18

U.S. Cl. 320—1

10 Claims



A rectifier circuit with capacitive load in which means are provided for preventing inrush current on start-up, this being accomplished by controlling the firing time of a controlled rectifier in accordance with sensing the voltage across the capacitive load; timing is achieved by appropriately varying the charging rate of a regulating capacitor which is periodically discharged; parameter regulating means is superimposed and is effective, once the parameter in question reaches a predetermined range, to take over control of the regulating capacitor charging rate and to thereafter modify that charging rate in order to maintain the parameter in question at a predetermined value.

3,562,622

ULTRASONIC FLAW DETECTION APPARATUS WITH DATA COMPRESSION SYSTEM

Douglas Aldridge-Cox, Four Oaks, England, assignor to S.T.D. Services Limited, Birmingham, England

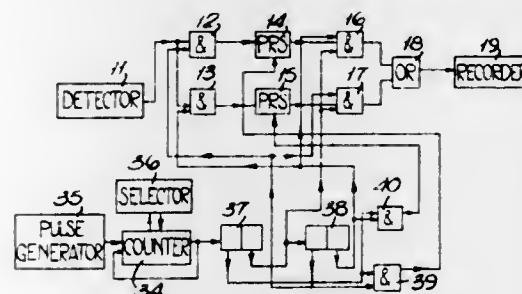
Filed Mar. 1, 1968, Ser. No. 709,698

Claims priority, application Great Britain, Mar. 1, 1967, 9691/67

Int. Cl. H02n 1/00

U.S. Cl. 320—1

3 Claims



A recording means for use in ultrasonic flow detection comprises a plurality of peak reading store devices associated with sequence control logic circuits controlling the admission of flaw signals to the store devices and the reading thereof to a direct writing recorder. Each store device, whilst connected to the flaw detector instrument stores a voltage corresponding to the largest signal received. This signal is read out whilst another store device is receiving signals. The store devices each include a capacitor which is charged by incoming signals. Read out is effected through a field effect transistor, utilizing the high input impedance thereof to prevent excessive reduction of the charge on the capacitor during the readout period.

3,562,623

CIRCUIT FOR REDUCING STRAY CAPACITY EFFECTS IN TRANSFORMER WINDINGS

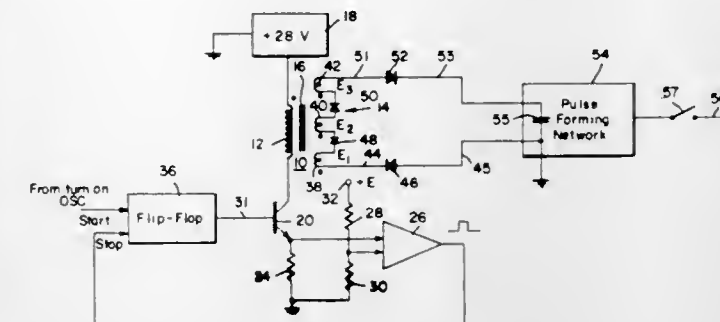
Robert P. Farnsworth, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed July 16, 1968, Ser. No. 745,245

Int. Cl. H02m 3/32

U.S. Cl. 321—2

7 Claims



A transformer charging system that provides a highly efficient operation and that substantially eliminates switching transients. The high voltage or secondary winding of the transformer as well as the primary winding in some arrangements, is divided into segments which are isolated from each other by unidirectional current conductive devices such as diodes. For charging a load coupled to the secondary winding, current pulses are repetitively applied to the primary winding from the power source with the flyback voltage resulting from the pulse terminations causing current to flow through the diodes. The diodes allow the stray capacitance associated with each segment to initially charge but prevent them from discharging between the repetitive operations, which would cause additional flow of primary current and dissipation losses.

3,562,624

METHOD AND APPARATUS FOR INFLUENCING THE OUTPUT VOLTAGES OF CURRENT SUPPLY INSTALLATIONS

Werner Ullman; Franco Donati, Locarno, and Gianfranco Tortelli, Ascona, Switzerland, assignors to A.G. Fur Industrielle Elektronik Agie Losone B. Locarno, Locarno, Switzerland, a corporation of Switzerland

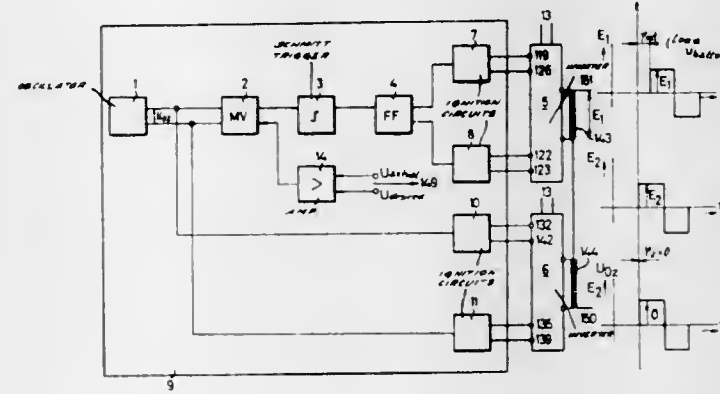
Filed Sept. 18, 1967, Ser. No. 668,619

Claims priority, application Switzerland, Sept. 27, 1966, 13960/66

Int. Cl. H02m 7/00

U.S. Cl. 321—5

15 Claims



A method and apparatus for influencing or controlling the vectors of output voltages from a direct-current supply device feeding a multiconductor alternating-current transmission system. The total voltage vector for each conductor is generated from two partial voltage vectors. Control of the magnitude of the total voltage vector is effected by phase-shifting the partial voltage vectors, each partial voltage vector being phase-shifted through the same angular magnitude

but in opposite angular direction. In this manner, the total voltage vector for each conductor is maintained in a constant phase position even during automatic regulation and in the presence of an asymmetrical load.

3,562,625

APPARATUS FOR CONTROLLING THE MEAN VALUE OF CURRENT SUPPLIED BY AN ALTERNATING CURRENT SOURCE TO AN ELECTRIC APPARATUS

Jean van den Broek D'O'Brien, Versailles, France, assignor to Compagnie Generale d'Automatisme, Paris, France, a corporation of France

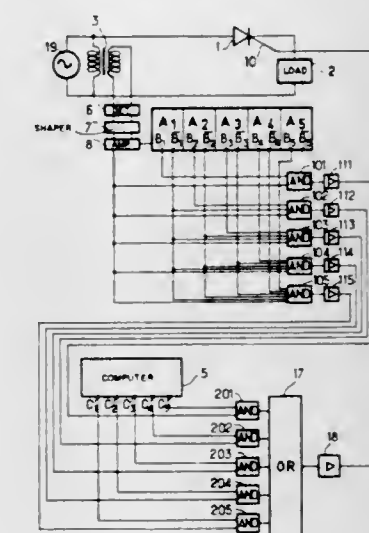
Filed Oct. 11, 1967, Ser. No. 674,608

Claims priority, application France, Oct. 11, 1966, PV79,568

Int. Cl. H02m 1/08; H02p 13/16

U.S. Cl. 321—16

7 Claims



Device for regulating the mean value of current supplied by an AC current source to an electrical apparatus, dependent on data supplied by a computer, comprising a cycle counter having N binary flip-flops providing N binary signal combinations of a series of 2^N pulses and a control arrangement responsive to the computer for applying one of 2^N combinations of said N binary signals in control of the current supplied to said electrical apparatus.

3,562,626

CIRCUIT ARRANGEMENT FOR AUTOMATICALLY CONTROLLING THE VOLTAGE OF AN ELECTRICAL FILTER

Hans-Jurgen Morell, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Munich, Germany, a corporation of Germany

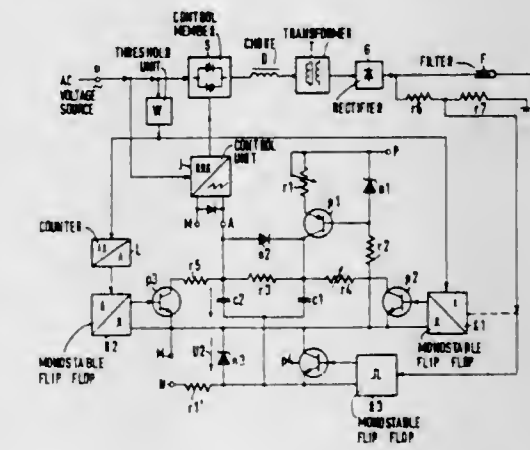
Filed May 2, 1969, Ser. No. 821,246

Claims priority, application Germany, May 9, 1968, P 17 57 439.9

Int. Cl. H02m 7/20

U.S. Cl. 321—18

3 Claims



A filter is coupled to an AC voltage source via a control member which is controlled in operation by a control circuit.

A switching component coupled to the control capacitor is connected to the control member via a counter which controls the conductivity condition of the switching component in a manner whereby the control capacitor is discharged only when the instantaneous magnitude of current flowing through the control member exceeds a response level within a specific interval between successive half waves of the AC source.

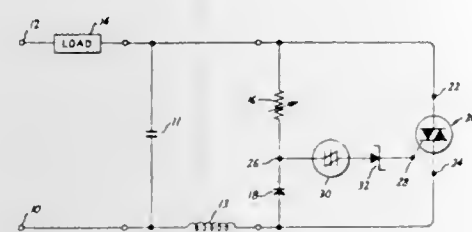
3,562,627

LOW HYSTERESIS FIRING CIRCUIT FOR SOLID STATE SWITCH

James H. Galloway, Cato, N.Y.; Frank W. Gutzwiller, Erie, Pa., and E. Keith Howell, Skaneateles, N.Y., assignors to General Electric Company, a corporation of New York
Filed Apr. 29, 1968, Ser. No. 724,748
Int. Cl. G05f 3/04

U.S. Cl. 323-16

4 Claims



A firing circuit for control of AC power through a gated solid-state power control is provided employing a single series connected RC network having variable resistance in parallel with the power control and a series connected SBS and Zener diode to connect the junction of the RC network to the gate of the gated power control.

3,562,628

CIRCUIT FOR LIMITING THE FIRING OF A SILICON CONTROLLED RECTIFIER TO A LOW ANGLE OF THE INPUT ALTERNATING CURRENT

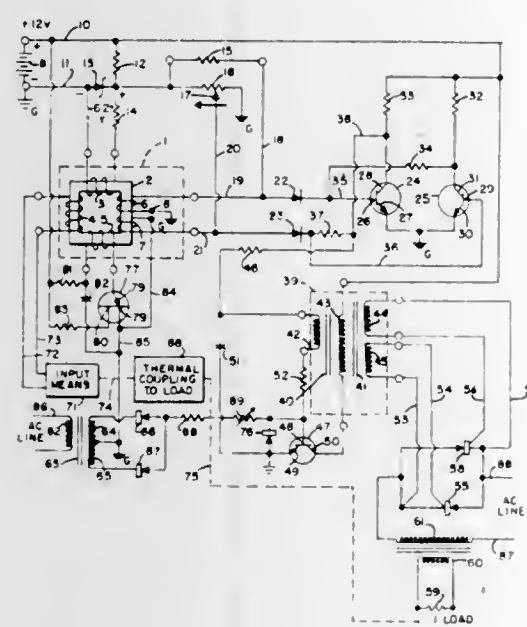
Alfred W. Barber, Bayside, N.Y. (32-44 Francis Lewis Blvd., Flushing, N.Y. 11358)

Filed June 10, 1968, Ser. No. 735,849

Int. Cl. G05f 1/44

U.S. Cl. 323-22

5 Claims



In a system normally providing random firing signals to a pair of silicon controlled rectifiers, one for each phase of an alternating current source of power, in phase inhibiting pulses are applied to reduce the firing angle to a predetermined maximum.

A variable resistance and switch means for an electrical appliance including a rheostat and an actuator for said rheostat movable reciprocally in a linear path for varying power output of the appliance and the speed of an operating

ERRATUM

For Class 323-74 see:
Patent No. 3,562,637

3,562,629

TUBE FILLED WITH IONIZED GAS FORMING A RESISTOR-CAPACITOR UNIT

Michel Troubetzkoi, 3660 Peel St, Montreal, Quebec, Canada

Filed Mar. 4, 1968, Ser. No. 710,176

Int. Cl. G05f 3/00

U.S. Cl. 323-74

3 Claims



A capacitor unit for use as a tension reducer and consisting of a tube filled with ionizable gas and provided with electrodes at its two ends for connection to a source of high voltage, at least one of the electrodes being an external electrode so as to form one conductive surface of a condenser, the dielectric of the condenser being formed by the wall of the tube and the other conductive surface of the condenser being formed by the gas inside the tube when ionized, the ionized gas forming also a resistive path to the other electrode whereby the tension reducer forms at least one capacitor and one resistor element in series. The unit is more particularly adapted for use in combination with measuring instrument for measuring high voltage.

3,562,630

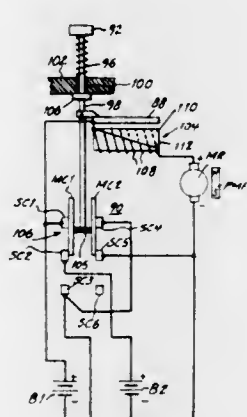
VARIABLE RESISTANCE MEANS FOR AN ELECTRICAL APPLIANCE

Richard A. Honkonen, Monroe; Paul E. Allen, Newtown; Richard K. Way, Monroe, and Carl M. Larime, Fairfield, Conn., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Original application Sept. 14, 1964, Ser. No. 396,211, now Patent No. 3,437,282, dated Apr. 8, 1968. Divided and this application Apr. 26, 1968, Ser. No. 796,240
Int. Cl. G05f 3/08

U.S. Cl. 323-94

20 Claims



member through said rheostat and in accordance with the position of the actuator in the linear path of travel.

3,562,631

DUAL RESONANT CAVITY ABSORPTION CELL

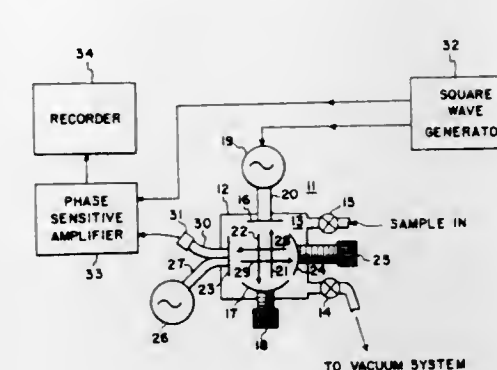
Major C. Lee, Newport News, and William F. White, Hampton, Va., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Mar. 27, 1969, Ser. No. 811,037

Int. Cl. G01n 27/78

U.S. Cl. 324-0.5

5 Claims



An absorption cell for holding a gas sample to be analyzed by microwave double resonance spectroscopy. A pair of Fabry-Perot interferometers are arranged in the cell so that their microwave fields propagate at right angles. One interferometer acts as a resonant cavity at the pumping frequency and the second as a resonant cavity at the observing frequency. Double resonance transitions occur in the volume common to both microwave fields.

3,562,632

NUCLEAR INDUCTION FLOW METER (UTILIZING PRINCIPLE OF NUCLEAR MAGNETIC RESONANCE)

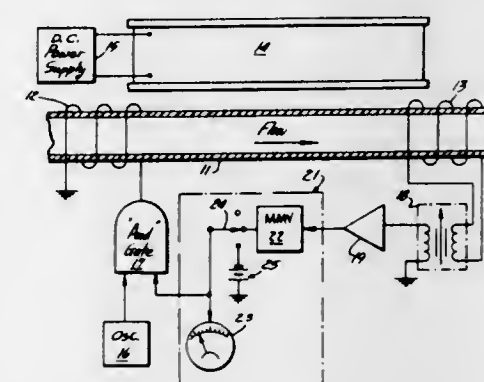
James L. Kirkland, Panama City, Fla., assignor to the United States of America as represented by the Secretary of the Navy

Filed Apr. 25, 1969, Ser. No. 819,285

Int. Cl. G01n 27/00

U.S. Cl. 324-0.5

4 Claims



A magnetic field is established along a conduit and at right angles thereto. A fluid material flowing through the conduit has the atomic nuclei thereof excited for a brief interval by a magnetic field producing device external to the conduit. The excited nuclei precess about the axis of the magnetic field as the fluid moves through the conduit. At a point downstream from the point of excitation, the presences of the excited nuclei are detected by an electromagnetic transducer means also external to said conduit. The detected signal is amplified and delivered to appropriate circuitry to determine the flow rate of the fluid within said conduit.

TRANSMITTER AND RECEIVER ELECTRODE METHOD AND APPARATUS FOR SENSING PRESENCE AND PROXIMITY OF UNDERWATER OBSTRUCTIONS

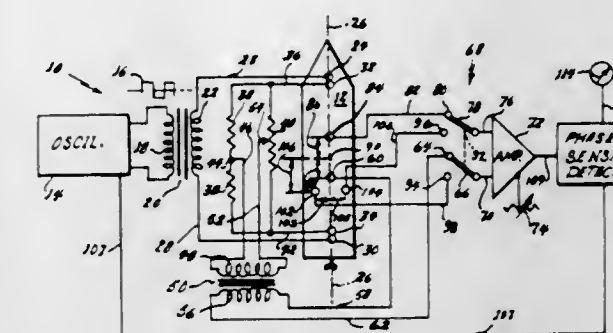
William H. Swain, Sarasota, Fla., assignor to William H. Swain Company, Sarasota, Fla., fractional part interest to each and William J. Kreske, Newton Centre, Mass., fractional part interest to each

Filed Oct. 23, 1967, Ser. No. 677,126

Int. Cl. G01v 3/02

U.S. Cl. 324-1

50 Claims



An electric oscillator is coupled to apply an alternating potential across a pair of transmitter electrodes protruding into water under a boat or other vessel, at least one receiver electrode protruding into the water is coupled to an amplifier, the output of which is coupled to an electric meter to indicate changes in potential of the receiver electrode with respect to a reference potential as an indication of obstruction changes surrounding the vessel, the particular obstruction indicated being determined by the arrangement of the receiver electrode with respect to the transmitter electrodes.

3,562,634

METHOD FOR DETERMINING THE STATE OF CHARGE OF NICKEL CADMIUM BATTERIES BY MEASURING THE FARAD CAPACITANCE THEREOF

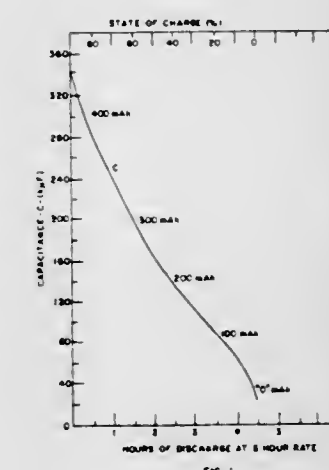
Norman Latner, Jamaica, N.Y., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 16, 1968, Ser. No. 784,072

Int. Cl. H01m 31/04; G01n 27/02; G01r 31/00

U.S. Cl. 324-29.5

7 Claims



Method for predicting the capacity of nickel-cadmium batteries with a standard reference curve that indicates battery capacitance as a function of the state-of-charge of a given nickel-cadmium battery type wherein the standard reference

curve is used with the measurement of the capacitance of any battery of the given type to indicate the state-of-charge of the battery.

3,562,635

APPARATUS AND METHOD FOR DETECTING DEFECTS IN MAGNETIC TAPE

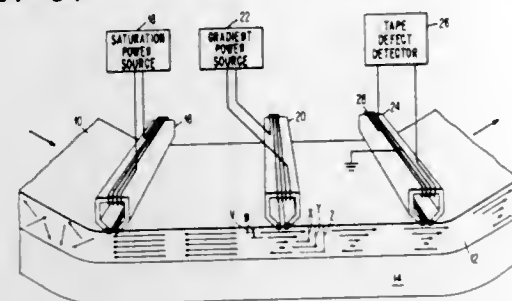
Gerald R. Parker, Longmont, Colo., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Oct. 16, 1968, Ser. No. 768,902

Int. Cl. G01r 33/12

U.S. Cl. 324—34

12 Claims



This invention detects tape defects down to and in the order of 10^{-5} inches in diameter or depth. This detection is achieved by recording DC test signals that do not saturate the tape, but instead provide a gradient of DC magnetization through the tape. The detection of very small or very shallow defects is further enhanced by use of an integrating amplifier in the fault-detecting circuit connected to the test read head. The output of the integrating amplifier is a signal which is very similar to the surface appearance of the tape.

3,562,636

BRIDGE CIRCUIT HAVING PLURAL COMPENSATING ARMS

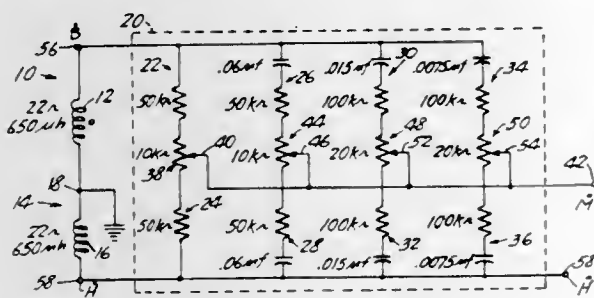
John C. Huber, Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed May 20, 1969, Ser. No. 826,133

Int. Cl. G01r 33/00

U.S. Cl. 324—34

11 Claims



An AC bridge circuit which provides a means for compensating for both in and out of phase components of a fundamental frequency, as well as for harmonics of the fundamental frequency, is disclosed. The bridge utilizes a number of parallel branches (arm pairs) in a compensating leg, each branch having different impedance-versus-frequency characteristics thereby providing for separately compensating for a disparate component or harmonic. Applicable to systems for detection and measurement of a wide variety of electrical, magnetic and optical properties, the circuit is especially useful in conjunction with measurement of very weak magnetic materials, wherein the harmonics resulting from the primary excitation field are of comparable or greater magnitude than the signal generated as a result of exciting the magnetic material. The bridge circuit is shown in a system for displaying hysteresis loops of weakly magnetic materials.

3,562,637 LOW VOLTAGE DC CONTROL OF VOLTAGE-VARIABLE CAPACITORS

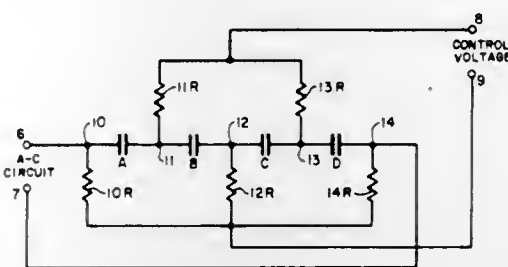
Emanuel Gikow, West Long Branch, N.J., assignor to the United States of America, as represented by the Secretary of the Army.

Filed July 7, 1969, Ser. No. 839,538

Int. Cl. H02m 5/08; H02p 13/00

U.S. Cl. 323—74

3 Claims



This disclosure covers voltage-variable capacitors, and circuits for applying a control voltage to voltage-variable capacitors. More particularly, this disclosure is of circuits for connecting a plurality of voltage-variable capacitors to be actuated by a common control voltage.

3,562,638

THIN FILM MAGNETOMETER USING MAGNETIC VECTOR ROTATION

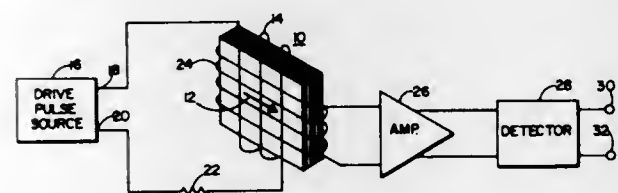
Andre M. Renard, Penllyn, Pa., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Nov. 18, 1968, Ser. No. 776,623

Int. Cl. G01r 33/02

U.S. Cl. 324—43

2 Claims



A thin magnetic film magnetometer is disclosed wherein the magnetometer has an easy axis drive component. The component of the ambient DC magnetic field in the direction of the hard axis rotates the magnetic vector of the thin film away from the easy axis. A drive rotates the vector away from its rest position with the rotation of the vector being modulated by the magnetic signal field being sensed. A sensing coil picks up output pulses in response to the disturbance of the magnetic vector which are modulated in accordance with the magnetic signal field. An electrical signal representative of the magnetic signal is obtained by demodulating or detecting the output signals of the sensing coil.

3,562,639

METHOD AND APPARATUS FOR TESTING EXPLODING BRIDGEWIRE ORDNANCE DEVICES

James B. Wright, and James D. Holder, Huntsville, Ala., assignors to the United States of America, as represented by the Secretary of the Army

Filed Jan. 9, 1969, Ser. No. 790,141

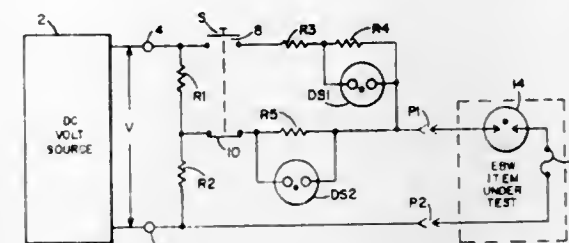
Int. Cl. G01n 27/00

U.S. Cl. 324—51

2 Claims

A device and method wherein a first potential is applied to an exploding bridgewire unit (EBW), including a spark gap, to determine if the EBW is shorted. If the EBW is shorted, a lamp will be lighted. If the lamp is not lighted a second potential may be applied to the EBW to check continuity of the bridgewire of the EBW. The second potential is high enough to cause the spark gap of the EBW to break down

and conduct if continuity of the bridgewire exists. If the lamp does not light the EBW is defective. Current through the circuits, preferably of the transformer bridge type, employing alternating-current digital servo controls for effecting rapid



EBW is limited to render the possibility of damage to or explosion of the EBW negligible.

3,562,640

APPARATUS FOR TESTING EXPLODING BRIDGEWIRE ORDNANCE DEVICES FOR CONTINUITY AND SHORTS

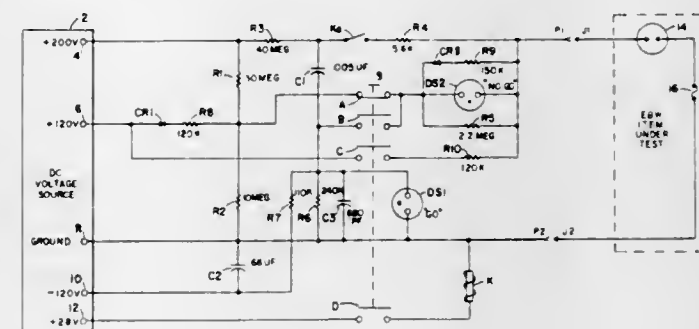
James B. Wright, and James D. Holder, Huntsville, Ala., assignors to the United States of America, as represented by the Secretary of the Army

Filed Jan. 15, 1969, Ser. No. 791,416

Int. Cl. G01r 31/02

U.S. Cl. 324—51

3 Claims



A device wherein a first potential is applied to an exploding bridgewire unit (EBW), including a spark gap, to determine if the EBW unit is shorted. If the EBW unit is shorted a lamp will be lighted and locked on. If the lamp does not light, a switch is depressed which causes a charged capacitor to be connected in series with the EBW unit to check the continuity of the EBW. The charge of the capacitor is of a voltage sufficient to cause the spark gap of the EBW to break down and conduct if the EBW is otherwise continuous. If conduction through the EBW occurs, a lamp connected in series with the capacitor and the EBW will be ionized and locked on. If the EBW does not conduct, the charge of the capacitor will be dissipated in a manner which will cause yet another lamp to be ionized and locked on. Current through the EBW is limited to render the possibility of damage to or explosion of the EBW negligible.

3,562,641

IMPEDANCE-MEASURING TRANSFORMER BRIDGE WITH AUTOMATIC DIGITAL BALANCING CIRCUIT

Robert G. Fuls, West Concord, Mass., assignor to General Radio Company, West Concord, Mass., a corporation of Massachusetts

Continuation of application Ser. No. 454,902, May 11, 1965.

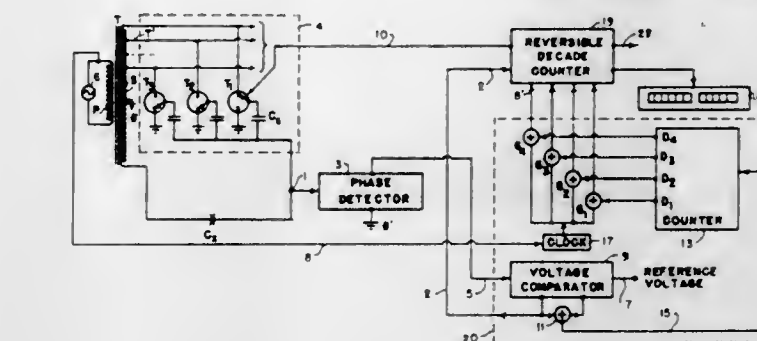
This application Nov. 25, 1968, Ser. No. 784,995

Int. Cl. G01n 27/00

U.S. Cl. 324—57

28 Claims

The present invention relates to automatic electrical bridge-balancing circuits and, more particularly, to bridge



balancing of unknown impedance elements, such as capacitances.

3,562,642

APPARATUS AND METHOD FOR MEASURING PROPERTIES OF MATERIALS BY SENSING SIGNALS RESPONSIVE TO BOTH AMPLITUDE AND PHASE CHANGES IN TRANSMITTED OR REFLECTED MICROWAVE ENERGY

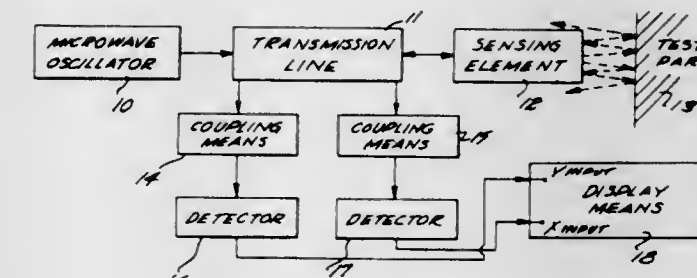
Richard Hochschild, 2915 Pebble Drive, Corona Del Mar, Calif.

Continuation of application Ser. No. 390,616, Aug. 19, 1964, which is a continuation-in-part of application Ser. No. 373,283, June 8, 1964. This application Dec. 2, 1968, Ser. No. 781,704

Int. Cl. G01r 27/04

U.S. Cl. 324—58.5

14 Claims



This invention relates to an apparatus and method utilizing microwaves for testing objects, especially nonmetallic objects, nondestructively for numerous characteristics such as thickness, chemical and physical properties, flaws, moisture content, vibration and displacement. Discrimination between these variables, or the suppression of one or more of these variables which are not of interest to the measurement, are shown to be possible utilizing detection apparatus which provides and displays two output signals, each of which is an independent function of the amplitude and phase of the microwave signal received from the test object. For example, different variables cause deflections in different directions in an XY display of the two independent output signals. Alternatively, means are described for obtaining a single output signal responsive to only one variable in the test object, or a single output signal in which the response to one test variable is suppressed.

which directly couples inphase to the output ports. The input ports are isolated from each other. Novel frequency translating devices using the hybrid junction are also disclosed.

3,562,652 DOUBLE TUNED INPUT AND FIXED INTERSTAGE VHF TUNER

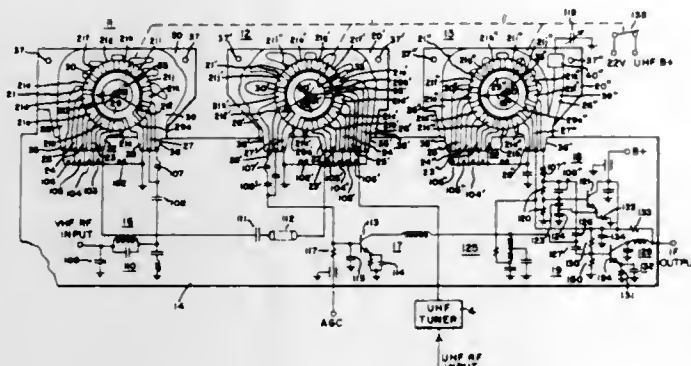
Eugene K. Von Fange and Sanjar Ghaem-maghami, Chesapeake, Va., assignors to General Electric Company, a corporation of New York

Filed Mar. 14, 1968, Ser. No. 713,236

Int. Cl. H03j 3/20, 5/24; H04b 1/16

U.S. Cl. 325-459

9 Claims



A VHF tuner for a VHF-UHF television receiver comprising three wafers mounted on a printed circuit board, each of the wafers carrying a printed conductive pattern. Two of the wafers couple an RF input section to the RF amplifier stage to double tune the input of the VHF tuner. A third of the wafers is coupled to the oscillator stage. Rotatably mounted contact means are associated with each of the wafers to engage the printed conductive pattern in 12 different VHF contact positions and 1 UHF contact position.

3,562,653 SPURIOUS RESPONSE FREE RECEIVER

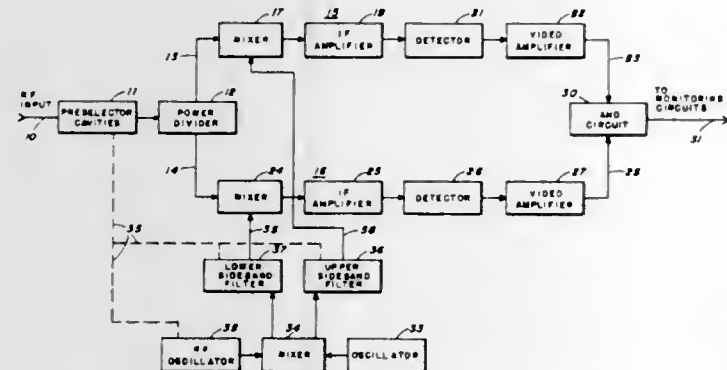
Walter Simon, California, Md., assignor to the United States of America as represented by the Secretary of the Navy

Continuation of application Ser. No. 590,140, Oct. 26, 1966. This application May 20, 1969, Ser. No. 870,143

Int. Cl. H04b 1/12

U.S. Cl. 325-475

8 Claims



A system for eliminating interference and spurious responses from the output of a radio receiver which is being used as an accurate, carefully controlled test instrument. A signal under test is fed to parallel receivers, both receivers operating with the same local oscillator to produce outputs which are compared with an AND circuit. Matching signals must be presented to the AND circuit simultaneously in order for it to pass the test signal.

3,562,654 ELECTRONIC COUNTER

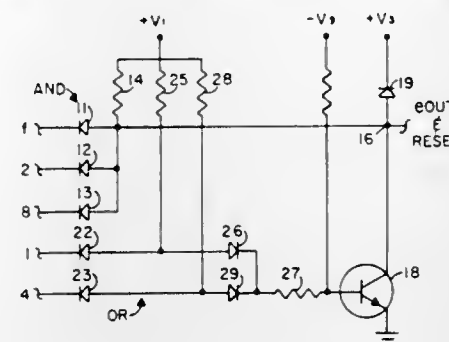
Paul L. Conant, Sr., Richardson, Tex., assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa

Filed May 21, 1968, Ser. No. 730,720

Int. Cl. H03k 21/32

U.S. Cl. 328-48

4 Claims



An electronic counter including a plurality of serially connected flip-flops with the first flip-flop connected to receive a clock input signal and the output of each flip-flop providing the trigger input to the succeeding flip-flop. Outputs of selected flip-flops, in accordance with a desired count ratio, are connected to the inputs of an AND gate, and the output of the AND gate is connected to the counter output terminal. All other flip-flop outputs are connected to the inputs to an OR gate with the output of the OR gate operatively connected to switch means for clamping off the counter output terminal.

3,562,655 TUNNEL DIODE-HOT CARRIER DIODE MONOSTABLE CIRCUIT

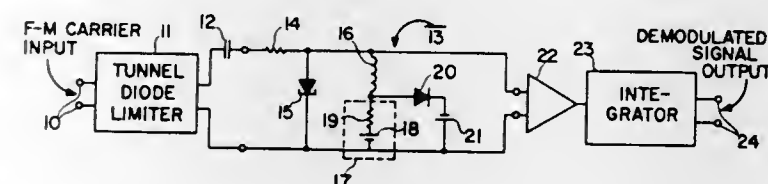
Olav Peterson, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Mar. 24, 1969, Ser. No. 809,634

Int. Cl. H03d 3/04; H03k 23/16

U.S. Cl. 329-126

2 Claims



A tunnel diode monostable circuit having improved trigger sensitivity which is achieved by biasing a non-linear load. The key element in the load is a hot carrier diode which is forward biased just below the knee of its characteristic when the circuit is in its quiescent state.

3,562,656 HYBRID SOURCE FOLLOWER AMPLIFIER

Glenn Bateman, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon

Filed Apr. 25, 1969, Ser. No. 819,360

Int. Cl. H03f 3/16, 5/00

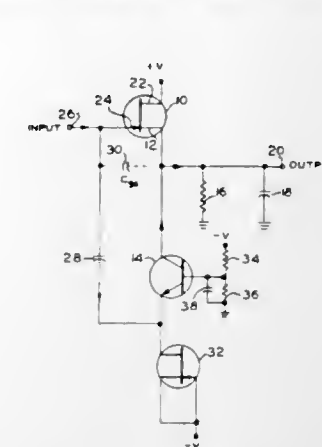
U.S. Cl. 330-3

8 Claims

A hybrid source follower amplifier is described including a field effect transistor having its source electrode connected to a capacitive load and to the collector of a bipolar transistor and having its gate electrode connected through a "feed-forward" capacitor to the emitter of such bipolar transistor. The feed-forward capacitor is equal to the load capacitance and transmits high frequency input signals from the input to the output of the amplifier through the bipolar transistor along a path

which bypasses the internal gate-to-source capacitance of the field effect transistor. This increases the high frequency response and tends to keep the voltage across

which receive their inputs from a current limiting stage and including a second stage supplying the input of the



3,562,657 PARAMETRIC AMPLIFIER CIRCUIT FOR MICROWAVE FREQUENCIES

Karl-Heinz Löcherer, Ulm (Danube), and Robert Maurer, Neureut, near Karlsruhe, Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany

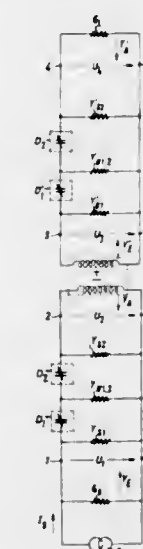
Filed May 29, 1969, Ser. No. 828,898

Claims priority, application Germany, June 1, 1968, P 17 66 501.9

Int. Cl. H03f 7/04

U.S. Cl. 330-4.9

8 Claims



A nonreciprocal parametric microwave frequency amplifier circuit composed of two mixer cascade amplifiers connected in series and presenting simultaneous power and noise matching by an appropriate selection of the electrical values of the circuit.

3,562,658 POWER AMPLIFIERS WITH COMPLEMENTARY PAIR DRIVER STAGES

John Dunn Collinson, Otley, Yorkshire, England, assignor to The Rank Organisation Limited, London, England, a British company

Filed Apr. 1, 1969, Ser. No. 811,919

Claims priority, application Great Britain, Mar. 29, 1968, 15,112/68

Int. Cl. H03f 3/18

U.S. Cl. 330-17

9 Claims

A transistor amplifier of which the output stage has two transistors driven by Darlington coupled driver transistors

first stage and having an output impedance which is less than the first stage input impedance.

3,562,659 WIDE BAND TRANSISTOR AMPLIFIERS WITH RE- DUCTION IN NUMBER OF AMPLIFYING STAGES AT HIGHER FREQUENCIES

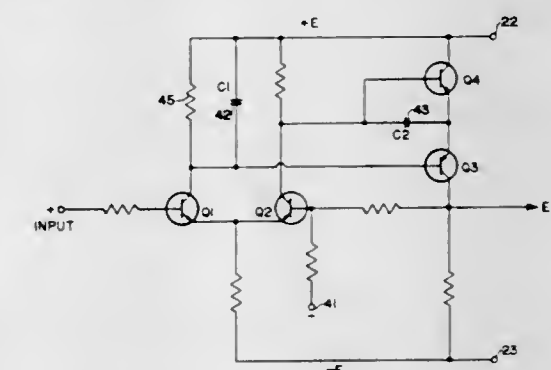
William C. Kulas, Woburn, Mass., assignor to Krohn-Hite Corporation, Cambridge, Mass.

Filed Nov. 29, 1968, Ser. No. 779,771

Int. Cl. H03f 1/08, 3/04

U.S. Cl. 330-21

11 Claims



A wide band relatively high power low distortion stable signal generator is operative over the frequency range 10 Hz. to 10 MHz. The system includes a number of amplifying stages that provide multiple stage amplification at low frequencies and single stage amplification effectively at the higher frequencies to help prevent undesired oscillation. Nonlinear feedback techniques are employed to maintain AVC stability. Feedback from the output stage is derived so that the output stage emitter resistors form a portion of the 50 ohm output impedance. A novel ladder attenuating network provides precision attenuation while presenting the same 50 ohm impedance at all attenuation levels over the frequency range.

3,562,660 OPERATIONAL AMPLIFIER

Robert A. Pease, Wilmington, Mass., assignor to Teledyne, Inc., Los Angeles, Calif., a corporation of Delaware

Filed Dec. 26, 1967, Ser. No. 693,603

Int. Cl. H03f 3/04, 3/68

U.S. Cl. 330-30

4 Claims

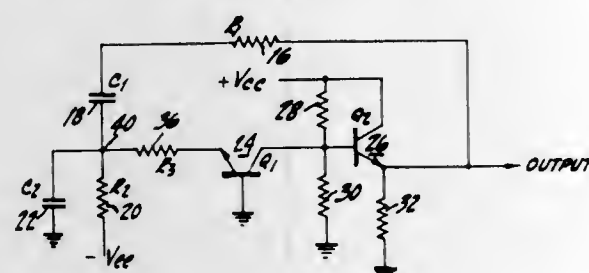
A differential operational amplifier having two input amplifier stages with independent inputs and paralleled outputs, the inputs of one stage being connectable to a low level, high impedance source, the input or inputs of the other stage being connectable to negative feedback resistors for adjusting the closed loop gain of the amplifier. The respective outputs of the stages are applied in parallel to a differential-to-single-ended amplifier stage.

as a high frequency switching circuit and it is controlled by an actuable oscillator control circuit. The operating frequency of the oscillator is controlled so as to provide a DC output level which is maintained at a predetermined level. Under a clamped condition, usually at no load, the frequency required to give this level is the lower operating frequency limit. A comparison circuit continuously compares the DC output voltage with a predetermined level set by reference setting circuit. Should the DC output voltage start to fall below the predetermined level, a voltage signal is produced by the comparison circuit. This voltage signal is directed to the oscillator control circuit to unclamp the oscillator to oscillate at a frequency necessary to restore the output voltage to the predetermined voltage level.

3,562,669
FEEDBACK TYPE OSCILLATOR WITH INPUT STABILIZING MEANS
David W. Hall II, Palm Beach, Fla., assignor to RCA Corporation, a corporation of Delaware
Filed July 1, 1968, Ser. No. 741,478
Int. Cl. H03b 5/26

U.S. Cl. 331—110

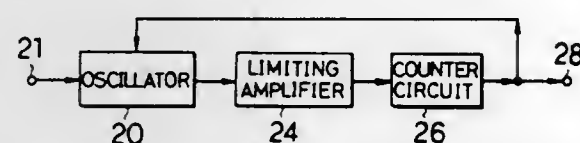
6 Claims



A feedback type oscillator has an amplifier with negligible A-C input impedance and is provided with an external input impedance to make the frequency of oscillation predictable.

3,562,670
DELAYED PULSE SIGNAL GENERATOR
Kozo Uchida, Tokyo, Japan, assignor to Iwatsu Electric Co., Ltd., Tokyo, Japan, a corporation of Japan
Filed May 8, 1969, Ser. No. 823,101
Claims priority, application Japan, May 28, 1968, 43/36,162
Int. Cl. H03k 17/28
U.S. Cl. 331—173

6 Claims



A delay pulse signal generator for generating a delayed pulse in response to an input pulse includes an oscillator which initiates oscillation when an input pulse is applied to its input terminal, and a detecting circuit which detects a predetermined number of cycles of oscillation of the oscillator and then provides the delayed pulse.

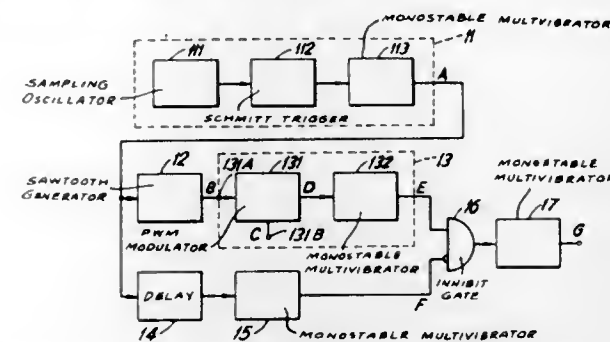
3,562,671
PULSE POSITION MODULATION COMMUNICATIONS SYSTEM INCLUDING MEANS FOR SUPPRESSING ZERO-MODULATION SIGNAL COMPONENTS
Takamichi Honma, Yasuhiro Toshitsuna, and Saburo Aoki, all % Nippon Electric Co., Ltd., Tokyo, Japan
Filed Apr. 2, 1968, Ser. No. 718,146
Int. Cl. H03k 7/04

U.S. Cl. 332—9

10 Claims

An improved pulse position modulator is described wherein selected pulses ordinarily representative of the zero signal level of the information to be transmitted

are deleted. Deletion is accomplished by generating a pulse position modulated signal representative of the information signal and having a preselected pulse repetition rate,

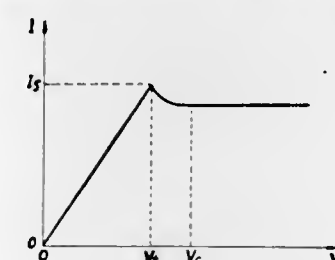


with selected portions of the pulses therefrom deleted by use of another pulse train of the same repetition rate but delayed in time by an amount corresponding to the position of the pulse to be deleted.

3,562,672
MICROWAVE PULSE-MODULATING DEVICE
Shigetoki Sugimoto and Tadahiko Sugiura, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo-to Japan
Filed Oct. 15, 1968, Ser. No. 767,651
Claims priority, application Japan, Nov. 21, 1967, 42/74,898
Int. Cl. H03c 1/14; H03k 3/31

U.S. Cl. 332—9

1 Claim

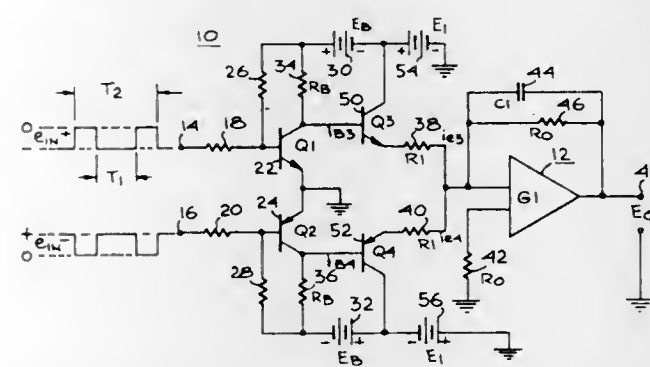


A microwave pulse modulator is described which utilizes a Gunn diode in electromagnetic variable attenuation relationship with a source of microwave energy and which is biased by a modulation voltage which varies between a maximum and a minimum value with the maximum level being chosen larger than the threshold voltage of the diode and the minimum level being chosen below the threshold level.

3,562,673
PULSE WIDTH MODULATION TO AMPLITUDE MODULATION CONVERSION CIRCUIT WHICH MINIMIZES THE EFFECTS OF AGING AND TEMPERATURE DRIFT
Frederick W. Caspari, South Bend, Ind., assignor, by mesne assignments, to Allen-Bradley Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Aug. 16, 1968, Ser. No. 763,479
Int. Cl. H03k 7/10

U.S. Cl. 332—31

10 Claims

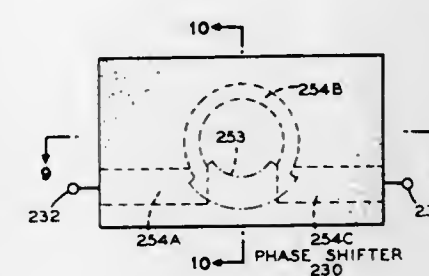


The adverse effects on the operation of a pulse width modulation to amplitude modulation conversion circuit

caused by noise signals and changes in temperature are considerably minimized by the insertion of circuitry, in accordance with this invention, into the driving circuit of said pulse width modulation to amplitude modulation conversion circuit.

3,562,674
BROADBAND MICROWAVE PHASE SHIFTER UTILIZING STRIPLINE COUPLER
Carl W. Gerst, Skaneateles, N.Y., assignor to Anaren Microwave Incorporated, Syracuse, N.Y., a corporation of New York
Filed June 17, 1968, Ser. No. 737,745
Int. Cl. H01p 1/18, 5/14
U.S. Cl. 333—10

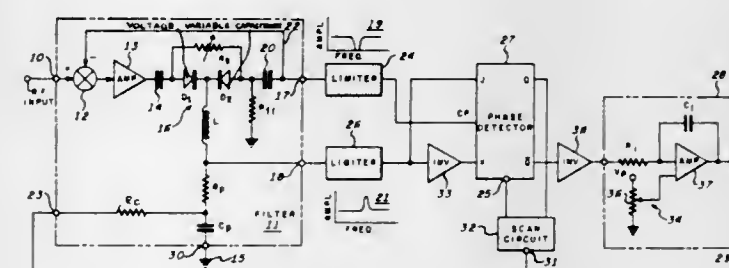
11 Claims



A two-port microwave-signal phase shifter utilizes stripline technology. The phase shifter comprises a first signal conductor printed in the form of a closed loop on one side of a dielectric sheet. Printed on the other side of the sheet is a second signal conductor overlying the first signal conductor and similarly contoured. However, the second signal conductor is an open loop. The ends of the second signal conductor are the signal terminals. Disposed against each of the signal conductors is a sheet of dielectric material having a conductive layer on its face remote from the signal conductor.

3,562,675
AUTOMATIC TUNED INTERFERENCE SIGNAL REJECTION FILTER INCLUDING DRIFT COMPENSATION MEANS
William J. Urell, Norwalk, Conn., assignor to Sperry Rand Corporation, a corporation of Delaware
Filed May 16, 1969, Ser. No. 825,363
Int. Cl. H03g 5/28
U.S. Cl. 333—17

19 Claims

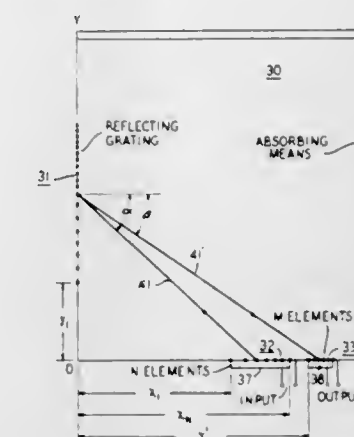


An automatic tuning filter apparatus for rejecting an interference signal applied thereto including a bridged-T network having a frequency response characteristic such that it provides narrow band rejection at a first output terminal and narrow band pass at a second output terminal, the relative phase of the interference signals at the respective output terminals being determined according to whether the filter is tuned above or below the frequency of the interference signal. A phase detector responsive to the output signals drives an integrator to produce a control signal for adjusting the capacitance of varactor diodes incorpo-

rated in the filter so as to tune the filter to the interference frequency.

3,562,676
FOLDED PATH PERPENDICULAR DIFFRACTION DELAY LINE
Marsena R. Parker, Jr., Matawan, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Dec. 18, 1967, Ser. No. 691,304
Int. Cl. H03h 7/30
U.S. Cl. 333—30

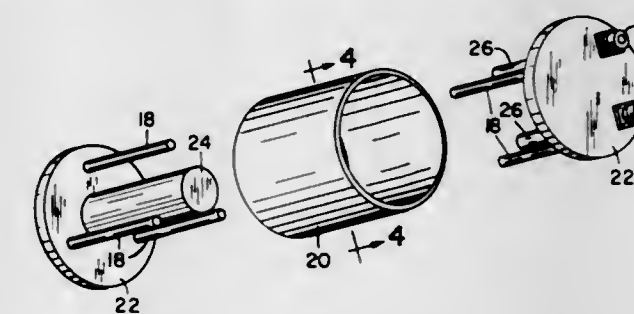
7 Claims



An intermediary graded grating is positioned in the beam path between the input and output gratings usually found in a perpendicular diffraction delay line. The intermediary grating intercepts the beams and rediffracts desired orders of them to the output grating at angles different from their angles of incidence without loss of the inherent averaging properties of the perpendicular diffraction delay line. The intermediary grating may be either reflecting or transmitting.

3,562,677
CYLINDRICAL BAND-PASS INTERDIGITAL AND COMB-LINE FILTERS
Leslie C. Gunderson, Raleigh, N.C., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Nov. 22, 1968, Ser. No. 778,201
Int. Cl. H03h 7/10
U.S. Cl. 333—73

9 Claims



Cylindrically shaped interdigital and comb-line band-pass filters for VHF and UHF communications systems having a cylindrically shaped housing which forms a first equipotential surface, a cylindrical member within the housing which forms a second equipotential surface, and plural resonator elements capacitively coupled to one another and accurately distributed within the housing between the two equipotential surfaces. The filter structure is compact and has greater volumetric efficiency than conventional interdigital filters having the same frequency range and band-pass.

3,562,678

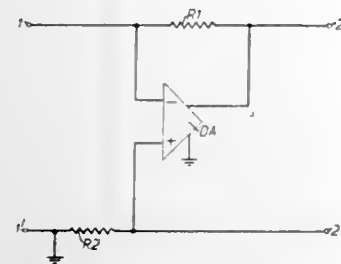
ELECTRICAL IMPEDANCE NETWORKS

Andreas Antoniou, Hounslow, England, assignor to Her Majesty's Postmaster General, London, England
Filed Apr. 30, 1968, Ser. No. 725,416
Claims priority, application Great Britain, May 4, 1967, 20,882/67

Int. Cl. H03h 7/44

U.S. Cl. 333—80

13 Claims



Two port electrical impedance networks in the form of a bridge circuit having opposite pairs of arms, a first pair of which exhibit electrical resistance and the other pair forming, respectively, the input and output ports of a high gain amplifier. The amplifier can be a voltage or current source and may be voltage controlled or current controlled. Negative impedance inverters and gyrators are described which use operational amplifiers, i.e. voltage controlled voltage sources having, ideally, infinite input impedance and zero output impedance. In the negative impedance inverters, the first pair of arms of the bridge both exhibit positive electrical resistance and in the gyrators one arm of the first pair of arms exhibits negative resistance (e.g. by use of a negative impedance converter) and the other exhibits positive resistance. The use of the gyrators to convert an inductance into a capacitance and to convert a capacitance into an inductance is described and direct-coupled gyrators having varying quality and bandwidth can be produced using commercially available integrated circuits.

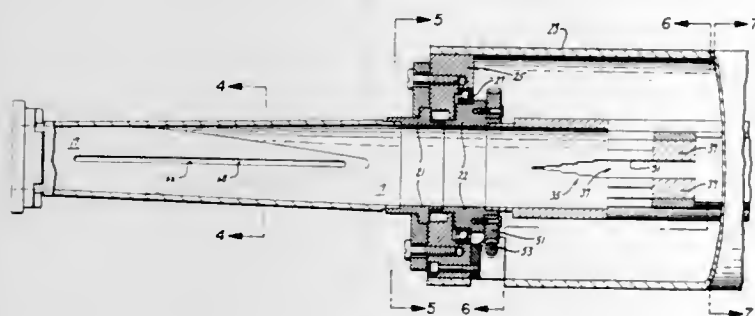
3,562,679

ROTARY WAVEGUIDE ATTENUATOR HAVING ENERGY ABSORBING SLOTS

Franklin S. Coale, Pasadena, and William L. Wallick, Van Nuys, Calif., assignors to Systron-Donner Corporation, Concord, Calif., a corporation of California
Filed May 26, 1969, Ser. No. 827,730
Int. Cl. H01p 1/22

U.S. Cl. 333—81

7 Claims



Rotary-type variable waveguide attenuator using current interrupting slots in a circular waveguide section which is rotatable with respect to the microwave field orientation and currents carried by the section. Lossy parallel plate transmission lines are coupled to the slots.

3,562,680

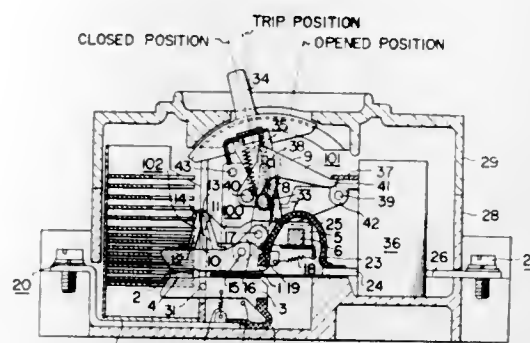
CIRCUIT BREAKER

Ryoji Ozaki, Kunio Igarashi, and Kiyoshi Kandatsu, Kawasaki-shi, Kanagawa-ken, Japan, assignors to Fuji Denki Seizo Kabushiki Kaisha, Kanagawa-ken, Japan
Filed Sept. 17, 1969, Ser. No. 858,768

Int. Cl. H01h 77/10

U.S. Cl. 335—16

8 Claims



The circuit breaker assembled in a molded casing includes for each pole thereof two contacting members having contacting points at their tips, the two contacting members being so arranged that an electromagnetic repulsive force is created therebetween when a current passes through the contacting members and the contacting points at the time the circuit breaker is closed, at least one of said contacting members being further provided with current limiting engagement parts, which are released when the current passing through the circuit breaker exceeds a predetermined value. Upon disengagement of the engagement portions, the contacting members are abruptly separated by the electromagnetic repulsive force, and the current passing through the breaker is interrupted. The engagement parts are reengaged when the contacting members are opened at their maximum opening positions by means of, for instance, a conventional tripping mechanism.

3,562,681

INDICATOR DEVICE WITH MAGNETIC SWITCH CLOSURE

Richard J. Binder, 220 Cannonbury Drive, St. Louis, Mo. 63119
Filed Dec. 11, 1968, Ser. No. 798,841

Int. Cl. H01h 73/12

U.S. Cl. 335—17

8 Claims



A movable magnet carrying member; a dial having one or more switches in the path of the moving magnetic field produced by the moving magnet. The switches are actuated in response to the presence of a sufficiently high magnetic field to operate a control circuit. The dial is movable to vary the locations of the switches.

3,562,682

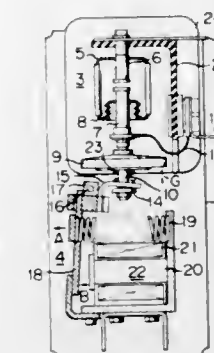
VACUUM SWITCHING APPARATUS

Katsuo Ohwada and Noriyuki Ichihara, Tokyo, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan, a corporation of Japan
Filed June 10, 1969, Ser. No. 831,951
Claims priority, application Japan, June 10, 1968, 43/39,550; Sept. 10, 1968, 43/64,798

Int. Cl. H01h 9/30

U.S. Cl. 335—201

7 Claims



A vacuum switching apparatus having a stationary contact member and movable contact member disposed in a vacuum vessel which is so designed as to use a pressure equal to a difference between the interior pressure of the vessel and the atmospheric pressure in urging the movable contact member into the vessel for contact with the stationary contact member, characterized in that the force of closing the movable contact member, the force of a reset spring means for releasing the movable contact member by means of an operating lever engaging said member, the initial attracting force of an electromagnetic device for disengaging said member and the attracting force with which the contact element of said electromagnetic device is attached to said member are all kept in a prescribed relationship in order to prevent the release of the movable contact member which might occur due to the broken vacuum of the vessel at the time the movable contact member is closed for contact with the stationary member and also prevent the sucking of the movable contact member which might be caused by said broken vacuum when both contact members are disengaged from each other.

3,562,683

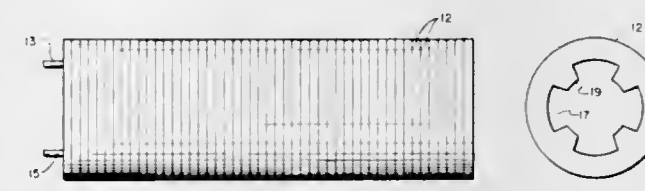
QUADRUPOLE FOCUSING OF ELECTRON BEAMS

Charles M. De Santis, Neptune, N.J., and Bruno Zotter, Geneva, Switzerland, assignors to the United States of America as represented by the Secretary of the Army
Filed Apr. 7, 1969, Ser. No. 814,023

Int. Cl. H01f 5/00

U.S. Cl. 335—213

3 Claims



A focus coil assembly comprises four intertwined helices surrounding an electron beam to-be-focused. Oppositely directed currents in adjacent helices produce a continuous and distributed quadrupole magnetic focusing field. Field concentration can be achieved by means of a magnetic yoke surrounding the helix assembly.

3,562,684

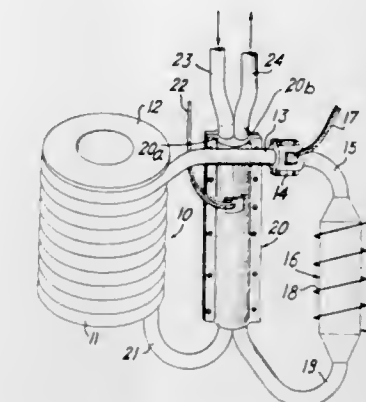
SUPERCONDUCTIVE CIRCUIT

Jean Sole, Clamart, France, assignor to Commissariat a l'Energie Atomique, Paris, France
Filed Mar. 6, 1969, Ser. No. 804,853
Claims priority, application France, Mar. 15, 1968, 143,930, 143,931

Int. Cl. H01f 7/22

U.S. Cl. 335—216

10 Claims



A superconductive circuit, characterised in that it comprises at least one winding of a conductive element of superconductive material having an outer electrically insulating sheathing, the said element being in the form of a continuous hollow tube in which a cooling fluid flows in the immediate vicinity of the said superconductive material and a member for electrically connecting the ends of the said element, said member connecting the said ends by their outer surface where there is no sheathing and leaving the inlet and outlet for the said cooling fluid for the said element independent of one another.

3,562,685

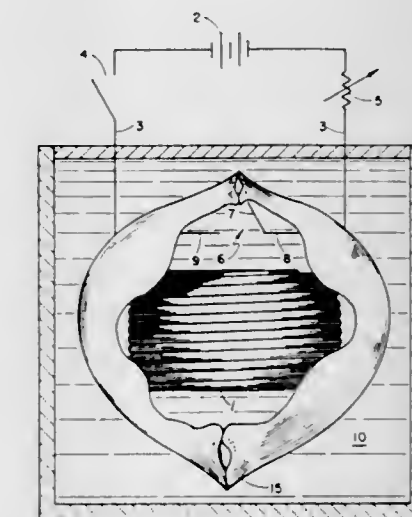
FOIL WRAPPED SUPERCONDUCTING MAGNET

Jacob L. Zar, North Andover, Mass., assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware
Original application Sept. 28, 1967, Ser. No. 671,441, now Patent No. 3,530,682, dated Sept. 29, 1970. Divided and this application June 24, 1969, Ser. No. 844,244

Int. Cl. H01f 7/22

U.S. Cl. 335—216

2 Claims



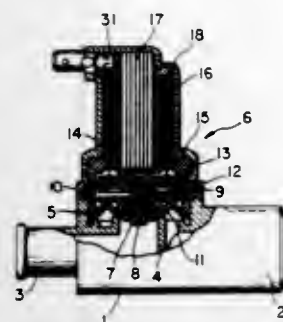
A superconducting device and method of cooling same wherein the magnet is enclosed in a material that functions as a condenser during cool down of the device. During cool down, liquids, solid contaminants and the like condense on the condenser material during final cool down.

3,562,686

MAGNETIC VALVE INCORPORATING A FLAT ARMATURE

Alwin Borschers, Flensburg, Germany, assignor to Danfoss A/S, Nordborg, Denmark, a company of Denmark
 Filed June 20, 1969, Ser. No. 835,184
 Int. Cl. H01f 3/00, 7/08
 U.S. Cl. 335—279

8 Claims



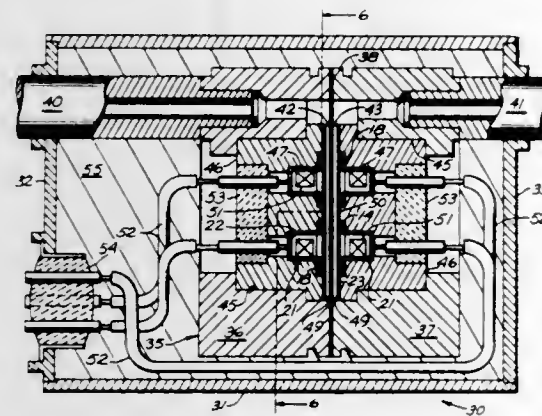
A magnetic valve assembly having a specially formed one piece frame which forms a valve chamber and a hollow coil support. The coil support has a coil wound thereon and also provides supporting structure for an E-shaped magnet. The frame has channels or grooves for receiving the two ends of the coil and pockets for receiving the two ends of the coil and pockets for receiving connecting lugs. The frame with the associated coil and magnet is surrounded with a form fitting plastic envelope which is applied with a molding operation.

3,562,687

VARIABLE-RELUCTANCE TRANSDUCER AND MAGNETIC CORE

John R. Tavis, Mariposa, Calif., assignor, by mesne assignments, to Tavis Corporation, Mariposa, Calif., a corporation of California
 Filed June 23, 1969, Ser. No. 835,522
 Int. Cl. H01j 21/02
 U.S. Cl. 336—30

10 Claims



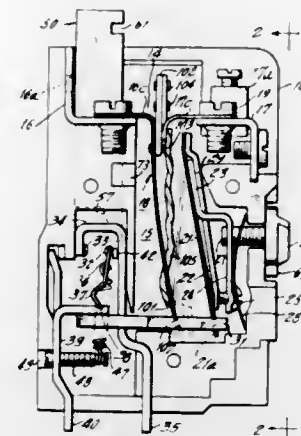
A magnetic core for a variable-reluctance transducer, and having a geometry which minimizes leakage magnetic flux for improved transducer sensitivity and linearity. Slender spaced-apart legs extend radially from a center pole to define a U-shaped channel in which an energizing coil is fitted. Enlarged arcuate tabs extend laterally from the ends of the legs to form a segmented outer pole of the core. When assembled in a transducer adjacent a movable armature spaced therefrom by a variable air gap, the core has very low iron-path reluctance, and an air-gap reluctance which is substantially lower than the leakage-path reluctance.

3,562,688

QUICK TRIP OVERLOAD RELAY HEATERS

Frank W. Kussy, Birmingham, and David A. Pickett, Warren, Mich., assignors to I-T-E Imperial Corporation, Philadelphia, Pa., a corporation of Delaware
 Filed Oct. 28, 1968, Ser. No. 771,105
 Int. Cl. H01h 61/13, 71/16, 71/52
 U.S. Cl. 337—62

14 Claims



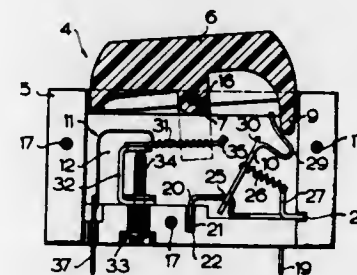
A normal overload relay having a bimetal tripping means is provided with a replaceable quick trip heater for the bimetal, such heater is so constructed that the tripping bimetal is quick acting under extreme fault conditions, yet under normal fault conditions the tripping bimetal acts relatively slowly to trip the relay in a normal manner. The quick trip heater is constructed with a directly heated bimetal which deflects very rapidly upon the occurrence of severe fault conditions. If the fault is severe enough the heater bimetal physically engages the tripping mechanism directly to operate the latter much more rapidly than the tripping bimetal would when deflecting solely as a result of heat absorbed thereby.

3,562,689

SWITCH UNIT, ESPECIALLY TOGGLE SWITCH UNIT

Siegfried Bar, Schalksmühle, Westphalia, Germany, assignor to Bar Elektrowerke GmbH, Schalksmühle, Westphalia, Germany
 Filed Apr. 23, 1969, Ser. No. 818,604
 Claims priority, application Germany, Apr. 25, 1968, P 17 63 252.9; Nov. 13, 1968, P 18 08 524.0
 Int. Cl. H01h 71/14
 U.S. Cl. 337—77

14 Claims



A switch unit in which a pair of contact means movable between an open and a closed position are arranged in a pair of chambers formed in a socket, in which an operating member cooperates with one of said contact means to move the same between the open and the closed position and with the other contact means to move the latter to the closed position, and in which heat-responsive means cooperate with the other of the contact means to move the latter from the closed to the open position when overload occurs in the circuit connected to the contact means. The unit may also include a signal lamp

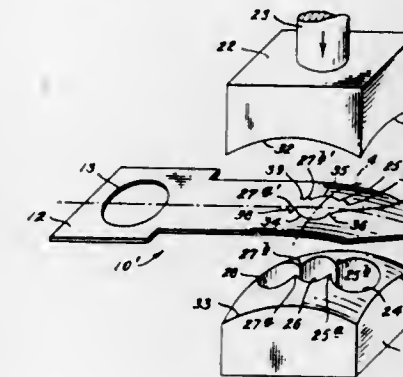
mounted on the operating member and the signal lamp may be connected to the contact means in such a manner that the lamp is energized either when the other contact means are in the open or when they are in the closed position.

3,562,690

SNAP-ACTING THERMOSTATIC ELEMENT AND METHOD FOR MAKING SAME

Hamlet D. Vezza, Seekonk, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
 Filed Apr. 28, 1969, Ser. No. 819,868
 Int. Cl. H01h 37/54, 71/16
 U.S. Cl. 337—89

9 Claims



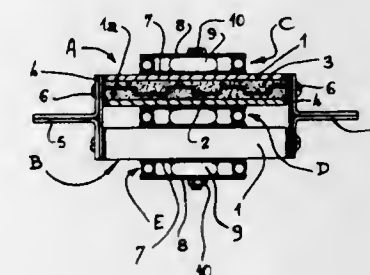
A thermally responsive multimetalllic element formed with a dished area to make it snap-acting is provided with a plurality of deformations formed in pairs in the dished portion of the strip with each pair comprising two points and ridge connecting each point in a pair with a corresponding point in the adjacent pair. These deformations enhance the snap characteristics of the element and reduce creep prior to snap action of the element from one configuration to another at a critical temperature.

3,562,691

FUSE CARTRIDGES

Jean Pierre Cinquin, Lyon, France, assignor to Lucien Ferraz & Cie., Lyon, France, a French joint-stock company
 Filed Sept. 16, 1969, Ser. No. 858,283
 Claims priority, application France, Sept. 27, 1968, 50,437
 Int. Cl. H01h 85/02
 U.S. Cl. 337—185

9 Claims



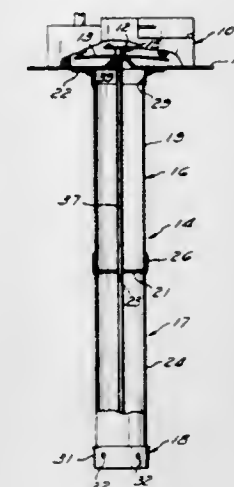
Fuse cartridges devices comprising relatively flat insulating body having parallel perforations in which the fusible strips are disposed, these strips connecting electrically two end plates disposed against two opposed sides of the insulating body to form the terminals of the cartridge. Cooling plates are applied against the preferably metallized major faces of the body and means are provided to dissipate the heat which the cooling plates receive from the insulating body. These heat-dissipating means may be in the form of water-cooled coils or of air-cooled fins. In a modification the cooling plates are in heat-conducting contact with one of the end plates, adapted to be itself applied in heat-conducting contact against a cooled current-carrying bar.

3,562,692

THERMOSTAT ASSEMBLY

Howard W. Bletz and Donald J. Schmkt, Mansfield, Ohio, assignors to Therm-O-Disc, Incorporated, Mansfield, Ohio, a corporation of Ohio
 Filed May 22, 1969, Ser. No. 826,937
 Int. Cl. H01h 37/04, 37/34, 37/54
 U.S. Cl. 337—354

18 Claims



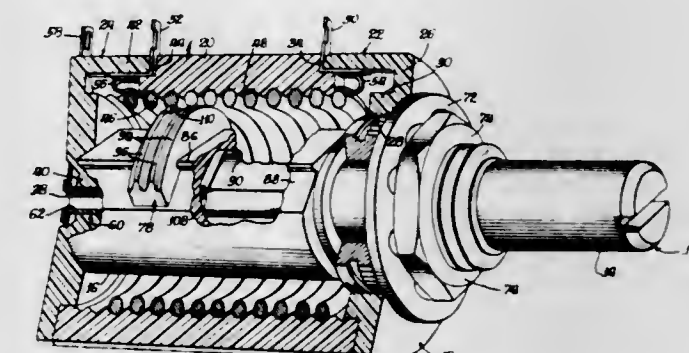
A bi-metallic snap disc operated thermostat wherein the disc is mounted by means of a tubular extension at a location remote from the switch body assembly. The tubular extension is formed by one or more substantially similar tubular members having an apertured end wall at one end. The disc retainer cap is mounted on the end wall end of the adjacent tubular member and an elongated operating rod extends along the tubular extension through the apertured end wall from the disc to the switch body. The thermostat may be assembled in combination with a second high-limit thermostat, an anticipator heater, or both without modifying the tubular extension structure.

3,562,693

PRECISION POTENTIOMETER

Dale Allen Henning, Janesville, Wis., assignor to The Bunker-Ramo Corporation, Oak Brook, Ill., a corporation of Delaware
 Filed Jan. 24, 1969, Ser. No. 793,785
 Int. Cl. H01c 5/02
 U.S. Cl. 338—149

8 Claims

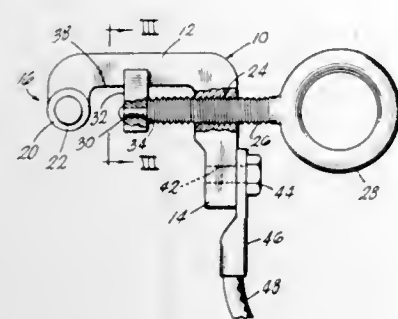


A precision potentiometer, including a housing with a coil resistance element therein, a unitary plastic rotor member having a shaft element and a hollow rotor element, a carrier axially slidable on the rotor element, an output contact bar within the hollow rotor element, a slider contact on the carrier slidably engaging the resistance element and extending through a slot in the rotor element and slidably engaging the output contact bar.

3,562,694
ELECTRICAL GROUNDING CLAMP
 Philip T. Howe, 4939 Warsaw Drive,
 Jackson, Mich. 49201
 Filed Jan. 26, 1970, Ser. No. 5,530
 Int. Cl. H01r 7/08

U.S. Cl. 339—14

7 Claims

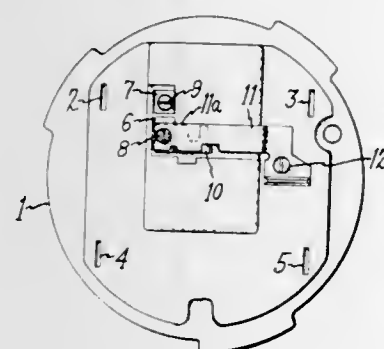


A clamp for temporarily grounding an electrical terminal, which may be remotely operated by insulated means, if desired, utilizing an elongated head having terminal engaging portions located at its ends, and a movable clamping element associated with the head for engaging the terminal and clamping the head into a firm supporting and electrical conducting relationship with the terminal.

3,562,695
TERMINAL AND BUS BAR CONSTRUCTION FOR WATT-HOUR METERS
 Ernest B. Shackford, Berwick, Maine, assignor to General Electric Company, a corporation of New York
 Filed Jan. 31, 1969, Ser. No. 795,591
 Int. Cl. H01r 29/00

U.S. Cl. 339—31

12 Claims



A pair of interlocking bus bars are provided for a watt-hour meter to eliminate risk of short circuiting meter components when one of the bus bars, which has an integral terminal on it, is connected to the meter to convert it from a four terminal meter to a five terminal meter. The interlocking means of the respective bus bars prevent the fifth terminal from being placed in operating position while the first bus bar is serving as a test link connected between two terminals on the meter base plate.

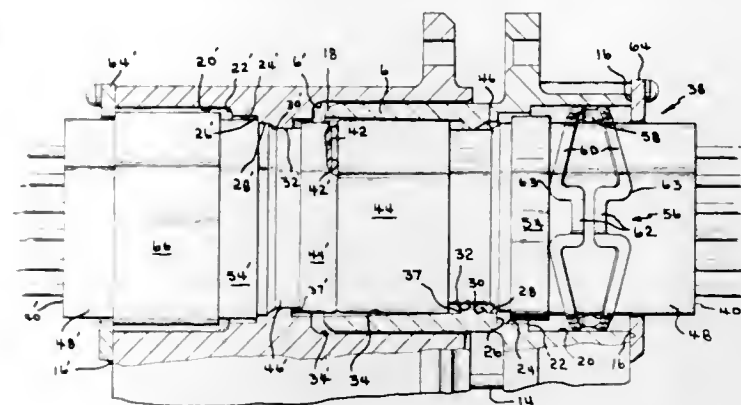
3,562,696
MULTICONTACT CONNECTOR HAVING IMPROVED INSERT
 Harry Edward Barnhart, Hummelstown, and Gilbert Douglas Ferdon, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
 Filed Jan. 17, 1969, Ser. No. 791,977
 Int. Cl. H01r 13/52

U.S. Cl. 339—60

1 Claim

Multicontact electrical connector part, which is engageable with a complementary connector part, has a shell member and an insert in the shell. The insert is axially movable, to a limited extent, in the shell and is resiliently

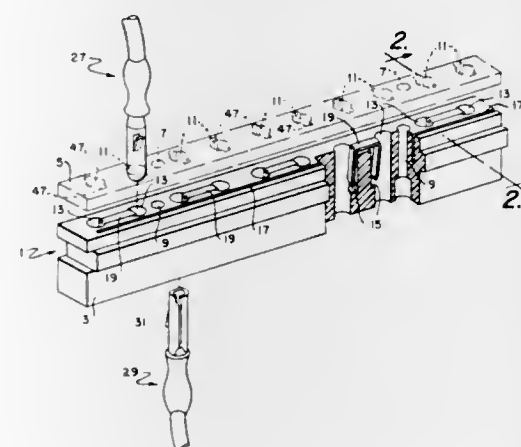
biased in the direction of the mating face of the insert. When the connector part is mated with the complimentary part, and the mating face of the two connector parts



3,562,697
PIN CONTACT AND CONNECTOR BLOCK THEREFOR
 James Francis Gillespie, Palmyra, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
 Filed Sept. 16, 1968, Ser. No. 759,968
 Int. Cl. H01r 9/00

U.S. Cl. 339—198

4 Claims



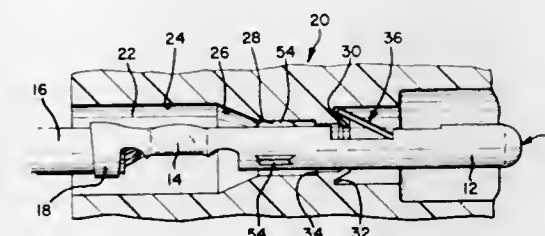
The disclosure relates to a connector block and a pin contact therefore, the connector block including top and body portions, the body portions having a plurality of apertures therethrough with spring contacts bridging predetermined adjacent pairs of the apertures. The body portion of the connector block includes a groove therein running adjacent all of the apertures conductive members such as a copper strip with fingers being positioned in the groove, the copper strip interconnecting predetermined ones of the spring contacts to provide a connecting pattern. An external connector member can also be provided which connects to the conductive members in the groove and extends outwardly or externally of the connector block. The top portion of the connector block includes apertures aligned with the apertures of the body portion and of the same diameter as the apertures thereof except that the bottom portion of the walls thereof include a stopping member in the form of steps and the top portion includes a pair of inwardly extending shoulders with sufficient room between shoulders to receive pin contact tynes. Also included is a pin contact for mating with the connector block having a pair of tynes

whereby the pin contact can be inserted into the connector block apertures between the shoulders and rotated by ninety degrees to provide a locking action therein with the shoulders. Rotation of the pin contact is possible in only one direction due to the stopping member therein.

3,562,698
ELECTRICAL CONTACT
 Roydon William Merry, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
 Filed Feb. 27, 1969, Ser. No. 802,808
 Int. Cl. H01r 9/00

U.S. Cl. 339—217

2 Claims

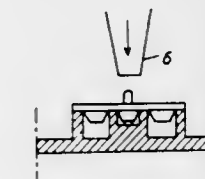


An electrical contact terminal having a forward mating portion and a rearward conductor attaching portion. A lance is struck from the mating portion for securing said terminal within an insulating housing, said lance being disposed partially within the confines of the terminal mating portion to provide strength and protection for the lance.

3,562,699
ELECTRIC CONTACT AND BASE PLATE ASSEMBLY
 Leif Branden and Arne Karl Ryr, Tyreso, Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden, a corporation of Sweden
 Filed Apr. 17, 1968, Ser. No. 722,115
 Claims priority, application Sweden, June 2, 1967, 7,730/67
 Int. Cl. H01r 9/14, 5/06; F11b 19/04

U.S. Cl. 339—220

1 Claim



A thermoplastic base plate with at least two recesses, one of which has a projection extending therefrom, has a contact piece of metal connected thereto. The contact piece has at least two apertures, one of which encircles the projection of the base plate, and is fastened to the base plate by means of riveting the projection to the contact piece.

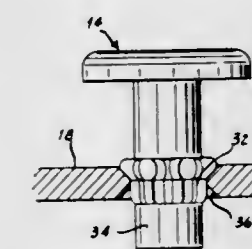
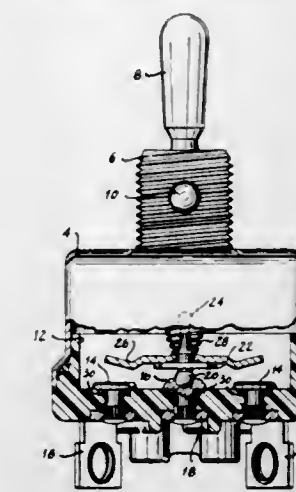
3,562,700
ELECTRICAL CONTACT-TERMINAL ASSEMBLY
 Richard G. Miller, Milwaukee, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
 Filed Sept. 29, 1969, Ser. No. 861,872
 Int. Cl. H01r 9/14, 5/08

U.S. Cl. 339—220

3 Claims

The shank of an electrical contact rivet for an electrical switch is formed with an intermediate splined portion, the major diameter of which is greater than either the

shank or the cooperating terminal opening. The splined portion is upset when the terminal is driven upon the

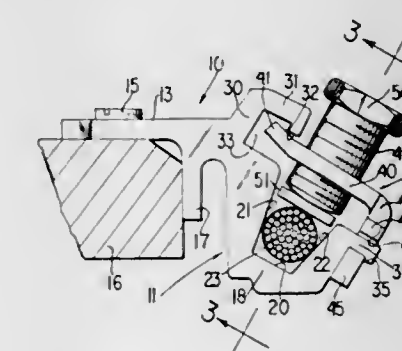


shank to form a seat against which the terminal is subsequently riveted to form a good electrical and mechanical connection irrespective of any other element.

3,562,701
CABLE CONNECTOR
 Harley J. Orr, Bedford, N.H., assignor to Sola Basic Industries, Inc., Milwaukee, Wis., a corporation of Wisconsin
 Filed May 15, 1968, Ser. No. 729,176
 Int. Cl. H01r 7/12

U.S. Cl. 339—272

2 Claims



A cable connector comprising a body portion having a top plate adapted to be secured to an insulating block, and a depending channel portion at one end, the sides of the channel being tapered downwardly and inwardly for the reception of a cable end, a recessed lug projecting upwardly at one side of the channel, and having a downwardly turned flange, and a second lug projecting outwardly from the opposite side edge of the channel and having a depending flange with a central slot therein. An L-shaped cap having a first leg with an angularly offset end portion which extends into the recess of the recessed lug, and a second leg having a slot therein which coacts with the central slot in the depending flange of the second lug defining a protuberance at the end of the second leg which seats beneath the second depending flange, a threaded bore in the first leg, and a cable clamping screw rotatable in the threaded bore.

3,562,702

DIES AND ROLL MANUFACTURE BY ELECTROEROSION

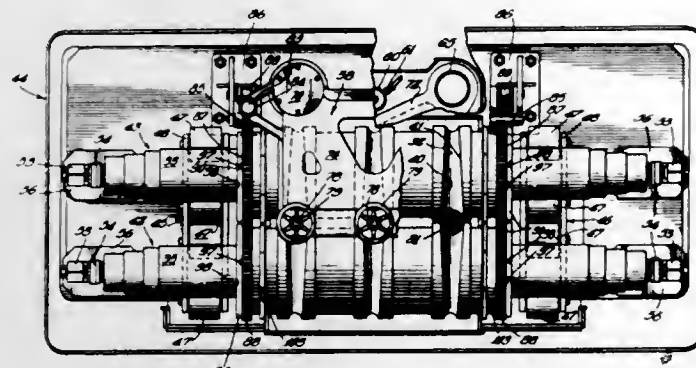
Michael J. Celovsky, Detroit, Mich., assignor to Industrial Tool Engineering Company, Detroit, Mich., a corporation of Michigan

Original application Sept. 13, 1965, Ser. No. 486,652, now Patent No. 3,435,174, dated Mar. 25, 1969. Divided and this application Oct. 17, 1968, Ser. No. 785,425. The portion of the term of the patent subsequent to Sept. 15, 1981, has been disclaimed

Int. Cl. B23p 1/08

U.S. Cl. 219—69

7 Claims



A method of forming a tube reducing tool comprising the step of forming a tool blank of steel having a roll portion and drive shaft portion. The roll portion is processed to form a series of spaced roll blanks along the length of the tool which is then heat treated to a hardened state. Thereafter, electrodes are positioned in lateral tangency to and generally beside the steel roll blanks to be machined. The electrodes are then caused to emit an electrical spark discharge while causing a tangential surface of the roll blanks to move along the length of the electrodes establishing a cutting zone along the tangential surfaces opposed to the electrodes forming tapered grooves extending generally in arcuate directions therein.

3,562,703

ECHO SOUND PULSE RECEIVING AND PROCESSING APPARATUS

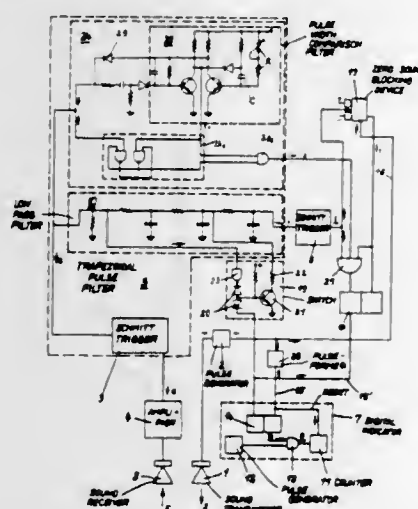
Walter Grada, Bremen, Germany, assignor to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Germany

Filed July 23, 1969, Ser. No. 843,996. Claims priority, application Germany, Aug. 3, 1968, P 17 66 882.5

Int. Cl. G01s 9/68

U.S. Cl. 340—3

9 Claims



An echo sounding arrangement using both amplitude and width filtering for distinguishing between bottom echoes and echoes from submerged floating objects whose dimensions are less than a predetermined amount.

3,562,704

OFFSET CONTROL SYSTEM FOR TRAFFIC SIGNAL

Shunsuke Iwamoto, Hiroo Watanabe, and Tadao Endo, Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan, a corporation of Japan

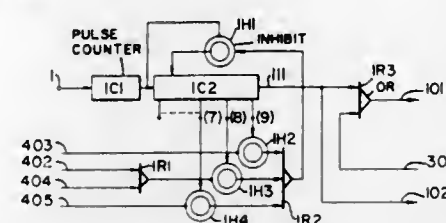
Continuation of application Ser. No. 569,495, Aug. 1, 1966. This application Sept. 17, 1969, Ser. No. 859,481

Claims priority, application Japan, July 30, 1965, 40/46,489

Int. Cl. G08g 1/00

U.S. Cl. 340—40

11 Claims



This invention relates to an offset control system for traffic signals. A system is disclosed which includes a separate controller for each local signaling device, with a master controller being coupled with each local controller and operative to provide synchronizing signals thereto. The system uses pulse generating and counting circuits to accomplish selected adjustments for the offset of individual controllers. Circuit details for a preferred embodiment of the invention are provided.

3,562,705

PORTABLE ADJUSTABLE TRAFFIC CONTROL SIGNAL LIGHT DEVICE

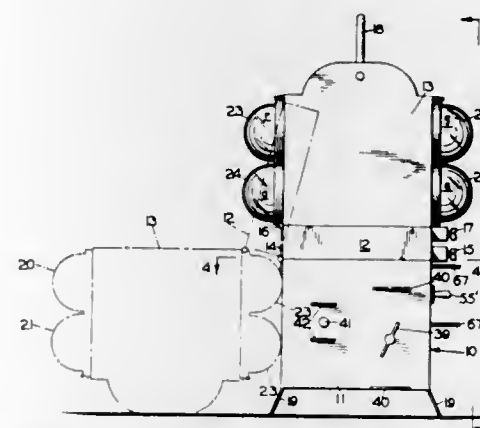
Ernest L. Paris, 126 SE. Garfield, Camas, Wash. 98607

Filed June 7, 1968, Ser. No. 735,289

Int. Cl. G08g 1/085, 1/095

U.S. Cl. 340—41

1 Claim



A portable battery-operated traffic light signal device having red, green and amber signal lights on each of two opposite faces, the six lights connected in pairs on three circuits with a red and a green light on opposite faces in each of two circuits and the amber lights on opposite faces in the third circuit; continuously operating circuit alternating means; and manually operable switch assemblies for causing each circuit separately to be turned permanently on or off or for causing all three circuits to be operated intermittently through said alternating means.

3,562,706

VEHICLE SELF LEVELING VIBRATION SENSITIVE ALARM DEVICE

Barry D. Mason, 2037 Hollywood Way, Burbank, Calif. 91505

Filed Feb. 12, 1968, Ser. No. 704,708

Int. Cl. B60r 25/10

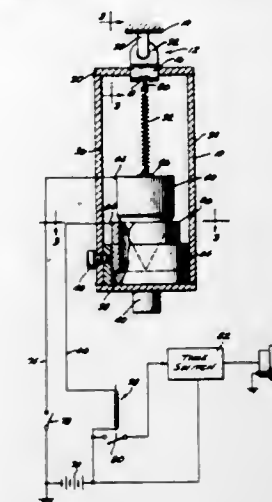
U.S. Cl. 340—65

7 Claims

An automatic alarm comprising an electronic alarm system and a self leveling contact mechanism which includes a vibration sensitive pendulum contact member

and a levelable contact member which is adjustable relative to the pendulum contact. The electrical system is

exposure to nuclear radiations and other transient conditions, comparing the temporarily stored data signals with later received data signals to determine the amount



energized when the two contact members make electrical contact, which then sounds an alarm such as an automobile horn.

3,562,707

DIRECTION INDICATOR SYSTEMS FOR TRACTOR-TRAILER VEHICLES

Eric Bernard Parkes, Selly Oak, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England, a British company

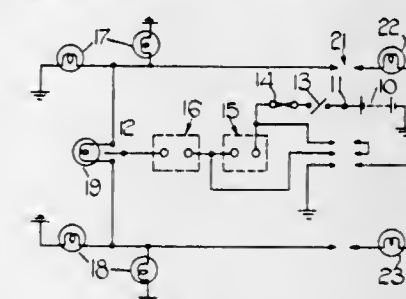
Filed Aug. 21, 1968, Ser. No. 754,245

Claims priority, application Great Britain, Aug. 25, 1967, 39,247/67

Int. Cl. B60g 1/38

U.S. Cl. 340—81

3 Claims



A direction indicator system for a tractor-trailer vehicle includes a switch on the tractor for energizing the tractor lamps by way of a circuit including first and second flasher units, the first flasher unit only being operative when the tractor lamps alone are energized because the current flow through the second flasher unit is insufficient to energize it. When the trailer is coupled the first flasher unit is short-circuited and the second flasher unit alone operates.

3,562,708

DEVICE TO ELIMINATE UNDESIRABLE TRANSIENT EFFECTS ON COMPUTER OPERATIONS AND THE LIKE

Lawrence E. Verbarg, Kirkwood, Mo., and Allan J. Summers, deceased, late of Kirkwood, Mo., by Rozema L. Summers, administratrix, Kirkwood, Mo., assignors to McDonnell Douglas Corporation, St. Louis County, Mo., a corporation of Maryland

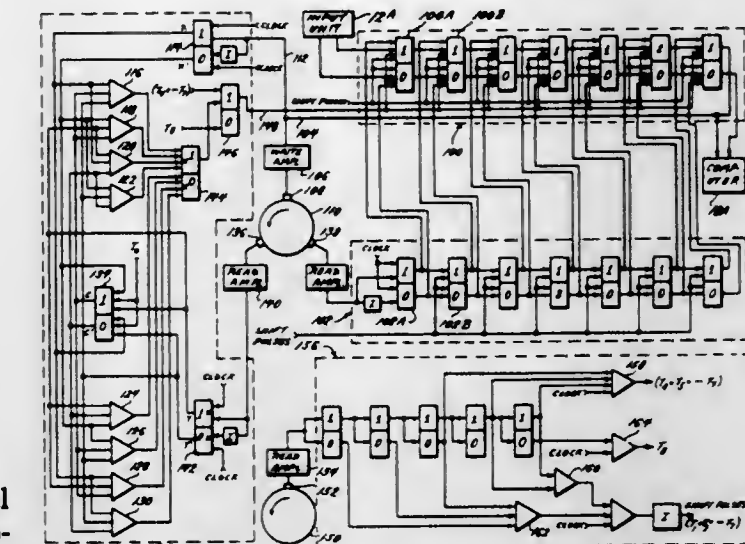
Continuation-in-part of application Ser. No. 299,119, July 31, 1963. This application June 24, 1968, Ser. No. 740,833

Int. Cl. G06f 11/00; G11c 7/02

U.S. Cl. 340—146.1

10 Claims

A device for preventing data signals that may be adversely affected by exposure to nuclear radiations or other transient conditions from replacing earlier received data signals in computer and like devices including means for temporarily storing data signals in a condition in which they are relatively unlikely to be adversely affected by



of difference therebetween, and substituting the temporarily stored data signals for the later received data signals whenever the amount of the difference therebetween exceeds a preestablished amount.

3,562,709

CORRECTION OF BLOCK ERRORS IN TRANSMISSION OF DATA

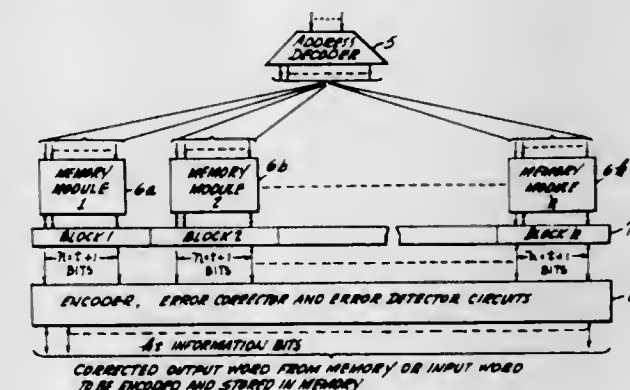
Chitoor V. Srinivasan, Princeton, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Sept. 12, 1968, Ser. No. 759,363

Int. Cl. G08c 25/00; G06f 11/12

U.S. Cl. 340—146.1

6 Claims



Information bits are arranged in subsets according to certain rules and a check bit is generated for each subset. The bits are transmitted in blocks, each block consisting of information bits chosen from different subsets and a check bit. At the receiving end of the system, a "syndrome" is generated which indicates whether any errors have occurred and if so the bits which are in error. The type of symmetry exhibited by the syndrome indicates which block has one or more errors and in response to this information and to particular syndrome bits the errors automatically are corrected.

3,562,710

BIT ERROR DETECTOR FOR DIGITAL COMMUNICATION SYSTEM

Michael E. Halleck, Boulder County, Colo., assignor to Ball Brothers Research Corporation, Boulder, Colo., a corporation of Colorado

Filed Apr. 24, 1968, Ser. No. 723,737

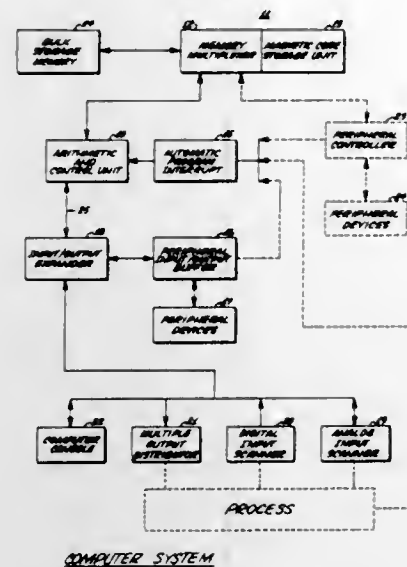
Int. Cl. G08c 25/00; H04l 7/00

U.S. Cl. 340—146.1

21 Claims

A bit error detector for use with a digital communication system to quantitatively measure bit errors in received digital information transmitted from a remote location

word. Another register is provided to identify the group or volume of memory storage locations whose protection status is defined by the status word in the status register. Each time memory is addressed, the status word applicable to the addressed memory storage location is checked. The status word defines one of a plurality of protection states for the addressed memory storage loca-



tion. Logic gates are provided which are responsive to the protection status word, to the type of operation for which memory is being addressed, and to other conditions to determine if a system protection violation has occurred. Upon detection of a system protection violation, access to the addressed memory location is inhibited and execution of an error routine is initiated.

3,562,718

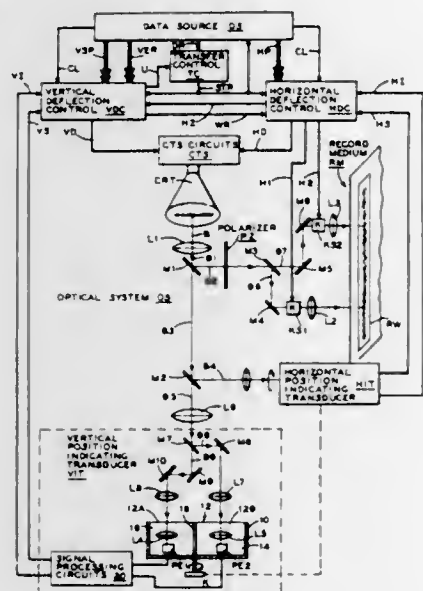
PATTERN GENERATOR WITH FEEDBACK
Solomon Mamber, Sands Point, N.Y., assignor to Alpha-numeric, Incorporated, Lake Success, N.Y., a corporation of Delaware

Filed Aug. 8, 1968, Ser. No. 751,232

Int. Cl. G06f 3/14

U.S. Cl. 340—172.5

16 Claims



Apparatus for generating patterns on a receiving medium comprises a beam source assembly wherein the patterns to be generated are "painted" as combinations of successive strokes by the beam. The beam from each stroke is split to follow two paths, one toward the receiving medium and the other toward a transducer assembly, which generates signals as the beam moves over it. These signals, which effectively indicate the instantaneous position of the

beam, are compared with coded combinations of signals specifying the desired terminal positions of the beam to generate control signals which control the deflection of the beam which control the deflection of the electron beam of the cathode ray tube. Further means are shown wherein the light directed toward the record can be selectively exposed.

3,562,719

ADDRESS TRANSLATOR

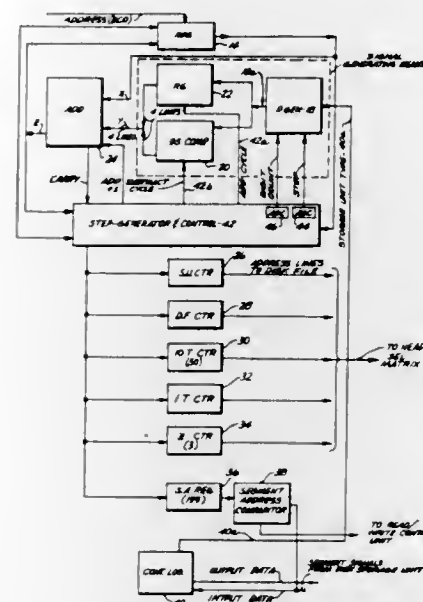
Donald P. Hynes, West Covina, and Donald W. Pohlman, Glendora, Calif., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed May 23, 1969, Ser. No. 827,332

Int. Cl. G06f 7/22

U.S. Cl. 340—172.5

14 Claims



A translator of addresses for a rotating record member file. A parameter circuit is provided for each different information format for which addresses are to be translated. Each parameter circuit forms coded parameter signals for the corresponding format. At least one parameter signal is formed for each address part in the translated address. A circuit forms the complement of the parameter signals. An adder receives the address to be translated and combines the address with the parameter signals or the complement of the parameter signals, thereby forming a coded result signal. The adder also combines the results formed thereby with the parameter signals or the complement of the parameter signals. A counter is provided for each of a plurality of the address parts and counts the number of times the corresponding parameter complement is combined with the address or the result signals before the coded result signals become less than zero. The state of the counters and the result after all parameter signals have been combined, represent the transducer selection and angular position parts of the translated address.

3,562,720

INPUT/OUTPUT SYSTEM

Donald R. Bernier, Detroit, Mich., assignor to Intercontinental Systems, Inc., Los Angeles, Calif., a corporation of California

Application Oct. 31, 1966, Ser. No. 590,761, which is a division of application Ser. No. 503,861, Oct. 23, 1965. Divided and this application Mar. 24, 1969, Ser. No. 840,562

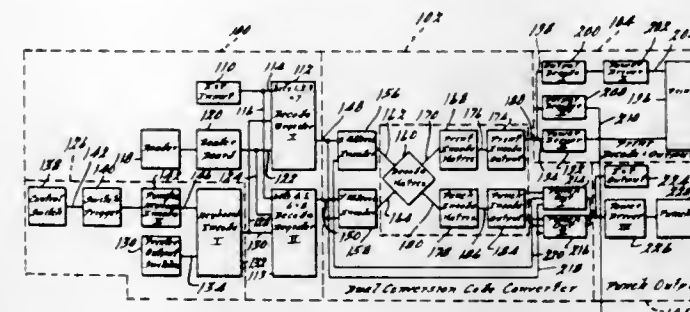
Int. Cl. G11b 13/00

U.S. Cl. 340—172.5

6 Claims

There is herein disclosed a data processing system in which multiple sources of input data in the form of successive columns of parallel bit signals having an electrical characteristic of a first level if true and a second level if

not true are selectively stored in register means comprising a plurality of storage circuits having set and reset states controlled by clocking circuit means in the form of a



reset circuit operable during a first period and an enabling circuit having an electrical characteristic which changes to the first level during a period at least as late as the end of the first period.

3,562,721

SOLID STATE SWITCHING AND MEMORY APPARATUS

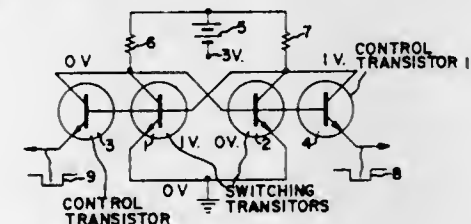
Robert H. Norman, Los Altos, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, N.Y., a corporation of Delaware

Filed Mar. 5, 1963, Ser. No. 263,049

Int. Cl. G11c 11/40; H03k 3/281

U.S. Cl. 340—173

6 Claims



Parallel connected transistors are used in an integrated circuit array to provide a switching and memory function.

This invention relates to a semiconductor switching circuit and memory apparatus. More specifically, the invention is a switching circuit which requires two independent pulses to change state, and a high-speed data storage system using this switching circuit.

3,562,722

MAGNETIC THIN FILM SHIFT REGISTER HAVING UNIDIRECTIONAL TRANSMISSION ELEMENTS

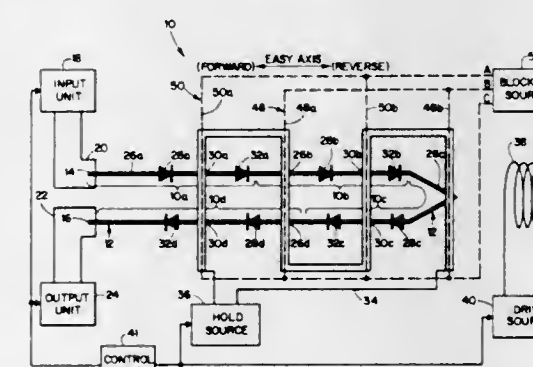
Harvey I. Jauvits, Belmont, Mass., assignor to Cambridge Memories, Inc., Newton, Mass., a corporation of Massachusetts

Filed Oct. 20, 1969, Ser. No. 867,675

Int. Cl. G11c 19/00, 11/14

U.S. Cl. 340—174

10 Claims



A digital shift register propagating information as regions of reverse magnetization has a successive arrangement of a first bidirectional transmission element for reciprocal propagation of the magnetic region, a first unidirectional transmission element for non-reciprocal prop-

agation of the magnetic region, a second bidirectional transmission element, and another unidirectional transmission element in each of a series-succession of stages, with all unidirectional transmission elements having the same direction of forward propagation. A magnetic field source applies a magnetic field to the transmission elements to advance regions of reverse magnetization from one bidirectional element, through the unidirectional element in the forward direction, to the next bidirectional element. A further magnetic field erases the regions of reverse magnetization from the elements in each stage except that in one instance the regions present in the first bidirectional elements are not erased and in another instance the regions in the second bidirectional elements are not erased.

3,562,723

TAPE SKEW CORRECTION CIRCUITRY

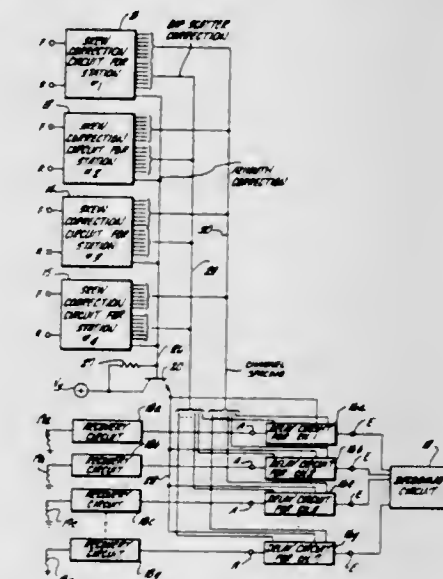
Michael I. Behr, South Pasadena, and Robert A. Smith, Temple City, Calif., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Sept. 18, 1967, Ser. No. 668,490

Int. Cl. G11b 5/44, 27/02

U.S. Cl. 340—174.1

14 Claims



In a multiple channel tape handling system, the skew error attributable to azimuth misalignment of the tape is corrected by introducing proportional variable time delays individual to the channels. The skew error attributable to gap scatter of the read head is corrected by introducing fixed time delays individual to the channels. Specifically, fixed resistors individual to the channels on the tape determine the gap scatter correction and a single variable resistor determines the azimuth correction.

3,562,724

RECOVERY SYSTEM FOR A DIGITAL MAGNETIC RECORDING

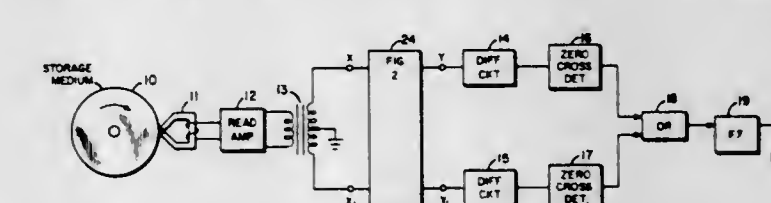
David G. Adler, Drexel Hill, and Roland C. Hollingshead, Philadelphia, Pa., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed Mar. 19, 1968, Ser. No. 714,312

Int. Cl. G11b 5/02, 5/44

U.S. Cl. 340—174.1

6 Claims

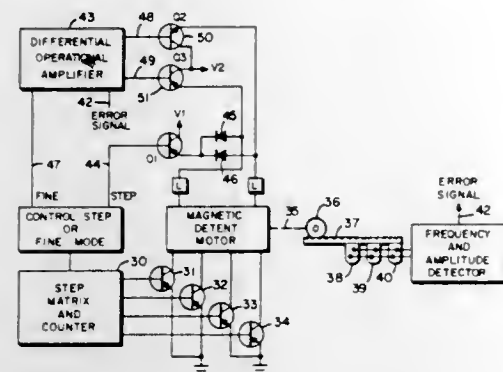


A signal recovery circuit for a digital magnetic recording system is disclosed in which the recovered signal is fed through a series of rectifying stages each intercoupled to the next via an A.C. coupling network.

3,562,725 COARSE AND FINE POSITIONING OF MAGNETIC READ HEADS

Rudolph J. Klein, King of Prussia, and Edmund J. Crossen, Norristown, Pa., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 15, 1968, Ser. No. 767,693
Int. Cl. G11b 21/10; H01f 7/18
U.S. Cl. 340—174.1

5 Claims



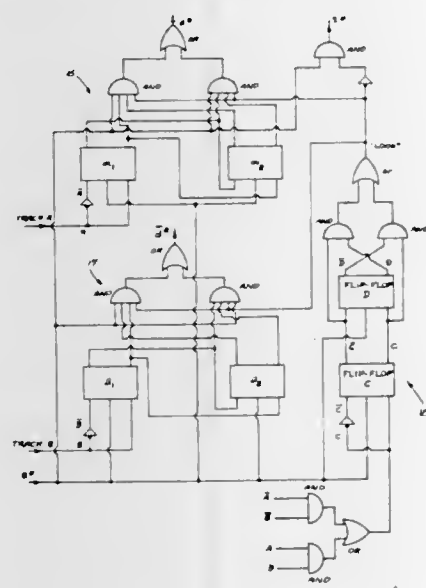
The present system provides a circuit whereby the electrical currents through the stator windings of a magnetic detent motor are (1) altered in phase relationship to effect a coarse positioning of magnetic read/write heads which are mechanically coupled to said magnetic detent motor and (2) altered in amplitude in response to a feedback signal in order that the rotor of the detent motor can be relocated by small increments, i.e., small distances.

3,562,726 DUAL TRACK ENCODER AND DECODER

Robert Edward Hamilton, Chelmsford, Mass., assignor to Viatron Computer Systems Corporation, Burlington, Mass.

Filed Jan. 10, 1969, Ser. No. 790,296
Int. Cl. G11b 5/02
U.S. Cl. 340—174.1

5 Claims



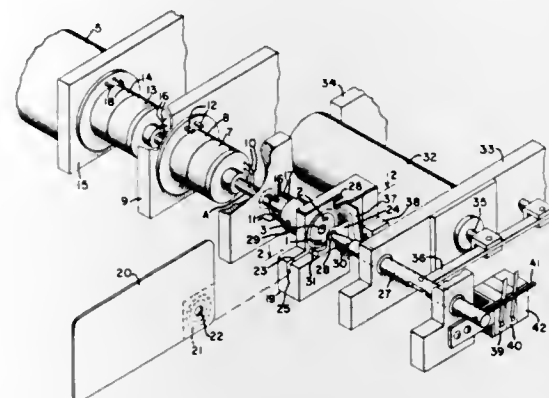
A method of encoding and decoding digital data for recording on a media on or through which amplitude and time base changes are capable of being reproduced. Data and timing information are encoded redundantly along two mutually synchronized channels, in one of which timing bits and delayed data "1's" are logically "ORed" together and applied as a composite signal complementing a flip-flop logic element whose alternating output state causes corresponding current reversals in a first channel record head, and in the other channel of which timing bits and delayed data "0's" are similarly "ORed" together and applied as a composite signal complementing a second flip-flop logic element whose alternating output state causes corresponding current reversal in the second

channel record head. The data, not being dependent upon a time base in recording, can be played back at rates higher or lower than the original recording speed.

3,562,727 APPARATUS FOR POSITIONING MAGNETIC RECORD MEMBER

Harold W. Abbott, Syracuse, N.Y., and William R. Chynoweth, Phoenix, Ariz., assignors to General Electric Company, a corporation of New York
Continuation of application Ser. No. 553,849, May 31, 1966. This application Sept. 25, 1969, Ser. No. 861,203
Int. Cl. G11b 5/80, 17/04
U.S. Cl. 340—174.1

4 Claims



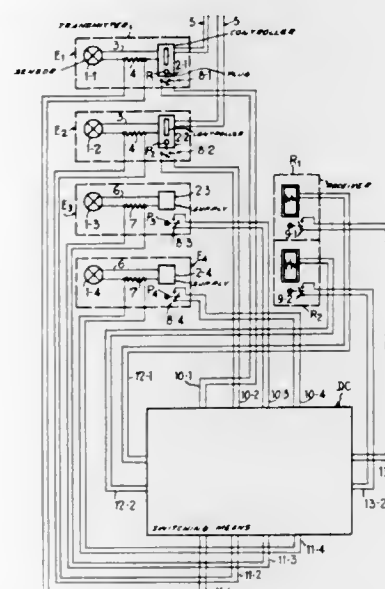
A planar magnetic medium is inserted between transducers and a base plate with the recording surface at a fixed spacing from the transducers. A pair of orthogonally disposed edge guides act to approximately position the medium as it is inserted. A solenoid actuated locating pin is mounted behind the base plate, centered on the axis of rotation of the transducers. The solenoid is actuated so as to thrust the pin through the base plate and through a locating hole that is provided in the record medium.

3,562,728 DEVICE FOR MONITORING INDUSTRIAL INSTALLATIONS

Claude Cronier, Paris France, assignor to Compagnie Francaise d'Etudes et de Construction Technip, Ruell-Malmaison, France, a French body corporate
Filed Oct. 30, 1967, Ser. No. 679,067
Claims priority, application France, Nov. 3, 1966, 82,316

Int. Cl. G08c 19/32
U.S. Cl. 340—184

5 Claims



A monitoring device comprising transmitters each of which measures a signal which corresponds to a value involved in the installation to be monitored. The transmitters can be selectively connected to a set of receivers

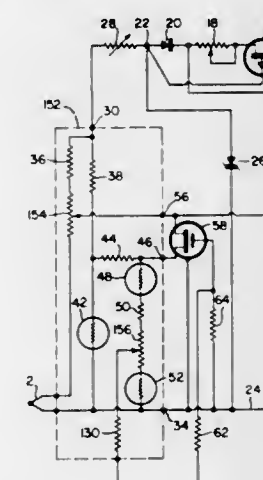
for recording a selected one of said signals. A switching means connected to the transmitters and receivers is actuated by individual switching elements respectively provided on each transmitter and receiver. The individual switching elements can be controlled by transferable control devices such as plugs whereby the transfer of a plug connects a given transmitter to a given receiver, the switching means being actuated by the individual switching elements of the transmitter and receiver for establishing the appropriate connection.

3,562,729 TWO WIRE MV./V. TRANSMITTER

Edward T. E. Hurd III, Willingboro, N.J., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Sept. 8, 1967, Ser. No. 670,822
Int. Cl. G08c 19/04
U.S. Cl. 340—210

10 Claims



3,562,733

ELECTRIC CIRCUIT BREAKER WITH IMPROVED TRIP ALARM

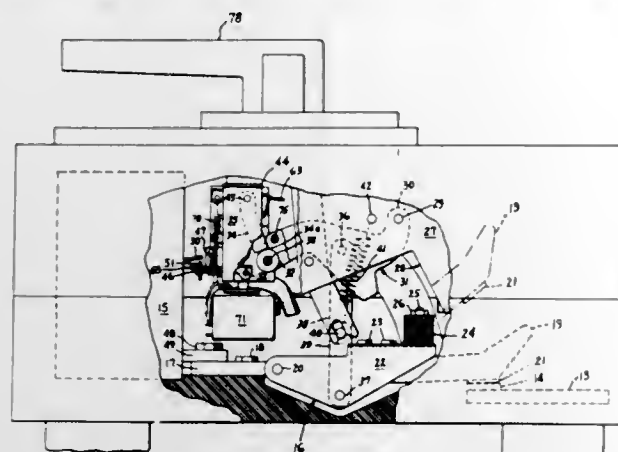
Frank H. Murphy, Hartford, and Henry E. S. Owen, Avon, Conn., assignors to General Electric Company, a corporation of New York

Filed Dec. 15, 1967, Ser. No. 691,042

Int. Cl. G08b 21/00

U.S. Cl. 340—253

4 Claims



A trip alarm for signalling only when the circuit breaker trips due to overload currents, including a first set of contacts closed by the tripping action of a trip unit and a second set of contacts closed by the tripping movement of the breaker mechanism; the closing of these contacts completes the circuit to a relay which actuates the trip alarm and also closes contacts by-passing the first set of contacts to maintain the circuit through the trip alarm even though the trip alarm returns to the untripped condition.

3,562,734

STOP MOTION DEVICE

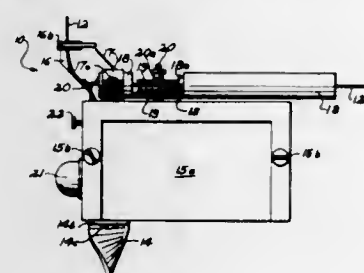
George H. Hotchkiss, Kansas City, Mo., assignor to Certain-Teed Products Corporation, Ardmore, Pa., a corporation of Maryland

Filed Oct. 20, 1967, Ser. No. 676,788

Int. Cl. G08b 21/00

U.S. Cl. 340—259

2 Claims



A device for detecting and indicating a broken strand condition during the forming of glass fiber roving. The device utilizes a combination stylus and crystal cartridge to produce an electrical signal in accordance with movement of a glass fiber strand relative to the stylus. This signal, when suitably amplified, is usable to maintain an electrical relay in a prescribed condition. The absence or lack of strand movement produces a no voltage condition at the crystal cartridge, thereby causing the relay to actuate a warning device and/or stop the forming operation.

3,562,735

ROTATION SENSING DEVICE

John D. Goodlaxson, Colfax, Iowa, assignor to The Maytag Company, Newton, Iowa, a corporation of Delaware

Int. Cl. G08b 21/00; H01h 9/00

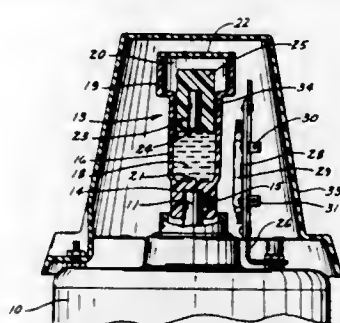
Filed Dec. 20, 1967, Ser. No. 692,009

U.S. Cl. 340—271

11 Claims

A rotation sensing device including a housing attachable to a rotatable member and containing an actuation

member in the form of a magnet movable between first and second positions with a change in the rotation of the rotatable member. Means, in the form of a reed switch



positioned adjacent to the housing, is operable for providing a signal indicating rotation of the rotatable member.

3,562,736

CODE RESPONSIVE MONITORING SYSTEM

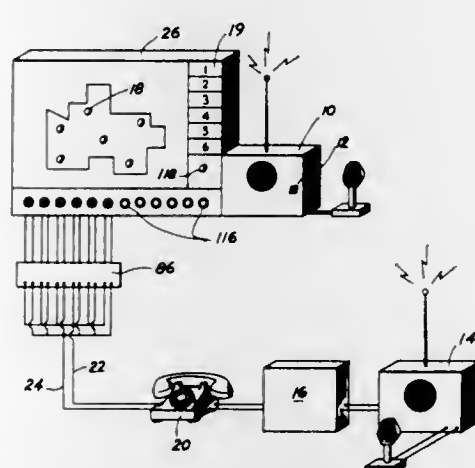
Paul A. Nelson, South Bend, Ind.
(465 N. Le Sueur, Mesa, Ariz. 85201)

Filed Oct. 22, 1965, Ser. No. 501,481

Int. Cl. H04q 9/10, 9/12

U.S. Cl. 340—313

6 Claims



In a radio alerting system an impulse signal generating means activated by energization of the system to energize relay means that in turn operates indicating means to inform an alarm station operator that the alert signal has been received by a remote station.

3,562,737

ELECTRO-OPTICAL DEVICE

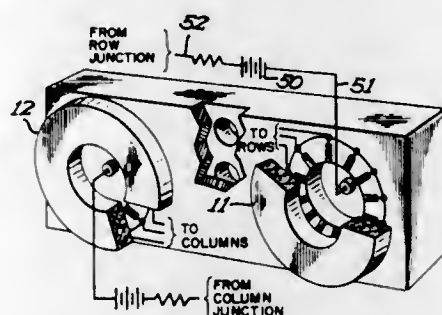
Norman M. Wiederhorn, Golden Valley, and Charles Robert Lane, Northfield, Minn., assignors to G. T. Schjeldahl Company, Northfield, Minn., a corporation of Minnesota

Filed Dec. 19, 1967, Ser. No. 691,779

Int. Cl. H05b 41/00

U.S. Cl. 340—325

12 Claims



An electro-optical device having a plurality of superimposed layers, and including a central panel having a plurality of discrete bores extending therethrough to form display cells for receiving and retaining an electro-optical

substance, which substance may include an ionizable gaseous fill, and a plurality of scanning electrodes on opposite sides of said cells for applying an electrical field through each of said cells. The display cells are arranged in groups of rows and columns, and scanning electrodes extend beyond the area of the cells and into a remote chamber, wherein a gap is formed in the continuity of each of the scanning electrodes. These gaps are arranged in two groups or banks, one group for the rows, the other for the columns. A magnetic drive means is provided to generate a field which is coupled to the gaps in the individual groups, and means are provided for energizing the magnetic means to intermittently step an arc formed in the gaps from one gap pair to another gap pair along the gap axis.

3,562,738

VARIABLE ALARM CONTROL DEVICE

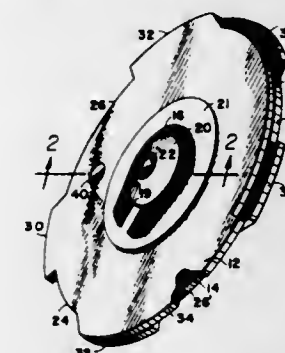
Herbert A. Raschke, Greenbrae, Calif., assignor to E. D. Bullard Company, Sausalito, Calif.

Filed July 24, 1968, Ser. No. 747,248

Int. Cl. G08b 3/00

U.S. Cl. 340—329

4 Claims



A variable or adjustable code wheel for a back-up alarm of the type that has a pair of electrical contacts and an actuator arm operatively associated with the contacts and in bearing contact with the periphery of the code wheel. The code wheel is formed of two disks that can be rotated relative one another to vary the composite periphery of the code wheel. Variation of the composited periphery of the code wheel effects variation of the sound pattern produced by the back-up alarm.

3,562,739

ANALOG TO DIGITAL CONVERTER

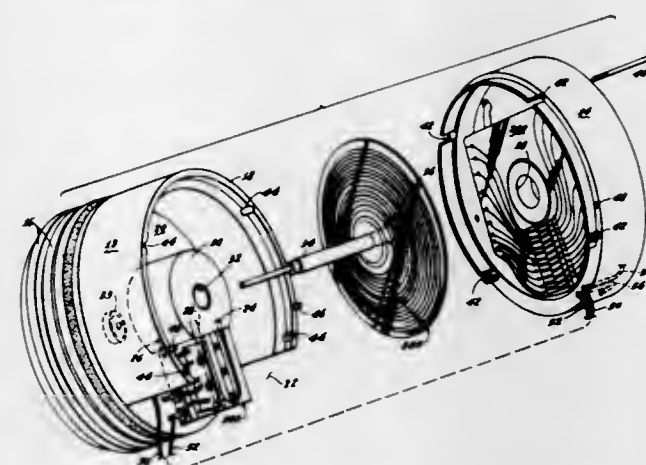
Gerald F. Frank, Normal, Ill., and Rene M. Iadipalo, Hawthorne, Calif., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed Oct. 21, 1965, Ser. No. 499,398

Int. Cl. G08c 9/06

U.S. Cl. 340—347

2 Claims



The present invention is directed to an improved optical code wheel for use in an analog to digital converter wherein the code wheel includes a plurality of concentric tracks each having binary coded decimal information and where

each concentric track has opaque and translucent portions representing off and on states of a particular weighted numerical value and with all but one of the concentric tracks grouped together in pairs and with a first one of each pair of tracks representing the same weighted numerical value as the second one of each pair of tracks and with the first ones of each pair of tracks physically displaced to lead the second one of each pair of tracks so that alternate ones of the first and second ones of each pair of tracks may be preset relative to the other. An output signal is derived by switching between the information represented by the first ones of each pair of tracks and the second ones of each pair of tracks. The invention also includes an improved lamp assembly including a flexible member and with a plurality of individual adjustment means operating against the flexible member to individually adjust the position of light sources.

3,562,740

ROTARY TRANSFORMER NULLING SYSTEM

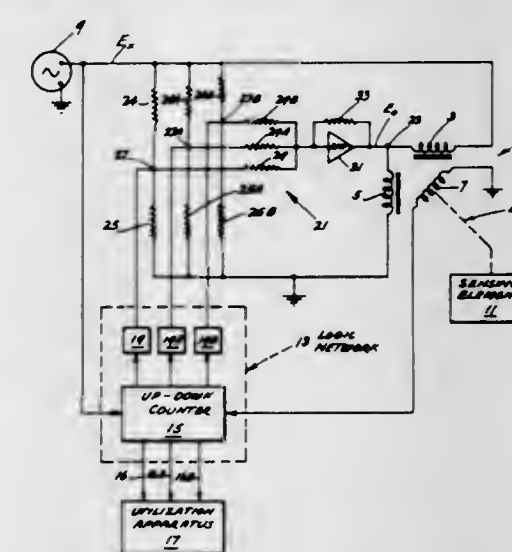
Benjamin M. Watkins, Lodi, N.J., assignor to The Bendix Corporation, a corporation of Delaware

Filed Feb. 13, 1967, Ser. No. 615,791

Int. Cl. H03k 13/04; G05g 19/00

U.S. Cl. 340—347

6 Claims



An apparatus including a follow-up having no moving parts for providing an output corresponding to the angular displacement of the rotor of a rotary transformer, such as a synchro or resolver, comprising a logic network connected to the rotor of the rotary transformer and receiving error signals therefrom and providing an output corresponding to the angular displacement of the rotor from a predetermined position, and the output of the logic network being applied to the stator windings of the rotary transformer and rotating the stator magnetic field to null the error signals from the rotor. The logic network may provide either an analog or digital output corresponding to the angular displacement of the rotor.

3,562,741

ELECTROMAGNETIC PULSE GENERATING SYSTEM

John C. McEvoy, Livonia, and Paul R. Hoffman, Farmington, Mich., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Apr. 5, 1967, Ser. No. 628,670

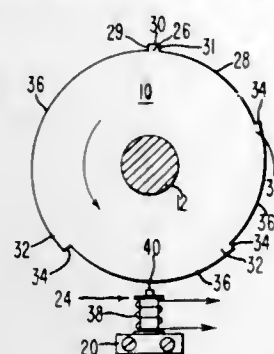
Int. Cl. G08c 9/04

U.S. Cl. 340—347

6 Claims

A system utilizing a single transducer and a mechanically translatable member for generating a plurality of electrical timing signals representing discrete positions of the translatable member including a reference or bench mark signal. The bench mark signal is bipolar and the remaining timing signals are essentially unipolar. The polarity of the signals is dependent upon the shape of

projections on the periphery of a rotating disc. The bipolar signal is generated from a substantially rectangular



projection, and the unipolar signal is generated from a sawtooth-shaped projection.

3,562,742

REVERSIBLE CODE CONVERTER

Tadao Abe, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan

Filed Apr. 25, 1967, Ser. No. 633,597

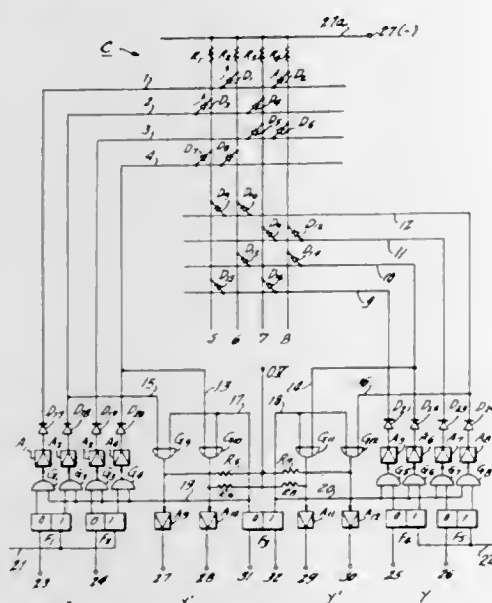
Claims priority, application Japan, May 4, 1966,

41/28,208

Int. Cl. H03k 13/252

U.S. Cl. 340—347

4 Claims



A bidirectional code converter incorporating code conversion means for converting codes from a first binary code format to a second binary code format. For example, an N bit binary code format may be converted to a N+M bit binary code format where M may be any number equal to or greater than 1. Settable switch means are provided for permitting code conversion in a first direction, i.e., from any code to an N+M code and which may be reset to provide code conversion in the reverse direction, i.e., from an N+M code to an N code. The settable switch means, when set for code conversion in the first direction inhibits code direction in the reverse direction.

3,562,743

NON-LINEAR DECODER AND A NON-LINEAR ENCODER EMPLOYING THE SAME

Claude Paul Henri Lerouge, Montgeron, and Didier Charles Strube, Garches, France, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Jan. 16, 1968, Ser. No. 698,312

Claims priority, application France, Jan. 26, 1967, 92,653

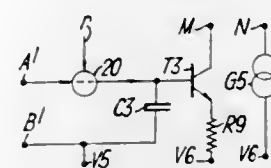
Int. Cl. H03k 13/14

U.S. Cl. 340—347

6 Claims

A shift register stores the n digits of a binary number. A first decoder decodes the m most significant digits to

produce 2^m first signals and a second decoder decodes the (n-m) least significant digits to produce $2^{(n-m)}$ second signals. Each of $2^{(n-m)}$ current generators is activated by a different one of the second signals and each 2^m gate means is controlled by a different one of the first signals to couple the activated current generator to one



of a pair of latter attenuators. An additional current generator is coupled under control of the most significant digit to one of the pair of latter attenuators. The analog output is present between the outputs of the two latter attenuators. A feedback comparison encoder employs the above decoder to provide a non-linear encoder.

3,562,744

AMPLIFIER SYSTEM

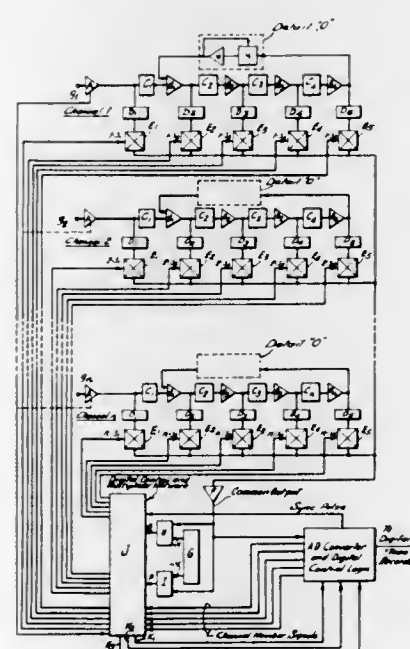
Donald L. Howlett, Houston, Tex., assignor to Texas Inc., New York, N.Y., a corporation of Delaware

Filed Dec. 24, 1968, Ser. No. 786,569

Int. Cl. H03k 13/02

U.S. Cl. 340—347

45 Claims



A wide dynamic range automatic high speed digital gain ranging amplifier system having a plurality of amplifier stages coupled in cascade circuit relationship, wherein improved bandwidth is provided by D.C. coupling between the successive cascaded stages together with a filter in a feedback path from the output of the last cascaded stage to the input of the first cascaded stage. The respective outputs of the amplifier stages are coupled through a common output circuit to a comparator circuit for comparison with a predetermined reference signal. Sequencing means are provided for momentarily closing switch means in timed sequence for sequentially coupling the respective outputs of the successive amplifier stages to the comparator circuit during successive, relatively brief sampling time intervals. Means are provided for selectively maintaining one of the switch means in its closed position for a holding time interval of longer duration than the sampling time interval when an output signal coupled through said switch means to the common output circuit

during one of the sampling intervals bears a predetermined relationship to the reference signal. In a preferred embodiment of the amplifier system, the common output circuit is coupled to an analog-to-digital converter and thence to digital recording means for recording signals corresponding to both the instantaneous digital value of the signal at the common output circuit and the gain level to which the signal is amplified, as determined by the one of said switch means selectively maintained closed to pass the signal to the analog-to-digital converter.

3,562,745

SIGNAL TRANSMISSION SYSTEM WITH A VARIABLE LEVEL CLIPPING CIRCUIT

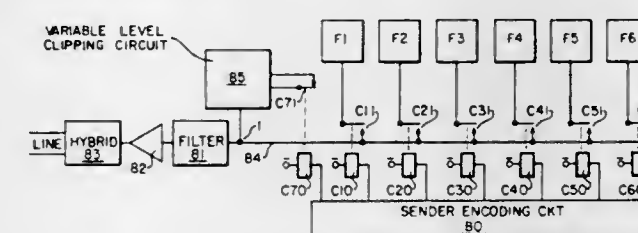
Noel Vlaeminck, Antwerp, Belgium, assignor to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware

Filed Jan. 29, 1968, Ser. No. 701,264

Int. Cl. G08b 1/00

U.S. Cl. 340—351

7 Claims



A multifrequency signaling system transmitter having a circuit to clip the multifrequency pulse data signals at a variable level to minimize transients generated upon switching signal sources on and off the transmission line. The clipping level is determined by the voltage applied across a pair of diodes by an exponentially varying voltage of charging or discharging capacitors, varying from a completely short-circuited state when the diodes are conducting in series, to the maximum value of the signal when the diodes are non-conductive. The charging or discharging of these capacitors is controlled by a pair of transistors that are switched by an external circuit applying the signal to the line.

3,562,746

CHARACTER DISPLAY DEVICE EMPLOYING OPTICAL LAMINAS OF LIGHT PIPING ELEMENTS

Mitchell Aron, 38 Ridge Road,

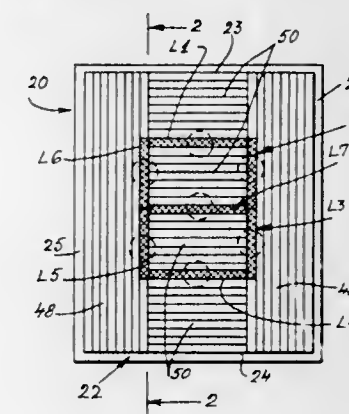
Harrington Park, N.J. 07640

Filed Dec. 12, 1968, Ser. No. 783,308

Int. Cl. G08b 5/00

U.S. Cl. 340—380

5 Claims



A character display device employs a plurality of optical laminas formed of juxtaposed optical fibers to serve as light guides. Selected fibers in certain ones of the laminas are backed up by selectively operated lamps to display characters at front ends of laminas. The laminas are fabricated into a display device so that they absorb the

ambient light impinging on their front ends. Thus, the display device appears black in the absence of internal illumination from the lamps. Illuminated lamina present luminous lines against a black background even in the presence of high ambient light levels.

3,562,747

AUDIBLE SIGNAL DEVICE HAVING ENCLOSED ELECTRICAL VIBRATOR

Irving Levine, 509 Burghley Ave.,

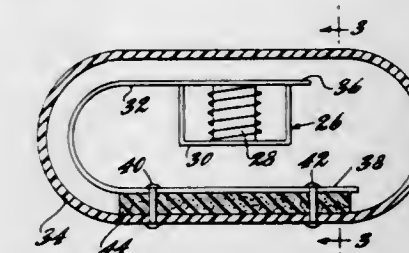
Ventnor City, N.J. 08406

Filed July 30, 1968, Ser. No. 748,669

Int. Cl. G08b 3/00

U.S. Cl. 340—384

2 Claims



Auditory and vibratory devices each comprising a vibrator affixed to the free end of a cantilevered, curved arm which is rigidly affixed through an insulating barrier to the walls of an enclosing rigid construction and electrical means to activate each said vibrator.

3,562,748

PLASTIC AIR HORN

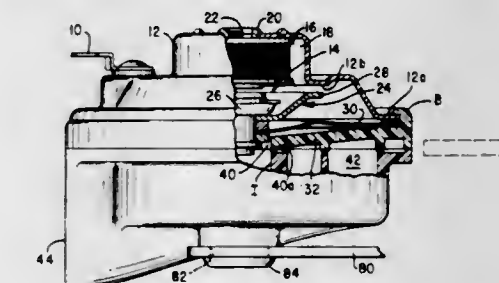
William C. Wetzel and Raymond W. Long, Bay City, Mich., assignors to Eltra Corporation, Toledo, Ohio

Filed Sept. 18, 1968, Ser. No. 760,412

Int. Cl. G08b 3/10

U.S. Cl. 340—388

8 Claims



An electric air horn, having a resonating chamber, is formed of two molded thermoplastic resin body portions permanently joined together in a plane by heat. The resonating chamber is connected to a collapsing air chamber formed by a vibratory diaphragm cooperating with one side of the resin portions, the diaphragm being vibrated by an electric motor. The diaphragm and the motor base member are permanently joined together under predetermined tension in a peripheral area by a flange portion of the resin body created by a thermoplastic reform of the flange.

3,562,749

DETECTION SYSTEM USING OSCILLATION WAVES

Tsukushi Uchimoto, 6-30-7 Shimouma, Setagaya-ku, and Shoji Sayama, 1-4-28-216 Aza-Uenohara, Kurume-machi, Kitatama-gun, both of Tokyo-to, Japan

Filed Nov. 19, 1968, Ser. No. 776,870

Claims priority, application Japan, Nov. 20, 1967,

42/74,262

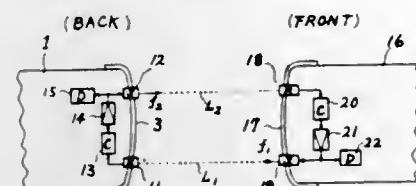
Int. Cl. G01s 9/02

U.S. Cl. 343—7.5

3 Claims

A detection system for detecting an object or objects in response to the change of condition in the paths of oscillation waves; where a plurality of devices, each comprising a frequency converter, and a receiving means and

a sending means respectively connected to the input and output of the frequency converter, configuration consisting of one of the devices, the path over which the device's oscillation wave travels to the second device, the second device, and the path over which the second device's oscillation wave travels to the first device. The



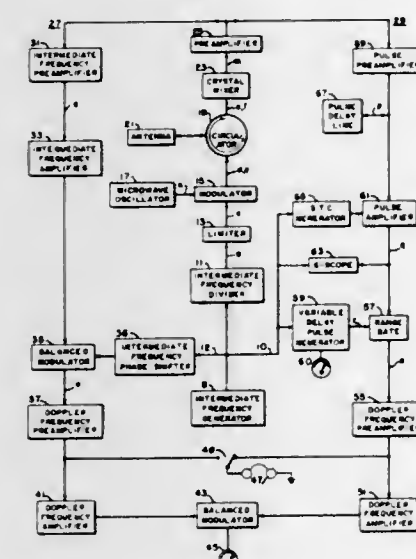
oscillation waves of the two devices are of different frequencies, and the loop circuit is tuned to an oscillation condition when a predetermined condition is met at each of the transmission paths. An object or objects can be detected whether or not the oscillation condition exists in the loop circuit.

3,562,750

CONTINUOUS WAVE CORRELATION RADAR
William Fishbein, Elberon, and Otto E. Rittenbach, Neptune, N.J., assignors to the United States of America as represented by the Secretary of the Army
Filed June 15, 1966, Ser. No. 563,623
Int. Cl. G01s 9/42

U.S. Cl. 343-7.7

8 Claims



The continuous wave carrier of this radar is periodically phase modulated. Target echoes are heterodyned with a sample of the phase-modulated transmitted wave and then applied in parallel to an all-range channel and a ranging channel. The all-range channel responds to targets at all ranges and the ranging channel can be used to determine the range of a particular target. The Doppler modulation of a range-gated target in the ranging channel is correlated with the Doppler modulation of the same target in the all-range channel and the setting of the range gate will then indicate the target range. The Doppler signals in both channels can be aurally monitored.

3,562,751

DISTANCE AND DIRECTION RADAR SYSTEM UTILIZING A PLURALITY OF CATHODE RAY TUBES

John Garvon Lewis and William Reginald Savery, Malvern, England, assignors to the Minister of Supply, London, England

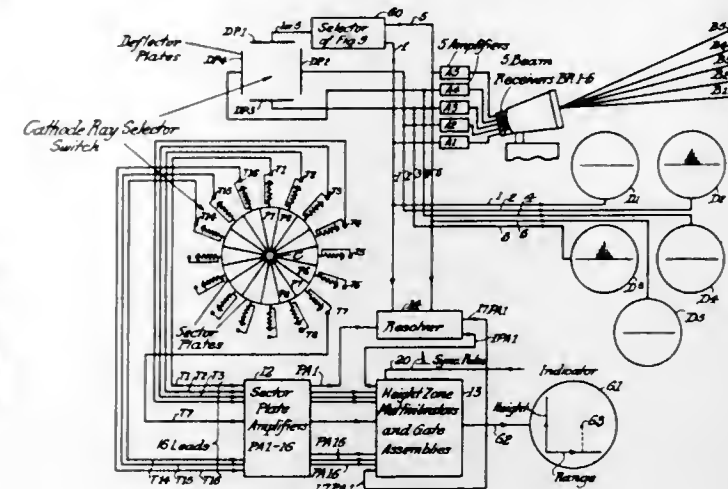
Filed Oct. 3, 1952, Ser. No. 312,948
Int. Cl. G01s 7/06

U.S. Cl. 343-11

12 Claims

5. A system for determining the elevation of a target reflecting radiation from a radio pulse transmitter comprising, a plurality of radio directional channel forming

horns mounted vertically one above the other rotatable as a unit about a vertical axis and having axes of maximum response equally spaced in elevation defining a plurality of elevational range channels, echo-detecting means connected to each horn and a cathode ray selector



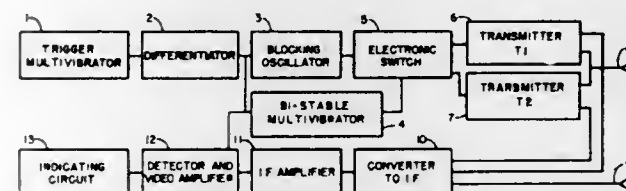
responsive to signals from said horn-formed channels having sector plates positioned to intercept the electron beam thereof and adapted to sub-divide said horn-formed channels into sub-channels, whereby a target object may be located in one of the sub-channels by the response of said cathode ray selector.

3,562,752

DISTANCE INDICATING SYSTEM
Conrad Roeschke, Albuquerque, N. Mex., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Sept. 15, 1953, Ser. No. 382,505
Int. Cl. G01s 9/06

U.S. Cl. 343-13

6 Claims



1. For measuring the distance from an observer's position to a radiation-reflecting object, a system of apparatus at the position comprising means for transmitting toward the object pairs of pulses of radiation of different frequencies, the pulses of a pair being separated in time by an interval of adjustable length, means for receiving pulses reflected from the object, means for indicating the time coincidence of transmission of the second pulse of a pair with reception of the reflected first pulse thereof and means for adjusting the length of the interval to bring about said coincidence.

3,562,753

CASSEYRAIN ANTENNA SYSTEM WITH ROTATABLE MAIN REFLECTOR FOR SCANNING

Mitsuo Tanaka, Kokubunji-shi, and Masao Kamimura, Kodaira-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan

Filed Feb. 19, 1969, Ser. No. 800,636

Claims priority, application Japan, Feb. 23, 1968, 43/11,125; June 17, 1968, 43/41,354

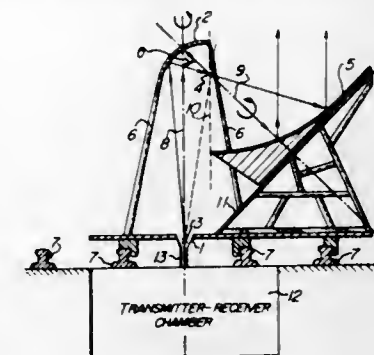
Int. Cl. H01g 1/28, 19/10

U.S. Cl. 343-705

6 Claims

Antenna system comprising: a radiator fixed to a base, adapted for radiating an electromagnetic wave and having a main radiation axis; a sub-reflector aligned on the main radiation axis; a main reflector capable of rotating about a reflection axis of the electromagnetic wave from the

sub-reflector and adapted for converting the electromagnetic wave from the sub-reflector into a plane wave and



emitting the plane wave into the air or space; and a rotatory mechanism for rotating the sub-reflector and the main reflector.

3,562,754

TELEVISION ANTENNA HAVING V-SHAPED DIPOLES WITH ARCUATE PARASITIC ELEMENTS

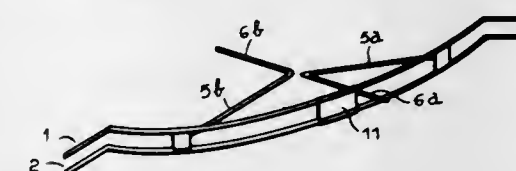
Placido Gomez, 329 Rue des Palais, Brussels, Belgium
Filed May 6, 1969, Ser. No. 822,228

Claims priority, application Belgium, May 9, 1968, 58,195; Apr. 25, 1969, 73,261

Int. Cl. H01q 9/44, 21/00

U.S. Cl. 343-809

6 Claims



Television antenna wherein the parasitic elements comprise at least two parallel tube means having a curved central portion and two end portions, and wherein the active or driven elements comprise a plurality of straight element pairs lying in a horizontal plane and converging towards a point that lies on a line parallel to the horizontal symmetry axis of said parallel tube means, the elements of at least one active element pair being in alignment along a direction that lies at a relatively small acute angle to the direction of said horizontal symmetry axis of said parallel tube means.

3,562,755

THREE DIMENSIONAL ANTENNA SYSTEM

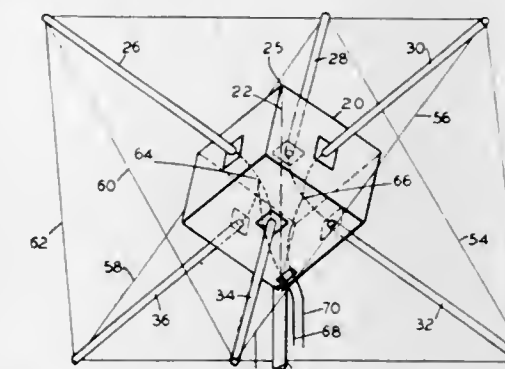
George A. Bonadio, 12 Public Square, Watertown, N.Y. 13601

Filed July 5, 1968, Ser. No. 742,663

Int. Cl. H01q 21/00, 21/24

U.S. Cl. 343-853

7 Claims



Antenna system comprising six like lineal conductors of equal length and disposed on axes radiating from a common center, each conductor being at an angle of 90 degrees from the adjacent four elements, and switching means in the center area to connect combinations of three adjacent conductors to one lead-in and the remaining conductors to the other lead-in.

3,562,756

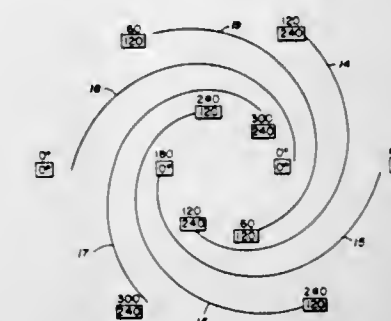
MULTIPLE POLARIZATION SPIRAL ANTENNA
Samuel Chung-shu Kuo, San Jose, Calif., and Charles Chung-yeh Liu, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed June 3, 1968, Ser. No. 734,001

Int. Cl. H01q 1/36, 3/26

U.S. Cl. 343-895

12 Claims



Apparatus and a method of exciting a multi-element log spiral antenna to obtain left-hand and right-hand circular polarization radiation. The antenna elements are interwound in the usual manner in the form of either equiangular or Archimedes spirals terminated at a circumference consistent with a desired radiation pattern. Each element of the antenna receives multiple current mode excitation at the inner terminals. Typically, an antenna excited by first, second, fourth, and fifth mode currents produces both left-hand and right-hand, first and second mode, circular polarized radiation when terminated at an appropriate circumference.

3,562,757

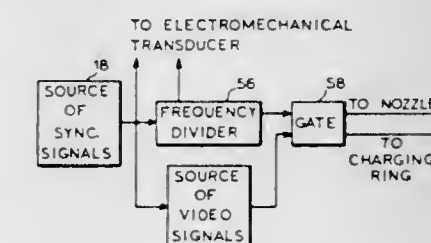
GUARD DROP TECHNIQUE FOR INK JET SYSTEMS

Vincent E. Bischoff, River Grove, Ill., assignor to A. B. Dick Company, Chicago, Ill., a corporation of Illinois
Filed Feb. 28, 1968, Ser. No. 709,004

Int. Cl. G01d 15/18

U.S. Cl. 346-1

5 Claims



Because of the fairly close spacing between ink drops which is used in the process of ink drop printing, there arises a phenomenon of repulsion between adjacent drops which have similar charges on them, which causes faulty printing. This is overcome by providing guard drops between the charged drops which act as a shield to minimize the adverse affects of drop charge repulsion.

3,562,758

DEVICE AND METHOD FOR MAKING A TEMPORARY INSCRIPTION

Anthony Stephen Ringrose, Geneva, Switzerland, assignor to Ing. C. Olivetti & C. S.p.A., Ivrea, Italy, an Italian company

Filed Mar. 19, 1968, Ser. No. 714,195

Claims priority, application Switzerland, Apr. 25, 1967, 7,377/67

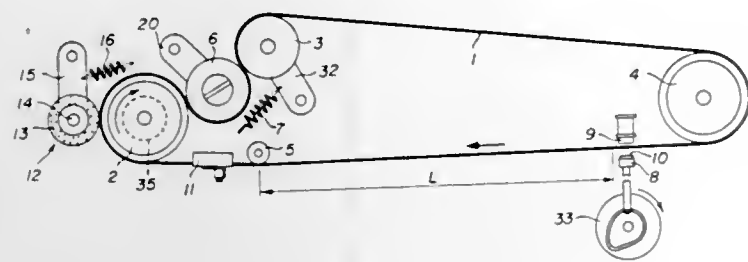
Int. Cl. G01d 9/22

U.S. Cl. 346-21

9 Claims

The invention provides a device and a method for making temporary inscriptions on a regeneratable support consisting of a band having a dark-coloured surface on which

is applied a layer of light-coloured paste, by pressing selected characters carried by one or more impression members through the paste as the band moves along to expose areas of the dark-coloured surface corresponding to the



outline of the selected characters, the paste in these areas being chased sideways by the characters and the imprints being subsequently erased by rollers which even out the layer in readiness for a further inscription.

3,562,759

PATTERN FORMING APPARATUS

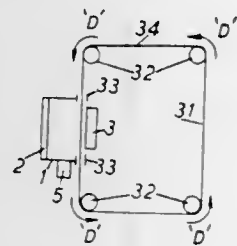
Arthur Edward Brewster, Cheshunt, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Continuation-in-part of application Ser. No. 675,542, Oct. 16, 1967. This application Jan. 11, 1968, Ser. No. 705,590

Claims priority, application Great Britain, Nov. 11, 1966, 50,574/66

Int. Cl. G01d 15/06, 15/12; B05b 5/02

U.S. Cl. 346—74

18 Claims



An apparatus is provided wherein a charge pattern, which is representative of information contained in a signal applied to the apparatus, is formed on one side of a recording medium by recording means situated on the other side of said recording medium. Powder particles are applied to the charge pattern to provide a two-dimensional visible image of the charge pattern on the one side of the recording medium. The apparatus includes a cavity housing the powder particles, the rear wall of which is the one side of the recording medium and the front wall is transparent to facilitate viewing. Powder application means include a transparent diaphragm constituting part of the front wall.

3,562,760

THERMOMAGNETIC RECORDING METHOD AND SYSTEM

Stanton H. Cushner and Alan S. Hoffman, Los Angeles, Calif., assignors to The Magnavox Company, Torrance, Calif., a corporation of Delaware
Filed June 13, 1968, Ser. No. 736,697

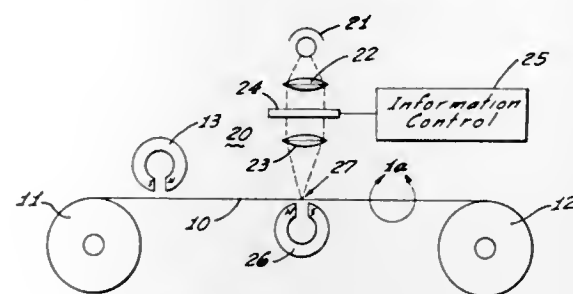
Int. Cl. G01d 15/12; G11b 7/00

U.S. Cl. 346—74

13 Claims

Magnetic layers comprising particles having several differently oriented easy axes of magnetization and dispersed in the layers at random, are used for providing magnetic recordings using magnetic bias, local thermal

treatment and below room temperature coercivity fields for changing the magnetization in locally heated areas. Particularly $\text{Co}-\gamma\text{-Fe}_2\text{O}_3$ is suggested to obtain a



thermomagnetic recording through the combination of magnetizing field and information modulated thermal treatment at temperatures well below the Curie point.

3,562,761

DROP PHASING IN INK DROP WRITING APPARATUS

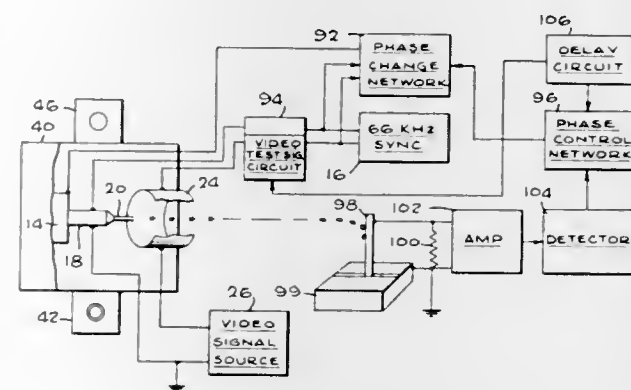
Joseph J. Stone, Glenview, and Vincent E. Bischoff, River Grove, Ill., assignors to A. B. Dick Company, Chicago, Ill., a corporation of Illinois

Filed Dec. 23, 1968, Ser. No. 786,277

Int. Cl. G01d 15/18

U.S. Cl. 346—75

5 Claims



In an apparatus of the type wherein ink under pressure is applied to a nozzle which is vibrated, and the ink emitted by the nozzle thereafter breaks down into ink drops which are charged in a charging tunnel in response to video signals, means are provided, in accordance with this invention, for sensing whether or not the ink drops are made to occur with the proper phase to assume the proper charge, and if not, to correct the phase of the vibration of the nozzle whereby the ink drop phasing and charging are corrected.

ERRATA

For Class out of order see:
Patent Nos. 3,562,763 thru 3,562,808

3,562,762

BATTERY OPERATED PRINTOUT

Carl J. Kugler, Philadelphia, Pa., assignor to American Meter Company, Philadelphia, Pa., a corporation of Delaware

Filed Aug. 23, 1968, Ser. No. 754,776

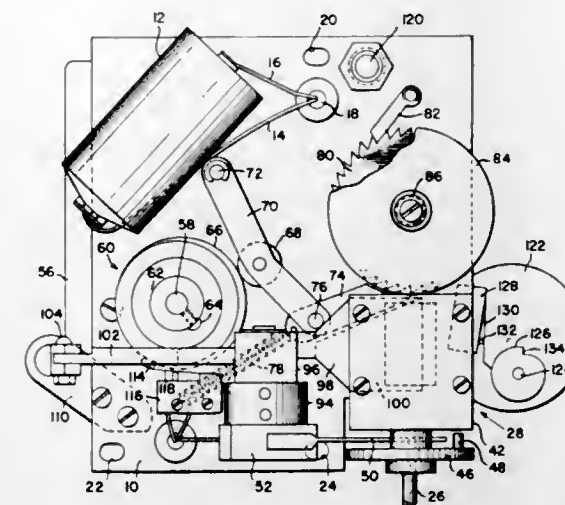
Int. Cl. G01d 9/16

U.S. Cl. 346—94

13 Claims

A printing counter for use in conjunction with gas-meters and the like is arranged to print indications on a circular chart periodically by the use of a spring-loaded

hammer which is released by a motor-driven cam. The motor also controls indexing of the chart, and is con-



trolled, in turn, by a clock-operated switch. Power is supplied by a battery.

3,562,763

MOTOR-DRIVEN STEPPING TIMER

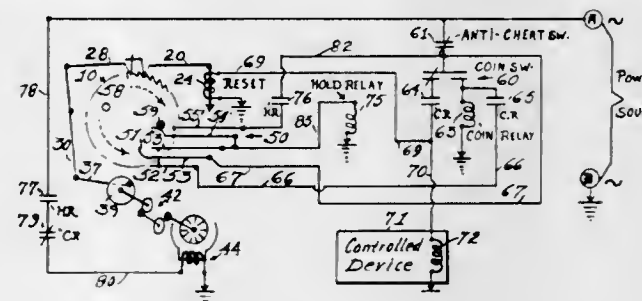
Earl F. Heppner and Thomas M. Hata, Chicago, Ill., and Herman L. Seiden, deceased, late of Skokie, Ill., by Freida B. Seiden, administratrix, Skokie, Ill., assignors to Bally Manufacturing Corporation, Chicago, Ill., a corporation of Delaware

Filed Dec. 10, 1968, Ser. No. 785,856

Int. Cl. H01h 3/34

U.S. Cl. 307—141.8

7 Claims



A timing device is provided in which a ratchet wheel is advanced step-by-step by motor-driven crank means to advanced terminal positions and returned by spring means to a starting position, with supervisory switch means actuated in and between such positions for effecting connections in a control circuit for any desired instrumentality and also to govern subcircuits controlling the starting and stopping of the motor means and certain resetting components in timing cycles.

3,562,764

ANNULAR TYPE CERAMIC FILTER DEVICE

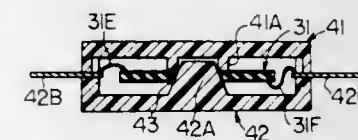
Satoru Fujishima, Kyoto-fu, Japan, assignor to Murata Manufacturing Co., Ltd., Kyoto-fu, Japan

Filed Oct. 25, 1968, Ser. No. 770,701

Int. Cl. H01v 7/00

U.S. Cl. 310—9.4

3 Claims



An annular type ceramic filter device. An annular piezo-electric ceramic resonator vibrating in the circular vibration mode has two terminal electrodes on opposite circuits. A lower housing has a supporting member therein

supporting the resonator at the central aperture thereof. Inner lead wires extend from the electrodes to the lower housing and then to external lead wires extending from the outside of the wall of the housing. An upper housing covers the lower housing.

3,562,765

RECORDING SYSTEM FOR BUSINESS MACHINES

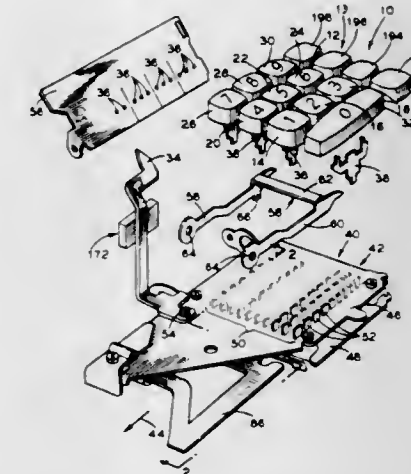
Francis C. Marino, Huntington, N.Y., assignor to Digiltronics Corporation, Albertson, N.Y., a corporation of Delaware

Filed Jan. 16, 1968, Ser. No. 698,302

Int. Cl. G11b 13/00

U.S. Cl. 340—172.5

14 Claims



A data recording system for a keystroke operated business machine for recording the character entries and the functions performed by the machine in a form presentable to a computer and the like. The system includes a plurality of storage means for storing respective signals which are indicative of the character entered into the machine and sampling means for sensing the plurality of storage means signal to produce a recording signal only after the business machine has been mechanically committed to enter the identical character. Hence, a direct correspondence is maintained between the character entered into the machine and the record of such entry.

3,562,766

BUCKLE FOR ADJUSTABLE BELT

George A. Dye, 2630 Corvallis Ave.,

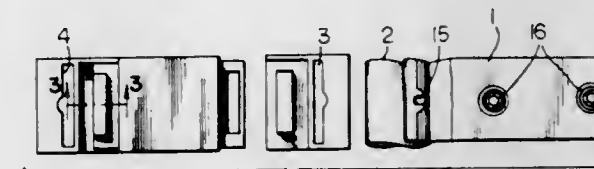
Fort Wayne, Ind. 46809

Continuation-in-part of application Ser. No. 434,889, Feb. 24, 1965. This application Feb. 14, 1969, Ser. No. 799,246

Int. Cl. A44b 13/00, 17/00

U.S. Cl. 2—321

7 Claims



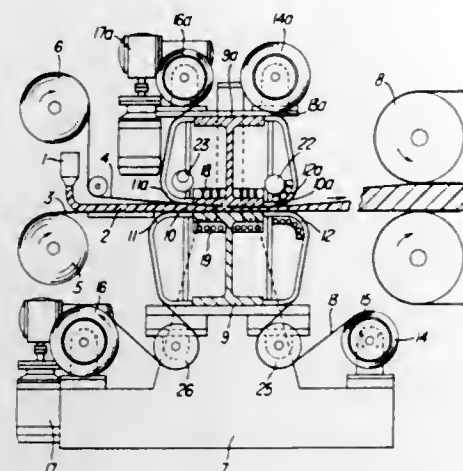
An improved belt buckle is disclosed in two embodiments. The first embodiment is a two piece structure with each piece having one end slotted to receive the bight of a waistband. One piece has a flanged protrusion and the other piece has an aperture to admit the flanged protrusion when the pieces are in one orientation, but which will not allow its removal when they are in a second orientation. The second embodiment is a symmetric three piece structure having two couplings each similar to the one in the first embodiment.

3,562,767
APPARATUS FOR THE CONTINUOUS DISTRIBUTION OF EXPANDABLE LIQUIDS
 Michel Mallet and Georges Zeller, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France, a body corporate of France

Filed Nov. 1, 1968, Ser. No. 772,698
 Claims priority, application France, Nov. 2, 1967, 126,795

Int. Cl. B29d 7/14
 U.S. Cl. 18—4

7 Claims



The specification describes an apparatus for the continuous distribution of expandable liquids, such as polyurethane, between two fixed, smooth plate surfaces. Between each of the foils and associated plate surfaces a film e.g. of poly(ethylene glycol terephthalate) is moved relative to both the foil and plate surfaces, preferably in the opposite direction to the foils. The coefficient of sliding friction between the films and foils is less than 1, preferably less than 0.5.

3,562,768
PROCESS FOR PRODUCING FINELY SUBDIVIDED ALKALI METAL POLYPHOSPHATE
 Richard Courtney Edquist, Melbourne, Victoria, Australia, and Richard Mark Orpen Maunsell, Toronto, Ontario, Canada, assignors to Electric Reduction Company of Canada Ltd., Toronto, Islington, Ontario, Canada, a Canadian company

Filed Nov. 22, 1966, Ser. No. 598,145
 Claims priority, application Australia, Nov. 22, 1965, 66,816/65

Int. Cl. C01b 25/30, 25/38
 U.S. Cl. 23—107

11 Claims

The invention provides a process for removing water from aqueous solutions of solids, in particular from heat sensitive solids, by causing such a solution to flow into a fast moving stream of combustion products. The invention is of particular use in controlling temperature sensitive reactions occurring in the solids being dried, which is of especial importance in the production of condensed alkali metal phosphates from orthophosphate liquor.

3,562,769
PROCESS FOR THE PREPARATION OF PHOSPHORIC ACID
 Yujiro Sugahara, Tokyo, Hiroyuki Naito, Tsuruoka-shi, Masahide Ogawa, Nakajo-machi, and Jinichi Igarashi, Tsuruoka-shi, Japan, assignors to Mizusawa Kagaku Kogyo Kabushiki Kaisha, Higashi-ku, Osaka, Japan, a corporation of Japan

No Drawing. Filed May 14, 1968, Ser. No. 728,876
 Claims priority, application Japan, May 17, 1967, 42/30,846

Int. Cl. C01b 25/22
 U.S. Cl. 23—165

10 Claims

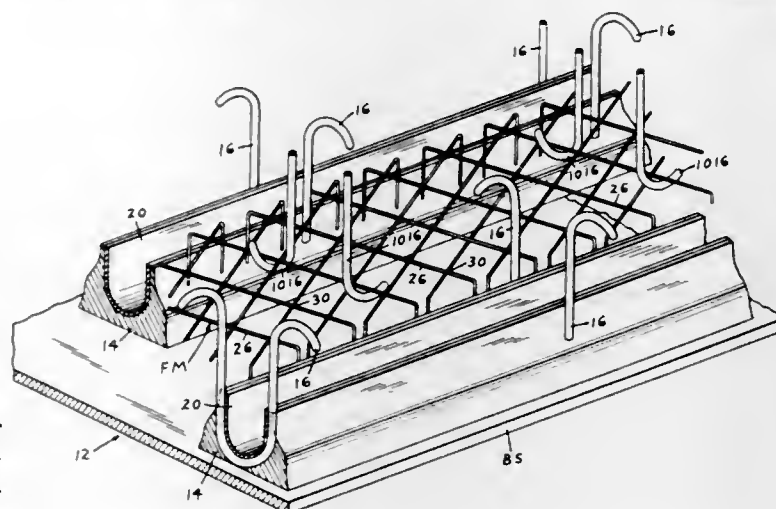
A process for the preparation of phosphoric acid which comprises adding at least one disintegration-preventing agent selected from the group consisting of alkali

metal salts and amorphous silica and sulfuric acid to calcium phosphate or phosphate rock, heating the resultant mixture to 100–300° C. to convert the same to perfectly solid, non-disintegrable small masses, and thereafter extracting the phosphoric acid component from the masses.

3,562,770
SEPARABLE FASTENER OF THE FLEXIBLE HOOKING TYPE
 George H. Erb, Cuttingsville, Vt., assignor to Velcro S.A., Nyon, Switzerland, a corporation of Switzerland
 Filed June 22, 1967, Ser. No. 648,118
 Int. Cl. A14b 17/00

U.S. Cl. 24—204

19 Claims

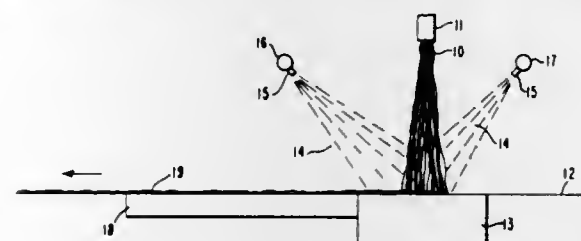


A three level hermaphrodite separable fastener element having a flexible base sheet, a large number of closely spaced flexible and resilient hooks secured to and extending vertically from the base sheet and a network of criss-crossed, relatively movable, flexible, resilient strands secured to the base sheet and lying in a plane between the open ends of the hooks and the backing sheet. When two such fastener elements are pressed together to form a closure the hooks of each element become enmeshed with the strands of the other. Also, apparatus for continuous forming of such fastener element from three continuous prefabricated webs of hook-forming, mesh-forming and base sheet-forming materials respectively. The apparatus includes multiple sets of shaped metal bands which converge with the hook-forming and mesh-forming webs, longitudinally corrugating the webs and holding them in predetermined shape while being heat set and secured to the base-sheet forming web.

3,562,771
PROCESS FOR PREPARATION OF CONTINUOUS FILAMENT NONWOVEN WEBS
 Anton F. Fridrichsen, Nashville, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
 Continuation-in-part of application Ser. No. 676,815, Oct. 20, 1967. This application Aug. 29, 1968, Ser. No. 778,885
 Int. Cl. D02g 1/16; D04h 3/00

U.S. Cl. 28—76

4 Claims



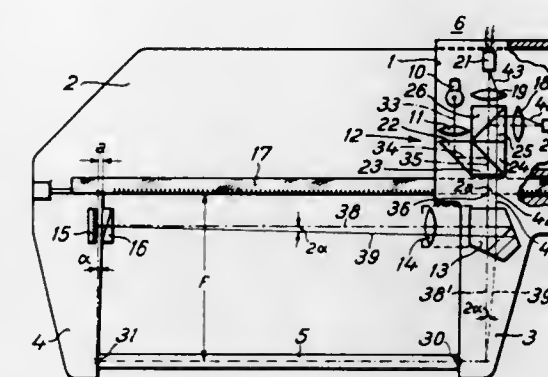
In a process for preparing a nonwoven web wherein electrostatically charged continuous filaments are forwarded by jets to a receiving area which comprises a

moving foraminous receiver covering a suction laydown zone at least at the point of initial filament deposition, the filaments are treated with water in the forwarding jets and/or in the receiving area to improve the pinning of the web to the foraminous receiver.

3,562,772
MEASURING DEVICE
 Walter Erbe, Lohnberg, Germany, assignor to Ernst Leitz G.m.b.H., Wetzlar, Germany
 Filed Jan. 9, 1969, Ser. No. 790,038
 Claims priority, application Germany, Jan. 19, 1968, P 16 73 969.8
 Int. Cl. G01b 5/00

U.S. Cl. 33—143

8 Claims

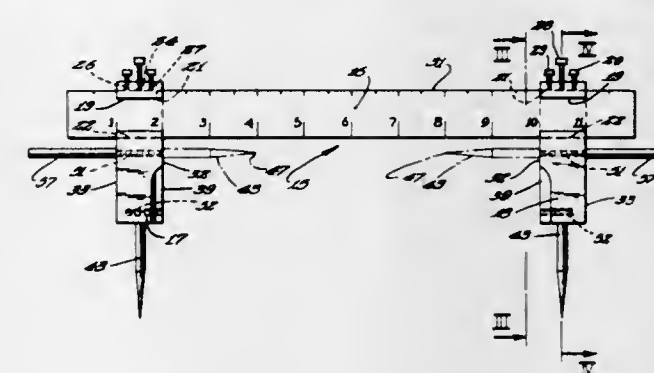


A measuring device including means for determining the position and length of an object to be measured, a measuring scale of which the plane of the graduation or grating is positioned distant from the plane of the measurement, and wherein an image of the grating is projected onto itself by an illumination device, an image-forming system, and a plane mirror, and a pulse-generating system which includes photoelectric receivers. The means for determining the position is in connection with the measuring scale and the plane mirror, and, for the purpose of avoiding errors in measurement which can result from a tilting of the plane of the means for determining the position, the focal length of the image-forming system is made equal to the distance between the plane of the measurement and the plane of the measuring scale grating. Thus, the measuring scale is placed optically in the plane of the measurement.

3,562,773
UNIVERSAL GEOMETRICAL MEASURING INSTRUMENT
 George Wilamowski, 4818 Wegg, East Chicago, Ind. 46312
 Filed Jan. 6, 1969, Ser. No. 789,128
 Int. Cl. G01b 5/00

U.S. Cl. 33—143

2 Claims



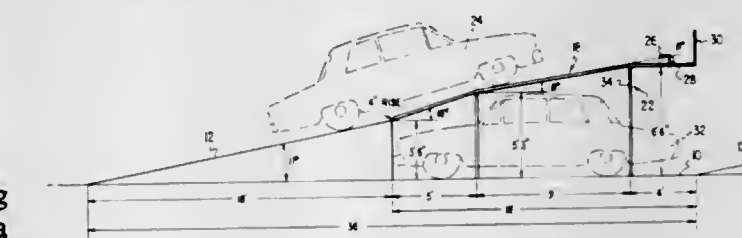
A universal geometrical measuring instrument of the beam-trammel type adaptable to form opposed contact surfaces of various configurations to indicate dimensional distances between similar opposed surfaces of a

variety of configurations formed on a workpiece to be measured. The measuring instrument includes a scale or beam having a pair of trammel blocks releasably secured thereto and slidable therealong. Each trammel block includes means forming at least a pair of apertures, with one aperture of the pair disposed normal to the other aperture, and means engageable with the apertures forming contact surfaces, indicating points and scribes to measure dimensional distances of surfaces having a variety of configurations, for example cylindrical surfaces, undercut groove portions, threads, slots and parallel surfaces. Also, means are provided for clamping two or more scales in a series arrangement to provide an extended scale to facilitate measuring exceptionally large workpieces.

3,562,774
APPARATUS FOR INCREASING THE SELF-PARKING CAPACITY OF A PARKING LOT
 Wayne B. Stone, Jr., Kensington, Md.
 (7307 Nevis Road, Bethesda, Md. 20034)
 Filed Nov. 1, 1968, Ser. No. 772,617
 Int. Cl. E04h 6/10

U.S. Cl. 52—174

4 Claims

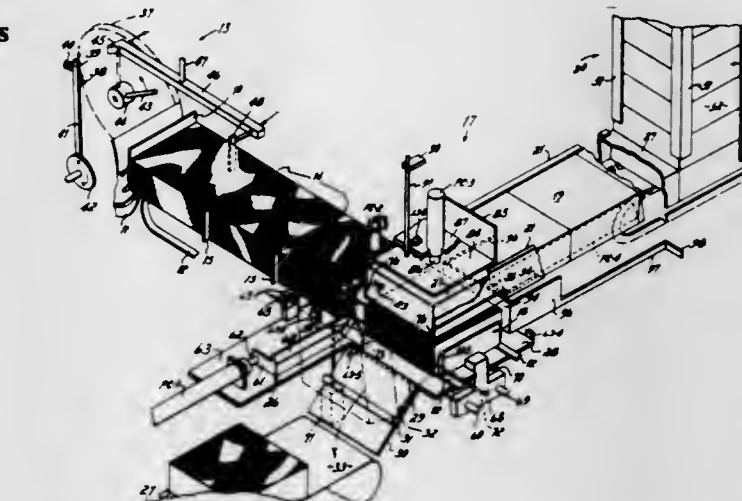


The disclosure introduces a new concept in self-parking wherein a plurality of automobiles may be parked on the original surface of a conventional parking lot and a like plurality of automobiles may be parked in superposed relation thereto. A plurality of similarly inclined drive lanes are provided each of which drive lanes merges at one lateral portion thereof with the original parking lot surface and the other lateral portion of which merges with an upper parking level spaced above the level of the original lot surface.

3,562,775
ENVELOPE BOXING METHOD AND APPARATUS
 James A. Mullins, Cincinnati, Ohio, assignor, by mesne assignments, to Crown Envelope Corp., Cincinnati, Ohio, a corporation of Ohio
 Filed May 9, 1968, Ser. No. 727,942
 Int. Cl. B65b 35/30, 57/20

U.S. Cl. 53—26

13 Claims



A method and apparatus for boxing envelopes comprising, in preferred form, the steps of and the means

for (a) separating a preselected number of envelopes into a group; (b) positioning a box in inverted position above that group of envelopes; (c) joining the box and the envelope group together to locate the envelopes inside the box; and (d) turning the box over, with the envelopes retained in it, into an upright or carrying position.

3,562,776

LOW TEMPERATURE SEPARATION OF CHLORINE, HYDROGEN CHLORIDE AND CYANOGEN CHLORIDE MIXTURES

Jean Riethmann and Leo Scheck, Basel-Land, Switzerland, assignors to Gelgy Chemical Corporation, Ardsley, N.Y., a corporation of New York

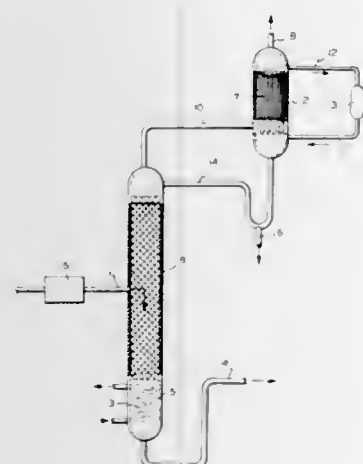
Filed Dec. 30, 1968, Ser. No. 787,778

Claims priority, application Switzerland, Jan. 10, 1968, 322/68

Int. Cl. F25j 3/00, 3/08, 1/02

U.S. Cl. 62—28

2 Claims displaceable control bars and preset counter means for the loop doublings.



A process for the recovery of constituents of a gaseous mixture formed in the catalytic production of cyanogen chloride or in the subsequent trimerization of the cyanogen chloride to cyanuric chloride in the vapor phase is described which comprises removing from the gaseous mixture consisting substantially exclusively of chlorine, hydrogen chloride and cyanogen chloride the hydrogen chloride by fractional distillation; the residual mixture of chlorine and cyanogen chloride can be recycled into the aforesaid process for producing cyanuric chloride.

3,562,777

STRAIGHT BAR KNITTING MACHINES

Raymond Blood, Shephed, Loughborough, England, assignor to William Cotton Limited

Filed Dec. 9, 1968, Ser. No. 782,091

Claims priority, application Great Britain, Dec. 30, 1967, 59,288/67

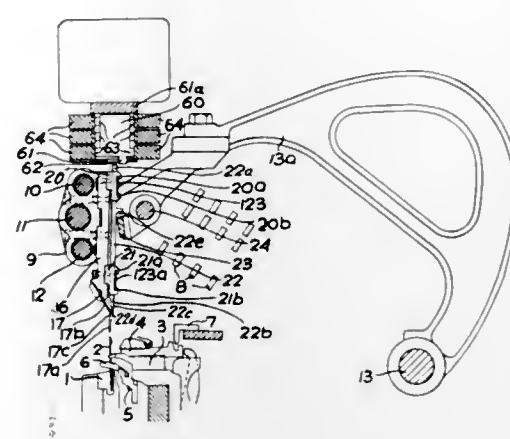
Int. Cl. D04b 15/04

U.S. Cl. 66—96

10 Claims

In a straight bar knitting machine, common selecting means for control of fashioning, lace patterning, and loop doublings, the latter being at infinitely variable locations in a last knitted course of rib fabric to reduce the course length to that required for non-rib fabric to follow on, wherein the usual operable narrowing head has selector elements corresponding to the needles and selectively operable each bit its own associated electromagnetic device to render loop transfer points effective on the needles selectively, and wherein the electromagnetic devices are under control of a corresponding number of electric switches which are selectively operable by a variable

pattern control means, or under control of a pattern drum or punched chart, or under control of endwise



3,562,778

PROCESS FOR THE PRODUCTION OF AMMONIUM POLYPHOSPHATE

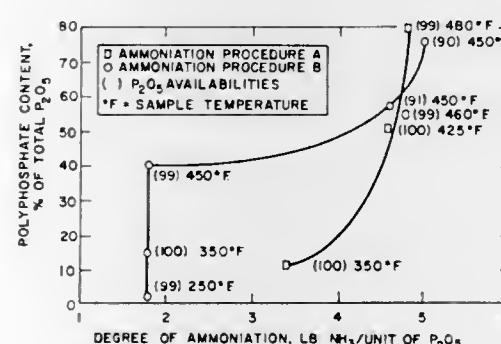
Milton R. Siegel and Horace C. Mann, Jr., Florence, Ala., assignors to Tennessee Valley Authority, a corporation

Filed Aug. 7, 1967, Ser. No. 658,962

Int. Cl. C05b 7/00

U.S. Cl. 71—34

1 Claim



AVAILABILITY OF P_2O_5 AS AFFECTED BY AMMONIATION PROCEDURE

Improved process for the production of high-analysis solid and liquid ammonium polyphosphate fertilizers of high P_2O_5 polyphosphate and availability levels from wet-process phosphoric acid and ammonia. The acid is ammoniated so that the bulk of the ammonia is fixed while the polyphosphate level is low and then the polyphosphate level is increased to the desired value.

3,562,779

STROKE ADJUSTING MEANS

Teruo Oikawa, Murayama-shi, Japan, assignor to Nippon Kikai Keiso Kaisha, Ltd.

Filed Dec. 23, 1968, Ser. No. 786,099

Claims priority, application Japan, Dec. 23, 1967, 42/82,514

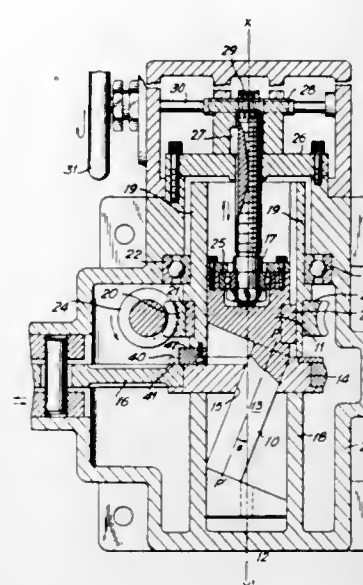
Int. Cl. F16h 35/08; F04b 9/08

U.S. Cl. 74—837

1 Claim

A stroke adjusting mechanism for a controlled volume pump provided between the driving means and the driven member including an eccentric shaft, a cam secured thereto and connected to said driven member and adjusting means connected to one end of the eccentric shaft through

a bearing to displace said eccentric shaft along the axis thereof, and wherein said cam is formed with a cam seat therein adjacent to and aligned with the driven



member and said driving means is coupled to said cam by a key riding in said cam seat for the rotation of said cam and the displacement of said driven member.

3,562,780

TEMPERATURE CONTROL OF IRON ORE REDUCING FLUIDIZED BEDS

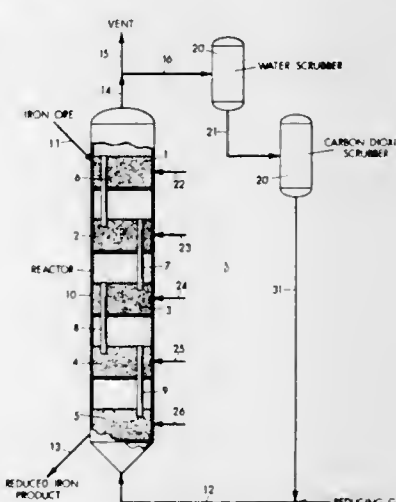
Benjamin Eisenberg, Parsippany, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

Filed Sept. 5, 1967, Ser. No. 665,369

Int. Cl. C21b 1/02

U.S. Cl. 75—26

9 Claims



In staged fluidized reduction of particulate ores, process heat is provided in one or more of the several stages by injecting into said stages oxygen enriched mixtures of water and/or carbon dioxide.

3,562,781

TITANIUM-BEARING CHROMIUM-NICKEL-COPPER STAINLESS STEEL

Harry Tanczyn, Baltimore, Md., assignor to Armco Steel Corporation, Middletown, Ohio, a corporation of Ohio

No Drawing. Original application Nov. 17, 1964, Ser. No. 411,730, now Patent No. 3,357,868, dated Dec. 12, 1967. Divided and this application Sept. 18, 1967, Ser. No. 668,687

Int. Cl. C22c 39/54

U.S. Cl. 75—125

5 Claims

Chromium-nickel-copper stainless steel, additionally containing titanium, and of such composition balance, i.e.,

amount and relation between the several ingredients chromium, nickel, copper and titanium, as to be comparatively ductile and readily workable in one condition of heat-treatment (annealed condition) with a minimum of hardening during such working and yet readily precipitation-hardened within the cold-worked portions thereof by simple heat-treatment at comparatively low temperatures (below the temperature resulting in heat tint and scaling), giving desired articles of ultimate use with hardened surfaces but with other portions of good retained ductility and toughness. More particularly, steel, and articles fashioned thereof, essentially consisting of 10% to 25% chromium-molybdenum, with chromium at least 10% and molybdenum up to 5%; 5% to 20% nickel-manganese, with nickel at least 4% and manganese up to 15%; 1% to 5% copper; .3% to 4% titanium; and remainder substantially all iron.

3,562,782

RESTRICTOR

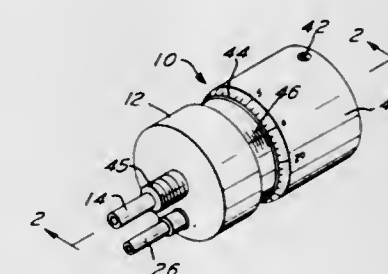
Edward Zychal, Cornwells Heights, Pa., assignor to Zyco Manufacturing, Inc., Cornwells Heights, Pa., a corporation of Pennsylvania

Filed May 8, 1968, Ser. No. 727,494

Int. Cl. F15d 1/00

U.S. Cl. 138—43

9 Claims



A restrictor having an inlet passage and an outlet passage at one end thereof. The inlet passage communicates with a centrally disposed chamber having a porous compressible element surrounding the chamber. A peripheral annular groove surrounds the porous element and communicates with the outlet passage. Liquid or gas is adapted to flow through the interstices in the porous element into the peripheral annular groove to the outlet passage. A micrometer adjustment means is provided at the other end of the restrictor for accurately controlling the size of the interstices of the compressible element and thereby controlling the flow through said element. A chart may be provided with each restrictor so that it is merely necessary to turn the micrometer adjustment means to a predetermined setting in order to obtain the desired flow of liquid or gas through the restrictor.

3,562,783

PROCESS FOR MAKING AGGLOMERATES FROM COAL USING COAL EXTRACT AS BINDER

Everett Gorin, Pittsburgh, Pa., assignor to Consolidation Coal Company, Pittsburgh, Pa., a corporation of Delaware

Filed Mar. 20, 1967, Ser. No. 624,472

Claims priority, application Great Britain, Mar. 20, 1966, 13,571/66

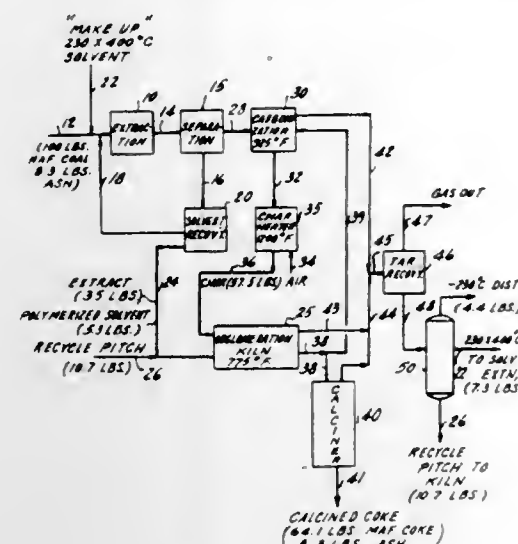
Int. Cl. C10b 53/08

U.S. Cl. 201—6

8 Claims

A process for making agglomerates from non-caking or weakly caking coals which includes tumbling in a rotary kiln, at an elevated forming temperature, carbonaceous material obtained from the coal feedstock and a binder

also obtained from the coal feedstock to form green agglomerates. The binder contains a nondistillable coal ex-



tract fraction which is fluid at the forming temperature in the kiln. The nondistillable coal extract fraction is obtained by solvent extraction of the coal feedstock.

3,562,784

CONTROL VALVE ARRANGEMENTS

John Alfred Lipscombe, Ashford, England, assignor to Walton Engineering Company Limited, London, England, a British company

Filed Jan. 16, 1969, Ser. No. 791,698

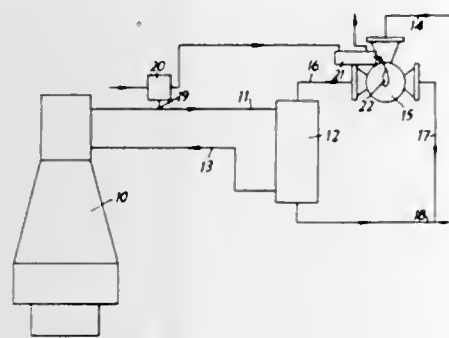
Claims priority, application Great Britain, Jan. 18, 1968, 2,874/68

Int. Cl. F01d 7/16

U.S. Cl. 236—34.5

11 Claims

A temperature responsive control valve arrangement for controlling the temperature of a liquid flowing in a conduit comprises an element responsive to the temperature of the liquid in the conduit, a heat exchanger through which at least part of the flow of liquid and at least part of a flow of a secondary fluid flow in heat exchange relationship, a by-pass valve controlling the flow of either the liquid or the secondary fluid through the heat exchanger for regulating the proportions in which the liquid and the secondary fluid flow through the heat exchanger, by dividing the flow therethrough between the heat exchanger



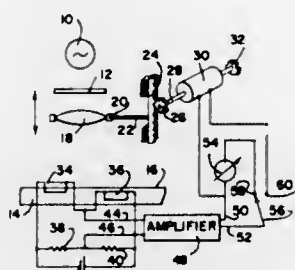
er and a by-pass passage, the valve being adapted so that the total flow area provided thereby for the flows through the heat exchanger and the by-pass passage is constant for all positions of the valve, and a single-acting piston type servo motor connected to the valve and operated by a servo fluid against the restraint of a spring operating on the piston the pressure of which servo fluid is controlled in dependence on the temperature responsive element in a sense to maintain the temperature of said liquid constant.

3,562,785
IMAGE ADJUSTING METHOD
Dwin R. Craig, Galthersburg, Md., assignor to Loge-tonics, Inc., Alexandria, Va., a corporation of Delaware
Division of application Ser. No. 681,940, Nov. 9, 1967, which is a continuation of application Ser. No. 464,817, June 17, 1965, which in turn is a continuation-in-part of application Ser. No. 101,701, Apr. 10, 1961. This application Nov. 20, 1968, Ser. No. 777,360
The portion of the term of the patent subsequent to Feb. 3, 1987, has been disclaimed

Int. Cl. G01j 1/00, 1/36

U.S. Cl. 250—204

6 Claims



Measurement of the degree of focus of an image wherein a pair of light sensitive elements are exposed to the image. In a first embodiment, a pair of photoconductive elements are physically positioned in different focal planes while, in a second embodiment, a light diffusing medium is associated with one of a pair of photosensitive elements whereby that element will receive only average or background illumination. In both embodiments, as the degree of focus of image is varied, an electrical output signal commensurate with focus will be generated.

3,562,786

ORGANOSILICON-SURFACTANT COMPOSITIONS
Donald L. Bailey, Sistersville, W. Va., and Anton S. Peter, Williamsville, and Edward L. Morehouse, New City, N.Y., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 168,527, Jan. 24, 1962. This application Nov. 9, 1966, Ser. No. 592,998

Int. Cl. C11d 1/62, 13/20

U.S. Cl. 252—137

1 Claim

The disclosure deals with mixtures of cationic, non-ionic, or amphoteric organic surfactants and additive amounts of siloxane-oxyalkylene block copolymers. The siloxane-oxyalkylene block copolymers are of the type wherein the two kinds of blocks are linked through an Si-C bond. The block copolymers serve to lower the surface tension of aqueous solutions of the organic surfactants thereby increasing the surface active properties of the organic surfactants, such as foaming, wetting, etc.

3,562,787

FILM-FORMING COMPOSITION

Arthur B. Naselow, Philadelphia, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Dec. 22, 1966, Ser. No. 603,732

Int. Cl. C08g 51/26, 51/58

U.S. Cl. 260—30.2

2 Claims

A liquid film-forming composition containing a polyamide-imide polymer in solution in an organic liquid and containing a monofunctional cyclic anhydride, an aromatic or aliphatic aldehyde or a monofunctional isocyanate to prevent the composition from undergoing any undue increase in viscosity before it can be applied to a substrate under normal use conditions in the manufacture of heat-resistant polymeric films and coated articles.

3,562,788
THERMAL DEGRADATION OF POLYOLEFINS
Doyle A. Weemes and Richard L. McConnell, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester N.Y., a corporation of New York
No Drawing. Filed June 8, 1967, Ser. No. 644,493
Int. Cl. C08f 15/04

U.S. Cl. 260—88.2

20 Claims

A process for the preparation of low viscosity polyolefin waxes by the thermal degradation of high molecular weight olefin polymers in the presence of metal coordination polymerization catalyst residue. The high molecular weight polymer is thermally degraded in the presence of an inactive catalyst residue to produce a low viscosity wax. The thermal degradation is generally carried out at temperatures of about 150 to 400° C. and in the absence of oxygen.

3,562,789

MONOAZODYESTUFFS CONTAINING A 3-N-(β-HYDROXY-α-CYCLOHEXYLOXY OR ARYLOXY) PROPYLAMINO-4-ALKOXY-ALRANOYLANILIDE GROUP

Tsutomu Sasa, Matahiko Asahi, Takanobu Kunihiro, and Hitoshi Takizuka, Ohmura-shi, Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan, a corporation of Japan

No Drawing. Filed Aug. 7, 1967, Ser. No. 658,625

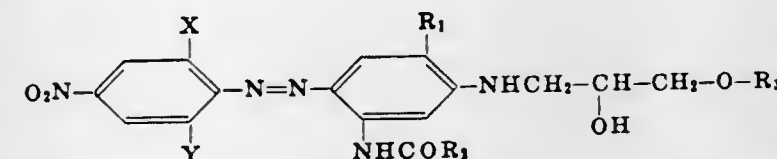
Claims priority, application Japan, Aug. 12, 1966, 41/52,933; Sept. 21, 1966, 41/62,443

Int. Cl. C09b 29/00, 29/36

U.S. Cl. 260—207

12 Claims

A water-insoluble monoazodyestuff having the formula:



wherein X is a member of the group consisting of chlorine, bromine, cyano and nitro; Y is a member of the group consisting of hydrogen, nitro and alkoxy having 1 to 3 carbon atoms; R₁ is methoxy or ethoxy; R₂ is methyl or ethyl; and R₃ is cyclohexyl, phenyl or p-tolyl. These dyestuffs are suitable for dyeing polyesters, polyamide acetate or triacetate to give dyeings which are fast to sublimation, light and wet treatment.

3,562,790

TRI-COMPONENT POLY-PROPYLENE BLEND AND METHOD

Harry W. Coover, Frederick B. Joyner, and Doyle A. Weemes, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Continuation-in-part of applications Ser. No. 477,029, Aug. 3, 1965, and Ser. No. 564,049, July 11, 1966. This application June 6, 1968, Ser. No. 734,884

Int. Cl. C08f 29/12, 37/18

U.S. Cl. 260—876

20 Claims

Polyolefinic tri-component blends capable of being molded into products of excellent clarity and resistance to blushing, comprising (A) from about 65 to about 96 percent by weight of a crystalline polymer selected from block- and copolymers of propylene with less than 10% by weight alpha-olefin; (B) from about 2 to about 15 percent by weight of a polymer of ethylene selected from polyethylene and copolymers of ethylene and less than 5% by weight of alpha-olefin of less than ten carbon atoms; and (C) from about 2 to about 20 percent by weight of a terpolymer of ethylene, propylene and up to

10% by weight of an unsaturated hydrocarbon containing at least 1 double bond, said amorphous terpolymer having an ethylene content of 20 to 80%.

3,562,791

LOUDSPEAKER TELEPHONE CIRCUIT ARRANGEMENT

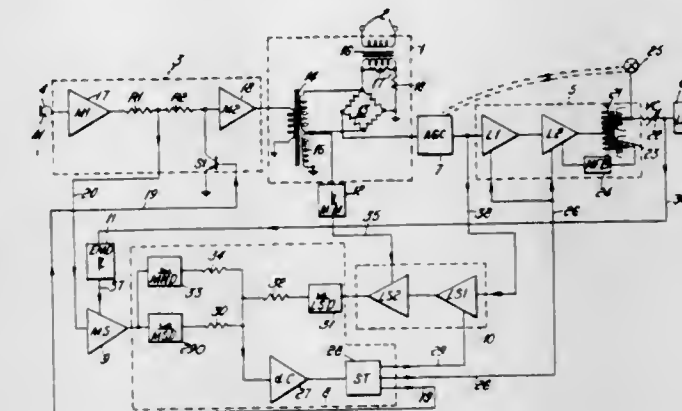
Arthur Herbert Patrick Baker, Sevenoaks, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 15, 1968, Ser. No. 776,136

Claims priority, application Great Britain, Dec. 7, 1967, 55,738/67, 55,739/67, 55,740/67, 55,741/67

Int. Cl. H04m 1/60

U.S. Cl. 179—1

6 Claims



A loudspeaker telephone circuit arrangement providing a hybrid circuit coupled to a telephone line, a microphone transmission channel and a loudspeaker reception channel coupled to an input and an output of the hybrid circuit respectively, a control circuit coupled to the microphone channel and the loudspeaker channel for controlling the transmission to and reception from said telephone line respectively, a microphone switching amplifier and a loudspeaker switching amplifier coupled between the control circuit and the microphone channel and between the control circuit and the loudspeaker channel respectively for biasing the control circuit in opposite directions, an echo detector coupled between the loudspeaker channel and the microphone switching amplifier to prevent loudspeaker signals from being transmitted out on the telephone line, and a breakthrough muting circuit coupled between the hybrid circuit and the loudspeaker switching amplifier to prevent "breakthrough" of signals from said microphone channel to the loudspeaker channel via the hybrid circuit.

3,562,792

PIEZOELECTRIC TRANSFORMER

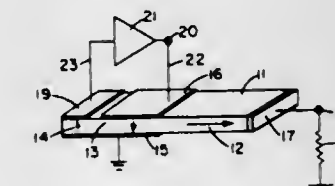
Don A. Berlincourt, Chagrin Falls, and Lawrence S. Silker, Shaker Heights, Ohio, assignors to Clevite Corporation, a corporation of Ohio

Continuation-in-part of application Ser. No. 651,875, July 7, 1967. This application June 4, 1968, Ser. No. 734,416

Int. Cl. H01v 7/00

U.S. Cl. 310—8

8 Claims



A body of ceramic piezoelectric material of the lead titanate, lead zirconate type with an additive of the iron oxide type is provided having regions electroded and

polarized such that the electrical impedances are markedly different. High voltage transformations are obtained in this manner between input and output electrodes. A third set of electrodes coupled to one of the other sets of electrodes enables the transformer to accomplish self-oscillation. In order to enable the body to be supported at more than one vibrational node, the body is caused to vibrate at a harmonic of its fundamental frequency of vibration or more precisely in a mode with one full acoustic wavelength along the ceramic body, or two or more half wavelengths.

3,562,793

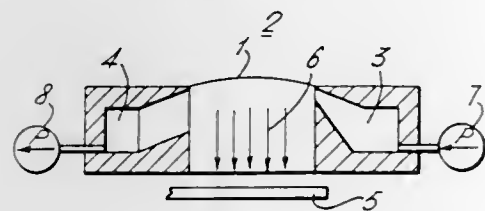
EXTERNALLY GAS COOLED WINDOWS FOR PARTICLE ACCELERATORS

John David McCann, Abingdon, and Robin Walter Ellecker Fuller, Wantage, England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed Aug. 1, 1967, Ser. No. 657,658
Claims priority, application Great Britain, Aug. 8, 1966, 35,466/66

Int. Cl. H01j 7/26; H01i 33/04

U.S. Cl. 313—36

8 Claims



A particle accelerator exit window is provided with means to direct a laminar flow of gas across the external surface of the window.

3,562,794

CASSETTE FOR FIXED-VALUE STORES

Hans-Juergen Richter, Munich, and Josef Zehentbauer, Munich-Pasing, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany, a corporation of Germany

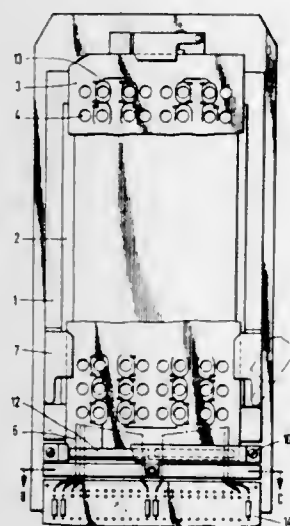
Filed Sept. 5, 1967, Ser. No. 665,613

Claims priority, application Germany, Sept. 13, 1966, S 105,843

Int. Cl. G11c 5/04, 11/06

U.S. Cl. 340—174

9 Claims



A cassette for fixed-value stores, utilizing transformer cores which are controlled by conductor configurations

applied to sheet-like carriers, in which such cassette is constructed for the reception of a stack of such sheet-like carriers, which cassette is completely open on one side and on the opposite side at least partially open for facilitating the removal of carriers, therefrom, a plurality of flexible contacts extending into the interior space of the cassette, corresponding in number at least to the number of sheet-like carriers to be received, which contacts are disposed in staggered relation with respect to one another, parallel to the planes of carriers received therein, by approximately the thickness of one sheet plus the thickness of a contact, perpendicularly to the planes of such carriers by approximately the thickness of one sheet, said contacts having such lengths that they will contact the respective conductor configurations applied to sheet-like carriers inserted therein, and in which the sheet-like carriers may be retained in the cassette by gripping means extending inwardly from edges of the cassette, and in which a contact pressure device forming a part of the cassette frame may be provided at the contacted end of inserted carriers, which presses such ends against one another and thereby also against the contacts.

3,562,795

DIGITALLY INDICATING DOUBLE-BEAM PHOTOMETER

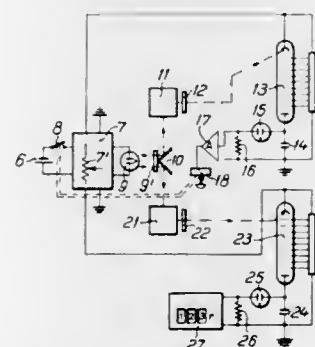
Helmuth Frenk, Wetzlar, Germany, assignor to Ernst Leitz G.m.b.H., Wetzlar, Germany
Filed May 22, 1967, Ser. No. 640,102

Claims priority, application Germany, June 2, 1966, L 53,758

Int. Cl. G01j 1/58; G01n 21/38

U.S. Cl. 356—222

5 Claims



In a digitally indicating double-beam photometer having at least one photoelectric receiver two saw tooth generators are employed. Each saw tooth generator is responsive to one beam and is controlled by electrical signals corresponding to the light intensity of the beam to which it is attached. The ratio of the electrical values determining the rise time of the saw tooth generators is 1:n, wherein n represents the light intensity of the comparison beam as measured in digital units. The output signal of the saw tooth generator to the comparison beam controls a relay after having been suitably amplified; the output signal of the saw tooth generator responsive to the measuring beam operates a counter mechanism.

A first embodiment is disclosed in which two photoelectric receivers are employed, one in the path of each beam. Each one of the receivers is connected to one of the saw tooth generators.

A further embodiment is disclosed in which only one photoelectric receiver is employed with the two beams being alternately switchable onto the only receiver. A double throw switch is connected to the receiver and is adapted to connect the receiver to either of the saw tooth generators alternately and synchronously with the switching of the beams.

3,562,796

FOLDABLE READING STAND OF ALL WIRE

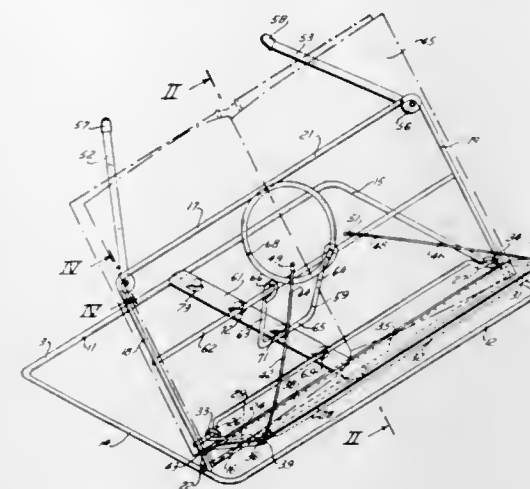
James J. Jacobson, New York, N.Y., assignor to Wahl Associates, Inc., Long Island City, N.Y.
Filed Oct. 31, 1968, Ser. No. 782,505

Int. Cl. A47b 23/00

U.S. Cl. 248—456

8 Claims

A foldable reading stand of all wire structure has a base portion of wire structure and a book supporting portion of wire structure rotatably mounted on the base portion. The book supporting portion comprises a book back supporting structure rotatably mounted on the base



portion and a book bottom supporting part rotatably mounted on the book back supporting wire structure.

3,562,797

PRODUCTION OF MONO-OLEFINS

Shengen Hu, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Jan. 9, 1969, Ser. No. 790,161

Int. Cl. B01j 11/40; C07c 11/04

U.S. Cl. 260—683.3

11 Claims

Methods for preparing mono-olefins, useful in the preparation of detergent alkylates, wherein a long chain paraffin feed material is passed in the presence of oxygen at elevated temperatures into effective contact with Type A molecular sieve to thereby result in selective dehydrogenation of the paraffin.

3,562,798

CONNECTOR APPARATUS

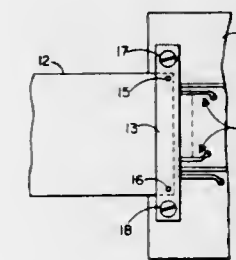
Thomas L. Bragg, Jr., Palm Harbor, Fla., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Jan. 29, 1969, Ser. No. 795,015

Int. Cl. H05k 1/12

U.S. Cl. 339—17

3 Claims



A connector for connecting flat cables to printed circuit boards is shown. The insulation at the end of the cable is removed and the cable is clamped to a base which carries matching conductors thereon whereby connections are made directly between the conductors on the base and the conductors in the cable.

3,562,799

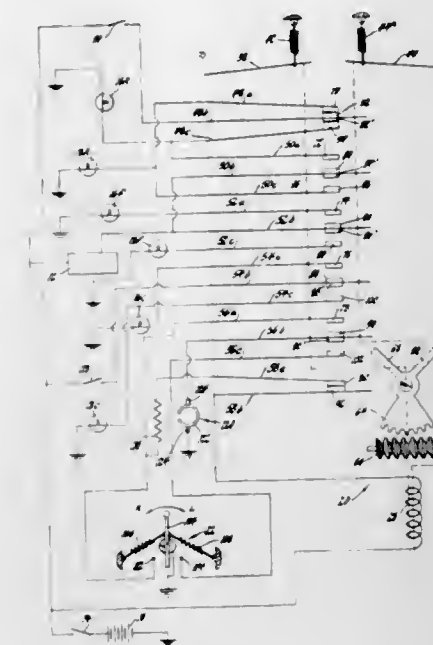
TURN SIGNAL SYSTEM WITH AUTOMATIC DISTANCE CANCELLATION

John E. Creager, Fenton, and George B. Hardenbrook, Jr., Flint, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 5, 1968, Ser. No. 781,572

Int. Cl. B60g 1/24, 1/38

U.S. Cl. 340—56

3 Claims



A turn signal system is disclosed which includes a turn signal switch for controlling actuation of one or both armatures of a dual armature relay to energize the appropriate turn signal lamps. One of the relay armatures carries a switch operating gear which is adapted to be coupled to the odometer drive mechanism of the vehicle to open the circuit to the relay and deenergize the signal lamps after the vehicle has traveled a predetermined distance.

3,562,800

ASPHALTENE HYDRODESULFURIZATION WITH SMALL CATALYST PARTICLES UTILIZING A HYDROGEN QUENCH FOR THE REACTION

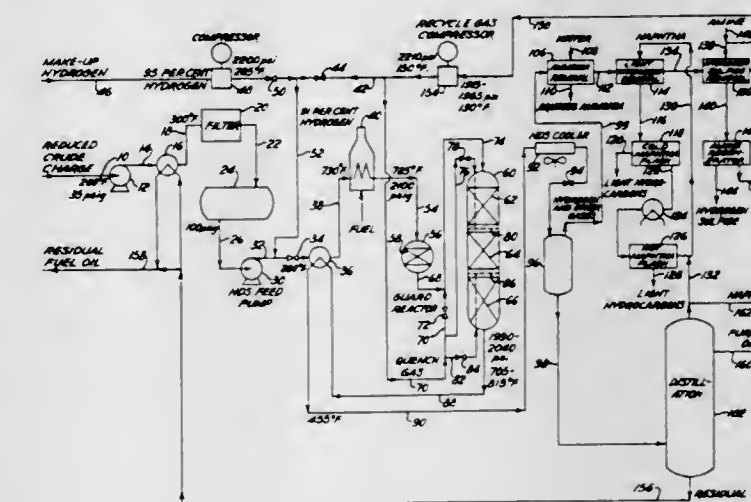
Edgar Carlson, Allison Park, Alfred M. Henke, Springdale, William R. Lehrian, Verona, Joel D. McKinney, Pittsburgh, and Kirk J. Metzger, Verona, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

Filed Oct. 25, 1968, Ser. No. 770,625

Int. Cl. C10g 23/02

U.S. Cl. 208—216

23 Claims



The hydrodesulfurization of a crude oil or a reduced crude containing the asphaltene fraction proceeds at un-

expectedly low temperatures by utilizing a catalyst comprising a Group VI and Group VIII metal on alumina when the catalyst particles are very small and have a diameter between about $\frac{1}{20}$ and $\frac{1}{40}$ inch and the reaction is quenched with hydrogen.

3,562,801

BELT-TYPE BLADE SHARPENER APPARATUS FOR A CLOTH CUTTING MACHINE

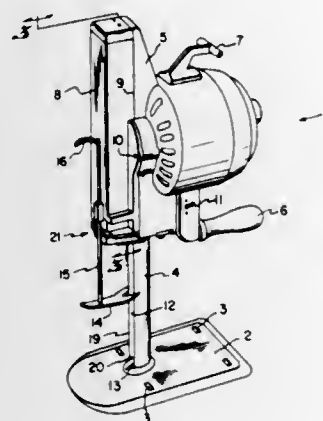
Robert G. Stucker, Cincinnati, Ohio, assignor to The Wolf Machine Company, Cincinnati, Ohio, a corporation of Ohio

Filed Sept. 11, 1968, Ser. No. 759,073

Int. Cl. B24b 19/00

U.S. Cl. 51—246

10 Claims



A pad arrester for an endless belt-type blade sharpener used with a vertical blade cloth cutting machine. The pad arrester prevents the bottom belt's pad from urging the bottom belt into the reciprocating knife blade's path when the blade sharpener apparatus reaches the halfway point of its sharpening cycle, that is, when the blade sharpener bottoms out as it ends its downward stroke and starts its return stroke. Thus, the pad arrester prevents the bottom belt of the blade sharpener from being sliced through and/or the blade from being disfigured as the sharpener apparatus commences its return stroke.

3,562,802

WIRE FRAMES FOR BRASSIERES AND THE LIKE

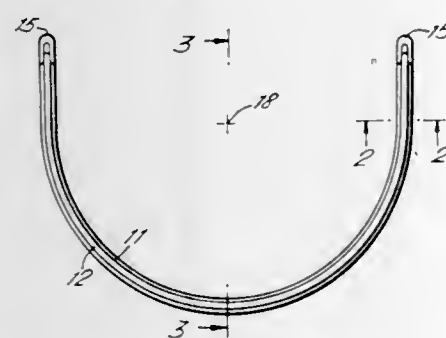
Robert J. Avis, Horndean, England, assignor to Ketterane Limited, London, England, a British company

Filed Oct. 7, 1968, Ser. No. 765,364

Int. Cl. A41c 3/10

U.S. Cl. 128—476

6 Claims



The invention relates to a reinforcement frame adapted for use in cups of ladies' brassieres, the frame comprising

a single length of resilient wire shaped into substantially U-shaped formation for conforming to the curvature of the lower periphery of the root of a wearer's breast, the wire having a plane surface on one side for presentation towards the body of the wearer and a surface opposed to said one said having a surface portion which projects in a direction away from the plane surface.

3,562,803

PLATE BREAKING APPARATUS

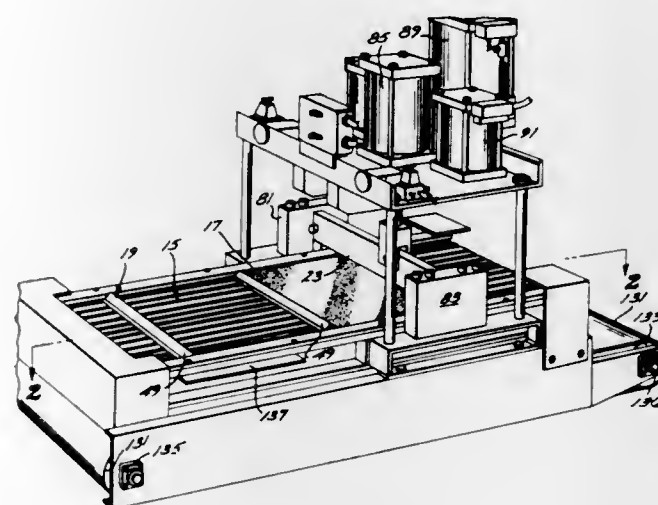
Joe Townsend, La Palma, Calif., assignor to Centrifugal Products, Inc., Long Beach, Calif., a corporation of California

Filed Aug. 1, 1969, Ser. No. 846,725

Int. Cl. B26f 3/00

U.S. Cl. 225—104

9 Claims



An apparatus for breaking brittle plates having flexible backing thereon, such apparatus including a conveyor for advancing the plates along a bed in selected increments. The bed is formed with a transverse depression defining a breaking edge and a breaking head is aligned with such depression and is selectively lowered to engage the plate and break it over such edge. Control means is provided for advancing the conveyor the selected increments and then actuating the breaking head to effect breaking thereof over the breaking edge.

3,562,804

LOW BULK VISCOSITY MASTIC COMPOSITIONS AND PROCESS FOR PREPARING SAME

Kenneth W. Powers, Berkeley Heights, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 550,649, May 17, 1966. This application Aug. 19, 1968, Ser. No. 753,700

Int. Cl. C08d 3/04

U.S. Cl. 260—85.3

13 Claims

Low bulk viscosity (room temperature flowable) polyisobutylene backbone type mastic compositions which are curable to solid elastomeric vulcanizates are formed by the reaction of C_4 to C_6 conjugated diolefins with a major portion of isooolefin in the presence of a catalyst system comprising an ethyl aluminum dichloride with a halogenated organic promoter, preferably benzyl chloride.

3,562,805

BUS STRIPS AND CONTACTS

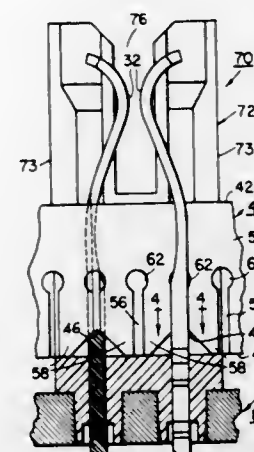
Thomas J. Stokes, Philadelphia, Pa., assignor to Elco Corporation, Willow Grove, Pa., a corporation of Delaware

Filed Sept. 12, 1968, Ser. No. 759,343

Int. Cl. H01r 11/22, 13/50, 25/00

U.S. Cl. 339—176

14 Claims



An electrical contact for use in a card-edge connector has a nose portion with a bifurcated section comprising a pair of legs separated by a bifurcating slot. At least one chamfered surface is coined into the contact below the bifurcating slot, and a bus strip is provided with a similar chamfered surface for mating with the chamfered surface on the contact when the bus strip is inserted into the bifurcated slot. An alternative embodiment comprises a card-edge contact which has flat, parallel, uncoined surfaces below the bifurcating slot, and a bus strip which has a contact-receiving slot defined, in part, by inwardly facing projections having contact-engaging surfaces thereon. The bus strip is inserted into the bifurcating slot of the contact with the flat, parallel, uncoined surfaces of the contact positioned within the contact-receiving slot of the bus strip.

3,562,806

RUMEN STABLE MEDICAMENT AND/OR NUTRIENT COMPOSITIONS

Peter M. Grant, Brazelton Fulkerson, and John W. Mench, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Sept. 10, 1968, Ser. No. 758,874

Int. Cl. A61k 9/00

U.S. Cl. 424—35

26 Claims

Materials such as medicaments and nutrients that decompose when they are fed orally to ruminants because of their instability in the in vivo rumen environment can be protected from the ruminant environment by effectively coating such materials with special nitrogen-containing cellulosic materials having the ability to resist being degraded in the rumen, but also having the additional ability to dissolve in the in vivo abomasal fluid.

3,562,807

HYDRAULIC JARS

Damon T. Slator, Houston, William T. Lee, Magnolia, and Archie W. Pell, Houston, Tex., assignors to Bowen Tools, Inc., a corporation of Texas

Filed Sept. 20, 1968, Ser. No. 767,905

Int. Cl. E21b 1/06

U.S. Cl. 175—297

9 Claims

A hydraulic jar for applying a jarring blow to a stuck pipe or fish in a well, wherein means are provided for

permitting rapid and substantially unrestrained closing or return of the jar to the pulling position, and wherein means are provided for developing greater pulling forces



than with prior hydraulic jars without becoming jammed or stuck internally during the pulling stroke, even in wells having high pressures.

3,562,808

PUMP AND WHEELED DISPENSER FOR VISCOUS FLUIDS

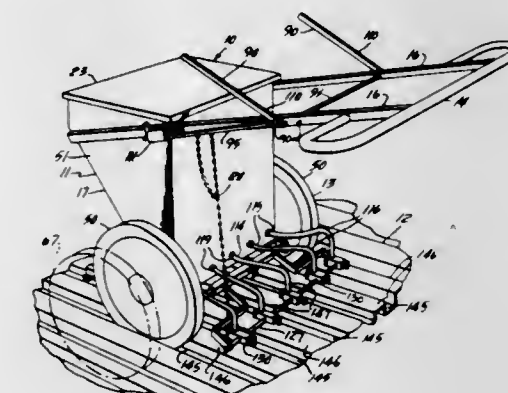
William J. Whitley, Jr., Sanford, Fla., assignor to Julien P. Benjamin Equipment Company, Jacksonville, Fla., a corporation of Florida

Filed Oct. 8, 1968, Ser. No. 765,775

Int. Cl. A01c 15/00

U.S. Cl. 222—177

3 Claims



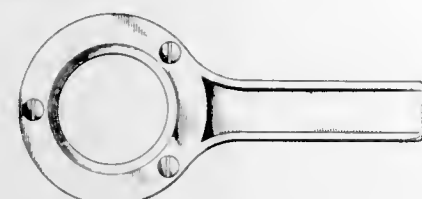
An apparatus for roof construction and repair work comprises a manually propelled wheeled vehicle that includes a container for viscous adhesive material and a submerged squeegee type pump which has a flexible vane type rotor that is driven by the wheels in an arrangement which permits the wheels to be individually adjusted to adapt to the spacing between grooves in roof decking materials. The pump has a plurality of discharge ports and a conduit system which includes flexible lengths that receive the adhesive from ports is provided in the apparatus. The discharge ends of the conduits are held by holders which are transversely adjustable on a support bracket which in turn is also transversely adjustable to the line of travel for the vehicle. Featured in the pump structure is a movable control component that includes a valve member and a vane depressing element which is arranged to permit relief of the pressure at the discharge side of the pump when the valve is moved to the closed position.

DESIGNS

FEBRUARY 9, 1971

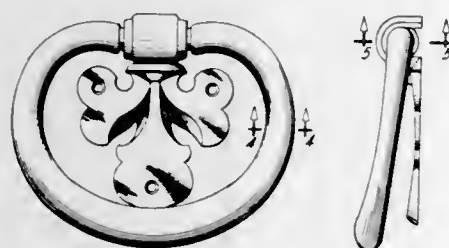
219,861
HANDLE ATTACHMENT FOR DOOR KNOB
Lorenzo Dow Coffman, 6700 Oak Ave.,
Folsom, Calif. 95630
Filed June 13, 1969, Ser. No. 17,689
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—138



219,862
BACKPLATE AND RING COMBINATION
James R. Deadrick, Winston-Salem, N.C., assignor to
Stewart-Warner Corporation, Chicago, Ill., a corpo-
ration of Virginia
Filed Dec. 22, 1969, Ser. No. 20,755
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—158



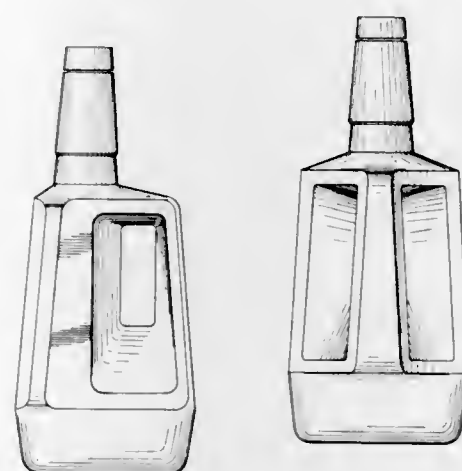
219,863
JUG OR SIMILAR ARTICLE
Ted L. Beaver, Roselle, Ill., assignor to Continental Can
Company, Inc., New York, N.Y., a corporation of
New York
Filed Feb. 2, 1970, Ser. No. 21,201
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—40



219,864
JUG OR SIMILAR ARTICLE
Ted L. Beaver, Roselle, Ill., assignor to Continental Can
Company, Inc., New York, N.Y., a corporation of
New York
Filed Feb. 2, 1970, Ser. No. 21,203
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—42



219,865
JUG OR SIMILAR ARTICLE
Ted L. Beaver, Roselle, Ill., assignor to Continental Can
Company, Inc., New York, N.Y., a corporation of
New York
Filed Feb. 2, 1970, Ser. No. 21,213
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—42



FEBRUARY 9, 1971

U. S. PATENT OFFICE

871

219,866
JUG OR SIMILAR ARTICLE
Ted L. Beaver, Roselle, Ill., assignor to Continental Can
Company, Inc., New York, N.Y., a corporation of
New York
Filed Feb. 2, 1970, Ser. No. 21,214
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—42



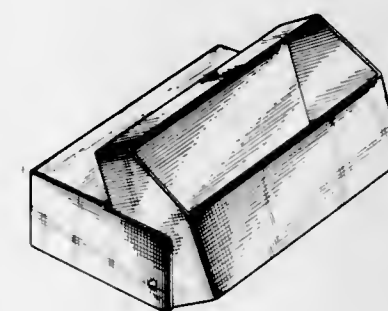
219,867
CONTAINER FOR LIQUIDS
Karl H. Reimer, Lombard, Ill., assignor to Container
Corporation of America, Chicago, Ill., a corporation
of Delaware
Filed July 29, 1969, Ser. No. 18,458
Term of patent 14 years
Int. Cl. D9—07

U.S. Cl. D9—175



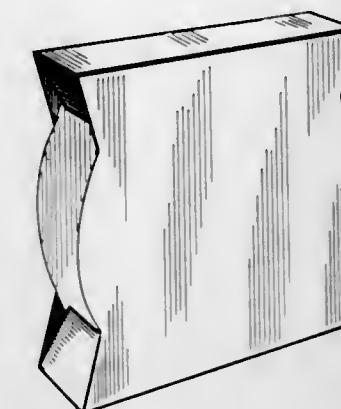
219,868
DISPLAY BOX FOR AN ELECTRIC SHAVER
Alfred W. Madl, Glendale, and David C. Anderson, Mil-
waukee, Wis., assignors to John Oster Manufacturing
Co., Milwaukee, Wis., a corporation of Wisconsin
Filed Dec. 19, 1969, Ser. No. 20,578
Term of patent 14 years
Int. Cl. D9—04

U.S. Cl. D9—233



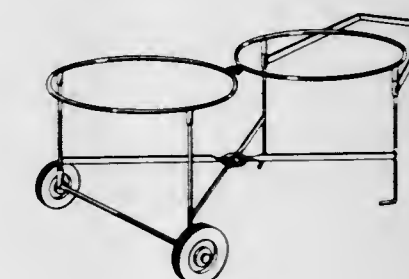
219,869
CARTON FOR AN AUTOMOTIVE AIR FILTER
Robert J. Offer and Eugene J. Samalon, Racine, Wis.,
assignors to Tenneco Inc., Racine, Wis., a corporation
of Delaware
Filed Jan. 9, 1970, Ser. No. 20,854
Term of patent 14 years
Int. Cl. D9—06

U.S. Cl. D9—250



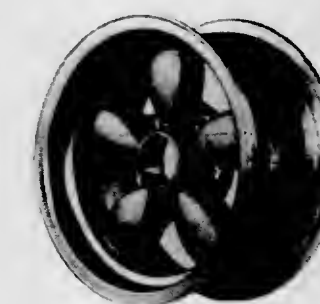
219,870
GARBAGE CAN RACK
Jerry L. Stover, 5607 1/2 S. Youngs Blvd.,
Oklahoma City, Okla. 73108
Filed Jan. 29, 1970, Ser. No. 21,146
Term of patent 14 years
Int. Cl. D12—02

U.S. Cl. D14—3



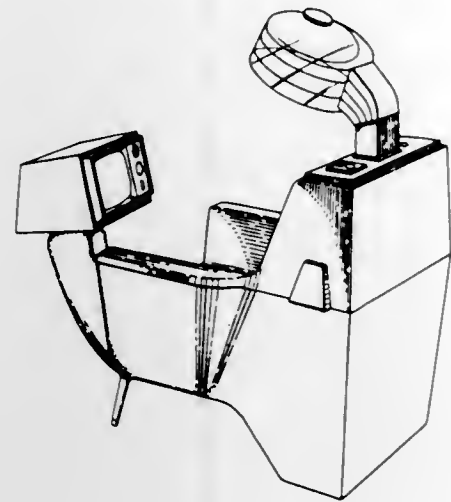
219,871
WHEEL
Thomas B. Griffith, San Carlos, Calif., assignor to Ameri-
can Racing Equipment, a corporation of California
Continuation-in-part of design applications Ser. No.
12,162, May 31, 1968, and Ser. No. 16,261, Mar.
17, 1969. This application July 24, 1969, Ser. No.
19,546

Term of patent 14 years
Int. Cl. D12—14
U.S. Cl. D14—30



219,872
COMBINED CHAIR, HAIR DRYER AND
TELEVISION VIEWER
 Reid S. Larsen, 4436 Illinois Ave.,
 Fair Oaks, Calif. 95628
 Filed Apr. 15, 1969, Ser. No. 16,749
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D15—1



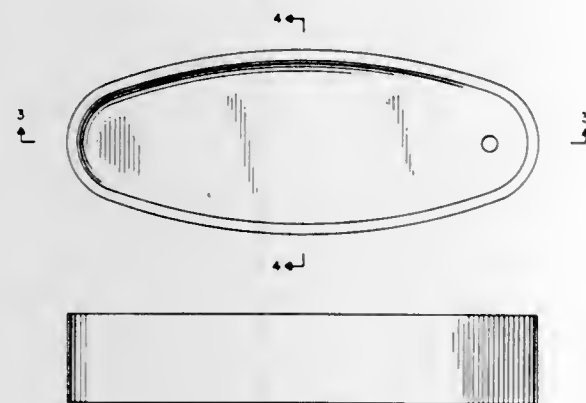
219,873
ARROWHEAD
 William John Ritchie, P.O. Box 359,
 Chapleau, Ontario, Canada
 Filed Sept. 30, 1969, Ser. No. 19,350
 Claims priority, application Canada June 12, 1969
 Term of patent 14 years
 Int. Cl. D22—03

U.S. Cl. D22—12



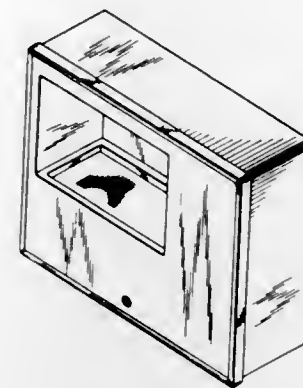
219,874
BATHTUB
 Jack A. Goodall, Dallas, Tex., assignor to Venetian Marble
 Company, Dallas, Tex., a corporation of Texas
 Filed July 12, 1968, Ser. No. 12,722
 Term of patent 14 years
 Int. Cl. D23—02

U.S. Cl. D23—55



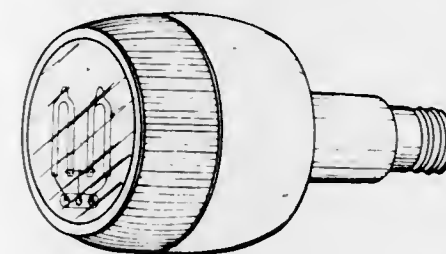
219,875
HAND DRYER
 Robert W. Lester, Manhasset, N.Y., assignor to Lestron
 International Corporation, Jamaica, N.Y.
 Filed July 8, 1969, Ser. No. 18,110
 Term of patent 14 years
 Int. Cl. D23—03

U.S. Cl. D23—74



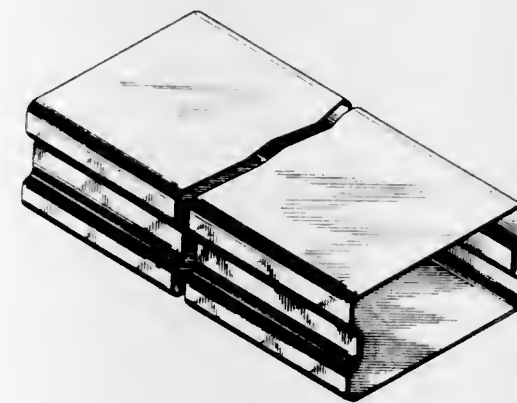
219,876
FLASH TUBE
 Jean René-Marie Girard, Place de la Vigne aux Loups,
 91 Longjumeau, France
 Filed Aug. 25, 1969, Ser. No. 18,842
 Claims priority, application France Feb. 27, 1969
 Term of patent 14 years
 Int. Cl. D26—01

U.S. Cl. D26—8



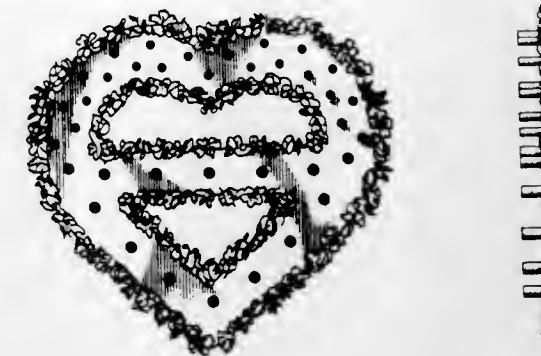
219,877
RAIL FOR A HIGHWAY BARRIER
 Ted E. Thompson, Center Valley, Pa., assignor to Bethle-
 hem Steel Corporation, a corporation of Delaware
 Filed Sept. 30, 1968, Ser. No. 13,785
 Term of patent 14 years
 Int. Cl. D25—01

U.S. Cl. D28—1



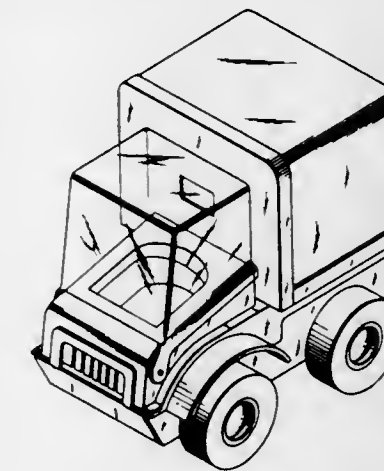
219,878
RACK FOR JEWELRY OR OTHER ARTICLES
 Gladys Flores Rowland, 1327½ N. Hayworth Ave.,
 Los Angeles, Calif. 90046
 Filed Sept. 29, 1969, Ser. No. 19,333
 Term of patent 14 years
 Int. Cl. D6—99

U.S. Cl. D33—3



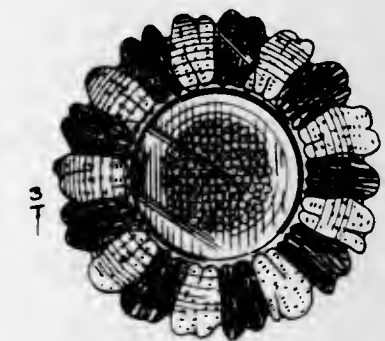
219,879
TOY TRUCK
 Robert K. Ostrander, Jr., Morrisville, Pa., assignor to
 J. Chein & Company
 Filed May 14, 1969, Ser. No. 17,147
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—15



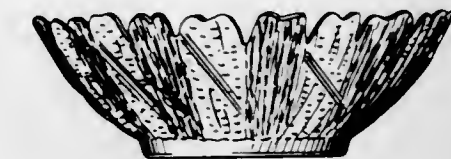
219,880
TRAY OR SIMILAR ARTICLE
 James Lloyd Thrush, Lancaster, Ohio, assignor to Anchor
 Hocking Corporation, Lancaster, Ohio, a corporation
 of Delaware
 Filed Jan. 13, 1970, Ser. No. 20,907
 Term of patent 14 years
 Int. Cl. D7—01

U.S. Cl. D36—2



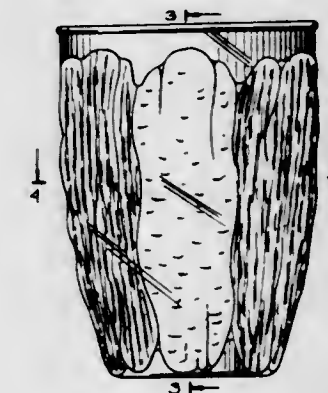
219,881
BOWL OR SIMILAR ARTICLE
 James Lloyd Thrush, Lancaster, Ohio, assignor to Anchor
 Hocking Corporation, Lancaster, Ohio, a corporation
 of Delaware
 Filed Jan. 13, 1970, Ser. No. 20,908
 Term of patent 14 years
 Int. Cl. D7—01

U.S. Cl. D36—2



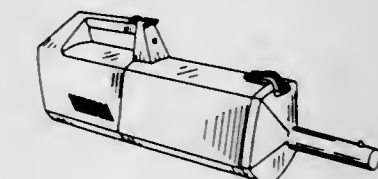
219,882
TUMBLER OR SIMILAR ARTICLE
 James Lloyd Thrush, Lancaster, Ohio, assignor to Anchor
 Hocking Corporation, Lancaster, Ohio, a corporation
 of Delaware
 Filed Jan. 13, 1970, Ser. No. 20,909
 Term of patent 14 years
 Int. Cl. D7—01

U.S. Cl. D36—8



219,883
VACUUM CLEANER
 Rudolph Bernard Zijlstra, Drachten, Netherlands, assignor
 to United States Philips Corporation
 Filed Sept. 16, 1969, Ser. No. 19,160
 Claims priority, application Switzerland Mar. 20, 1969
 Term of patent 14 years
 Int. Cl. D15—07

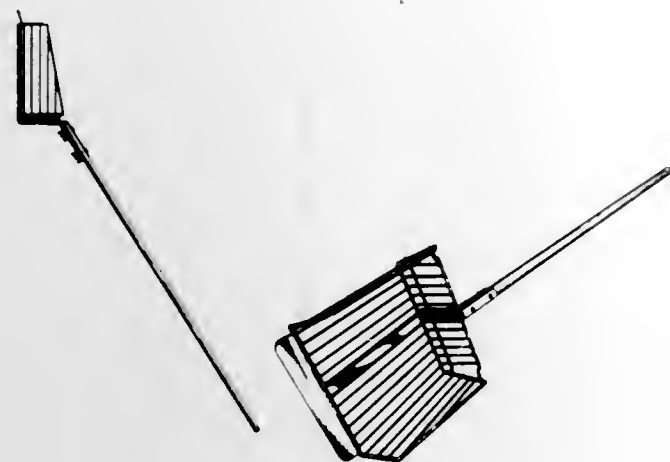
U.S. Cl. D49—13



219,884

STALL CLEANER

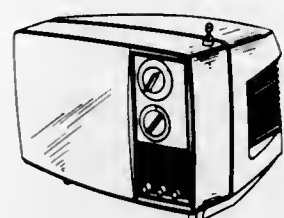
Suzanne H. Patton, Cincinnati, Ohio, assignor to Bumzee, Inc., Cincinnati, Ohio, a corporation of Ohio
 Filed Aug. 4, 1969, Ser. No. 18,523
 Term of patent 7 years
 Int. Cl. D7—99; D8—02
 U.S. Cl. D49—26



219,887

TELEVISION RECEIVER OR SIMILAR ARTICLE

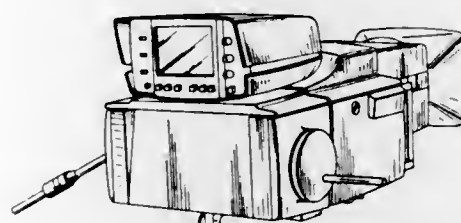
Joseph Horzick, West Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
 Filed Jan. 14, 1970, Ser. No. 20,915
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D56—4



219,888

COLOR TELEVISION CAMERA

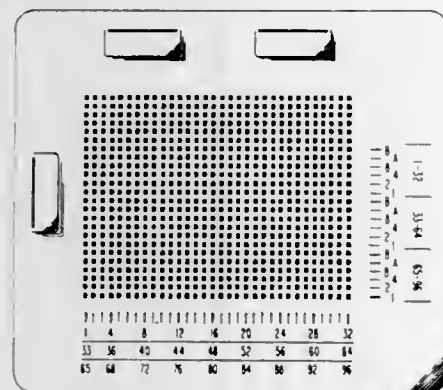
Werner Schulze-Bahr, Eindhoven, Netherlands, assignor to United States Philips Corporation
 Filed Oct. 30, 1969, Ser. No. 19,845
 Claims priority, application Switzerland May 16, 1969
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D61—1



219,885

GAUGE FOR DOCUMENT CARDS

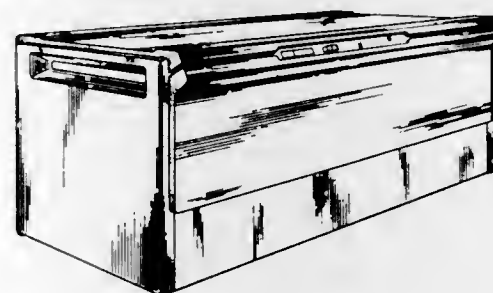
Donald L. Amundson, Beryl D. Bergschneider, and Clarence J. Kellerman, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
 Filed June 27, 1969, Ser. No. 17,909
 Term of patent 14 years
 Int. Cl. D10—11
 U.S. Cl. D52—6



219,889

XEROGRAPHIC PROCESSOR HOUSING

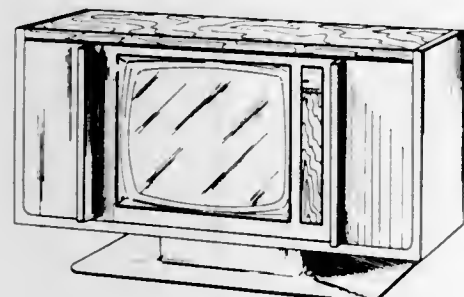
James G. Balmer, Jr., Bloomfield Hills, and Norbert T. Kuypers, Lake Orion, Mich., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
 Filed Nov. 7, 1969, Ser. No. 20,111
 Term of patent 14 years
 Int. Cl. D16—05
 U.S. Cl. D61—1



219,886

TELEVISION RECEIVER OR SIMILAR ARTICLE

Marlan Howard Polhemus, Chicago, Ill., assignor to RCA Corporation, a corporation of Delaware
 Filed June 2, 1969, Ser. No. 17,474
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D56—4



219,890

FONT OF TYPE

Raphael Boguslav, New York, N.Y., assignor to Tyco Laboratories, Inc., Waltham, Mass., a corporation of Massachusetts
 Filed Sept. 23, 1969, Ser. No. 19,257
 Term of patent 14 years
 Int. Cl. D18—04
 U.S. Cl. D64—12

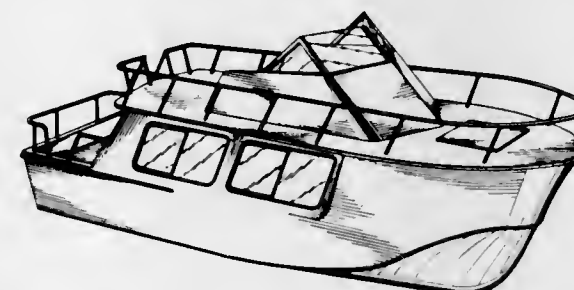
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219,891

BOAT

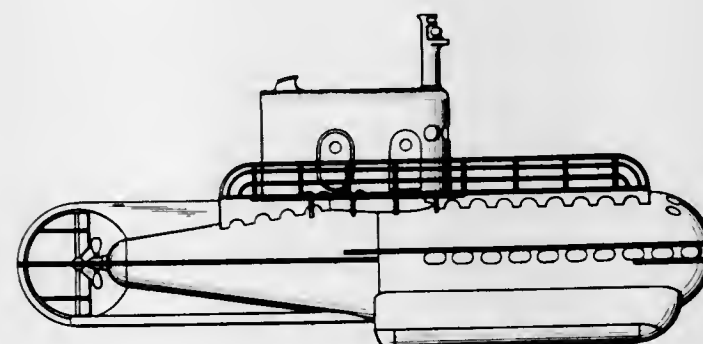
William A. Cargile, 101 Jocelyn Hills Road, Nashville, Tenn. 37205
 Filed Sept. 9, 1969, Ser. No. 19,069
 Term of patent 14 years
 Int. Cl. D12—06
 U.S. Cl. D71—1



219,892

SUBMARINE

Edmund Stanley Martine, Savannah, Ga. (2835 David Lane, Medford, Oreg. 97535)
 Filed Oct. 24, 1969, Ser. No. 19,719
 Term of patent 14 years
 Int. Cl. D12—06
 U.S. Cl. D71—1



219,893

RESILIENT EXPANDED PLASTIC BOAT FENDER OR THE LIKE

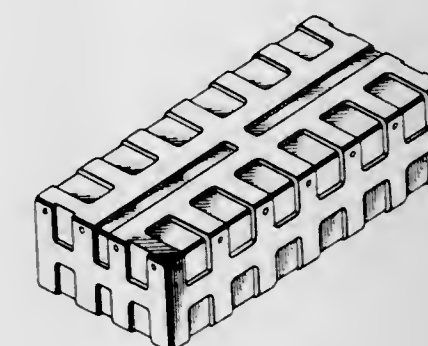
Jack L. Simpton, 4632 Redwood Ave., and Robert E. Seitz, 5228 Emory Circle, both of Jacksonville, Fla. 32207
 Filed Nov. 5, 1969, Ser. No. 19,947
 Term of patent 14 years
 Int. Cl. D12—14
 U.S. Cl. D71—1



219,894

MARINE FLOAT

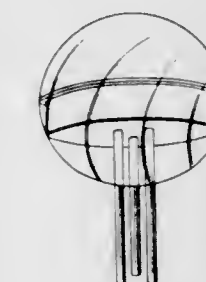
Thomas L. Thompson, 310 Fernando, Apt. 102, Balboa, Calif. 92661
 Filed Jan. 19, 1970, Ser. No. 20,993
 Term of patent 14 years
 Int. Cl. D12—14
 U.S. Cl. D71—1



219,895

DISPLAY STAND

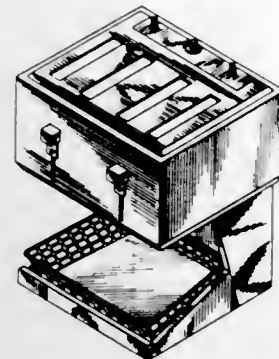
Raymond Loewy, Paris, France, assignor to Stanley Edward Matthews, London, England
 Filed July 28, 1969, Ser. No. 18,434
 Claims priority, application Great Britain Feb. 21, 1969
 Term of patent 14 years
 Int. Cl. D6—01
 U.S. Cl. D80—11



219,896

COMMERCIAL TOASTER FOR RESTAURANTS
 Manfred Hegeman, Nyack, N.Y., assignor to Calmac Manufacturing Corporation, Englewood, N.J.
 Filed Jan. 12, 1970, Ser. No. 20,866
 Term of patent 14 years
 Int. Cl. D7—04

U.S. Cl. D81—10

219,897
SHEATH

Clayton A. Laughlin, Minneapolis, Minn., assignor to Arthur Salm Inc., Chicago, Ill., a corporation of Illinois
 Filed June 20, 1969, Ser. No. 17,792
 Term of patent 14 years
 Int. Cl. D3—99

U.S. Cl. D87—1



219,898

COCKTAIL SHAKER

Thomas E. Buckley, 25 Lawrence St.,
 Norfolk, Mass. 02056
 Filed Nov. 27, 1968, Ser. No. 15,305
 Term of patent 14 years
 Int. Cl. D7—02

U.S. Cl. D94—3

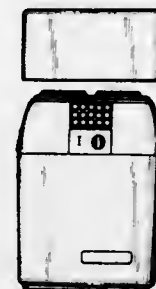


219,899

BATTERY-POWERED SHAVER

Maarten Willem van Lelyveld, Drachten, Netherlands,
 assignor to United States Phillips Corporation
 Filed July 24, 1969, Ser. No. 18,386
 Claims priority, application Switzerland Mar. 4, 1969
 Term of patent 14 years
 Int. Cl. D28—03

U.S. Cl. D95—3



219,900

ELECTRIC SHAVER

Maarten Willem van Lelyveld, Drachten, Netherlands,
 assignor to United States Phillips Corporation
 Filed June 24, 1969, Ser. No. 17,845
 Claims priority, application Switzerland Dec. 27, 1968
 Term of patent 14 years
 Int. Cl. D28—03

U.S. Cl. D95—3

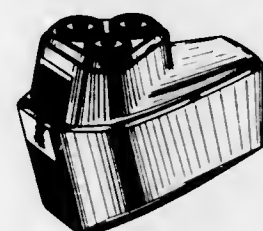


219,901

ELECTRIC SHAVER

Maarten Willem van Lelyveld, Drachten, Netherlands,
 assignor to United States Phillips Corporation
 Filed June 24, 1967, Ser. No. 17,846
 Claims priority, application Switzerland Dec. 27, 1968
 Term of patent 14 years
 Int. Cl. D28—03

U.S. Cl. D95—3



219,902

ELECTRIC HAIR CLIPPER

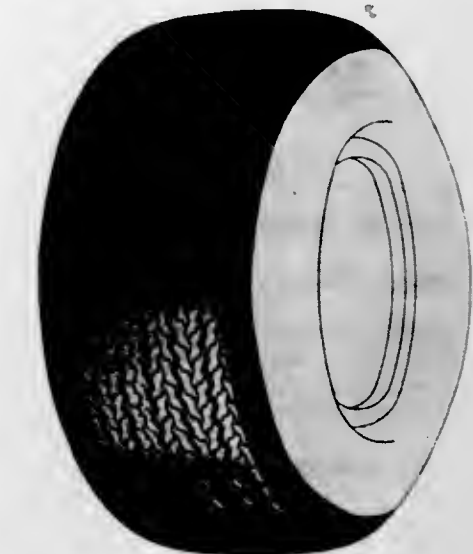
William M. Walton and John F. Wahl, Sterling, Ill., as-
 signors to Wahl Clipper Corporation, Sterling, Ill., a
 corporation of Illinois
 Filed Oct. 15, 1969, Ser. No. 19,582
 Term of patent 14 years
 Int. Cl. D28—03

U.S. Cl. D95—3

219,903
TIRE

Robert W. Floyd, Atwater, Ohio, assignor to The B. F.
 Goodrich Company, New York, N.Y., a corporation of
 New York
 Filed Nov. 24, 1969, Ser. No. 20,259
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D90—20



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 9TH DAY OF FEBRUARY, 1971

NOTE.— Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Abbott, Harold W.; and Chynoweth, William R., to General Electric Company. Apparatus for positioning magnetic record member. 3,562,727, Cl. 340-174.1
- Abbott Laboratories: *See—*
Katerndahl, Dean R.; Earl, Robert P.; Evans, Gary D.; and Chitenden, Richard M., 3,561,445.
- ABC Decoration Sales and Leasing Company: *See—*
Rost, Lee F.; and Taylor, William H., 3,562,064.
- Abdella, Harold H., to General Motors Corporation. Spark plug conductive glass seal. 3,562,187, Cl. 252-513.
- Abe, Tadao, to Nippon Electric Company Limited. Reversible code converter. 3,562,742, Cl. 340-347.
- Abel, Heinz; and Berger, Alfred, to Ciba Limited. Process for dyeing natural nitrogenous fibrous material and a preparation thereof. 3,561,914, Cl. 8-43.
- ACF Industries, Incorporated: *See—*
Dye, Silas Owen, 3,561,736.
O'Leary, Walter E., 3,561,369.
- Achermann, Franz: *See—*
Achermann, Werner; and Achermann, Franz, 3,561,892.
- Achermann, Werner; and Achermann, Franz. Accelerating device for gaseous and liquid media. 3,561,892, Cl. 417-566.
- Acorn Anodising Company Limited: *See—*
Kape, James M.; and Hannaby, William B., 3,562,121.
- Adams, Albert A.; and Giegerich, James E., to Certain-Teed Products Corporation. Shingle handling apparatus. 3,562,070, Cl. 156-560.
- Adams, George; and Hawkins, John, to United Research Laboratory. Tape apparatus including tape speed sensing device. 3,561,700, Cl. 242-206.
- Adams, William J., Jr., to FMC Corporation. Seed capsule and method of making same. 3,561,159, Cl. 47-57.6
- Adams, William J., Jr., to FMC Corporation. Seed planter. 3,561,380, Cl. 111-89.
- Addamiano, Arrigo; and Hertz, Lester M., to General Electric Company. Solid state lamp utilizing emission from edge of a p-n junction. 3,562,609, Cl. 317-235.
- Addison, Harry J., Jr., to United States of America, Army. Explosive spot welding method and means using angular orientation at the welded junction. 3,561,097, Cl. 29-470.1
- Adler, David G.; and Hollingshead, Roland C., to Sperry Rand Corporation. Recovery system for a digital magnetic recording. 3,562,724, Cl. 340-174.1
- Adler, Karl; and Ducommun, Georges, to Bivator S.A. Apparatus for supervising starting of a vehicle. 3,562,601, Cl. 317-146.
- Adler, Karl; and Ducommun, Georges, to Baumgartner Freres S.A. Timepiece driven by nuclear energy. 3,562,613, Cl. 318-130.
- Admiral Corporation: *See—*
Callaway, Emory C., 3,562,412.
- Advance Honing Products, Inc.: *See—*
Werner, Wilfred M.; and Hommerson, Herman P., 3,561,172.
- AEG-Elotherm G.m.b.H.: *See—*
Seulen, Gerhard; Reinke, Friedhelm; and Stengel, Edgar, 3,562,030.
- A.G. Fur Industrielle Elektronik Agie Losone B. Locarno: *See—*
Ullman, Werner; Donati, Franco; and Tortelli, Gianfranco, 3,562,624.
- Agfa-Gevaert Aktiengesellschaft: *See—*
Hoffacker, Franz, 3,562,508.
Puschel, Walter; Marx, Paul; Schranz, Karl-Wilhelm; and Jaeken, Jan, 3,561,970.
- Agro, Ignatius T.; and Chiusolo, Louis L., 1/3 to Cassaro, Charles A. Building component. 3,561,177, Cl. 52-173.
- Agua Klear, Inc.: *See—*
Kilburn, Robert W., 3,561,945.
- Agway, Inc.: *See—*
Dodge, John W.; Rumsey, Gary L.; and Gray, Terry, 3,561,972.
- Ahrns, Richard W., to RCA Corporation. Memory protecting circuit. 3,562,555, Cl. 307-238.
- Air Cushion Vehicles Australasia Pty. Ltd.: *See—*
Ford, Alfred J., 3,561,560.
- Air Reduction Company, Incorporated: *See—*
Smith, Hugh R., Jr., 3,562,002.
- Air-Vac Engineering Company, Incorporated: *See—*
Duhaime, Raymond A.; and Lasto, Clifford S., 3,561,662.
- Ajem Laboratories, Inc.: *See—*
Kostelney, Edward N., Jr., 3,561,255.
- Akiyama, Seikichi: *See—*
Mitsubishi, Tomokuni; Akiyama, Seikichi; Ashida, Sakichi; and Futaki, Hisao, 3,562,188.
- Aktiebolaget Svenska Flaktfabriken: *See—*
Ferner, Karl-Erik, 3,561,906.
- Aktiebolaget Svenska Kullagerfabriken: *See—*
Heldt, Karl Helge Konstantin, 3,561,829.
- Aktiengesellschaft Brown, Boveri & Cie: *See—*
Korner, Gerhard, 3,562,460.
Wagner, Karl-Heinz, 3,561,797.
- Aktieselskabet for Kontor Kemi: *See—*
Frohlich, Alfred, 3,562,003.
- Akustische u. Kino-Gerate Gesellschaft m.b.H.: *See—*
Wolf, Konrad, 3,562,446.
- Albee, Percy Frederick, Jr., to O-Panel Corporation. Container for projectuals. 3,561,862, Cl. 353-122.
- Aldrich, Paul H., to Hercules Incorporated. Process for separation of rosin adducts from mixtures with rosin. 3,562,243, Cl. 260-111.
- Aldridge-Cox, Douglas, to S.T.D. Services Limited. Ultrasonic flaw detection apparatus with data compression system. 3,562,622, Cl. 320-1.
- Alexander, Robert R., to Kendall Company, The. Flushable sanitary napkin. 3,561,447, Cl. 128-290.
- Alexander, Roy P.; and Schroeder, Hansjergen A., to Olin Corporation. Dimeric azidospha (III)-carboranes. 3,562,298, Cl. 260-349.
- Alibert, Vernon F.; and Carey, Thomas H., to Columbia Research Laboratories, Inc. Transducer system for detecting changes in applied forces. 3,561,831, Cl. 310-8.7
- Allan, Barry D.; Croomes, Edgar F.; and Wharton, Walter W., to United States of America, Army. Desensitization of difluoroamino-substituted propellant compounds using dinitrogen tetraoxide. 3,562,035, Cl. 149-74.
- Allegheny Ludlum Steel Corporation: *See—*
Dupuis, Hubert, 3,561,170.
Goglio, James J.; and Miller, Clarence L., Jr., 3,562,029.
Jackson, Harold S.; and Skinner, Jack W., 3,562,393.
- Allen, Donn W. Fuel storage cell. 3,561,639, Cl. 220-88.
- Allen Industries, Inc.: *See—*
Stephens, Frederick J., 3,561,060.
- Allen, Laird R., Jr., to Westinghouse Electric Corporation. Self-adjusting electrohydraulic brake control. 3,561,573, Cl. 188-171.
- Allen, Paul E.: *See—*
Honkonen, Richard A.; Allen, Paul E.; Way, Richard K.; and Larime, Carl M., 3,562,630.
- Allen, Robert K.; Clement, John L.; and Markant, Henry P., to Babcock & Wilcox Company, The. Waste sulphite liquor recovery. 3,561,922, Cl. 23-201.
- Allen-Bradley Company: *See—*
Caspari, Frederick W., 3,562,673.
- Allied Chemical Corporation: *See—*
Anello, Louis G.; and Sweeney, Richard F., 3,562,310.
Litt, Morton H.; and Levy, Alan J., 3,562,263.
Rahl, Forrest J.; Prevorsek, Dusan C.; and Oswald, Hendrikus J., 3,562,095.
Vander Mey, John E., 3,562,117.
- Allied Steel & Tractor Products, Inc.: *See—*
Century, Bernard A., 3,561,336.
- Allied Tube & Conduit Corporation: *See—*
Garrison, Clifford L., 3,561,096.
- Alligator Ventillfabrik Gesellschaft mit beschränkter Haftung: *See—*
Lutz, Sepp, 3,561,467.
- Allinquant, Fernand Stanislas. Adjustable hydraulic damper. 3,561,575, Cl. 188-282.
- Allis-Chalmers Manufacturing Company: *See—*
Carlson, Richard G.; and Cannon, Craig W., 3,561,788.
Keogh, Thomas H.; and Krupit, Adolph E., 3,562,452.
Peek, Henry L., 3,562,457.
Redfern, Calvin E., 3,561,798.
Stikeleather, Larry F.; and Cannon, Craig W., 3,561,789.
- Allison, Rudolph L., to Paramount Textile Machinery Company. Semi-automatic toy balloon vending and inflating machine. 3,561,579, Cl. 194-1.
- Allmanna Svenska Elektriska Aktiebolaget: *See—*
Jansen, Juri; and Ryman, Lennart, 3,562,033.
- Alphanumeric, Incorporated: *See—*
Manber, Solomon, 3,562,718.
- Altieri, Renato. Process for preparing a dry compacted detergent composition. 3,562,165, Cl. 252-99.
- Altman, Donald L.; and Mullen, James A., Jr., to Pennsylvania Engineering Corporation. Stabilized mounting for BOF like vessels. 3,561,744, Cl. 266-36.
- Altmann, Conrad, to Eastman Kodak Company. Apparatus for handling electrographic toner packages. 3,561,647, Cl. 222-179.5
- Ambrosio, Mario, to United States of America, Army. Digital speech plus telegraph system. 3,562,433, Cl. 179-15.

- Amerace Esna Corporation: *See—*
Woodrum, Howard L., 3,561,750.
- American Air Filter Company, Inc.: *See—*
Amrein, David L., 3,561,039.
Kline, John L.; and Utz, Curtis W., 3,561,345.
Westlin, Karl L., 3,561,196.
- American Can Company: *See—*
Hake, Walter Thomas; and Stieglitz, Henry Gilbert, 3,562,050.
- American Cyanamid Company: *See—*
Brown, John Johnston; Hardy, Robert Allis, Jr.; and Roth, Carol Nora, nee Carol Therese Nora, 3,562,279.
Gadekar, Shreekrishna Manmohan; Johnson, Bernard Dean; and Cohen, Elliott, 3,562,285.
Gadekar, Shreekrishna Manmohan; Johnson, Bernard Dean; and Cohen, Elliott, 3,562,287.
Hulliger, Fritz, 3,561,929.
Jarovitzky, Peter Adrian; and Pellon, Joseph Jacinto, 3,562,232.
Newman, Howard; and Tomcufoik, Andrew Stephen, 3,562,284.
Sloboda, Adolph Edward; and Bauer, Victor John, 3,562,391.
Trown, Patrick Willoughby, 3,562,253.
- American District Telegraph Company: *See—*
Hill, Frederick G.; Kelly, Lawrence H.; and Li Calsi, Joseph, 3,562,730.
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Berth, Peter: *See—*
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Bertram, Wilhelm. Tuning indicating device for radios and televisions. 3,561,397, Cl. 116-124.4

Bessho, Michio, to Kawasaki Yuko Kabushiki Kaisha. Apparatus for forming curved metal bars as automobile bumpers. 3,561,248, Cl. 72-383.

Best, Howard S.; and Bowser, Robert E., to Corning Glass Works. Semiconductor process for joining a transistor chip to a printed circuit. 3,561,107, Cl. 29-577.

Best, John S.; Emig, Gale L.; and Justin, Frank H., to Dow Chemical Company, The. Frost proof shallow footings or piers and method therefor. 3,561,175, Cl. 52-169.

Best Sound Company: *See—*
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Beutelspacher, Hans, to Heraeus-Christ G.m.b.H. Ultracentrifuge for analytical purposes. 3,561,871, Cl. 356-72.

Bezold, Helmut; and Steinkamp, Eckhard, to Siemens Aktiengesellschaft. Hydraulic fall-brake or shock absorber for nuclear reactor control rods. 3,562,109, Cl. 176-36.

Bhaumik, Mani L.; and El-Sayed, Mustafa A., to Xerox Corporation, mesne. Laser materials. 3,562,173, Cl. 252-301.2

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Binder, Richard J. Indicator device with magnetic switch closure. 3,562,681, Cl. 335-17.

Binder, Richard, to Fichtel & Sachs AG. Multiple disc clutch with automatic wear adjuster. 3,561,577, Cl. 192-111.

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Birkigt, Louis, to Brevets Aero-Mecaniques S.A. Armour-piercing ammunition. 3,561,363, Cl. 102-52.

Bischoff, Vincent E., to Dick, A.B., Company. Guard drop technique for ink jet systems. 3,562,757, Cl. 346-1.

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Bishop, Everett R.; and Labella, Vincent A., to General Electric Company. Repeat pattern control for automatic machines. 3,562,715, Cl. 340-172.5

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Bittner, Friedrich; Schaller, Artur; and Simmersbach, Edmund. Production of free flowing washing powder mixtures. 3,562,164, Cl. 252-95.

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Black, Donald V.; Jamtaas, Albert D.; Radey, Ross T.; and Wall, John K., to United States of America, Army, mesne. Free punch with attached power plant. 3,561,362, Cl. 102-49.3

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Blain, Paul, to Institut de Recherches de La Siderurgie Francaise. Rolling mill for thin strips. 3,561,241, Cl. 72-201.

Blake, Ralph Kingsley, to Du Pont de Nemours, E. I., and Company. Photosensitive lithographic printing master and process for preparation of a lithographic plate. 3,561,961, Cl. 96-33.

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Blevins, Ronald E., to TRW Inc. Solar cell assembly. 3,562,020, Cl. 136-89.

Block, Aleck, to Merit Abrasive Products, Inc., mesne. Quick change abrasive flap wheel with self-contained coupling means. 3,561,173, Cl. 51-334.

Block, Aleck; and Whitcomb, Keith R., to Merit Products, Inc. Abrasive disk. 3,561,938, Cl. 51-358.

Block, Philip L.; Howe, Eugene E.; and Lover, Myron J., to Merck & Co., Inc. Dental antiplaque and anticalculus compositions. 3,562,385, Cl. 424-54.

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Blomgren, Jack P.; Ross, Stanley L.; and Lind, Peter A., to Minnesota Mining and Manufacturing Company. Lamp failure detection and change device. 3,562,580, Cl. 315-55.

Blood, Raymond, to Cotton, William, Limited. Straight bar knitting machines. 3,562,777, Cl. 66-96.

Blubaugh, Otto J., to Jeffrey Galion, Inc. Load measuring system. 3,561,553, Cl. 177-168.

Blum, Asher S., to Zenith Radio Corporation. Solid-state image display device with acoustic scanning of strain-responsive semiconductor. 3,562,414, Cl. 178-54

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Bobst, Gerhard, to Von Roll A. G. Flushing apparatus for reversible hydrostatic drives. 3,561,214, Cl. 60-53.

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Bodanszky, Miklos; and Ondetti, Miguel A., to Squibb, E. R., & Sons, mesne. 8-L-ornithine vasotocin and intermediates therefor. 3,562,244, Cl. 260-112.5

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Boichard, Jacques; Brossard, Bernard Pierre; Gay, Michel Louis Marie Joseph; and Janin, Raymond Marc Clement, to Rhone-Poulenc S.A. Preparation of oxalic acid. 3,562,322, Cl. 260-533.

Bok, Edward. Capillary passage ink remover for vent. 3,561,879, Cl. 401-258.

Bok, Edward. Vent system for stylographic pen. 3,561,880, Cl. 401-258.

Bok, Edward. Stylographic pen with the capillary passage cleaning means operable by hand or by shaking or contact. 3,561,881, Cl. 401-258.

Bonadio, George A. Three dimensional antenna system. 3,562,755, Cl. 343-853.

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Borkowski, Walter L.; and van Venrooy, John J., to Sun Oil Company. Preparation of oxygenated hydrocarbons. 3,562,321, Cl. 260-533.

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Boronkay, Attila D.; and Matthews, Kenneth V., to Beckman Instruments, Inc. Radiant energy analyzer including means for offsetting and scaling the ratio of two signals. 3,561,845, Cl. 356-205.

Borschers, Alwin, to Danfoss A/S. Magnetic valve incorporating a flat armature. 3,562,686, Cl. 335-279.

Borucki, James S.; and Graham, Bruce C., to Magnaflux Corporation. Water soluble developer. 3,561,262, Cl. 73-104.

Bos, Jules; Koorneef, Jacob; and Walther, George Ludwig, to U.S. Philips Corporation, mesne. Composite recording/play back head with two trim erase heads oriented at an angle to the record/playback head. 3,562,443, Cl. 179-100.2

Bosold, Leonard R., to Republic Steel Corporation. Continuous casting apparatus including starter bar with quick disconnect sections. 3,561,522, Cl. 164-274.

Boucher, Raymond Marcel Gut, to Bio-Logics, Inc., mesne. Ultrasonic drug nebulizer. 3,561,444, Cl. 128-194.

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Bould, Fred; and Hauser, Richard, to Westinghouse Electric Corporation. Circuit interrupter with improved contact structure. 3,562,459, Cl. 200-146.

Bourru, Louis Leonard, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Gas purifying device. 3,561,195, Cl. 55-409.

Bousen, Karl-Josef; and Berth, Peter, to Therachemie Chemisch Therapeutische Gesellschaft m.b.H. Oxidation dyes comprising aromatic diamines and coupling components. 3,561,912, Cl. 8-10.2

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- Bradley, Woody. Storage and dispensing system for shopping carts. 3,561,567, Cl. 186-1.
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- Brand, Derek A. Soap dispensing container. 3,561,650, Cl. 222-518.
- Brand, Walter A., Jr., to General Electric Company. Coke oven charging car locating control. 3,562,514, Cl. 246-167.
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- Branden, Leif; and Ryr, Arne Karl, to Telefonaktiebolaget LM Ericsson. Electric contact and base plate assembly. 3,562,699, Cl. 339-220.
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- Braxton, Henry G., Jr.; and Lajiness, Evelyn J., to Ethyl Corporation. Method of defoliating plants. 3,561,947, Cl. 71-70.
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- Brown, John Johnston; Hardy, Robert Allis, Jr.; and Roth, Carol Nora, nee Carol Therese Nora, to American Cyanamid Company. Substituted 7,8-dihydro-6-methoxy-6,14-endo(etheno or ethano)-morphide-7-ketones and N-cycloalkyl- methyl-7,8-dihydro-6-methoxy-6,14-endo(etheno or ethano)norcodide-7-ketones. 3,562,279, Cl. 260-285.
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- Bruning, Armin M., to Westinghouse Electric Corporation. Nonconsumable electrode for electric arc heating and melting and methods. 3,561,029, Cl. 13-18.
- Brunner, Rolf H.; and Woodard, Ollie C., to International Business Machines Corporation. Radiation sensitive semiconductor wafer identification system. 3,562,536, Cl. 250-219.
- Bryant, Emerson C., to National-Standard Company. Tire building drum having a radially movable intermediate assembly. 3,562,062, Cl. 156-401.
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- Butler, Huston V.; Feeler, Tilghman M.; and Peterson, Bernard F., to Brown, Harold, Company. Method for simultaneously guiding at least two insertable mechanisms in a well tubing. 3,561,535, Cl. 166-315.
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Dahlquist, Robert L., to Case, J. I., Company. Counterbalancing mechanism for combine. 3,561,450, Cl. 130-26.

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D'Alelio, Gaetano F., to Geigy Chemical Corporation. Bromination of copolymers of non-terminal acetylenic methacrylates and products produced thereby. 3,562,230, Cl. 260-85.

D'Alelio, Gaetano F., to Geigy Chemical Corporation. Bromination of propargyl methacrylate polymers and products produced thereby. 3,562,231, Cl. 260-85.

D'Alelio, Gaetano F., to Geigy Chemical Corporation. Acetylenic methacrylates. 3,562,236, Cl. 260-89.

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- Fryer, Rodney Ian; and Sternbach, Leo Henryk, to Hoffmann-La Roche Inc. Certain 2,3-dihydro-1,4-benzodiazepine-3-carboxamide derivatives. 3,562,251, Cl. 260-239.
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- Fujita, Yoshimasa; Nakagawa, Kazumi; and Shimoda, Keitaro, to Japan Exlan Co., Ltd. Process for spinning composite acrylic fibers. 3,562,378, Cl. 264-168.
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- Zar, Jacob L., to Avco Corporation. Foil wrapped superconducting magnet. 3,562,685, Cl. 335-216.
- Zaweski, Edward F., to Ethyl Corporation. Process for producing 4,4'-bis(2,6 dihydro- carbylphenol). 3,562,338, Cl. 260-620.
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283 : 3,561,927	12 : Re.27,051	3,561,218	740 : 3,561,291	51.11 : 3,561,978	51.11 : 3,561,403
288 : 3,561,928	13 : 3,561,138	61-34 : 3,561,220	837 : 3,562,779	113 : 3,561,979	56 : 3,561,404
293 : 3,561,930	36-2.5 : 3,561,139	38 : 3,561,219	869 : 3,561,293	161 : 3,561,980	122-7 : 3,561,405
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312 : 3,561,932	59 : 3,561,140	72.6 : 3,561,222	3,561,295	174 : 3,561,982	123-41 : 3,561,407
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70 : 3,561,067	38-92 : 3,561,144	28 : 3,562,776	73 : 3,561,951	259 : 3,561,348	117 : 3,561,410
73 : 3,561,068	40-130 : 3,561,145	58 : 3,561,225	76 : 3,561,952	307 : 3,561,349	3,561,411
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126-8	3.561.420	217	3.561.514	302	3.561.533	195-28	3.562.110	38	3.561.619	240-1.3	3.562.508
21	3.561.421	253	3.561.515	311	3.561.534		3.562.111	51.12	3.561.620	241-4.2	3.562.509
92	3.561.422	148-6.15	3.562.022	315	3.561.535	51	3.562.112	25	3.561.621	25	3.561.682
198	3.561.423	11.5	3.562.023	169-15	3.561.536	66	3.562.113	51.12	3.561.622	360	3.562.510
263	3.561.424	11.5	3.562.024	38	3.561.537	139	3.562.114	41	3.561.624	400	3.562.511
271	3.561.425	13.2	3.562.025	172-4.5	3.561.538	197-49	3.561.581	84	3.561.625	429	3.562.512
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127-46	3.562.012	35	3.562.027	111	3.561.540	33	3.561.583	518	3.561.627	431	3.562.518
128-2	3.561.427	36	3.562.028	265	3.561.541	45	3.561.584	731	3.561.628	440	3.562.519
	3.561.429	113	3.562.029	173-1	3.561.542	69	3.561.585	215-1	3.561.629	455	3.562.520
	3.561.430	131	3.562.030	57	3.561.543	75	3.561.586	37	3.561.630	456	3.562.521
	3.561.431	154	3.562.031	93.5	3.561.544	182	3.561.587	46	3.561.631	513	3.562.522
	3.561.432	175	3.562.032	145	3.561.545	232	3.561.588	74	3.561.632	242-7.17	3.561.687
	3.561.433	189	3.562.033	166	3.561.546	200-50	3.562.452	219-10.43	3.562.470	18	3.561.688
6	3.561.434	149-74	3.562.034	174-15	3.561.547	61.45	3.562.453	55	3.562.471	37	3.561.689
66	3.561.435	151-9	3.561.516	35	3.562.402	67	3.562.454	54	3.561.690	55	3.561.691
75	3.561.436	156-3	3.562.035	45	3.562.403	81.9	3.562.455	67	3.562.472	55	3.561.692
82.1	3.561.437		3.562.036	52	3.562.404	83	3.562.456	68	3.562.473	57.1	3.561.693
87	3.561.438		3.562.037	74	3.562.405	144	3.562.457	69	3.562.474	83	3.561.694
92	3.561.439	18	3.562.038	175	3.562.406	146	3.562.458	82	3.562.475	84.1	3.561.695
130	3.561.440	73	3.562.039	176-5	3.561.546	148	3.562.459	85	3.562.476	118.11	3.561.696
132	3.561.441	78	3.562.040	177-6	3.561.547	153	3.562.460	86	3.562.477	193	3.561.697
156	3.561.442	79	3.562.041	178-3	3.561.548	166	3.562.461	87	3.562.478	206	3.561.698
157	3.561.443	155	3.562.042	179-3	3.561.549	168	3.562.462	88	3.562.479	212	3.561.699
173	3.561.444	159	3.562.043	180-3	3.561.550	169	3.562.463	89	3.562.480	213	3.561.700
194	3.561.445	167	3.562.044	181-3	3.561.551	170	3.562.464	90	3.562.481	214	3.561.701
214.4	3.561.446	184	3.562.045	182-3	3.561.552	171	3.562.465	91	3.562.482	215	3.561.702
287	3.561.447	209	3.562.046	183-3	3.561.553	172-3	3.562.466	92	3.562.483	216	3.561.703
290	3.561.448	213	3.562.047	184-3	3.561.554	173-3	3.562.467	93	3.562.484	217	3.561.704
305	3.561.449	219	3.562.048	185-3	3.561.555	174-3	3.562.468	94	3.562.485	218	3.561.705
334	3.561.450	221	3.562.049	186-3	3.561.556	175-3	3.562.469	95	3.562.486	219	3.561.706
476	3.562.802	222	3.562.050	187-3	3.561.557	176-3	3.562.470	96	3.562.487	220	3.562.514
130-26	3.561.451	223	3.562.051	188-3	3.561.558	177-3	3.562.471	97	3.562.488	221	3.562.515
131-143	3.561.452	224	3.562.052	189-3	3.561.559	178-3	3.562.472	98	3.562.489	222	3.562.516
235	3.561.453	225	3.562.053	190-3	3.561.560	179-3	3.562.473	99	3.562.490	223	3.562.517
241	3.561.454	226	3.562.054	191-3	3.561.561	180-3	3.562.474	100	3.562.491	224	3.562.518
132-1	3.561.455	227	3.562.055	192-3	3.561.562	181-3	3.562.475	101	3.562.492	225	3.562.519
46	3.561.456	228	3.562.056	193-3	3.561.563	182-3	3.562.476	102	3.562.493	226	3.562.520
53	3.561.457	229	3.562.057	194-3	3.561.564	183-3	3.562.477	103	3.562.494	227	3.562.521
79	3.561.458	230	3.562.058	195-3	3.561.565	184-3	3.562.478	104	3.562.495	228	3.562.522
134-3	3.562.013	231	3.562.059	196-3	3.561.566	185-3	3.562.479	105	3.562.496	229	3.562.523
8	3.562.014	232	3.562.060	197-3	3.561.567	186-3	3.562.480	106	3.562.497	230	3.562.524
13	3.562.015	233	3.562.061	198-3	3.561.568	187-3	3.562.481	107	3.562.498	231	3.562.525
144	3.561.459	234	3.562.062	199-3	3.561.569	188-3	3.562.482	108	3.562.499	232	3.562.526
135-33	3.561.460	235	3.562.063	200-3	3.561.570	189-3	3.562.483	109	3.562.500	233	3.562.527
136-6	3.562.017	236	3.562.064	201-3	3.561.571	190-3	3.562.484	110	3.562.501	234	3.562.528
83	3.562.018	237	3.562.065	202-3	3.561.572	191-3	3.562.485	111	3.562.502	235	3.562.529
86	3.562.019	238	3.562.066	203-3	3.561.573	192-3	3.562.486	112	3.562.503	236	3.562.530
89	3.562.020	239	3.562.067	204-3	3.561.574	193-3	3.562.487	113	3.562.504	237	3.562.531
205	3.562.021	240	3.562.068	205-3	3.561.575	194-3	3.562.488	114	3.562.505	238	3.562.532
137-1	3.561.461	241	3.562.069	206-3	3.561.576	195-3	3.562.489	115	3.562.506	239	3.562.533
14	3.561.462	242	3.562.070	207-3	3.561.577	196-3	3.562.490	116	3.562.507	240	3.562.534
81.5	3.561.463	243	3.562.071	208-3	3.561.578	197-3	3.562.491	117	3.562.508	241	3.562.535
3.561.464		244	3.562.072	209-3	3.561.579	198-3	3.562.492	118	3.562.509	242	3.562.536
3.561.465		245	3.562.073	210-3	3.561.580	199-3	3.562.493	119	3.562.510	243	3.562.537
102	3.561.466	246	3.562.074	211-3	3.561.581	200-3	3.562.494	120	3.562.511	244	3.562.538
234.5	3.561.467	247	3.562.075	212-3	3.561.582	201-3	3.562.495	121	3.562.512	245	3.562.539
269	3.561.468	248	3.562.076	213-3	3.561.583	202-3	3.562.496	122	3.562.513	246	3.562.540
343	3.561.469	249	3.562.077	214-3	3.561.584	203-3	3.562.497	123	3.562.514	247	3.562.541
371	3.561.470	250	3.562.078	215-3	3.561.585	204-3	3.562.498	124	3.562.515	248	3.562.542
498	3.561.471	251	3.562.079	216-3	3.561.586	205-3	3.562.499	125	3.562.516	249	3.562.543
513.3	3.561.472	252	3.562.080	217-3	3.561.587	206-3	3.562.500	126	3.562.517	250	3.562.544
542	3.561.473	253	3.562.081	218-3	3.561.588	207-3	3.562.501	127	3.562.518	251	3.562.545
557	3.561.474	254	3.562.082	219-3	3.561.589	208-3	3.562.502	128	3.562.519	252	3.562.546
606	3.561.475	255	3.562.083	220-3	3.561.590	209-3	3.562.503	129	3.562.520	253	3.562.547
608	3.561.476	256	3.562.084	221-3	3.561.591	210-3	3.562.504	130	3.562.521	254	3.562.548
614.19	3.561.477	257	3.562.085	222-3	3.561.592	211-3	3.562.505	131	3.562.522	255	3.562.549
624.18	3.561.478	258	3.562.086	223-3	3.561.593	212-3	3.562.506	132	3.562.523	256	3.562.550
625.17	3.561.479	259	3.562.087	224-3	3.561.594	213-3	3.562.507	133	3.562.524	257	3.562.551
21	3.561.480	260	3.562.088	225-3	3.561.595	214-3	3.562.508	134	3.562.525	258	3.562.552
32	3.561.481	261	3.562.089	226-3	3.561.596	215-3	3.562.509	135	3.562.526	259	3.562.553
32	3.561.482	262	3.562.090	227-3	3.561.597	216-3	3.562.510	136	3.562.527	260	3.562.554
32	3.561.483	263	3.562.091	228-3	3.561.598	217-3	3.562.511	137	3.562.528	261	3.562.555
32	3.561.484	264	3.562.092	229-3	3.561.599	218-3	3.562.512	138	3.562.529	262	3.562.556
32	3.561.485	265	3.562.093	230-3	3.561.600	219-3	3.562.513	139	3.562.530	263	3.562.557
32	3.561.486	266	3.562.094	231-3	3.561.601	220-3	3.562.514	140	3.562.531	264	3.562.558
32	3.561.487	267	3.562.095	232-3	3.561.602	221-3	3.562.515	141	3.562.532	265	3.562.559
32	3.561.488	268	3.562.096	233-3	3.561.603	222-3	3.562.516	142	3.562.533	266	3.562.560
32	3.561.489	269	3.562.097	234-3	3.561.604	223-3	3.562.517	143	3.562.534	267	3.562.561
32	3.561.490	270	3.562.098	235-3	3.561.605	224-3	3.562.518	144	3.562.535	268	3.562.562
32	3.561.491	271	3.562.099	236-3	3.561.606	225-3	3.562.519	145	3.562.536	269	3.562.563
32	3.561.492	272	3.562.100	237-3	3.561.607	226-3	3.562.520	146	3.562.537	270	3.562.564
32	3.561.493	273	3.562.101	238-3	3.561.608	227-3	3.562.521	147	3.562.538	271	3.562.565
32	3.561.494	274	3.562.102	239-3	3.561.609	228-3	3.562.522	148	3.562.539	272	3.562.566
32	3.561.495	275	3.562.103	240-3	3.561.610	229-3	3.562.523	149	3.562.540	273	3.562.567
32	3.561.496	276	3.562.104	241-3	3.561.611	230-3	3.562.524	150	3.562.541	274	3.562.568
32	3.561.497	277	3.562.105	242-3	3.561.612	231-3	3.562.525	151	3.562.5		

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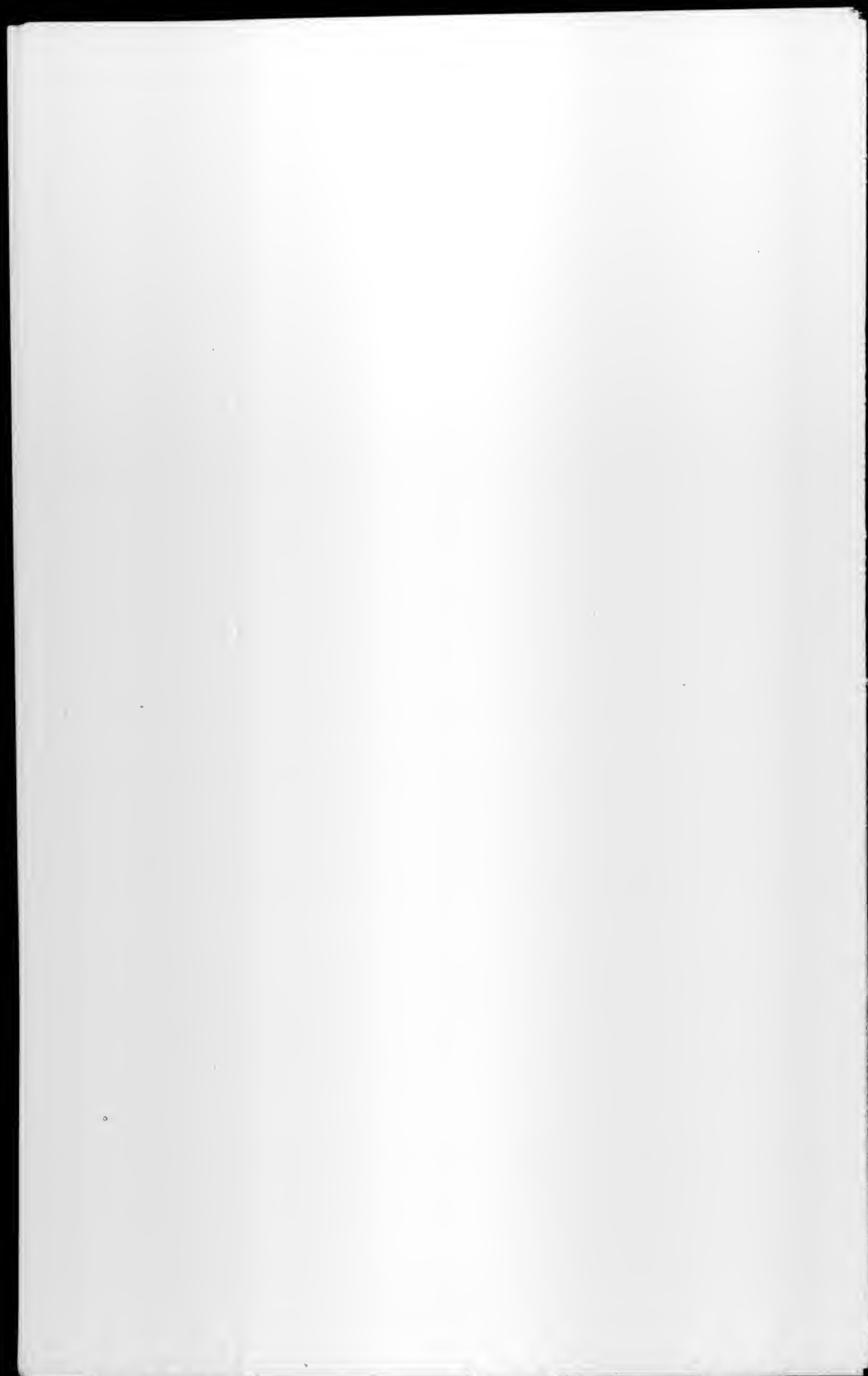
(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

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3,561,272	3,561,172	3,561,538	3,561,958	3,562,590	3,561,664
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3,561,836	3,561,326	3,561,691	3,562,195	3,561,502	3,562,232
3,562,057	3,561,335	3,561,693	3,562,311	3,561,530	3,562,254
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3,562,732	3,561,349	3,561,701	3,562,314	3,561,635	3,562,298
3,562,736	3,561,365	3,561,705	3,562,319	3,561,656	3,562,324
5 : 3,561,319	3,561,375	3,561,717	3,562,323	3,561,875	3,562,358
3,562,020	3,561,377	3,561,723	3,562,336	3,562,332	3,562,359
6 : 3,561,022	3,561,380	3,561,725	3,562,355	3,562,333	3,562,422
3,561,023	3,561,388	3,561,730	3,562,356	3,562,511	3,562,473
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3,561,074	3,561,424	3,561,776	3,562,398	3,561,057	3,562,664
3,561,091	3,561,426	3,561,783	3,562,408	3,561,089	3,562,675
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3,561,109	3,561,475	3,561,803	3,562,453	3,561,313	3,561,933
3,561,111	3,561,476	3,561,815	3,562,455	3,561,317	3,561,969
3,561,117	3,561,479	3,561,817	3,562,494	3,561,372	3,562,181
3,561,120	3,561,480	3,561,832	3,562,495	3,561,414	3,562,220
3,561,121	3,561,486	3,561,834	3,562,501	3,561,420	3,562,243
3,561,123	3,561,506	3,561,839	3,562,502	3,561,429	3,562,282
3,561,136	3,561,510	3,561,845	3,562,522	3,561,451	3,562,290
3,561,139	3,561,513	3,561,850	3,562,533	3,561,462	3,562,360
3,561,147	3,561,516	3,561,866	3,562,551	3,561,463	11 : 3,561,461
3,561,151	3,561,528	3,561,873	3,562,553	3,561,494	3,562,500
3,561,156	3,561,533	3,561,904	3,562,577	3,561,618	3,562,575

12 : Re.27.050	17 : 3.561.837	21 : 3.561.861	26 : 3.561.060	29 : 3.562.708	34 : 3.562.666
3.561.870	3.561.877	3.561.891	3.561.072	3.562.734	3.562.676
3.561.887	3.561.887	3.561.894	3.561.086	3.562.797	3.562.683
3.561.904	3.561.955	3.561.197	3.561.161	3.562.797	3.562.709
3.561.955	3.561.979	3.561.332	3.561.170	3.561.777	3.562.729
3.561.983	3.561.983	3.561.337	3.561.175	3.561.857	3.562.740
3.561.987	3.561.987	3.561.540	3.561.211	3.562.746	3.562.746
3.561.987	3.562.000	3.562.351	3.561.245	3.561.763	3.562.747
3.561.994	3.562.004	3.561.143	3.561.255	3.561.890	3.562.750
3.561.994	3.562.013	3.561.405	3.561.283	3.562.407	3.562.780
3.561.994	3.562.028	3.562.176	3.561.321	3.562.407	3.562.801
3.561.994	3.562.065	3.562.695	3.561.373	3.562.134	3.562.804
3.561.994	3.562.067	3.561.138	3.561.376	3.561.028	3.561.525
3.561.994	3.562.068	3.561.142	3.561.395	3.561.488	3.561.651
3.561.994	3.562.098	3.561.157	3.561.410	3.561.749	3.561.782
3.561.994	3.562.103	3.561.184	3.561.469	3.562.486	3.561.943
3.561.994	3.562.107	3.561.333	3.561.478	3.562.645	3.562.752
3.561.994	3.562.138	3.561.387	3.561.544	3.562.647	3.562.752
3.561.994	3.562.146	3.561.503	3.561.561	3.562.701	3.561.038
3.561.994	3.562.147	3.561.507	3.561.589	3.561.076	3.561.076
3.561.994	3.562.148	3.561.702	3.561.615	3.561.088	3.561.088
3.561.994	3.562.212	3.561.774	3.561.623	3.561.098	3.561.098
3.561.994	3.562.300	3.561.842	3.561.660	3.561.107	3.561.107
3.561.994	3.562.345	3.561.860	3.561.667	3.561.108	3.561.108
3.561.994	3.562.368	3.561.910	3.561.680	3.561.110	3.561.110
3.561.994	3.562.395	3.561.918	3.561.737	3.561.113	3.561.113
3.561.994	3.562.632	3.561.984	3.561.770	3.561.125	3.561.125
3.561.994	3.562.633	3.562.396	3.561.800	3.561.128	3.561.128
3.561.994	3.562.669	3.562.411	3.561.819	3.561.133	3.561.133
3.561.994	3.562.798	3.562.412	3.561.820	3.561.137	3.561.137
3.561.994	3.562.808	3.562.417	3.561.849	3.561.146	3.561.146
13 : 3.561.105	3.562.423	3.562.430	3.561.882	3.561.177	3.561.177
3.561.127	3.562.462	3.562.541	3.561.884	3.561.181	3.561.181
3.561.468	3.562.499	3.562.608	3.561.947	3.561.200	3.561.200
3.561.504	3.562.517	3.562.649	3.561.977	3.561.216	3.561.216
3.561.692	3.562.518	3.562.653	3.561.995	3.561.226	3.561.226
3.561.712	3.562.561	3.562.774	3.562.023	3.561.235	3.561.235
3.561.999	3.562.563	3.562.781	3.562.049	3.561.236	3.561.236
3.561.999	3.562.597	3.562.785	3.562.059	3.561.243	3.561.243
15 : 3.561.512	3.562.618	3.562.785	3.562.073	3.561.243	3.561.243
16 : 3.561.613	3.562.618	3.562.785	3.562.073	3.561.243	3.561.243
3.562.131	3.562.650	3.561.016	3.562.078	3.561.344	3.561.344
3.562.394	3.562.673	3.561.027	3.562.186	3.561.352	3.561.352
17 : Re.27.054	3.562.739	3.561.065	3.562.187	3.561.353	3.561.353
Re.27.056	3.562.757	3.561.085	3.562.190	3.561.353	3.561.353
3.561.010	3.562.761	3.561.149	3.562.248	3.561.358	3.561.358
3.561.020	3.562.763	3.561.162	3.562.252	3.561.401	3.561.401
3.561.036	3.562.773	3.561.168	3.562.293	3.561.427	3.561.427
3.561.042	3.561.103	3.561.192	3.562.294	3.561.428	3.561.428
3.561.058	3.561.230	3.561.268	3.562.330	3.561.430	3.561.430
3.561.063	3.561.374	3.561.269	3.562.338	3.561.433	3.561.433
3.561.075	3.561.457	3.561.285	3.562.349	3.561.449	3.561.449
3.561.084	3.561.485	3.561.330	3.562.476	3.561.454	3.561.454
3.561.096	3.561.588	3.561.339	3.562.493	3.561.458	3.561.458
3.561.102	3.561.626	3.561.340	3.562.688	3.561.474	3.561.474
3.561.116	3.561.646	3.561.422	3.562.694	3.561.543	3.561.543
3.561.122	3.561.661	3.561.447	3.562.702	3.561.590	3.561.590
3.561.126	3.561.729	3.561.481	3.562.720	3.561.591	3.561.591
3.561.130	3.561.740	3.561.482	3.562.741	3.561.610	3.561.610
3.561.155	3.561.759	3.561.483	3.562.748	3.561.622	3.561.622
3.561.160	3.561.762	3.561.484	3.562.799	3.561.625	3.561.625
3.561.164	3.561.765	3.561.498	3.562.100	3.561.647	3.561.647
3.561.180	3.561.794	3.561.517	3.562.117	3.561.650	3.561.650
3.561.199	3.561.905	3.561.518	3.562.118	3.561.675	3.561.675
3.561.201	3.561.940	3.561.517	3.562.120	3.561.700	3.561.700
3.561.212	3.562.062	3.561.518	3.562.143	3.561.713	3.561.713
3.561.213	3.562.079	3.561.518	3.562.145	3.561.734	3.561.734
3.561.215	3.562.082	3.561.518	3.562.154	3.561.743	3.561.743
3.561.222	3.562.169	3.561.518	3.562.180	3.561.768	3.561.768
3.561.238	3.562.191	3.561.518	3.562.228	3.561.778	3.561.778
3.561.240	3.562.218	3.561.518	3.562.244	3.561.792	3.561.792
3.561.262	3.562.230	3.561.518	3.562.251	3.561.808	3.561.808
3.561.277	3.562.231	3.561.518	3.562.263	3.561.821	3.561.821
3.561.282	3.562.236	3.561.518	3.562.277	3.561.843	3.561.843
3.561.284	3.562.301	3.561.518	3.562.280	3.561.846	3.561.846
3.561.300	3.562.306	3.561.518	3.562.281	3.561.851	3.561.851
3.561.324	3.562.344	3.561.518	3.562.285	3.561.854	3.561.854
3.561.356	3.562.406	3.561.518	3.562.295	3.561.858	3.561.858
3.561.367	3.562.471	3.561.518	3.562.309	3.561.864	3.561.864
3.561.404	3.562.540	3.561.518	3.562.310	3.561.867	3.561.867
3.561.445	3.562.562	3.561.518	3.562.325	3.561.876	3.561.876
3.561.450	3.562.568	3.561.518	3.562.329	3.561.886	3.561.886
3.561.505	3.562.766	3.561.518	3.562.334	3.561.895	3.561.895
3.561.514	3.561.106	3.561.518	3.562.337	3.561.936	3.561.936
3.561.537	3.561.403	3.561.518	3.562.340	3.561.957	3.561.957
3.561.562	3.561.417	3.561.518	3.562.353	3.561.961	3.561.961
3.561.579	3.561.557	3.561.518	3.562.380	3.561.962	3.561.962
3.561.586	3.561.563	3.561.518	3.562.385	3.561.965	3.561.965
3.561.593	3.561.720	3.561.518	3.562.391	3.561.971	3.561.971
3.561.605	3.561.874	3.561.518	3.562.404	3.561.972	3.561.972
3.561.608	3.561.982	3.561.518	3.562.433	3.561.980	3.561.980
3.561.609	3.562.469	3.561.518	3.562.435	3.561.981	3.561.981
3.561.611	3.562.558	3.561.518	3.562.448	3.562.001	3.562.001
3.561.629	3.562.668	3.561.518	3.562.467	3.562.025	3.562.025
3.561.668	3.562.735	3.561.518	3.562.492	3.562.041	3.562.041
3.561.672	3.561.711	3.561.518	3.562.503	3.562.043	3.562.043
3.561.710	3.561.786	3.561.518	3.562.528	3.562.066	3.562.066
3.561.714	3.561.949	3.561.518	3.562.559	3.562.124	3.562.124
3.561.715	3.561.950	3.561.518	3.562.564	3.562.128	3.562.128
3.561.736	3.562.063	3.561.518	3.562.570	3.562.144	3.562.144
3.561.752	3.562.224	3.561.518	3.562.571	3.562.167	3.562.167
3.561.761	3.561.012	3.561.518	3.562.572	3.562.196	3.562.196
3.561.796	3.561.021	3.561.518	3.562.585	3.562.203	3.562.203
3.561.804	3.561.196	3.561.518	3.562.589	3.562.217	3.562.217
3.561.806	3.561.231	3.561.518	3.562.591	3.562.253	3.562.253
3.561.807	3.561.318	3.561.518	3.562.637	3.562.268	3.562.268
3.561.810	3.561.345	3.561.518	3.562.665	3.562.271	3.562.271
3.561.812	3.561.348	3.561.056			

36 : 3.562.278	39 : 3.561.220	39 : 3.562.513	42 : 3.561.809	42 : 3.562.714	49 : 3.561.431
3.562.279	3.561.228	3.562.531	3.561.822	3.562.724	3.561.907
3.562.284	3.561.249	3.562.534	3.561.831	3.562.725	3.562.594
3.562.287	3.561.289	3.562.538	3.561.882	3.562.762	3.561.225
3.562.305	3.561.310	3.562.542	3.561.896	3.562.782	3.561.554
3.562.331	3.561.327	3.562.566	3.561.903	3.562.783	3.562.044
3.562.339	3.561.331	3.562.609	3.561.909	3.562.800	3.562.770
3.562.371	3.561.336	3.562.692	3.561.919	3.562.805	3.561.261
3.562.376	3.561.351	3.562.775	3.561.934	3.561.934	3.561.524
3.562.393	3.561.359	3.562.792	3.561.952	3.561.952	3.561.649
3.562.401	3.561.370	3.561.727	3.561.990	3.562.357	3.561.733
3.562.418	3.561.379	3.561.347	3.561.996	3.562.468	3.561.757
3.562.421	3.561.390	3.561.347	3.561.998	3.562.643	3.561.879
3.562.440	3.561.399	3.561.750	3.562.007	3.561.902	3.562.105
3.562.442	3.561.423	3.561.975	3.562.015	3.562.083	3.562.432
3.562.444	3.561.443	3.562.053	3.562.016	3.562.419	3.562.450
3.562.466	3.561.448	3.562.115	3.562.029	3.562.480	3.562.472
3.562.507	3.561.491	3.562.122	3.562.046	3.561.570	3.562.514
3.562.524	3.561.551	3.562.178	3.562.070	3.561.153	3.562.631
3.562.536	3.561.553	3.562.182	3.562.075	3.561.244	3.562.652
3.562.598	3.561.568	3.562.199	3.562.089	3.561.676	3.562.715
3.562.603	3.561.574	3.562.241	3.562.126	3.562.771	3.562.787
3.562.612	3.561.576	3.562.296	3.562.149	3.562.788	3.561.043
3.562.627	3.561.612	3.562.343	3.562.150	3.562.790	3.561.115
3.562.628	3.561.631	3.562.326	3.562.157	Re.27.049	3.561.174
3.562.634	3.561.633	3.561.024	3.562.205	Re.27.055	3.561.257
3.562.646	3.561.640	3.561.025	3.562.209	3.561.017	3



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PATENT OFFICE NOTICES

After Final Rejection Practice

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.116, 1.191, 1.192, and 1.193, and by adding § 1.130.

All persons interested in presenting their views and objections and recommendations in connection with the proposed changes are invited to do so on or before March 23, 1971, on which day a hearing will be held at 2 p.m., e.s.t., in Room SC06, Building 2, 2011 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person upon written request a reasonable time after the closing date for submitting comments.

The proposed changes, if adopted, will provide a basis for a revised procedure for treating amendments filed after a final rejection. A proposed additional section is added to incorporate the existing practice relative to affidavits.

The proposed procedure will provide that all timely filed first amendments after final rejection be entered as a matter of right, subject to the limitation that additional claims will not be entered beyond the number that would result in the total number of claims under prosecution equalling the number of claims finally rejected. Only those second and subsequent amendments which cancel claims will be entered as a matter of right. The entry and treatment of any other amendments filed at this stage will be entirely within the discretion of the examiner.

A distinction will be made between first amendments after final rejection filed within 2 months from the date of the final rejection and those filed after that period.

A first amendment after final rejection filed within 2 months of the final rejection will receive a full and complete advisory action as soon as possible after its receipt in the Patent Office. Under these circumstances, the revised procedure would permit the filing of an appeal within the period for response to the final rejection or within 1 month from the date of the advisory action, whichever is later. However, if an appeal had been filed before the mailing of the advisory action, the appeal brief would not be due until 2 months after the date of the advisory action.

Amendments filed later than 2 months after the date of the final rejection in nonappeared cases may be answered at the examiner's discretion, but no additional time will be allowed for appeal. However, if an appeal is filed in these cases, a full and complete advisory action will be rendered and the time for filing the brief will be extended to expire 2 months from the date of the advisory action.

After jurisdiction of an application transfers to the Board of Appeals, no amendments will be considered for entry except those restricted to cancellation of claims or copying claims for purposes of interference.

If new issues are presented in the claims as amended or presented after final rejection, they will be rejected in the advisory action on the ground of being drawn to new issues. These rejections will be reviewable by the Board of Appeals as "adverse decisions of examiners" (35 U.S.C. 7).

The current practice of normally making the second action on the merits final and setting of a 3-month period for response will continue. However, the practice of granting an automatic 1-month extension of time if an amendment is filed (notices of Aug. 7, 1967; 841 O.G. 1411 and of Sept. 26, 1968; 855 O.G. 1109) will be terminated, and extensions of time at this stage of the prosecution will not be encouraged. Further, any extension of time granted after a final rejection will not affect the 2-month period and the privilege of an advisory action.

The present policy concerning consideration of affidavits, declarations, and exhibits will remain unchanged.

Holding of interviews after final rejection will be at the primary examiner's discretion.

This procedure will also allow the examiner to prepare examiner's answers which simply refer to the final rejection or the advisory action in most instances.

The sections, if amended as proposed, would read as follows:

§ 1.116 Amendments after final action.

(b) A first amendment presented after final rejection will be entered and considered, but the total number of claims under prosecution may not exceed the total number finally rejected. Entry of second and subsequent amendments after final rejection will normally be limited to only those which cancel claims.

(c) A first amendment filed within 2 months after the date of the final rejection, or after appeal, will receive a full and complete advisory action. If not previously filed, an appeal may be filed in such cases within the period for response to the final rejection or within 1 month from the date of the advisory action, whichever is later. In those cases where an appeal was filed before the date of the advisory action, the appeal brief is due 2 months after the date of the advisory action.

(d) After jurisdiction of an appealed case passes to the Board of Appeals no amendments may normally be made (see § 1.191(d)). After decision on appeal, amendments can only be made as provided in § 1.198, or to carry into effect a recommendation under § 1.196.

(e) Amendments after final rejection shall not introduce new issues into the prosecution.

§ 1.130 Affidavits, declarations, or exhibits after final rejection.

Affidavits, declarations, or exhibits submitted with a first reply after final rejection for the purpose of overcoming a new ground of rejection or requirement made in the final rejection, shall be admitted and considered. No other affidavit, declaration, or exhibit presented after final rejection will be admitted and considered without a showing of good and sufficient reasons why they were not earlier presented.

§ 1.191 Appeal to Board of Appeals.

(a) Every applicant for a patent or for reissue of a patent, any of the claims of which have been twice rejected, or who has been given a final rejection (§ 1.113) may, upon the payment of the fee required by law, appeal from the decision of the primary examiner to the Board of Appeals within the time allowed for response. (See § 1.116(c).)

(d) The jurisdiction of an appealed case is retained by the primary examiner until the time for filing a reply to the examiner's answer (§ 1.193(b)) has expired, at which time the Board of Appeals will take jurisdiction of the same.

§ 1.192 Appellant's brief.

(a) The appellant shall, within 2 months from the date of the appeal, or within the time allowed for response to the action appealed from, or within the time allowed in an advisory action (§ 1.116(b)), whichever is later, file a brief, accompanied by the requisite fee. Said brief shall include all of the authorities and arguments on which he will rely to maintain his appeal, including a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved, at the same time indicating if he desires an oral hearing. Two extra copies of the brief are required if an oral hearing is requested. Upon a showing of sufficient cause the time for filing the brief may be extended to a date not later than 2 months after the original expiration date. Any longer or further extensions must be sought from the Commissioner. All requests for extensions must be filed prior to the expiration of the period sought to be extended.

§ 1.193 Examiner's answer.

(b) The appellant may file a reply brief directed only to such new points of argument as may be raised in the examiner's answer, within 1 month from the date of such answer.

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However, if the examiner's answer states a new ground of rejection appellant may file a reply thereto within 2 months from the date of such answer; such reply may include any amendment or material appropriate to the new ground.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: January 22, 1971.

RICHARD O. SIMPSON,
Acting Assistant Secretary for
Science and Technology.

[FR Doc. 71-1167 Filed 1-27-71; 8:47 a.m.]

Pub. in 36 F.R. 1356-57, Jan. 28, 1971

Division-Continuation Program

[37 CFR Parts 1, 3]

Notice of Proposed Rule Making

Notice is hereby given that pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.41 and 1.75, adding §§ 1.60 and 3.54, and by revoking § 1.147.

All persons interested in presenting their views and objections and recommendations in connection with the proposed changes are invited to do so on or before March 23, 1971, on which day a hearing will be held at 1 p.m., e.s.t., in Room SC06, Building 2, 2011 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person upon written request a reasonable time after the closing date for submitting comments.

The proposed program is intended to replace the current Rule 147 divisional and streamline continuation programs (notices of Feb. 11, 1966, 824 O.G. 1 and Oct. 14, 1969, 869 O.G. 1). The proposed program follows generally the present Rule 147 practice and expands its use to include continuations. No new specification, claims or oath would be required under the proposed practice since a copy of the original application papers would be made by the Patent Office.

Title 35 U.S.C. 121 specifically allows filing of a divisional application without signing by the inventor.

In regularly filed continuation or divisional applications, the only statement in the oath or declaration of the continuing case (37 CFR 3.17, 3.17(a)) which is not sworn to in the original application is that the continuing application discloses and claims only subject matter disclosed in his original application. Since the continuing application as filed is an exact duplicate of the original application, the additional statement is superfluous. Acceptance of a continuing application without a new execution by the applicant is, therefore, within the broad authority conferred by 35 U.S.C. 6 and 120.

The proposed changes follow:

§ 1.41 [Amended.]

1. Section 1.41 is proposed to be amended by revising the parenthetical expression at the end of paragraph (a) to read "(See § 1.60)."

2. A new § 1.60 is proposed to be added, the full text of which reads as follows:

§ 1.60 Continuing application for invention disclosed and claimed in a prior application.

A continuation or divisional application (filed under the conditions specified in 35 U.S.C. 120 or 121), which discloses and claims only subject matter disclosed in a prior application may be filed as a separate application before the patenting or abandonment of or termination of proceedings on the prior application. If the application papers comprise a copy of the prior application as filed, prepared and certified by the Patent Office, signing and execution by the applicant may be omitted. Certification may be omitted if the copy does not leave the custody of the Patent Office. Only amendments reducing the number of claims or adding a reference to the prior application (§ 1.78(a)) will be entered before calculating the filing fee and granting of the filing date.

3. Section 1.75 is proposed to be amended by revising paragraph (d) (2) to read as follows:

§ 1.75 Claim(s).

(d) * * *
(2) See §§ 1.141 to 1.146 as to claiming different inventions in one application.

§ 1.147 [Revoked.]

4. Section 1.147 is proposed to be revoked.

5. A new § 3.54 is proposed to be added to read as follows:

§ 3.54 Division-continuation program application transmittal form.

IN THE UNITED STATES PATENT OFFICE

THE COMMISSIONER OF PATENTS,
Washington, D.C. 20231

SIR: This is a request for filing a

☐ Continuation application under 37 CFR 1.60.

☐ Divisional
of pending original application Serial No. _____
filed on _____ of _____
(date) (inventor)
for _____
(title of invention)

1. ☐ The filing fee is calculated below:

CLAIMS AS FILED, LESS ANY CLAIMS CANCELED BY AMENDMENT

For	Number filed	Number extra	Rate	Basic fee \$65
Total claims.....	-10=	X	\$2	=
Independent claims.....	-1=	X	10	=
Total filing fee.....				

2. ☐ Please charge my Deposit Account No. _____
in the amount of \$_____. A duplicate copy of
this sheet is enclosed.

3. ☐ The Commissioner is hereby authorized to charge any
additional fees which may be required, or credit any
overpayment to Account No. _____. A dupli-
cate copy of this sheet is enclosed.

4. ☐ A check in the amount of \$_____ is enclosed.

5. ☐ Cancel claims _____

6. ☐ Amend the specification by inserting before the first
line the sentence:
—This is a ☐ Continuation ☐ division of application
Serial No. _____, filed _____.

7. ☐ The original application is assigned to _____

8. ☐ The power of attorney in the original application is to
_____,

a. ☐ The power appears in the original papers of the
original application.

b. ☐ Since the power does not appear in the original
papers, a copy of the power in the original ap-
plication is enclosed.

(Signature)

☐ Inventor(s)
☐ Assignee of Complete Interest
☐ Attorney or agent of record in
original application

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: January 22, 1971.

RICHARD O. SIMPSON,
Acting Assistant Secretary for
Science and Technology.

[FR Doc. 71-1168 Filed 1-27-71; 8:47 a.m.]

Pub. in 36 F.R. 1356-57, Jan. 28, 1971

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,570,193, Bleber and Sumpter, HIGH TEMPERATURE ALLOYS AND ARTICLES; 2,570,194, same, PRODUCTION OF HIGH-TEMPERATURE ALLOYS AND ARTICLES; 3,046,108, H. L. Elselstein, AGE-HARDENABLE NICKEL ALLOY; 3,048,485, C. G. Bleber, HIGH STRENGTH CREEP RESISTING ALLOY, filed Oct. 25, 1968, D.C., S.D. Tex. (Houston), Doc. 68-H-894, *The International Nickel Company, Inc. v. Cameron Iron Works, Inc.* Notice of dismissal under Rule 41(a) (1) (i), Oct. 9, 1970.

2,570,194. (See 2,570,193.)

2,703,579, Merancy and Welsz, AUTO CAR WASHING MACHINE; 3,304,565, H. Fuhring, CLEANING INSTALLATIONS FOR VEHICLES, filed Aug. 18, 1970, D.C. Ariz. (Phoenix), Doc. C-70-489, *California Car Wash Systems, Inc. v. Hurricane Car Wash Systems, Inc.*

3,028,713, Kennedy, Martinez, Paprzycki and Stabillito, ARTICLE COUNTING AND LOADING MACHINE, filed Nov. 29, 1967, D.C.N.J. (Camden), Doc. C-1213-67, *Edward J. Kennedy et al. v. Lasko Company, Inc.* Order of dismissal without prejudice, Oct. 28, 1970.

3,046,108. (See 2,570,193.)

3,048,485. (See 2,570,193.)

3,052,319, R. K. Swanson, CANTILEVER SHOPPING CART AND COUNTER ASSEMBLY; 3,517,773, same, CHECK-OUT SYSTEM AND COUNTER FOR USE WITH CANTILEVER SHOPPING CART, filed Oct. 27, 1970, D.C., W.D. Okla. (Oklahoma City), Doc. 70-530-C, *Russel K. Swanson and United Steel & Wire Company v. Folding Carrier Corporation.*

3,061,271, L. T. Jones, RIGGING STRUCTURE FOR ERECTING STORAGE ENCLOSURES, filed Nov. 15, 1966, D.C. Del. (Wilmington), Doc. 3283, *Lucian T. Jones, doing business as Seaford Welding Co. v. O. A. Newton & Son Company, Elmer E. Hasselbring and Textron, Inc.*

3,076,768, F. J. Boylan, DEFOAMER; 3,408,306, same, METHOD OF CONTROLLING FOAMING, filed Jan. 3, 1969, D.C., S.D.N.Y., Doc. 69-C-21, *Dreic Chemical Company v. Hercules Incorporated.* Stipulation and order of dismissal without prejudice, Oct. 1, 1970.

3,089,310, E. Torti, TRENCH SHORING MACHINE, filed Oct. 30, 1970, U.S. Ct. of App., 1st Cir., Massachusetts (Boston), Doc. 7750, *Shields-Jetco, Inc. et al. v. Emanuel Torti.*

3,092,404, W. MacWilliam, PACKED SCREW THREADED GLAND TYPE TUBE COUPLING FOR THIN WALLED TUBING, filed Oct. 28, 1970, D.C. Conn. (New Haven), Doc.

14103, *The Weatherhead Company v. Scovill Manufacturing Company.*

3,246,336, Baribo, Porter, Turner and Wright, MOLASSES FEED BLOCKS AND METHOD OF PREPARATION AND USE, filed Oct. 26, 1966, D.C. Kans. (Wichita), Doc. KC-2588, *A. E. Staley Manufacturing Company v. Harvest Brand Inc., doing business as Stockade Products.* Decision of the court, patent invalid. Defendant's counterclaim denied; judgment for the defendant, Oct. 13, 1970.

3,304,565. (See 2,703,579.)

3,343,961, H. Truax, METHOD FOR TREATING SOYBEANS AND THE LIKE USING INFRA-RED HEAT, filed Oct. 23, 1970, D.C., S.D. Iowa (Des Moines), Doc. 10-135-C-2, *Miz-Mill, Inc. and Harry Truax & Sons Company, Inc. v. More Life, Ltd. and Andrew J. McCormick.* Same, filed Oct. 23, 1970, D.C., S.D. Iowa (Des Moines), Doc. 10-136-C-2, *Miz-Mill, Inc. and Harry Truax & Sons Company, Inc. v. Triple "F" Feeds, Inc.*

3,383,452, Park and Campbell, MUSICAL INSTRUMENT; Re. 26,521, D. M. Park, AUTOMATIC REPETITIVE RHYTHM INSTRUMENT TIMING CIRCUITRY, filed Oct. 16, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2581, *Seeburg Corp., etc. v. Wurlitzer Co., etc.*

3,408,306. (See 3,076,768.)

3,450,090, Adams and Davis, TROLLEY SPACING DEVICE, filed Mar. 18, 1970, D.C. Kans. (Wichita), Doc. W-4336, *Lowell K. Adams, Albert D. Davis and Kenneth Monfort v. National Beef Packing Company.* Consent judgment, patent valid and owned by plaintiffs. Counterclaim dismissed with prejudice, Oct. 28, 1970.

3,474,386, E. A. Link, ELECTRICAL CONNECTOR, filed Oct. 26, 1970, D.C. Oreg. (Portland), Doc. C-70-714, *RTE Corporation v. Westinghouse Electric Corporation.*

3,496,485, R. L. Godbersen, BOOM AND FORK LIFT APPARATUS, filed Oct. 29, 1970, D.C., N.D. Ind. (South Bend), Doc. 70-S-153, *Midwest Industries, Inc. v. Freeman Industries Corporation.*

3,511,352, G. B. Greene, AUTOMATIC BAR TYPEWRITERS AND THE LIKE HAVING ROLL-CAM TYPE DRIVE MECHANISMS, filed Oct. 30, 1970, D.C.N.J. (Newark), Doc. C-1467-70, *George B. Greene v. The Singer Co.*

3,512,807, H. J. Moran, MANIFOLD FOR INFLATABLE LIFE PRESERVERS AND THE LIKE, filed Oct. 27, 1970, D.C.N.J. (Newark), Doc. 1446-70, *Sweetlik Parachute Company, Inc. v. Halkey-Roberts Corp.*

3,517,773. (See 3,052,319.)

Re. 26,521. (See 3,383,452.)

Certificates of Correction for the Week of Feb. 16, 1971

D. 217,895	3,504,991	3,519,468
D. 218,861	3,505,905	3,519,809
Re. 26,766	3,507,538	3,519,815
3,349,416	3,510,521	3,520,046
3,410,687	3,510,707	3,520,221
3,412,019	3,511,178	3,521,348
3,420,615	3,512,689	3,522,340
3,432,744	3,513,803	3,526,036
3,434,791	3,516,182	3,526,327
3,441,537	3,516,725	3,528,098
3,454,630	3,516,942	3,528,347
3,455,469	3,517,294	3,528,349
3,475,397	3,517,390	3,529,255
3,475,852	3,517,857	3,529,340
3,479,485	3,518,261	3,530,980
3,482,884	3,518,921	3,535,160
3,496,743	3,519,464	

Disclaimer

3,353,079.—*John J. Saeth, Rochester, N.Y.* WINDSHIELD WIPER CONTROL SYSTEM. Patent dated Nov. 14, 1967. Disclaimer filed Dec. 4, 1970, by the assignee, *General Motors Corporation.*

Hereby enters this disclaimer to claim 1 of said patent.

Adverse Decisions in Interferences

In the designated interferences involving the indicated claims of the following patents final decision have been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,265,679, M. B. Black III, E. E. Faust, W. S. Barnhart and R. Netsch, CHEMICAL PRODUCT AND METHOD FOR ITS MANUFACTURE, decided Sept. 22, 1970, Interference No. 96,221, claim 10.

Patent No. 3,306,218, J. P. Reeves, METHOD OF AND APPARATUS FOR ELEVATING LIQUIDS AND SEMI-LIQUIDS, decided Apr. 29, 1970, Interference No. 96,489, claim 1.

Patent No. 3,310,659, G. Apostle, D. P. Carlson and P. J. Pollard, BOWLING SCORE COMPUTER, decided Nov. 4, 1970, Interference No. 96,899, claim 23.

Patent No. 3,320,355, A. R. Booker, HEAT SHRINKABLE CONNECTOR FOR ELECTRICAL WIRE, decided Sept. 22, 1970, Interference No. 96,432, claims 1 and 3.

Patent No. 3,428,039, S. W. Osborn, E. Broderick and J. L. Villa, PRODUCTION OF VICINAL EPISULFIDES BY THE OXIDECATALYZED REACTION OF AN ALKYLENE OXIDE AND SULFUR-DONOR, decided Dec. 16, 1970, Interference No. 97,061, claims 1, 2, 3, 5, 7, 10, 13 and 14.

Patents Available for Licensing or Sale

3,448,781, ROTATABLE BLADE SABRE SAW. John J. Angelucci, 359 10th Ave., Bethlehem, Pa., 18018.

3,491,625, FLOATING TOOL HOLDER. Lockwood D. Burton, 3260 Bridle Path Lane, Dresher, Pa., 19025.

3,525,248, PRESS. Th. Kieserling & Albrecht, Solingen, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,530,747, CENTERED CLAMPING DEVICE. Th. Kieserling & Albrecht, Solingen, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,531,013, CONTAINER CLOSURE HAVING FASTENING MEANS. Mauser-Kommandit-Gesellschaft, Cologne, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,535,667, ELECTRICAL SAFETY DEVICE. Henry C. Harnish, Jr. and Anthony J. Orsello, Elcock Ave., Boonton, N.J., 07005.

3,537,761, TRACK PLATE FOR ENDLESS TRACK VEHICLES. John Olbermann, Jr., 11735 N. 19th Ave., #18, Phoenix, Ariz., 85029.

3,543,441, VERTICALLY SLIDABLE DOOR. Gordon LaPorte, Lakeside School, Spring Valley, N.Y., 10977.

3,543,672, SMOKELESS CHARCOAL FIRED GRILL. Anthony L. Payonk, 4148 Bridge St., Whitehall, Pa., 18052.

3,544,103, RESILIENT CRADLE EXERCISE APPARATUS. Milo G. Conable, 5356 15th Ave., Sacramento, Calif., 95820.

3,546,945, FLUID SAMPLER. William H. Collins, 1002 Chipley St., Baker, La., 70714.

3,556,235, UNDERWEIGHT CAN DETECTING AND FILLING APPARATUS. Robert F. Moreno, 946 Bloomwood Road, San Pedro, Calif., 90731.

Arno Hornemann of Wesel, Germany, is prepared to grant exclusive or non-exclusive license on reasonable terms and conditions under the following patent. Inquiries should be addressed to Anderson, Spangler & Wy-more, 1700 Broadway, Denver, Colo., 80202.

3,478,882, ANTI-BACKFLOW DRAINAGE SYSTEM.

The following 3 patents are offered by John W. Barnd, 32 Hollybrook Road, Paramus, N.J.

3,351,128, MULTI-ZONE TEMPERATURE CONTROL.

3,496,991, FLUID TEMPERATURE REGULATING METHOD AND APPARATUS.

3,515,345, MULTI-ZONE TEMPERATURE CONTROL.

The General Electric Company is prepared to grant non-exclusive licenses under the following 10 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patent may be addressed to: Manager—Technology Marketing Operation, General Electric Company, 1 River Road, Schenectady, N.Y., 12305.

3,489,181, FLUID AMPLIFIER POSITION CONTROL SYSTEM.

Applications for license under the following 2 patents may be addressed to: General Electric Company, 1 River Road, Bldg. 41, Room 106, Schenectady, N.Y., 12305. Attention: Patent Counsel.

3,486,393, SCREW POSITIONING DRIVE FOR ROLLING MILLS.

3,508,425, TENSION LIMIT MODIFICATION CONTROL.

Applications for license under the following 7 patents may be addressed to: General Electric Company, Appliance Components Division, 1635 Broadway, Fort Wayne, Ind., 46804. Attention: Patent Counsel.

3,496,132, VISCOSITY CONTROL ADDITIVES IN POLY-AMIDE ACID SOLUTIONS.

3,138,418, FASTENING MEANS FOR SECURING A FLUORESCENT LAMPHOLDER TO A PANEL.

3,122,405, LAMPHOLDER.

3,122,404, LAMPHOLDER.

3,060,400, FLUORESCENT LAMPHOLDER WITH QUICK-CONNECT TERMINALS.

3,060,399, WIRING DEVICE TERMINAL CONNECTING MEANS.

2,973,500, BI-PIN FLUORESCENT LAMPHOLDER WITH NEW INSERTION MEANS.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF FEBRUARY 9, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	7-15-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	4-01-69
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	10-09-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	11-03-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-02-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	4-09-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	7-01-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	12-01-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	1-24-70
PHYSICS, GROUP 280—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	10-16-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	5-04-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	12-01-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines; Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding; Metal Founding; Metallurgical Apparatus; Plastic Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	10-01-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGO, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	10-02-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	2-03-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	12-24-69

Expiration of patents: The patents within the range of numbers indicated below expire during February, 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 600, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

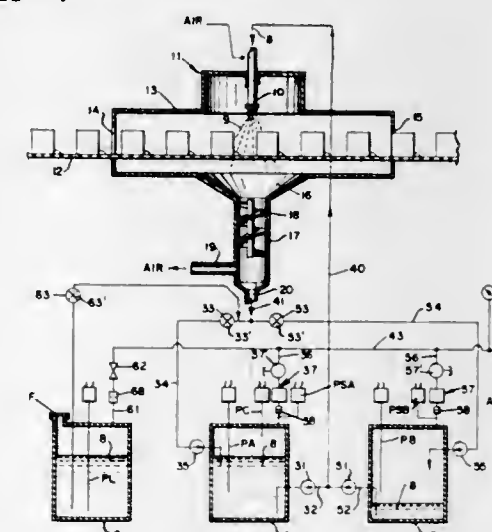
Patents..... Numbers 2,667,637 to 2,670,467, inclusive
Plant Patents..... Numbers 1,246 to 1,259, inclusive

REISSUES

FEBRUARY 16, 1971

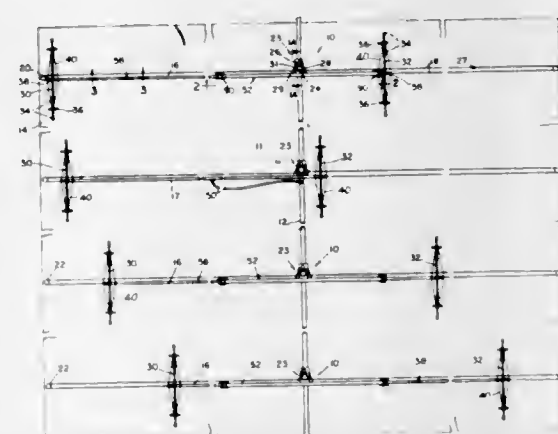
Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,058
RECIRCULATING SYSTEM FOR FLOWABLE MATERIALS
Richard F. Wiggins, Fairfield, Conn., assignor to The Gyromat Corporation, Stratford, Conn., a corporation of Connecticut
Original No. 3,424,125, dated Jan. 28, 1969, Ser. No. 634,725, Apr. 28, 1967. Application for reissue Aug. 26, 1969, Ser. No. 869,969
Int. Cl. B05c 11/10
U.S. Cl. 118—7
12 Claims



A system for automatically and continuously supplying and recirculating a normally flowable material to a pneumatic spray gun station and for automatically replenishing the flowable, sprayable material as it is consumed.

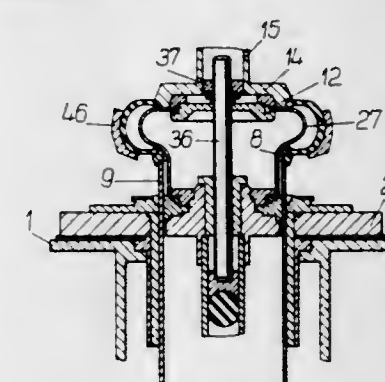
27,059
REVERSIBLE IRRIGATION LINES
Gregory J. Wieck, Enterprise, Oreg. 97828
Original No. 3,447,751, dated June 3, 1969, Ser. No. 654,809, July 20, 1967. Application for reissue Sept. 12, 1969, Ser. No. 866,411
Int. Cl. A01g 25/02
U.S. Cl. 239—212
23 Claims



A long hose having sprinklers at both ends forms, with a cable running over a reversible, powered capstan, an endless, reversible towline. The length of the hose is about one-half of the length of the area to be irrigated and the hose is advanced through an injection tube at the central portion of the area to be irrigated, and water under pressure supplied to the tube enters the hose through check valves in thick-walled coupling portions

spaced along the hose. The check valves are in the form of elastic sleeves fitting in the coupling portions, each sleeve normally covering two oppositely disposed openings in the coupling portion and adapted to buckle from the higher water pressure in the injection tube to admit water into the hose. Each sleeve preferably has stiff backing plates on its inside and plugs on its outside filling the openings in the coupling portion. The openings preferably are elliptical. Washing chambers at the ends of the injection tubes wash the hose before it enters the seals in the injection tubes. In one construction, two hoses with sprinklers are disposed in parallel relationship in one side of a field with two cables connecting their ends and forming an endless towline therewith, one cable being on a capstan of a drive unit midway between two sides of the field. Two other parallel hoses and cables are positioned in the other half of the field and are pulled by a second capstan of the drive unit. In another construction, a power unit midway between two sides of the field pulls two parallel cables to pull two hoses through injection tubes from one side of the field to the center of the field. The injection tubes then are disconnected from a fixed pipeline in the first half of the field, the cables are disconnected from the hoses, the hoses and injection tubes are towed by a tractor to the second half of the field, the injection tubes are connected to a pipeline in the second half of the field, the cables are connected to the other ends of the hoses, and the power unit pulls the hoses to the power unit from the far side of the second half of the field.

27,060
METHODS FOR THE VULCANIZING OF PREFORMED TIRES
Walter Balle, Dornigheim, and Paul Musch, Bergen-Enkheim, Germany, assignors, by mesne assignments, to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany
Original No. 3,396,221, dated Aug. 6, 1968, Ser. No. 429,097, Jan. 29, 1965. Application for reissue Nov. 10, 1969, Ser. No. 870,240
Claims priority, application Germany, Jan. 30, 1964, H 51,533
Int. Cl. B29n 5/02, 5/18
U.S. Cl. 264—315
6 Claims



Method for molding and vulcanizing tires in which a raw tire is engaged by portions thereof and is supported in spaced relation to portions of a vulcanizing press while the tire body is expanded by internal pressure. The mold portions are closed on the tire body so both mold portions engage the tire body simultaneously and confine the tire body during vulcanization and thereafter the mold portions separate from the respective sides of the tire body at the same time.

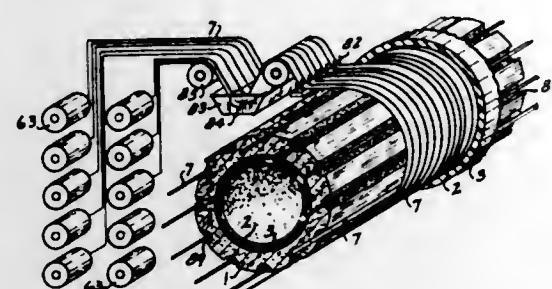
27,061

METHOD OF MAKING A REINFORCED COMPOSITE CONCRETE PIPE

David Rubenstein, San Diego, Calif., assignor to Chem-Stress Industries, Inc., a corporation of California
Original No. 3,340,115, dated Sept. 5, 1967, Ser. No. 427,861, Jan. 25, 1965, which is a division of Ser. No. 702,050, Dec. 11, 1957, now Patent No. 3,177,902, which is a continuation-in-part of Ser. No. 668,285, June 25, 1957, and Ser. No. 345,084, Mar. 27, 1953, both now abandoned, and Ser. No. 229,852, June 4, 1951, now Patent No. 2,850,890, dated Sept. 9, 1958. Application for reissue May 7, 1969, Ser. No. 830,896
Int. Cl. B32b 33/00

U.S. Cl. 156—86

34 Claims



Methods of making reinforced concrete pipes which are substantially impervious to the entrance of adverse chemicals. The pores at the outside or inside surfaces of the concrete pipe are filled and covered with a polymerizable polymeric resin composition with glass fibers being embedded in the resin composition.

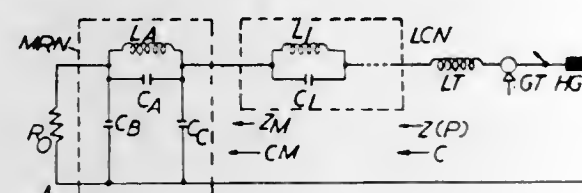
27,062

LOW PASS FILTER FOR COUPLING CONTINUOUS SIGNAL THROUGH PERIODICALLY CLOSED GATE

Alfred Leo Maria Fettweis, Bochum, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Original No. 3,303,438, dated Feb. 7, 1967, Ser. No. 213,375, July 30, 1962. Application for reissue Feb. 26, 1968, Ser. No. 709,507
Claims priority, application Belgium, July 28, 1961, 606,649
Int. Cl. H03h 7/02

U.S. Cl. 333—70

5 Claims



5. A filter for filtering out voice frequencies in resonant transfer systems having normally blocked gate means which are unblocked for the transfer of energy, pulse means for providing pulses repeated at a sampling frequency for periodically unblocking said gate means, means for resistively terminating said filter, said filter comprising quadripole network means connected to said means for resistively terminating said filter, said quadripole network means comprising first equivalent shunt capacitance means and series impedance means providing a pass band filter in the voice frequency range,

anti-resonant branch means terminating said pass band filter on the side of said gate means, the resonant frequency of said anti-resonant series branch means being larger than the cut-off frequency provided by said pass band filter and smaller than half the sampling frequency, said anti-resonant series branch means providing a pair of attenuation poles lower than the sampling frequency, there being one attenuation pole located between the cut-off frequency and the half sampling frequency and another attenuation pole occupying the symmetrical value with respect to the half sampling frequency whereby the filtering properties of said quadripole network means are improved by increasing the filter attenuation immediately beyond the cut-off frequency, said anti-resonant branch means comprising second equivalent capacitance means serially coupled to said first equivalent capacitance means, inductance means connected in series with said anti-resonant branch means coupling said pass band filter to said gate means to affect the resonant transfer by resonantly tuning the series combination of said first and second equivalent capacitance means, said resonant transfer frequency being much larger than said sampling frequency, and said anti-resonant branch means being capacitive at the resonant transfer frequency and comprising N series anti-resonant circuits, wherein N can be any positive integer.

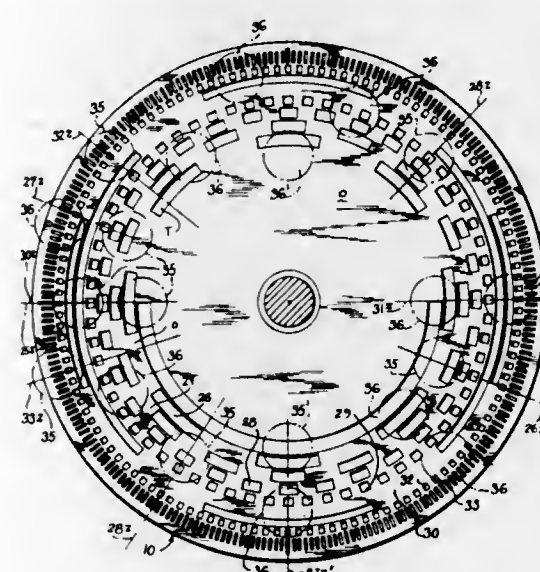
27,063

OPTICAL ENCODER

John Fisher, Aurora, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio, a corporation of Ohio
Original No. 3,388,392, dated June 11, 1968, Ser. No. 393,807, Aug. 24, 1964, which is a continuation of abandoned application Ser. No. 56,590, Sept. 16, 1960. Application for reissue June 30, 1969, Ser. No. 847,478
Int. Cl. G08c 9/06

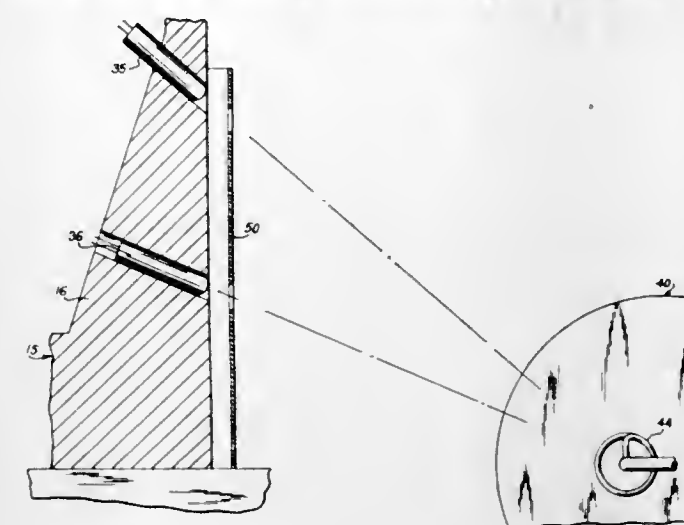
U.S. Cl. 340—347

16 Claims



Optical shaft encoder for digitally indicating shaft position. Encoder has code wheel with a plurality of circular binary code zones and a plurality of reader units, one for each zone for receiving light transmitted through the wheel to read the zones. A mask is positioned between the light source and reader units and has slits, one for each zone, through which the light passes. The slits increase in circumferential extent proceeding outwardly of the wheel and have sides which lie along the radii of

the code wheel axis. A single code zone is read to obtain quickly disconnected from the cabinet when the tray is two digits of a number representing the position of the opened; and a plurality of metal leaves constituting a



wheel by using phase displaced readers. The slits are such to provide equal amounts of light at each reader.

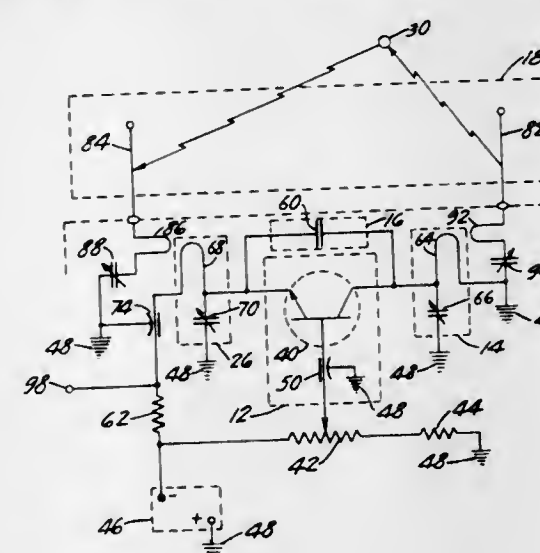
27,064

ELECTRICAL DETECTING MEANS

Lincoln H. Charlot, Jr., Tampa, Fla., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Original No. 3,407,403, dated Oct. 22, 1968, Ser. No. 616,924, Feb. 17, 1967. Application for reissue July 24, 1969, Ser. No. 853,560
Int. Cl. G01s 9/42

U.S. Cl. 343—7.5

16 Claims



An electrical detecting apparatus utilizing a frequency shifting oscillator for generating a radio frequency signal which is transmitted by a radiating means in a propagated wave and intercepted by a target resulting in a reflected wave which is detected by a receiving means wherein the received reflected wave is used to shift the oscillator operating frequency for indicating target detection by a Doppler frequency shift is shown.

27,065

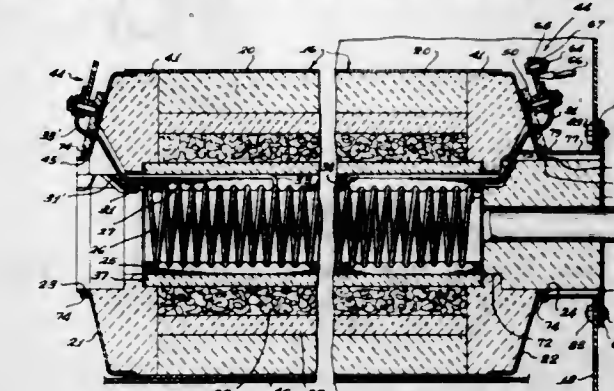
DIFFUSION FURNACE

Karl A. Lang, 93 Rivo Alto Canal, Long Beach, Calif. 90803
Original No. 3,361,863, dated Jan. 2, 1968, Ser. No. 447,343, Apr. 12, 1965. Application for reissue Dec. 23, 1969, Ser. No. 887,782
Int. Cl. H05b 3/66

U.S. Cl. 13—25

17 Claims

A diffusion furnace structure having a cabinet which supports stacked modules, each of which includes a drawer tray carrying an elongated capsule enclosing a heating element, the element being electrically connected to the furnace controls such that the element can be



part of the electrical connectors for a heating element, and which are bendable to facilitate axial removal of the element through the opening in either of the ends of an elongated diffusion furnace capsule or the like.

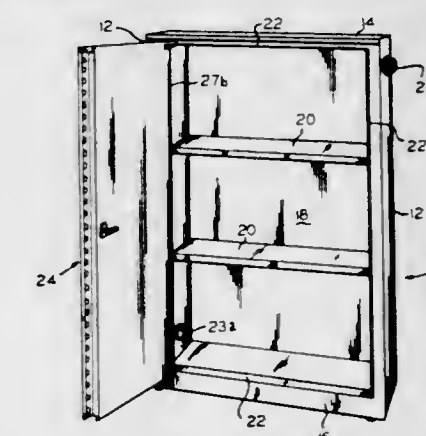
27,066

SAFETY STORAGE CABINET

Clarence E. Williams, % A & A Sheet Metal Products, 644 N. Orleans, Chicago, Ill. 60610
Original No. 3,403,954, dated Oct. 1, 1968, Ser. No. 610,053, Jan. 18, 1967. Application for reissue July 24, 1969, Ser. No. 853,559
Int. Cl. A47b 96/00

U.S. Cl. 312—351

6 Claims



Storage cabinet is for combustible materials and automatically closes after opening and when retained in open position it automatically closes when heated.

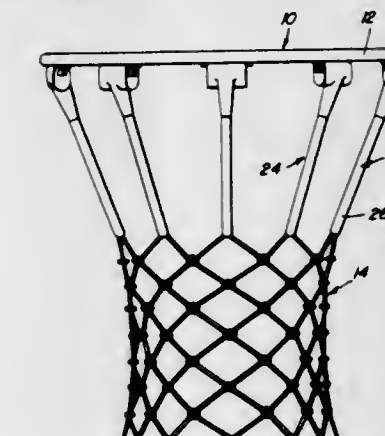
27,067

BASKETBALL NET ANTI-WHIP DEVICE

Larry Michael, 229 W. North St., Ada, Ohio 45810
Original No. 3,313,539, dated Apr. 11, 1967, Ser. No. 404,587, Oct. 19, 1964. Application for reissue Mar. 24, 1969, Ser. No. 835,833
Int. Cl. A63b 63/00

U.S. Cl. 273—1.5

13 Claims



A conventional basketball net having stiffening means cooperating therewith to prevent whipping of the net over the supporting ring.

PLANT PATENTS

GRANTED FEBRUARY 16, 1971

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,026

LIGUSTRUM PLANT

Richard Clem, Rte. 1, Box 470, Lewisville, Tex. 75067
Filed July 30, 1968, Ser. No. 748,882
Int. Cl. A01h 5/00

U.S. Cl. Plt.—54 1 Claim
1. A new and distinct variety of *Ligustrum japonicum* characterized by its white leaf margins.

3,027

DISTINCT VARIETY OF ROSE PLANT

Eldon C. Curtis, Dallas, Tex., assignor to E. V. Kimbrew, Wills Point, Tex.
Filed Dec. 2, 1968, Ser. No. 780,609
Int. Cl. A01h 5/00

U.S. Cl. Plt.—16 1 Claim
A new and distinct variety of hybrid tea rose plant produced by crossing Peace on Hawaii, Plant Pat. No. 1,833.

3,028

CRABAPPLE TREE

Johnn Lee Thompson, Rte. 1, Maryville, Mo. 64468
Filed Jan. 27, 1969, Ser. No. 794,429
Int. Cl. A01h 5/03

U.S. Cl. Plt.—34 1 Claim
1. A new and distinct variety of crabapple substantially

as shown and described, characterized by its yellow fruit color and profuse blooming habit.

3,029

BOUGAINVILLEA PLANT

Juan V. Pancho, College, Laguna, Philippines, assignor of one-half to David Barry, Jr., Honolulu, Hawaii
Filed Oct. 4, 1968, Ser. No. 765,271
Int. Cl. A01h 5/00

U.S. Cl. Plt.—54 1 Claim
1. A new and distinct variety of Bougainvillea plant, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of multiple bracts borne on arching stems in sets of three upon three upon three, ranging up to 36 bracts, with each set of bracts arising in lieu of flowers where a flower would normally be produced and diminishing in size through each tripling from about 1½ inches in diameter to about ⅛ inch in diameter, giving a tufted appearance to the bract cluster and appearing from a distance like clustered roses, and a distinctive and attractive Light Mallow Purple (Ridgway) bract color, generally corresponding to a soft light pink color, as depicted in the accompanying drawing.

PATENTS

GRANTED FEBRUARY 16, 1971

GENERAL AND MECHANICAL

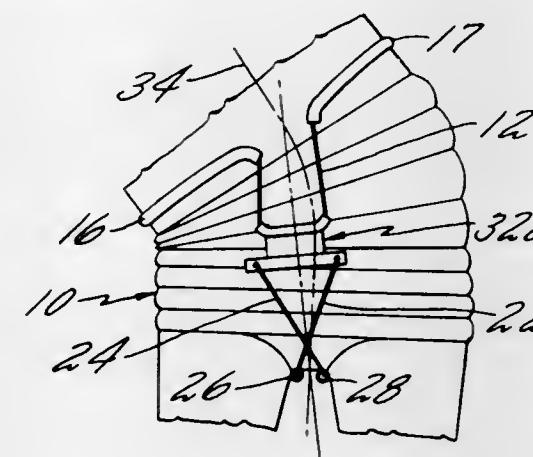
3,562,809

FLOATING YOKE CABLE RESTRAINT SYSTEM FOR A PRESSURIZED SUIT

John C. Hardy, Weatogue, and Douglas E. Getchell, Windsor Locks, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Dec. 20, 1968, Ser. No. 785,604
Int. Cl. A62b 17/00

U.S. Cl. 2—2.1 1 Claim



Waist and crotch restraint cables are connected together to provide plug load restraint continuity from the thighs to the mid trunk area of a pressurized suit by means of floating yokes disposed in the middle of the stomach and over the buttocks.

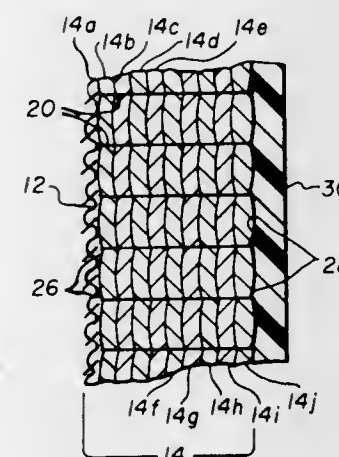
3,562,810

PROTECTIVE MATERIAL AND GARMENTS FORMED THEREFROM

Bruce T. Davis, Centerport, N.Y., assignor to Davis Aircraft Products Company, Inc., Northport, N.Y., a corporation

Filed Dec. 9, 1968, Ser. No. 782,218
Int. Cl. F41h 5/08

U.S. Cl. 2—2.5 9 Claims



Protective material and more particularly, protective garments, resistive to penetration by flying missiles, such as bullets, shrapnel and the like, are fabricated by securing and tensioning a number of layers of ballistic material together along paths spaced within a predetermined range to compact the layers so as to provide high resistance to penetration and to deflect objects impinging thereagainst

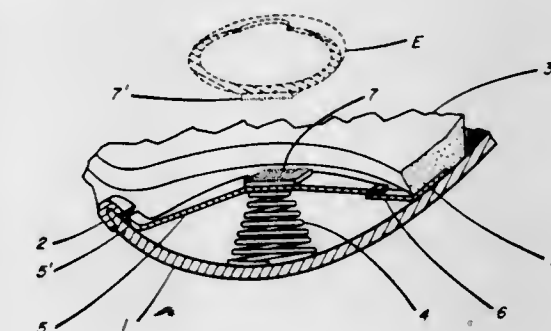
3,562,811

SUSPENSION FOR EAR ENCLOSURE INSIDE A PROTECTIVE HELMET

Clayton H. Allen, Wellesley, Mass., assignor to Bolt Beranek and Newman Inc., Cambridge, Mass., a corporation of Massachusetts

Filed May 21, 1969, Ser. No. 826,320
Int. Cl. A42b 3/00

U.S. Cl. 2—3 3 Claims



This disclosure deals with novel suspensions within protective helmets and the like for detachably-supporting ear enclosures such as ear muffs, earphones, and the like, said suspension including a strap overlying a spring and having cooperative fastening means for a detachable ear enclosure.

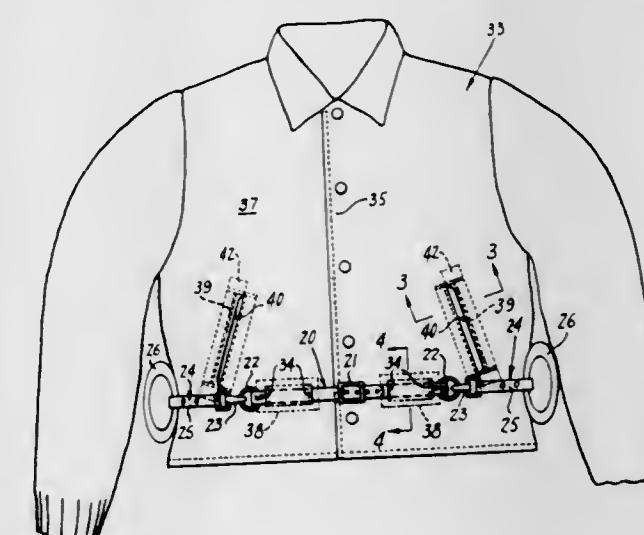
3,562,812

SAFETY HAND HOLD FOR TANDEM RIDERS

William R. Greggains, 712 N. James St., Rome, N.Y. 13440

Filed May 21, 1969, Ser. No. 826,508
Int. Cl. A41d 1/00

U.S. Cl. 2—94 1 Claim



An adjustable length strap having hand holds at the ends thereof to encircle the waist of the driver of a motorcycle or the like and with the hand holds gripped by the rear tandem rider. The strap may be built into a safety jacket to be worn by the leading rider and the jacket may have safety gripping slots as an alternate means to be used by the rear rider.

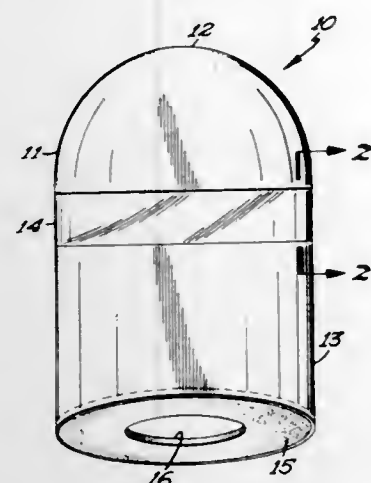
3,562,813 NECK CLOSURE FOR PROTECTIVE HOOD DEVICE

Terrence F. Origer, Northfield, Minn., assignor to G. T. Schjeldahl Company, Northfield, Minn., a corporation of Minnesota

Filed July 3, 1969, Ser. No. 838,830
Int. Cl. A42b 1/04, 3/02

U.S. Cl. 2—3

4 Claims



In combination, protective hood means adapted to cover and enclose the wearer's head, and neck closure means, the protective hood means including a hood enclosure with a closed top end and an open bottom end, and fabricated from gas impermeable flexible film of transparent heat resistant material, the neck closure means being disposed adjacent the open end of the hood and adapted to snugly fit about the neck of the wearer, the neck closure means comprising an annular ring of generally self-supporting elastomeric film.

3,562,814 NECKTIE LINING AND NECKWEAR CONSTRUCTION

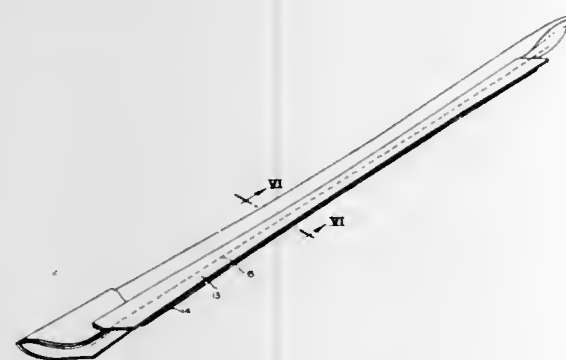
Myron H. Ackerman, New York, N.Y., assignor to Collins & Alkman Corporation, New York, N.Y., a corporation of Delaware

Continuation-in-part of application Ser. No. 539,799, Apr. 4, 1966. This application Feb. 6, 1969, Ser. No. 796,962

The portion of the term of the patent subsequent to Feb. 11, 1986, has been disclaimed
Int. Cl. A41d 25/06

U.S. Cl. 2—146

16 Claims



A necktie is disclosed having a double-layer lining, with the layers being superimposed upon one another to be substantially coextensive in length and width. The layers are secured together in order to maintain their positions relative to one another, prior to securing the two layers to the tie casing.

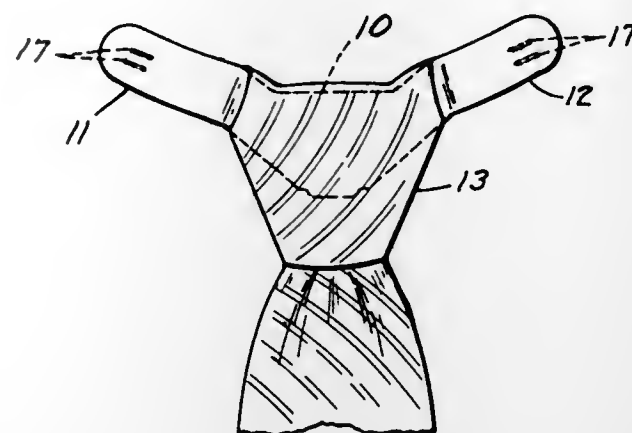
3,562,815 PRETIED NECKTIE

Percy R. Graham, 7342 24th Ave. NW., Seattle, Wash. 98107

Filed June 2, 1969, Ser. No. 829,378
Int. Cl. A41d 25/08

U.S. Cl. 2—153

3 Claims



The cloth or fabric part of the necktie does not need to be tied and untied and it does not extend around the neck of the user but is attached, in knotted form, to the medial part of a frame member of thin flat material. The frame member has two oppositely extending wings arranged to be inserted between the neckband and collar of the shirt. At least one short hook shaped prong is rigid with and extends sidewise from the outer end portion of each wing member to engage with the upper neck portion of the shirt and hold the necktie in place.

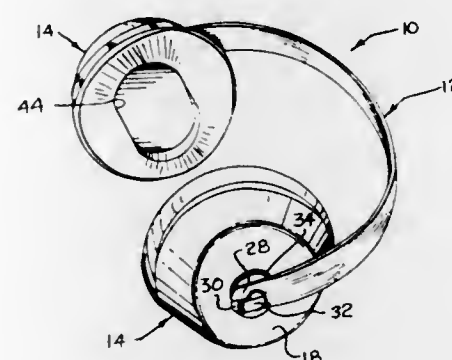
3,562,816 ATTACHMENT MOUNTING MEANS FOR HEARING PROTECTOR EARCUPS

Lawrence C. Hutchinson, Southbridge, Mass., assignor to American Optical Corporation, Southbridge, Mass., a corporation of Delaware

Filed June 23, 1969, Ser. No. 835,440
Int. Cl. A41d 21/00

U.S. Cl. 2—209

5 Claims

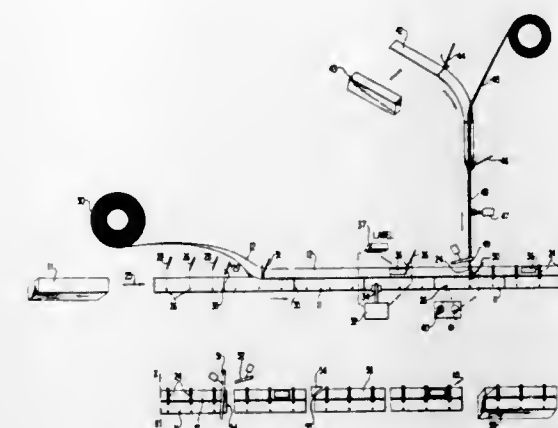


Hearing protector earcup supporting means including a headband having attachment means at each of its opposite ends for receiving and supporting an earcup. The attachment means in each case comprises a fork having two planar prongs between which a recessed end of an earcup mounting stud is fitted with an intermediate third prong of the fork extending over and latched to the end of the stud. The stud is either formed as an integral extension of the wall of its respective earcup or extended through the earcup wall in coaxially aligned relationship with the cup so as to permit rotation of the cup about its axis relative to the headband.

3,562,817 METHOD OF MAKING WAISTBANDS Erie G. Huddleston, Monroe, Ga., assignor to Oxford Industries Inc., Atlanta, Ga., a corporation of Georgia Filed Aug. 21, 1969, Ser. No. 851,986 Int. Cl. A41d 1/06

U.S. Cl. 2—236

11 Claims

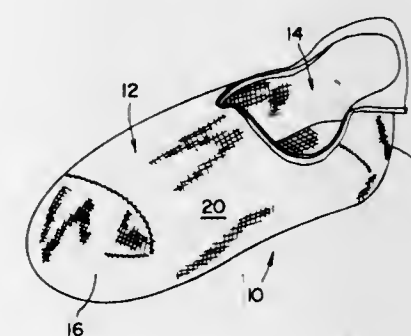


A method of making waistbands for pants and other garments wherein a series of waistband panels are joined together in end-to-end relationship to form a continuous series of waistband panels, the continuous series of waistband panels are moved through a predetermined path, a continuous band of facing material is fed into abutting relationship with one edge of the continuous series of waistband panels, and the facing material is continuously ropaced to the continuous series of waistband panels. The waistband panels are marked and belt loops are attached to the waistband panels in positions corresponding to the markings. Labels are attached to the facing material at positions corresponding to the ends of the waistband panels, the waistband panels are separated and the facing material is cut at positions adjacent the ends of the waistband panels alternately with a straight cut extending across the facing material and with a Y-shaped cut to remove a portion of the facing material.

3,562,818 FOOTSOCK Clarence G. Burton, 3819 Fort Ave., Lynchburg, Va. 24502 Filed Jan. 24, 1969, Ser. No. 793,726 Int. Cl. A43b 3/10, 11/00

U.S. Cl. 2—239

4 Claims



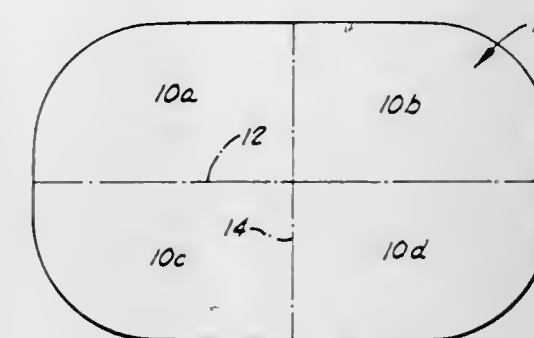
There is disclosed a footsock which has a toe portion, a heel portion and a central body portion interconnecting the heel and toe portions. An opening is provided to the footsock to give access therein, which opening extends across the rearward part of the central body portion and the heel portion of the footsock. The heel portion of the footsock is formed with an upper extension adjacent the

opening so that the opening is generally semicircular at its lower forward part and tapers upwardly and rearwardly therefrom. An elastic banding completely encircles the opening, and the upper extension of the heel portion is foldable over an underlying adjacent part of the heel portion so that the folded-over part with the banding supports the footsock in desired position.

3,562,819 POCKET PROTECTOR Laura T. Crawford, 1215 W. Randolph, Enid, Okla. 73701 Filed Sept. 4, 1969, Ser. No. 855,332 Int. Cl. A41d 27/20

U.S. Cl. 2—248

6 Claims



A pocket protector made from a single blank of material which is folded at certain critical locations to provide a pocket protector insertable in, and freely removable from, trousers pockets for the purpose of protecting and lining the pockets. The lower edge of the pocket protector is contoured to conform to the bottom and inside portion of the pocket in which it is inserted. The protector is made of a non-woven material.

3,562,820 TUBULAR SHEET AND STRIP FORM PROSTHESES ON A BASIS OF BIOLOGICAL TISSUE

Bernhard Braun, Trankelucke 1, Melsungen, Germany

Filed Aug. 21, 1967, Ser. No. 661,900
Claims priority, application Austria, Aug. 22, 1966, A 7,958/66
Int. Cl. A61f 1/24

U.S. Cl. 3—1

5 Claims



There are disclosed tubular, sheet and strip form prostheses on a basis of biological tissue for use in the replacement, repair and strengthening of various living organs such as the vasculature, esophagus, bronchus, intestine, ureter, liver, kidney, etc. and a process for making and using the same. The prosthesis itself comprises a unitary structure of alternating layers of natural tissue and collagen fibres. The same is manufactured by applying a strip, sheet or tube of biological material onto a substantially rigid support, coating the exposed surface with a binder paste, as for example, a collagen fibre paste, or bringing about the swelling of the exposed surface, thereafter applying a second layer of natural material and repeating the procedure until the desired wall thickness is obtained. The multi-layer prosthesis is then dried and removed from the underlying support.

3,562,821

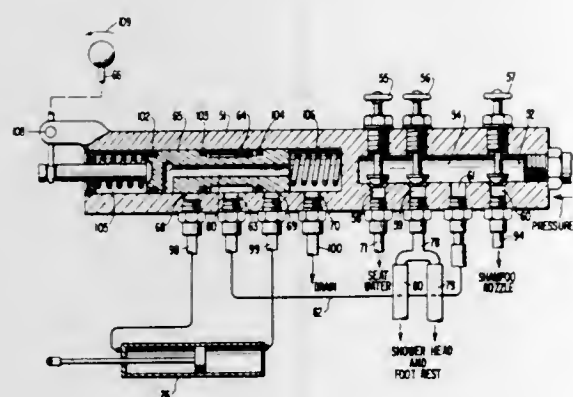
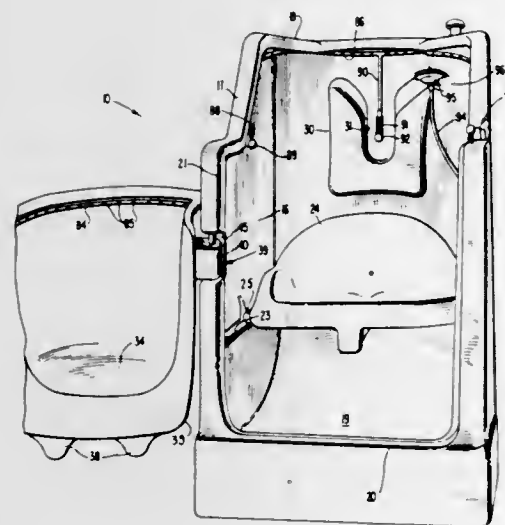
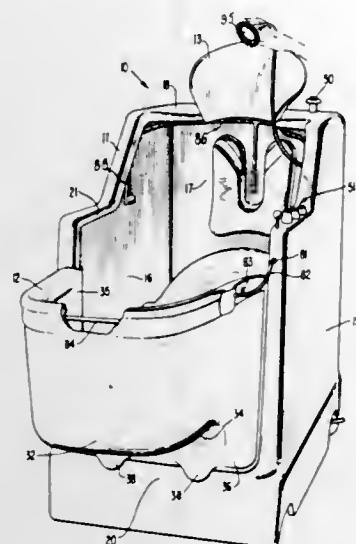
BATHING CABINETCarl J. Queen, 5310 Peachtree-Dunwoody Road NE.,
Atlanta, Ga. 30305

Filed Mar. 24, 1969, Ser. No. 809,684

Int. Cl. A47k 3/08, 3/22

U.S. Cl. 4-146

10 Claims



A bathing cabinet comprising a housing open at its top and front portions, with a door connectable to the housing to close its front portion. A seat is movable in a horizontal direction within the housing toward and away from the front portion under the influence of an hydraulic ram, and water flows through a valve system to the various sprays within the cabinet.

3,562,822

SWIMMING POOL WITH LOCK-ON RAILS

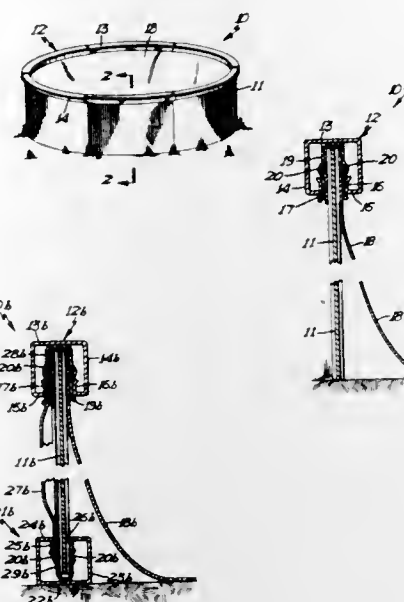
Arvel L. Wall, Helena, Ark., assignor to Doughboy Industries, Inc., New Richmond, Wis., a corporation of Wisconsin

Filed Mar. 7, 1969, Ser. No. 805,246

Int. Cl. E04h 3/16

U.S. Cl. 4-172.19

8 Claims



An above-ground pool includes a continuous closed side wall formed of metal and oriented in upright relation. An impervious flexible plastic liner is secured to the upper edge of the side wall by telescopic top rails. The side wall is provided with outwardly projecting protuberances which releasably engage the top rails with snap coupling effect to releasably interlock the side wall to the rails. Telescoping bottom rails may also be provided if desired and such bottom rails will also engage and interlock with protuberances on the side wall.

3,562,823

WAVE PRODUCING MACHINE, ESPECIALLY FOR SWIMMING POOLSFriedrich Köster, Hamburger Strasse 88,
2240 Helde, Holstein, Germany

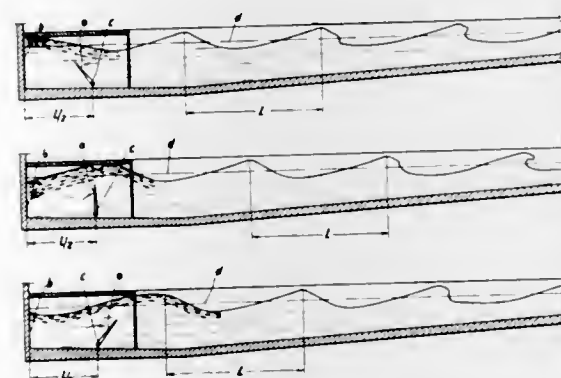
Filed July 9, 1968, Ser. No. 743,384

Claims priority, application Germany, Jan. 19, 1968,
K 64,501

Int. Cl. E04h 3/18

U.S. Cl. 4-172.16

3 Claims



A swimming pool equipped with oscillating blade means for actuating the water in the pool, in which said blade means is completely below the water level when the water is at rest while actuating means arranged outside the swimming pool are drivingly connected to said blade means for pivoting the same back and forth.

3,562,824

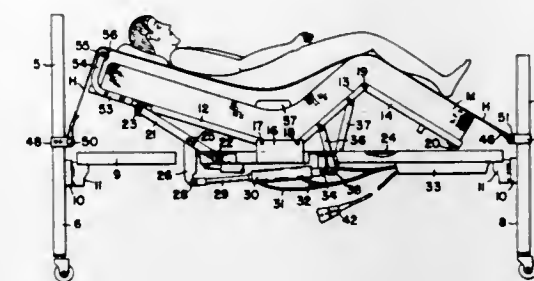
HAMMOCK FOR INVALID BEDSWilliam Wayne White, 1100 S. Ocean Blvd.,
Pompano Beach, Fla. 33062

Filed Dec. 30, 1968, Ser. No. 787,750

Int. Cl. A61g 7/02, 7/10

U.S. Cl. 5-61

4 Claims



A sheet-like hammock for an invalid bed of the type wherein a flexible mattress is rested upon a jointed supporting frame therefor. This frame which is normally disposed horizontally is adapted to execute certain movements, together with the mattress thereon, whereby the head end of the mattress, also a jointed area toward its foot end, are raised. Two widely spaced suspension points are thereby provided for sustaining the hammock off of the mattress when the hammock ends are anchored to the head and foot units of the bed frame. The space below the hammock, when so raised, suffices for accommodation of a bed pan when rested upon the mattress. An opening in the hammock at a point opposite the bed pan permits the occupant of the bed to freely discharge his body wastes therethrough and into the pan.

3,562,825

MATTRESS CONSTRUCTION AND PLASTIC NET SPRING BRIDGING ELEMENT FOR USE THEREIN

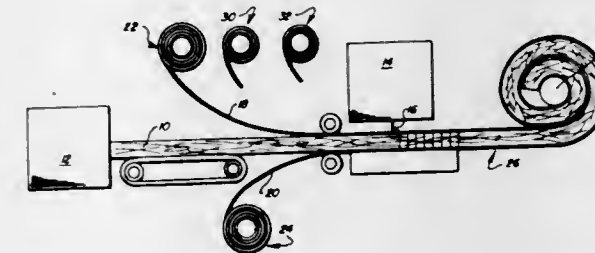
Ronald L. Larsen, Minneapolis, Minn., assignor to Conwed Corporation, St. Paul, Minn., a corporation of Delaware

Filed Mar. 18, 1969, Ser. No. 808,231

Int. Cl. A47c 23/30

U.S. Cl. 5-354

4 Claims



An extruded plastic net, having heavy strands in one direction and lighter strands in the other direction, is used to replace two previous elements i.e. (1) a wire-rope spring bridging unit, and (2) a cotton scrim in a mattress construction thus permitting sewing of the spring bridging unit to the cushioning material.

3,562,826

MULTIPURPOSE SCRAPING TOOLJames P. Vaughn, 3403 Connelly Lane,
Chattanooga, Tenn. 37412

Filed Nov. 29, 1968, Ser. No. 779,800

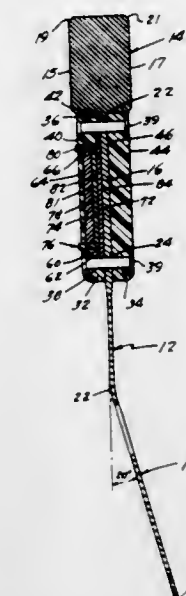
Int. Cl. B26b 11/00

U.S. Cl. 7-14.1

1 Claim

A multipurpose scraping tool having a magnetic device secured thereto for removably attaching said tool to any

magnetizable surface. The tool is especially useful to a housepainter in preparing a wall preliminary to painting, said tool comprising a handle, hammering means at one



end, a sharpened edge for scraping at the other end, nail-pulling means located therebetween, and a magnetic device secured to the tool.

3,562,827

SELF-OPENING DIE HEAD

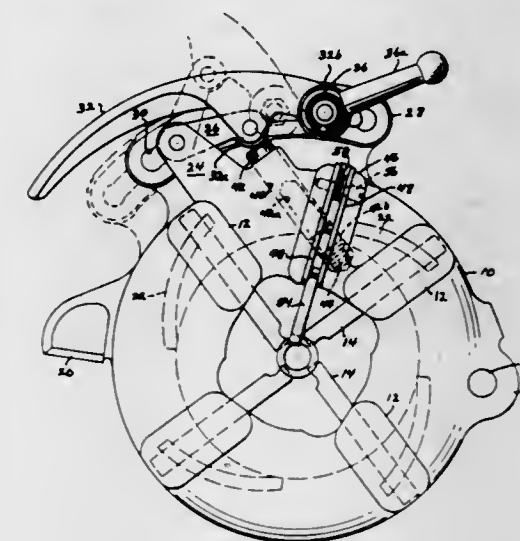
Anton J. Janik, North Ridgeville, Ohio, assignor to Emerson Electric Co., St. Louis, Mo., a corporation of Missouri

Filed June 27, 1968, Ser. No. 740,634

Int. Cl. B23g 5/10, 5/12

U.S. Cl. 10-99

4 Claims



A die head which mounts chasers for cutting threads has a scroll plate for advancing and retracting the chasers movable relative to the chaser holding portion. The two parts are connected by a toggle linkage which is operated by a lever to cause the relative movement between the die head parts to retract and advance the chasers. A spring plunger is carried by one of the head parts disposed to engage the center joint of the toggle linkage and to move the toggle linkage to an open position to retract the chasers. Lock means for the plunger includes a guide means pivotally mounted on the one die head part and arranged for locking engagement with the plunger. A trigger slide in the guide means may be moved to a position to be engaged by a pipe being threaded and release the lock means. It may be slid to one side where it is not engaged by the pipe when a manual operation is desired.

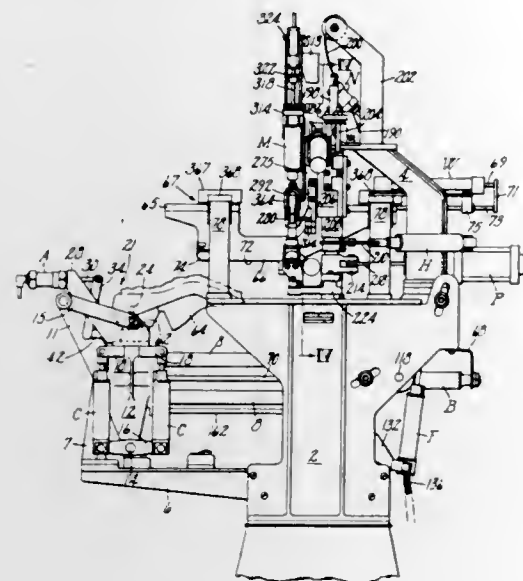
3,562,828

AUTOMATIC LASTING MACHINES

Phillip B. Gower, Skipton, and Jeremy C. Heal and Raymond Snape, Leicester, England, assignors to USM Corporation, Boston, Mass., a corporation of New Jersey

Filed Feb. 17, 1969, Ser. No. 799,856
Claims priority, application Great Britain, Feb. 16, 1968, 7,606/68

Int. Cl. A43d 21/00, 23/00
U.S. Cl. 12—14.5 13 Claims



A shoe lasting machine having a support automatically orienting shoes with lasting devices which include grippers automatically located at opposite sides of each shoe and adapted to pull the upper predetermined amounts depending on whether the shoe is left or right.

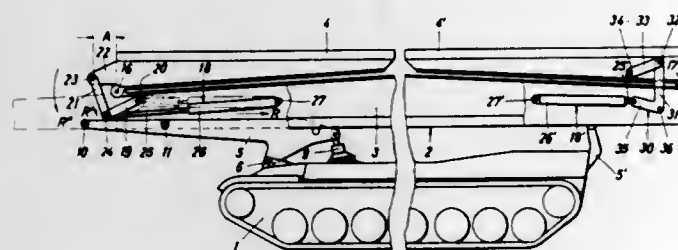
3,562,829

AUTOMOTIVE VEHICLE ADAPTED FOR TRANSPORTING AND INSTALLING A FOLDING BRIDGE

Friedhelm Söffge, Kornwesthelm, Germany, assignor to Firma Dr.-Ing h.c.F. Porsche KG, Stuttgart-Zuffenhausen, Germany

Filed Feb. 25, 1969, Ser. No. 802,105
Claims priority, application Germany, Mar. 1, 1968, P 16 80 207.6

Int. Cl. E01d 1/00
U.S. Cl. 14—1 11 Claims



A powered vehicle including apparatus for transporting and installing a prefabricated folding bridge structure having a central bridge portion and folding access ramps, wherein the bridge is supported on the vehicle upon a cantilever support pivotally mounted thereon. The control system for effecting pivoting of the access ramps from the folded position into the extended position includes a servo-mechanism of variable length pivotally connected to the central bridge portion and operatively connected with an access ramp through a linkage including at least one rotatable intermediate guide member.

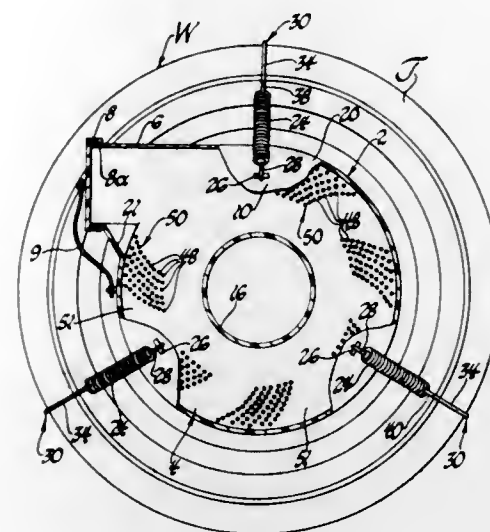
3,562,830

GOLF BALL WASHER

Charles E. Ruedisueli, 15728 Bentler, Detroit, Mich. 48223

Filed Jan. 23, 1969, Ser. No. 793,262
Int. Cl. A63b 47/04

U.S. Cl. 15—21 17 Claims



A golf ball washer adapted to be mounted on the wheel of a golf cart for rotation therewith. An annular chamber is defined in an enclosed housing for containing golf ball cleaning material and has a tangential spout for inserting and removing a golf ball.

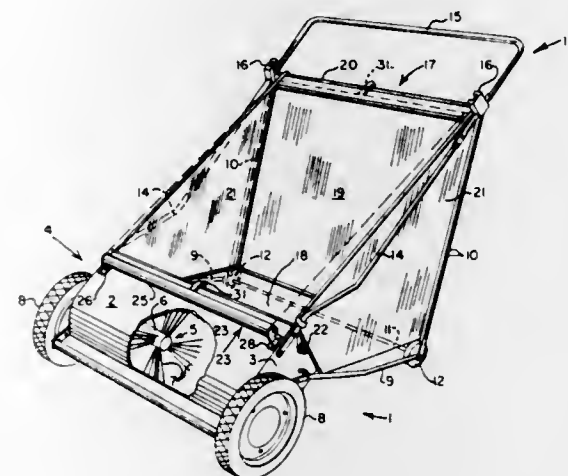
3,562,831

WINDSCREEN ATTACHMENT FOR LAWN SWEEPERS

Bernard R. Kowalski, 2256 McEwan St., Saginaw, Mich. 48602

Filed Apr. 18, 1969, Ser. No. 817,320
Int. Cl. E01h 1/02

U.S. Cl. 15—79 6 Claims



A lawn sweeper having a wheeled frame on which are supported a rotary sweeper unit and a container having an open side through which swept material may enter the container. A rolled sheet of flexible material is mounted on the frame and may be unrolled to occupy a position extended from the sweeper unit and overlying the open side of the container to provide a windscreen. The flexible sheet may be latched in overlying relation to the container, but may be restored automatically to its rolled condition.

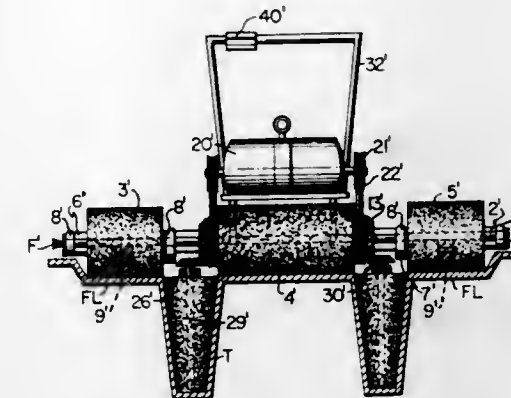
3,562,832

MACHINE FOR CLEANING CONCRETE FORMS

Roger Rickard, Rte. 1, Middletown, Va. 22645

Filed May 7, 1969, Ser. No. 822,479
Int. Cl. A46b 13/02

U.S. Cl. 15—56 10 Claims



A machine for cleaning elongated concrete forms of the type that include laterally spaced horizontal surfaces and depending trough means and which machine includes a frame, and carried by the frame a plurality of horizontal rotary brush means for frictionally engaging the horizontal surfaces of the form, vertically disposed rotary brush means for engaging the walls of the trough means, vertically adjustable castor wheels, a drive means and power transmission means operably coupling the drive means with the horizontal and vertical rotary brush means for simultaneously rotating all the brush means to propel the machine along the form to remove dirt and concrete particles therefrom.

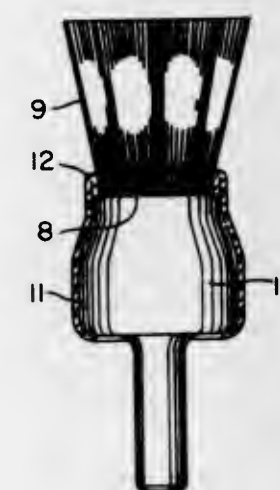
3,562,833

ROTARY BRUSH

Vernon K. Charvat, Bay Village, Ohio, assignor to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio

Filed June 26, 1969, Ser. No. 836,908
Int. Cl. A46b 13/02

U.S. Cl. 15—180 25 Claims



A power-driven rotary brush having a collar of plastic sheet material encircling the holder portion of the brush and extending a short distance beyond such holder about the brush material where such brush material emerges from the holder. The plastic collar is folded in the region of the brush material to present a folded edge thereto as well as to increase the thickness of the collar in such region.

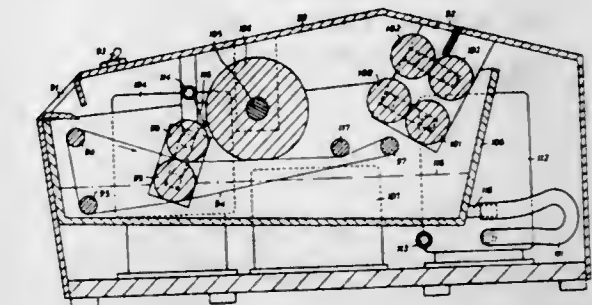
3,562,834

DEVICE FOR PROCESSING SHEET COPYING MATERIAL

Emile Frans Stievenart, Antwerp, and Marcel Nicolas Vrancken, Hove, Belgium, assignors to Gevaert Agfa N.V., Mortsel, Belgium, a Belgian company

Filed Nov. 30, 1967, Ser. No. 686,882
Claims priority, application Great Britain, June 2, 1967, 25,646/67

Int. Cl. G03d 5/06 8 Claims



Apparatus for developing sheet material carrying a recording layer which is irreversibly imagewise differentiated in terms of solvent solubility in which the sheet material is applied to a wetted endless belt and is delivered thereby into frictional rubbing contact with a rotatable rubbing drum having a resilient porous peripheral surface. The rubbing drum is wetted with the solvent while making contact with the sheet material, and the peripheral speed of the drum is preferably substantially higher, say at least ten times higher, than the transport speed of the sheet material on the belt. Surplus solvent can be caught between a tray arranged beneath the rubbing drum and through which the lower stretch of the endless belt passes. All of the operative components can be arranged within a housing having an inlet and outlet openings therein for the ingress and egress of the sheet material.

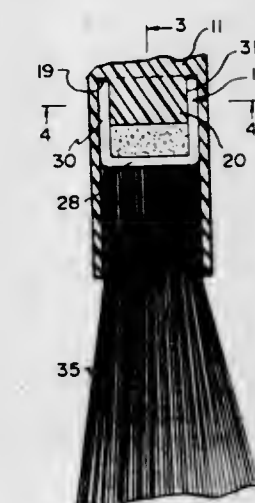
3,562,835

STAPLE GUIDE FOR BRUSH HANDLE

John G. Baumgartner, Plano, Ill., assignor to Anchor Brush Company, Montgomery, Ill., a corporation of Delaware

Filed July 2, 1969, Ser. No. 838,554
Int. Cl. A46b 3/16; A46d 3/00

U.S. Cl. 15—195 6 Claims



A brush includes a handle having a circular socket in one end for receiving the brush bristles. A solid cylindrical portion integral with the handle extends into the

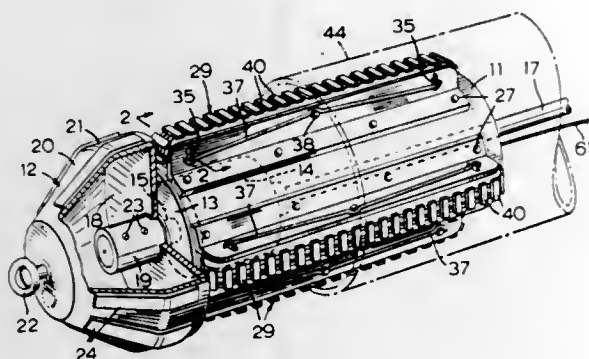
socket, and the walls of the cylinder and the socket define a circular channel having a depth equal to the height of the solid cylinder. A staple is inserted in the socket and the body of the staple captures the brush bristles to the top surface of the cylinder. The staple legs are wedged into the circular channel to secure the staple to the handle.

3,562,836 REAMING TOOL

James McGhee Frew, Weston, and Raymond Muir Bremner, Don Mills, Ontario, Canada, assignors to Raymond M. Bremner, Don Mills, Ontario, Canada
Filed Dec. 30, 1968, Ser. No. 787,933
Int. Cl. B08b 9/04

U.S. Cl. 15—104.3

11 Claims



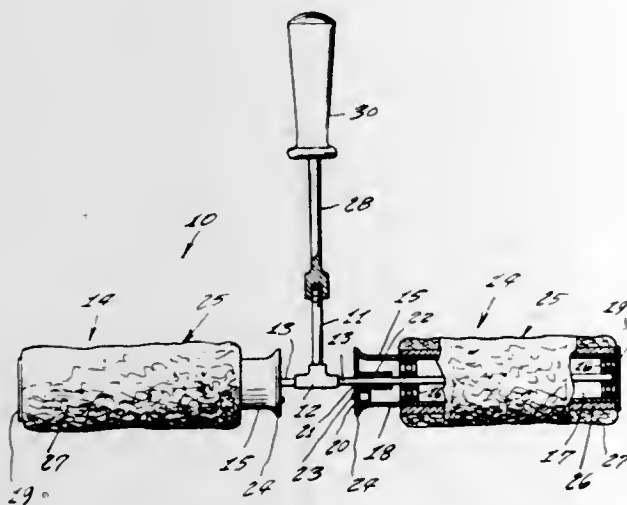
A reaming tool for reaming the internal surface of a pipe comprises a rotary reaming head mounted at one end of a cylindrical housing in which a motor for driving the reaming head is mounted. A plurality of endless tracks mounted externally of the housing and extending along the sides thereof are provided with friction pads, which engage the inner surface of the pipe to prevent rotation of the housing within the pipe. The reaming tool is drawn through the pipe by means of a tow cable connected to a swivel coupling mounted on the reaming head.

3,562,837 PAINT ROLLER

Stanley W. Baginski and Stanley W. Baginski, Jr., both of 189 E. 18th St., Brooklyn, N.Y. 11226
Filed Nov. 25, 1968, Ser. No. 778,654
Int. Cl. B05c 1/08

U.S. Cl. 15—230.11

2 Claims



A paint roller assembly comprised of a pair of paint rollers carried upon ball bearings supported on a shaft, and the ball bearings being enclosed within an oil reservoir that is designed to be leakproof regardless of the position of the paint roller assembly.

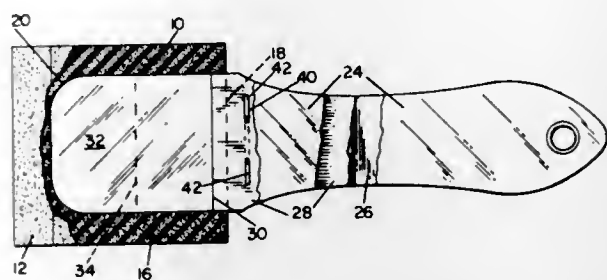
3,562,838 DISPOSABLE PAINT APPLICATOR

Russell A. Burton, Southbridge, and John I. Maxim, Leominster, Mass., assignors to Hyde Manufacturing Company, Southbridge, Mass., a corporation of Massachusetts

Filed Jan. 23, 1969, Ser. No. 793,327
Int. Cl. A46b 15/00

U.S. Cl. 15—244

2 Claims



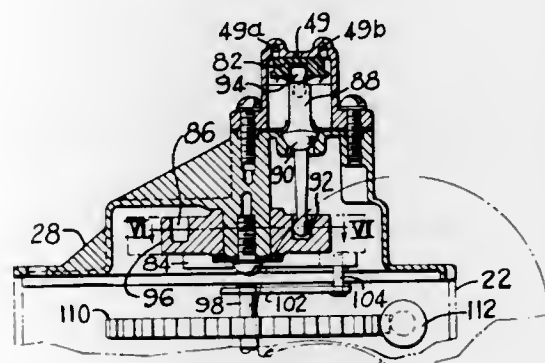
Disposable paint applicator comprising a laminated cardboard handle, a thin flexible plastic tang adhesively secured thereto, the tang and a portion of the handle being embedded and adhesively secured to a block of foamed cellular plastic material having a beveled free edge for the application of paint.

3,562,839 WINDSHIELD CLEANING APPARATUS FOR MOTOR VEHICLES

William C. Riester, Williamsville, N.Y., assignor to Trico Products Corporation, Buffalo, N.Y.
Filed July 12, 1968, Ser. No. 753,015
Int. Cl. B60s 1/48

U.S. Cl. 15—250.02

5 Claims



A windshield washer and wiper assembly includes a cam actuated reciprocating piston pump which discharges washer solvent through a distributor valve. The distributor valve directs the pump discharge alternately through one or the other of a pair of nozzles located on the windshield wiper arms. A cam driven by the wiper motor actuates the pump, and also operates the distributor valve to alternately open one or the other of a pair of discharge ports thereby synchronizing the spray of the washer solvent with the position and direction of motion of the wiper arms on the shield.

3,562,840 COLLAPSIBLE DUST PAN

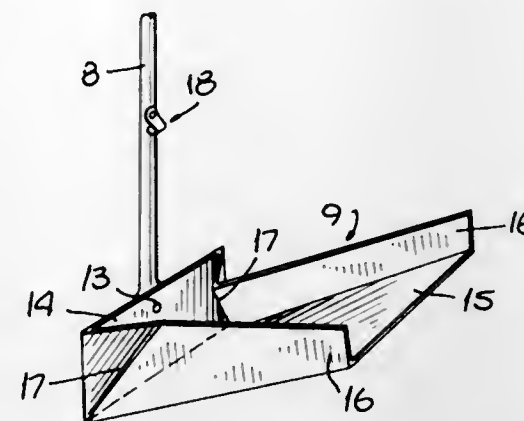
Albert B. Meszaros, 24 Eastern Ave., Ossining, N.Y. 10562
Filed Jan. 27, 1969, Ser. No. 794,317
Int. Cl. A47l 13/52

U.S. Cl. 15—257.4

12 Claims

The dust pan is constructed with a back wall secured to a handle and an apron which is pivotal with respect to the back wall so as to pivot into a locked storage position against the handle. In one embodiment, the side

walls of the bucket are creased so as to fold inwardly on themselves upon pivoting of the apron into the collapsed condition. In another embodiment, the side walls



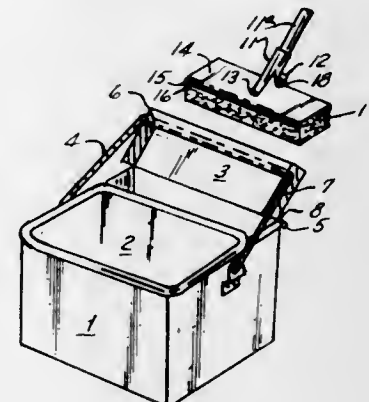
of the bucket and the apron are hinged together so as to permit pivoting of the side walls against the apron when the apron is pivoted into the collapsed condition.

3,562,841 MOP AND WRINGING BUCKET COMBINATION

Galen E. Royalty, 1222 Cresthaven Drive, Silver Spring, Md. 20903
Filed Dec. 20, 1968, Ser. No. 785,287
Int. Cl. A47l 13/58

U.S. Cl. 15—260

2 Claims



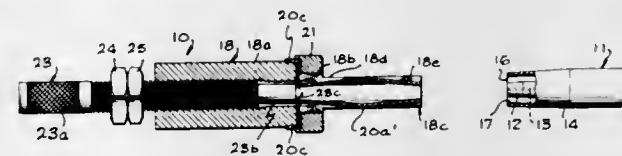
A mop of the sponge-type material and a bucket provided with a squeeze plate for squeezing the mop. The mop and squeeze plate have a cooperating hook-type coupling about which the mop can be pivoted to squeeze it against the pressure plate by swinging the handle on the mop in an arcuate path.

3,562,842 WELDING TIP CLEANING DEVICE

Iven E. Turnipseed, Los Angeles, Calif. (10633 Mount Gleason Ave., Sunland, Calif. 91040)
Filed Jan. 29, 1969, Ser. No. 795,017
Int. Cl. B08b 1/04

U.S. Cl. 15—104.09

11 Claims



A device for cleaning a welding tip of the type used for gas metal arc welding. The device comprises a tubular shaft adapted for mating engagement about the welding tip guide tube. A pair of blade members are diagonally oppositely disposed along the exterior of the shaft, sufficiently close thereto to permit insertion through the gas

nozzle opening of the welding tip to be cleaned. An actuator means spreads the blades away from the shaft and against the inner surface of the welding tip gas nozzle so that relative rotation of the cleaning device and the nozzle causes the blades to scrape undesired residue from the interior of the welding tip.

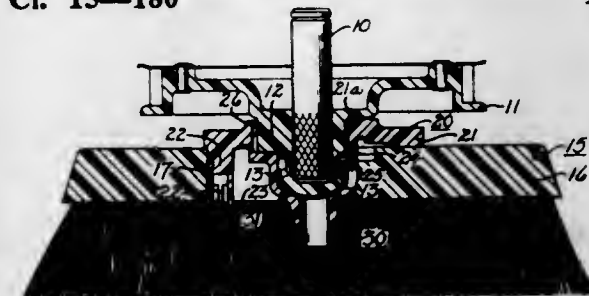
3,562,843 HUB FOR A ROTARY BRUSH

Michael E. Belicka, Greenwich, and John J. Kowalewski, Riverside, Conn., assignors to Consolidated Foods Corporation, Old Greenwich, Conn., a corporation of Maryland

Filed July 11, 1969, Ser. No. 840,963
Int. Cl. A46b 13/02; A47l 11/282

U.S. Cl. 15—180

1 Claim



A hub for a rotary, floor scrubbing brush by which the brush is removably attached to the driving spindle of a floor polisher. The hub is connected to the brush back by means of pins which pass through openings in the brush back and the free ends of the pins are deformed or expanded in order to contact the hub at the opposite side of the brush back. In addition, the hub is provided with a central cylindrical projection onto which a buffing pad may be removably attached to the brush. The brush hub according to this invention is also capable of being molded as a single piece for economic manufacture and assembly.

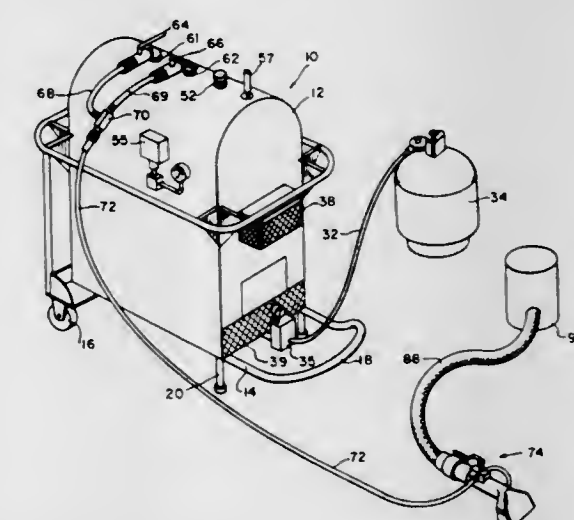
3,562,844 PORTABLE RUG DYEING MACHINE

John A. Thompson, Portland, Oreg., and William H. Wisdom, Portland, Oreg. (Rte. 2, Box 178E, Sherwood, Oreg. 97140); said Thompson assignor to said Wisdom

Continuation of application Ser. No. 723,325, Mar. 29, 1968, which is a continuation of application Ser. No. 344,085, Feb. 11, 1964. This application Nov. 10, 1969, Ser. No. 871,654

U.S. Cl. 15—302

4 Claims



Applicator for spraying dye and/or cleaning solution into rug and upholstery fabric and subjecting fabric to a vacuum, particularly for use with portable apparatus. Head portion with open bottom nozzle in contact with the fabric, a vacuum chamber and a spray chamber in

the head and nozzles directing spray into the fabric. Means to connect with vacuum source and source of solution under pressure.

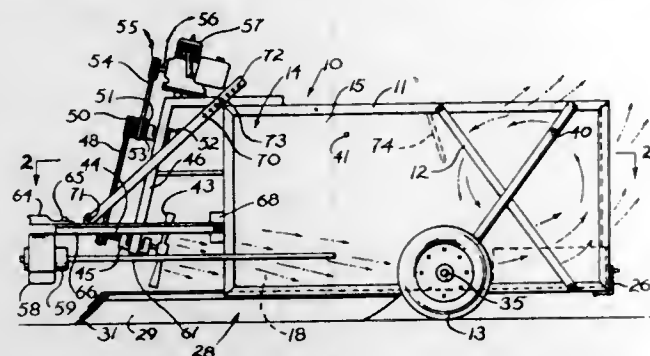
3,562,845

LITTER REMOVAL APPARATUS
Fred C. Hayden, 7785 Yorkshire Drive,
Reno, Nev. 89503

Filed Sept. 16, 1968, Ser. No. 762,228
Int. Cl. E01h 1/08

U.S. Cl. 15—347

7 Claims



Apparatus for and method of removing litter from parking lots, streets and similar areas. The apparatus constitutes a wheel-equipped vehicle adapted to be propelled along the surface of such area, and includes a frame having a casing mounted thereon which defines a relatively large enclosure therewithin. Accumulator structure in the form of two forwardly diverging collector members sweeps along such surface as the apparatus traverses the same and directs litter toward a restricted location at the vertex of the members. A blower at the forward end of the apparatus moves a stream of air toward such restricted location to pick up and carry litter accumulated thereat into the enclosure from which the air escapes through screened outlets that retain the litter within the enclosure. The method includes the steps of accumulating litter from a relatively compact surface into a restricted location therealong, providing an air stream and directing the same toward such location to carry litter thereat toward a receptacle, passing the litter-carrying air through the receptacle, and within the receptacle extracting litter from the air passing therethrough.

3,562,846

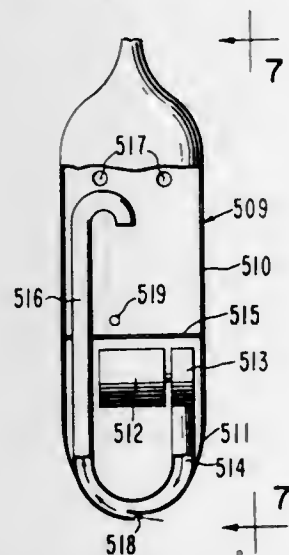
APPARATUS FOR COLLECTING SURFACE LIQUIDS

Marven Creamer and Adelene B. Creamer, both of 137
Palmer Ave., Mountain View, Calif. 94040

Filed Apr. 29, 1969, Ser. No. 820,175
Int. Cl. A46l 7/00

U.S. Cl. 15—353

5 Claims



Apparatus for drawing liquid by suction from a surface and into a reservoir including intake and exhaust conduits

communicating with the reservoir. The intake conduit has an inner end which is shaped to provide a continuous change in the path of flow of the liquid flowing there-through to thereby avoid impact of the liquid with adjacent structure and thereby minimize aeration of the liquid. The apparatus can be in the form of an attachment for a conventional vacuum cleaner or can be self-contained. It is constructed to provide assurance that the suction force produced is such as to prevent liquid from passing out of the reservoir through the exhaust conduit.

3,562,847

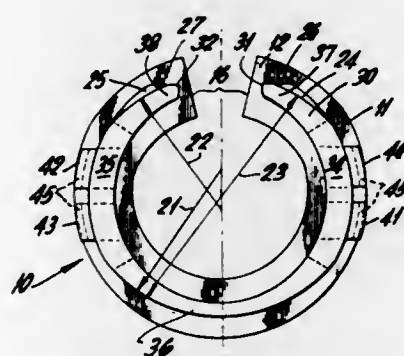
ROUND SPLIT BUSHING

William Jemison, Summit, N.J., assignor to Heyman
Manufacturing Company, Kenilworth, N.J., a corpo-
ration of New Jersey

Filed Mar. 4, 1969, Ser. No. 804,132
Int. Cl. F16l 5/00

U.S. Cl. 16—2

21 Claims



A round split bushing having means to lock it in a round aperture in a panel, has a face flange and integral shank normally gapped open and flexible so that a wire may be inserted into the bushing. In squeezed together position the shank matches the aperture and guides itself into locking position. When fully inserted the face flange while not truly round gives the illusion of being round.

3,562,848

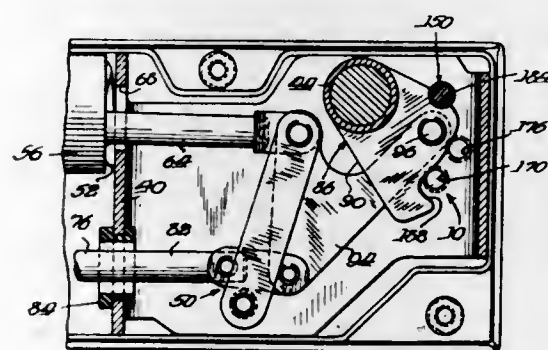
DEAD STOP DEVICE FOR DOORS

William A. Czapar, Niles, Ill., assignor Rixson Inc.,
Franklin Park, Ill., a corporation of Illinois

Filed Sept. 30, 1968, Ser. No. 775,569
Int. Cl. E05f 3/20

U.S. Cl. 16—55

9 Claims



The dead stop device is designed for a door which rotates with spindle means and which is adjusted to be operatively associated with a door control device such as a door closing mechanism which tends to return the door to a preselected position. Crank means rotatable with the spindle means has at least one abutment surface and also constitutes a part of the door closing mechanism. The abutment surface is adapted to abut against stop means in order that the movement of the door may be

stopped. The spindle means and the stop means are supported such that the stop means may be selectively positioned in any one of a plurality of positions in order that the door may be stopped in its movement at any selected one of a plurality of positions.

3,562,849

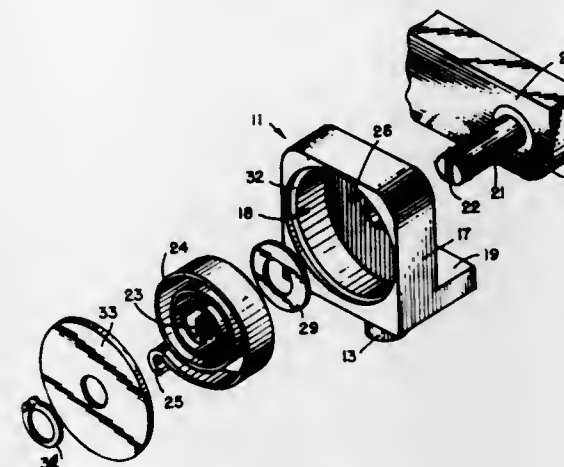
HINGED HANDLE ASSEMBLY

Donald C. Brayshaw, 206 Eustis St.,
Roxbury, Mass. 02119

Filed May 1, 1969, Ser. No. 820,977
Int. Cl. A47b 95/02; E05b 1/100

U.S. Cl. 16—126

9 Claims



A hinged handle assembly is disclosed in which the ends of a hand grip are connected by pivots to uprights on supports attached to a wall of an object. Each upright has a chamber through which the connecting pivot extends and to which the inner end of a coil spring is connected. The other end of the spring is attached to the upright and the springs urge the grip into an inoperative position relative to the wall. The upright has a shoulder and the end portions of the grip and the shoulders having portions engageable to limit the extent to which the grip may be swung both with and against the spring action.

3,562,850

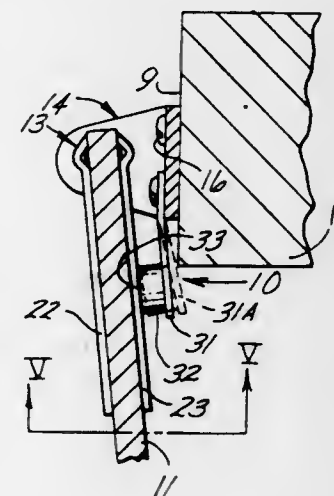
MAGNETIC DOOR HOLDER

Carlyle R. Eliason, Kalamazoo, and Charles H. Naas,
Portage, Mich., assignors to Eliason Refrigerator Com-
pany, Kalamazoo, Mich., a corporation of Michigan

Filed Aug. 13, 1968, Ser. No. 752,282
Int. Cl. A47g 27/04; E05c 17/56

U.S. Cl. 16—139

7 Claims



A magnetic device is mounted upon a wall structure closely adjacent a hinge mechanism for a swingable door

having thereon a hinge element capable of magnetic attraction and engageable with the magnetic device for releasably holding the door in an open position.

3,562,851

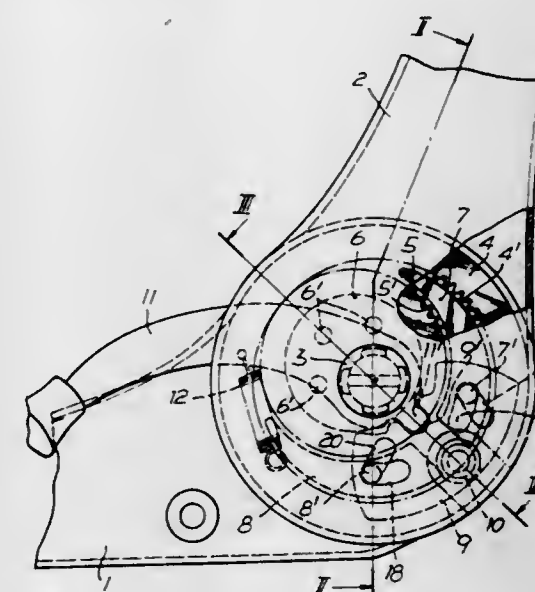
**DEVICE FOR RELEASABLY LOCKING AT A
SELECTED POSITION COMPONENTS WHICH
ARE MOVABLE ONE WITH RESPECT TO
THE OTHER**

Norbert Köller, Oschelbronn, Germany, assignor to
Recaro AG, Glarus, Switzerland, a firm

Filed Sept. 16, 1968, Ser. No. 759,904
P 16 80 261.2

U.S. Cl. 16—140

18 Claims



A device for releasably fixing, at a selected position relative to each other, a pair of components which are movable one with respect to the other, such as the back rest of an automobile seat with respect to the seat portion thereof. A pair of outer lock means are respectively connected with the components so that one of the outer lock means is movable relative to the others, and this pair of outer lock means respectively has a pair of lock surfaces directed toward each other. A guide means coacts with the pair of lock means to guide the one lock means for movement relative to the other along a path which does not change the configuration of a space which is defined between the lock surfaces. An intermediate lock means has a locking position located in this space and has a pair of outer lock surfaces directed away from each other and engaging the lock surfaces of the pair of outer lock means with at least an interlocking type of engagement when the intermediate lock means is in its locking position. A manually operable means coacts with the intermediate lock means for moving it between its locking position situated in the space and an unlocking position where the lock surfaces of the intermediate lock means are respectively spaced from the lock surfaces of the pair of outer lock means.

3,562,852

SPRING HINGE

Charles E. Gutshall, Schaumburg, Ill., assignor to Illinois
Tool Works Inc., Chicago, Ill., a corporation of Dela-
ware

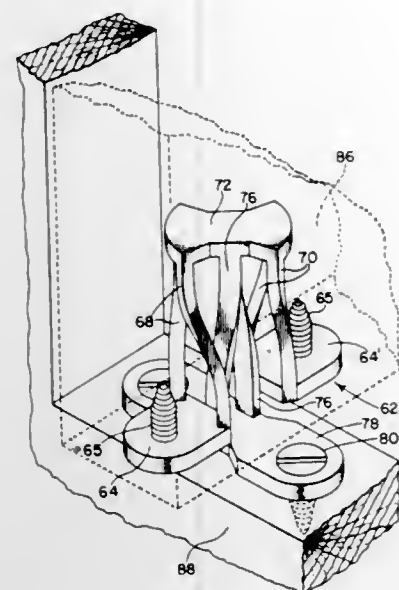
Filed Nov. 29, 1968, Ser. No. 779,712
Int. Cl. E05d 9/00

U.S. Cl. 16—150

3 Claims

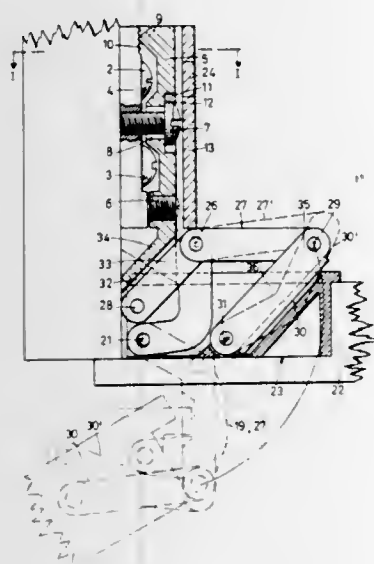
Hinge device adapted to be mounted in a recess in a cabinet door is formed in a single piece of material—

preferably molded plastic. Resilient portions of the device which interconnect relatively movable portions fastened



to the door and cabinet function as springs which urge the hinge to its closed position.

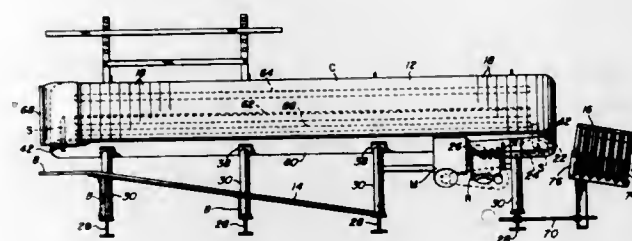
3,562,853
HINGE FOR ABUTTING STEP-SHAPED DOORS
WITH 150°-180° OPENINGS-ANGLE
Richard Heinze, Herford, Westphalia, Germany, assignor to Richard Heinze, Herford, Westphalia, Germany, a German company
Filed Aug. 12, 1968, Ser. No. 751,796
Claims priority, application Germany, Apr. 19, 1968, P 17 59 303.2
Int. Cl. E05d 3/06
U.S. Cl. 16-163 4 Claims



The new hinge comprises a base plate separately attached to an inner wall of a piece of furniture and non-rotatably embraced by a shoelike bracket which bracket is adjustable in length-direction as well as in direction to and from the wall and furthermore itself smoothly embraced by a link which with one end is horizontally guided in a length-guiding of the bracket parallel to the furniture wall and with the other end pivoted in and near the bottom of a housing inserted in that part of the fluted or step-shaped door which in closed state protrudes into the inner of the furniture. The bracket with its point also extends into said housing when the door

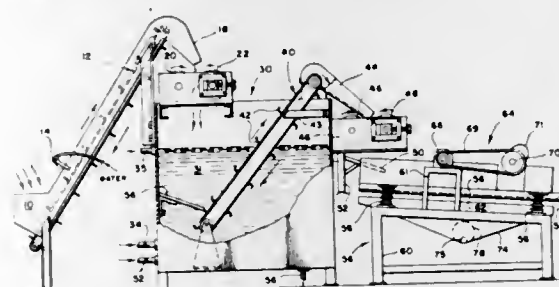
is closed, an obtuse-angled link with one end being pivoted to said bracket point and with the other end pivoted to one end of a further link which with its other end is pivoted to another pivot in and near the bottom of said housing, while an intermediate point of the obtuse-angled link is pivoted to an intermediate point of said guided shoelike link, said housing being sidely open in direction to hinge-corner.

3,562,854
ANIMAL RESTRAINING APPARATUS
Carl Oscar Schmidt, Jr., Cincinnati, Ohio, assignor to The Cincinnati Butchers' Supply Company, Cincinnati, Ohio, a corporation of Ohio
Filed Dec. 30, 1968, Ser. No. 787,734
Int. Cl. A22b 1/00
U.S. Cl. 17-1 18 Claims



The animal restraining apparatus is designed to permit a large meat animal to walk, more or less normally, toward the stunning or sticking station of an abattoir; in the course of travel, the floor gradually leaves the hoofs, and moving conveyors at opposite sides of the animal gently assume support of the entire weight of the animal at the belly, while at the same time confining and immobilizing the four legs, so that the animal is brought without delay or extra effort, into perfect position for stunning or sticking.

3,562,855
SCALLOP PROCESSING
Elmer Dryden Willis, Williston, N.C., assignor to Willis Bros., Inc., Williston, N.C., a corporation of North Carolina
Filed May 27, 1968, Ser. No. 732,247
Int. Cl. A22c 29/00
U.S. Cl. 17-48 6 Claims



A method and apparatus are provided for extracting the adductor muscle from scallops. Scallops are subjected to a heat shock and are then mechanically agitated to disengage the muscle and attached viscera from the shell. The muscle and viscera are removed from the shells and separated from unfragmented portions of the shells on a vibrating screen and are then contacted with water before being separated from small shell fragments by flotation in a brine solution. Viscera is removed from the muscles by pulling on the viscera while restraining movement of the muscles. The invention also includes a method and apparatus for removing viscera from the adductor muscle of shucked scallops. Scallop muscles and attached viscera are placed on the upper surface of an inclined path

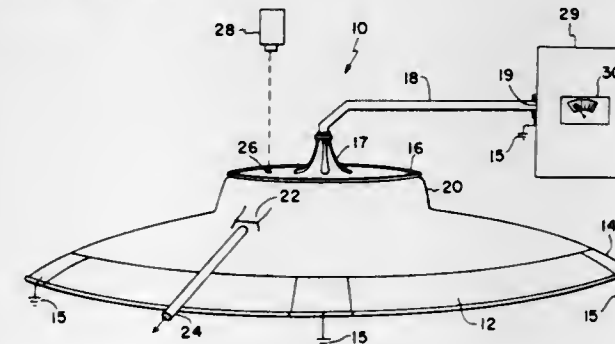
formed by a plurality of rollers. Viscera is pulled from the scallop muscle and through the nip formed by adjacent rollers by rotating the upper portion of adjacent rollers towards each other. Detached viscera is cleaned from the rolls below the inclined path. Advance of scallop muscles down the path is controlled by intermittently rotating the upper portion of adjacent rollers away from each other to permit the lower of the adjacent rollers to advance the muscle down the path and by spraying a flow of fluid on at least some of the muscles on the path to affect their rate of movement down the path.

3,562,856
MAGAZINE TUBE FOR FISH
Jan Bergh Eriksen, Brønnø, Norway, assignor to Trio Fabrikker A/S de Forenede norske Laase-og Beslag-fabriker, Stavanger, Norway
Filed Apr. 1, 1968, Ser. No. 717,593
Claims priority, application Norway, Apr. 21, 1967, 167,835
Int. Cl. A22c 25/08
U.S. Cl. 17-55 1 Claim



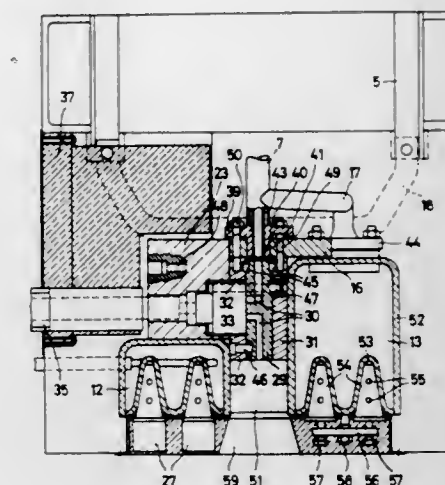
Magazine tube for fish for use in connection with fish processing machinery in which the tube has an oval cross-section and to which a reciprocating motion is imparted, wherein the tube is slightly conical expanding from the input end towards the output end.

3,562,857
DIELECTRIC MOLDING APPARATUS
Charles B. King, Hampton, Robert T. Swann, Newport News, and Martin J. Menges, Seaford, Va., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Oct. 9, 1968, Ser. No. 766,244
Int. Cl. B29c 1/12; H05b 1/00
U.S. Cl. 18-6 21 Claims



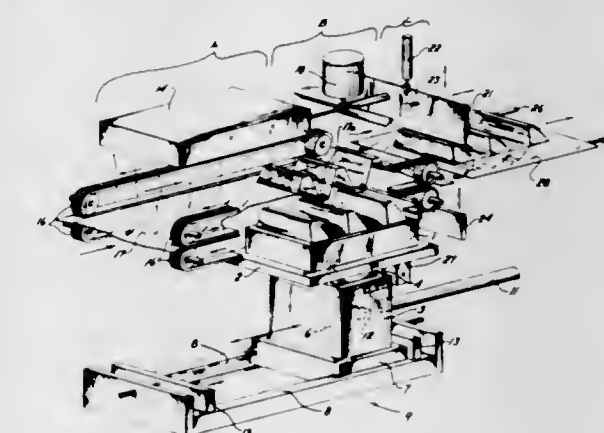
An apparatus for the dielectric heating, fusing and hardening of an organic matrix to form plastic materials into a useful, shaped product.

3,562,858
APPARATUS FOR THE MANUFACTURE OF SYNTHETIC FIBERS
Karl Lehner, Frankfurt, Germany, assignor to Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen, Frankfurt am Main, Germany
Filed Nov. 1, 1967, Ser. No. 679,699
Claims priority, application Germany, Nov. 3, 1966, V 32,254
Int. Cl. D01d 3/00
U.S. Cl. 18-8 6 Claims



The present disclosure provides a novel apparatus for the manufacture of fibers or the like from a melt or a solution of a synthetic polymer. The novel apparatus of the invention comprises pre-formed spinning units which are jointable to form a complete structural unit capable of forming said fibers from a melt of synthetic polymer. The pre-formed spinning units comprise a spinning block, at least one spinning pump and at least one spinning nozzle casing. The elements of a spinning unit are joined together so that several spinning units can be combined in the manner of building blocks.

3,562,859
VACUUM FORMING APPARATUS
Journal E. McIntyre, Uniondale, N.Y., assignor to Auto-Vac Company, Inc., Tabor City, N.C., a corporation of North Carolina
Filed Mar. 12, 1968, Ser. No. 712,477
Int. Cl. B29c 3/02
U.S. Cl. 18-19 9 Claims



Improved apparatus with rapid cycle times is provided for the continuous production of articles by thermoforming techniques. Processes and apparatus savings are achieved by securing the forming die to a table that is mounted for reciprocation in both a vertical and horizontal plane so that the die and the formed article may be moved together from the heating to the cooling station. This enables feed stock to be heated at the same time a formed article is being cooled, and cycle times are greatly reduced.

3,562,860

DEVICE FOR MAKING PIPE BENDS OF THERMOPLASTIC MATERIAL

Emil Rottner and Franz Bock, Hofheim, Taunus, Willi Muth, Frankfurt am Main, and Günter Wenzel, Kelheim, Taunus, Germany (all % Farbwerke Hoechst AG., Frankfurt am Main, Germany)

Filed Nov. 13, 1968, Ser. No. 775,443

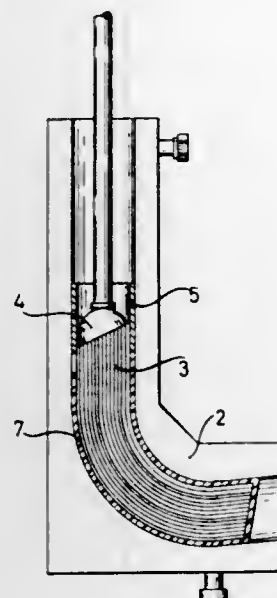
Claims priority, application Germany, Nov. 29, 1967,

P 17 04 661.6

Int. Cl. B29c 17/00

U.S. Cl. 18—19

4 Claims



Pipe bends of thermoplastic material are manufactured by thermoforming by shoving a sleeve-shaped pipe section which is closed at one end into a pipe bend mould which is symmetrically split in the longitudinal direction. The introduction is carried out with the help of a flexible core which is several times split longitudinally and which is pressed against the bottom of the pipe section. After cooling, the mould is opened and the core or its individual parts are pulled out of the pipe bend and the ends of the latter are trimmed.

3,562,861

TIRE MOLD WITH REMOVABLE INSERTS

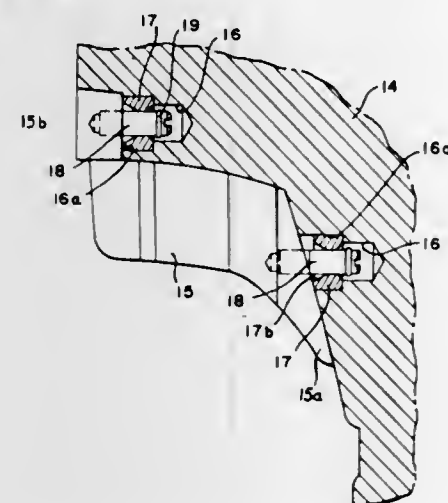
Leonard C. Youngblood, Grosse Pointe Park, Mich., assignor to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey

Filed Jan. 14, 1969, Ser. No. 790,936

Int. Cl. B29c 1/00; B29h 5/02

U.S. Cl. 18—44

6 Claims



A tire mold with releasably mounted inserts such as tread lug-forming design elements is disclosed, for use in the manufacture of large size tires which are characterized by the presence of deep, multiple angle cross lug grooves and thus are difficult to remove from the mold. The inserts are provided with parallel projecting

split ring-collared pins adapted to be snapped into and out of suitable retainer bushings fixed in the mold. When the press is opened at the end of a cure cycle for ejection of the tire from the mold, the mounting pins are pulled out of the bushings while the inserts remain attached to the tire, from which they can later, preparatory to reuse, be individually extracted without tearing or otherwise damaging the lugs.

3,562,862

METHOD AND MEANS FOR REMOVING IMPURITIES FROM A CONTINUOUS WEB OF TEXTILE FIBRES

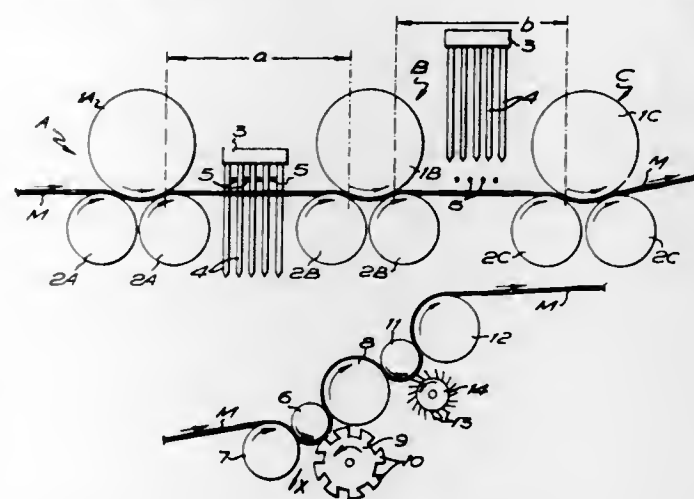
Donald Walker, 58 Bramley Lane, Lightcliffe, near Halifax, England, and Michael John Walker, 36 Florence Ave., Wilsden, near Bradford, England

Filed Feb. 17, 1969, Ser. No. 799,833

Int. Cl. D01b 3/00

U.S. Cl. 19—84

11 Claims



Vegetable and other undesirable matter (e.g., burr, seed and shive in the case of wool) is removed from a continuous web of parallelised textile fibres by the steps of (a) feeding the said web material continuously through a dabbing zone in which the material is nipped at two positions, (b) subjecting the moving material between said two positions to a rapid dabbing operation by which a series of closely spaced pins penetrate the material sufficiently to push said burrs or other larger impurities to one surface thereof, then (c) feeding the material to a stripping zone in which it is carried round a sharply curved support with the impurity-carrying surface outermost so as to cause said impurities to project from said surface, and (d) removing the burrs or other large impurities by a stripping action taking place close to said surface and in a plane substantially tangential to the path of the material. Preferably, the distance between said two nipping positions is no greater than the mean fibre length of the material, said nips are provided by two sets of three rollers each and said stripping is done by rotary beater having longitudinal flutes cooperating with said support. To remove double cuts or tufts from wool or other fibres the material is carried round a further sharply curved support with its tuft-carrying surface outermost and treated by a rotary pinned device cooperating with said further support.

3,562,863

SLIVER CONDENSER FOR DRAWING FRAMES

Gaston G. Fornes, Charlottesville, Va., assignor to Cometsa Corporation, Charlotte, N.C., a corporation of North Carolina

Filed Oct. 18, 1968, Ser. No. 768,841

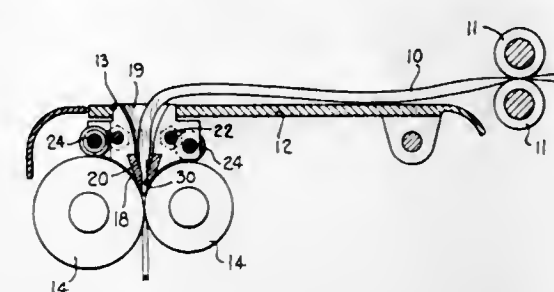
Int. Cl. D01h 5/72

U.S. Cl. 19—150

2 Claims

A sliver compressor in the form of a trumpet having an insert encased in a lower portion constructed of material having a high wear resistance to sliver passing

therethrough. The main body of said trumpet is constructed of material capable of dissipating heat readily.



The trumpet is supported on bearings which ride on the calender rolls for minimizing wear due to the frictional contact therewith.

3,562,864

COILER ASSEMBLY

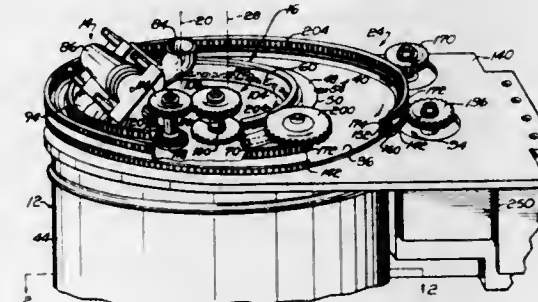
John H. Osgood, Chagrin Falls, and Steven W. Kundrach, South Euclid, Ohio, assignors to The Warner & Swasey Company, Cleveland, Ohio, a corporation of Ohio

Filed Oct. 8, 1968, Ser. No. 765,853

Int. Cl. B65h 54/80

U.S. Cl. 19—159

25 Claims



An improved coiler assembly for coiling sliver in a stationary container includes a coiler head which is simultaneously rotated by a first drive train about an axis which is offset from a central axis of the container and by a second drive train about the central axis of the container. Rotation of the coiler head about the first axis results in the formation of a coil of sliver in the container while rotation about the central axis of the container displaces loops of the coil of sliver relative to each other. An eccentric is provided for adjusting the position of the coiler head relative to the central axis of the container to enable sliver of different thicknesses to be coiled in the same relationship with a wall of the container. A transmission means for connecting the drive trains to a source of power includes a plurality of pairs of gears so that the gear ratio of the transmission means and the rate at which the coiler head is rotated around the central axis of the container can be adjusted to vary the extent to which the loops of sliver are displaced relative to each other.

3,562,865

NIPPER MECHANISM FOR TEXTILE COMBING MACHINES

Hansulrich Elchenberger and Peter Schwengeler, Winterthur, Switzerland, assignors to Rieter Machine Works Ltd., Winterthur, Switzerland, a corporation of Switzerland

Filed Sept. 12, 1968, Ser. No. 759,347

Claims priority, application Germany, Sept. 27, 1967,

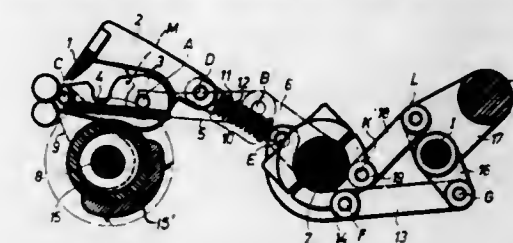
M 75,683

Int. Cl. D01g 19/16

U.S. Cl. 19—227

5 Claims

The top nipper is pivotally mounted on the bottom nipper and is closed on the bottom nipper by the action of a spring loaded rocker arm. The rocker arm is pivoted



pers are decelerated towards their point of closure during operation of the mechanism.

3,562,866

DENSITY CONTROL FOR A TEXTILE LAP FORMER

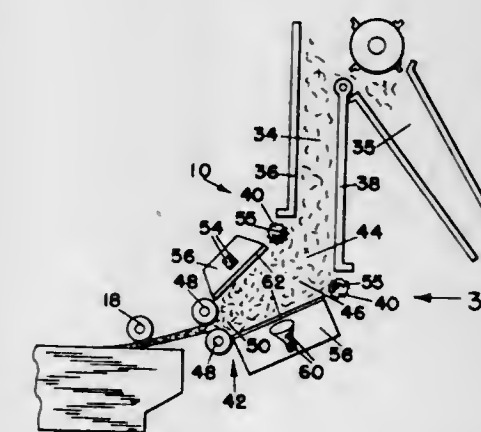
James Houston Roberson, Greenville, and Robert Joseph Poterala, Taylors, S.C., assignors to Crompton & Knowles Corporation, Worcester, Mass., a corporation of Massachusetts

Filed Oct. 23, 1968, Ser. No. 770,010

Int. Cl. D01h 5/38

U.S. Cl. 19—240

7 Claims



A lap forming apparatus in which loose fibers are stuffed into an enclosure by stuffing rolls which are driven by a variable speed motor. The fibers are drawn from the other end of the enclosure and formed into a lap. Uniformity of the lap is controlled by measuring the average density of the fibers in the enclosure by photoelectric means. Variations in fiber density produce a signal to control the variable speed motor and thus vary the rate at which fibers are stuffed into the enclosure to maintain uniform fiber density.

3,562,867

APPARATUS FOR MIXING SLIVERS

Johann Kaiser, Waldshut, Germany, assignor to Chr. Mann Maschinenfabrik, Waldshut, Germany

Filed Aug. 2, 1968, Ser. No. 749,748

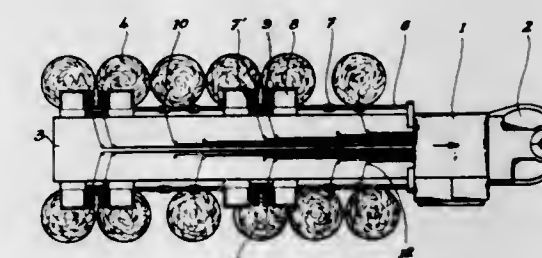
Claims priority, application Germany, Aug. 8, 1967,

P 16 85 572.4

Int. Cl. D01h

U.S. Cl. 19—243

2 Claims



A method of and mixing frame for mixing slivers which do not require a reduction in the sliver weight per meter with slivers which require a reduction in the sliver weight

per meter, according to which the slivers not requiring a reduction in the sliver weight per meter are fed directly into the mixing frame while the slivers requiring a reduction in the sliver weight per meter are adjacent the mixing frame predrafted and at the end of the predrafting operation are without interruption directly fed to entering rollers which feed the thus predrafted slivers into the mixing frame into which the other slivers not requiring a reduction in the sliver weight per meter are being fed.

3,562,868 TIGHTENING DEVICE FOR BOTTOM BELTS OF DRAWING MECHANISMS FOR SPINNING MACHINES

Fritz Stahlecker, Bad Ueberkingen, and Sigmund Kemmler, Geislingen, Steige, Germany, assignors to Spindelfabrik Suessen, Schurr, Stahlecker & Grill G.m.b.H., Suessen, Germany

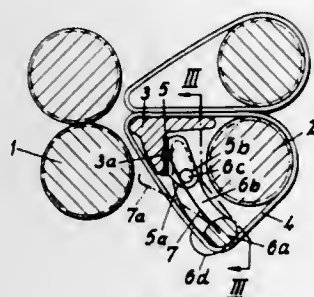
Filed June 26, 1968, Ser. No. 740,215

Claims priority, application Germany, July 20, 1967, S 110,912

Int. Cl. D01h 5/86

U.S. Cl. 19—250

17 Claims



A tightening device for each bottom belt of a drawing mechanism for a spinning machine which is located within the loop of the belt connecting the bottom-belt roller with the guide rail and comprises a tightening bar which is pivotally mounted on the guide rail and presses under the action of at least one spring against the inner side of the belt.

3,562,869 TEXTILE FIBRE DRAFTING MECHANISMS

Joseph Noguera, London, England, assignor to Casa-

blancas Limited, Manchester, England, a British company

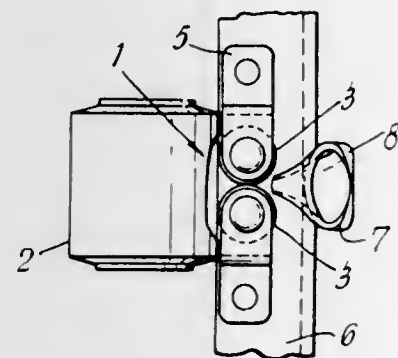
Filed Aug. 2, 1968, Ser. No. 749,789

Claims priority, application Great Britain, Aug. 3, 1967, 35,671/67

Int. Cl. D01h 5/72

U.S. Cl. 19—288

11 Claims



A fibre guide immediately precedes the intake of a textile fibre drafting mechanism and provides a confined passage through which fibre is fed to said intake and from which fibre is paid out under tension, the guide having fibre guide surfaces that move along with the fibre confined therebetween.

3,562,870 CABLE TIE WITH METAL INSERT HAVING TWO PAWLS

William U. Sund, Brossard, Quebec, Canada, assignor to Electrovert Manufacturing Co., Ltd., Montreal, Quebec, Canada

Filed Apr. 4, 1969, Ser. No. 813,626

Int. Cl. B65d 63/00

U.S. Cl. 24—16

9 Claims



A cable tie for binding plural insulated conductors or the like into a cable includes a relatively elongated substantially flat flexible tongue having an opened frame integral with one end thereof, the tie preferably being formed of a plastic composition material. The frame defines a substantially rectangular opening to receive the opposite end of the tongue which is inserted through the frame from one face thereof and drawn outwardly through the other face. A metal insert is inserted into the frame, as by the application of ultrasonic energy, and has two pawls extending inwardly toward each other and converging toward the exit face of the frame. The free ends of the pawls are spaced a substantial distance inwardly of the exit face, and the pawls flex as the tongue is drawn through the frame and then bite into the side edges of the tongue to prevent retraction of the tongue through the frame.

3,562,871 ENDLESS BELT ASSEMBLY WITH INSERT COUPLING

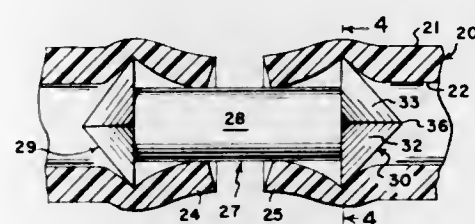
Arnold G. Peterson, Sunapee, N.H., assignor to L. M. & L. Corporation, Claremont, N.H., a corporation of New Hampshire

Original application July 6, 1967, Ser. No. 651,527, now Patent No. 3,461,733, dated Aug. 19, 1969. Divided and this application Apr. 4, 1969, Ser. No. 831,803

Int. Cl. F16h 9/00

U.S. Cl. 24—31

4 Claims



A continuous belt assembly suitable for use in high-velocity, moderate-load power transmission applications comprising, in combination, a novel internal coupling means and a tough extensible, flexible and tear resistant polymeric belting. The fastening means comprises sharp holding edges at either end thereof, such edges being adapted to indent, deform, cut and grip the walls of the belting when said fastening device is inserted into hollow sections of the belting and the belting is subsequently mounted on machinery. The sharp edged insert is free of sharp prongs and undercut barbs, but includes sharp spade-like edges defining a figure of greater periphery than the inside diameter of the hollow tubular belting, the corner edges having obtuse angles on the periphery to limit fracture while deforming the tube into a tight stretch around the periphery.

3,562,872 BUCKLE FOR SKI SHOES

Wilhelm G. Haubensack, 2 Agnesstrasse, 8004 Zurich, Switzerland

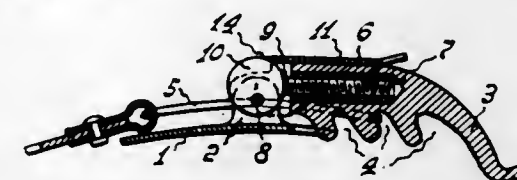
Filed May 5, 1969, Ser. No. 821,851

Claims priority, application Switzerland, May 22, 1968, 7,638

Int. Cl. A43c 11/14

U.S. Cl. 24—70

4 Claims



A buckle for ski shoes of the kind in which a loop on one closure flap of the shoe opening is latched over one of a set of aligned projections on a form of over-dead-centre lever pivotally carried by a mounting bracket on the other closure flap, the effective length of the lever arm being adjustable by a screw threaded connection between the lever and mounting bracket. The improvement with which the invention is concerned is the provision of an additional member which is pivoted on the bracket and can be clamped down on the aforesaid lever to retain it in its adjusted fastening position and safeguard the parts against damage.

3,562,873 CHANNEL CLIPS

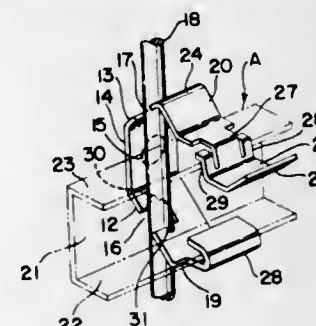
William J. Cumber, Chardon, Ohio, assignor to Erico Products, Inc., Cleveland, Ohio, a corporation of Ohio

Filed Oct. 11, 1968, Ser. No. 766,871

Int. Cl. A44b 21/00

U.S. Cl. 24—81

2 Claims



The invention relates to a clamp for securing a channel shaped member to a depending supporting rod or the like, made of a strip of spring steel having a body portion including two angularly disposed straight members formed with aligned side opening notches, with detents formed therein, adapted to receive the rod therethrough. The said straight portions are moved toward each other and then laterally to engage the rod within the notches. Release of the straight portions effects a gripping of the rod by the detents in the notches due to the inherent spring tension of the body portion. Arms integrally formed on the said straight portions, one of which has a reversely bent end, and the other detent means receive and resiliently hold therebetween the longitudinal edge portions of an elongated channel shaped member.

3,562,874 CABLE GRIP

Joseph Di Palma, Merritt St., South Norwalk, Conn. 06854

Filed Jan. 29, 1969, Ser. No. 794,914

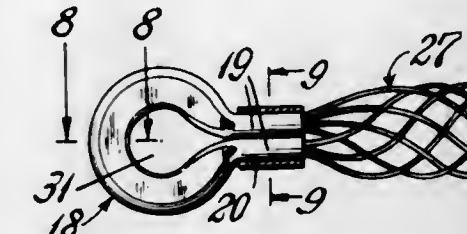
Int. Cl. F16g 11/02, 11/14

U.S. Cl. 24—123

8 Claims

A cable grip having a plurality of wire strands forming a woven tubular cable-receiving sheath and a draft end comprising a bunch of unwoven strands forming a loop. A rigid metal sleeve slidably receives and contains said

unwoven strands, and is shaped to form an eye portion and adjacent parallel leg portions from which the wires emerge. The leg portions of the sleeve are flattened in a plane parallel to the axis of the eye portion into wire-clamping engagement with the unwoven wires therein, and the eye portion being flattened in a plane perpendicular



lar to the axis of the eye portion into wire-clamping engagement with the unwoven wires within the eye portion. The hole of the eye portion is of such shape as to receive and fit the bolt of a draft clevis when the draft end of the cable grip is inserted in a draft clevis with a minimum of lost motion between the bolt and the eye.

3,562,875 DEAD END CLAMP

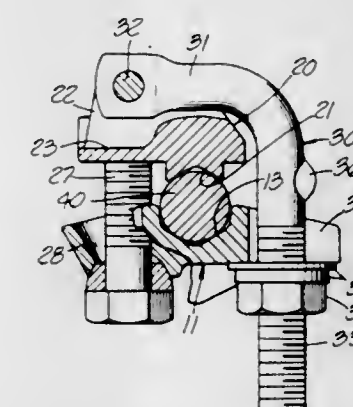
L. E. Lindsey, Pasadena, and Herbert P. Sammons, Glendale, Calif., assignors to L. E. Lindsey, Pasadena, Calif.

Filed June 16, 1969, Ser. No. 833,359

Int. Cl. F16g 11/06

U.S. Cl. 24—125

10 Claims



A dead end clamp having a clevis-equipped main body formed lengthwise thereof with a cable-seating channel. A single clamping jaw overlies the channel from one side and is held closed by a single L-shaped bolt pivoted to the upper side of the jaw in cooperation with either one or a pair of cap screws. The latter pass loosely through upwardly flaring openings in the clamp body into threaded bores formed in the jaw, the flaring openings permitting the loosened jaw to pivot laterally away from the channel to its fully open position.

3,562,876 REMOVABLE FABRIC COVERED SHELL ASSEMBLY

Hans A. Prym, Woodstock, Conn., assignor to William Prym, Inc., Dayville, Conn., a corporation of New York

Filed Apr. 17, 1969, Ser. No. 816,946

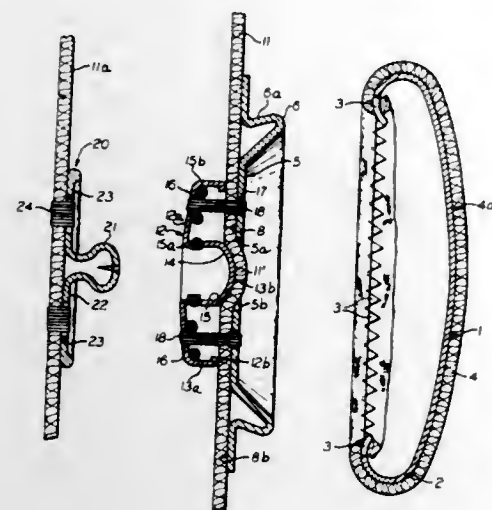
Int. Cl. A44b 11/12, 17/00

U.S. Cl. 24—113

8 Claims

A removable fabric covered shell assembly for attachment to a garment material comprising a formed shell including teeth at the rear for engaging a fabric on the shell,

a backplate having a front side formed with a snap-on engagement ridge complementary to the rear of the teeth of the shell for releasable snapping engagement therewith,



and one part of a snap fastener means formed with sew-on holes and held to the back side of the backplate by threads holding the garment material therebetween.

3,562,877

MINIATURE BUCKLE

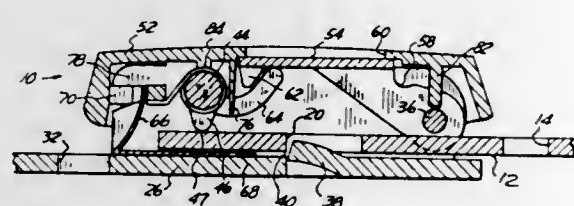
William L. Pringle, Grosse Pointe, and Gerald J. Partridge, Roseville, Mich., assignors to Jim Robbins Seat Belt Co., Troy, Mich.

Filed Oct. 7, 1968, Ser. No. 765,496

Int. Cl. A44b 11/26

U.S. Cl. 24-230

11 Claims



A pushbutton actuated buckle assembly having an apertured tongue that is engageable with a lug in the base of the buckle to form a connection between the tongue and the buckle. A rotatable latch is supported in the buckle in a position such that the tongue, when inserted into the buckle, is received between the latch and the buckle base. A latch spring biases the latch toward a locking position in which it moves the tongue toward the base so that its aperture is joined with the lug. A lifting spring, between the tongue and the base, moves the tongue away from the base as the latch is rotated to a release position by depression of the pushbutton.

3,562,878

JEWELRY BRACELET CATCH

Boris Shteinshleifer, 245 E. 11th St., New York, N.Y. 10003

Filed Mar. 11, 1969, Ser. No. 806,086

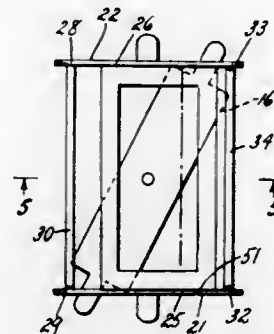
Int. Cl. A44c 5/18

U.S. Cl. 24-265

5 Claims

A jewelry bracelet catch including first and second mutually engageable members, one of said members defining a recess into which at least a portion of the other of said

members may be positioned for non-rotational engagement, and said sliding locking means mounted on one of



said elements and selectively engageable with at least one recess on the other of said elements.

3,562,879

APPARATUS FOR THE PRODUCTION OF DOUBLE-WALLED PIPES OF CERAMIC MATERIAL

Gottfried Cremer, Junkersdorf, near Cologne, Steyrer Weg 6, Germany; Heinz Behrens, Junkersdorf, near Cologne, 19 am Weidenpesch, Germany; and Hans Joachim Dietzsch, 1 Rue Charles Monnard, Lausanne, Switzerland

Filed Feb. 23, 1966, Ser. No. 529,549

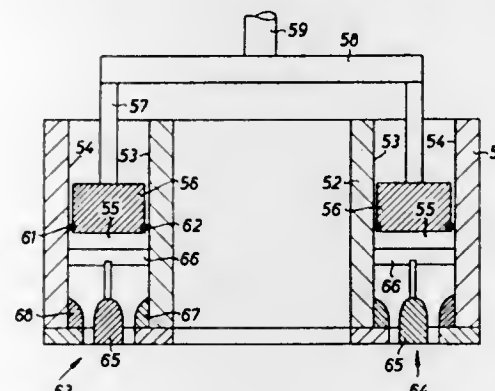
Claims priority, application Germany, Feb. 24, 1965,

F 45,345; Apr. 15, 1965, B 81,491

Int. Cl. B28b 3/24, 3/26

U.S. Cl. 25-15

3 Claims



An extrusion press for producing double-walled pipes of ceramic material comprising an annular cylinder, an annular piston within the cylinder, and an extrusion nozzle within the annular cylinder comprising a plurality of cores suspended on radial suspending means.

3,562,880

CRIMPING APPARATUS

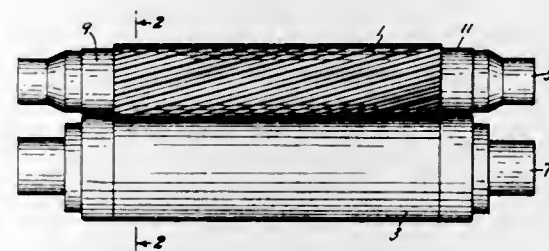
Harold D. Yarber, Wallace, N.C., assignor to J. P. Stevens & Co., Inc., New York, N.Y., a corporation of Delaware

Filed Aug. 9, 1968, Ser. No. 751,565

Int. Cl. D02g 1/14

U.S. Cl. 28-1.8

3 Claims



This invention relates to an improvement in apparatus for treating textile materials having a set of opposed surfaces wherein one of the surfaces is engraved with a

pattern and the other surface is made from a resilient material capable of being deformed into a configuration which matches that of the first surface when the two surfaces are brought into contact with each other under heat and pressure, the improvement comprising having unengraved shoulder portions on each side of the engraved pattern in the top roll and extending above the engraved portion of the top of the shoulder portions whereby the pressure is equalized across the complete width of the bottom roll when the two rolls are brought into contact with each other.

3,562,881

FIELD-IONIZATION ELECTRODES

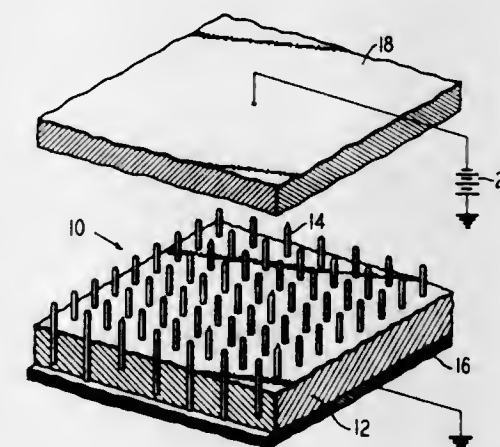
Alfred E. Barrington, Lexington, Arthur L. Flores, Bedford, and Wayne L. Lees, Lexington, Mass., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Feb. 27, 1969, Ser. No. 802,972

Int. Cl. H01j 9/16, 9/44

U.S. Cl. 29-25.18

5 Claims



Field-ionization electrodes comprising an array of microscopically small rods having their lengths and tip configurations equalized. Matching of the electrode elements is accomplished by field evaporation permitted by the high physical strength of the individual rods.

3,562,882

ROLL DRIVE THROUGH INTERMEDIATE RACE RING OF CONCENTRIC BEARING

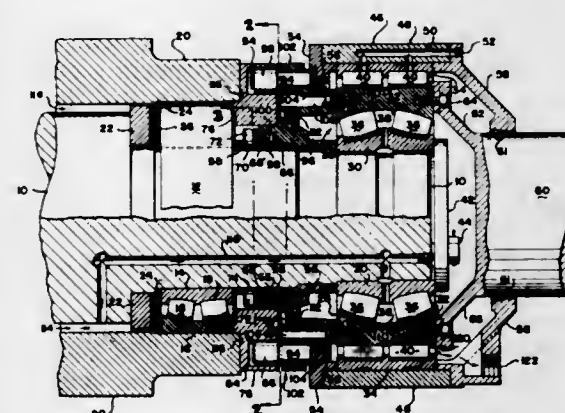
Samuel W. Widmer, South Bend, Ind., and Buel D. Dean, Litchfield, Conn., assignors, by mesne assignments, to The Torrington Company, Torrington, Conn., a corporation of Delaware

Filed June 4, 1965, Ser. No. 461,309

Int. Cl. B21b 13/02

U.S. Cl. 29-115

10 Claims



This disclosure relates to the mounting and driving of a roll which is subject of high pressures. The roll is

rotatably mounted on a fixed shaft which, in turn, is supported by a triple race bearing with the intermediate race thereof forming a drive coupling between the roll and a drive member. The triple race bearing mounts the shaft for limited flexing under pressure.

3,562,883

SUCTION PRESS ROLL FOR PAPERMAKING

Shogo Kobayashi, 227 Mitoshima, Fuji-shi,

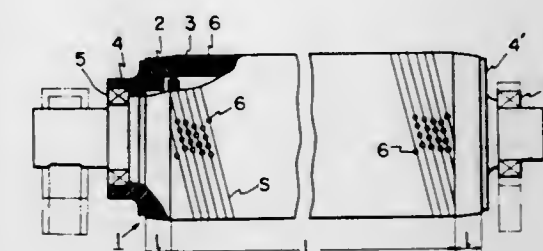
Shizuoka-ken, Japan

Filed June 26, 1968, Ser. No. 740,159

Int. Cl. B21h 8/02

U.S. Cl. 29-121

1 Claim



A suction press roll for papermaking machines has a rigid hollow roll covered by a resilient material with aligned suction holes extending through the material and roll for drawing water from a wet web passing thereover and which material has a plurality of drain channels in the periphery thereof connecting each pair of said holes and each of said channels is of greater depth than width providing at least one flexible projecting land between the channels which land or lands flex when pressed by a plain roll and the wet web thereabove closing one channel pushing water therefrom and opening the next channel facilitating the flow of water therein to said holes.

3,562,884

ALUMINUM-BASED ALLOY BEARING MATERIAL AND METHOD OF MAKING

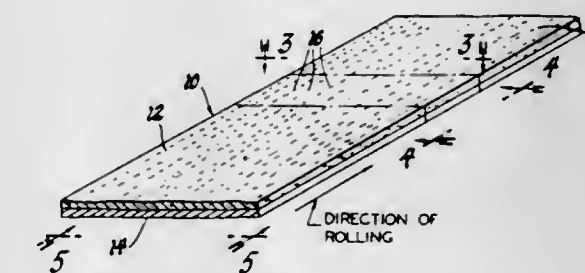
Fred J. Webber, Orchard Lake, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Oct. 29, 1968, Ser. No. 771,416

Int. Cl. B21d 53/10

U.S. Cl. 29-149.5

4 Claims



In a preferred embodiment a cast strip of aluminum bearing alloy containing a minor portion of lead dispersed as small spherical particles in the aluminum matrix is rolled lengthwise, whereby the soft lead particles are flattened and lengthened in the direction of rolling. Sleeve bearing blanks are then cut from the cast and rolled strip in a direction and manner such that the longest dimension of the flattened lead particles in the finished bearing is transverse to the intended direction of rotation of a mating journal member.

3,562,885

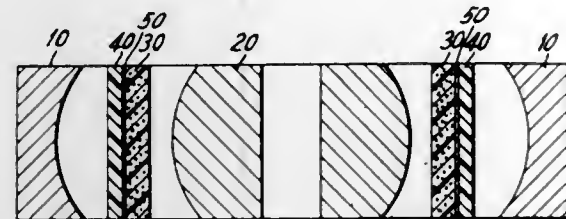
METHOD OF MAKING BEARINGS

Albert R. McCloskey, Fairfield, Conn., assignor to The Heim Universal Corporation, Fairfield, Conn., a corporation of Delaware
Application Feb. 23, 1967, Ser. No. 617,952, now Patent No. 3,471,207, dated Oct. 14, 1969, which is a continuation-in-part of application Ser. No. 566,799, July 21, 1966. Divided and this application Mar. 17, 1969, Ser. No. 807,840

Int. Cl. B23d 53/10; B23p 11/00

U.S. Cl. 29—149.5

17 Claims



A method of making a bearing advantageously includes a self-lubricating liner comprising a mixture of adhesive resin and powdered or flocked polytetrafluoroethylene particles, or a woven polytetrafluoroethylene fabric embedded in such resin. The liner is cured under conditions of high pressure and high temperature.

3,562,886

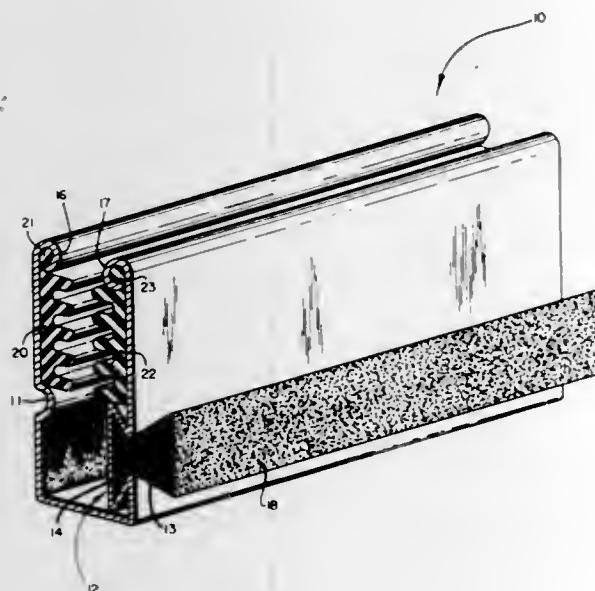
METHOD OF MAKING A FRAMING MEMBER

Harold G. Olson, Westport, Conn., and Leonard W. Johnson, Amesbury, Mass., assignors to The Bailey Company, Inc., Amesbury, Mass., a corporation of Massachusetts
Original application Aug. 16, 1967, Ser. No. 661,007. Divided and this application Jan. 17, 1969, Ser. No. 817,594

Int. Cl. B21d 39/02, 53/74

U.S. Cl. 29—155

5 Claims



The present invention relates to window frames or sashes made to hold panes of glass or panels of other materials, such as plastic, and in particular to roll-formed framing members, in which the glass supporting gaskets and weatherstripping are assembled together with the framing members as part of the roll-forming process prior to cutting the members into useable lengths.

3,562,887

EXPLOSIVE EXPANSION OF LINER SLEEVES

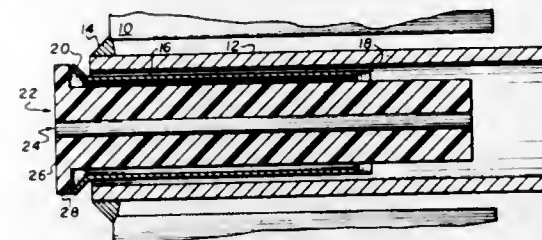
Joseph W. Schroeder, Clark, and Herman P. Smith, Bound Brook, N.J., and Irwin Berman, Bronx, N.Y., assignors to Foster Wheeler Corporation, Livingston, N.J., a corporation of New York

Filed May 8, 1968, Ser. No. 727,530

Int. Cl. B21d 53/00

U.S. Cl. 29—157.4

5 Claims



By use of an explosive charge together with an accompanying medium two concentric tubes may be expanded at the same time, with the inner tube or liner sleeve expanding and locking to the outer tube and the outer tube expanding into a tube hole in a tubesheet or heat transfer medium. In cases where the inner tube does not extend the full length that must be expanded in the outer tube the medium or explosive may be shaped to provide the proper force required at each section.

3,562,888

METHOD FOR FABRICATING AN IMPROVED PULLEY

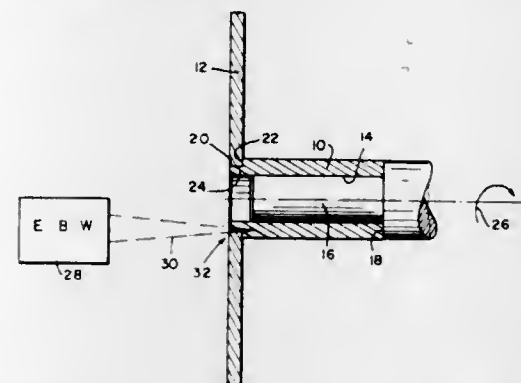
Donald E. Settle, Hope, Ind., assignor to The Reliance Electric and Engineering Company, Cleveland, Ohio, a corporation of Ohio

Filed Dec. 20, 1968, Ser. No. 785,487

Int. Cl. B21d 53/26; B21k 1/28, 1/47

U.S. Cl. 29—159

19 Claims



The method of fabricating a V-pulley disc which comprises the steps of providing a metal hub element, providing a substantially flat disc of ductile metal having a central perforation proportioned and designed to receive the hub element, entering the hub element in the perforation and there welding it, and thereafter spinning the disc to frusto-conical shape by pressure exerted generally axially upon one of its faces. The hub element may be welded to the disc by electron beam welding techniques or by inertia welding techniques. The spinning step subsequent to the welding step serves to form properly a conical disc, to harden the belt-engaging surface of the disc, and to check the weld between the disc and hub element.

3,562,889

MACHINE FOR ASSEMBLING LAMINATIONS

Basil W. Rule, Stamford, England, assignor to Newage Lyon Limited, Stamford, England

Filed Aug. 5, 1968, Ser. No. 750,247

Claims priority, application Great Britain, Aug. 4, 1967, 36,027

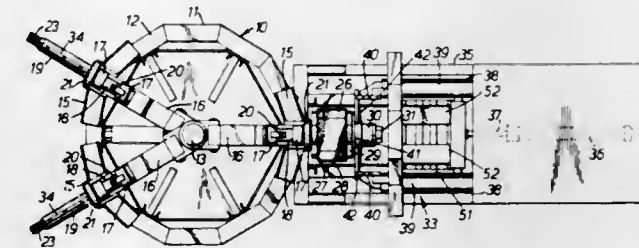
Int. Cl. H05k 13/00

U.S. Cl. 29—203

12 Claims

The invention relates to an assembly machine or fixture device for assembling stamped iron rotor laminations into

a pack, compressing the pack, and holding the pack compressed whilst it is seam-welded together to form the laminated iron rotor core of a dynamo-electric machine. A pedestal provides a circumferential horizontal track around a vertical axis, and a number of trolleys are mounted on the pedestal for movement along the track and around the vertical pedestal axis. Each trolley has bearings in which is journaled a mandrel extending radially with respect to the pedestal axis, the outer end portion of the mandrel projecting beyond the pedestal to constitute a horizontal working portion located at a convenient working height on which a required number of the laminations can be assembled in a pack. The trolley carrying the pack of laminations is then moved along the track to bring its mandrel into alignment with a fixed, horizontal hydraulic or pneumatic ram. The ram has



ittings enabling it to be applied to the outer end of the pack of laminations so as to compress the pack axially to the desired extent, when a lock nut is tightened onto the mandrel to engage the pack and hold it compressed to enable the ram to be disengaged. The trolley can then be moved along the track to bring the compressed pack out of alignment with the ram, so that the required seam-welding operations and the fitting of damper bars can be performed on the pack whilst it is supported on the projected end of the mandrel and is retained compressed by the lock nut. Finally the trolley is swung back into alignment with the ram, the lock nut is removed and the ram plunger is coupled to a yoke fitted behind the radially-inner end of the pack, and the ram is operated in reverse to withdraw the completed pack off the mandrel and onto a carrier positioned to receive it.

3,562,890

FASTENER APPARATUS

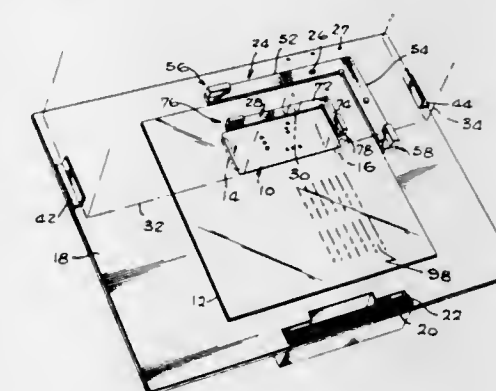
Herbert la Mers and Herbert N. Sandel, Los Angeles, Calif., assignors to Rapid Merchandising Company, Incorporated, Minneapolis, Minn., a corporation of Minnesota

Filed Sept. 23, 1968, Ser. No. 761,435

Int. Cl. B23p 19/04; B23q 17/00

U.S. Cl. 29—208

8 Claims



Apparatus for fastening an inventory control card to a record album. The apparatus comprises an album nest for receiving a record album, a movable card nest, and an album sensor. When the sensor detects an album in the

album nest, it operates a piston that moves the card nest against the album to clamp it in place. Another sensor detects the presence of a card within the card nest to operate machinery that fastens the card onto the album.

3,562,891

VALVE SERVICE TOOL

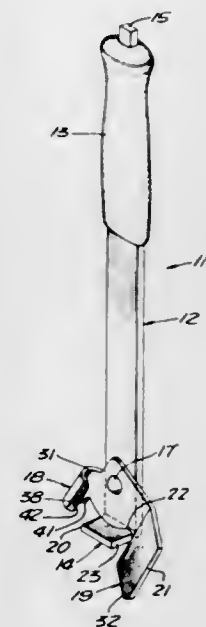
William E. Earl, Downey, Calif., assignor to Earl Mfg. Co., Inc., Santa Fe Springs, Calif., a corporation of California

Filed July 24, 1968, Ser. No. 747,281

Int. Cl. B23p 19/04

U.S. Cl. 29—221.5

5 Claims



The tool includes a handle having a foot member rigidly attached to its lower end. A plate is pivotally attached to the handle so that a jaw, formed on one end of the plate, closes against one edge of the foot member; and a leg is formed on the other end portion of the plate. In response to a lateral force applied to the upper end of the handle the tool pivots on the leg against a surface of the wheel rim so as to cause the jaw to close on a valve disposed between the jaw and the foot member, and to exert on the valve a force having a component normal to the wheel rim surface encompassing the valve. The plate is configured so that in the absence of applied forces the jaw assumes a predetermined opened position whereby the tool may be easily positioned with the jaw encompassing the valve stem.

3,562,892

APPARATUS FOR PRODUCING LINK MEANS FOR JOINING ENDS OF BELTING MATERIAL

James N. Laneri, 5266 40th St. S.,

St. Petersburg, Fla. 33711

Filed Sept. 3, 1968, Ser. No. 756,944

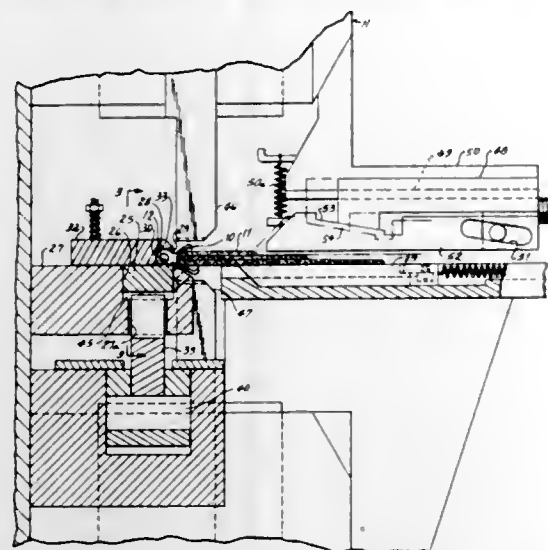
Int. Cl. B23p 11/00

U.S. Cl. 29—243.51

13 Claims

Apparatus for producing continuous tape means for joining ends of continuous conveyor belt or like material, includes means for crimping angularly disposed arms of series of apertured links, to embed barbed ends of arms into one edge of a continuous tape. Includes indexing mechanism for progressively moving successive links into position between relatively movable upper and lower crimping heads. Edge of tape is pressed firmly between arms of links into rigid contact with shoulder part of link, in timed relation to reciprocating crimping heads to deform link arms inwardly into tight engagement with opposite sides of the belt material, anchoringly to embed

barbs of arms into the tape material. Uniformly spaced link eyelets in said tape when fastened are interengagable in alternation to align slots of axially aligned openings of



eyelets, for reception of elongated hinge cable attached to a threading shuttle, moved through aligned eyelet apertures by means of shuttle extension movable through aligned eyelet slots.

3,562,893

APPARATUS FOR DRIVING RIVETS USING EXPLOSIVE CHARGE

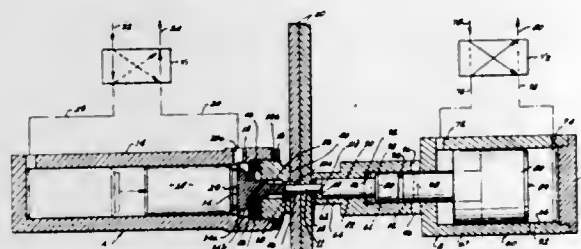
James C. Winslow, Sierra Madre, and Ralph D. Adams, Glendora, Calif., assignors to Omark-Winslow Aerospace Tool Co., Portland, Oreg., a corporation of Oregon

Filed May 28, 1968, Ser. No. 732,684

Int. Cl. B23p 11/00

U.S. Cl. 29—243.53

17 Claims



A rivet driving system wherein a mechanical blow is delivered to one end of a rivet by an air-driven hammer striking an impact member which acts as a rivet set engaging and upsetting a head on this end of the rivet. The unheaded opposite end of the rivet delivers an initial shock, as this upsetting commences, against an upsetting tool, or second rivet set, positioned thereagainst, which in turn transmits a shock to an explosive charge. The explosive charge thereby explodes, and the resulting gas pressure and shock drives the last-mentioned rivet set back to form a head on the corresponding end of the rivet, while the first mentioned rivet set is still upsetting a head on the first mentioned end of the rivet.

3,562,894

METHOD OF MAKING ELECTRON MULTIPLIER WAFER

Martin Rome, Princeton, N.J., assignor, by mesne assignments, to Weston Instruments, Inc., Newark, N.J., a corporation of Delaware

Original application June 21, 1967, Ser. No. 647,822, now Patent No. 3,407,324, dated Oct. 22, 1968. Divided and this application Aug. 26, 1968, Ser. No. 810,398

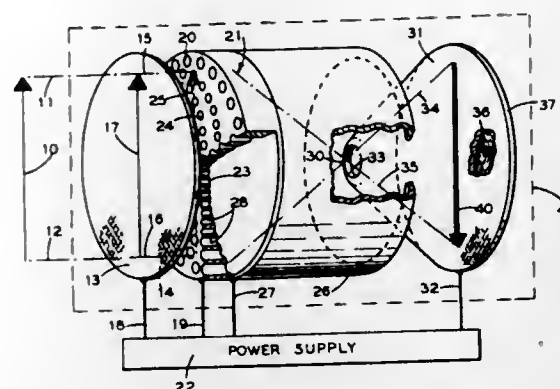
Int. Cl. B23p 17/00

U.S. Cl. 29—412

3 Claims

An illustrative embodiment of the disclosure discloses a plano-concave wafer of channel electron multipliers in

an electron-optical system that produces inverted and intensified images of faintly illuminated objects. The individual channels are relatively short at the center of the wafer and gradually increase in length toward the periphery in order to produce the concave equipotential



surface needed for electron image inversion. The respective channel diameters are varied in accordance with each channel length to maintain a generally constant ratio of length to diameter and the associated electron gain for all of the channels in the wafer.

3,562,895

METHOD OF MAKING FILTER

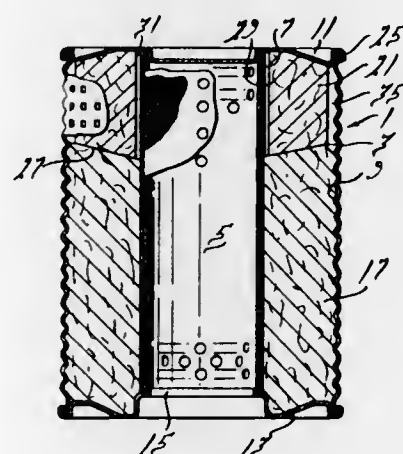
Louis F. Niebergall and James C. McLaren, Racine, Wis., assignors, by mesne assignments, to Tenneco Inc., Houston, Tex., a corporation of Delaware

Application Jan. 11, 1967, Ser. No. 613,385, now Patent No. 3,504,800, dated Apr. 7, 1970, which is a continuation of application Ser. No. 185,661, Apr. 6, 1962. Divided and this application May 21, 1969, Ser. No. 826,622

Int. Cl. B23p 17/00

U.S. Cl. 29—419

2 Claims



A high flow molded element formed of uniform diameter resin coated viscose rayon fibers is used in a parallel dual media-dual flow filter to remove particles above a predetermined size. The element is made to a predetermined size, density, porosity, and flow resistance and being essentially rigid it resists unloading. It may be conically shaped to have a substantially uniform rate of flow or internally flocked to provide more uniform porosity. An end cap may be adhered to the element as a subassembly and the inlet and outlet faces are preferably spaced from adjacent portions of the housing to insure flow to the entire areas of these faces.

3,562,896

METHOD OF ATTACHING PLASTIC PIPE TO METAL FITTINGS

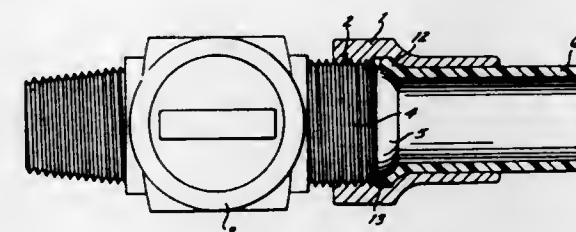
Harold E. Wilson, 3825 Cedar Ave., Long Beach, Calif. 90807

Application Apr. 24, 1967, Ser. No. 633,077, now Patent No. 3,408,098, dated Oct. 29, 1968, which is a continuation-in-part of application Ser. No. 537,134, Mar. 24, 1966. Divided and this application Aug. 26, 1968, Ser. No. 755,222

Int. Cl. B23p 11/00

U.S. Cl. 29—443

2 Claims



A method of coupling or connecting plastic pipe or tubing to brass goods normally used in waterworks, water and gas distribution, and industrial plants that provides a tube nut into which the plastic pipe is flared, locking them together longitudinally, yet permitting relative rotation of the pipe and nut, in which a flare tool has a flaring surface and a following cylindrical surface advancing over threads in the nut to shut off flow of plastic material into the threads, the flare being made against the interior of the nut at one radius of curvature and the opposite interior surface of the pipe is shaped at a larger radius of curvature. Thermoplastic pipe having internal diameter iron pipe dimensions and other pipe having outer diameter copper tube dimensions, both of polyethylene or polyvinyl chloride in 3/8" to 2" sizes are popularly used in such couplings.

3,562,897

EXPLOSION BONDING OF TUBES

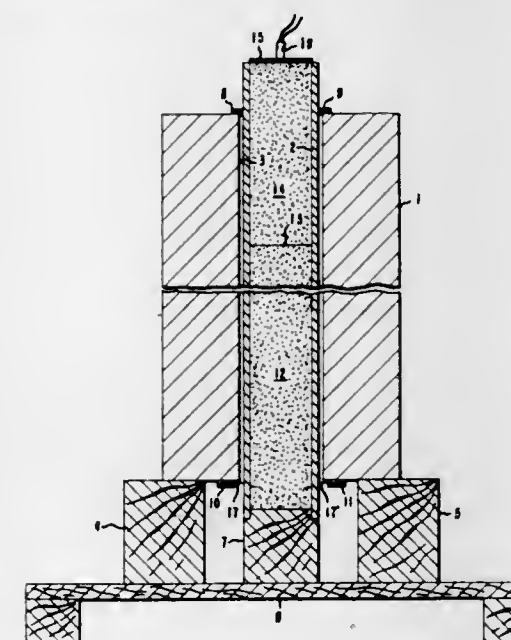
Joseph Buchwald, Philadelphia, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Continuation-in-part of application Ser. No. 740,671, June 27, 1968. This application Nov. 27, 1968, Ser. No. 786,533

Int. Cl. B23k 21/00

U.S. Cl. 29—470.1

11 Claims



In the process for metallurgically bonding a lining tube to the inside surface of a second tube by propelling the lining tube into a progressive collision with the second tube by detonating an explosive charge within the lining

tube, improved bonding at the initially colliding tube ends is obtained by employing, at the initiation end of the explosive charge, an explosive which has a higher detonation velocity and/or explosive loading than the explosive which extends through the remaining length of the lining tube.

3,562,898

METHOD FOR FORMING A MULTIPLE SECTIONAL RING

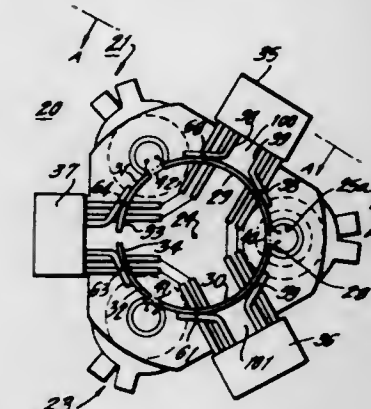
Leonard D. Minutillo, Parlin, N.J., assignor to Griffiths Electronics, Inc., Linden, N.J., a corporation of New Jersey

Filed May 8, 1969, Ser. No. 822,961

Int. Cl. B23k 31/02

U.S. Cl. 29—471.3

3 Claims



A method and apparatus for forming a ring structure comprised of a multiple number of elements substantially forming the ring, which sections are utilized in cathode ray guns to provide the electrical circuit for energizing the cathode filaments of the electron gun. Four separate sections form the ring. The method and apparatus for forming the arrangement is to provide a single damp member having the thickness of the order of 5 mils and mounting the member upon a jake to form a substantially circular shaped configuration. The member is then positioned in close proximity to the electron gun structure adjacent the elements to which it is being mechanically connected. The ring shaped member is then welded to the supporting structures and, after weldment, is positioned in a ring cutter assembly which cuts the substantially ring shaped member at three points located approximately 120° apart to thereby form four separate elements which are then utilized for electrical connection to filament leads of a plurality of cathode heaters mounted within the electron gun structure. This technique replaces the conventional technique in which six separate elements are utilized to form the filament ring.

3,562,899

METHOD OF FORMING A SHEATHED ELEMENT

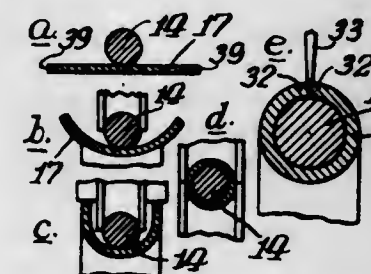
Thomas C. Stout, Concord, Mass., and Andrew J. Kaiser, Muskegon, Mich., assignors to Brunswick Corporation

Filed June 13, 1968, Ser. No. 736,649

Int. Cl. B21d 39/04

U.S. Cl. 29—474.1

5 Claims



A method of forming a clad wire wherein a wire is fed longitudinally to a cladding zone, a strip of sheathing material is deformed about the wire, opposed por-

tions of the strip are secured together by means extending less than fully through the strip to define an effectively tubular sheath about the wire. The sheathing material herein is metal and the securing of the apposed portions of the sheath is effected by welding. The sheathed wire may be subsequently cut to preselected lengths for further processing.

3,562,900

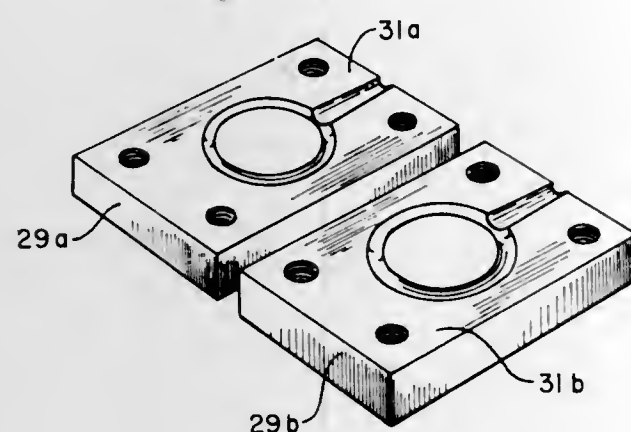
METHOD OF MAKING A JEWELRY MOLD

John L. Buehler, Indianapolis, Ind., assignor to The Buehler Corporation, Indianapolis, Ind., a corporation of Indiana

Original application Oct. 19, 1966, Ser. No. 587,833, now Patent No. 3,515,366, dated June 2, 1970. Divided and this application Mar. 12, 1969, Ser. No. 871,801
Int. Cl. B23p 17/00

U.S. Cl. 29—527.6

3 Claims



Method and apparatus for making a mold for wax replicas for use in lost wax casting process. Model is supported in a frame. A mold material is poured into said frame. Screws for later alignment are provided and are molded into said mold. Mold material is cured and cooled. Screws are removed and mold is then cut in two.

3,562,901

METHOD OF MANUFACTURING PNEUMATIC EQUILIBRATOR ASSEMBLY

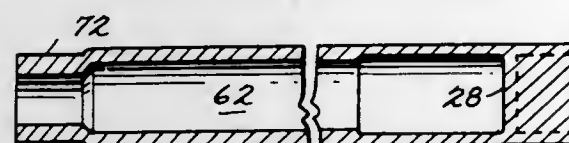
Joseph Ray, 566 E. Fulton St., Long Beach, N.Y. 11561

Filed Jan. 13, 1969, Ser. No. 790,790

Int. Cl. B23p 13/04

U.S. Cl. 29—558

2 Claims



A pneumatic equilibrator assembly for balancing the weight of a gun muzzle is provided with a tubular plunger assembly formed as a monolithic, unitary structure from a forging quality material. The monolithic, unitary structure of the plunger assembly is impermeable to gas under pressure, thereby eliminating the danger of a loss of pressurizing gas (such as nitrogen gas) through defects which might otherwise arise from brazed or multiple-piece constructions for plunger assemblies. The improved plunger assembly is formed by boring internal openings into opposite ends of a cylindrical blank, machining a major part of the outside surface of the blank to a desired diameter

but leaving an excess of thickness of material at an open end of the blank, and pressure forging the end of the blank having the excess material so as to simultaneously reduce its inside and outside diameters.

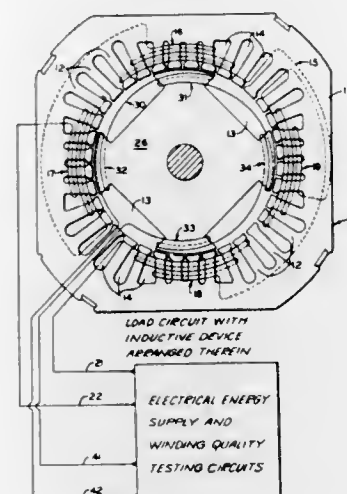
3,562,902

METHOD FOR TRANSFORMING AND TESTING OF ELECTRICAL COILS IN AN INDUCTIVE DEVICE

Robert Green, De Kalb, Ill., assignor to General Electric Company, a corporation of New York
Original application July 22, 1968, Ser. No. 746,663, now Patent No. 3,455,007, dated July 15, 1969. Divided and this application Jan. 10, 1969, Ser. No. 790,290
Int. Cl. H01h

U.S. Cl. 29—593

5 Claims



An inductive device, for instance a magnetic core having electrical coils or windings carried in slots, for arrangement in a load circuit. At least one pulse of electrical energy is selectively applied to the load circuit from an electrical energy supply circuit for transforming the coils from one configuration into another. A winding quality testing circuit, such as one to perform a high potential test, is then selectively connected to the load circuit for automatically conducting the test on the inductive device while it is still arranged in the load circuit to determine the quality of the device, such as detection of winding-to-ground faults. In the event that a winding defect is detected, further transformation of the electrical coils is discontinued. This interruption permits repair, if possible, of the coil and core at an early stage in the coil transformation. On the other hand, where the quality has been found to be satisfactory, another pulse of electrical energy may be selectively applied to the inductive device if desired to effect the desired transformation, with a second winding quality test being performed on the coil thereafter by once again connecting the winding quality testing circuit to the load circuit.

3,562,903

ASSEMBLY OF TERMINALS TO BOBBINS

Willard Le Roy Busler, Howard Charles Phillips, and Milton Dean Ross, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 30, 1968, Ser. No. 725,299

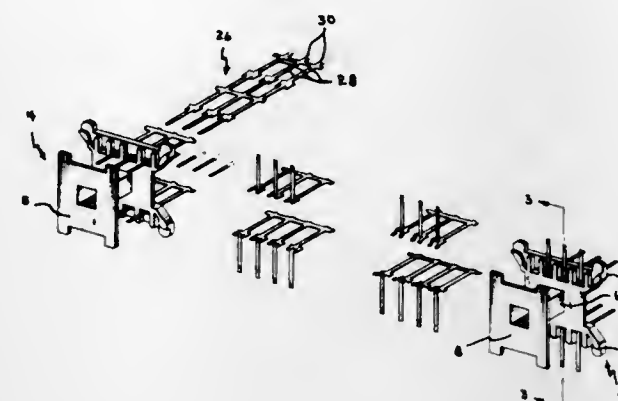
Int. Cl. H01f 7/05

U.S. Cl. 29—602

1 Claim

Elongated terminals are manufactured as a continuous strip made up of four side-by-side parallel columns of end-to-end connected terminals, these columns of terminals defining successive rows of side-by-side terminals, each row being separated from the next adjacent row by a transversely extending slug strip. A plurality of terminals are assembled to a bobbin or the like by feeding the strip until the leading ends of the leading row of terminals

extend through a flange of the bobbin. The leading row, and the slug strip integral with the trailing ends of the terminals in the leading row, is severed from the next adjacent row of terminals. This slug strip remains integral with the inserted terminals until further forming operations are carried out and functions to maintain alignment of the terminals in the bobbin during these forming op-



erations. The subsequent forming operations, in the disclosed embodiment, comprise the steps of bending the leading ends of the terminals through an angle of 90° until they lie in the plane of the flange of the bobbin. The terminals are thereafter staked to the bobbin flange and the slug strip is then severed from the trailing ends of the terminals.

3,562,904

METHOD FOR FORMING AN INSULATED ELECTRICAL CONNECTION

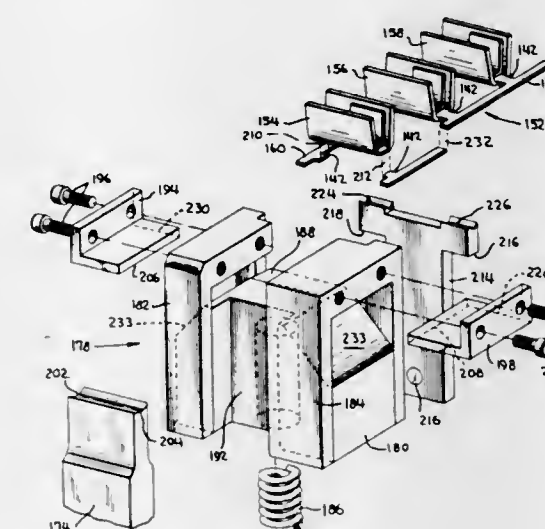
Ralph Rupp Lau, Harrisburg, Pa., and Gilbert Carl Sitz, Richardson, Tex., assignors to AMP Incorporated, Harrisburg, Pa.

Original application Sept. 23, 1965, Ser. No. 489,558, now Patent No. 3,386,153. Divided and this application Feb. 8, 1968, Ser. No. 704,048

Int. Cl. H01r 43/00

U.S. Cl. 29—628

2 Claims



An apparatus is provided for forming an insulated electrical connection. An electrical terminal having an open U-shaped ferrule-forming portion is fed to a first crimping station. The stripped end of an insulated electrical conductor is inserted into the ferrule-forming portion and the terminal is crimped to the conductor. An open U-shaped insulating member is fed to a second crimping station. The terminal and conductor previously joined are transferred to the second crimping station in

overlying relationship with the insulating member. The insulating member is then crimped around the terminal and conductor.

3,562,905

COMBINED ELECTRIC DRY SHAVER AND TRAVEL CASE

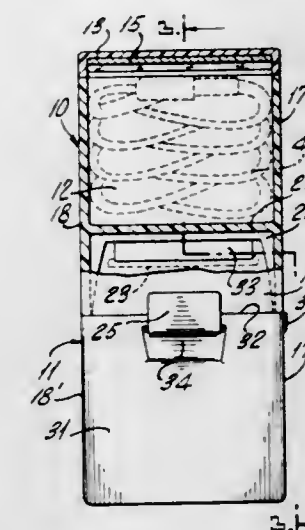
William Rakocy, Clifton, and Seymour Rappoport, Rumson, N.J., assignors to Ronson Corporation, Woodbridge, N.J., a corporation of New Jersey

Filed Sept. 12, 1968, Ser. No. 759,277

Int. Cl. B26b 19/38

U.S. Cl. 30—34

6 Claims



A compact travel case for an electric dry shaver is provided having a dual-sectioned, removably interlocked housing wherein the shaver itself serves as an integral portion of the travel case when not in use, thereby constituting one of the sections, and the other section, which protects the shaver head, is formed with a compartment to accept and store the shaver line cord. A safety tab is also provided on the travel case to lock the shaver head release mechanism while the two sections of the travel case are joined in order to prevent accidental disengagement of the shaver head assembly.

3,562,906

ANIMAL HORN CUTTING DEVICE

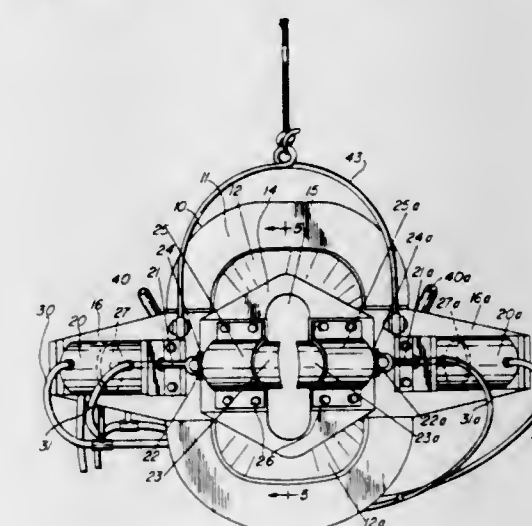
Everett Edwards and Fred R. Johnson, St. Paul, Minn., assignors to Armour and Company, Chicago, Ill., a corporation of Delaware

Filed Oct. 28, 1968, Ser. No. 771,053

Int. Cl. B26b 17/00

U.S. Cl. 30—180

18 Claims

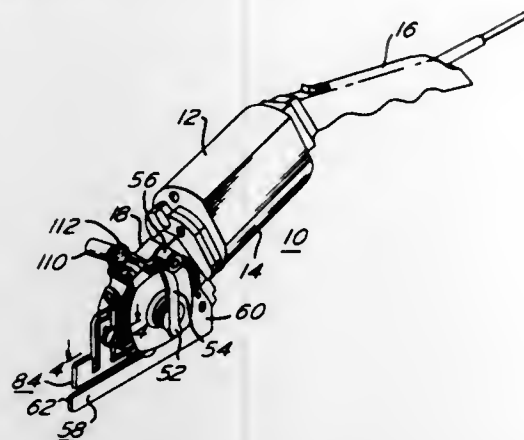


An apparatus for cutting the horns from animal carcasses. Cutting blades mounted in a frame close together in a manner to insure cutting of the horn at or below the surface of the skull.

3,562,907
CARPET CUTTING MACHINE
 Nathan Greenberg, 5016 Bingham St.,
 Philadelphia, Pa. 19120
 Filed Apr. 3, 1968, Ser. No. 718,585
 Int. Cl. B26b 15/00

U.S. Cl. 30—233

9 Claims



Carpet cutting machine comprising a motor driven rotary cutting blade, a bottom elongated member secured proximate to the cutting blade providing a stationary cutting portion and extending forwardly of the blade, and a guide element adjustably secured over the bottom member for providing a space adapted to receive carpet which is to be cut, the bottom member having narrow top linear edge for engaging the bottom of the backing of the carpeting without binding, while the guide element is of flat thin dimensions for being received between linear rows of loop pile carpeting and adjusted for slidably engaging the top of the carpet backing for guiding the machine therealong and separating the adjacent rows of loops so that same are not cut by the rotary blade of the machine.

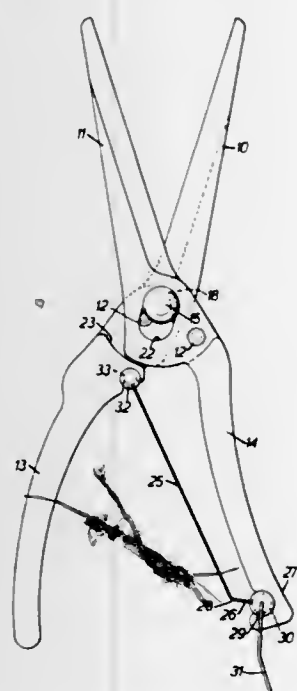
3,562,908
HAND TOOLS
 Edward A. Rogers, London, England, assignor to Wilkinson Sword Limited, London, England, a British company

Filed June 20, 1968, Ser. No. 738,484
 Claims priority, application Great Britain, June 23, 1967, 28,999/67

Int. Cl. B26b 13/16

U.S. Cl. 30—261

6 Claims



A hand tool has two cutter members connected together by a pivot assembly which can readily be rendered inoperative by lateral movement from the pivot axis and

withdrawal of the assembly from one of the members by passage of the assembly through a bore of larger diameter than that accommodating the assembly in the operative position. The pivot assembly is biased to the operative position on the pivot axis by a leaf spring having a pivot at each end, the pivots engaging in respective recesses in the handles, one recess being adjacent the pivot assembly and the other remote from the pivot assembly.

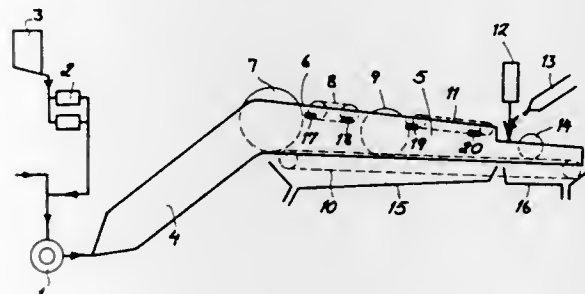
3,562,909
APPARATUS FOR THE CONTINUOUS PRODUCTION OF TELEMEA CHEESE
 Vasile Nikolic, Bucharest, Rumania, assignor to Ministerul Industriei Alimentare, Bucharest, Rumania, a corporation of Rumania
 Original application Oct. 24, 1966, Ser. No. 588,924, now Patent No. 3,518,094. Divided and this application Dec. 31, 1968, Ser. No. 810,882

Claims priority, application Rumania, Nov. 16, 1965, 50,550

Int. Cl. A01j 25/00

U.S. Cl. 31—46

4 Claims



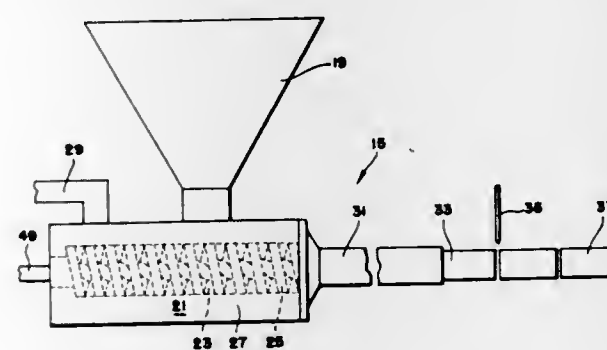
An apparatus for the continuous production of telemea cheese in which a coagulating mixture of milk and a coagulating agent is passed continuously upwardly through a coagulating duct to form a curd emerging at the upper end of the duct. The curd is then passed along a treatment path provided with cutting disks and squeezing conveyors which alternately slice through the continuous curd layer and express whey from the cut curd. After a final squeezing between conveyor belts, the cheese is cut into blocks and rinsed.

3,562,910
METHOD AND APPARATUS FOR MAKING CHEESE
 Heinz F. Runge, Niles, and Miron J. Roberts, Glenview, Ill., assignors to Kraftco Corporation, a corporation of Delaware
 Filed Oct. 17, 1968, Ser. No. 768,391

Int. Cl. A01j 25/00

U.S. Cl. 31—89

14 Claims



A method for the manufacture of cheese from cheese curd which is in particulate form. In the method, a cheese producing media such as cow's milk is treated in accordance with conventional procedures for the particular type of cheese to be produced so as to provide curd and whey. Thereafter the whey is drained from the curd

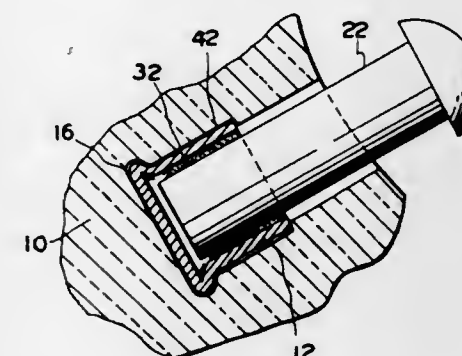
until the level of moisture in the curd is that desired in the finished cheese product. The particulate curd is then transferred to apparatus wherein the curd is transferred and formed into a cohesive curd mass without damage to the curd particle. The mass is then cut into suitable-sized pieces and wrapped or otherwise packaged.

3,562,911
METHOD AND COMPOSITION FOR PLATINUM PLATING AND ARTICLES PLATED THEREWITH
 Charles W. Walter and Frank H. Leaman, York, Pa., assignors, by mesne assignments, to Dentsply International Inc., York, Pa., a corporation of Delaware
 Original application Oct. 21, 1965, Ser. No. 499,661. Divided and this application Dec. 3, 1968, Ser. No. 810,416

Int. Cl. A61c 13/00

U.S. Cl. 32—8

6 Claims



An artificial tooth is provided comprising a porcelain body containing a noble metal or alloy pin coil plated with a continuous layer of platinum. The pin coil is plated with an electroless platinum plating solution consisting essentially of:

- (a) chloroplatinic acid;
- (b) a platinum reducing agent selected from the group consisting of hydrazine and salts of hydrazine;
- (c) hydrochloric acid;
- (d) a wetting agent; and
- (e) water.

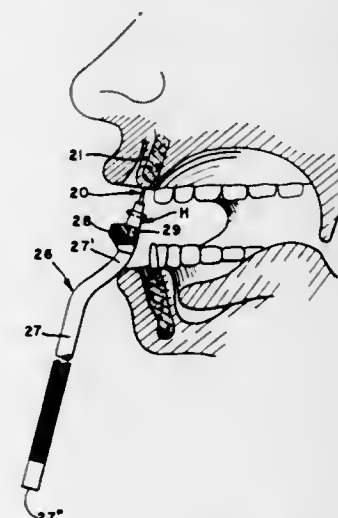
The continuous layer of platinum can approach a thickness of one mil.

3,562,912
APPLIANCE FOR INSERTING DENTAL IMPLANTS
 Alfred E. Edelman, 2723 Federal St., Camden, N.J. 08105
 Filed July 7, 1969, Ser. No. 839,377

Int. Cl. A61c 3/00

U.S. Cl. 32—40

10 Claims

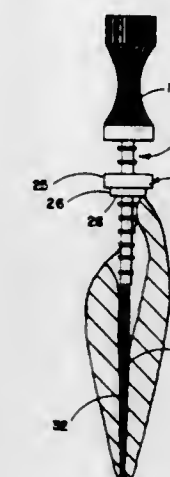


An elongated handle is provided at one end thereof with a removable head for supporting and driving a dental implant into a patient's jaw bone by impacts delivered to the handle. A variety of heads are disclosed

3,562,913
ROOT CANAL FILE
 Dennis W. Saffro, 10536 Garwood Place, West Los Angeles, Calif. 90024
 Filed Aug. 11, 1969, Ser. No. 848,835
 Int. Cl. A61c 5/02

U.S. Cl. 32—57

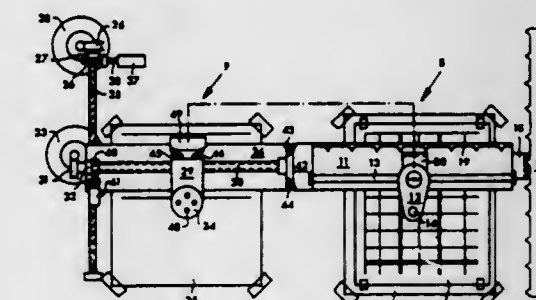
8 Claims



An endodontic instrument for treating a pulp canal, including an elongated member having a fluted cutting portion at one end, a handle at the other and an intermediate part between the cutting portion and the handle, a stop member being positionable on the intermediate portion at different longitudinal locations as established by laterally projecting ribs to adjust the effective length of the cutting portion, the stop member having two abutment surfaces, each of which may be positioned adjacent the tip of the cutting portion for varying the setting of the stop member. Alternatively, the intermediate portion of the elongated member may be threaded and the stop member in the form of a nut.

3,562,914
METHOD AND ARRANGEMENT FOR REPRODUCING LINE PATTERNS
 Hartvig Soe, Alvsjo, Sweden, assignor to Misomex Aktiebolag, Hagersten, Sweden, a corporation of Sweden
 Filed Feb. 13, 1969, Ser. No. 799,063
 Claims priority, application Sweden, Feb. 15, 1968, 1,984/68

Int. Cl. B43l 13/10



A ruling machine including a scanner which scans each single line of a rectangular pattern and a writer operatively connected to the scanner to reproduce the lines. An electronic device coordinates the scanner and the writer concerning location and length of line information. The scanner and the writer are each movable in two mutually perpendicular directions. The writer includes a

device for fixing it step-wise in both directions in exact coincidence with a predetermined imaginary square pattern. Further means lock the writer against movement in one direction during reproduction of a line in the other direction.

3,562,915

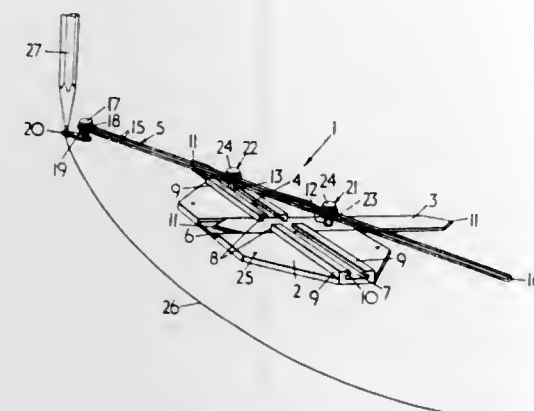
DEVICE FOR DRAWING ELLIPTICAL PATHS
George Brown, Welwyn Garden City, England, assignor to Ellipstruments Limited, Harpenden, England, a British company

Filed May 6, 1969, Ser. No. 822,278
Claims priority, application Great Britain, May 7, 1968, 21,602/68

Int. Cl. B43I 11/04

U.S. Cl. 33—31

2 Claims



An ellipse drawing instrument having two sliding members slidable longitudinally in crossing slots. The sliding members are pivotally connected to a single drawing arm, so that as said members reciprocate in their respective slots, a point on the arm describes an elliptical path.

3,562,916

RETRIEVABLE BOREHOLE EXTENSOMETER
Maynard Duckworth, Denver, Colo., assignor to the United States of America as represented by the Secretary of the Interior

Filed May 14, 1969, Ser. No. 824,642
Int. Cl. G01n 3/00; E21b 47/00

U.S. Cl. 33—125

9 Claims



Expandable mechanical anchors are linked to a sensor-head for measuring deformation of a formation surrounding a borehole. The anchors are similar in operation to scissor-type jacks, and have radially extending shoes for securing them to the wall of a borehole. The sensor-head is designed for mounting within the collar of a borehole and has a radial array of displacement sensors. When placed for operation, the anchors are mounted serially behind one another within a borehole, with an individual mechanical linkage extending from each anchor and through passages in intermediate anchors, to join with an individual displacement sensor in the sensor-head.

3,562,917

APPARATUS FOR MEASURING IRREGULAR SURFACES OF DEPOSITS OF CONCRETE BLOCKS OR RUBBLE MOUNDS

Ken Matsui, Nagoya-shi, Japan, assignor to Nippon Tetrapod Co., Ltd., Tokyo, Japan, a corporation of Japan

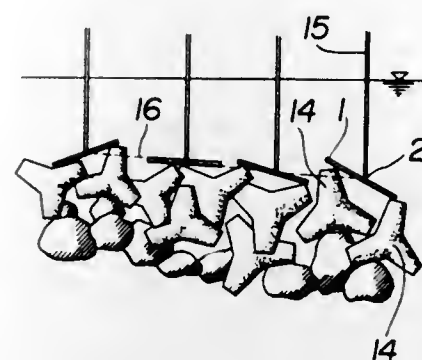
Filed June 5, 1968, Ser. No. 734,600
Int. Cl. G01b 3/00; 5/20; G01c 7/00

U.S. Cl. 33—126.5

4 Claims

Apparatus for measuring an irregular surface of a deposit is comprised by a perforated or grid shaped circular

or polygonal flat plate or frame structure with a measuring point at the center thereof and a layer of tetrapods deposited on the irregular surface, all of one size which is such that the frame member will cover at least two



of them, to obtain by sounding the layer with the frame, a reliable measurement of the general configuration or envelope of extremely irregular surfaces. The tetrapods may be incorporated in a structure which is built up on the irregular surface, as in repairing a breakwater.

3,562,918

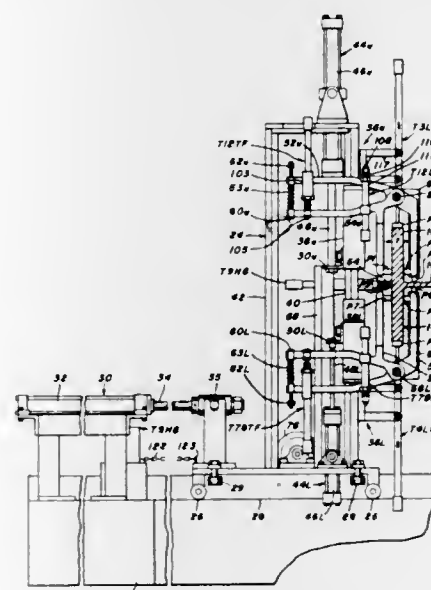
APPARATUS FOR CONTOUR MEASUREMENT OF A MEMBER

Herbert F. Ertman, Wilkins Township, Allegheny County, Pa., and Boris Phillips, Los Angeles, Calif., assignors to United States Steel Corporation, a corporation of Delaware

Filed Feb. 26, 1969, Ser. No. 802,552
Int. Cl. G01b 5/02

U.S. Cl. 33—174

16 Claims



This invention relates to apparatus for continuously determining a dimension of a member, the apparatus having a frame disposed adjacent the path of movement of the member, a carriage reciprocable on the frame toward and away from the member, drive means connected to the carriage and a sensing assembly on the carriage for continuously measuring the dimension. The sensing assembly has a movable member reciprocable on the carriage toward and away from the dimension, sensing assembly drive means connected to the movable member, a first scanning member and a second scanning member pivoted on the movable member, a first probe on the first scanning member, and a second probe on the second scanning member and biasing means connected to the

first scanning member and to the second scanning member for biasing the first probe toward the second probe. A proximity member is on the carriage for detecting the member and is connected to the drive means and the sensing assembly drive means. The proximity member is operable when it engages the member to stop the drive means and movement of the carriage toward the member and to start the sensing assembly drive means thereby causing the sensing assembly to move from an initial position toward the dimension so that the first probe and the second probe engage the member and continuously measure the dimension during movement of the sensing assembly toward the member.

3,562,919

LAYOUT TOOL

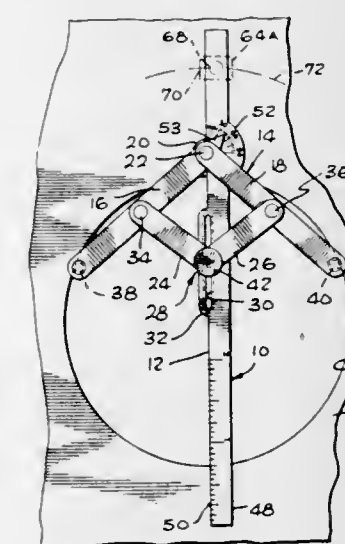
Robert G. Green, Lancaster, Calif., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Aug. 29, 1968, Ser. No. 756,266

Int. Cl. B23b 49/02

U.S. Cl. 33—189

5 Claims



A compact layout tool for machine shop use to locate a point in precise relationship to a straight or arcuate reference edge. The tool comprises a straight edge blade, and a parallelogram structure mounted on the blade. Two of the opposite corners of the parallelogram structure are held on the straight edge, one pivotally joined thereto and the other constrained to movement therealong. The other two corners lie on opposite sides of the straight edge, and a pair of pins is mounted outwardly of these corners. When the pins engage a reference edge, the straight edge blade extends perpendicular to the reference edge. The parallelogram structure can be opened for large workpieces, and can be collapsed for carrying the tool in a shirt pocket.

3,562,920

HEAT SEALING DEVICE

Ralph O. Vuilleumier, Malvern, Pa., and Giulio B. Bagnatori, Wilmington, Del., assignors to Container Corporation of America, Chicago, Ill., a corporation of Delaware

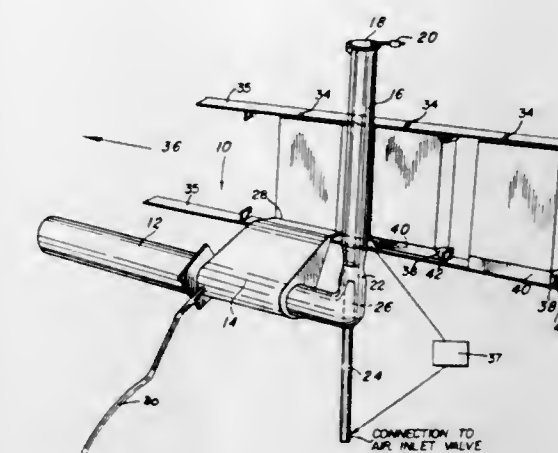
Filed Feb. 17, 1969, Ser. No. 799,825
Int. Cl. F26b 19/00

U.S. Cl. 34—48

7 Claims

In a machine for bonding selected surfaces of a container formed from paper, a device for supplying heated air against a selected surface to be bonded comprises nozzle means for directing heated air against such surface, means for supplying heated air to the nozzle means, a conduit connected at one end to the nozzle means and having a normally closed valve spaced from that end,

a conveyor for carrying the containers past said nozzle means, and means responsive to stopping the conveyor for opening the valve to divert heated air from said nozzle means.



3,562,921

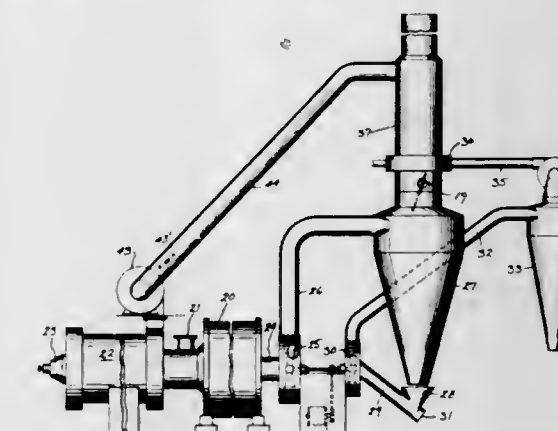
DEHYDRATOR WITH ODOR INCINERATION
Gordon J. Lindl, West Allis, Wis., assignor to Arnold Dryer Company, Milwaukee, Wis., a corporation of Wisconsin

Filed Aug. 18, 1969, Ser. No. 850,813

Int. Cl. F26b 19/00

U.S. Cl. 34—63

7 Claims



The stack from the main collector of a dehydrator is equipped with a superheating burner to which primary combustion air is furnished from the exhaust of an auxiliary collector such as the cooling collector, the hammer mill collector, or the pellet cooling collector, or combinations of said auxiliary collectors. The superheating burners are positioned to incinerate odors and particulate matter discharged from the main dryer collector and a substantial percentage of superheated gases are returned to the furnace for the main dryer.

3,562,922

CARD PROGRAMMED TEACHING MACHINE

Clarence Jack Friedman and Paul Gorman, both of 9726 Susan Road, Philadelphia, Pa. 19115

Filed July 5, 1968, Ser. No. 742,756

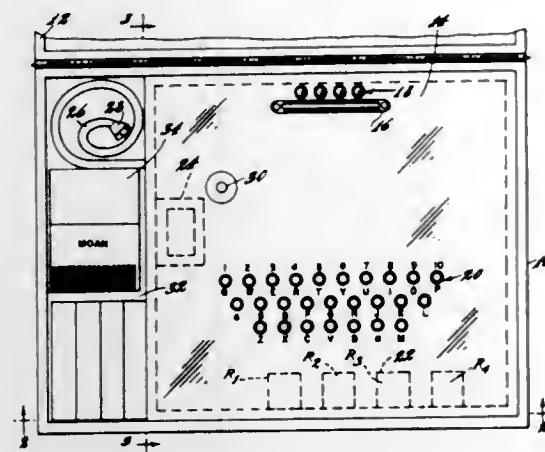
Int. Cl. G09b 7/02

U.S. Cl. 35—9

1 Claim

A card programmed teaching machine including a keyboard, circuits leading to a multipin connector socket through operative relays and programmed cards insertable within the said socket to set the entire apparatus for operation. The card determines which keys on the keyboard

will activate the relays, which in turn feed annunciator lights to indicate the correctness of a part of the total

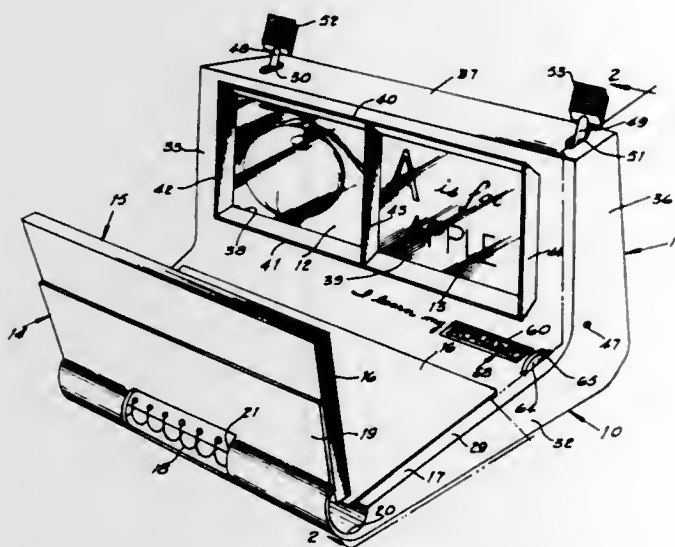


response. The relays operate in sequence with each succeeding relay controlling the operation of the following relay.

3,562,923
EDUCATIONAL AID VIEWING APPARATUS
Ruth G. Chuy and Daniel T. Chuy, both of 15447
Sorrento, Detroit, Mich. 48227
Filed Aug. 26, 1968, Ser. No. 755,062
Int. Cl. G09b 3/00

U.S. Cl. 35—9

16 Claims



An educational aid viewing apparatus for viewing flash cards provided with educational aid information or rolls of tape provided with educational aid information. The flash cards and rolls of tape have problems, questions, words and the like on the rear faces thereof, and solutions, answers, and pictures corresponding to said problems, questions, and words on the rear faces thereof in a position adjacent to the problems, questions, words and the like. The flash cards and the rolls of tapes are mounted at one end of a platform in a position spaced apart from a pair of inclined mirrors. The mirrors may each be pivotally mounted, or one mirror may be fixed and the other mirror pivotally mounted. The flash cards and the rolls of tapes are each movable from an inoperative position to an operative inclined position in front of the pair of inclined mirrors so that the problems, questions, or words are viewable in the mirrors when the mirrors are in a first position and not viewable in the mirrors when one or more of the mirrors is pivoted to an inoperative position.

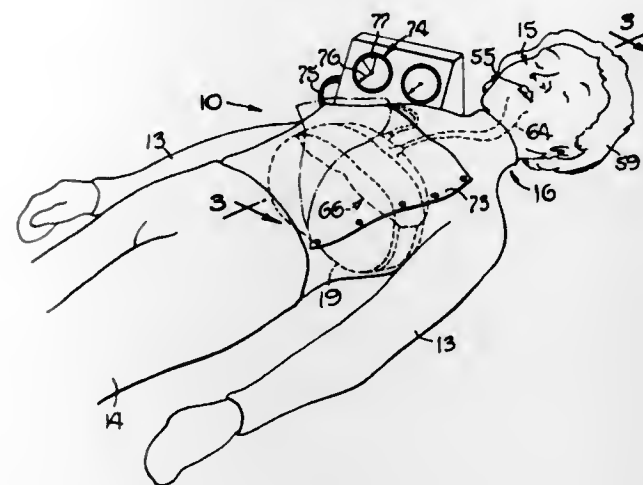
3,562,924
TRAINING MANIKIN FOR TEACHING AND PRACTICING MOUTH-TO-MOUTH RESUSCITATION

Walter P. Baermann and Vincent M. Foote, Raleigh, N.C., assignors to Medical Supply Company, Rockford, Ill., a corporation of Missouri

Filed Mar. 3, 1969, Ser. No. 803,806
Int. Cl. G09b 23/28

U.S. Cl. 35—17

12 Claims



The manikin comprises a life-like human head joined to the neck of a simulated human torso for realistic universal turning and tilting by a ball-and-socket connection, the head including a mouth which is connected by an air passage to a bag simulating a lung and adapted to be inflated when a trainee breathes into the mouth of the manikin. When the head is tilted forwardly, the air passage is pinched off and obstructed to prevent inflation of the bag such that the manikin simulates a human victim with a blocked windpipe. By lifting the neck and tilting the head rearwardly, the passage may be opened to permit inflation of the bag.

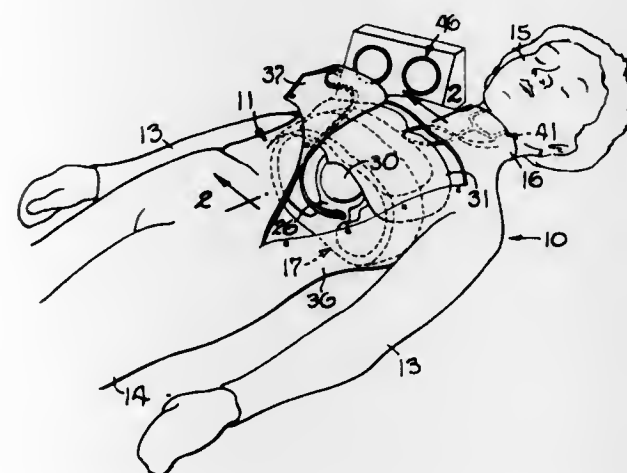
3,562,925
TRAINING MANIKIN FOR TEACHING AND PRACTICING EXTERNAL CARDIAC COMPRESSION

Walter P. Baermann and Vincent M. Foote, Raleigh, N.C., assignors to Medical Supply Company, Rockford, Ill., a corporation of Missouri

Filed Mar. 3, 1969, Ser. No. 803,608
Int. Cl. G09b 23/28

U.S. Cl. 35—17

9 Claims



The manikin comprises a simulated human torso with a chest cavity in which is located an anatomically correct

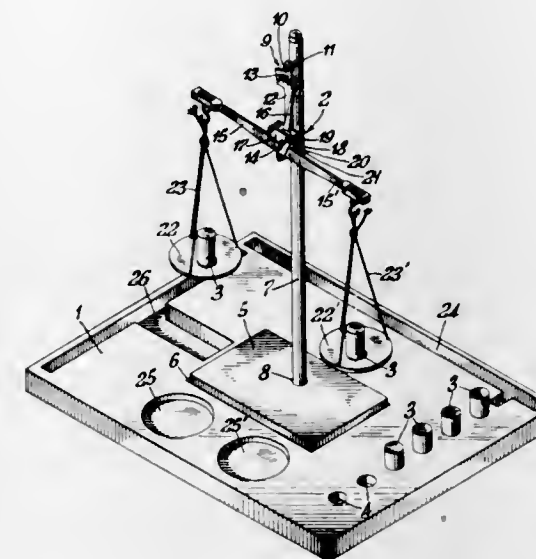
thorax unit covered by a human-shaped chest plate and adapted to be compressed externally to pump blood-like liquid from a simulated heart into a simulated circulatory system.

3,562,926
SELF-CORRECTIVE EDUCATIONAL DEVICE FOR TEACHING DENSITY

Jerry N. Koral, 34 Duke Drive, Stamford, Conn. 06905
Filed Apr. 11, 1968, Ser. No. 720,565
Int. Cl. G09b 23/06

U.S. Cl. 35—19

6 Claims



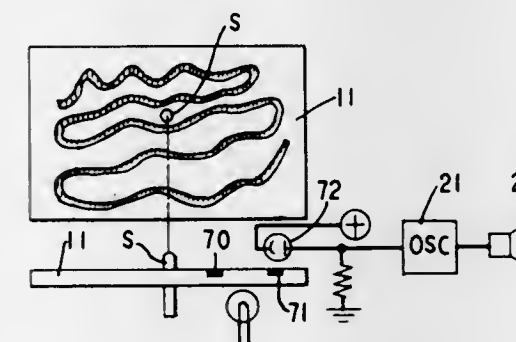
A scientific educational device for teaching preschool children the concept of density. The device consists of a balance, a set of equal sized solid objects of different density, such as equal sized bars of different metals, and a base board containing a set of spaces for the solid objects. The undersides of the objects and the spaces on the board are coded so that they will match only if the objects are placed in the spaces in the order of their densities. The coding enables the child to tell by himself whether he has correctly determined the order of the densities.

3,562,927
VISUAL EDUCATION DEVICE
William Moskowitz, Somerville, N.J., assignor to Multi-sensory Systems, Somerville, N.J., a partnership of New Jersey

Filed Oct. 30, 1967, Ser. No. 679,078
Int. Cl. G09b 19/00

U.S. Cl. 35—22

1 Claim

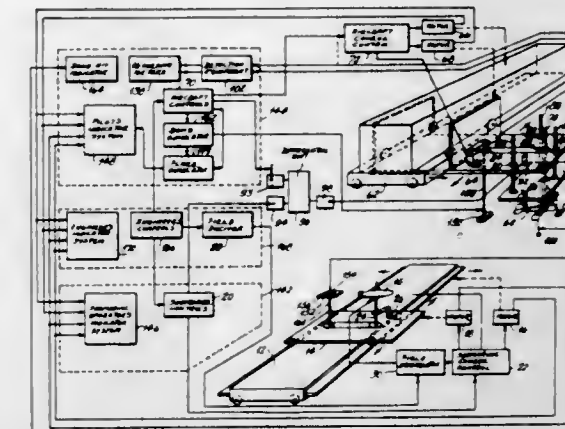


Tracks are provided in a sheet included in an audio circuit. A user employs a stylus to follow a track and the audio circuit emits a sound each time the stylus strays from the track. A plurality of embodiments are described where motion is imparted to the tracks.

3,562,928
TRAINING SYSTEM
Otto H. Schmitt, Port Washington, N.Y., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 7, 1944, Ser. No. 548,487
Int. Cl. G09b 9/00

U.S. Cl. 35—25

7 Claims

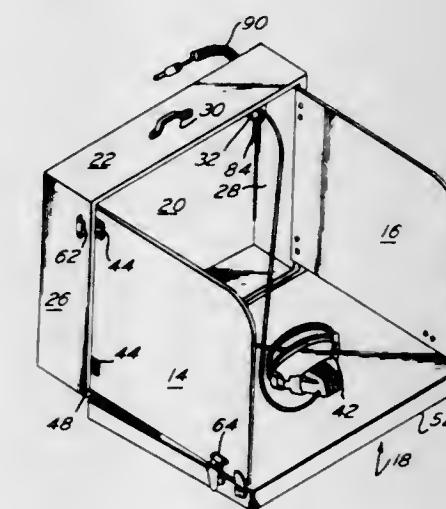


1. In a system for training military personnel in the tactical use of target detection equipment, a device simulating a miniaturized seacraft to be hunted and comprising a plurality of coils and means generating relatively discrete magnetic fields in said coils, first apparatus for mounting said device and operable to cause said device to travel about in a plane area of limited size, means simulating a miniaturized attacking aircraft and comprising pickup coils influenced by said magnetic fields, second apparatus for mounting said means adjacent said first apparatus and operable to cause said means to travel about in a zone substantially parallel to said plane area, two sets of independently operable control mechanisms for selectively operating said first and second apparatus, and electrical means associated with said pickup coils to indicate the position of said pickup coils within said zone.

3,562,929
ISOLATION BOOTH
John H. Emore, Jr., 101 Church St., Ambler, Pa. 19002
Filed July 25, 1968, Ser. No. 747,641
Int. Cl. A47b 41/00

U.S. Cl. 35—60

3 Claims



An isolation booth usable in the teaching arts comprising a rear section and a pair of side panels pivotable into the rear section for storage. A desk panel is pivotable up against the rear section. The desk panel and side partitions are pivotable outwardly and secured in place to form a carrell or isolation booth. The entire structure is portable.

3,562,930

FOOTWEAR

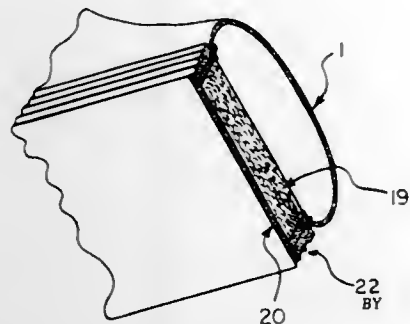
Curt E. Kaufman, Waynesville, N.C., assignor to Research Incorporated, Waynesville, N.C., a corporation of North Carolina

Original application Jan. 14, 1966, Ser. No. 521,247, now Patent No. 3,473,178, dated Oct. 21, 1969. Divided and this application Jan. 27, 1969, Ser. No. 794,333

Int. Cl. A43b 00/00

U.S. Cl. 36—2.5

1 Claim



Footwear such as shoes with an upper of leather or similar material and a sole of porous elastomer has according to the invention a welt of highly compressible elastomeric material stitched to the lower margin of the upper and a sole of preferably the same porous elastomer is secured to the welt and upper. A thin tread sole of non-porous material might cover the outside of the sole. Preferably, the welt surrounds the sole and the latter is secured both to the welt and to the tread sole.

3,562,931

SHOE UPPER

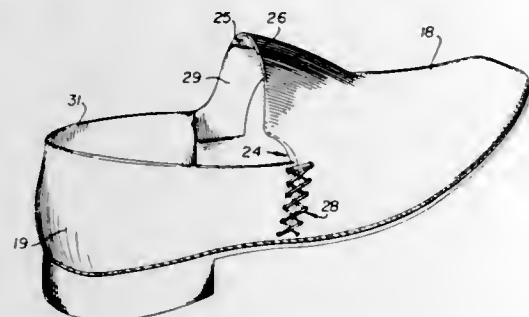
Kyriakos Karygiannis, 463 Grace St., Toronto, Ontario, Canada

Filed Apr. 22, 1969, Ser. No. 818,243

Int. Cl. A43b 23/02

U.S. Cl. 36—45

4 Claims



A shoe upper is formed from a one or two piece blank and the rear portion thereof is formed from leather doubled over upon itself to present a fold along the edge of the foot-receiving opening of the shoe upper.

3,562,932

SNOW BLOWER ATTACHMENT FOR ROTARY LAWN MOWERS

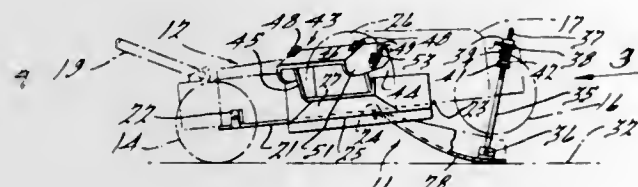
Charles E. Raulo, 14122 Rockland, Detroit, Mich. 48239

Filed May 8, 1968, Ser. No. 727,622

Int. Cl. E01h 5/09

U.S. Cl. 37—43

5 Claims



A snow blower attachment adapted to convert a conventional, rotary type lawn mower into a snow blower.

The attachment effects this conversion without necessitating removal of the conventional grass cutting blade and is adapted to a wide variety of mowers.

3,562,933

ROTARY SNOW REMOVING MACHINE

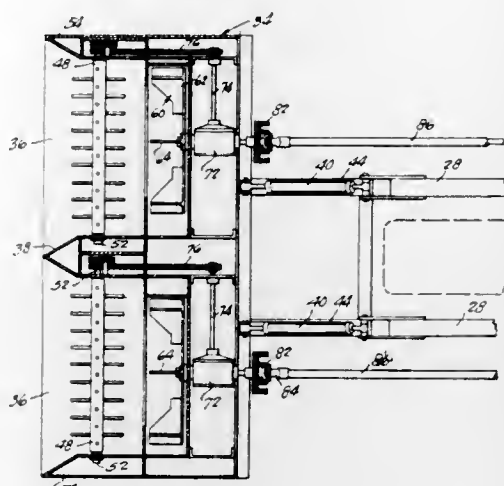
Elvin E. Hanneman and Ervin F. Hanneman, both of Rte. 3, Cresco, Iowa 52136

Filed Oct. 4, 1968, Ser. No. 765,045

Int. Cl. E01h 5/09

U.S. Cl. 37—43

3 Claims



A snow removing apparatus comprising a casing with a lower horizontally extending agitator means and an upper horizontally extending agitator means for biting and cutting into the snow. Blower means are provided for discharging the snow after the agitator means has cut into it. The blower means and the agitator means are provided with shaft drive means extending alongside of opposite sides of a propelling vehicle. The propelling vehicle is provided with a take-off drive means adjacent the rear portion thereof for connecting to the shaft means. The apparatus also is provided with means for attaching it to a tractor or other propelling vehicle and is further provided with hydraulic means for raising and lowering the casing means and the blower and agitator means disposed within the casing so as to cut into banks of snow of varying heights.

3,562,934

IRONING BOARD COVER

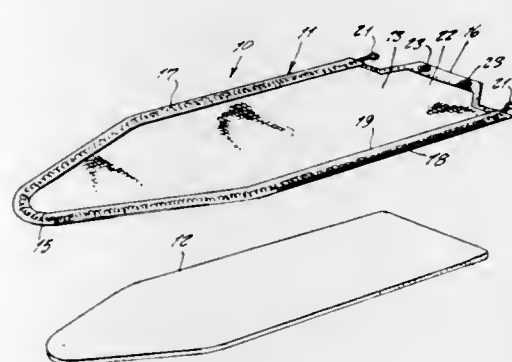
Opal C. Cogar, 10408 Briggs Road, Cleveland, Ohio 44111

Filed July 10, 1969, Ser. No. 840,697

Int. Cl. D06f 81/14, 83/00

U.S. Cl. 38—140

3 Claims



An ironing board cover with side edges, a tapered end and an opposite butt-shaped end; a peripheral pocket along the tapered and side edges terminating at the butt end, a coil spring member within the pocket with its ends extensible from the ends of the pocket, the butt end of

the cover having a tab adapted to be folded under the ironing board, and securement means in the tab and at the ends of the spring adapted for attachment to the underside of the ironing board at the butt end inwardly of the edges thereof, whereby the butt end of the cover is fixedly held to the board and the tapered and side edges of the cover are drawn under the board and resiliently held by the tension in the spring.

members relative to a large display member in response to the oscillatory or rotary input, so as to alternately cover and uncover part or all of the display material on the large member.

3,562,935

DISPLAY DEVICES

Victor M. Collins, Waygill, Burtons Lane, Chalfont St. Giles, Bucks, England, and James K. Smith, 9 Gloucester Close, Rainham, Kent, England

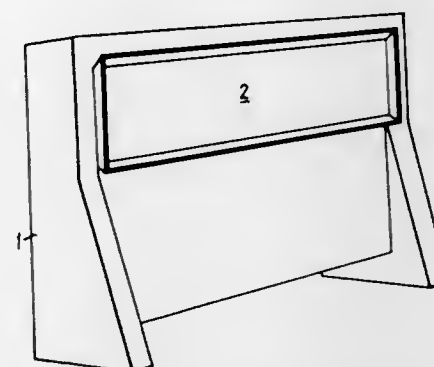
Filed May 20, 1968, Ser. No. 730,549

Claims priority, application Great Britain, May 24, 1967, 24,247/67; Oct. 24, 1967, 48,348/67

Int. Cl. G09f 11/00

U.S. Cl. 40—53

12 Claims



This invention relates to a display device for selectively displaying advertisements or other information in accordance with a predetermined programme and which changes the display material after specific time periods. The device comprises a plurality of display members for carrying the matter to be displayed, transport means for moving any of the display members to and from a display position and preselector means determining the order in which the display members are moved into the display position.

3,562,936

DISPLAY DEVICE

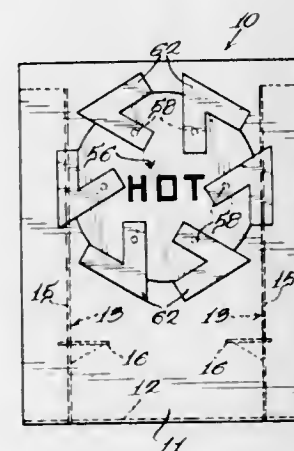
Alois F. Schoenung, Naperville, Ill., assignor to Rapid Mounting and Finishing Company, a corporation of Illinois

Filed May 3, 1968, Ser. No. 726,418

Int. Cl. C09f 11/00

U.S. Cl. 40—61

14 Claims



An animated display device in which a plurality of movable small display members are mounted on an oscillating or revolving support; and wherein a single actuating member synchronously moves all of the small display

3,562,937

INVENTORY CONTROL APPARATUS

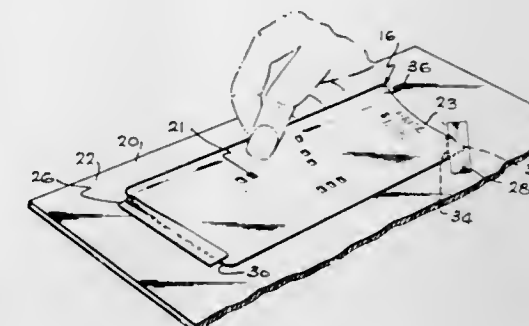
Herbert N. Sandel, Los Angeles, Calif., assignor to Rapid Merchandising Company, Incorporated, Minneapolis, Minn.

Filed Sept. 23, 1968, Ser. No. 761,440

Int. Cl. G09f 3/18

U.S. Cl. 40—10

5 Claims



Apparatus for facilitating inventory control of record albums by attaching an "IBM" card in a manner resisting accidental removal but enabling clean intentional removal. The apparatus comprises a pair of tape strips, one with light tack adhesive that fastens one end of the card to the album cover, and the other of high tack adhesive that permanently fastens an opposite corner of the card to the album cover. The IBM card has a perforation along the permanently fastened corner to enable the card to be neatly torn away.

3,562,938

INFORMATION DISPLAY DEVICES

Hassan Paddy Abdel Salam, London, England, assignor to Universal Telewriters (Pty.) Ltd., Durban, East Natal, Republic of South Africa, a company of South Africa

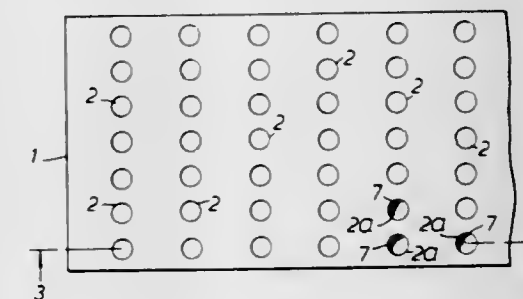
Filed Sept. 16, 1968, Ser. No. 762,195

Claims priority, application Great Britain, Sept. 27, 1967, 43,992/67

Int. Cl. G09f 11/00

U.S. Cl. 40—28

9 Claims



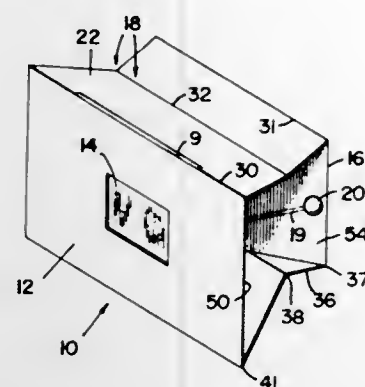
Information display apparatus includes an opaque member with a matrix of transparent areas. An individual shutter associated with each aperture is movable between two stable positions in which it respectively exposes and occults that aperture. The shutter is moved by electrical means which applies directly to the shutter forces moving it from one to the other of the stable positions. These forces may be electrostatic or electromagnetic.

3,562,939 VIEWER

Justin M. Jacobs, Jr., and Kellogg D. Fleming, San Francisco, Calif., assignors, by direct and mesne assignments, to Justin M. Jacobs, Jr., San Francisco, Calif.
Filed July 18, 1968, Ser. No. 745,737
Int. Cl. G09f 11/30

U.S. Cl. 40—63

12 Claims



A collapsible viewer, the view chamber of which is substantially made from a single piece of material. The viewer has resilient means to selectively assist in maintaining the viewer extended in operating position or collapsed in storage position.

3,562,940 CALCULATOR

Capron R. Gulbransen, Sr., Wilmette, and Jerre G. Kneip, Barrington, Ill., assignors to Graphic Calculator Company, Barrington, Ill., a corporation of Illinois
Filed Sept. 23, 1968, Ser. No. 761,714
Int. Cl. G09f 11/30

U.S. Cl. 40—65

9 Claims



The essential concept of this invention involves thin, flexible, planar, scored material folded to form a series of superimposed, hinged, open-end pockets each slidably embracing a comparable thin, flexible, planar strip, the exposed portions of which respective pocket and strip parts have printed thereon related indicia and data whereby the shifting of the strips in the pockets juxtaposes the indicia and data so as to permit determining a variety of desired factors.

3,562,941 LENTICULATED DISPLAY DEVICE

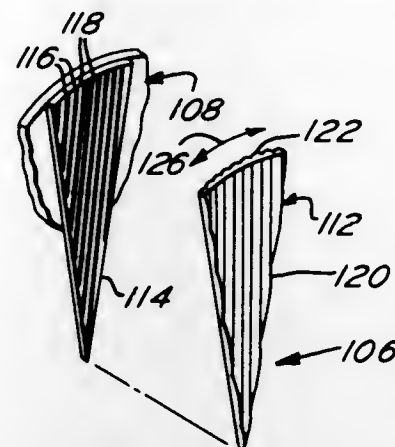
Edward Boden, Philadelphia, Pa., assignor to Daylight Animation, Inc., Philadelphia, Pa., a corporation of Pennsylvania
Filed July 25, 1968, Ser. No. 747,515
Int. Cl. G09f 13/36

U.S. Cl. 40—106.53

4 Claims

A decalcomania for use with a lenticular sheet in an optically changeable display device comprising a carrier sheet and artwork positioned thereon. Said artwork comprises a plurality of sets of equally spaced parallel lines. Each set of parallel lines will depict a different configura-

tion when positioned behind a lenticular sheet. The carrier sheet for the artwork includes means for securement

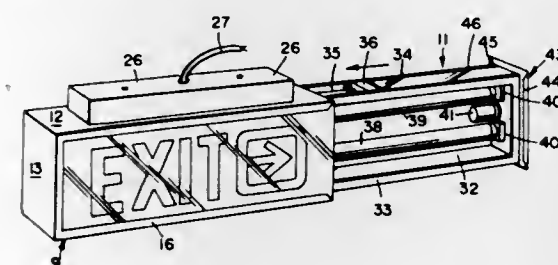


of the sheet and its associated artwork onto a rigid supporting sheet.

3,562,942 DISPLAY SIGN

U.S. Cl. 40—132

4 Claims

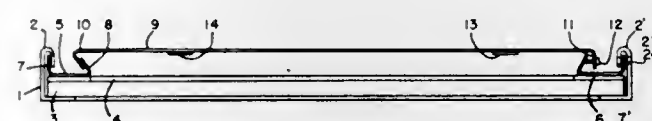


A sign includes a box-shaped housing including an integral cabinet having at least one side providing a window for displaying indicia. The cabinet provides a top, bottom and one side of the housing together with a frame for the window. The cabinet also defines one open side to receive a chassis on which is mounted a source of light to illuminate the sign. An electrical receptacle is mounted on the interior of the cabinet; and a mating plug is mounted on the chassis so that the plug disconnects from the receptacle when the chassis is removed from the cabinet. Electrical power is fed to the receptacle and thence to the plug. Wires are routed through a raceway provided in the periphery of the chassis to couple to sockets mounted on opposing sides of the chassis and which receive the fluorescent tubes. A display subassembly is received in a channel in the cabinet adjacent the window; and it includes a faceplate and a diffusion plate behind it. An indicia-bearing member and a color-providing film, if any, are interposed between the faceplate and the diffusion plate.

3,562,943 MIRROR FRAME AND MOUNTING

U.S. Cl. 40—152.1

3 Claims



Simple folded metal parts are assembled into improved mirror frame and mounting.

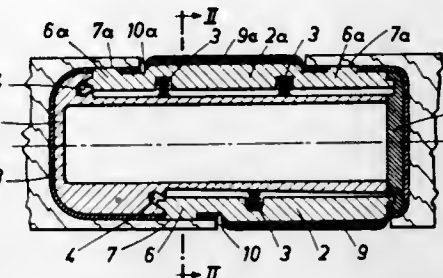
3,562,944 RIFLE WITH DETACHABLE MAGAZINE AND LATCH THEREFOR

Karl Wagner and Horst Wesp, Steyr, Austria, assignors to Steyr-Daimler-Puch Aktiengesellschaft, Vienna, Austria

Filed Mar. 4, 1969, Ser. No. 804,116
Claims priority, application Austria, Apr. 3, 1968, 3,220
Int. Cl. F41c 25/00, 25/02, 25/10

U.S. Cl. 42—6

6 Claims



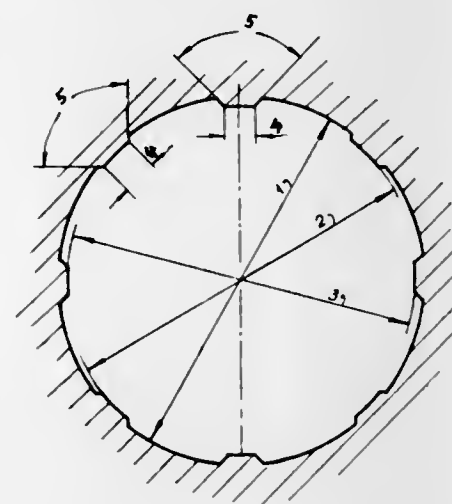
A stock of a rifle has opposite side walls defining a magazine chamber, which is open at one end. Each of said side walls is formed with an aperture and with a recess which is open to said chamber. A detachable magazine is contained in said chamber and has two longitudinal sides, each of which is provided with a nose, which is spring-urged in an outward direction and engaged with one of said recesses. Each of said longitudinal sides is also provided with a grip ledge, which is spring-urged outwardly and protrudes outwardly from said stock through one of said apertures. Said noses are arranged to disengage said recesses when said grip ledges are depressed into said stock.

3,562,945 GUN BARREL WITH STEPPED RIFLING

Leo David Mikola, Lopentie 10, Riihimäki, Finland
Filed Oct. 14, 1968, Ser. No. 767,225
Claims priority, application Finland, Oct. 17, 1967, 2,778/67
Int. Cl. F41c 21/00

U.S. Cl. 42—78

5 Claims



A gun barrel with rifling of at least two different depths which results in a more effective sealing of the propellant gases behind the projectile to impart a greater driving force to the latter, and which also prevents the escape of the hot gases past the projectile which causes the erosion of the barrel with a consequent loss in accuracy, as well as a reduction in the effective service life thereof. The

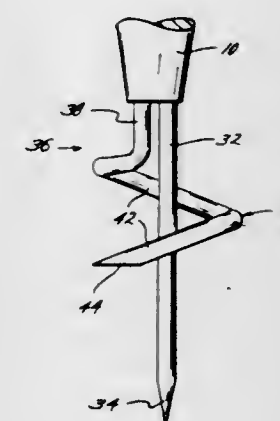
different heights of the lands alternating with the grooves may be obtained in several ways, for example, by forming the barrel of uniform diameter, with the diameters of the land surfaces being different; by the diameter of the land surfaces being uniform with the diameters of the grooves in the barrel varying, or both the diameter of the land surfaces and that of the grooves not being constant.

3,562,946 BARBLESS FISHING SPEAR

Bob J. Spann, Suite 900, Wilson Bldg., Corpus Christi, Tex. 78401
Division of application Ser. No. 814,234, Apr. 4, 1969, now Patent No. 3,482,349, which is a continuation of application Ser. No. 620,817, Mar. 6, 1967, which in turn is a continuation-in-part of application Ser. No. 421,734, Dec. 28, 1964. This application June 24, 1969, Ser. No. 858,219

U.S. Cl. 43—6

4 Claims



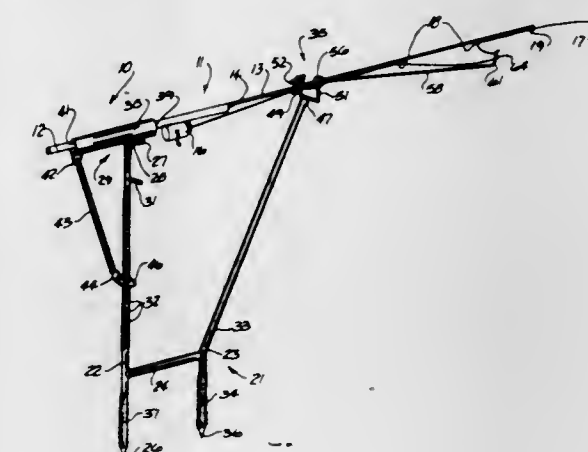
A fishing spear has a first impaling tine joined to one end of an elongated handle. The first tine has a helical portion terminating in a pointed tip. A second tine is essentially straight and extends from the handle through the helical portion of the first tine where it terminates in a pointed tip.

3,562,947 FISHING POLE SUPPORT AND HOOK-SETTING APPARATUS

Johny O. W. Martin, R.F.D. 2, Juniata, Nebr. 68955
Filed Dec. 3, 1968, Ser. No. 780,642
Int. Cl. A01k 97/00, 97/12

U.S. Cl. 43—15

7 Claims



A hook-setting apparatus for use with a conventional fishing pole including a fishing pole holder pivotally mounted to a support frame and operable to swing the holder and attached fishing pole in a vertical plane. A

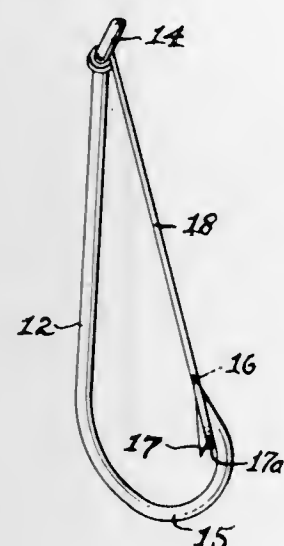
spring is connected at one end to the holder and adjustably mounted on the other end to the support frame to bias the holder to a vertical position. An enclosure frame having a pivotable constraining bar is positioned forward of the holder on the support frame to hold the pole in a horizontal position. The bar is held in constraining position by an activating lever pivoted on the enclosure frame. The fishing line is engaged with the lever and when a fish pulls on the line the lever is disengaged from the constraining bar and the pole is swung to a vertical position by the spring to set the hook in the mouth of the fish.

3,562,948 WEEDLESS FISH HOOK

Mona Santo and Michael W. Santo III, both of
47 Lake Drive, Roosevelt, N.J. 08555
Filed July 12, 1968, Ser. No. 744,589
Int. Cl. A01k 83/00

U.S. Cl. 43—43.4

13 Claims



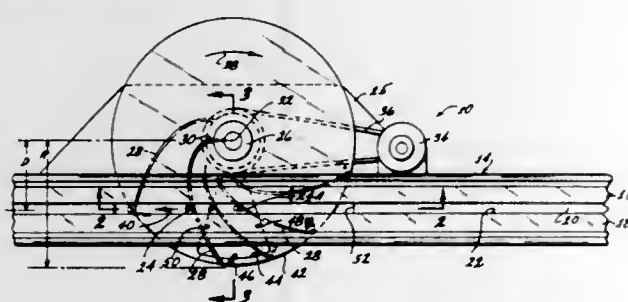
A fish hook having the point shielded by a resilient guard member looped over the barb at the pointed end of the hook, and extended to and looped through the hook eye or over a barb adjacent the hook eye to preclude snagging of the hook when drawn through weeds and the like.

3,562,949 TOY VEHICLE AND APPARATUS FOR MOVING THE VEHICLE-IV

Janos Beny, Manhattan Beach, Thomas E. See, Huntington Beach, and Arthur S. Woodward, Sylmar, Calif.,
assignors to Mattel, Inc., Hawthorne, Calif.
Filed Dec. 5, 1968, Ser. No. 781,374
Int. Cl. A63h 17/00

U.S. Cl. 46—206

3 Claims



Toy vehicle and apparatus for propelling the unpowered vehicle so it can then coast around a track, comprising a track section with a slot therein and a rotating spiral member for sweeping along the slot at every revolution. The vehicle has a projection that enters the slot so the spiral member can engage the vehicle to propel it.

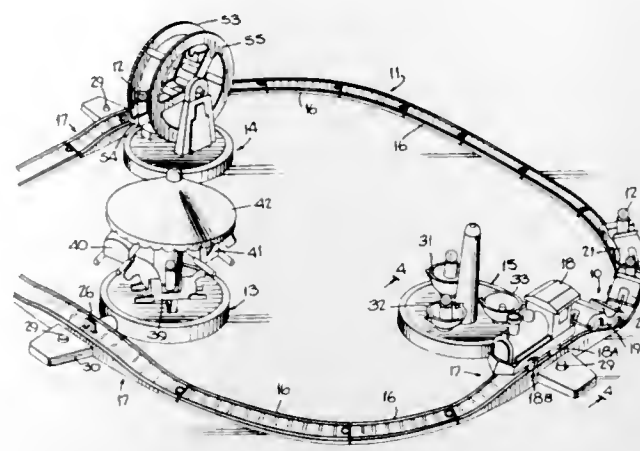
3,562,950 TRACK, TRAIN AND AMUSEMENT ACCESSORY MEANS DRIVEN BY SAID TRAIN

Robert Genin, Scarsdale, N.Y., assignor to Child Guidance Toys Inc., Bronx, N.Y., a corporation of New York

Filed Apr. 28, 1967, Ser. No. 634,693
Int. Cl. A63h 33/26, 21/00

U.S. Cl. 46—243

8 Claims



An amusement park complex in which toy dolls are conveyed as passengers on a railroad train to a series of stations along the trackway, the train being caused to stop automatically at each station to permit the transfer of passengers to a ferris wheel or other amusement device located at the station, which amusement device is driven through a transmission coupling by the engine of the train whose wheels continue to turn even though movement of the train is arrested.

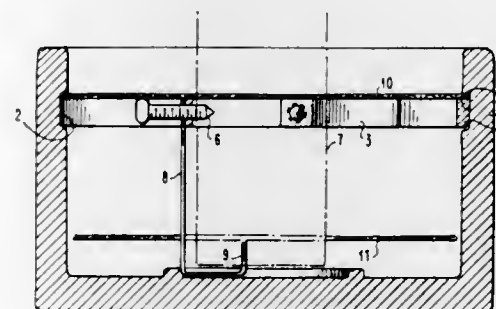
3,562,951 CHRISTMAS TREE STAND WITH WATER CONTAINER

Kurt Schwaderlapp, Baumbach, Westerwald, and Anton Schoplocher, Ransbach-Baumbach, Germany, assignors to Jasba-Keramikkfabriken, Jakob Schwaderlapp K.G., Baumbach, Germany, a corporation of Germany

Filed Mar. 14, 1969, Ser. No. 807,182
Claims priority, application Germany, Mar. 15, 1968,
P 17 53 127.0

U.S. Cl. 47—41.11

9 Claims



Christmas tree stand and water container includes upper insert means for holding a tree, the upper insert means being disposed in the water container and including locking means at the wall of the container, a springy wave-shaped band disposed about the inner periphery of the container wall and formed with radially inwardly directed bows having threaded openings substantially at the apices thereof, and holding screws threaded in the openings and tightenable against a tree inserted therebetween.

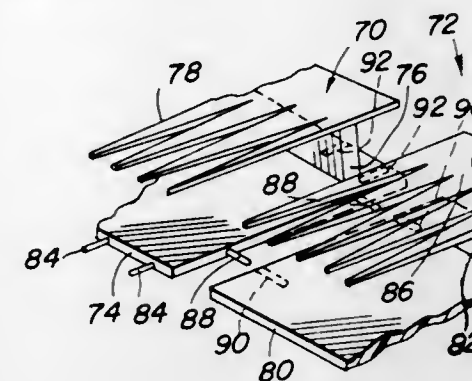
the band being formed with radially outwardly directed bows cooperably engaging the locking means for locking the band in the container when the holding screws are tightened against a tree.

3,562,952 PLANT ANCHOR

Pietro O. Bramante, 1112 Wenonah Ave.,
Oak Park, Ill. 60304
Filed July 22, 1968, Ser. No. 746,377
Int. Cl. A01k 64/00; A47g 7/07

U.S. Cl. 47—44

5 Claims



A device which facilitates the planting of plants in aquariums and the like includes a plant holder comprising a plurality of generally horizontal members interconnected at one end, with the other end thereof being open so as to define a plurality of stem retaining slots; and means, such as a relatively wide, generally flat base designed for positioning on the aquarium bottom and an upwardly projecting riser member, for positioning the plant holder in a generally horizontal plane parallel to but spaced apart from the aquarium bottom. Plant stems may be securely placed in the stem retaining slots, and the entire device covered with a layer of gravel so that only the plant stems remain visible.

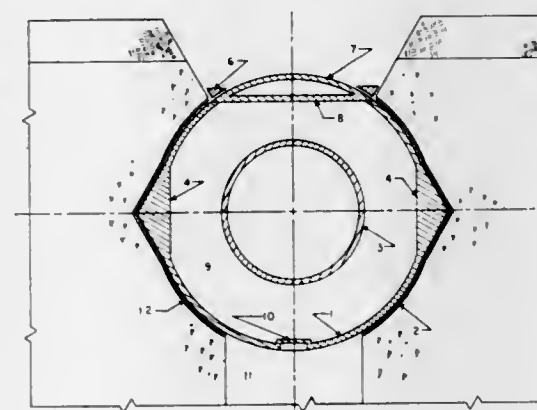
3,562,953 HARDENED CLOSURE-SYSTEM FOR UNDERGROUND STRUCTURES

Donald I. Prickett, 2600 Pajarito Road SW. 87105;
James T. Posey, 714 Parkland Circle SE. 87108; Wil-
liam H. Stephens, 4901 Sunningdale NE. 87110; and
Fred A. Gross, Jr., 2916 Chama NE. 87110, all of
Albuquerque, N. Mex.

Filed Feb. 5, 1968, Ser. No. 703,169
Int. Cl. E06b 3/34

U.S. Cl. 49—40

1 Claim



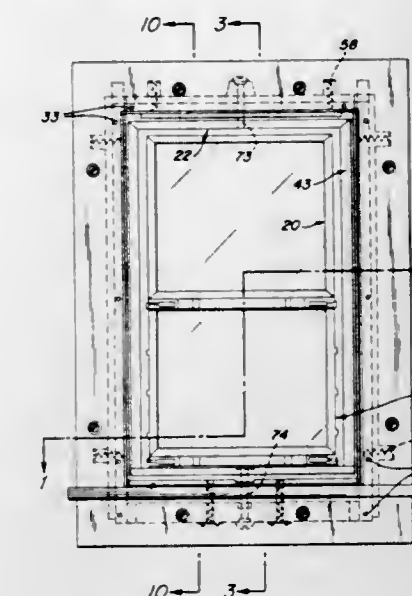
This invention relates to a rotating spherical shell door for hardened underground structures. It provides for debris removal by explosive propulsion of a cap on the sphere and collection of any debris fall back inside the shell. The shell can then be rotated for egress or ingress through a cylinder in the spherical structure.

3,562,954 PIVOTALLY SUPPORTED WINDOWS

John B. Duguay, 37 Garand St.,
Waterville, Maine 04901
Filed Aug. 21, 1968, Ser. No. 734,394
Int. Cl. E06b 7/20

U.S. Cl. 49—318

5 Claims



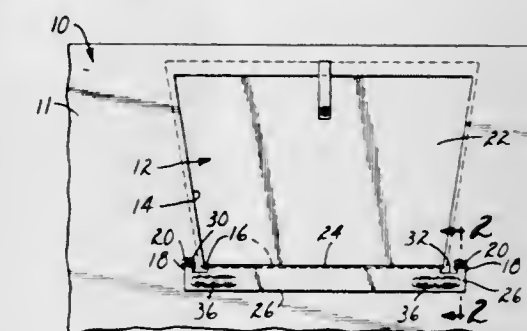
Windows are disclosed that are pivotally supported by casing structure so that they may be swung to bring their outer faces into a position wherein they may be serviced from within the building with releasable means holding the windows against being so turned.

3,562,955 HINGED CLOSURE ASSEMBLY

Jack P. Blomgren, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed May 1, 1969, Ser. No. 820,916
Int. Cl. E05d 7/00

U.S. Cl. 49—397

2 Claims



A hinged closure assembly in which a door is formed with a body portion extending along one face of a wall panel and covering an opening therein, a linking segment extending through the wall opening, and a retaining segment extending along the opposed face of the wall panel to both sides of the opening to cooperate with dimples protruding from the opposed face of the wall panel to retain the linking segment of the door in position on the wall panel as the door is opened to expose the wall opening.

3,562,956 SLIDING DOOR FRAME

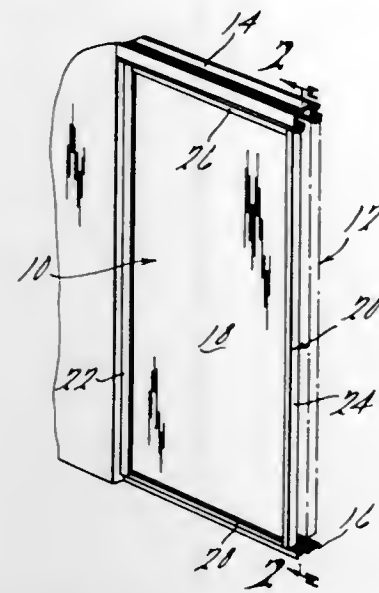
Leonard E. Johnson, Jr., 7 Susquehanna,
Elkhart, Ind. 46514
Filed Nov. 19, 1969, Ser. No. 878,152
Int. Cl. E05d 13/02

U.S. Cl. 49—411

3 Claims

A sliding door frame having open, rectangular cross section stiles and rails for resiliently holding a door panel

in place in the frame and brackets with spaced channel portions disposed within the stiles and rails which together



with corner hanger and guide plates secure the stiles to the rails.

3,562,957

CLOSURE SEALING APPARATUS

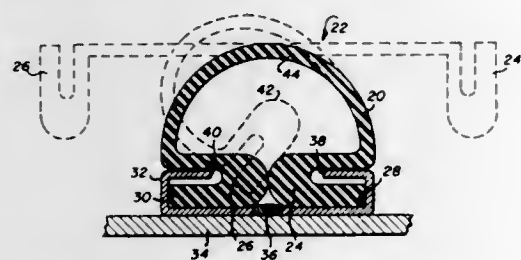
Robert L. Landis, Los Altos Hills, Calif., assignor to The Landis Sales Company, Los Altos Hills, Calif., a corporation of California

Filed Feb. 26, 1969, Ser. No. 802,401

Int. Cl. E06b 7/16

U.S. Cl. 49—493

5 Claims



A closure sealing apparatus comprised of a mounting bracket which is generally C-shaped in cross section and a flexible gasket member formed from a strip of flexible resilient material having U-shaped edges turned normal to the plane of said strip. The strip is rolled about its longitudinal axis and inserted into said bracket by causing one U-shaped edge at a time to engage the respective lips of said bracket.

3,562,958

MACHINE FOR MAKING CUTTING BLADES

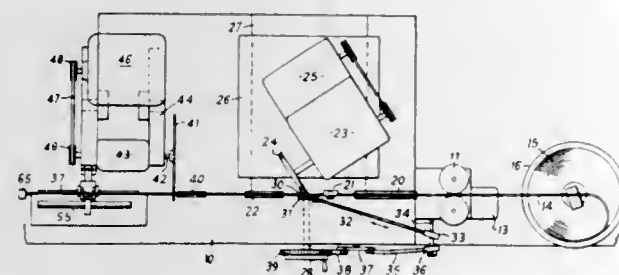
Francis William Martin and Frederick Charles Wilcox, Andover, England, assignors to AMF Incorporated, New York, N.Y., a corporation of New Jersey

Filed Feb. 4, 1969, Ser. No. 796,515

Int. Cl. B24b 7/00, 9/00

U.S. Cl. 51—3

16 Claims



A machine having a first grinding wheel for providing a cutting edge on strip steel and a second grinding wheel for parting off a predetermined length of strip having said cutting edge.

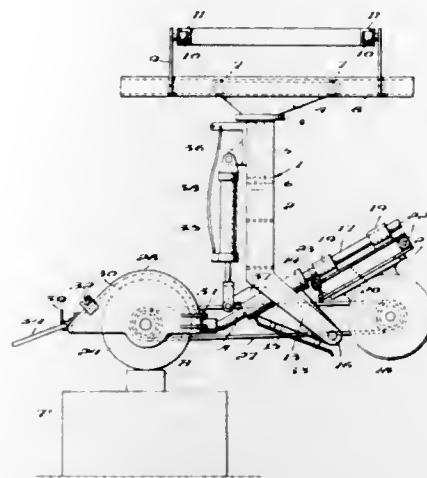
3,562,959
MANUAL SNAGGING GRINDERS
Peter C. Dooley, Jr., Lewiston, N.Y., assignor to The Carborundum Company, Niagara Falls, N.Y., a corporation of Delaware

Filed Nov. 20, 1968, Ser. No. 777,319

Int. Cl. B24b 7/00

U.S. Cl. 51—47

10 Claims



A manual snagging grinder suspended in a position to locate the wheel over the work, such as a billet, and to remove surface material therefrom. The grinding wheel is supported on a frame for vertical swinging motion and for horizontal rocking motion. The vertical motion is controlled by power means, such as a pneumatic cylinder. The rocking motion is on an axis substantially through the point of contact of the grinding wheel with the work.

3,562,960

APPARATUS FOR THE GRINDING, HONING AND ABRASIVE FINISHING OF ANNULAR WORKPIECES, ESPECIALLY BEARING RINGS

Ernst Thielenhaus, Wuppertal-Elberfeld, Germany, assignor to Maschinenfabrik Ernst Thielenhaus, Wuppertal-Barmen, Germany, a corporation of Germany

Continuation-in-part of application Ser. No. 810,529,

Mar. 26, 1969, This application June 4, 1969, Ser. No. 830,264

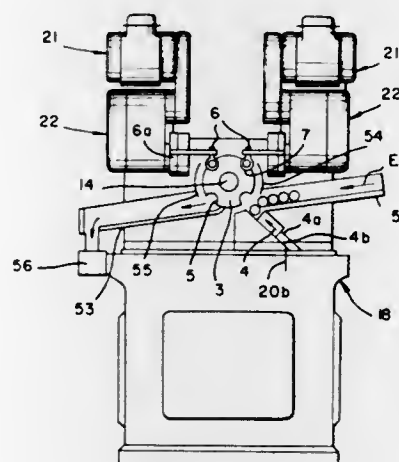
Claims priority, application Germany, June 8, 1968,

P 17 52 064.1

Int. Cl. B24b 7/00

U.S. Cl. 51—58

10 Claims



An apparatus for the grinding, honing or abrasive finishing of bearing rings in which a turret or magazine is provided with a plurality of angularly equispaced outwardly open pockets. The workpieces are fed to the pockets in succession and are swung by the turret disk into

at least two working positions before being released at a discharge station. Each of the working stations includes a drive spindle adapted to bear against one face of the workpiece while the other face thereof is engaged by a freely rotating sleeve combined with a fluid-centering arrangement which is axially thrust into the interior of the ring-shaped body. A shaping tool engages the outer periphery of the ring.

drum so that a flow in the form of the figure 8 may be given to abrasives and objects to be ground contained in said container.

3,562,963

OPTICAL LENSE GRINDING MACHINES

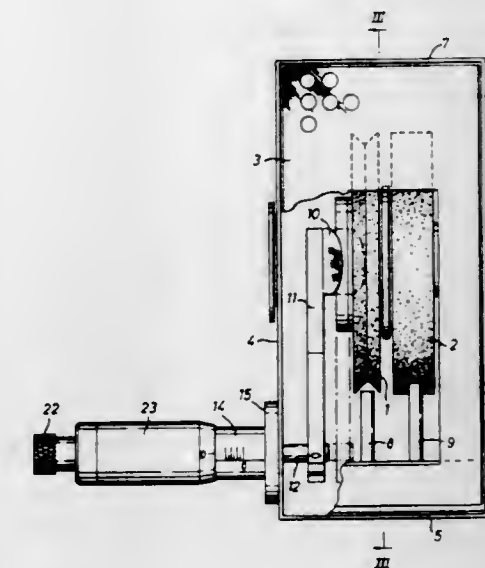
Stanley Wigglesworth, "The Firs," Spellowgate, Driffield, Yorkshire, England

Filed Nov. 6, 1968, Ser. No. 773,863

Int. Cl. B24b 55/00

U.S. Cl. 51—262

3 Claims



3,562,961
POLISHING MACHINE
Kenneth Hubert Clayson, Solihull, and David John Smith, Birmingham, England, assignors to Wilmot-Breeden Limited, Birmingham, England

Filed Sept. 3, 1968, Ser. No. 756,941

Int. Cl. B24b 21/00, 49/00

U.S. Cl. 51—138

9 Claims



Control means for selectively controlling the pressure between a polishing head and a contoured object, in accordance with the surface zone being polished. The control means comprise position responsive means which produce an electrical position signal as the polishing head traverses each boundary between adjacent surface zones, a sequence control circuit to which the succession of position signals are fed and which delivers output signals in sequences as each position signal is received, and a pressure controlling device which acts to control the polishing pressure selectively in accordance with the prevailing output signal.

A device, for use with optical lens edge grinding machines having a V-groove grinding wheel, such that the lens being ground may be deflected to controlled extent and the apex of the bevel formed on the lens edge off-set, and mechanism for effecting controlled displacement of the deflecting element which may be moved into an in-operative position when not required.

3,562,964

LAPPING MACHINE

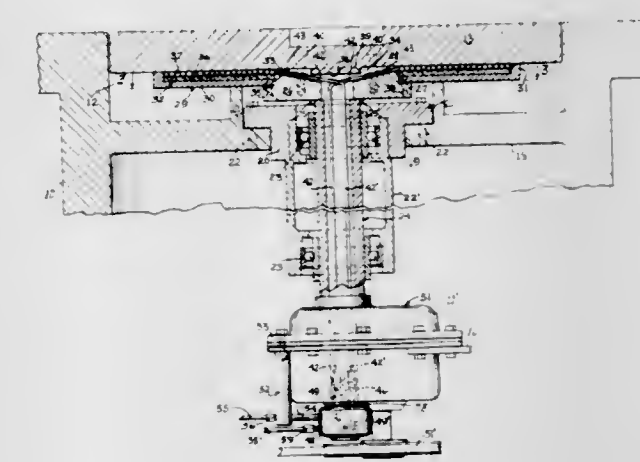
Lawrence Day, Chicago, Ill., assignor to Spitfire Tool & Machine Co., Inc., Chicago, Ill., a corporation of Illinois

Filed Feb. 24, 1970, Ser. No. 13,339

Int. Cl. B24b 55/00

U.S. Cl. 51—266

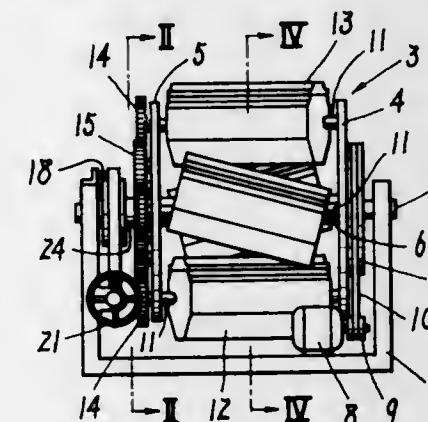
6 Claims



3,562,962
GRINDING APPARATUS
Ietatsu Ohno, 14-2-406 Mure, Mitaka, Tokyo, Japan
Filed Feb. 26, 1969, Ser. No. 802,369
Int. Cl. B24b 31/02; B01f 9/00

U.S. Cl. 51—163

2 Claims



This invention is a grinding apparatus wherein on a revolving drum is mounted a container eccentrically at both ends on each shaft parallel with the shaft of said

A lapping machine having a horizontally rotatable relatively flat lapping plate in facial contact with a relatively flat spirally wound tubular coil arranged therebeneath and through which a coolant circulates to maintain through-

out a lapping operation a uniform temperature of the lapping plate and a pressure plate therein and of the work disposed upon the lapping plate beneath the pressure plate.

3,562,965

METHOD AND APPARATUS FOR PREPARING A PLURALITY OF DISC-SHAPED SEMICONDUCTOR CRYSTALS FOR SIMULTANEOUS WORKING BY A TOOL

Herbert Lange, Uebersee (Chiemsee), Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

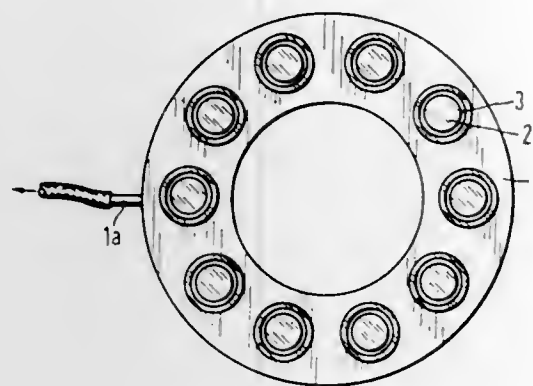
Filed Dec. 26, 1967, Ser. No. 693,645

Claims priority, application Germany, Mar. 3, 1967, S 108,629

Int. Cl. B24b 1/00, 9/00

U.S. Cl. 51—283

1 Claim



A plurality of disc-shaped semiconductor crystals are cemented at a second surface of each to a carrier at distances from the carrier which coplanarily position the first surfaces of the crystals in a manner whereby the plane of the first surfaces and the working surface of the tool are coincident.

3,562,966

CRANKPIN FINISHING APPARATUS

Rudolf Schwär, Neviges, Germany, assignor to Maschinenfabrik Ernst Thielenshaus, Wuppertal-Barmen, Germany, a corporation of Germany

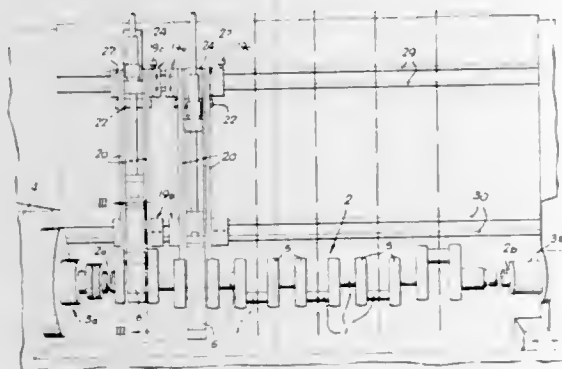
Filed July 15, 1968, Ser. No. 745,025

Claims priority, application Germany, July 15, 1967, M 74,766

Int. Cl. B24b 9/02, 19/00

U.S. Cl. 51—347

9 Claims

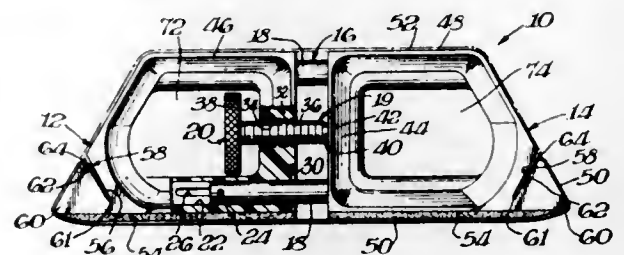


A finishing apparatus for a crankpin on a crankshaft includes a lathe which turns the crankshaft while three angularly spaced finishing stones carried by racks in a movable housing engage the surface of the crankpin. Gear trains between the racks positively couple the stones together for joint movement and maintain them at an equal distance from a point fixed in relation to the housing to round the crankpin while finishing it.

3,562,967
SANDING DEVICE
Paul A. Eriksen, 5 Cleveland Ave., McDaniel Heights, Wilmington, Del. 19803
Filed Jan. 28, 1969, Ser. No. 794,725
Int. Cl. B24d 15/00

U.S. Cl. 51—372

18 Claims



A pair of frame sections with wide flat rims are adjustably connected to each other to form a frame assembly of adjustable length. Resilient padding is secured to one side of the frame assembly (also referred to herein as a frame) and a sheet of abrasive material is secured thereto by adjustment of the frame sections apart from each other. The abrasive material may be a continuous belt all the way around the frame, or it may be a strip whose ends are secured in barbed slots at the outer ends of the frame. The illustrated frame is about two inches wide and deep, having a top about four inches long and a bottom about six inches long in a trapezoidal shape with pointed lower ends. Slide pins and a screw are used for coupling the frame sections and forcing them apart to secure the abrasive material in place.

3,562,968

SURFACE TREATING TOOL

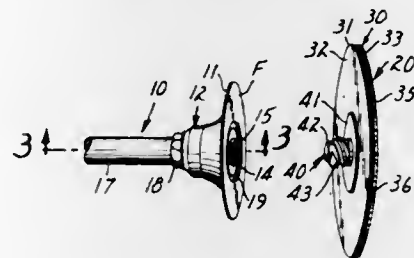
Howard E. Johnson, St. Paul, Arlie M. Knutson, Oakdale, and Vince Meyer, South St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed Mar. 12, 1969, Ser. No. 806,422

Int. Cl. B24d 17/00

U.S. Cl. 51—389

7 Claims



A rotary surface treating tool having a drive assembly and a quick change abrasive disc or other surface treating device. The drive assembly has a hub with a cylindrical central opening having at least two helical ridged cams, and the back of the abrasive disc has a drive button with helically grooved complementary cam followers. The pitch of the cams and followers is steep, so that the disc can be mounted or demounted with no more than about one half turn.

3,562,969

SECTIONAL CATCH BASIN

Howell P. Little, Jr., Box 296, Commerce, Ga. 30529

Filed Oct. 22, 1968, Ser. No. 769,517

Int. Cl. E02d 29/12

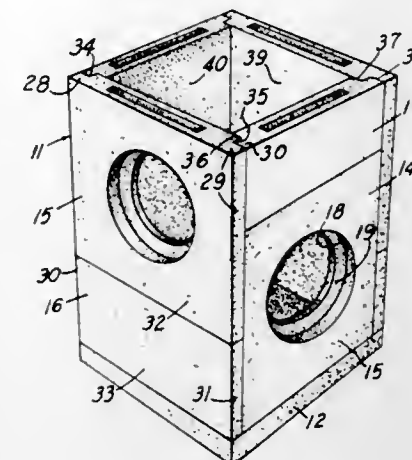
U.S. Cl. 52—20

2 Claims

A sectional catch basin comprising pre-cast interfitting walls bases and covers. Each base and the cover can be various heights to meet the requirement of individual

situations. Each base includes a groove in its upper surface along each edge, and each wall section includes a tongue protruding from its lower edge, which fits into the groove of the base. The upwardly extending edges of each wall include flanges and grooves which fit with the flanges and

means including a connecting strip having a main web mounted in a plane parallel to the upright wall face, a masking web projecting outwardly from the upper edge of the main web and a flange projecting outwardly from the lower edge of the main web. The roof covering edge



METAL STUDDING AND ADJUSTABLE SHELF CARRIER

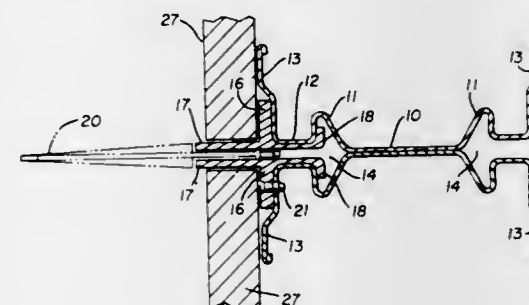
Paul Schwartz, 249 Brainard Drive, Youngstown, Ohio 44512

Filed May 21, 1969, Ser. No. 826,427

Int. Cl. A47b 57/06; E04c 3/32

U.S. Cl. 52—36

3 Claims



A metal studding having a cross-sectional configuration defining an elongated channel in each of its opposite sides with each of the channels having a narrowed mouth portion together with an elongated section of a metal shape slidably engageable in the channels of the studding so as to be adjustable longitudinally thereof, the metal shape having a configuration providing for the reception and attachment of an elongated shelf-supporting arm.

3,562,971

JOINING STRIP FOR USE IN BUILDING

Klaus Göbel, Zeughausstr. 41, Trier, Germany

Filed Aug. 2, 1968, Ser. No. 749,788

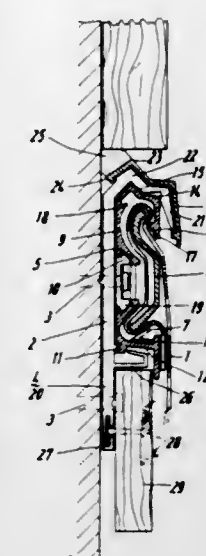
Claims priority, application Germany, Aug. 4, 1967, P 16 59 311.6

Int. Cl. E04d 13/14

U.S. Cl. 52—60

6 Claims

At the junction between a flat roof and a wall extending upwardly from such roof, an upturned edge of roof covering, such as the roof skin or flashing overlapping the roof skin, is secured in place by attaching



GREENHOUSE CONSTRUCTION

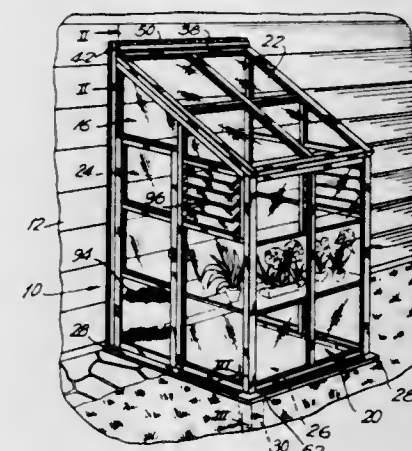
Cyrus D'Amato, 8 Parkway Drive, Roslyn Heights, N.Y. 11577

Filed Apr. 17, 1969, Ser. No. 816,950

Int. Cl. A01g 9/16; E06b 7/14, 3/58

U.S. Cl. 52—66

6 Claims



A greenhouse construction is provided which is attachable to a supporting structure such as a house or the like. The greenhouse construction is portable and readily assembled and to this end is foundationless or substantially so. To facilitate assembly of the construction there is provided a demountable framework which is received by expansion-type receptacles which accommodate deviations from proper alignment and which furthermore accommodate expansion and contraction due to changes in temperature and so forth. A particular design is provided for the framework members such that glass panes can be readily mounted at the place of final assembly.

3,562,973

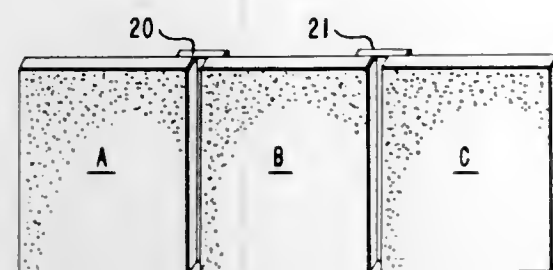
COLLAPSIBLE PREFABRICATED STRUCTURE
Carl E. Gangemi, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Feb. 14, 1969, Ser. No. 799,417

Int. Cl. E04b 1/344; E04c 2/40

U.S. Cl. 52—71

9 Claims



A collapsible structure for use in construction comprising at least two panels and at least one elastomeric strip, bridging the seam between the panels and bonded to the rear of the panels in a manner such that the strips function as elastomeric hinges. These hinges are designed so that they will stretch to allow the panels to be positioned in any angular relation to one another, and contract when the panels are finally positioned, to insure that the front surfaces of the panels are contiguous. When the panels, elastomeric strips and bonds are water resistant, the hinge acts as a seal and the structure is useful as a prefabricated bathtub surround package.

3,562,974

STRUCTURAL UNIT

Heinrich Niemeyer, Tübingen, Germany, assignor to Wilhelm Schilling, Welskirchen, Germany

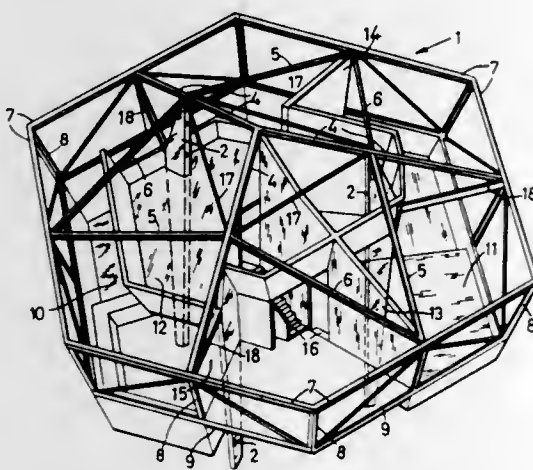
Filed Aug. 25, 1969, Ser. No. 852,540

Claims priority, application Germany, Aug. 29, 1968, P 17 84 632.1

Int. Cl. E04b 1/34; E04h 1/00

U.S. Cl. 52—73

9 Claims



To provide a structural unit for a transportable house, three vertical support beams forming a triangle support a stable structural framework which includes a roof structure and a plurality of side wall supporting beams extending in vertical planes from horizontal struts of the roof structure. The roof structure comprises three obliquely extending main roof supporting trusses supported on the support beams, and the struts which extend circumferentially and have their ends interconnected. The struts are adjacent the outer ends of the trusses and extend transversely thereto.

3,562,975

PREFABRICATED SHELTER AND METHOD OF ERECTING SAME

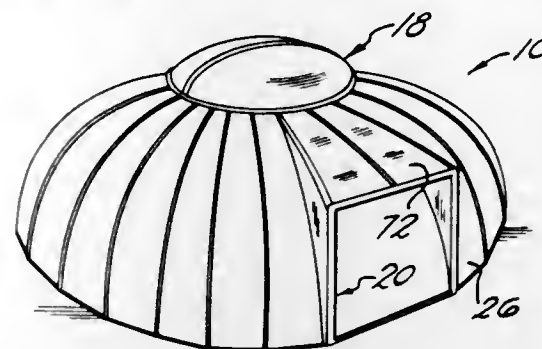
Charles W. Moss, 2833 Stommel Road, Ypsilanti, Mich. 48197

Filed Jan. 14, 1969, Ser. No. 790,930

Int. Cl. E04b 1/32; E04h 1/02

U.S. Cl. 52—80

7 Claims



A shelter which has panels bowed and secured together in a stressed condition to define a dome-like building. The panels are retained in the stressed condition by supporting structure, and the stressed condition of the panels cooperates in locking the assembled parts together. A flexible joint is provided between the panels to aid in erecting and in retaining the structure together and to provide a weather seal. A method whereby the shelter can be erected by stressing the panels in sequence is provided.

3,562,976

ROOF CONSTRUCTION FOR SILOS OR THE LIKE

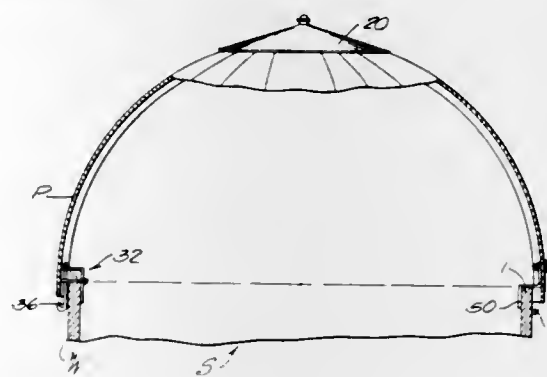
Roger W. Wollin, Lake Mills, and Larry L. Smiley, Wausau, Wis., assignors to Fiberdome Incorporated, Lake Mills, Wis., a corporation of Wisconsin

Filed Mar. 3, 1969, Ser. No. 803,541

Int. Cl. E04b 7/08; E04h 7/30

U.S. Cl. 52—81

10 Claims



A generally dome shaped roof for silos or the like and fabricated from individual panels which are fastened together. The panels are adjustable relative to one another to accommodate silos or buildings of various diameters. The joints between the panels are constructed so as to be waterproof. Bracket means for holding the roof down tightly on the top of the silo and also tightly against the outside of the silo.

3,562,977

PRESSURE FLUID STORAGE TANK WITH AN INNER MEMBRANE-LIKE ENVELOPE

Jean Alleaume, Saint-Cloud, France, assignor to Technigaz, Paris, Seine, France, a company of France

Filed Aug. 8, 1968, Ser. No. 751,106

Claims priority, application France, July 11, 1968, 158,885

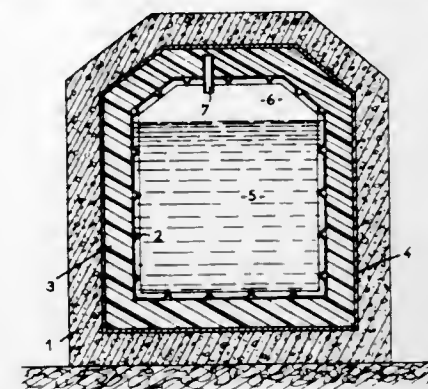
Int. Cl. E04b 1/32; B65d 25/18, 7/22

U.S. Cl. 52—82

2 Claims

A pressure tank for storing an at least partially liquid fluid comprising an outer casing of self-supporting structure, an inner impervious, metallic, thin-walled, fluid-containing, membrane-like envelope carried by heat-insulating

materials filling the intermediate space left between said envelope and casing, and open-ended duct means extending through the envelope wall for permanently interconnecting said intermediate space and that portion of the



space inside said envelope which contains the fluid gaseous phase for equalizing the pressures therein applied to both opposite wall sides of said envelope to transfer the gaseous fluid pressure directly to said casing.

3,562,978

BUILDING CONSTRUCTION

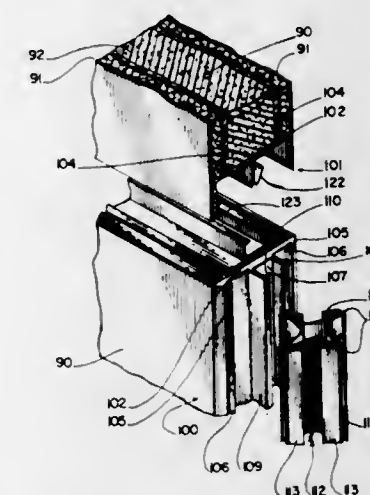
Ewgeni Ali-Oglu, Cambridge, Mass., assignor to Componoform, Inc., Cambridge, Mass.

Continuation of application Ser. No. 527,450, Feb. 15, 1966. This application Oct. 10, 1968, Ser. No. 781,671 Claims priority, application Great Britain, Feb. 16, 1965, 6,705/65

Int. Cl. E04b 1/04; E04c 1/10

U.S. Cl. 52—122

12 Claims



A building construction comprising modular cross arm columns, floor slabs, building slabs and related structures is provided. The wall panels which may be used as interior wall panels have at least one side edge carrying an elongated fastening means for interlocking with an edge of an adjacent wall panel and for preventing movement of such interlocked panels directly away from each other while permitting sliding of said panels along a line fixed with respect to each other and substantially parallel to the one side edge. The fastening means comprises hook means for positively preventing movement of two interlocked panels directly away from each other without first destroying the hook means.

3,562,979

BUILDING CONSTRUCTION

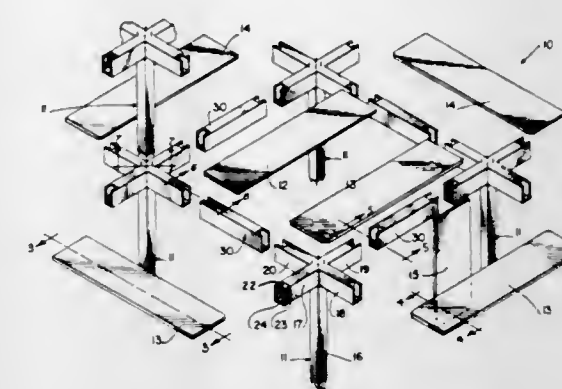
Ewgeni Ali-Oglu, Cambridge, Mass., assignor to Componoform, Inc., Cambridge, Mass.

Continuation of application Ser. No. 677,195, Oct. 23, 1967. This application Dec. 16, 1968, Ser. No. 808,033 Int. Cl. E04c 3/34; E04b 1/04, 5/04

U.S. Cl. 52—125

29 Claims

A building construction in modular form is provided for use in homes, schools, offices and other structures.



Prefabricated or precast columns having integral cross arms are key components in the structure of this invention.

tion. In addition, novel modular floor slabs, exterior panels and concrete coring devices are provided in building constructions of this invention.

3,562,980

POLE-MOUNTED UTILITY BUILDING

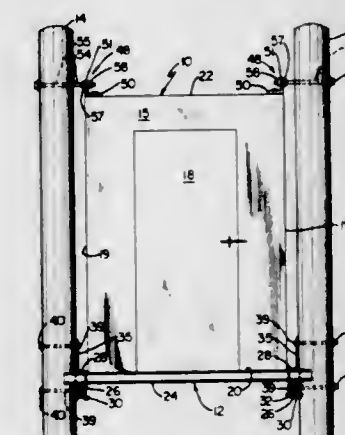
Frank Christian Walz, Jr., Golden, and Jerry B. Davis, Lakewood, Colo., assignors, by mesne assignments, to Livingston-Armadillo, Inc., Denver, Colo., a corporation of Delaware

Continuation of application Ser. No. 641,040, May 24, 1967. This application June 30, 1969, Ser. No. 842,787

Int. Cl. E04h 1/12; F16m 13/02

U.S. Cl. 52—143

7 Claims



A portable building is suspended between a pair of up-standing utility poles anchored in the ground, the building being supported by a skid support assembly, in such a way as to provide for uniform load distribution and to avoid localized stresses or strains at the points of attachment of the supporting structure for the building to the poles.

3,562,981

INVERTED BASE

Erich Willfurth, 31 W. Chestnut St., Farmingdale, N.Y. 11735

Filed Feb. 12, 1968, Ser. No. 710,426

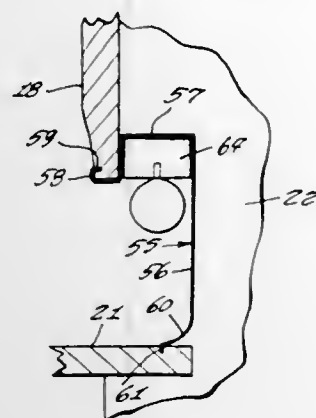
Int. Cl. E04f 19/04; E06b 1/00

U.S. Cl. 52—173

5 Claims

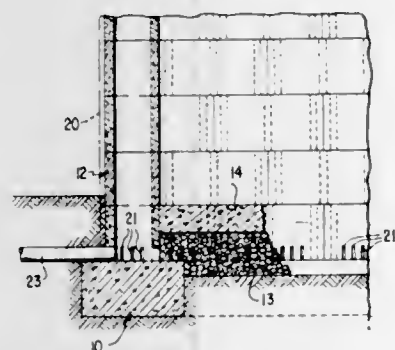
An inverted base such that when applied in position at the base of a wall and at floor level will be wholly disposed inwardly of the surface of the wall. The inverted base is formed of a thin, self-sustaining, yet sufficiently flexible metal and may be of any desired entrant configuration, and is provided along its upper and lower side portions with lips each carrying a row

of projecting teeth. The lips are designed to respectively engage the wall and floor with the teeth to be driven thereinto. The wall is generally formed of panels of any suitable material secured to studs. In the application of the inverted base the lower horizontal edge portion of the wall panel is beveled with the terminal edge spaced a distance above the floor surface thus providing a reentrant space to receive the inverted base. If desired,



should a greater reentrant depth be desired a portion of the wall studs or beams may be cut out to accommodate the inverted base at a greater reentrant depth. The reentrant formation of the inverted base permits a variety of uses thereof as in doors and window frames, adjacent stair treads so to house an electric light, as a base opening housing fluorescent lights, and as a base opening receiving casings of baseboard heaters.

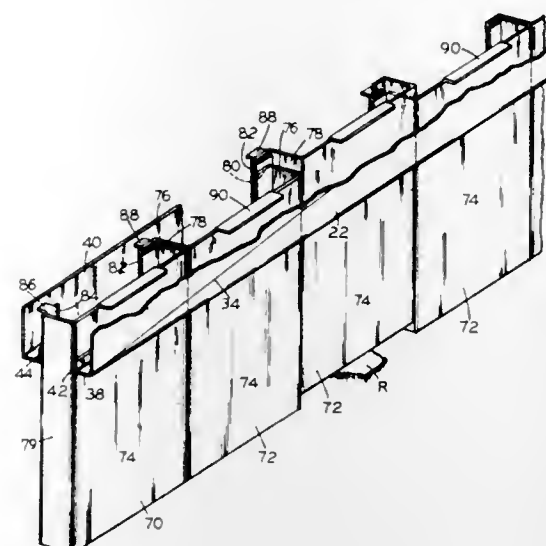
3,562,982
WALL AND FOUNDATION DRAIN SYSTEM
Allen C. Parezo, 16112 Laurel Ridge Drive,
Laurel, Md. 20810
Filed May 9, 1969, Ser. No. 823,286
Int. Cl. E02d 27/00; E04b 1/64, 1/70
U.S. Cl. 52-169 3 Claims



Water accumulating in the supporting bed of gravel beneath a cellar floor is forced by hydrostatic pressure laterally into the hollow interiors of cement or cinder blocks that are mounted on foundation footings to constitute the base course of conventional hollow cinder block cellar walls. The water passes through slots in the inner side walls of the blocks and the interiors of the blocks are in open communication through similar slots in the end walls of the blocks.

3,562,983
TRAILER SKIRTING
Eugene L. Rector, Syracuse, N.Y., assignor of one-half to Gerald H. Wolkon, Liverpool, N.Y.
Filed July 7, 1969, Ser. No. 839,557
Int. Cl. B62d 39/00, 63/08; E04b 1/34
U.S. Cl. 52-169 5 Claims
Skirt assembly for house trailers comprising an upper elongate panel adapted to be secured beneath the trailer

and reach part way to the ground, and a plurality of vertical staves slidably connected to one another, and



slidably disposed in a slot in a flange along the panel bottom edge.

3,562,984
AIR RIGHTS BUILDING STRUCTURE
William E. Merle, Rte. 3, Box 3515, Auburn, Calif. 95603, and Arthur W. Miller, 1024 Cornell Ave., Albany, Calif. 94706
Filed Feb. 4, 1969, Ser. No. 796,512
Int. Cl. E04h 14/00
U.S. Cl. 52-175 9 Claims

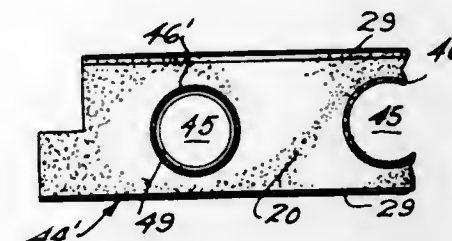


A building structure adapted to occupy air space above a freeway, toll road or other limited access roadway. The building structure spans the associated roadway but is relatively narrow so as to occupy very little land bordering the same, and it extends longitudinally therealong to any length necessary to accommodate the various services and facilities to be offered the motorist. Entrance ramps to the building structure extend longitudinally therealong in cantilevered projection therefrom, and as a result of the considerable length of the building structure and corresponding length of the entrance ramps which may run the entire length of the structure, the ramps can accommodate deceleration of vehicles leaving the roadway, thereby reducing the length of the access roads connecting the roadway with the ramps and which otherwise would be required for vehicle deceleration.

3,562,985
REINFORCED SYNTHETIC RESIN STRUCTURAL PANELS
Joseph A. Nicolsa, 819 N. Thatcher Ave., River Forest, Ill. 60305
Continuation of application Ser. No. 503,736, Oct. 23, 1965. This application Jan. 13, 1969, Ser. No. 793,225
Int. Cl. E04c 2/46
U.S. Cl. 52-241 4 Claims
A building structure comprising a plurality of interconnecting barriers, said barriers comprising a plurality

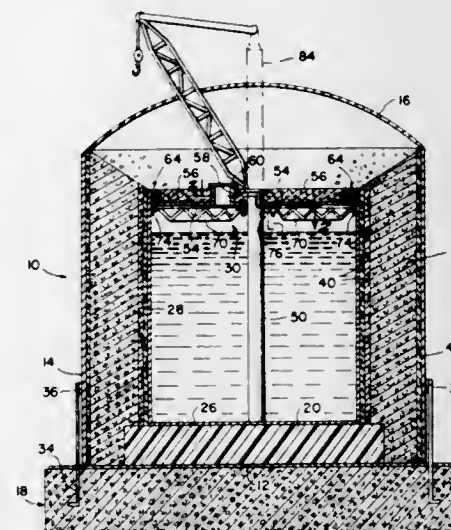
of interconnecting panels, said panels comprising a rigid molded synthetic resin foam having embedded therein a

the insulating panels that is opposite to the side against which the panels are mounted, a rigid elongated member is provided. Springs are provided for interconnecting



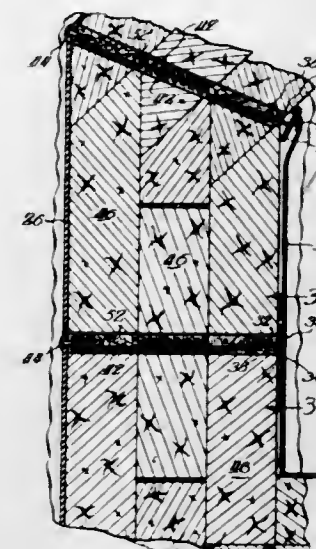
plurality of longitudinally extending tubular shaped passages formed by a plurality of tubular mesh screens.

3,562,986
LIQUID STORAGE CONTAINER
Ardell H. Nelson, Coraopolis, Leonard J. Hutter, William E. Latshaw, and John H. Adams, Pittsburgh, John Terlesky, New Brighton, and Dale R. Hauser, Coraopolis, Pa., assignors to Pittsburgh-Des Moines Steel Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 4, 1968, Ser. No. 765,268
Int. Cl. E04b 1/32; E04g 11/04
U.S. Cl. 52-246 16 Claims



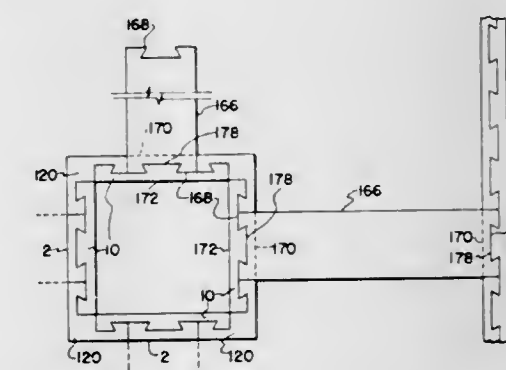
A liquid storage container includes inner and outer vessels spaced from one another to define an insulating space therebetween. In one form of the invention, the side walls of the inner and outer vessels each have resilient blanket means disposed adjacent thereto and defining a space therebetween. The space between the resilient blanket means is filled with a mass of substantially free-flowing lightweight thermal insulating material. The roof of the inner vessel is supported by support means disposed within the inner vessel and extending vertically upwardly therewithin. A roof of the outer vessel in another form of the invention is supported by support means supported by the roof of the inner vessel. Further modifications of the invention include a vessel having only one side wall with insulating means disposed in surrounding relationship to the side wall and held in place adjacent the outer surface thereof.

3,562,987
SECURING STRUCTURE FOR INSULATING PANELS
Bertram E. Eakin, Naperville, Ill., assignor to Institute of Gas Technology, a non-profit corporation of Illinois
Filed Sept. 20, 1968, Ser. No. 761,180
Int. Cl. E04b 1/38; E04c 1/40
U.S. Cl. 52-269 5 Claims
Structure for securing a plurality of insulating panels to a surface, such as a wall. A plurality of insulating panels are mounted against the structure. On the side of



the rigid member to the wall-like structure, whereby the springs firmly, but resiliently, pull the rigid members against the insulating panels for securing them in place against the wall-like structure.

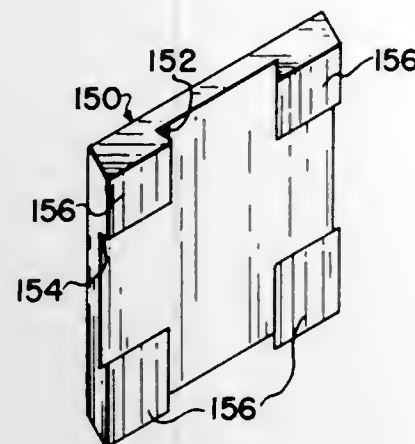
3,562,988
BUILDING BLOCKS, BRICKS, TILE, PANELS AND THE LIKE
Resta S. Gregoire, Newport, Pa., assignor to Z-Lock Block Co., Newport, Pa., a corporation of Delaware
Application Dec. 6, 1968, Ser. No. 784,282, which is a continuation of application Ser. No. 653,170, July 13, 1967. Divided and this application June 24, 1969, Ser. No. 850,290
Int. Cl. E04b 2/72; E04c 1/10, 2/46
U.S. Cl. 52-279 1 Claim



Beams have block interlock faces on their ends for interlocking support in a corresponding wall, and have a counter groove in their upper surfaces for receiving a horizontal ledge portion of ledge blocks which are at a corresponding level in the opposite layer of said wall.

3,562,989
BUILDING BLOCKS, BRICKS, TILE, PANELS AND THE LIKE
Resta S. Gregoire, Newport, Pa., assignor to Z-Lock Block Co., Newport, Pa., a corporation of Delaware
Application Dec. 6, 1968, Ser. No. 784,282, which is a continuation of application Ser. No. 653,170, July 13, 1967. Divided and this application June 24, 1969, Ser. No. 850,291
Int. Cl. E04b 2/72; E04c 1/10, 2/46
U.S. Cl. 52-279 1 Claim
The blocks are square in face area, and have centrally extending dovetail grooves in both rectangular direc-

tions across their interlocking faces, leaving half ridge portions only at the corners of these faces of the blocks in one layer of a wall for interlocking with the single grooves of the blocks in the other layer, which are arranged so that alternate blocks in said other layer have



their grooves in alternate horizontally and vertically slidable engagement with said corner ridge portions of said cross-grooved blocks, providing a complete interlock against sliding between layers in either rectangular direction.

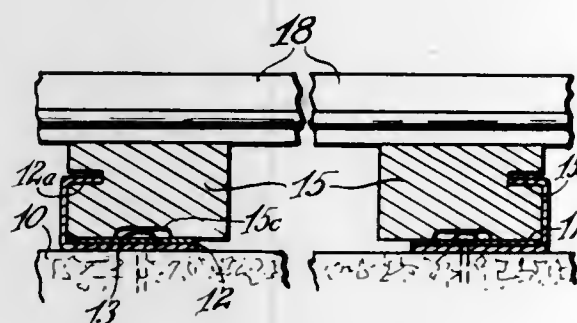
ERRATUM

For Class 29—488 see:
Patent No. 3,563,713

3,562,990
MASSIVE SLEEPER CONSTRUCTION FOR FLOORING
William A. Boettcher, 4757 N. Clark St.,
Chicago, Ill. 60640
Filed Dec. 20, 1968, Ser. No. 785,503
Int. Cl. E04b 5/00

U.S. Cl. 52—370

3 Claims

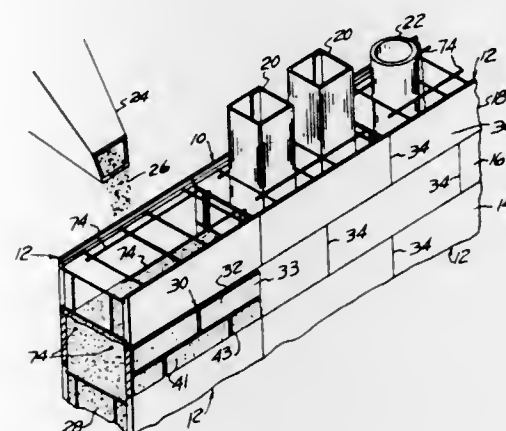


A sleeper construction for flooring. Pairs of metallic retainers are secured in parallelism to a supporting surface below the flooring. The retainers are lone and positioned in the manner of sleepers; and sleeper sections are laid on each retainer in longitudinal succession. Each pair of retainers is bent up on the outer side to form facing channels defining inward hooks. The sleeper sections are grooved in the outer sides to receive the hooks from the retainers, becoming interlocked against separation from the same, but freely slidable along the retainers; and the base portions of the latter receive a layer of mastic before the sleeper sections are mounted on the retainers. The sleeper series terminates endwise

spacedly from a wall toward which the flooring is laid; and flooring also terminates in this manner. Thus, when the flooring, nailed to the sleeper sections, expands from moisture the sleeper sections slide along the retainers to relieve the pressure of the flooring and prevent it from buckling; and the retainers serve as fixed guides to prevent the sleeper sections from being thrown out of line. The mastic between the sleeper sections and the retainers serves to ease the sliding of the sleeper sections, and prevents the flooring from creaking or rattling.

3,562,991
BUILDING WALL CONSTRUCTION AND MODULE THEREFOR
Paul W. Kustusch, 9141 E. Jefferson Ave.,
Detroit, Mich. 48214
Filed July 29, 1968, Ser. No. 748,382
Int. Cl. E04b 2/32; E04f 13/18
U.S. Cl. 52—564

5 Claims

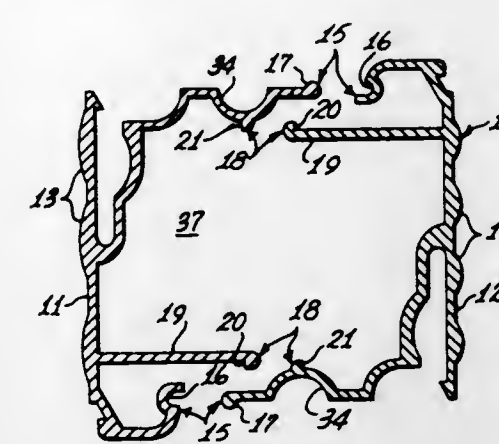


Interfitting structural modules are built up in overlapping courses or tiers on a horizontal foundation into the desired building wall formation and either used as such or as a form assembly into which concrete is poured. Each module includes a pair of laterally-spaced elongated parallel vertical panels interconnected at their tops and ends by wire grating spacers into the interstices of which are optionally inserted vertical tubular members of either round or square cross-section. These serve as conduits for heating, ventilation, plumbing or electric wiring when concrete is poured around them, or as columns when filled with concrete. The panels and wire grating spacers are capable of being transported and packed in knocked down form and assembled either at the building contractor's establishment or at the building site. Each module has longitudinal edge rabbets which interlock with one another at the joints between successive courses or tiers. The outer panels are optionally provided with spaced holes which receive pegs or pins, the heads of which are embedded in rectangular face-brick-simulating plates. The open ends of the end modules in the wall construction are closed by end closure panels inserted in grooves in the elongated parallel side panels. A simplified module (FIGS. 12 and 13) omits the longitudinal rods of the top spacers and also the vertical rods of the end spacers and uses simple tie rods with perpendicularly-bent ends entering holes in the top and ends of the panels. A still further simplified module (FIG. 14) omits the end tie rods or spacers of FIGS. 12 and 13, retaining only the top spacers, and resulting in a module which can be folded flat for storage or shipment, with the end rods added at the building site, or used without the end rods in the oblique arrangement of FIG. 14 which enables the wall thickness to be varied as desired.

3,562,992
BUILDING STRUCTURAL ELEMENT
Lewis R. Kinsey, 108 S. 25th St.,
Phoenix, Ariz. 85034
Filed Nov. 29, 1968, Ser. No. 780,114
Int. Cl. E04c 1/16, 1/10

U.S. Cl. 52—588

1 Claim



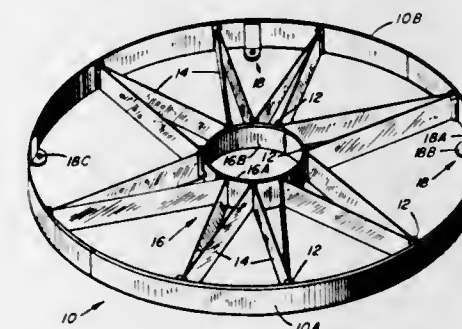
A building structural element formed of metallic or plastic extrusions which may be snapped together to form individual box elements which in turn can be snapped together as pre-cut extrusions in the proper sequence to form the complete building structure.

3,562,993
YARD FORM
John T. Humble, 2627 2nd E. 74104, and August C. Metcalf, 515 N. Gary Place 74110, both of Tulsa, Okla.

Filed Feb. 7, 1969, Ser. No. 797,404
Int. Cl. E02d 27/36; E04f 15/14

U.S. Cl. 52—626

2 Claims



This invention provides an apparatus for forming a decorative design characterized by being dismountable into a compact form and, when assembled, providing a star-shaped design for receiving material such as colored stone.

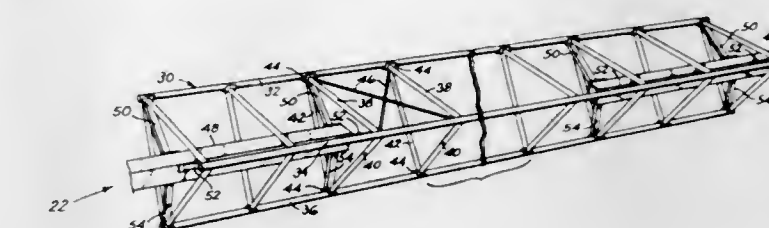
3,562,994
TRUSS
Carl V. von Linsowe, Portland, Oreg.
(2820 Julio Ave., San Jose, Calif. 95124)
Filed Sept. 30, 1968, Ser. No. 763,661
Int. Cl. E04b 12/00

U.S. Cl. 52—655

19 Claims

An elongated truss including a frame formed from three elongated and spaced, parallel, triangularly disposed rails, struts distributed along and interposed between each combination of two rails, and tensors extending diagonally across the various spaces bounded by a pair of rails

and a pair of struts. Mounts secured to and distributed along the rails support the struts and accommodate attachment of the tensors. Each mount is constructed to direct forces transmitted to it through a common point



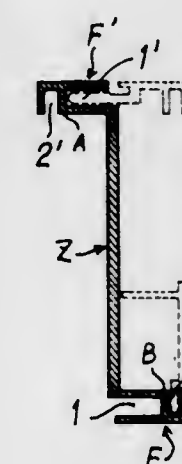
adjacent the mount and located on the longitudinal axis of the rail supporting the mount. Loads are transmitted into and out of opposite ends of the frame through members positioned on the frame's neutral axis.

3,562,995
COMPONENTS OF STRUCTURES FOR THE ASSEMBLY OF PANELS
Charles Emile Zwickert, 108 Bis, Rue Jean Jaures,
Noisy-le-Sec, France
Filed Nov. 19, 1968, Ser. No. 777,093
Claims priority, application France, Nov. 22, 1967,
129,255

Int. Cl. E04c 3/32, 3/30

U.S. Cl. 52—732

9 Claims



Member for supporting partition panels has a Z-shaped cross-section. F-shaped end piece at each end of member, cross bars of F being perpendicular to end portion of Z, thereby forming two grooves for accommodating auxiliary members. In alternative embodiment, member has rectangular cross-section formed with two outwardly-facing grooves at the ends of its sides, and two opposite ends have perpendicular extensions comprising back-to-back F-shaped elements.

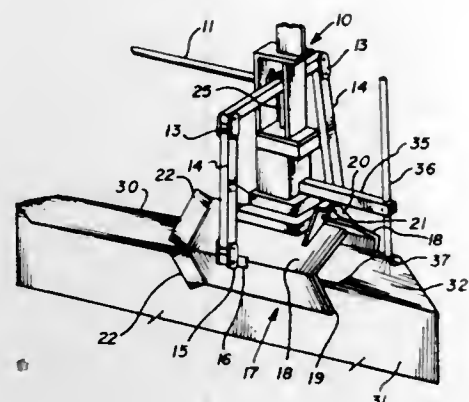
3,562,996
VALVE SACK OPENER AND CARRIER MECHANISM
L. D. Adcox, Monte Vista, Colo., assignor of one-half to John B. Milne, Monte Vista, Colo.
Filed Jan. 23, 1969, Ser. No. 793,296
Int. Cl. B65b 43/36

U.S. Cl. 53—3

7 Claims

A valve sack opener and carrier mechanism for opening the valve of the sack by injection of a pressurized air stream, and carrying the sack, with the valve in open position, to the spout of a filling machine, comprises a carrier

having a pair of members pivotally connected to a movable support, the members being pivotally movable transversely into sack receiving and supporting position and into sack flap engaging position for maintaining the valve in open position during travel of the sack to the spout of



a filling machine. Switch means activated by a switch contacting pad on the carrier operates an air nozzle for injection of air into the valved flap of the sack during a predetermined part of the travel of the carrier.

3,562,997

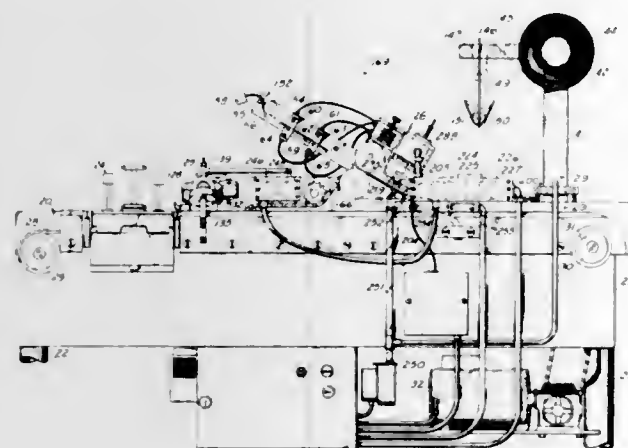
CARTON CLOSING AND LABELING METHOD

David L. Pearl, 2592 Briarcliff Road NE., Atlanta, Ga. 30329; George E. Harris, P.O. Box 6065, Marietta, Ga. 30060; John G. Waller, 806 Cambridge Ave., College Park, Ga. 30337; and Beverly P. Head, Jr., 9 Rockdale Lane, Birmingham, Ala. 35213
Continuation-in-part of application Ser. No. 626,288, Mar. 27, 1967. This application June 17, 1968, Ser. No. 737,601

Int. Cl. B23b 25/14

U.S. Cl. 53—14

4 Claims

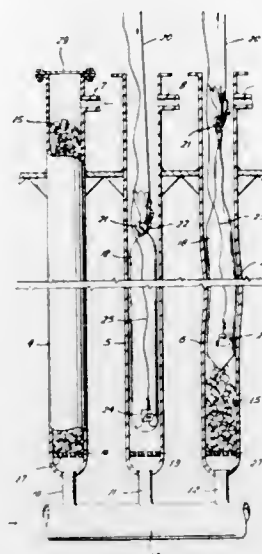


Method of closing and labeling egg cartons wherein each egg carton includes a tray, a locking flap hinged to one side of the tray, and a lid hinged to the other side of the tray comprising the steps of moving the carton along a prescribed path, folding the lid over the locking flap to close the carton, heating the container and moving a continuous strip of labeling material toward the heated surface to press one end of one of the labels onto the carton, partly severing the label from the strip and stopping the feeding of the strip so that the movement of the carton finishes severing the label, and pressing the severed label onto the carton.

3,562,998
METHOD FOR FILLING VERTICAL PROCESS VESSELS WITH PARTICULATE MATERIALS
Tommy Ray Edwards, Alvin, Tex., assignor to Catalyst Services, Inc., Alvin, Tex., a corporation of Texas
Filed Sept. 17, 1968, Ser. No. 760,206
Int. Cl. B65b 1/04

U.S. Cl. 53—29

8 Claims



A quick and relatively inexpensive method for filling vertical process vessels, for instance, reactors or packed towers, with particulate material such as catalyst or other packing, while preventing contamination and damaging thereof. A special flexible bag with a bottom seal which may be opened by means of a release line is filled with the material and then gently lowered into the vessel by means of an elevator attached to the upper portion of the bag. The bottom seal is then opened by pulling upon the release line, permitting the contained material to drop gently into the vessel. The bag is retrieved by pulling up on the elevator line, and the process is repeated until the vessel is filled to the desired level.

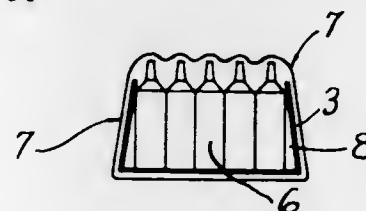
3,562,999

METHOD AND CONTAINER FOR PACKING FLEXIBLE TUBES

Roger Barbedienne, Saint-Germain-en-Laye, France, assignor to Scal GP, Paris, France
Filed May 28, 1969, Ser. No. 828,511
Int. Cl. B65b 53/00

U.S. Cl. 53—30

8 Claims



This invention relates to a method for packing flexible tubes and a container therefor, in which the container generally comprises a polygonal base and a plurality of side pieces sharing a common edge with the base. Flexible tubes are placed in the container, and the side pieces are urged toward the necks of the tubes to hold the tubes in place by a contractible sheet or envelope.

3,563,000

PACKAGING APPARATUS

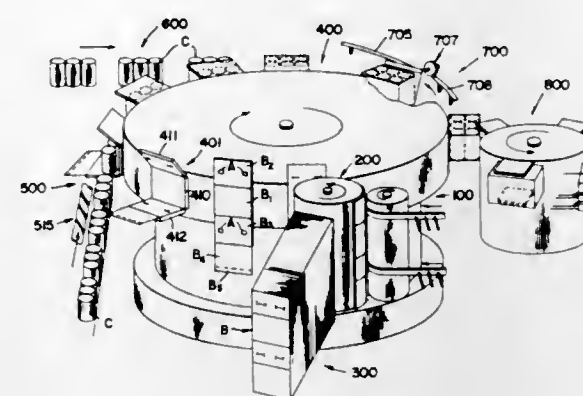
John B. Whitehouse and Gunnar G. B. Alhorn, Sunnyvale, Calif., assignors to Fibreboard Corporation, San Francisco, Calif., a corporation of Delaware
Filed Nov. 28, 1967, Ser. No. 686,020
Int. Cl. B65b 5/10

U.S. Cl. 53—48

19 Claims

A packaging apparatus comprises a feeder arranged to insert plastic clips into a flattened paperboard blank

arranged on a carton assembly turret. The turret rotates to transfer the blank to an articulated cage mounted on a rotatably mounted package assembly turret. The cage closes to form a pocket in the blank which receives a



plurality of upstanding cans therein. Upon further rotation of the package assembly turret, the blank is wrapped and secured around the cans. The package is then transferred to a compression and discharge turret.

3,563,001

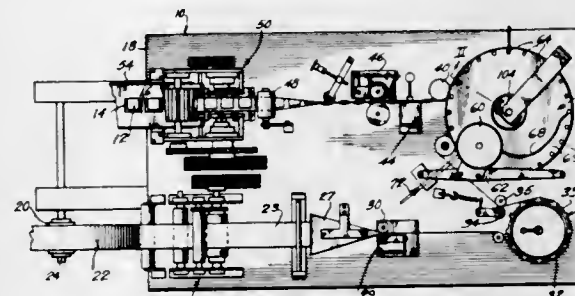
FILLING HEAD FOR STRIP STOCK PACKAGING MACHINE

Charles E. Cloud, Wilmette, and Richard F. Purvins, Chicago, Ill., assignors to Cloud Machine Corporation, Skokie, Ill., a corporation of Delaware
Continuation-in-part of application Ser. No. 484,481, Sept. 1, 1965. This application Feb. 14, 1968, Ser. No. 705,379

Int. Cl. B65b 1/02

U.S. Cl. 53—183

12 Claims



A continuous packaging apparatus including a sealer for forming spaced seals along a length of film relative to print marks thereon; a motor drive for feeding the film to the sealer; a filling wheel including a filling plate mounted on bearings on an inclined axis relative to the vertical axis of a lower supporting wheel of the filling wheel; and filling spouts on the filling wheel such that when the top plate and the lower filling wheel are rotated, the filling spouts are projected into the spaces between the lands on the lower wheel and into the pockets positioned on the vertical inclined lands on the lower wheel to enable the pockets to be readily filled.

3,563,002

GROCERY PACKAGING APPARATUS

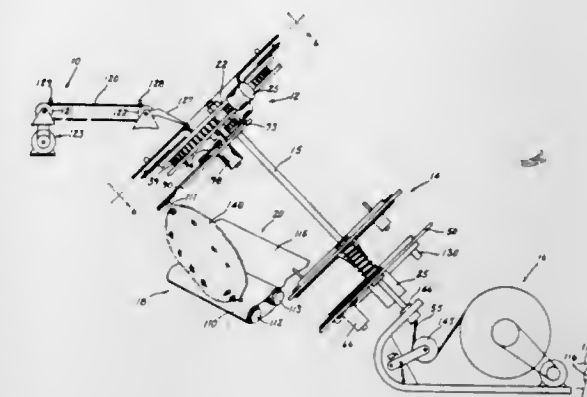
Frank M. Givin, 1487 Collin Road, Colorado Springs, Colo. 80907
Filed Mar. 5, 1969, Ser. No. 804,420
Int. Cl. B65h 43/00

U.S. Cl. 53—183

10 Claims

A packaging apparatus for randomly packing grocery items consisting of a plurality of various sizes of cans, boxes and the like into a nylon net or mesh bag, includes a supply roll of tubular net material fed through an an-

nular feed orifice, and a traveling head with a large central aperture has a plurality of net holding fingers which move to the center at the orifice for picking up the netting and outwardly to the edge of the orifice in a position remote from the feed for opening the mouth of the netting. The traveling head moves upwardly away from the feed orifice pulling out a predetermined amount of the netting. A load conveyor belt moves the groceries to be packaged



into the mouth of the bag filling the same while the netting is oscillated. The filled bag is then sealed at the bottom by heat sealing and cutting it from the supply, and the bag is twisted to close the mouth and the twisted neck is heat sealed providing a sealed bag for the customer. The sealed bag is then released from the filling unit, passed to a conveyor belt for delivery to the customer.

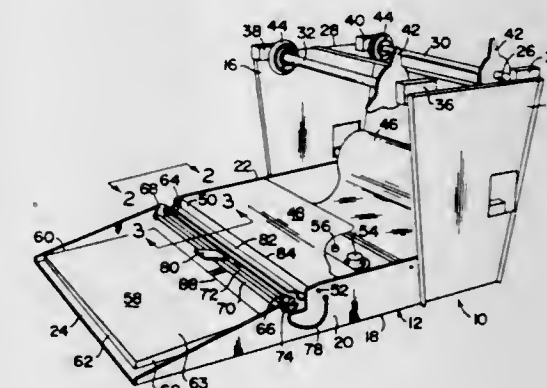
3,563,003

WRAPPING MACHINE

Frank Pizmoht, Willoughby, Ohio, assignor to Cleveland Heat Sealing Equipment Manufacturing Company, Cleveland, Ohio, a corporation of Ohio
Filed Nov. 6, 1968, Ser. No. 773,796
Int. Cl. B65b 67/10

U.S. Cl. 53—390

15 Claims



A package wrapping machine having rolls of wrapping material supported on a rotatable shaft held at either end by a framework. A platform for wrapping packages is mounted behind a closely spaced heated sealing plate on the framework. An electrically heated wire is suspended by two rotatably mounted brackets and positioned between the wrapping platform and the sealing plate. In its recessed position, the heated wire is at a lower level than the platform in order to prevent inadvertent contact with the wire. During use, the heated wire is raised to a higher level by an actuator which rotates the brackets holding it. The actuator may be a plate which is motivated by contact with the package as it is moved from the wrapping platform to the heating plate. A manually operated foot

pedal may also function as the actuator. A shield is optional to further protect the heated wire in its recessed position.

3,563,004

SEPARATOR STRUCTURE

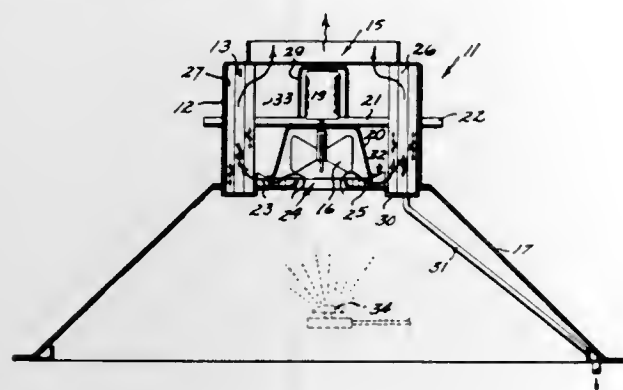
Arthur C. Schouw, Corunna, Mich., assignor to Anpol Research Corporation, Owosso, Mich., a corporation of Michigan

Filed Oct. 29, 1968, Ser. No. 771,490

Int. Cl. B03c 3/38

U.S. Cl. 55—103

3 Claims



The device of the present invention is a compact separator structure for removing contaminants from contaminant laden gases or vapors and combines an orifice entry, a fan chamber and a cylindrical foraminous filtration column or zone surrounding the fan chamber and through which gases and/or liquids or mixtures thereof are spirally entrained to exhaust in a velocity reduction chamber defined by the fan chamber and the outer case and through an exhaust port. The entry and exhaust openings are in axial alignment and the axis of the fan or blower is coaxial therewith and the foraminous cylindrical filtration chamber is concentrically disposed in respect to the axis of the structure and the entire device is encased as between the entry and exhaust openings with a gravity sump provided at the base of the filtration column. Flow directors assist the spiralling flow of gases, vapors, liquids and/or mixtures thereof and a gathering hood may be attached to guide contaminants and/or gases, vapors, liquids and mixtures thereof to the entry of the structure. Spray nozzles may be interposed to provide additive vapors to gases, liquids and/or mixtures thereof prior to entry.

3,563,005

APPARATUS FOR EXTRACTING SMOKE AND GREASE ELEMENTS FROM COMBUSTION GASES

James N. Jones, Memphis, Tenn., assignor of forty percent to William R. Tudor, Birmingham, Ala.

Filed Oct. 22, 1968, Ser. No. 769,524

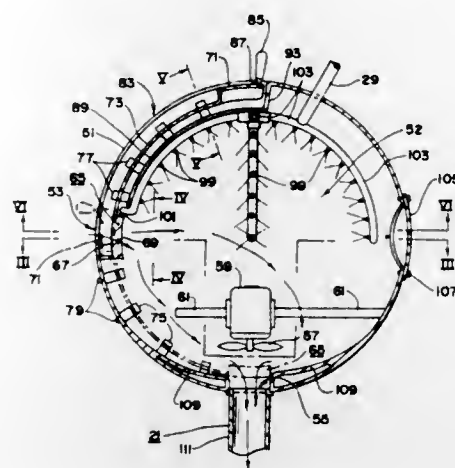
Int. Cl. B01d 47/06

U.S. Cl. 55—228

8 Claims

Smoke and grease particle extracting apparatus particularly useful in commercial kitchen installations and in the ventilator or exhaust system in such kitchen installation. The apparatus includes means for collecting and rendering the grease particles in thickened solid form for readily disposing of the thickened grease in waste or for further processing. The structure includes a cleaner unit having a hollow housing having an inlet and an outlet opening permitting passage of grease-particle-laden combustion gases and elements to pass into and out of the hollow interior of the cleaner unit. The apparatus includes selectively shiftable filter means arranged in the interior of the cleaner unit and such filter means which may be selectively arranged across the inlet or across the outlet

opening of the cleaner housing. When the filter is arranged over the inlet of the cleaner unit housing, grease and foreign particles are filtered out of the combustion gases and constrained in the filter. When the filter is arranged over the outlet opening of the cleaner unit housing, hot water or hot detergent liquid passes through the filter in a reverse or opposite direction thereby dislodging the grease and



foreign material constrained in the filter. Water issuing from the nozzles in the interior of the cleaning unit provide flushing means for heating and flushing the grease substances from the filter mass. Provided also in the apparatus is a grease intercepting or collecting tank for collecting the hot water and grease for subsequent reuse or disposal.

3,563,006

SEPARATING AND COOLING DEVICE FOR PLASTIC GRANULES

Fritz Sutter, Pratteln, Switzerland, assignor to Buss Aktiengesellschaft, Basel, Switzerland, a corporation of Switzerland

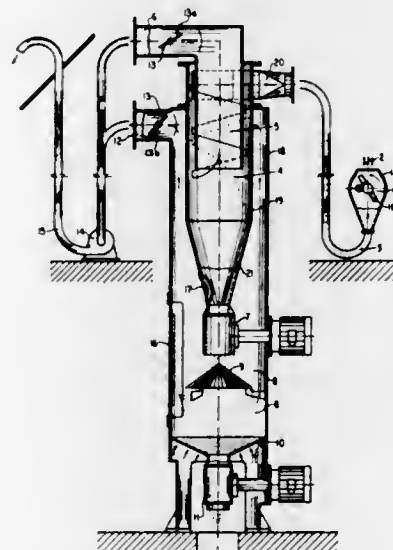
Filed June 19, 1968, Ser. No. 738,233

Claims priority, application Switzerland, June 22, 1967, 9,122/67

Int. Cl. B01d 51/00

U.S. Cl. 55—267

4 Claims



A separating and cooling device for producing cooled plastic granules comprising a cylindrical casing with distributing members and air cooling access means arranged in its lower end, a second smaller cylindrical casing within said first casing and coaxially arranged therewith, and a third still smaller cylindrical casing within said second casing, the third casing being provided with an outlet collar.

3,563,007

FUEL VAPOR CONTROL

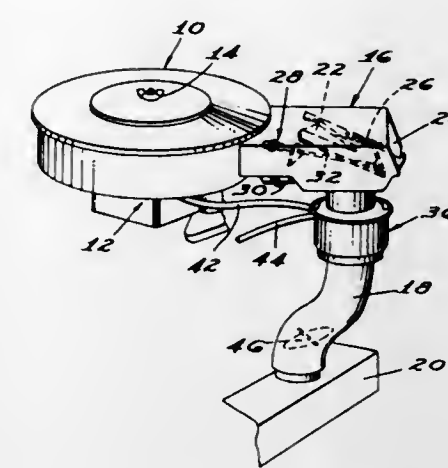
James R. Clarke, Westland, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Oct. 7, 1968, Ser. No. 765,505

Int. Cl. B01d 50/00; F02m 31/00

U.S. Cl. 55—316

4 Claims



During an internal combustion engine hot soak cycle, fuel tank and carburetor bowl fuel vapors are absorbed by carbon in a canister located in a hot air duct portion of the engine air cleaner; normal engine operation purges the vapors from the canister into the air cleaner except during high load engine operation, when the hot air duct is closed to avoid unnecessary restrictions to air flow.

3,563,008

SPARK ARRESTOR

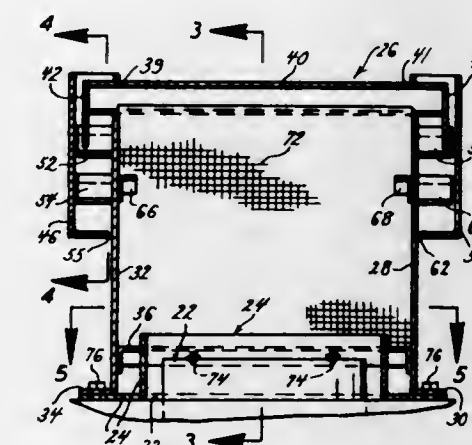
Edward F. Heaton, Jr., 5226 Pinedale Court, St. Louis, Mo. 63129

Filed Aug. 11, 1969, Ser. No. 848,846

Int. Cl. B01d 50/00

U.S. Cl. 55—327

11 Claims



An inverted V-shaped enclosure with perforate walls is mounted above the exhaust stack of a diesel-powered unit of a railroad locomotive, it has an open-bottom, closed-top conduit at the apex thereof, and it has internally-baffled retention bins at the opposite ends of that conduit. In those retention bins, those carbonaceous particles will be swirled around by the interaction of the baffles and the exhaust gases and vapors, and will repeatedly strike each other and those baffles until they are ground into powder.

3,563,009

FLOATING TOP AIR CLEANER ASSEMBLY

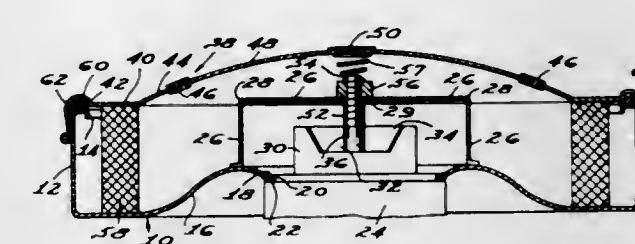
Donald G. Wheatley, Livonia, and George H. Muller, Ann Arbor, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Oct. 25, 1968, Ser. No. 770,474

Int. Cl. B01d 27/08

U.S. Cl. 55—510

6 Claims



The cover for an air cleaner assembly is made of a sheet metal peripheral portion that clamps the air cleaner element onto the body and a convex center portion that ducts air from the filter element to the carburetor inlet. An annular resilient member connects the center portion to the peripheral portion and permits limited resilient or floating movement of the center portion relative to the body.

3,563,010

SOFT TOP AIR CLEANER ASSEMBLY

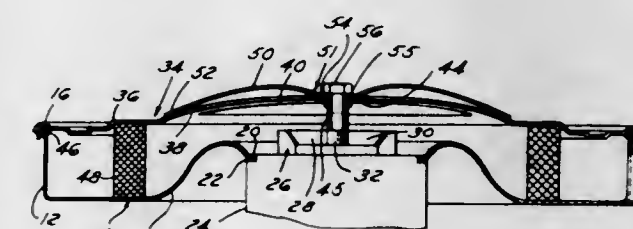
Donald G. Wheatley, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Oct. 25, 1968, Ser. No. 770,476

Int. Cl. B01d 27/08

U.S. Cl. 55—510

5 Claims



A rubber sheet preformed into a convex shape is used as the center portion of an air cleaner cover. The sheet ducts air from the filter element to the carburetor intake and retains its shape under engine vacuum transmitted through the carburetor but deflects upon any contact with the vehicle hood.

3,563,011

MOWER MACHINE

Robert K. Bramley, Cleveland, and Hugh A. Bourassa, University Heights, Ohio, assignors to Kearney-National Inc., New York, N.Y., a corporation of Delaware

Continuation-in-part of application Ser. No. 705,395,

Feb. 14, 1968. This application Apr. 21, 1969, Ser.

No. 818,002

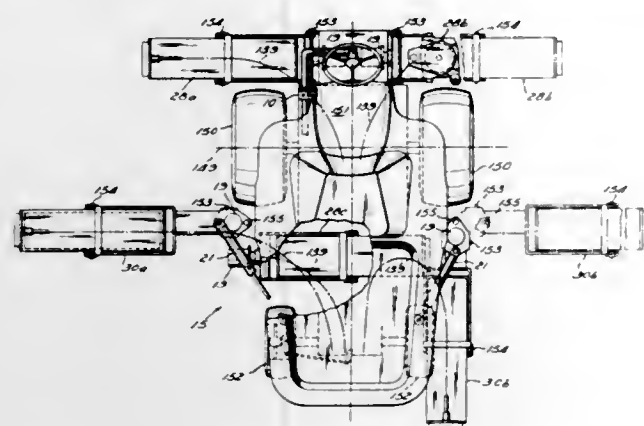
Int. Cl. A01d 75/30

U.S. Cl. 56—7

13 Claims

A hydraulic control system for a multiple unit mowing machine is disclosed. Each mower unit is independently retractable and individually driven through a flexible cable drive. Hydraulic mower clutches are separately connected to an actuator control circuit to be automatically disengaged when their associated mowers are retracted. The mower clutches are also operable to slip to allow

the associated flexible cable to stop with the mower when a mower unit becomes obstructed. An integral implement circuit of the mowing machine transmission is utilized to drive hydraulic actuators which individually



positions several mowing units. Novel and improved valve and circuit means are provided to retract and hydraulically lock each mower actuator. Outboard mowing units are yieldably extended under the pressure of an accumulator connected to associated bidirectional actuators.

3,563,012

TRACTOR FOR LAWN MOWERS

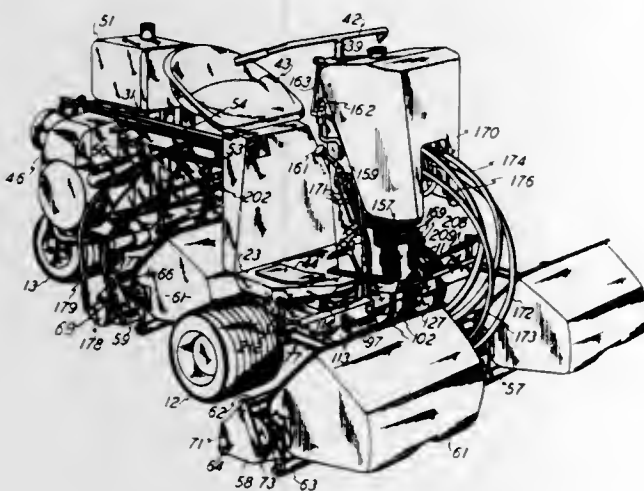
Raymond K. Strasel, Winthrop Harbor, Ill., assignor to Jacobsen Manufacturing Company, Racine, Wis., a corporation of Wisconsin

Filed Oct. 18, 1968, Ser. No. 768,647

Int. Cl. A01d 75/30; B60k 3/00

U.S. Cl. 56—7

9 Claims



the grain loss below a predetermined minimum. A manual control is provided to set the predetermined minimum and override the automatic control.

3,563,014

COMBINATION LAWNMOWER AND LEAF RAKE

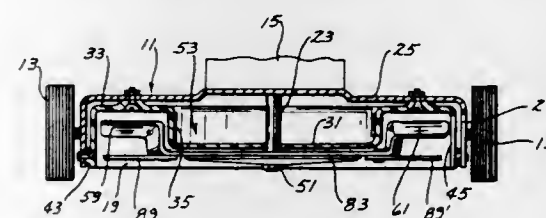
Ralph W. Krewson, West Des Moines, Iowa
(629 Bompert, Webster Groves, Mo. 63119)

Filed Feb. 20, 1967, Ser. No. 617,408

Int. Cl. A01d 35/26

U.S. Cl. 56—25.4

3 Claims



A rotary lawnmower and leaf rake including a wheeled housing having a channel-shaped liner therein, a cutting blade means rotatably mounted in the liner and a collection bag structure detachably secured to the housing.

3,563,015

ROTARY LAWNMOWER CUTTER BAR

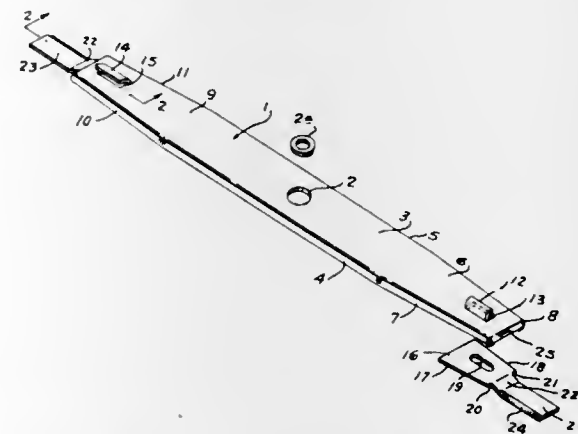
Charlie C. Renfro, Montgomery, Ala.
(P.O. Box 250, Broxton, Ga. 31519)

Filed May 21, 1968, Ser. No. 730,888

Int. Cl. A01d 55/18

U.S. Cl. 56—295

2 Claims



A cutter bar for power driven rotary blade-type mowers having detachable cutter blades which are slide-

3,563,013

AUTOMATIC COMBINE CONTROL

Lee E. Elfes, Bloomfield Hills, Mich., assignor to Massey-Ferguson Inc., Des Moines, Iowa, a corporation of Maryland

Filed July 22, 1968, Ser. No. 746,485

Int. Cl. A01d 41/00

U.S. Cl. 56—20

4 Claims

A harvesting combine with a crop separating unit and having an electromechanical transducer located in the machine at a point for measuring the relative amount of unseparated grain and thereby the efficiency of the sepa-

ably mounted in spaced apart channels on the ends of the cutter bar and includes stops extending laterally of the cutter bar and cutter blades to prevent the longitudinal movement of the cutter blades outwardly of the cutter bar.

3,563,016

SENSING UNIT FOR A GRAPE HARVESTER FOR ENABLING THE CUTTING APPARATUS TO FOLLOW THE SURFACE TO BE WORKED

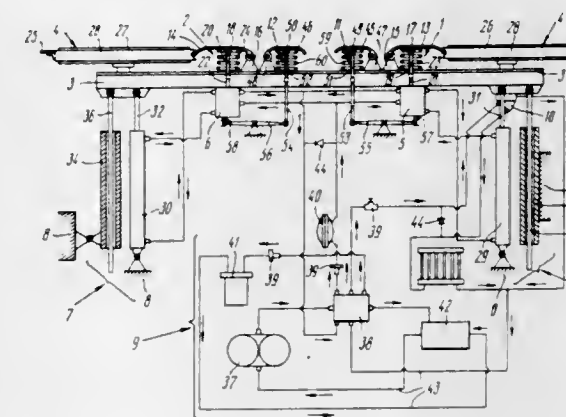
Cheslav Stanislavovich Tolochko, Ulitsa Budennovskaya 203/2, kv. 17; and Vladimir Ivanovich Popov, Ulitsa Budennovskaya 203/2, kv. 9, both of Novocherkassk, U.S.S.R.; and Miron Vasilievich Tsitsiv, Ulitsa Nagornaya 14; Alexandr Nikolaevich Varfolomeev, Kotovskoe shosse 22b, kv. 16; and Marlen Mikhailovich Gervolsky, Ulitsa Frunze 9, kv. 3, all of Kishinev, U.S.S.R.

Filed Nov. 8, 1967, Ser. No. 681,435

Int. Cl. A01g 19/00

U.S. Cl. 56—331

4 Claims



A sensing unit is provided for enabling the operating elements of grape harvesters to follow the surfaces to be worked and specifically enabling the cutting apparatus of the grape harvester to follow the surface of the trellis canopy; the unit comprises a grape harvester frame and an actuating mechanism mounted on the frame in turn supporting a movable control element which is operated by a hydraulic drive system by means of two valve-type hydraulic selectors.

3,563,017

SERVING HEAD FOR CORE WRAPPING APPARATUS

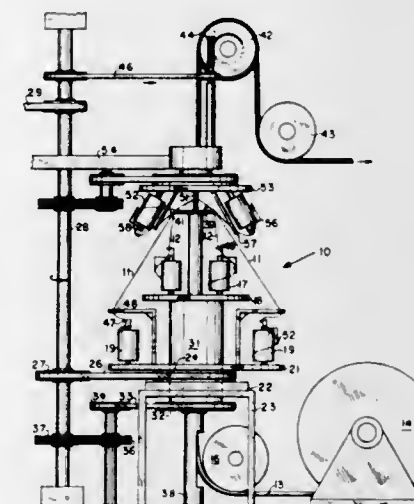
Lawrence B. Woolman, Marion, Ind., assignor to Anaconda Wire and Cable Company, a corporation of Delaware

Filed June 2, 1969, Ser. No. 829,609

Int. Cl. B65h 81/08

U.S. Cl. 57—13

3 Claims



In an apparatus for winding strands in two directions around an advancing core, instead of passing through a

3,563,018

WINDING MACHINE GUIDE

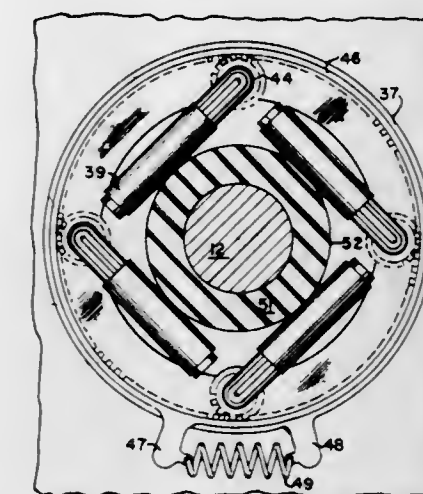
Heinz Lutjen, Yonkers, N.Y., assignor to Anaconda Wire and Cable Company, a corporation of Delaware

Filed Mar. 20, 1969, Ser. No. 808,919

Int. Cl. B65h 81/08

U.S. Cl. 57—15

9 Claims



In a machine for winding tapes or other strands around an advancing core, a guide for the core is non-rotating and is mounted to the rotating frame of the machine by means of a low-friction bearing.

3,563,019

METHOD OF AND APPARATUS FOR SPINNING AND TREATING THREAD

Aloys Greive, Munster, Westphalia, and Aloys Treus, Havixbeck, Westphalia, Germany, assignors to Hamel G.m.b.H., Zwirnerel-und Spinnerelmaschinen, Munster, Westphalia, Germany, a corporation of Germany

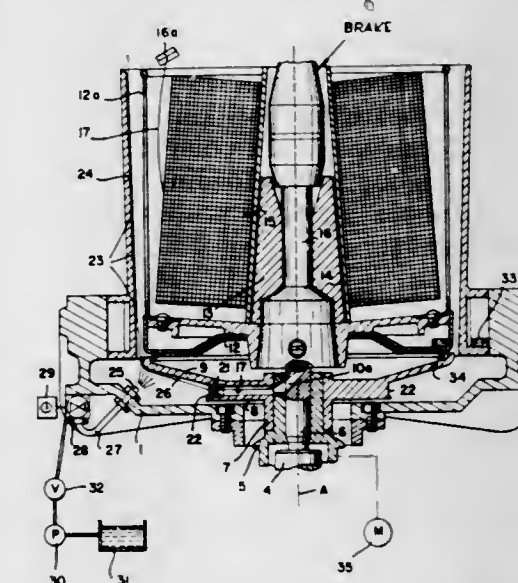
Filed Mar. 26, 1969, Ser. No. 810,464

Claims priority, application Germany, Mar. 28, 1968, P 17 60 063.4

Int. Cl. D01k 7/86, 13/30

U.S. Cl. 57—35

12 Claims

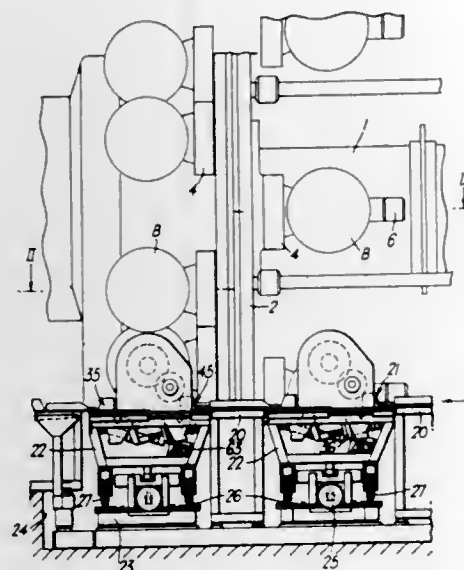


A thread is drawn axially off a relatively nonrotatable spool and guided through the center of the spool which is equipped with a light friction brake for the thread. On leaving the spool the thread is fed through a lateral hole in a rotating hollow shaft and onto a rotating disk mounted on the shaft. A jet of treating liquid is pulsed against this disk to soak the thread moving radially outward

thereon. Then the thread is drawn up between a sleeve surrounding the spool and the spool itself and wound on a bobbin or yarn package.

3,563,020 WIRE-STRANDING AND WIRE-ARMOURING MACHINES

Edwyn Harris, Tarvin, near Helsby, and Raymond J. Papworth, Hedge End, Botley, England, assignors to British Insulated Callenders' Cables Limited, London, England
Filed Apr. 8, 1969, Ser. No. 814,339
Claims priority, application Great Britain, Apr. 10, 1968, 17,269/68
Int. Cl. D01h 9/00, 9/18
U.S. Cl. 57—52 20 Claims



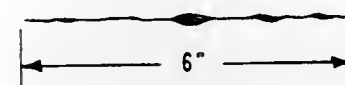
A bobbin-loading and unloading device for use with a cable-making machine of the kind in which bobbins are rotatably supported on cantilevered arbors carried on frames rotatable about the machine axis, comprises a loading table for supporting a bobbin with its axis substantially horizontal. The table is constrained to be reciprocated in a direction transverse to the machine axis from a normal position in which it is clear of a rotating frame of the machine to a forward position. At the forward position either a full bobbin can be transferred from the table to a cantilevered arbor in the loading (and unloading) position or an empty bobbin can be transferred from a cantilevered arbor to the table. The table preferably carries means for positioning a bobbin on the table with its axis substantially coincident with the axis of a cantilevered arbor in the loading position and may form part of a bobbin-conveyor positioned alongside the cable-making machine.

3,563,021 INTERLACED YARN AND METHOD OF MAKING SAME

Walter Clarke Gray, Greenville, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Continuation-in-part of application Ser. No. 801,596, Feb. 24, 1969. This application Dec. 9, 1969, Ser. No. 883,536
Int. Cl. D02g 3/22
U.S. Cl. 57—140 12 Claims

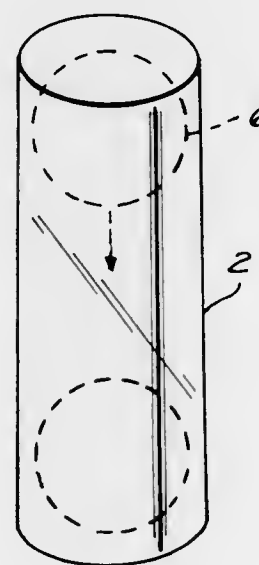
Compact multifilament yarn is interlaced to weave satisfactorily as warp in automatic power looms without size or twist. Continuous filaments having an average strength of at least 4.0 grams per filament, and at least 50% having a tenacity of at least 2.0 grams per denier, are passed through jet streams to produce yarn having an

exceptionally uniform bundle cohesion measured after a backwinding test of stability to working in use. The yarn has a highly uniform appearance free from filament



defects, e.g., no more than 10 defects per million end yards of yarn when tested with a conventional defect analyzer.

3,563,022 SHEAR FLOW DASHPOT TIMER David S. Breed, Box 270, Hillcrest Road, R.D. 2, Boonton, N.J. 07005 Filed Aug. 18, 1969, Ser. No. 851,010 Int. Cl. G04f 1/00 U.S. Cl. 58—1 17 Claims

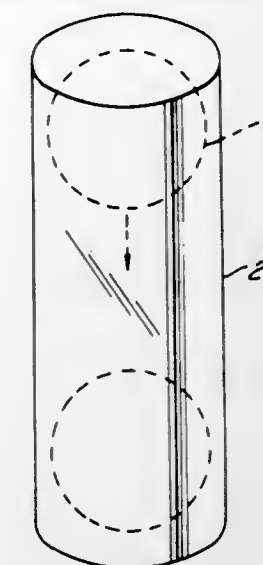


The dashpot timer of this invention includes a substantially cylindrical glass tube in which travels a piston having a diameter slightly less than that of the interior of the tube. A liquid, gum, grease or compound covers the interior surface of the cylinder in which the piston is adapted to travel. The flow ingenerated in the cylinder is predominantly a shear flow with the pressure flow being relatively insignificant. The device of the present invention operates in the lubrication region whereby relatively small timers are capable of providing delays up to several seconds or more.

3,563,023 LIQUID ANNULAR ORIFICE DASHPOT TIMER David S. Breed, Yacht Club Drive, Spring Brook Terrace, Lakeforrest, Jefferson Township, N.J. 07005 Continuation-in-part of abandoned application Ser. No. 770,205, Oct. 24, 1968. This application Dec. 9, 1968, Ser. No. 816,132 Int. Cl. G04f 1/00 U.S. Cl. 58—2 21 Claims

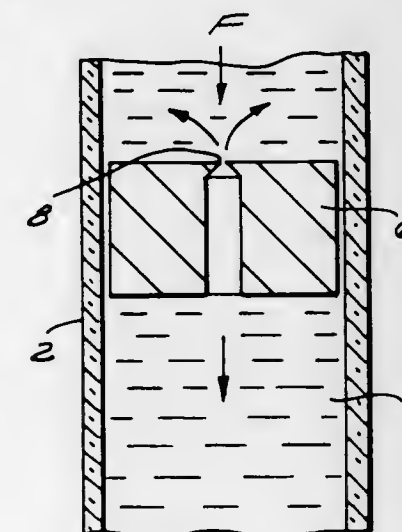
The dashpot timer of this invention includes a substantially cylindrical glass tube in which travels a piston having a diameter slightly less than that of the interior of the tube. A liquid or gum defines the medium in the cylinder in which the piston is adapted to travel. The flow ingenerated in the cylinder is predominantly a pressure

flow with the shear flow being relatively insignificant. The device of the present invention operates in the lubrication



region whereby relatively small timers are capable of providing delays up to several months or more.

3,563,024 SHARP EDGE ORIFICE DASHPOT TIMER David S. Breed, Box 270, Hillcrest Road, R.D. 2, Boonton, N.J. 07005 Filed Aug. 27, 1969, Ser. No. 853,473 Int. Cl. G04b 45/00 U.S. Cl. 58—2 8 Claims

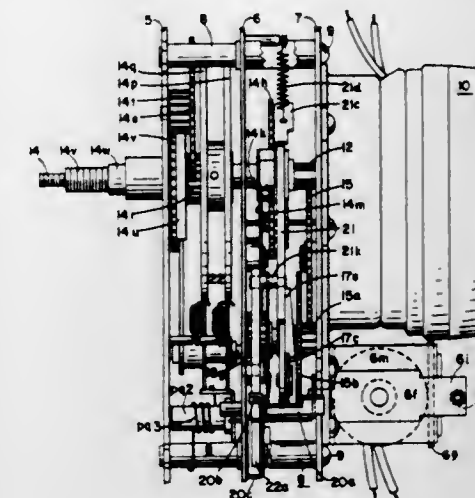


The dashpot timer of this invention includes a substantially cylindrical glass tube in which travels a piston having a diameter slightly less than that of the interior of the tube. A low viscosity liquid defines the medium in the cylinder in which the piston containing a sharp edge orifice is adapted to travel. The flow ingenerated in the cylinder is predominantly an inertial flow through the sharp edge orifice with the shear flow and pressure flow between the piston and cylinder being relatively insignificant. The device of the present invention operates in the inertial flow region whereby the viscosity effects are relatively small compared with the inertial effects of the fluid.

3,563,025 CLOCK MECHANISM Robert A. Kulick, Streamwood, Ill., assignor to DuKane Corporation, St. Charles, Ill., a corporation of Delaware Filed Aug. 14, 1969, Ser. No. 849,995 Int. Cl. G04c 9/00 U.S. Cl. 58—35 3 Claims

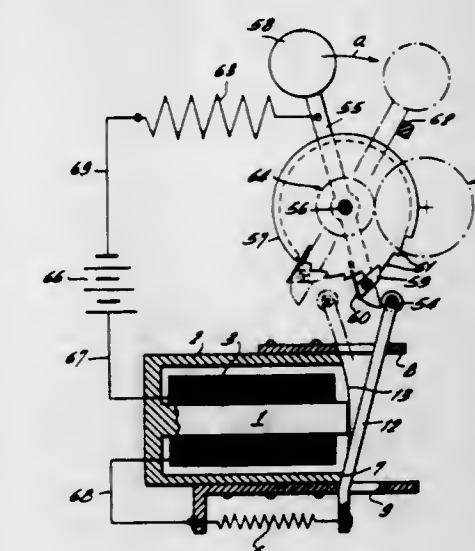
The invention relates to a clock driven by a synchronous electric motor and adapted to be reset at periodic

intervals from signals received from a master clock. The clock forming the subject matter of this invention is provided with means for inhibiting or preventing a reset signal from causing reset action to occur if the clock is on time. If reset is called for, then such action takes place over an appropriate time interval. The particular invention in-



involved here relates to the mechanical structure between armature normally responsive to signal reset impulses and a generally conventional reset mechanism. This conventional reset mechanism has been modified to embody the reset inhibiting function. In addition, the cam arrangement provides for more accurate control.

3,563,026 ELECTROMAGNETIC ACTUATING APPARATUS FOR CLOCKWORK MECHANISMS Alfred Kreidler, Zurich, Switzerland, assignor to Metall-Invent S.A., Zug, Switzerland Original application June 15, 1967, Ser. No. 646,287, now Patent No. 3,477,049. Divided and this application Sept. 19, 1969, Ser. No. 859,262 Int. Cl. G04c 1/00 U.S. Cl. 58—41 4 Claims



The invention relates to an electromagnetic actuating apparatus in which an armature is attracted by an electromagnet when current is switched on. This kind of apparatus is employed for actuating electric switches, such as clockwork winders or the like. The armature rolls upon the pole piece in a manner so as to reduce noise of operation and the armature completes an operative electrical circuit from a battery to the electromagnet through at least a portion of the apparatus.

3,563,027

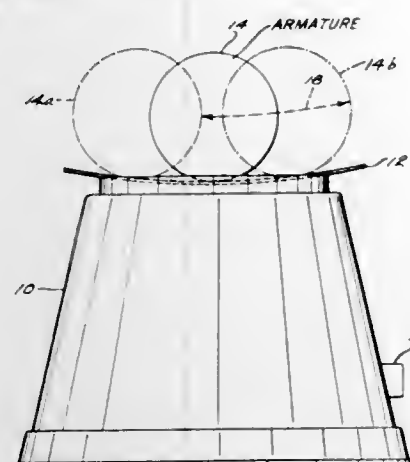
ENERGY TRANSFORMATION DEVICE

Harold B. Greenberger, Cleveland Heights, Ohio, assignor of one-half to Richard R. Walling, Hudson, Ohio

Continuation of application Ser. No. 510,825, Dec. 1, 1965. This application Jan. 15, 1969, Ser. No. 792,230

Int. Cl. F03g 7/06

U.S. Cl. 60—23



An energy transformation device for transferring heat energy into kinetic energy. A suitable heat source is provided such as an electric heater, a gas flame, etc., and, in the preferred form of the invention, a heated solder pot is used. Disposed on the top surface of the solder pot is an elongated cylindrical object balanced to roll back and forth on such surface. When the heat is turned on, the cylindrical object will roll back and forth or oscillate on such surface indefinitely. The object may be any suitable elongated cylindrical object such as a solid cylindrical bar, a hollow cylindrical object such as a tin can, and, in the preferred form, a small motor or generator armature is employed.

3,563,028

IMPLANTABLE RADIOISOTOPE-FUELED STIRLING ENGINE

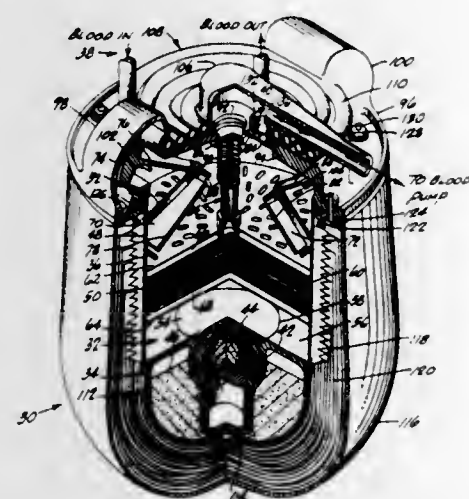
Richard B. Goranson and Richard P. Johnston, Kennewick, William R. Martini, Richland, William H. McDill, Kennewick, Jack E. Noble, Prosser, and Maurice A. White, Kennewick, Wash., assignors to McDonnell Douglas Corporation, a corporation of Maryland

Filed July 22, 1968, Ser. No. 746,601

Int. Cl. F03g 7/06; A61f 1/00

U.S. Cl. 60—24

10 Claims



Long-life, radioisotope-fueled, thermal regenerative engine for driving a blood pump is used in a circulatory support unit which is implantable in an animal. Engine includes an encapsulated radioisotopic heat source with a thermal reservoir, a thermodynamic converter, a heat exchanger using blood as the cooling medium, and a control device to regulate engine power output. The converter includes a cylinder containing a regenerator and drive

plug assembly suspended from a counterbalanced linkage. The control device includes an adjustable bypass valve which regulates the pressure difference appearing across the plug to control engine speed and, therefore, its power output.

3,563,029

MUFFLER FOR REMOVING PARTICULATE LEAD FROM EXHAUST GASES OF INTERNAL COMBUSTION ENGINES

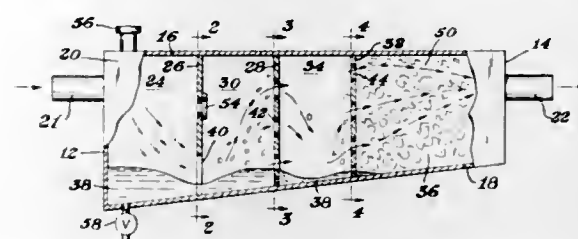
Frederick J. Lowes, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Mar. 13, 1969, Ser. No. 806,809

Int. Cl. F01n 3/04

U.S. Cl. 60—30

8 Claims



Muffler for an internal combustion engine which is adapted for removing particulate lead matter from the exhaust gases of the engine to prevent discharge of the noxious matter into the surrounding atmosphere. Basically, the muffler comprises a canister of the usual type employed with internal combustion engines, which has an inlet port for receiving exhaust gases from the engine and an outlet port for discharging the exhaust gases to the atmosphere. An upwardly sloping bottom wall of the canister defines a sump portion adapted to contain a flux composition which is liquid at the usual temperature range of the exhaust gas stream in the canister. A weir member and one or more baffle members define compartments within the canister.

Flow of the exhaust gas stream through the canister provides a driving force which continuously splashes the liquid flux against the baffle member surfaces and compartment walls, thereby coating these surfaces with a flux film media which entraps the lead particulate matter in the gases. A slotted edge on the weir member meters flow of the gas-liquid body into adjacent compartments of the canister. Openings in each baffle member, which are positioned in staggered relation to each other, provide a tortuous flow path for the exhaust gases. Smaller openings in the baffle members, together with an upwardly sloping bottom wall on the canister permit continuous flow-back of the liquid flux toward the forward portion of the canister. Additional features of the muffler include (1) a gas flow port in the weir member, which is opened or closed by pressure of the exhaust gases, to provide for gas flow through the canister in the event of solidification of the flux composition; and (2) filling the rearmost chamber of the canister with a porous material capable of trapping and separating the liquid flux from the exhaust gases.

3,563,030

EXHAUST SYSTEM

Ervin C. Lentz, Karl K. Kerns, Jackson, and Robert N. Balluff, Leslie, Mich., assignors, by mesne assignments, to Tenneco Inc., Houston, Tex., a corporation of Delaware

Application Sept. 1, 1964, Ser. No. 393,623, which is a continuation-in-part of applications Ser. No. 290,403, and Ser. No. 290,499, both June 25, 1963. Divided and this application Feb. 10, 1969, Ser. No. 816,448

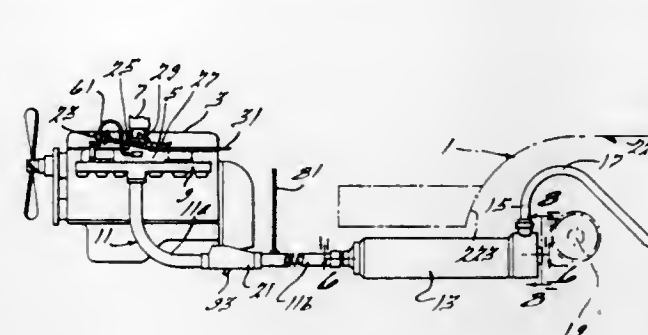
Int. Cl. F01n 7/16, 1/14, 3/08

U.S. Cl. 60—30

5 Claims

A catalytic reactor system for reducing the level of unburned emissions from an automobile internal combustion

tion engine includes, in combination, a reactor device of special construction and an automatically controlled device for admitting secondary combustion air and also means for limiting the level of hydrocarbons and CO upon deceleration of the engine.



3,563,031

GAS TURBINE ENGINE HEAT EXCHANGER AND COMBUSTION SYSTEM

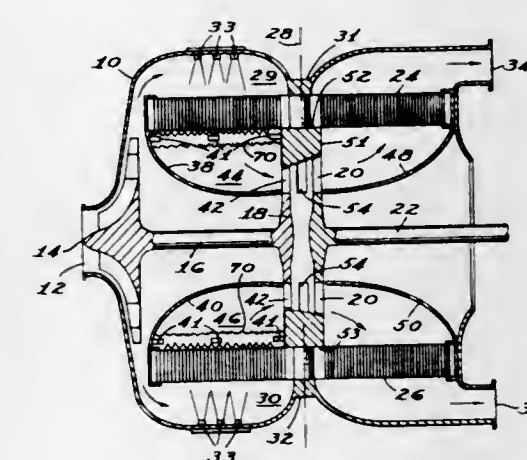
Armenag Topouzian, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Jan. 13, 1969, Ser. No. 790,641

Int. Cl. F02c 7/10

U.S. Cl. 60—39.51

6 Claims



Fuel injected into the compressed air upstream of the heat exchanger vaporizes and mixes with the air during passage through the heat exchanger. The fuel-air mixture is ignited as it emerges from the heat exchanger and burns within a short distance from the exit surface of the heat exchanger. Fuel is injected through nozzles upstream of the compressor or a slinger system associated with the rotating compressor.

3,563,032

HYDROSTATIC PRESSURE PRIME MOVER

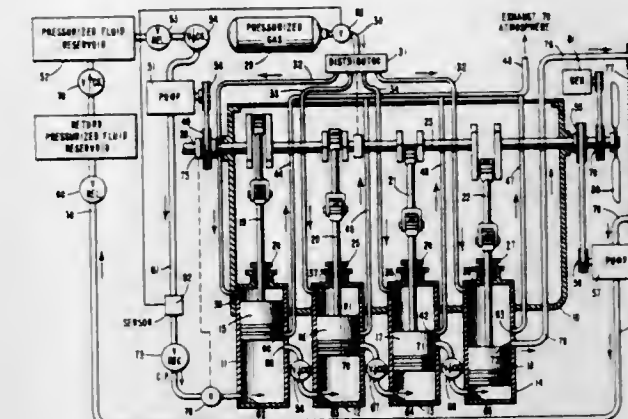
Ralph E. La Pointe, Box 1737, Anchorage, Alaska
Continuation-in-part of application Ser. No. 719,498, Apr. 8, 1968. This application Mar. 27, 1970, Ser. No. 23,411

Int. Cl. F01b 21/02

U.S. Cl. 60—49

10 Claims

A hydrostatic pressure operated prime mover having a block in which a conventional crankshaft is turned in response to the reciprocating displacement of a plurality of pistons in a like plurality of cylinder chambers, the pistons being subjected to the sequential action of two separate pressurizing fluids acting on opposite end faces of the pistons. One pressurized fluid is delivered sequentially to the cylinders from a first pressurized source and



3,563,033

FLUID SYSTEM CHARGING VALVE

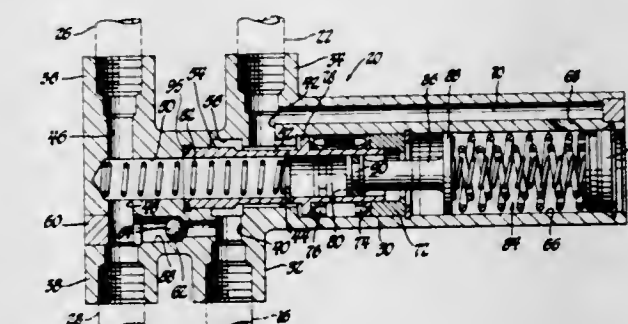
Lee M. Brewer, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed June 19, 1969, Ser. No. 834,763

Int. Cl. F15b 1/02

U.S. Cl. 60—51

2 Claims



A recirculating fluid power steering system for automotive vehicles including a pump and a power steering gear unit is further provided with a secondary source of accumulator fluid pressure connected through the return line from the steering gear, and a charging valve operative in response to the decay of pressure fluid stored within the accumulator to a predetermined minimum to thereafter draw incoming pressure fluid from the steering gear return and pressurize the accumulator to a predetermined maximum whereafter the return line from the steering gear is again communicated to the power steering reservoir. The charging valve is provided with optimum bistable operating characteristics through use of telescopically related control valve and sensing plunger members including valving means operative over a limited travel range in the telescopic movement between the parts to cause snap-action movement of the control valve between accumulator charged and charging positions.

3,563,034

TWO-CIRCUIT MASTER BRAKE CYLINDER

Juan Belart, Walldorf, and Hans-Dieter Drahtmüller, Aschaffenburg, Germany, assignors to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of New York

Filed Aug. 11, 1969, Ser. No. 849,122

Claims priority, application Germany, Aug. 16, 1968, P 17 80 218.5-21

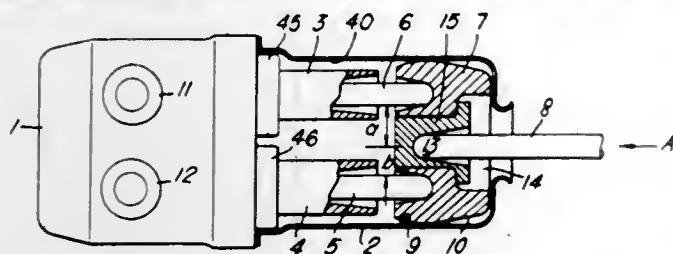
Int. Cl. F15b 7/08

U.S. Cl. 60—54.5

4 Claims

A two-circuit master cylinder assembly having two parallel cylinders operated by a balance lever having a fulcrum point against which an actuator operates. Stop

surfaces are provided on the balance lever and on the housing and/or actuator to limit rotation of the balance



lever when one of the cylinders is inoperative thereby preventing binding or jamming of the balance lever.

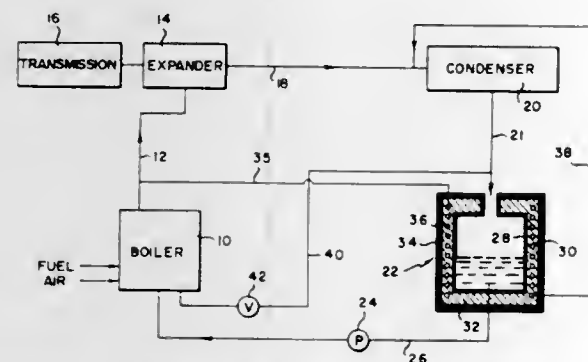
3,563,035

STEAM POWER PLANT FREEZE PROTECTION SYSTEM

Leonard Raymond, New York, N.Y., assignor to Mobil Oil Corporation, a corporation of New York
Filed Oct. 3, 1969, Ser. No. 863,640
Int. Cl. F01k 7/44

U.S. Cl. 60—88

9 Claims



A steam power plant for use in propelling vehicles having a reservoir into which the water or condensate is drained when the engine is shut down. The condensate in the reservoir abstracts heat from a thermal energy storage material which is heated by a hot fluid stream from the steam power plant system during its operation. The heat stored in said material protects the water or condensate in the reservoir from freezing during non-use periods of normal duration at low ambient temperatures.

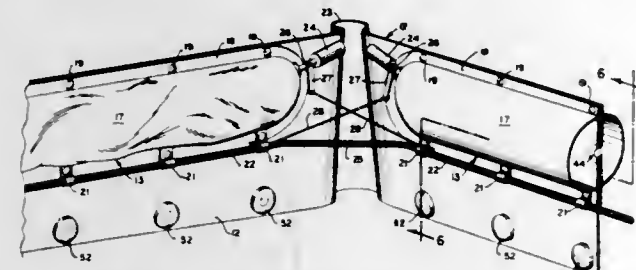
3,563,036

INFLATABLE FLOATING BOOMS

Millard F. Smith, Westport, Conn. (P.O. Box 295, Saugatuck, Conn. 06882) and Russell M. Blair, Westport, Conn.; said Blair assignor to said Smith
Filed Sept. 2, 1969, Ser. No. 854,626
Int. Cl. E02b 3/04, 15/04

U.S. Cl. 61—1

9 Claims



Accordion-folding floating booms for confining spilled oil or other floating material incorporating a thin continuous flexible fin positioned vertically and provided with numerous, short, inflatable balloon-like float pockets mounted along its upper edge. The float pockets are all deflatable and collapsible for compact accordion-folded stowage of the boom in limited volumes of space for storage, shipment and delivery to the site by water transport or by airdrop. Automatic inflation of successive inflatable float pockets upon unfolding deployment of the

booms is achieved by individual pressure sources actuated by the deployment process, providing inflation pressure to produce fully inflated expansion of the float pockets for buoyant floatation of the boom structure. Compressed gas charge cylinders triggered by unfolding of the boom supply the desired inflation pressure. Alternatively, chemical reactants enclosed in adjacent enclosures are mixed together upon unfolding deployment of the boom to produce sufficient amounts of gaseous reaction product to provide inflation pressures required for each buoyant balloon-like float pocket.

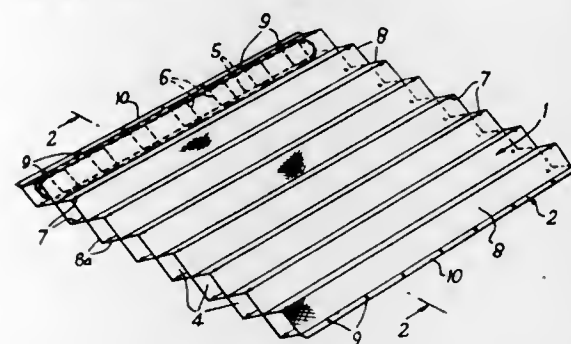
3,563,037

MINIMIZING SCOURING ACTION IN WATER FLOW CHANNELS

Albert James Stammers, 23 Shottfield Ave., East Sheen, London, SW. 14, England
Filed Dec. 17, 1968, Ser. No. 784,314
Claims priority, application Great Britain, July 18, 1968, 34,252/68
Int. Cl. E02b 3/04, 3/12

U.S. Cl. 61—3

9 Claims



A means for minimising the scouring effect of water flow on the beds of rivers, estuaries and the sea bed comprising a tubular element composed of a meshed upper panel through which ballast material can pass to the interior of the element. If desired, the element may have a meshed lower panel through which sand or other bed material may pass but through which the ballast is unable to escape and a plurality of elements may be joined together in parallel relationship to form a unit.

The or each tubular element may be provided internally with a plurality of spaced apart distending members.

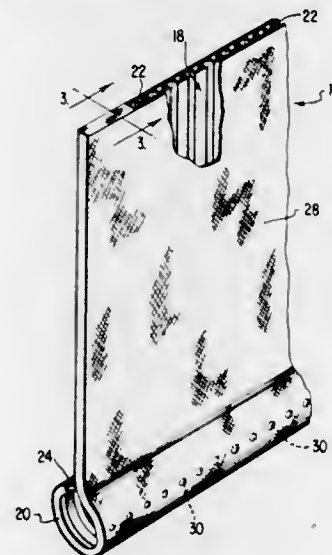
3,563,038

SUBTERRANEAN DRAIN

Kent A. Healy and Richard P. Long, Storrs, Conn., assignors, by mesne assignments, to Research Corporation, New York, N.Y., a foundation of New York
Filed Apr. 3, 1969, Ser. No. 812,982
Int. Cl. E02b 11/00; B01d 35/02

U.S. Cl. 61—11

6 Claims



A subterranean drain unit including a drain pipe having openings therein and a longitudinally extending planar

core defining channels normal to the pipe. Water pervious sheet material covering at least the core and the openings in the pipe to form a filter therefor.

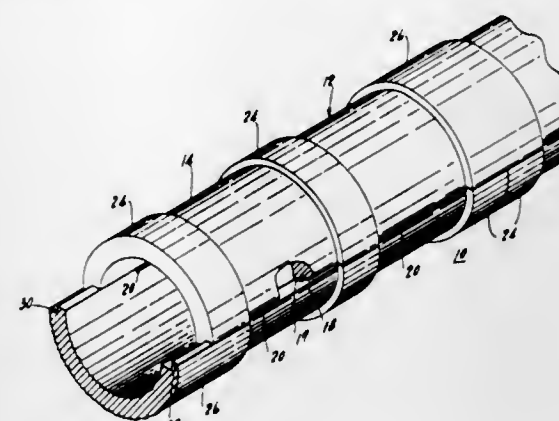
3,563,039

DRAINAGE TILE STRUCTURE

John H. Olsen, 2736 E. Newton Ave., Milwaukee, Wis. 53211
Filed June 10, 1969, Ser. No. 831,830
Int. Cl. E02b 11/00

U.S. Cl. 61—11

8 Claims



A drainage tile comprised of a pair of opposed sections. Slots are provided in the sides of the tile to allow water to enter the tile.

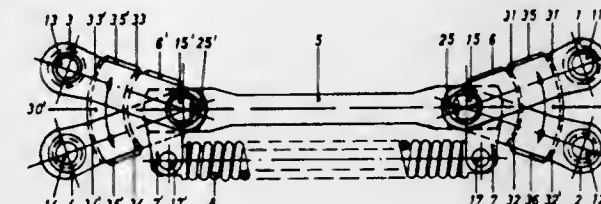
3,563,040

CONNECTING DEVICE FOR ROOF SUPPORT FRAMES

Konrad Grebe, 10 Kaiser Wilhelm Allee, 56 Wuppertal-Elberfeld, Germany
Filed Aug. 5, 1969, Ser. No. 847,584
Claims priority, application Germany, Aug. 8, 1968, P 17 58 794.9
Int. Cl. E21d 15/44

U.S. Cl. 61—45

2 Claims



An improved connecting device between the upper and lower ends of a pair of upright support frames and intermediate sliding devices, respectively, in which two pairs of double swivel arms connect at their outer ends to the support frames and sliding devices respectively, and at their inner ends to a common pivot on the respective ends of a fishtail plate. A stop on one of each pair of arms limits rocking movement in one direction by contact with the fishtail plate and rocking movement of each of such arms in the opposite direction is resisted by a stop member, which is connected to the stop member of the other pair by a tension spring.

3,563,041

OFF-SHORE SHIP MOORING INSTALLATION

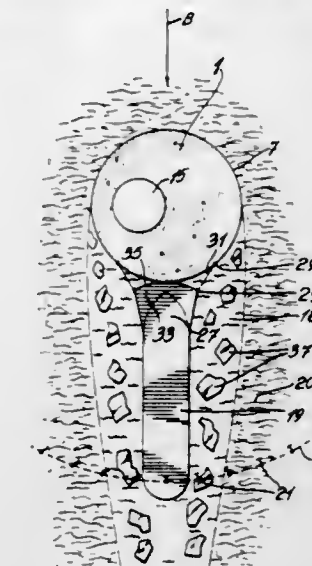
Bernard Michel, 739 Rue des Vignes, Ste.-Foy, Quebec 10, Canada
Filed Mar. 14, 1969, Ser. No. 807,236
Int. Cl. E02b 3/22; E02d 27/36

U.S. Cl. 61—46

5 Claims

An off-shore ship mooring installation made up of a wharf in the form of a columnar body built on the bottom of the sea and having a circular mooring head that projects above the sea in combination with a string of

dolphins distributed on a circle circumscribing the mooring head and located away from the said head a distance



such as to allow mooring of the stern of one or more ships when the ships are moored to the head by the bow thereof.

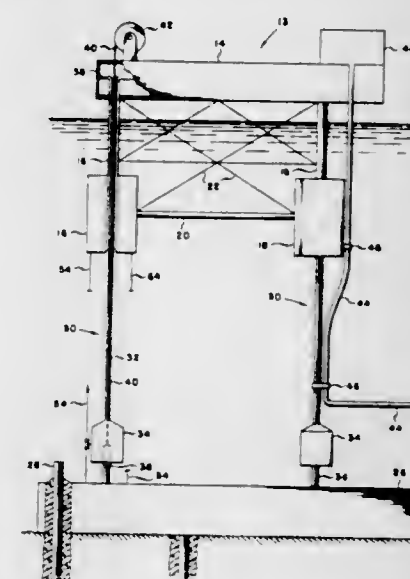
3,563,042

ENCAPSULATED CABLE SYSTEM FOR ANCHORING A FLOATING PLATFORM

Carroll John Ryan, Santa Clara, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Mar. 19, 1969, Ser. No. 808,599
Int. Cl. B63b 21/50, 35/44

U.S. Cl. 61—46.5

24 Claims



An encapsulated cable anchoring and tensioning system is provided for maintaining a floating platform on location with respect to an underwater installation. The platform is maintained on location by applying desired tension to a plurality of cables and their associated encapsulating tubing. The system includes method and apparatus for installing, preloading, adjusting and removing the encapsulated cable assemblies. The encapsulating tubes provide a means of reducing bending loads in the assembly and also protect the cables against corrosion, etc.

3,563,043

OCEANIC STATION

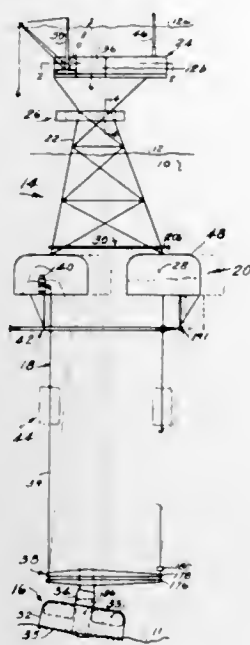
Arthur J. Nelson, 1998 Broadway, San Francisco, Calif. 94109
Filed Apr. 23, 1969, Ser. No. 818,621
Int. Cl. B63b 21/50, 35/44

U.S. Cl. 61—46.5

12 Claims

A vertical array disposed to selectively adjustable situations in a body of liquid supported by immersed buoyant

chambers of capacity in excess of the array weight, said excess opposed by cables uniformly tensioned by anchoring means to the floor of the liquid. Monitoring and control means compensate for natural or deliberately applied forces to the array to maintain stability and protective



measures sustain reliability as a vertical assembly. Means are provided to cope with extending the cable to the floor at great depth. The cables are utilized solely as vertical load transmitting members with reliance on hydraulic means to oppose horizontal forces tending to displace the established vertical alignment of the array.

3,563,044

METHOD FOR CONSTRUCTING STABILIZED CONSTRUCTION WALL IN UNSTABLE FOOTING

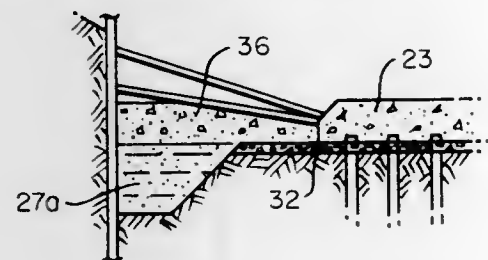
Ben C. Gerwick, Jr., Oakland, Calif., assignor to J. H. Pomeroy & Co., Inc., San Francisco, Calif., a corporation of Washington

Filed Mar. 28, 1969, Ser. No. 811,331

Int. Cl. E02d 3/12, 5/18, 27/04

U.S. Cl. 61—50

7 Claims



A method of providing stabilization for a construction wall during construction is an unstable footing includes the formation of a basin above the pre-existing surface level of a proposed construction zone or site. The basin is used to receive fluid therein to provide increased hydrostatic pressure, acting on the wall from inside the construction site to provide pressure within the site to a degree approximating the countervailing pressures acting on the construction wall from outside the site. Then, while maintaining the hydrostatic pressure, the soil materials within the site are removed by excavating down to a predetermined level and replaced (while still maintaining the hydrostatic pressure) with a stabilizing fill material of greater strength than the unstable material removed from the site. Thereafter, the hydrostatic pressure can be relieved and preparation of the site continued. The wall structure formed will ultimately be characterized by an unstable footing material on one side of the wall at the lower end thereof, a mat of stable footing material on the

other side of the wall, and a mat of concrete superimposed upon the mat of stabilized footing material so that the concrete mat can counteract laterally acting forces pressing against the outside of the wall.

3,563,045

PIPE AND TUBING TRENCH DIGGER

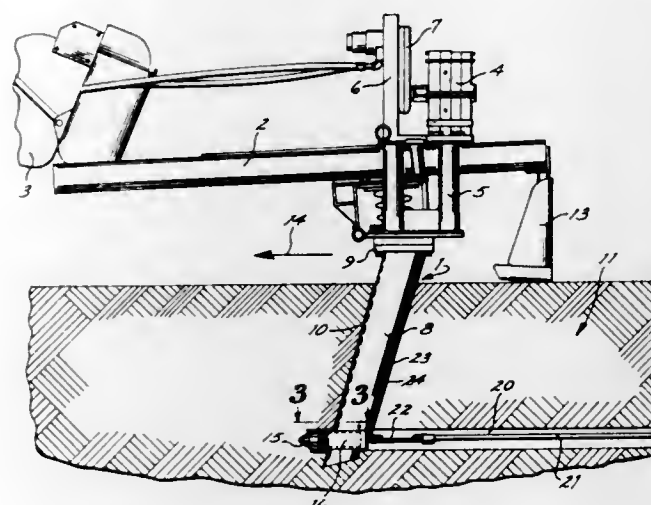
Robert O. Hansen, 4549 W. Rosecrans, Hawthorne, Calif. 90250

Filed Nov. 1, 1968, Ser. No. 772,731

Int. Cl. F16l 1/00; E02f 5/18

U.S. Cl. 61—72.7

2 Claims



When it is desirable to bury certain pipe, tubing or cables which are used or employed by public utilities, it is necessary to dig a trench to receive these elements. With my plow a wide ditch is not required but, on the contrary, a relatively narrow trench is dug to the desired depth in the ground, and this trench or slot is easily recovered without the need of a wide open trench.

3,563,046

AIR SEPARATION PROCESS

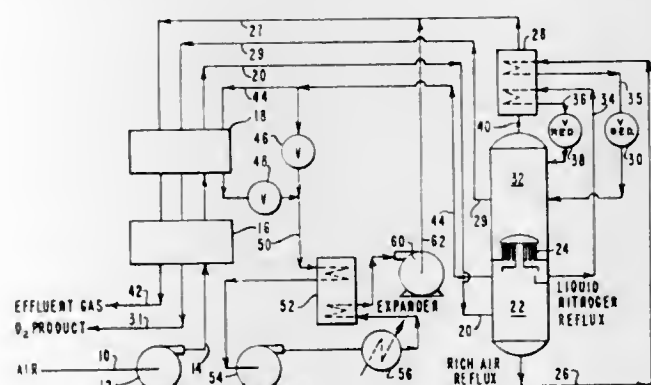
Edward Harold Van Bausch, Pearl River, N.Y., assignor to Hydrocarbon Research, Inc., New York, N.Y., a corporation of New Jersey

Filed Jan. 5, 1968, Ser. No. 696,050

Int. Cl. F25j 3/02, 3/04, 5/00

U.S. Cl. 62—13

6 Claims



An improved air separation process wherein air is compressed, cooled by heat exchange with cold effluent gases from a low pressure distillation tower and then fractionated in a high pressure distillation tower, the condensation of the vapors from the high pressure tower being used to supply the heat to the low pressure tower and wherein refrigeration is obtained for the system by removing a vapor overhead stream from the high pressure tower, warming, compressing, removing the heat of compression, and subcooling the stream by heat exchange with the uncompressed portion of the stream and then passing the stream through an expander doing work.

3,563,047

PRODUCTION OF HIGH PURITY OXYGEN FROM AIR

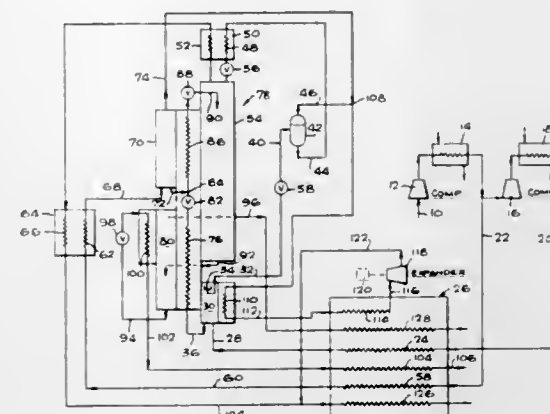
Michael L. Hoffman, Beverly Hills, Calif., assignor, by mesne assignments, to McDonnell Douglas Corporation, Santa Monica, Calif., a corporation of Maryland

Filed Aug. 4, 1967, Ser. No. 658,501

Int. Cl. F25j 3/02, 3/08, 3/04

U.S. Cl. 62—22

11 Claims



Process and system for producing high purity oxygen by air separation, which involves use of a high pressure air feed stream and an intermediate pressure air feed stream, and includes cooling both air feed streams approximately to saturation, separating the cooled high pressure air stream into liquid nitrogen and a first oxygen-rich liquid air mixture in a first separation zone, introducing a portion of said liquid nitrogen, after reducing the pressure thereof, as reflux into a main distillation zone at slightly above atmospheric pressure, separating the cooled intermediate pressure air feed stream in an intermediate pressure zone, into overhead nitrogen and a second oxygen-rich liquid air mixture, reducing the pressure of such first and second oxygen-rich liquid air mixtures, and introducing the resulting oxygen-rich liquid air mixtures as feed into the main distillation zone, withdrawing nitrogen overhead from the intermediate pressure zone, mixing same with a portion of nitrogen vapor from said first separation zone, work expanding the resulting nitrogen mixture to provide refrigeration, and passing the resulting cooled nitrogen vapor into heat exchange relation with both the first and second compressed air streams for cooling same, withdrawing crude liquid oxygen containing a minor portion of argon from the main distillation zone, separating the crude liquid oxygen in the argon separation zone, into high purity oxygen liquid and an argon-containing overhead, and vaporizing the high purity oxygen product; the main distillation zone, the high pressure and intermediate pressure separation zones, and the argon separation zone preferably being associated in heat exchange relation to provide suitable condensing and reboiling duty in each of such zones, and preferably under conditions to provide differential distillation in the main distillation zone and also in the other above-noted associated zones.

3,563,048

AUTOMATIC CONTROL FOR AN AIR CONDITIONING SYSTEM

Vincent T. Barry, Camillus, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware

Filed Dec. 30, 1968, Ser. No. 787,888

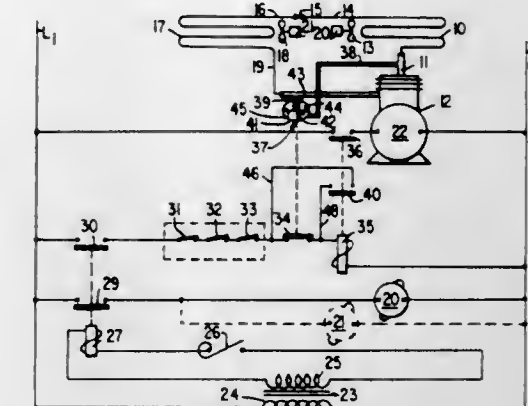
Int. Cl. F25b 1/00

U.S. Cl. 62—115

8 Claims

A control circuit for an air conditioning system including a refrigeration unit comprising a motor-driven compressor, a condenser, an evaporator, expansion means, and means to supply heat exchange media to the condenser

and evaporator of said refrigeration unit. A pressure-actuated switch will prevent the circuit supplying power to operate the compressor motor from being energized if the pressure differential between the suction side of the compressor and discharge side of the compressor exceeds a predetermined point. Means responsive to a thermal



condition of the area being served by the system will energize the heat exchange medium supply means to the condenser even though the compressor may be inoperable because of an unsatisfactory pressure differential. The flow of heat exchange medium will substantially equalize the pressures enabling the compressor circuit to be completed.

3,563,049

ASPIRATOR AND CIRCULATING COOLING APPARATUS

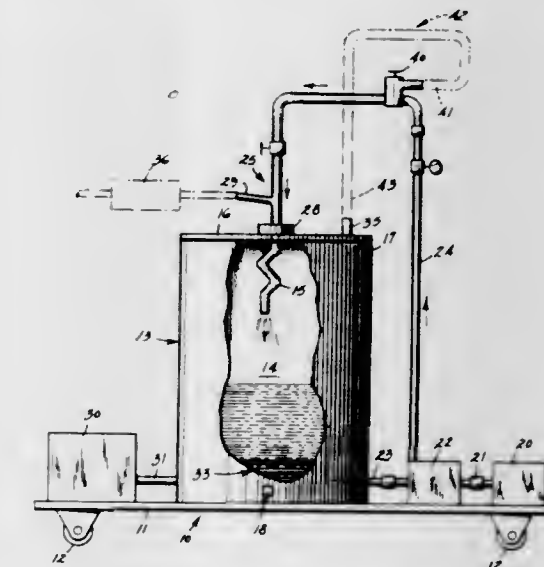
Albert A. Schnerring, Neshaug, N.J., assignor of forty percent to John J. Lipari, Cranford, N.J.

Filed Jan. 16, 1969, Ser. No. 791,601

Int. Cl. F25b 19/02

U.S. Cl. 62—170

10 Claims



Apparatus capable of use as an aspirator for drawing a constant vacuum and for use in circulating cooling systems. The apparatus is portable and includes an aspirator and means associated therewith for creating a vacuum at a controlled constant rate.

3,563,050

AUTOMATIC ICE MAKER

William L. Fox, Niles, Ill., assignor to Eaton Yale & Towne Inc., a corporation of Ohio

Filed Sept. 26, 1968, Ser. No. 762,891

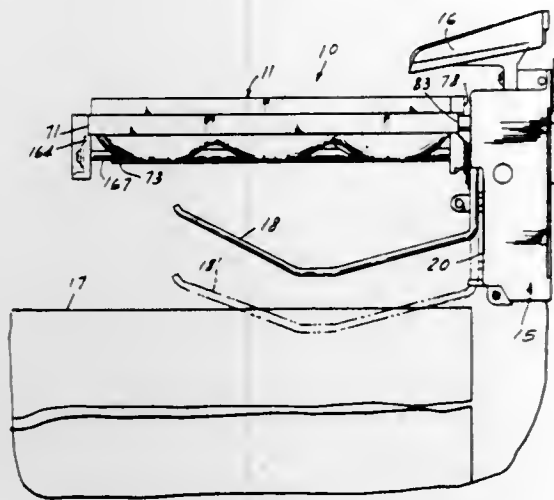
Int. Cl. F25c 1/10

U.S. Cl. 62—233

15 Claims

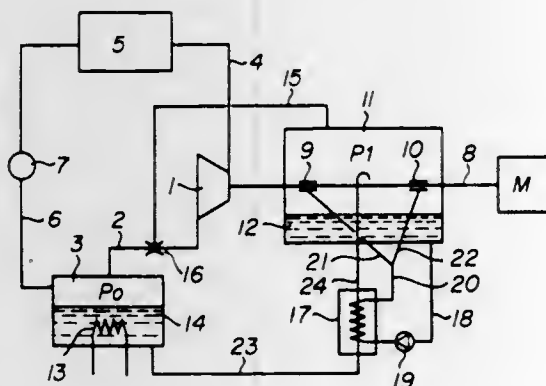
A completely automatic ice cube maker which is driven through successive water fill cycles, freeze cycles and

harvest cycles by a continuously operating permanent magnetic synchronous electric motor. Water is delivered to a plastic ice cube tray during the water fill cycle and the water in the tray is frozen during a freeze cycle of predetermined duration. During the harvest cycle the tray is rotated about its longitudinal axis through 360° but at approximately the mid-point of this rotation one end



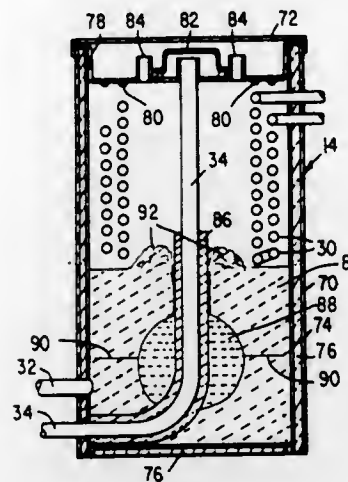
of the tray is arrested momentarily in its movement whereby a twisting action is applied to the tray to dislodge the cubes therefrom. The cubes drop into an ice collection basket and prior to each harvest cycle an ice level sensing mechanism operates to determine whether an excessive quantity of cubes have been collected in the basket and if so operates to deenergize the ice cube maker until the quantity of cubes in the basket has been reduced.

3,563,051
APPARATUS FOR LUBRICATING THE COMPRESSOR OF A REFRIGERATING INSTALLATION
Henri Baumgartner, Bernex, Geneva, Switzerland, assignor to Thermomeccanica Italiana, La Spezia, Italy
Filed Aug. 6, 1969, Ser. No. 847,844
Claims priority, application Switzerland, Aug. 13, 1968, 12,170/68
Int. Cl. F25b 43/02
U.S. Cl. 62—468 4 Claims



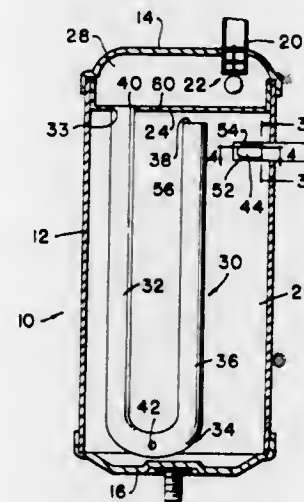
For lubricating the compressor of a refrigerator installation operating on a compression cycle, the upper part of the compressor casing is connected to the suction side at a point where the pressure is lower than that in the evaporator, a heat exchanger is connected to the evaporator and to said upper part, and oil is pumped through the heat exchanger to cool it and is then conveyed to the bearings.

3,563,052
FREEZE CUSHION FOR ABSORPTION REFRIGERATION MACHINE
Earl L. Brown, Indianapolis, Ind., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed Sept. 3, 1968, Ser. No. 756,810
Int. Cl. F25b 15/04; F28f 19/04
U.S. Cl. 62—476 2 Claims



An absorption refrigeration machine employing a water chiller with a central resilient column which is deformable by water pressure created by freezing of the water in the chiller to provide a passage for flow of water from the interior of the ice block formed in the chiller to prevent damage to the chiller caused by expansion of the ice.

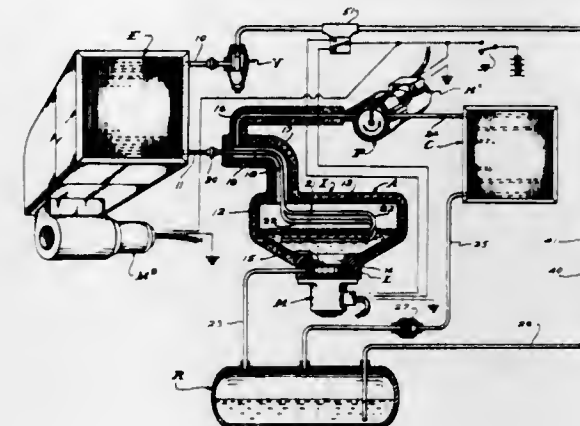
3,563,053
SUCTION ACCUMULATOR
Edward W. Bottum, 9357 Spencer, Brighton, Mich. 48116
Filed Sept. 16, 1968, Ser. No. 759,863
Int. Cl. F25b 43/00
U.S. Cl. 62—503 16 Claims



The suction accumulator of the invention is designed for use with the suction or compressor side of a refrigeration system. The accumulator comprises a casing having an inlet and an outlet. A conduit is provided within the casing. The conduit extends from a point adjacent the bottom of the casing to the casing outlet and acts as a suction tube to draw liquid from the casing and expel it into the casing outlet at a metered rate. The conduit is preferably a generally U-shaped tube which has a first leg connected to and extending from the outlet towards the lower portion of the casing and a second leg extending from the first leg towards the upper

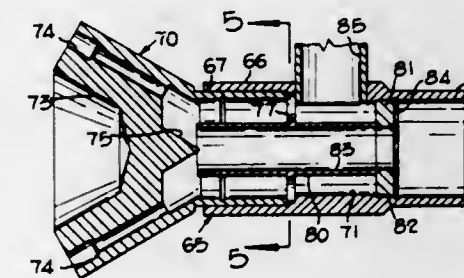
portion of the casing and terminating in an open end for the passage of gas therethrough. The U-shaped tube has an opening adjacent the lower portion of the casing to draw liquid from the casing and expel it into the casing outlet at a metered rate.

3,563,054
REFRIGERATION SYSTEM WITH LIQUID SEPARATOR
Andrew F. Lofgreen and Harley L. Cogburn, both of P.O. Box 948, Big Bear Lake, Calif. 92315
Filed Dec. 31, 1968, Ser. No. 788,295
Int. Cl. F25b 43/00
U.S. Cl. 62—512 6 Claims



A refrigeration system wherein a conventional compressor or a generator boiler is replaced by a novel liquid vapor phase separator and a small capacity vapor pump, said liquid vapor phase separator being thermally insulated and having heat transfer means within to lower and control the operating temperature of the liquid vapor phase separator, said vapor pump serving to evacuate vapor from the separator and deliver it to a condenser to condense it and subsequently deliver it to a receiver, said liquid pump drawing liquid refrigerant from the separator and delivering it to the receiver.

3,563,055
REFRIGERANT DISTRIBUTOR
Alan Owens, Ballwin, Mo., assignor to Sporlan Valve Company, St. Louis, Mo., a corporation of Missouri
Filed Mar. 17, 1969, Ser. No. 807,668
Int. Cl. F25b 39/02
U.S. Cl. 62—525 10 Claims

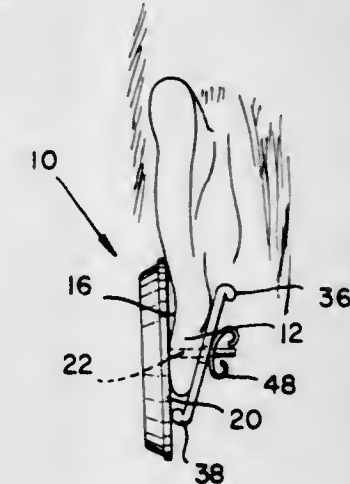


A refrigerant distributor for delivering refrigerant from an expansion valve to a multi-circuit evaporator, the distributor having a nozzle in a body chamber through which the liquid/gas mixture leaving the expansion valve is fed from a first inlet in one body end to a plurality of divergent feed passages in the opposite body end. The nozzle includes a tube that extends forwardly in the chamber to a point of distribution in the chamber. A second inlet in the body side communicates with the chamber in front

of the nozzle partition yet rearwardly of the tube end so that hot refrigerant gas is mixed in the chamber around the tube and then fed into the feed passages at the distribution point.

An adaptor body portion that is compatible with a conventional distributor can be inserted between the expansion valve and such distributor. The nozzle of the conventional distributor is removed and inserted in the adaptor body portion, whereby the refrigerant from the expansion valve is delivered directly to the feed passages at the distribution point in the discharge portion of the conventional distributor. A web, carried by the adaptor body portion, supports the tube. The hot gas inlet in the adaptor body portion is located between the insertable nozzle and the web, the web being provided with openings that permit flow along the tube to the feed passages at the distribution point.

3,563,056
PIERCED EAR ORNAMENT WITH LOBE SUPPORT MEANS
Hazel H. Noel, 42 W. 35th St., New York, N.Y. 10001
Filed Mar. 26, 1969, Ser. No. 810,506
Int. Cl. A44c 7/00
U.S. Cl. 63—12 9 Claims



The invention comprises an earring having a post extending rearwardly therefrom which is adapted to fit into the pierced ear. A support member which is elongatedly shaped fits behind the ear and runs parallel to the back surface thereof and is provided with a hole in the approximate center thereof. The post of the earring fits through the hole in the support member and a spring-like securing member fits over the end of the post holding the earring against the ear which is supported by the support member.

3,563,057
METHOD FOR MAKING MULTIFOCAL LENS
Charles H. Rosenbauer, Irondequoit, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Continuation of application Ser. No. 518,272, Jan. 3, 1966. This application Aug. 28, 1968, Ser. No. 757,220
Int. Cl. C03b 15/00, 11/08
U.S. Cl. 65—30 2 Claims



A method of making a multi-focus lens. Selected ions (silver or thallium) are diffused through the surfaces of a recess into a glass blank having the same index

of refraction as the base element of the lens. The diffused ions form a zone of gradient refractive index adjacent to the surfaces of the recess. A segment glass of higher refractive index than the initial blank is then fused in the recess to form a composite disc. The portion of the blank beneath the recess is removed to expose the segment glass. The composite disc is then shaped to the required curvature and fused to the base element.

3,563,058

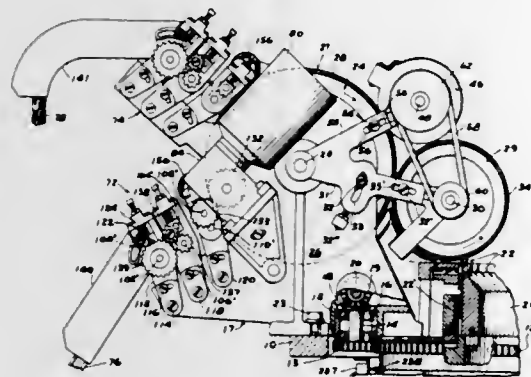
METHOD AND APPARATUS FOR PRODUCING KNIT PILE FABRIC

Arnold W. Schmidt, Sarasota, Fla., assignor to Norwood Mills, Inc., Janesville, Wis., a corporation of Delaware
Application Dec. 9, 1966, Ser. No. 600,490, now Patent No. 3,501,812, dated Mar. 24, 1970, which is a division of application Ser. No. 332,227, Dec. 20, 1963, now Patent No. 3,299,672, dated Jan. 24, 1967. Divided and this application June 20, 1969, Ser. No. 835,155
The portion of the term of the patent subsequent to Jan. 24, 1984, has been disclaimed

Int. Cl. D04b 9/14

U.S. Cl. 66—9

8 Claims



A method and apparatus for producing knit pile fabric wherein pile fibers are fed as a roving or sliver by a feeding and drafting section, driven by a variable speed electric motor, to the main cylinder and doffer of a carding head which in turn cards and feeds the fibers to the needles of a rotary cylinder knitting machine. The drafting section motor drive is independent of the head and machine drive, and is controllable and variable during running and/or set-up to permit gradual speed variation and/or speed selection.

3,563,059

CIRCULAR KNITTING MACHINE WITH MULTIPLE STRIPING MEANS

Johann Martinetz, Hechingen, Germany, assignor to Mayer & Cie, Taillfingen, Germany, a firm
Filed Apr. 2, 1969, Ser. No. 812,711
Claims priority, application Germany, Apr. 17, 1968, P 17 60 196.6

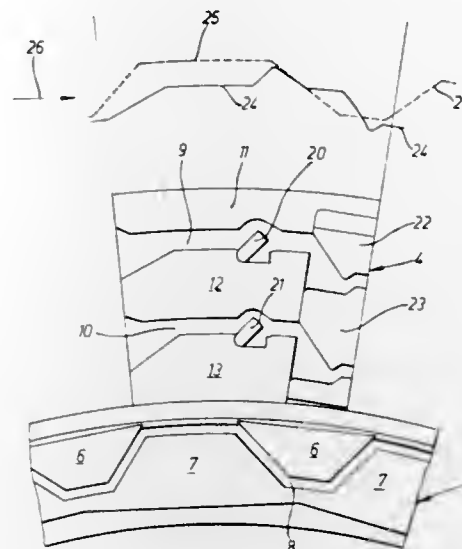
Int. Cl. D04b 9/06, 15/48

U.S. Cl. 66—19

3 Claims

An improved arrangement for introducing striping threads into a circular knitting machine during the operation thereof. The arrangement comprises a plurality of thread insertion fingers which are operatively mounted adjacent to the cylinder cam box of the circular knitting machine. A preselected thread insertion finger is adapted to guide a striping thread into an operative position in which it can be engaged by a catch hook which is operatively mounted in the dial of the circular knitting machine. The movement of the catch hook is guidingly controlled by a cam member mounted on the dial of the circular knitting machine. This cam member is fixed with respect to the cylinder cam box, whereas the dial cam members

which guide the dial needles are movably mounted in the dial cam box ring so that they may be moved from a normal knitting position to a delayed-timing knitting position. Consequently, the positions of the cam member for controlling the movement of the catch hook and the cam



members of the cylinder cam box are fixed with respect to each other, whereas the cam members of the dial cam box, which control the movement of the dial needles, are movable with respect to the aforementioned two cam members.

3,563,060

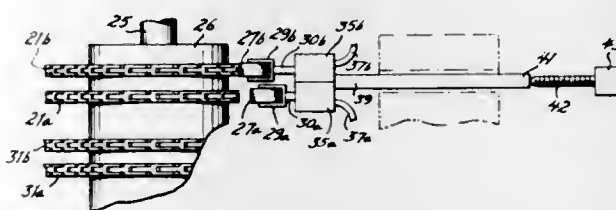
MACHINE KNITTING

Seymour C. Titone, Birchrunville, Pa., assignor to Titone Research & Development Corporation, Burlington, N.J.
Continuation-in-part of application Ser. No. 694,655, Dec. 29, 1967. This application June 4, 1968, Ser. No. 734,331

Int. Cl. D04b 27/28

U.S. Cl. 66—86

18 Claims



A yarn guide bar in a warp-knitting machine is provided with a plurality of cam followers juxtaposable respectively to plural pattern cam chains or the like to determine the pattern of shogging movement of the guide bar. Interchanging from one pattern to another is by pistons or equivalent extensible and retractable mechanisms interposed between the guide bar and the cam followers.

3,563,061

WARP KNITTING MACHINE

Stefan Fürst, Monchen-Gladbach, Germany, assignor to Walter Reiners, Monchen-Gladbach, Germany
Filed Aug. 4, 1969, Ser. No. 847,063
Claims priority, application Germany, Aug. 6, 1968, P 17 85 063.4-26

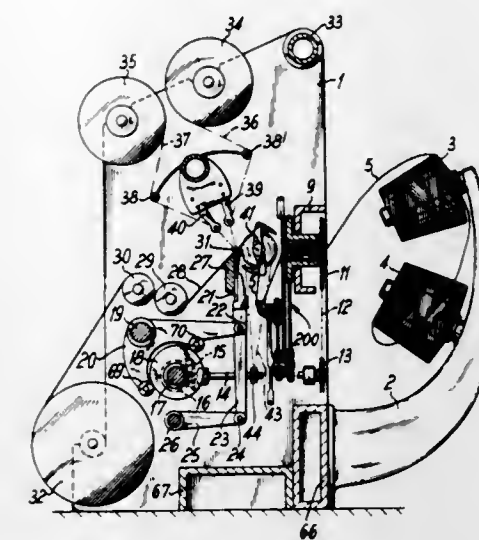
Int. Cl. D04b 23/00

U.S. Cl. 66—86

5 Claims

Warp knitting machine having a zone wherein knitting needles are disposed and means for supplying warp threads to the needles includes device for filling a weft having holder members rotatable in closed travel paths

outside the needle zone and disposed in the vicinity of weft reversal locations, means for guiding the weft to the warp threads, and a thread guide cooperating with the holder members for making the weft ready, the thread guide being located at one end of a rod bent in the form



of a crank and being rotatable about a bearing portion located adjacent the other end thereof, the bent rod being of hollow tubular construction at least at the bearing portion thereof and being formed of at least two parts angularly adjustable relative to one another.

3,563,062

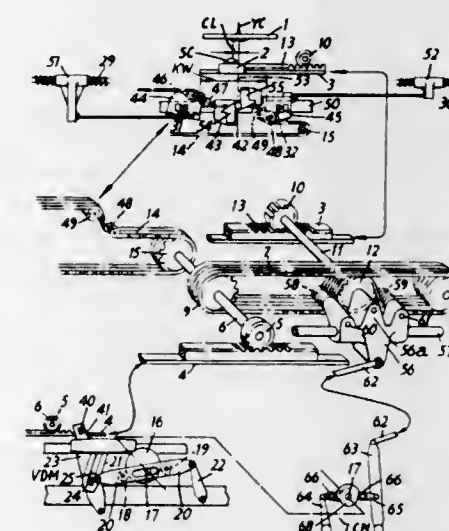
SLUR AND CARRIER DRIVE MECHANISMS FOR FULLY FASHIONED FLAT BAR KNITTING MACHINES

Ernest West, Kirkby-in-Ashfield, and Frederick R. Chalenger, Loughborough, England, assignors to S. A. Monk (Sutton-in-Ashfield) Limited, Sutton-in-Ashfield, England, a British company
Filed July 14, 1969, Ser. No. 841,453
Claims priority, application Great Britain, July 20, 1968, 34,743/68

Int. Cl. 15/52

U.S. Cl. 66—126

10 Claims



Straight-bar knitting machine having a yarn carrier drive driven from variable draw mechanism over minimum distances only slightly in excess of those required for carriers to traverse the knitting width in either direction, and a differential is provided for imparting an extra linear movement to a slur cam box tie bar each time the carrier rod is arrested by a stop, thereby achieving a lead of the carriers ahead of the slur cams. The differential preferably includes a chain sprocket which is engaged with

a slur draw chain and is secured upon a shaft to which is also secured a pinion arranged in mesh with a slur drive rack. This shaft turns in a guided slipper connected with lead changeover means.

3,563,063

STRAIGHT BAR KNITTING MACHINES

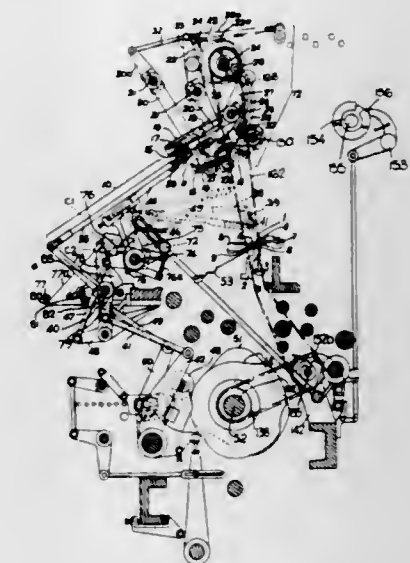
Raymond Blood, Shepshed, and Peter LeGood and Alan John Pearson, Loughborough, England, assignors to William Cotton Limited

Filed Aug. 26, 1968, Ser. No. 755,316
Claims priority, application Great Britain, Sept. 1, 1967, 39,997/67

Int. Cl. D04b 9/40

U.S. Cl. 66—148

12 Claims



A straight bar knitting machine for making pressed off ribs or turned welts having fabric draw-off mechanism, means for transferring rib loops from machine to frame needles, fabric transfer mechanism comprising lift and pusher arms operated from a transfer point bar to receive the ribs or welts from the needles and for delivering the ribs or welts to an upper location, with cutter and trapper mechanism for trailing yarn, and wherein there is in each division a magazine point bar unit under operational control of cams on an upper cam shaft driven through a revolution clutch from the machine's machine cam shaft, each unit having a removable magazine point bar and transfer elements which are cam controlled for transferring each of a plurality of ribs or welts, elevated by the transfer point bar mechanism, from the transfer point bars to the magazine point bars, including a cam operated tray-like fabric guide for the ribs or welts, switch control means for independent motor control of the transfer point bar mechanism, and a graduated control cam for the magazine point bar unit to deal with ribs or welts of different lengths.

3,563,064

PRESSURE SEALING APPARATUS FOR PROCESSING OF FIBERS IN TOW FORM

Masahide Yazawa, Tokyo, Japan, assignor to Polymer Processing Research Institute Ltd., Tokyo, Japan, an organization of Japan

Filed Apr. 30, 1969, Ser. No. 820,416

Claims priority, application Japan, Jan. 24, 1969, 44/5,380

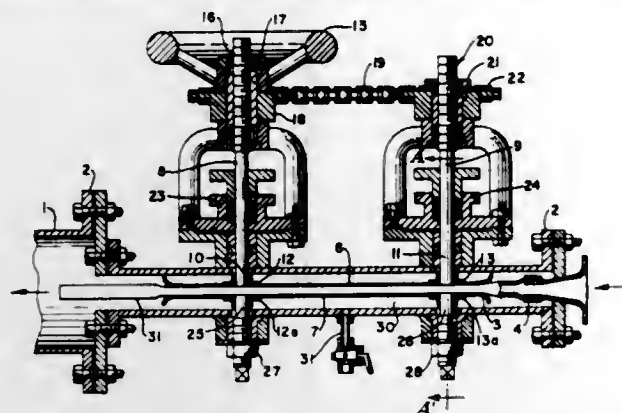
Int. Cl. D06f 37/00

U.S. Cl. 68—5

10 Claims

Apparatus for sealing a high pressure continuous processing chamber for fibers or yarns in tow-form, from the outside atmosphere, the principal part of which is a tube connected to said high pressure processing chamber, made of a practically elastic material and installed in a protecting pressure chamber and the cross-sectional area of

said tube relative to the total cross-sectional area of fibers passing said tube being reducible by controlling the gap of a set of two plates which are positioned along said small tube so as to clamp said small tube, whereby leakage resistance of pressurized gas from the high pressure



processing chamber is increased without affording any harmful effect to the fibers or yarns, said processing is stretching, relaxation, scouring, bleaching, dyeing, chemical treatment or the like under elevated temperature and pressure.

3,563,065

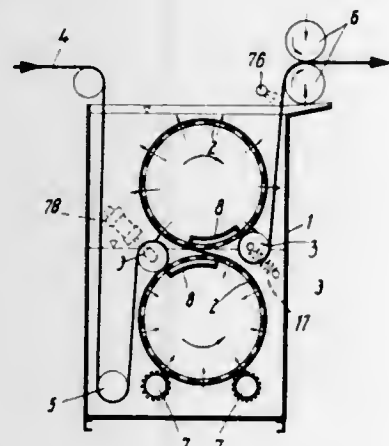
APPARATUS FOR THE WET-TREATMENT OF LIQUID-PERMEABLE MATERIALS

Heinz Fleissner, Egelsbach, near Frankfurt am Main, Germany, assignor to Vepa AG, Basel, Switzerland
Filed Sept. 21, 1967, Ser. No. 669,573
Claims priority, application Germany, Sept. 24, 1966, V 32,012

Int. Cl. D06f 31/00

U.S. Cl. 63—22

15 Claims



The present disclosure relates to a process and apparatus for the wet-treatment of liquid-permeable materials such as tow, slivers, yarn, woven and knitted fabrics, needled felts and tufteds, non-wovens and the like. More particularly, the present invention concerns a process and apparatus for the wet-treatment of textile materials wherein the material being treated is passed on an extended path through the treatment bath thus exposing said material to the influence of the treatment liquid for a longer period of time without substantially increasing the space required for such treatment devices.

3,563,066

SPREADING MECHANISM FOR HIDES, SKINS, OR LEATHER

Karel Baják, Jan Zdražil, and Miroslav Spárel, Krnov, Czechoslovakia, assignors to Strojovnit, narodni podnik, Krnov, Czechoslovakia
Filed Nov. 27, 1968, Ser. No. 779,569

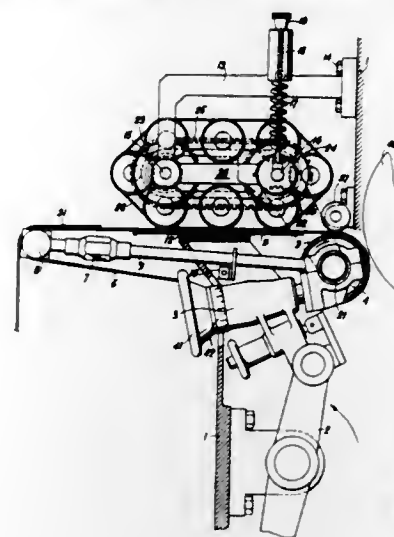
Int. Cl. C14b 1/08

U.S. Cl. 69—1

5 Claims

A spreading mechanism for feeding tanned hides or skins to a fluffer has a conveying belt and paired spreading rollers freely rotatable on shafts held between chains.

The chains are driven in such a manner that the rollers move along a carrier face of the belt against the direction of movement of the latter. The rollers of each pair have



3,563,067

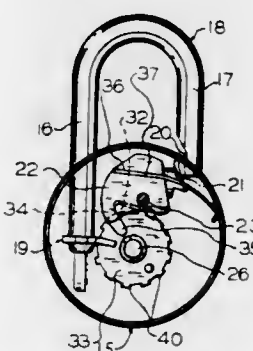
PERMUTATION PADLOCK MECHANISM

Daniel J. Foote, Milwaukee, Wis., assignor to Master Lock Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Feb. 7, 1969, Ser. No. 797,497

Int. Cl. E05b 37/00, 37/06

U.S. Cl. 70—25

3 Claims



This permutation padlock contains mechanism which, following the dialing of the last number of the combination and the withdrawal of the shackle to its outer released position, will automatically turn the dial substantially away from the last dialed number thereon. The improved mechanism also includes a confined band spring engaging the shackle locking lever in a manner so as to relieve the pressure exerted on the tail of the lever resulting from the weight of the padlock body when the same is suspended from a shackle engaged hasp staple or the like, thus insuring free and proper operation of the padlock release mechanism including the dial number upset above referred to. Moreover, the locking lever tail under these conditions is maintained out of contact with the tumblers whereby a tamperer cannot "feel out" the positions of the tumbler gates, and thus surreptitiously, find the combination.

3,563,068

LATCH MECHANISM FOR SLIDING DOORS

Raymond N. Dushane, Jr., Fullerton, Calif., assignor to H & D, Inc., Everett, Wash., a corporation
Filed Oct. 21, 1968, Ser. No. 769,249

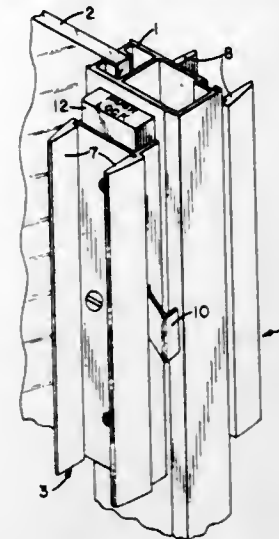
Int. Cl. E05b 65/08; E05c 19/12

U.S. Cl. 70—100

12 Claims

A latch mechanism for a sliding door in which a latch hook, mounted on the door stile, is caused to pivot about a vertical axis to engage a continuous vertical

flange mounted on the doorjamb. A vertically, linearly slideable, elongated shuttle, mounted on the door stile,



includes a cam member which opens or closes the latch hook when the shuttle is elevated or depressed.

3,563,069

SAFETY LOCK FOR DOORS

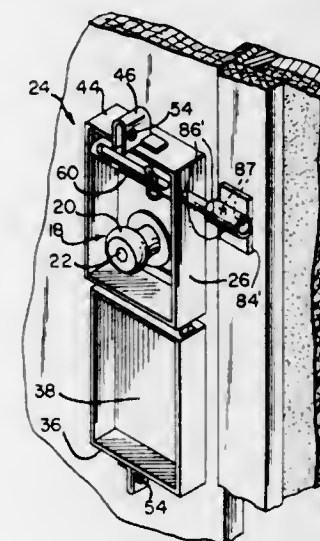
Armando Ferrer, 59 NW. 28th St., Miami, Fla. 33127

Filed July 7, 1969, Ser. No. 839,438

Int. Cl. E05b 59/00, 13/00; E05c 13/02

U.S. Cl. 70—129

5 Claims



A supplemental locking device is provided for a door having a door knob consisting of a pair of frames which are hinged together and attachable to a door over the door knob. Lock means are provided to secure the pair of frames together and when so secured the door knob is inaccessible. The supplemental locking device also includes a slide bolt carried by the door attached frame which slide bolt is similarly inaccessible when the pair of frames are locked together.

3,563,070

LOCKING DEVICE FOR ATTACHMENT MEANS

Dallas W. Earl, 3216 Laclede Ave., Los Angeles, Calif. 90039

Filed Jan. 10, 1969, Ser. No. 790,354

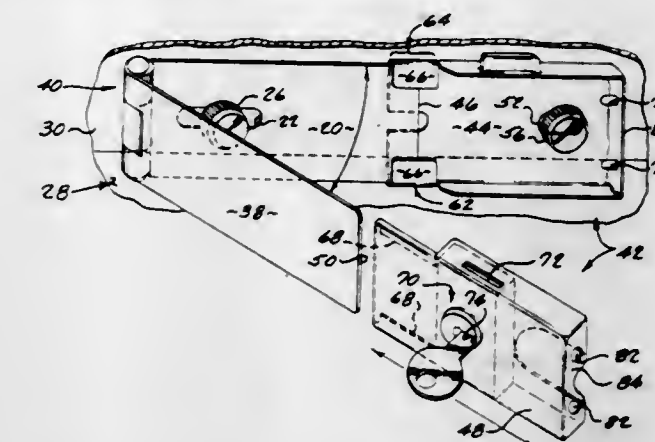
Int. Cl. E05b 73/00; F16b 41/00

U.S. Cl. 70—232

9 Claims

The specification discloses a locking device for threaded attachment means, usually adapted to attach an auxiliary supportable object, such as a tape playing transducer means, although not specifically so limited, with respect to an auxiliary mounting structure which, in certain forms, may be a mounting bracket attached underneath the instrument panel of a motor vehicle, although not specifi-

cally so limited in all forms of the invention. The locking device includes a base plate member and a cover plate member adapted to be attached to such an auxiliary supportable object and to such an auxiliary mounting structure and to effectively protect and cover such threaded attachment means so as to prevent the unauthorized dis-



engagement thereof except when the cover plate member is moved from a protective position into an open position, which is normally prevented by locking means cooperating therewith and adapted to be normally locked but to be controllably unlockable by an authorized person in the event that the auxiliary supportable object is to be disengaged from the auxiliary mounting structure.

3,563,071

LOCK WITH CHANGEABLE COMBINATION

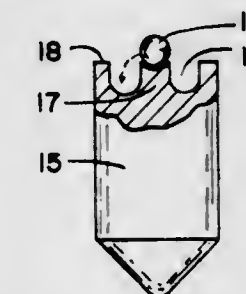
Larry N. Barger, 460 W. Doran, 117, Glendale, Calif. 91203

Filed Sept. 22, 1969, Ser. No. 859,638

Int. Cl. E05b 15/14, 25/00

U.S. Cl. 70—383

10 Claims



A cylinder-type door lock which can be actuated by two different keys—a construction worker's key and a home owner's key. During construction of the house, plumbers, electricians and other construction workers can each have a construction key to enter the house. When the house is sold and the owner inserts his key for the first time, the lock's combination is permanently changed so that the construction keys will no longer operate the lock. The lock has a special tumbler which is altered when the owner uses his key for the first time.

3,563,072

CONTROL SYSTEM FOR THE AUTOMATIC CONTROL OF FLUCTUATIONS AND STABILIZATION OF STRIP THICKNESS IN CONTROL ROUTES

Helmut Kunig, Reinbek, Karl-Helm Piehl, Geesthacht, and Walter Clementsen, Hamburg, Germany, assignors to Hanseatische Motoren-Gesellschaft m.b.H., Hamburg, Germany

Filed June 18, 1968, Ser. No. 737,901

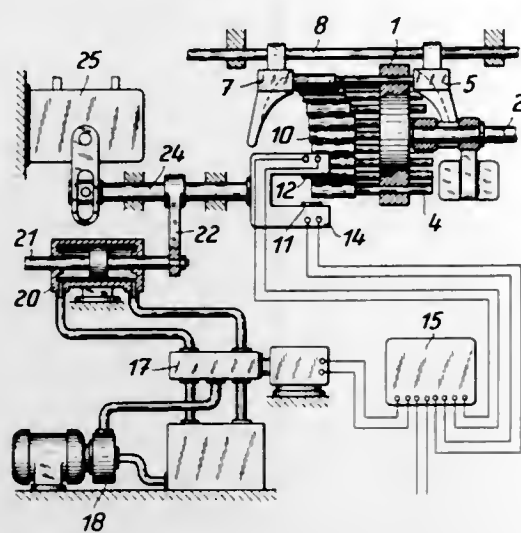
Int. Cl. B21b 37/02

U.S. Cl. 72—39

6 Claims

The invention relates to a control system for the automatic control of fluctuations and the stabilization of strip thickness, which system comprises a plate and pins axially displaceable in the plate with said fluctuations, the

amount of this displacement serving as a reference quantity for the deviation from nominal thickness. The axial position of each pin after displacement is scanned photo-electrically. The produced electrical signals are converted to mechanical movements for readjusting the strip thick-



ness to its nominal value. This system allows sensing the strip thickness with only small roll pressure and simple transformation of the weak force available from the sensing operation into the strong forces required for mechanical stabilization of strip thickness.

3,563,073

DEVICE FOR COMPENSATING FOR THE SPRINGING IN MACHINES, PARTICULARLY IN FORGING PRESSES AND THE LIKE

Rolf Fischer, Buderich, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany, a company of Germany

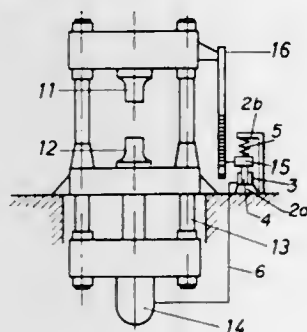
Filed Mar. 12, 1968, Ser. No. 712,548

Claims priority, application Germany, Mar. 14, 1967, Sch 40,390

Int. Cl. B21J 9/20

U.S. Cl. 72—31

1 Claim



A device to indicate the springing in hydraulically operated plant, particularly in forging presses, wherein the travel of a movable part of the plant relative to a stationary part is measured by means of a stationary travel-indicator which includes a movable element which is displaceable in and opposite to the direction of the stroke movement of the movable machine part.

3,563,074

METHOD OF MAKING ELECTRIC WELDING WIRE HAVING EXTENDED SHELF LIFE

Samuel C. Avallone, Westlake, Ohio, assignor to United States Steel Corporation, a corporation of Delaware
Continuation-in-part of application Ser. No. 689,244, Dec. 7, 1967, which is a continuation-in-part of application Ser. No. 630,294, Apr. 12, 1967. This application Jan. 29, 1970, Ser. No. 6,929

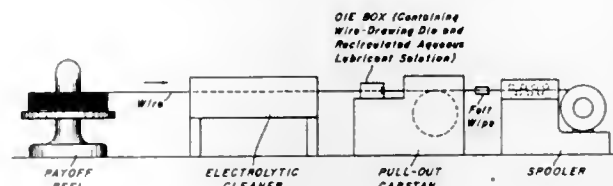
Int. Cl. B21b 45/02

U.S. Cl. 72—39

6 Claims

A bright-finish weld-wire for electric welding purposes and the method of making such wire which includes clean-

ing a length of steel wire by acid-electrolytic treatment and then cold-drawing it through a diamond die using as



a wire-drawing lubricant an aqueous solution of water-soluble soap and a water-soluble inorganic rust inhibitor.

3,563,075

INSTALLATION FOR HYDROSTATIC EXTRUSION OF RODS AND TUBULAR AND PROFILED ARTICLES

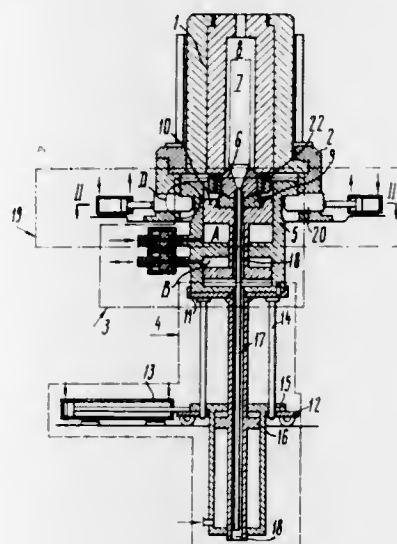
Boris Ivanovich Beresnev, Evgeny Dmitrievich Martynov, Mikhail Vasilievich Maltsev, Georgy Pavlovich Britnev, Anatoly Vasilievich Kocherov, Konstantin Ivanovich Ezersky, and Vladimir Ivanovich Monakhov, Moscow, U.S.S.R., assignors to Institut Fiziki Metallov, Sverdlovsk, U.S.S.R.

Filed Jan. 5, 1968, Ser. No. 695,917

Int. Cl. B21c 23/04

U.S. Cl. 72—60

10 Claims



Extrusion apparatus comprises a frame carrying a container having a chamber in which a blank can be inserted and hydrostatic fluid pressure can be developed to extrude the blank through a die which is positionable against the container. The die is pressed against the container by a hydraulic drive which is displaceable both longitudinally and transversely of the chamber. In the course of extrusion, a locking device couples the hydraulic drive and the container via the frame. The piston of the hydraulic drive has a bore through which the extruded article may pass during the extrusion operation.

3,563,076

SETUP METHOD FOR GEAR ROLLING

David W. Daniel, Birmingham, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware

Filed Feb. 26, 1969, Ser. No. 802,339

Int. Cl. B21h 5/00

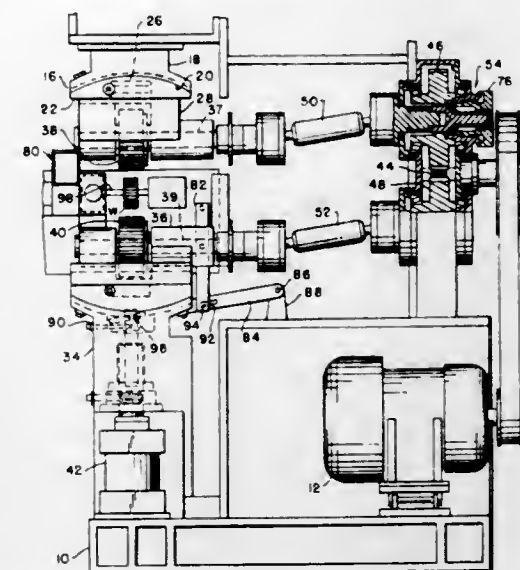
U.S. Cl. 72—108

7 Claims

Method of setting up gear rolling apparatus using a plurality, preferably two, opposed roll dies driven in a single direction by a gear train, including an input drive gear, interconnecting said dies. A work gear centered on an arbor between the dies is brought into tight mesh

with the dies, establishing backlash between one or more gears in the gear train connecting the dies. The arbor is removed, and the input drive gear is rotated slowly in the direction in which it will rotate during gear rolling. Rotation of the dies is opposed by brake action. If the timing of the gears in the gear train is not correct, the

roll is fixedly mounted in the frame, and a displaceable bearing block on the frame engages the top and sides of the bearing at the other end of the upper roll and is vertically adjustable. A carriage is mounted on the frame for adjustment relative to the upper roll and carries the bearings at the ends of the lower roll.



work gear will shift laterally of the line joining the axes of said dies in one direction or the other. One of the dies is then angularly adjusted relative to the other die through appropriate gear train adjustment until the work gear is again central, thus establishing the correct timing relationship.

3,563,077

ROLLING MILL FOR ROLLING BUSHES AND THE LIKE

Wolfgang Backé, Aachen, and Otto Ulrych, Dortmund-Horde, Germany, assignors to Rheinstahl Wagner Werkzeugmaschinenfabrik m.b.H., Dortmund, Germany

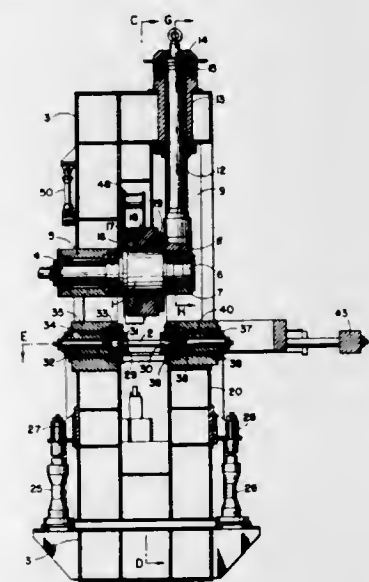
Filed Mar. 6, 1969, Ser. No. 804,783

Claims priority, application Germany, May 15, 1968, P 17 52 361.4

Int. Cl. B21h 1/00; B21h 13/14

U.S. Cl. 72—108

11 Claims



A mill for rolling annular workpieces, such as bushes and the like, whose axial lengths are large relative to their diameters, has two superposed relatively adjustable horizontally oriented rolls supported at opposite ends, with the larger diameter upper roll being driven and the smaller diameter lower roll being axially displaceable. Respective bearings rotatably support each end of each roll, and a drive is connected to one end of the upper roll. A support frame is closed above and beneath the rolls and encloses the bearings. The bearing at the drive end of the upper

3,563,078
BENDING DEVICE

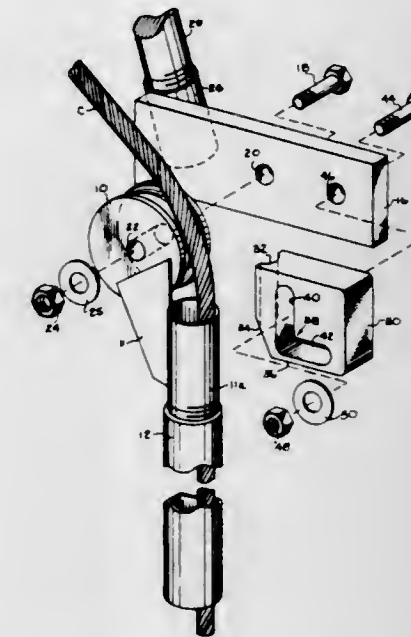
Henry N. Mastalski, Lakewood, Ohio, assignor to The Fanner Manufacturing Company, a division of Textron Inc., a corporation of Rhode Island

Filed July 23, 1968, Ser. No. 746,945

Int. Cl. B21d 7/02

U.S. Cl. 72—217

1 Claim



A strand bending device which has a mandrel connected to one handle. A second handle is detachably mounted on a pivot arm, which pivot arm is pivotally mounted on the first handle. The pivot arm also mounts a cable engaging shoe. The shoe has an L-shaped slot and a bolt mounts the shoe on the pivot arm for sliding movement between a cable engaging position and a cable removal position. The handle connected to the mandrel is hollow and positioned to have the end of the cable disposed therein during bending thereby acting both as a handle for operating the device and retainer for the cable holding it in place during bending, which is accomplished by relatively rotating the handles.

3,563,079

INDIRECT EXTRUSION WITH SKULL SKIMMING

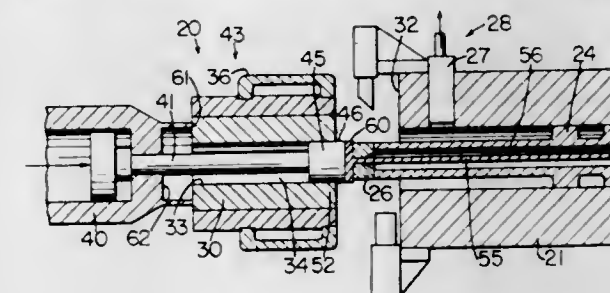
George E. Monie, Henrico, and Warren G. Whiting, Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Filed Nov. 21, 1968, Ser. No. 777,621

Int. Cl. B21c 23/00

U.S. Cl. 72—255

7 Claims



A method of indirectly extruding a metal billet disposed in a container mounted between a die means and a container blocking means by applying compressive forces to

opposite ends of the billet through the blocking and die means so that relative movement of at least one of the die and blocking means toward the other will extrude the billet through the die means with the blocking means and die means ending up nearing one end of the container. Thereafter removing the unextruded billet residue from the container by moving both the blocking means and the die means to the other end of the container.

3,563,080

HIGH PRESSURE CONTAINERS FOR CYCLICALLY VARYING PRESSURES

John Malcolm Alexander and Bela Lengyel, London, England, assignors to National Research & Development Corporation, London, England

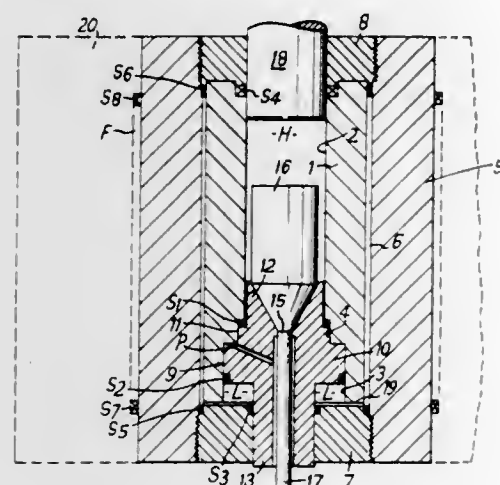
Filed Aug. 11, 1967, Ser. No. 660,056

Claims priority, application Great Britain, Aug. 15, 1966, 36,455/66

Int. Cl. B21c 27/00

U.S. Cl. 72-272

8 Claims



A high pressure container, for example for hydrostatic extrusion has a plunger for generating high hydrostatic pressure in the container and also has a movable wall portion defined by a surface of a floating movable member. An opposite surface of the floating member of larger area forms a movable wall surface in a lower pressure chamber. Consequently, the pressure in the lower pressure chamber is always less than but proportional to the pressure in the high pressure chamber. The lower pressure thus generated is applied around the outer cylindrical wall surface of the high pressure chamber. In this way, tensile hoop stresses in the cylindrical wall can be eliminated throughout a working cycle within the high pressure chamber. The life of the high pressure chamber is increased since the risk of fatigue failure is reduced.

3,563,081

FORGING OF RAILROAD VEHICLE AXLES

Karl Linders, Buttgen, near Neuss, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany, a German company

Filed Aug. 21, 1968, Ser. No. 754,242

Claims priority, application Germany, Sept. 5, 1967, Sch 41,260

Int. Cl. B21k 1/10

U.S. Cl. 72-374

3 Claims

A method of forging billets for railway-coach axles, the diameter of the axle between the wheel seats being either the same as the diameter of the journals or different, wherein the billets are first forged to round material of a diameter equal to the finish-forged diameter of the wheel

seats, and the round material is then finish-forged in a drop-forging press in at least two working strokes, a portion of the round material of a length at least equal to the distance between the wheel set upon the round material being finish-forged in one stroke.

3,563,082

METHOD FOR REMOVING BURRS FROM SINTERED WORK PIECES

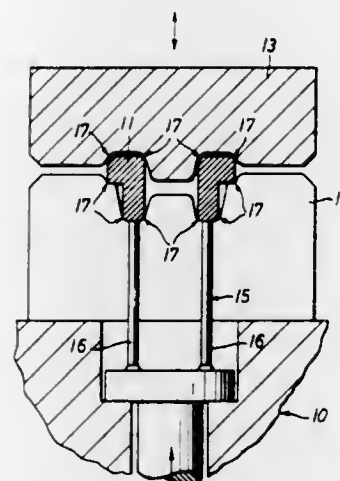
Gerhard Zapf, Krebsoge, Germany, assignor to Sintermetallwerk Krebsoge G.m.b.H., Krebsoge, Rhineland, Germany

Original application June 3, 1966, Ser. No. 555,138, now Patent No. 3,455,138. Divided and this application Feb. 24, 1969, Ser. No. 816,860

Int. Cl. B21j 11/00

U.S. Cl. 72-374

3 Claims



The disclosure relates to a method of forming sintered workpieces. The disclosed process sinters and presses metal powder to form a workpiece to shape. The burrs formed in the workpiece as a result of the pressing operation are subsequently pressed into the workpiece by a separate pressing operation.

3,563,083

AUTOMATIC INTERFACE FOR GAS CHROMATOGRAPH-MASS SPECTROMETER SYSTEM

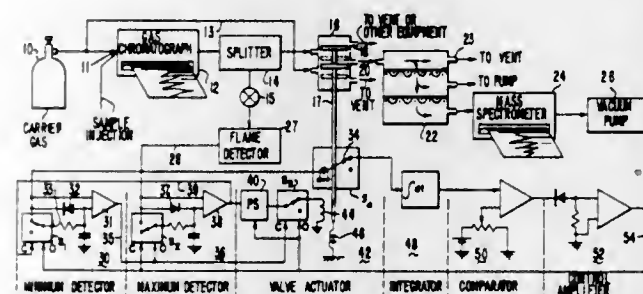
Hanspeter Benz, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California

Filed Jan. 15, 1968, Ser. No. 698,019

Int. Cl. G01n 31/08

U.S. Cl. 73-23.1

6 Claims



An analytical system is described including a combination of a gas chromatograph and a mass spectrometer along with an automatic interface apparatus for rendering the two dissimilar components highly compatible in a continuous flow quantitative-qualitative analyzing system. The interface includes an automatic control circuit for detecting the output of the gas chromatograph

and selecting from each GC peak a predetermined quantity of sample for presentation to the ion source of the mass spectrometer.

3,563,084

VACUUM VALVE TESTING DEVICE

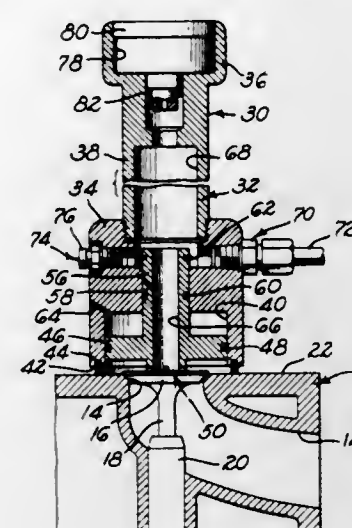
Gene P. Shaffer, 5139 Hazeltine Ave., Sherman Oaks, Calif. 91403

Filed Mar. 3, 1969, Ser. No. 803,883

Int. Cl. G01m 3/28

U.S. Cl. 73-47

2 Claims



A device for vacuum testing the seal between the head of an intake or exhaust valve of an internal combustion engine, and its seat. The device applies a vacuum to one side of the head of the valve to test the seal between the head and the seat, the magnitude of the vacuum attainable being measured to provide an indication of the quality of the seal. This same vacuum is used to seat the head of the valve and to hold the device in engagement with an appropriate part of the engine. Thus, it is not necessary to completely install the valve, as in the case of a device requiring the presence of the valve spring to hold the head of the valve on its seat. Also, it is not necessary to provide any separate means for holding the testing device in place.

3,563,085

LIQUID METER COUNTER

Eric H. W. Allen, Stopsley, Luton, England, assignor to George Kent Limited, Luton, England a British company

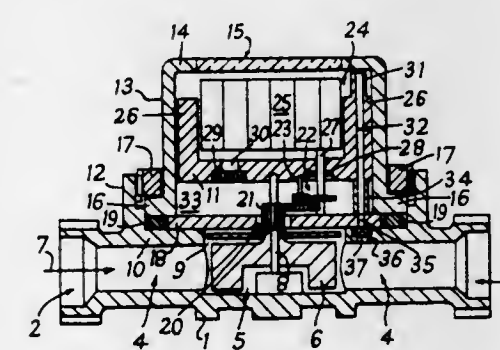
Filed July 18, 1968, Ser. No. 745,875

Claims priority, application Great Britain, July 28, 1967, 34,747/67

Int. Cl. G01f 1/00

U.S. Cl. 73-273

14 Claims



A liquid meter counter provided with means for completely filling a housing containing the counter element with liquid taken from the liquid being metered.

3,563,086

FATIGUE TESTING MACHINE

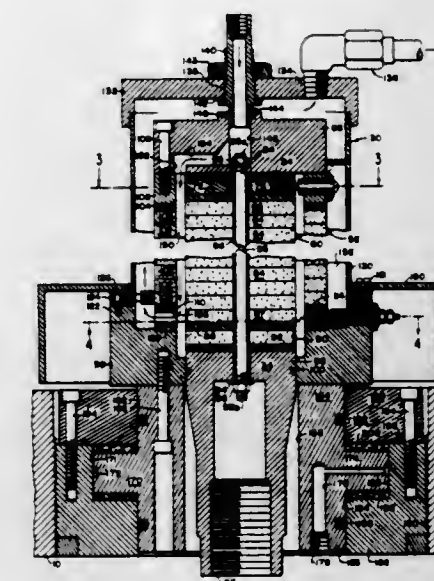
Flood Everett Reed, Jr., Littleton, Mass., assignor to Littleton Research and Engineering Corporation, Littleton, Mass., a corporation of Massachusetts

Filed Oct. 15, 1968, Ser. No. 767,801

Int. Cl. G01n 3/32

U.S. Cl. 73-92

10 Claims



The fatigue testing machine of this invention comprises opposed, re-entrant stacks of piezoelectric elements, a portion of the stack being formed from rings or annuli of piezoelectric material, and each stack having an inner core portion formed of piezoelectric discs or plates. The specimen being tested is held by the free ends of the inner cores. The stacks are driven in opposite directions simultaneously, that is, 180° out of phase, to get the desired pulling and compression on the test specimen. One of the stacks is mounted on a platform which is supported on a viscously damped piston to compensate the apparatus against the effects of static loading on the specimen.

3,563,087

HYDRAULIC TESTER FOR FASTENERS

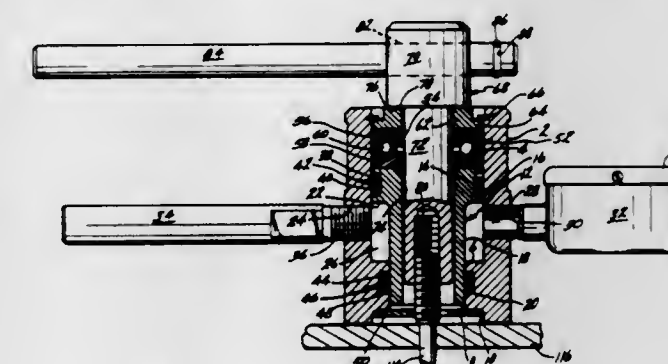
Lawrence J. Brunnelle, East Haven, and Robert W. Henning, North Haven, Conn., assignors to Olin Corporation, a corporation of Virginia

Filed June 19, 1968, Ser. No. 738,355

Int. Cl. G01n 3/08

U.S. Cl. 73-95

8 Claims



An apparatus for testing the holding power of a fastener wherein a cavity formed between a piston and the internal surface of a housing is provided with a non-compressible fluid. Pull means, mounted in the piston, is provided at one end with means for attaching it to a fastener. Structure is also provided for transmitting the rotational movement of the pull means into an axial force acting on the piston.

3,563,088 NON-DESTRUCTIVE METHOD OF DETERMINING TIRE LIFE

Lawrence R. Sperberg, 6740 Flesta Drive,
El Paso, Tex. 79912

Continuation of application Ser. No. 578,707, Sept. 12,
1966. This application July 14, 1969, Ser. No. 847,778
Int. Cl. G01m 17/02

U.S. Cl. 73—146

14 Claims



A non-destructive method of determining the durable life of a tire by measuring the lateral and radial force variations exhibited by the tire. A series of similar tires are measured for their force variations, and subjected to usage in order to determine the effect of the force variations upon the durable life characteristics of the series. The force variations exhibited by the tire are compared to the data obtained from the series of tires in order to non-destructively determine the life of the tire.

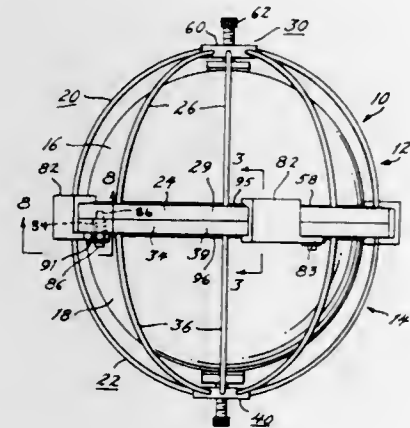
3,563,089 OCEANOGRAPHIC INSTRUMENT HOUSING

Kenneth W. Henderson, East Falmouth, Mass., assignor to Aquadyne, Inc., East Falmouth, Mass., a corporation of Delaware

Filed Dec. 20, 1967, Ser. No. 692,188
Int. Cl. G12b 9/00

U.S. Cl. 73—170

10 Claims



A housing for oceanographic use including two glass hemisphere assemblies and a mating protective cage, the cages having access holes through which electrical conductors and pressure tubes, or the like, may be placed, and the cages being secured to each other by clamps so as to provide convenient access to the interior of the housing.

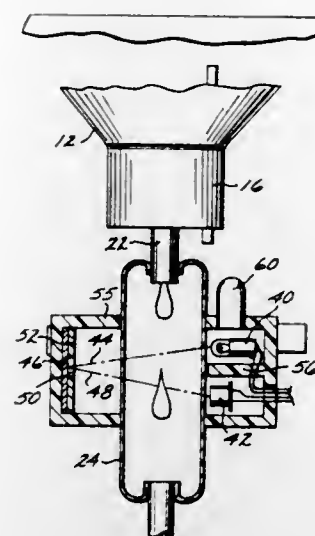
3,563,090 DROP MONITOR

Basil V. Deltour, 12352 Zig Zag Way,
Tustin, Calif. 92680

Filed Sept. 18, 1968, Ser. No. 760,550

Int. Cl. G01f 3/00

11 Claims



This application relates to methods and apparatus for monitoring the drop by drop flow of fluid and it is described, in the specification, particularly in relation to the monitoring of flow in an intravenous feeding or injection set. Fluid flow is reduced to a succession of drops through a distance along a free-fall path. As successive drops fall past a sensing point in that path, a signal is initiated and is made to endure for a period longer than the period required for the drop to pass the sensing point. An electro-optical sensing and indicating system is shown in which the presence of a drop at the sensing point modifies the quantity of light reaching a light sensitive sensor from a source. Sensitivity and response of the system is enhanced by employing controlled regeneration or positive feedback.

3,563,091 FLOAT-OPERATED THERMISTOR TANK LEVEL SENDER

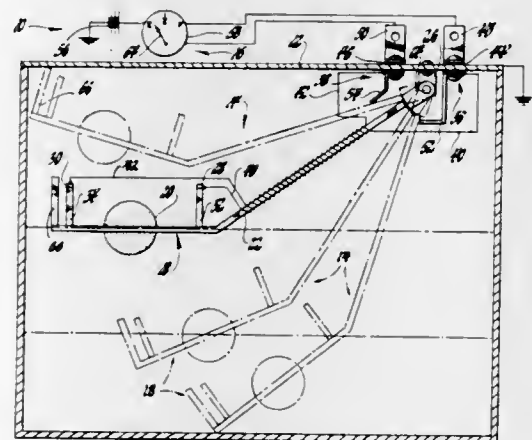
John W. Riddel, Fenton, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 4, 1969, Ser. No. 847,180

Int. Cl. G01f 23/10

U.S. Cl. 73—295

14 Claims



A liquid level indicator having a float positioned in a liquid reservoir, a pair of thermistors secured to the float by a pair of heat transfer members positioned on the float so as to be movable therewith and variably immersed

in the liquid for supporting the thermistors and for conveying heat from the thermistors to the liquid so as to vary the temperatures and the resistances of the thermistors, and an indicating device responsive to the respective thermistor resistances so as to provide an indication of the quantity of liquid in the reservoir.

3,563,092 THERMOMETER

Vilho Vaisala, Mantytie 5A, Helsinki, Finland

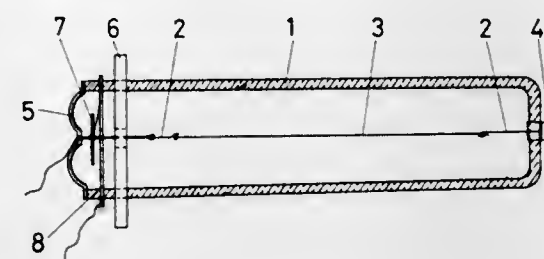
Filed May 19, 1969, Ser. No. 825,672

Claims priority, application Finland, May 24, 1968,
1,455/68

Int. Cl. G01k 5/52

U.S. Cl. 73—363.1

2 Claims



A thermometer which measures electrocapacitively or electroinductively and is particularly intended for use in radiosondes is particularly characterized by a body member which is U-shaped and which consists of transparent profiled glass material, preferably quartz glass. A measuring metal wire extends within the body member and has an end connected by an extension wire to an adjustment device carried by the central portion of the U-shaped body member. The other end of the measuring wire is connected by another extension wire to a spring carried by the ends of the two legs of the U-shaped body member.

3,563,093 THERMO-ACTUATOR DEVICE

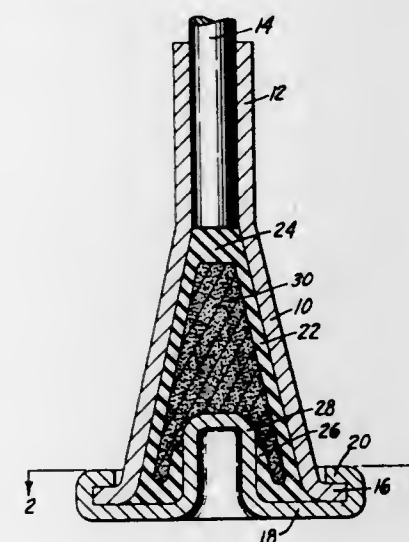
James F. Scherer, 2 Waljo Trail, Millford, Ohio 45150

Filed May 16, 1969, Ser. No. 825,239

Int. Cl. G01k 5/34

U.S. Cl. 73—368.3

8 Claims



A thermo-actuator device including a housing having a generally frusto-conically shaped chamber formed therein and a hollow, resilient capsule in the chamber having an external shape corresponding to the interior shape of the chamber and being filled with a temperature-responsive material that expands and contracts to an abnormal degree with changes in temperature within a predetermined narrow temperature range. The side walls

of the capsule are substantially straight and of uniform thickness from the base to the apex of the capsule so as to produce uniform flexing thereof along the entire length of the capsule when the material therein expands or contracts.

3,563,094 CONTROL SYSTEMS FOR MINING EQUIPMENT

Hans Rieschel, Miltenberg, Germany, assignor to Bergwerksverband G.m.b.H., Essen, Germany, a corporation of Germany

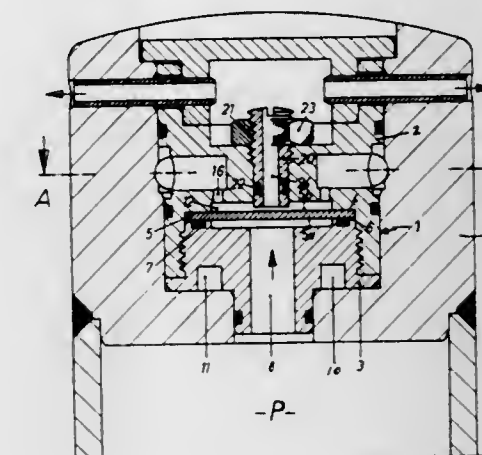
Continuation-in-part of application Ser. No. 716,593,
Mar. 27, 1968. This application Dec. 22, 1969, Ser.
No. 887,037

Claims priority, application Germany, June 1, 1967,
B 92,813

Int. Cl. G011 7/00

U.S. Cl. 73—388

1 Claim



The specification describes a hydraulic-pneumatic analog transducer for providing a pneumatic pressure indication of the hydraulic pressure existing in a hydraulic ram. The transducer makes use of a membrane of which one side is subjected to the hydraulic pressure while the other side, in accordance with the hydraulic pressure obtaining, varies in its distance from the end of a tube. Air is caused to pass between the resulting annular gap between the end of the tube and the membrane and the resulting pressure gradient is measured by means of a pneumatic pressure gauge.

3,563,095 FLUID PRESSURE SENSOR

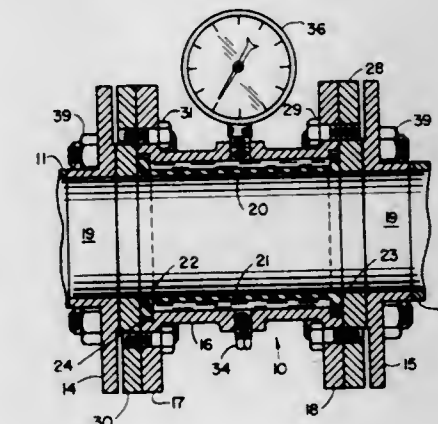
Lonnle O. Robinson, Jr., Kalamazoo, Mich., assignor to Dover Corporation, Cincinnati, Ohio, a corporation of Delaware

Filed Jan. 6, 1969, Ser. No. 789,142

Int. Cl. G011 7/00

U.S. Cl. 73—406

10 Claims



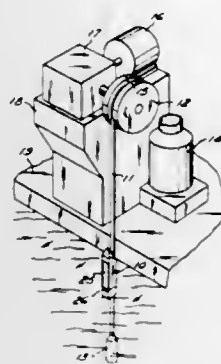
A device for sensing the pressure in a fluid line passage includes a tubular sleeve, which is formed of a flexible and resilient material, having its inner diameter the same

as the diameter of the fluid line passage. The sleeve has flanges on each end disposed within recesses in each end of a mounting body for the sleeve. Each recess is formed so that its entrance opening for the flange of the sleeve is smaller than any other portion of the recess whereby the flange is retained within the recess.

3,563,096
LIQUID SAMPLING APPARATUS
Leonard H. Kinkelaar, 4007 Walter Ave.,
Parma, Ohio 44134
Filed May 12, 1969, Ser. No. 823,725
Int. Cl. G01n 1/12

U.S. Cl. 73—425.4

11 Claims

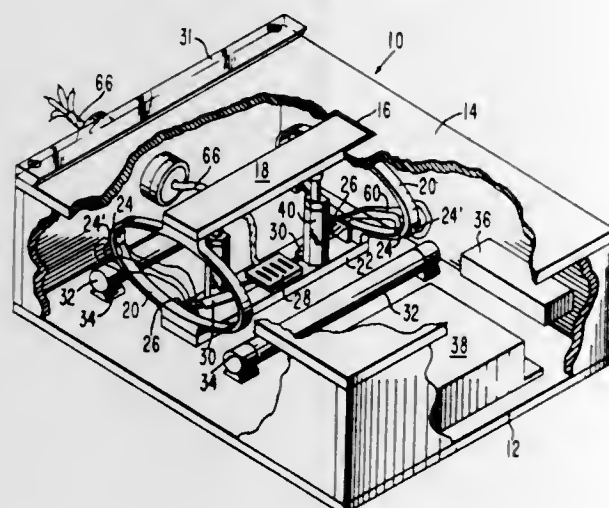


Liquid sampling apparatus having a sampling container suspended by a weighted ribbon from a motor-driven drum. The drum lowers the container to a sampling position, in which the container is upright and presents an inlet opening spaced appreciably above its bottom wall, and then raises the container to a discharge position, in which the container is inverted to spill the liquid sample out of a discharge opening at its upper end.

3,563,097
CONVERSION OF HANDWRITING INTO ELECTRICAL SIGNALS
Edwin O. Roggenstein, Birmingham, and Nallcheri T. Viswanathan, Plymouth, Mich., assignors to Burroughs Corporation, a corporation of Michigan
Filed Nov. 6, 1968, Ser. No. 773,896
Int. Cl. G011 5/00

U.S. Cl. 73—432

20 Claims



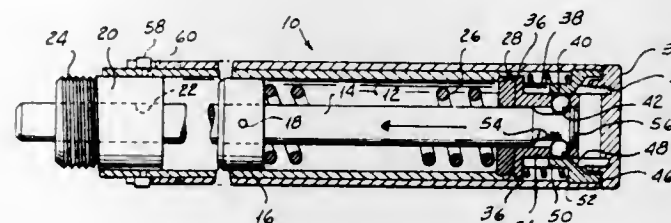
Apparatus for converting the act of handwriting to electrical signals and particularly to apparatus having a tablelike provision for yielding to the pressures exerted

by a writing implement, such as during the writing of a signature, for transducing such pressures into electrical waveforms which may be recorded or illustrated for comparison and identification purposes. The apparatus employs a handwriting surface elastically yieldingly supported by a pair of elliptically-shaped members disposed in spaced apart parallel planes and further employs electrical strain gages operatively associated with the supporting members for sensing the strains to which the members are subjected during the handwriting procedure and for generating electrical signals indicative thereof.

3,563,098
AUTOMATIC QUICK RELEASE MECHANISM
Paul R. Gley, Hillsdale, N.J., assignor to Rex Chainbelt Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed June 28, 1968, Ser. No. 741,017
Int. Cl. G05g 17/00

U.S. Cl. 74—2

10 Claims



An improved automatic quick release locking mechanism in which a lock-operating spring normally urges a locking ball carrier movably supported on a barrel to such a position relative to a ball actuator secured to an outer sleeve, as to move locking balls to positions at which they may occupy a recess in a plunger rod slidably supported on the barrel to lock the rod against movement under the influence of a drive spring. To release the mechanism, the plunger-actuated element is held against a surface and the sleeve is moved toward the surface to move the actuator away from the balls to free them for movement under the influence of the plunger head to free the plunger rod. To cock the mechanism, the end of the plunger rod is held against a resistant surface and pressure is exerted against a cap supported by the barrel so that the plunger head moves the balls and carrier against the operation of the locking spring to a position at which the balls are free of the actuator, thus to permit the plunger head to travel thereby to permit the locking spring to move the ball carrier back to a position at which the balls are moved into the plunger locking recess under the action of the locking spring. Upon release of the cap, the balls will hold the plunger rod locked.

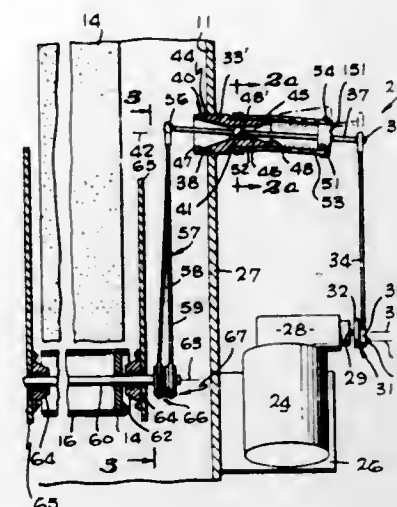
3,563,099
SEALED DRIVE SYSTEM
Earl L. Rader, 154 W. Providencia,
Burbank, Calif. 91502
Filed Feb. 24, 1969, Ser. No. 801,411
Int. Cl. F16j 15/50

U.S. Cl. 74—18.1

14 Claims

A drive system by which a rotary motor at one side of a wall structure may drive a rotary element at the opposite side of the wall structure, with the wall being completely sealed and fluid tight at the location of the drive. The drive arrangement includes a lever extending through an opening in the wall structure and mounted for oscillatory pivotal movement, and sealed with respect to the wall, with opposite ends of the lever connected operatively to a motor driven rotary element at one side of

the wall and the second rotary element. The latter may be driven by the oscillatory pivotal lever through two

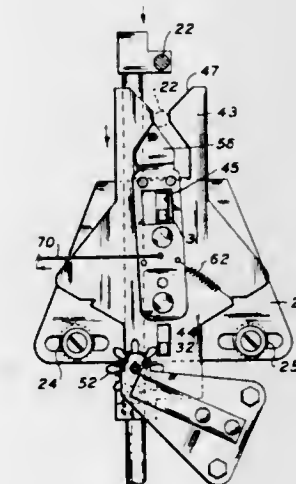
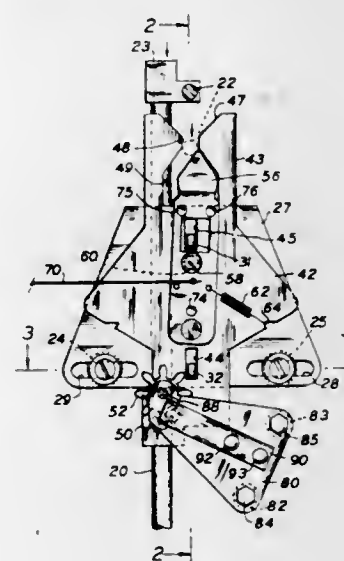


one-way clutch drives which become operable alternately to turn the driven element substantially continuously.

3,563,100
AUTOMATIC SLIDE TRAY ADVANCING MECHANISM
Robert G. Palmer, Wayne, and Israel Nesson, Hackensack, N.J., assignors to Atlas-Rand Corporation, Paramus, N.J., a corporation of New Jersey
Filed July 30, 1969, Ser. No. 846,138
Int. Cl. F16h 19/04

U.S. Cl. 74—30

23 Claims



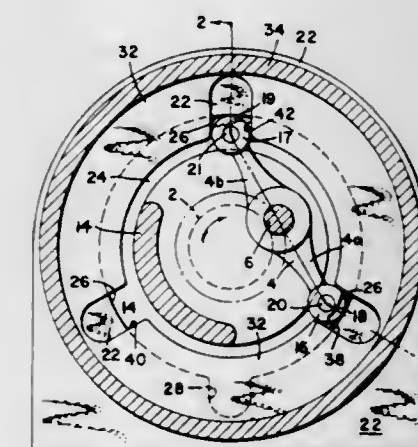
An automatic slide tray advancing mechanism for use particularly in a slide projector is adapted to successive-

ly and selectively move either rectangular or round trays either forwardly or backwardly a distance equal to the spacing of one slide. This movement is powered by the engagement of a pin of a slide transfer apparatus with the tray advancing mechanism and is accomplished with a complete reciprocation of the slide transfer apparatus. A rack member of the tray advancing mechanism is moved in a cycle pattern by the pin of the transfer apparatus and during a portion of this cycle engages a pinion to rotate the pinion one tooth. Ball detent means is provided to maintain the pinion in a slide tray alignment condition except as the pinion is being rotated.

3,563,101
INTERMITTENT DRIVE DEVICE
Roger Kinnicutt, Jr., Worcester, Mass., assignor to Morgan Construction Company, Worcester, Mass., a corporation of Massachusetts
Filed May 7, 1969, Ser. No. 822,375
Int. Cl. F16h 27/06

U.S. Cl. 74—84

14 Claims



Means whereby a driving element imparts intermittent motion to a driven element. The motion of the driving element may be rotary, linear or otherwise according to a predetermined path. It may be continuous or reciprocating. The extent and timing of the intermittent motion is determined by the number and spacing of slots in the driven element and in a fixed control element. When a control element slot becomes aligned with a slot in the driven element, a driving arm pivoted on the driving element and normally in compression as it pushes the driven element loses its driving characteristic and enters the aligned slots to act as locking means to prevent temporarily motion of the driven element while the driving element continues its movement. Simultaneously, upon withdrawal of the driving arm from the aligned slots, the edge of a driven element slot, unaligned with a control element slot, is engaged by another pivoted driving arm on the driving element and motion of the driven element is resumed to continue until the driven element slot comes again into alignment with the next control element slot.

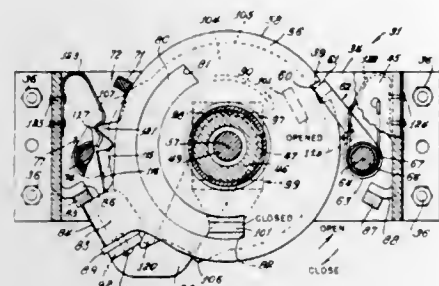
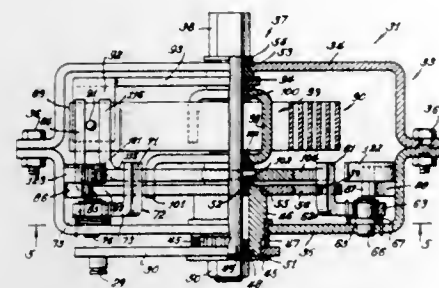
3,563,102
SPIRAL SPRING OPERATING MECHANISM FOR HIGH VOLTAGE SWITCH
Joseph Bernatt, Arlington Heights, and Benjamin L. Gelfand, Chicago, Ill., assignors to S & C Electric Company, Chicago, Ill., a corporation of Delaware
Filed Aug. 1, 1969, Ser. No. 846,694
Int. Cl. F16h 21/54; H01h 3/00

U.S. Cl. 74—100

14 Claims

A spiral spring interconnects a manually operated drive lever and a toggle lever connected to a switch. The toggle lever is held in switch-closed or switch-open position by

spring-biased trip latches which permit the spring to be stressed by the drive lever until cams thereon release the latches. The spring pivots the toggle lever to the alternate



position where it is stopped by bumpers carried by a frame that supports the levers on an operating shaft on which the spring is mounted.

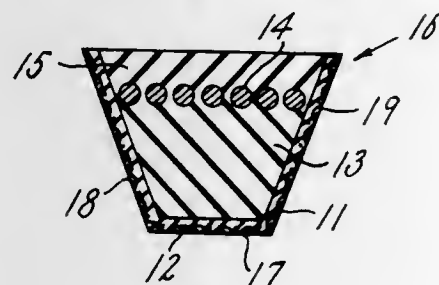
3,563,103 TRANSMISSION BELT

Herman C. Sauer, Ambler, Pa., assignor to Uniroyal, Inc., a corporation of New Jersey
Original application May 20, 1966, Ser. No. 551,735.
Divided and this application Apr. 18, 1969, Ser. No. 836,187

Int. Cl. F16g 5/08

U.S. Cl. 74-233

2 Claims



A new V-belt construction is disclosed wherein a layer of special rubber having different physical characteristics from the rubber forming the body of the V-belt is positioned between the body and a wear resistant fabric. The specialty rubber extends into the interstices of the fabric.

3,563,104 PHASE CONTROLLER

John David Schuster, Sylvania, Ohio, assignor to Dynamics Research & Development Corporation, Toledo, Ohio, a corporation of Ohio

Filed Dec. 20, 1968, Ser. No. 785,564

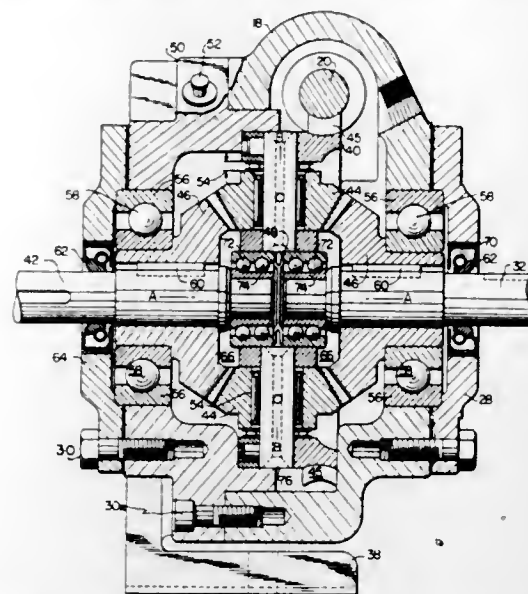
Int. Cl. F16h 35/06

U.S. Cl. 74-395

5 Claims

The phase of the output shaft of a mechanical power transmission relative to its input shaft is selectively con-

trolled through a first gear mechanism which is rotatably mounted about the axes of the shafts and a second gear



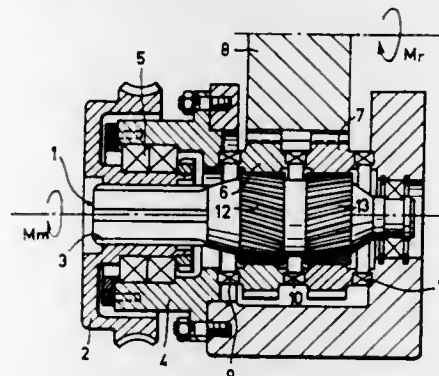
mechanism fixedly supported with respect to the axes of the shafts and intermeshing with the first gear mechanism.

3,563,105 TOOTHED MESHING TRANSMISSION MECHANISMS

Roberto Graziosi, Brescia, Italy, assignor to Istituto per le Ricerche di Tecnologia Meccanica, Turin, Italy
Claims priority, application Italy, Oct. 12, 1968, 53,476/68

U.S. Cl. 74-410

13 Claims



In order to evenly and smoothly transmit a rotary motion from a driving shaft to a toothed driven member, the member meshes with a pair of driving pinions arranged coaxially on the shaft; one of the pinions is helically splined to the shaft and the shaft is axially floating with respect to said one of the pinions, while the other pinion is formed either with helical splines coupling it to the shaft or with helical teeth meshing with the member, the inclination of said helical splines or teeth being opposite to that of the splines between said one of the pinions and the shaft.

3,563,106 DEVICE FOR TRANSLATING ROTARY MOTION INTO LINEAR MOTION

Robert Goodman, 5325 Westminister Ave., Philadelphia, Pa. 19131

Filed Sept. 29, 1969, Ser. No. 861,753

Int. Cl. F16h 1/18

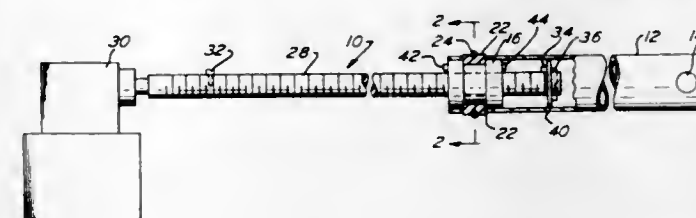
U.S. Cl. 74-424.8

5 Claims

A device for moving a member of a combination of parts relative to other members of the combination by means of linear movement of a threaded rod. The rod is threadably engaged with a nut, the nut being positioned within a tubular rod. The nut is normally held by brake shoes against rotation relative to the tubular rod so that the threaded rod is movable through the nut. However, when a lug at either end of the rod engages a correspond-

ing lug on the nut, continued rotation of the rod exerts a rotational force on the nut sufficient to cause the nut

the tooth height of at least one of the gearwheels is smaller at the trailing end of the tooth width than at the leading end.



to rotate relative to the tube. This acts to halt longitudinal movement of the threaded rod relative to the tubular rod.

3,563,107 NUT MECHANISM

Sven Walter Nilsson, Savedalen, Sweden, assignor to Aktiebolaget Svenska Kullagerfabriken, Goteborg, Sweden, a corporation of Sweden

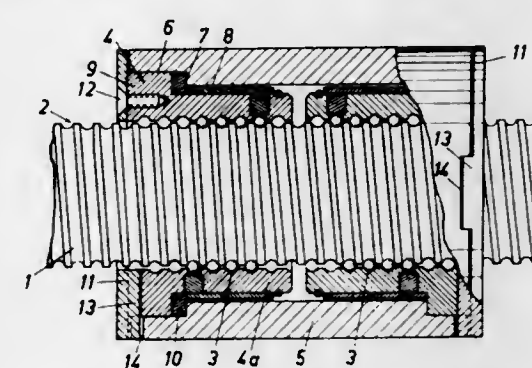
Filed June 25, 1969, Ser. No. 836,483

Claims priority, application Sweden, June 28, 1968, 8,839/68

Int. Cl. F16h 1/18, 55/04, 55/18

U.S. Cl. 74-441

9 Claims



The nut component of a ball nut mechanism is composed of two parts fitted together by an enclosing sleeve. Each nut part consists of a main body portion, in which the ball recirculation passage is located, and a radially directed end flange. This fits into a recess at the end of the sleeve, and the main portion of the sleeve defined between the two recesses has a larger internal diameter than the external diameter of the main portions of the nut parts in such a manner that the latter have no radial contact with the sleeve and thus are relieved of stresses and shock loads. Means are furthermore provided to adjust the clearance between the balls and the grooves in the sleeve and in the nut parts, respectively.

3,563,108 HELICALLY-TOOTHED SPUR GEAR TRANSMISSION

Robert Wydler, Zurich, Switzerland, assignor to Maag Gear Wheel & Machine Company Limited, Zurich, Switzerland

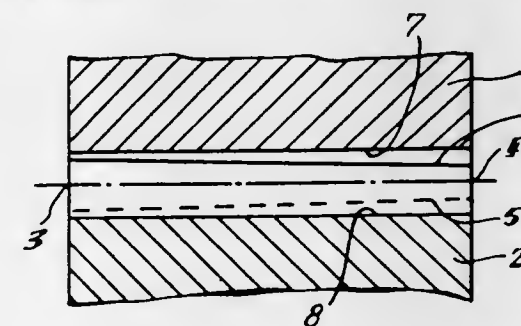
Filed Apr. 17, 1969, Ser. No. 817,044

Claims priority, application Germany, Apr. 20, 1968, P 17 50 421.1

Int. Cl. F16h 55/04

U.S. Cl. 74-458

2 Claims



In a helically-toothed cylindrical gear transmission having a tooth height which is variable along the tooth width,

3,563,109 TWO RANGE STEERING AND SPEED CONTROL MECHANISM FOR A DUAL HYDRAULIC TRANSMISSION SEPARATELY DRIVING TWO WHEELS OF A TRACTOR

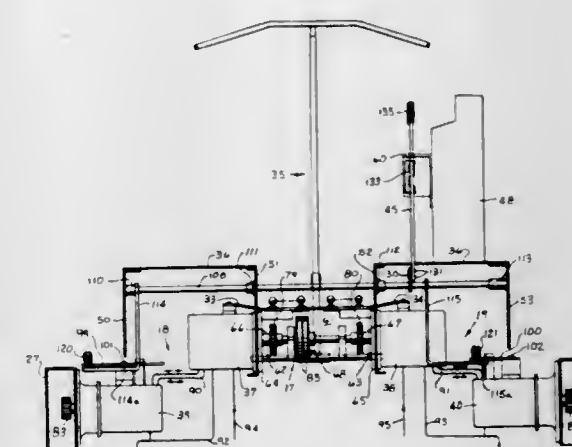
Emmett F. Glass, Akron, Edmund O. Howell, New Holland, and Bruce D. Schwalm, Leola, Pa., assignors to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware

Filed Apr. 14, 1969, Ser. No. 815,712

Int. Cl. G05g 9/00

U.S. Cl. 74-470

8 Claims



A tractor has two spaced front wheels and a trailing tail wheel and has an operating lever controlling two sets of hydraulic pumps and motors independently driving a respective front wheel. The motors are on opposite sides of the tractor and have pintle arms set by lever means under resilient pressure against stops in one of two speed ranges.

3,563,110 TRANSMISSION SHIFT

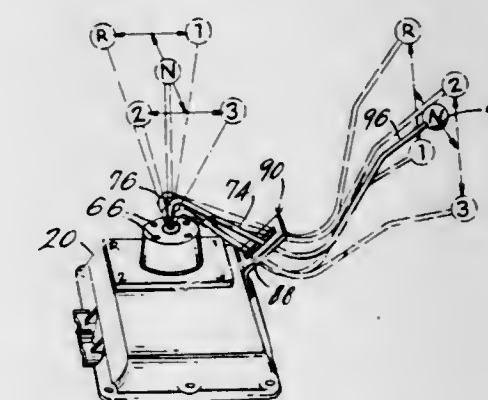
Hans Hauser, Fredericktown, Ohio, assignor to The J. B. Foote Foundry Co., Fredericktown, Ohio, a corporation of Ohio

Filed June 30, 1969, Ser. No. 837,415

Int. Cl. G05g 9/00

U.S. Cl. 74-473

8 Claims



A shift is provided for a transmission used with a small vehicle such as a garden tractor or a riding mower. The shift for the transmission is designed to be accessible from the side of the vehicle so that shifting can be effected even though the transmission is positioned or mounted so that it cannot be shifted through the usual upright shift lever. The shift lever is formed in an "N" configuration with a central portion extending through a guide bracket mounted on the transmission to limit the movement of an intermediate portion of the shift lever and to form a second pivot for the lever when in neutral.

3,563,111

ADJUSTABLE CONTROL PEDALS

Philip B. Zelgler, Pittsford, N.Y., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed July 24, 1968, Ser. No. 747,173

Int. Cl. G05g 1/04

U.S. Cl. 74—512

4 Claims



A control pedal arrangement for automotive vehicle throttle, brake and clutch mechanisms includes a suspended swingably mounted control pedal for each of the control mechanisms and connected with a shiftable control rod from the respective control mechanism through means of an adjusting link having pivotal connection with the control rod and having pin and slot connection with such pedal member in a manner permitting positional adjustment of such pedal member on the mechanism control rod and relative to the passenger seat to suit the needs of an individual vehicle operator. The pedal member is selectively adjusted by an operating link connected to the adjusting link and driven by a crank which is spring-biased in one direction of adjustment and responsive to foot pressure on the pedal members for adjustment in the other direction, with latching means provided to hold the pedals in a selected position.

3,563,112

SAFETY STEERING WHEEL FOR MOTOR VEHICLES

Karl Willfert, Gerlingen-Waldstadt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

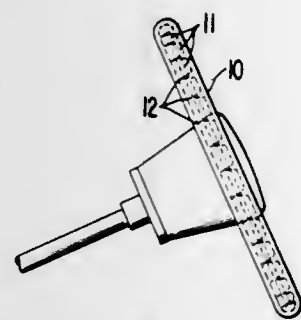
Filed Sept. 18, 1968, Ser. No. 760,512

Claims priority, application Germany, Sept. 19, 1967, P 16 30 355.2

Int. Cl. B62d 1/04

U.S. Cl. 74—552

10 Claims



A safety steering wheel for motor vehicles, especially passenger motor vehicles in which the steering wheel rim and/or the steering wheel spokes have a smaller form-rigidity in the direction of the steering column than in the direction of the normal steering forces.

3,563,113
AUTOMATIC PLANETARY GEARBOX PRODUCING INFINITELY VARIABLE SPEED RATIOS

Graeme Gordon Harvey, 3 Benatar Way,

Alexandra Park, Salisbury, Rhodesia

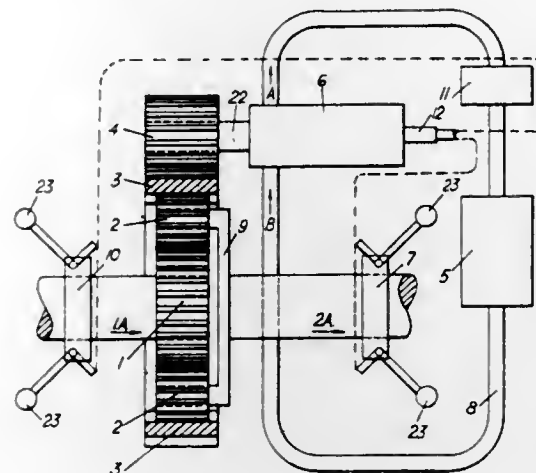
Filed May 13, 1968, Ser. No. 728,395

Claims priority, application Rhodesia, May 11, 1967, 194/67

Int. Cl. F04b 23/10, 41/00; F16h 57/10

U.S. Cl. 74—786

3 Claims



A fluid braking apparatus is arranged to brake to a controlled and variable extent one of the components of a planetary gearing to secure a continuous variation of the ratio of the speeds of an input component and an output component of the gearing. Governor means responsive to the speeds of the input and output components of the gearing is connected to the braking apparatus to influence the braking action exerted on the braked component of the gearing. The input component is the sun wheel and the output component is a planet carrier upon which is mounted planet wheels. The braked component is an annulus driven by the gearing. A pump is driven by the annulus, and a valve on the rotor shaft of the pump is controlled by the governor means controllably restricting the flow of fluid from the pump to brake the pump and annulus.

3,563,114

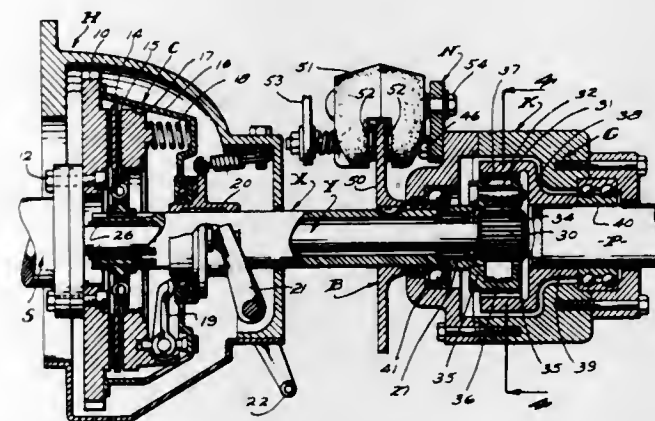
FORWARD AND REVERSE PLANETARY GEARING
Ernest R. Casale, Huntington Beach, Calif. (% Casale Engineering, 161 8th Ave., City of Industry, Calif. 92705)

Filed July 22, 1969, Ser. No. 843,507

Int. Cl. F16h 3/44

U.S. Cl. 74—792

15 Claims



A manually operable reversible transmission engageable between a power shaft and a propeller shaft including a manually operable clutch, a manually operable shaft braking means, and a planetary gear train, said clutch, brake means and gear train being related to the power and

propeller shafts and with each other whereby disengagement of the clutch and braking means disengages drive between the shafts, engagement of the clutch establishes direct drive between the shafts and actuation of the braking means establishes gear reduced reverse drive between the shafts.

3,563,115

HYDRAULIC CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION

Tetsuya Iijima, Tokyo, and Katsuo Yamada, Yokohama, Japan, assignors to Nissan Jidosha Kabushiki Kaisha, Yokohama, Japan

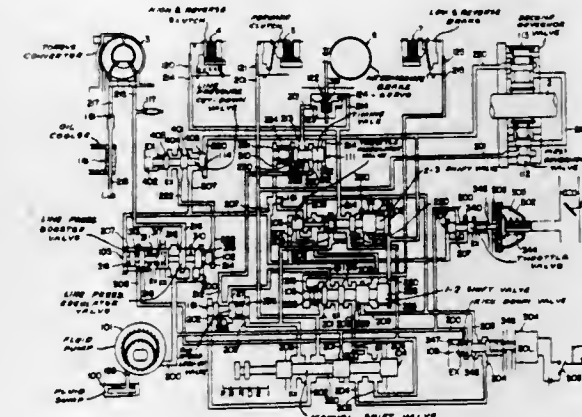
Filed Dec. 11, 1968, Ser. No. 782,989

Claims priority, application Japan, Dec. 22, 1967, 42/81,843, 42/81,844

Int. Cl. B60k 21/10; F16h 57/10

U.S. Cl. 74—869

4 Claims



A hydraulic control system for an automatic transmission for vehicles for performing suitable timing relation of engagement and disengagement of the friction elements while shifting. A valve means is provided to regulate engagement and disengagement timing of an intermediate friction brake at low throttle pressure conditions.

3,563,116

PORTABLE UPRIGHT BORING MILL

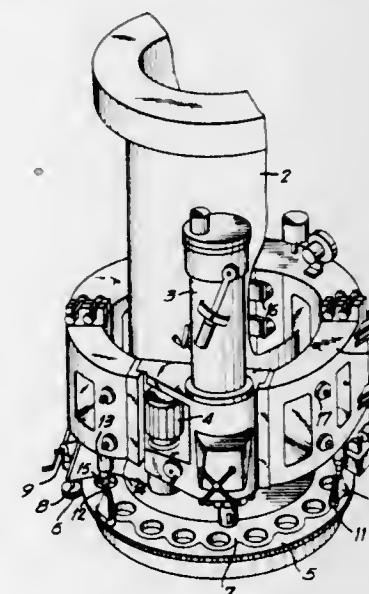
Grigory Yakovlevich Gurvich, Ulitsa Zamshina 21, kv. 68; Leonid Sergeevich Krajukhin, Dalnevostochny prospekt 19, kv. 34; and Rady Nikolaevich Verbitsky, Nevsky prospekt 20, kv. 2, all of Leningrad, U.S.S.R.

Filed July 31, 1968, Ser. No. 749,160

Int. Cl. B23b 39/14

U.S. Cl. 77—2

4 Claims



A portable upright boring mill comprises a split hollow cylinder body which can be attached to the shaft of a workpiece whose flange is to be machined by boring holes

therein. The mill is mounted on the workpiece by fitting the body on the shaft so that it surrounds the same and the body comprises a spindle head for machining the holes in the flange. The body can be moved along the workpiece flange by means of a turning mechanism which includes a drive installed on the mill body and engaged with a gear in turn engaged with a toothed rim secured on the workpiece flange. The body rests on supports which are articulated to carriages which roll on the flange for travel of the mill thereon.

3,563,117

DEVICE FOR STRIPPING INSULATION FROM INSULATED WIRES

Frans Pharaïlda Jozef Bolssens, Helde-Kalmthout, Belgium, assignor to International Standard Electric Corporation, New York, N.Y.

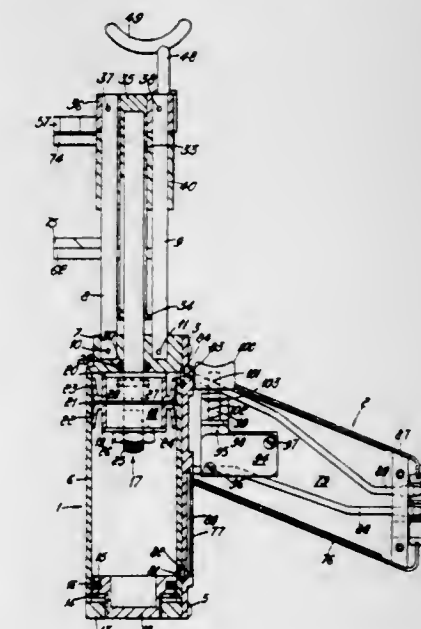
Filed Apr. 23, 1968, Ser. No. 723,386

Claims priority, application Netherlands, Apr. 27, 1967, 6705924

Int. Cl. H02g 1/12

U.S. Cl. 81—9.5

20 Claims



An apparatus for stripping insulation from wire includes a pistol shaped frame with a pneumatic trigger, a cam mounted on the frame and being longitudinally movable between a first position and a second position, a pair of gripping and insulation cutting jaws respectively mounted on the frame, and a pair of springs, which are actuated by the trigger to cut and strip the insulation. One of the springs is interposed between the gripping jaws and the cam, and the other between the cutting jaws and the cam respectively. The springs are pretensioned by the cam disposed in the first position for urging the gripping jaws and the cutting jaws toward their respective operative positions. The actuating trigger pneumatically drives the cam from the first position to the second position to release the springs from their pretensioned positions into their operative positions for enabling the gripping jaws and cutting jaws to respectively grip the wire and cut the insulation from the wire.

3,563,118

ADJUSTABLE SELF-LOCKING WRENCH

Edmund W. F. Rydell, % The Rydell Co., 2328 N. 2nd St., Minneapolis, Minn. 55411

Filed Apr. 24, 1968, Ser. No. 723,795

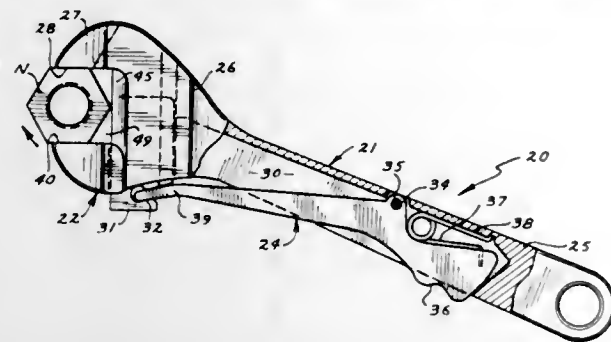
Int. Cl. B25b 13/12

U.S. Cl. 81—129

7 Claims

A wrench having a fixed jaw on a handle and a movable jaw operated by a control lever pivoted on the handle, the movable jaw having a dovetail portion mounted in a

dovetail slide in the handle and adapted to wedge and lock therein when turning pressure is applied by the



wrench upon a workpiece. Spring means act upon the control lever to bias the movable jaw toward the fixed jaw.

3,563,119

METHOD FOR CUTTING TUBE MEMBERS AND FINISHING SELECTED OF THE CUT TUBE EDGES AT A SINGLE STATION

Alex Shashaty, Youngstown, Ohio, assignor to Fairfield Machine Company, Inc., a corporation of Ohio

Filed Apr. 3, 1969, Ser. No. 813,041

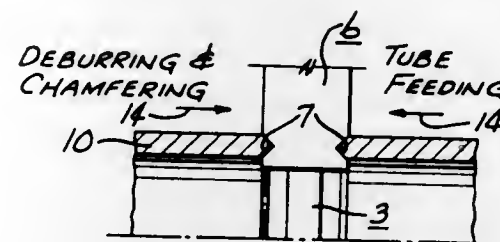
Int. Cl. B23b 1/00, 3/00

U.S. Cl. 82—1

16 Claims

In a cutoff machine, means are provided for sequentially cutting a tube member at a selected point of cutoff and

chamfering selected of the tube edges, as cut, at a single station. The tube is positioned for cutoff within the cutoff machine and thereafter is gripped by independent chuck means adjacent both sides of the selected point of cutoff. Upon completion of the cutoff operation at the selected cutoff point, the cut tube ends are separated while the same are still being firmly gripped by independent



chuck means. Selected of the cut tube edges may be dressed or finished, such as, by chamfering by inserting, in aligned relation between the separated cut tube ends, a chamfering tool. Then the independent chuck means are operated to draw together the separated tube ends into the aligned chamfering tool to complete the chamfering operation.

3,563,120

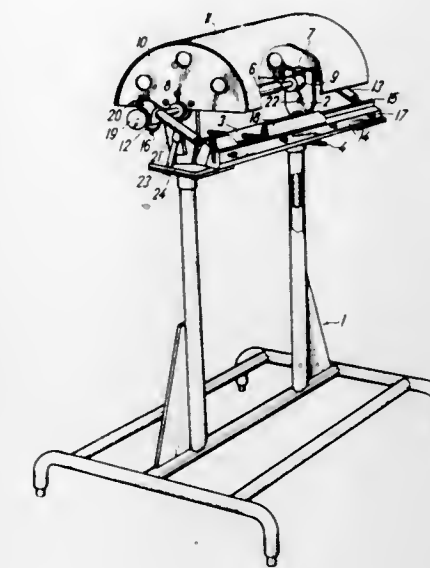
DERMATOME

Ladislav Barinka and Frantisek Libra, Brno, Czechoslovakia, assignors to Chepos Zavody chemicko a Potravinarskeho Strojirenstoi Brno, oborovy podnik, Brno, Czechoslovakia

Filed July 8, 1969, Ser. No. 839,880

Int. Cl. B26d 4/42; A61b 17/32

U.S. Cl. 83—4



In a dermatome for preparing skin grafts, skin is placed on the exterior convex surface of a support which forms part of a hollow cylinder. An elongated hollow shaft extends along the axis of the cylinder and is fixed to end walls of the support while an operating shaft extends through and beyond the hollow shaft. The operating shaft terminates in eccentric portions which have a common axis parallel and spaced from the axis of the operating shaft. A pair of arms is carried by these eccentric portions and they are capable of being adjustably fixed thereto. These arms carry distant from the operating shaft a reciprocating blade which can reciprocate parallel to the operating shaft while swinging with the arms and the operating shaft about the axis of the curved wall on which the skin is supported. The hollow shaft is itself supported on a pair of forks in upwardly directed notches thereof.

3,563,121

CUTTING APPARATUS

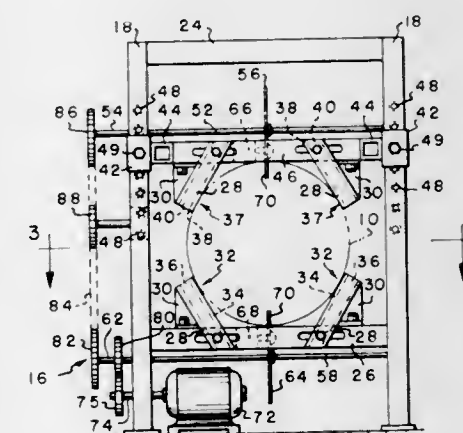
Furman S. Cox, Seneca, and Warren P. Burgess, Salem, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C., a corporation of South Carolina

Filed Dec. 9, 1968, Ser. No. 782,274

Int. Cl. B23d 45/12

U.S. Cl. 83—105

3 Claims



A cutting apparatus which employs two circular saws to cut a paper tube into two substantially identical semicircular halves. The saws are mounted on an adjustable frame having a plurality of members to guide the tube through the ap-

paratus. Elongated plate members are provided on the frame in line with each of the saws to separate the halves after being cut.

3,563,122

TAPE DISPENSING APPARATUS

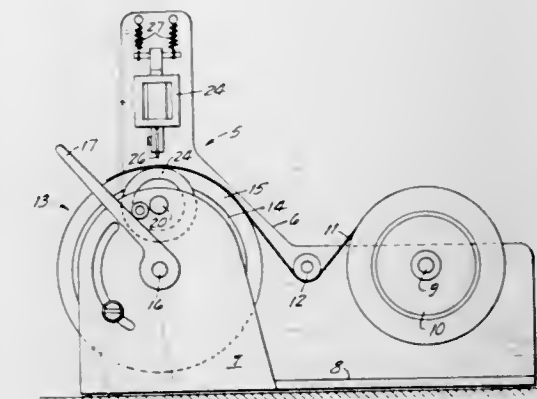
Richard P. De Neui, Lake Elmo, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed May 22, 1969, Ser. No. 826,947

Int. Cl. B26d 5/26

U.S. Cl. 83—205

4 Claims



A tape dispenser using a feed roll which also serves as the anvil against which a sharp cutting member is directed for cutting tape fed by the roller into desired lengths.

3,563,123

NIBBLING MACHINE CONTROL DEVICE

Berthold Leibinger, Gerlingen, Germany, assignor to Firma Trumpf & Co., Stuttgart-Weilimdorf, Germany

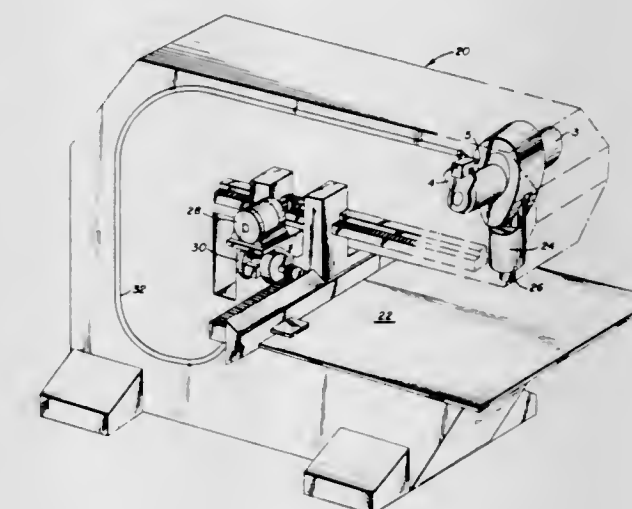
Filed Aug. 12, 1968, Ser. No. 751,846

Claims priority, application Germany, Sept. 16, 1967, P1,627,299

Int. Cl. B23d 27/00; B26d 5/20

U.S. Cl. 83—237

4 Claims



A control device for a nibbling machine is formed of an eccentric shaft, means mounted on and rotatable with the shaft for opening and closing a switch, and a switch member spaced radially outward from the shaft. Either the means for opening and closing the switch or the components of the switch may be variably spaced apart for achieving adjustable control of the device.

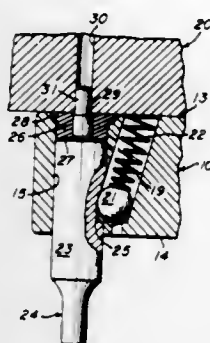
3,563,124

PUNCH AND DIE RETAINERS

Robert J. Gargrave, Dayton, Ohio, assignor to Dayton Progress Corp., Dayton, Ohio, a corporation of Ohio
Filed Dec. 16, 1968, Ser. No. 783,960
Int. Cl. B26f 1/14

U.S. Cl. 83-698

23 Claims



A punch, die or like retainer distinguished by a uniquely formed plug having the dual function of a force dissipating backup means and a precise centering device.

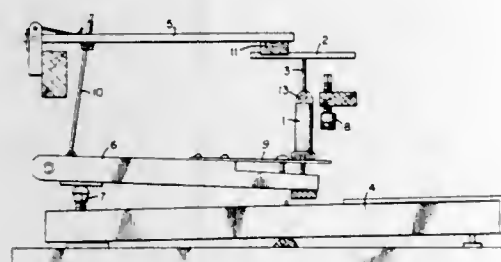
3,563,125

SLEEVE HAMMER PIANO ACTION WITH ESCAPEMENT SIMULATOR

Robert A. Brocato, 108 E. Jordan St., Shreveport, La.
Filed Jan. 21, 1969, Ser. No. 792,522
Int. Cl. G10c 3/18; G10d 13/08

U.S. Cl. 84-237

3 Claims



An escapement-simulating device used in a piano action having as a striking hammer, a sleeve hammer impelled upward along a shaft by a forked lever. The escapement simulator is a spring leaf fork attached to the top side of the forked impelling lever. The upward motion of the spring leaf fork is abruptly limited by a travel stop. The forked lever and the piano key to which it is attached may continue a distance farther due to the bowing of the spring leaf fork. The incorporation of the spring leaf fork simulates the "feel" of an escapement as in conventional pianos.

3,563,126

GUITAR BRIDGE AND TAILPIECE

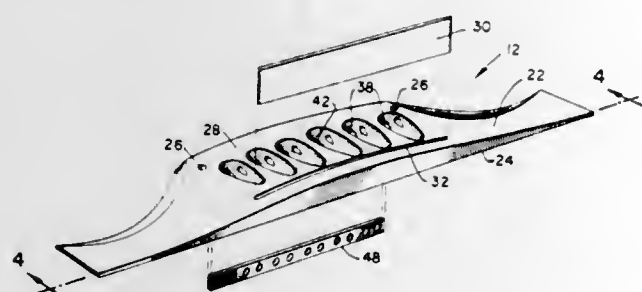
Russell Connington, Vernon, Conn., assignor to Kaman Corporation, Bloomfield, Conn.

Filed Oct. 27, 1969, Ser. No. 869,493

Int. Cl. G10d 3/04

U.S. Cl. 84-298

10 Claims



A combined bridge and tailpiece for a guitar or similar stringed musical instrument includes a base member having

an elongated bridge strip projecting from the forward surface thereof and arranged generally perpendicular to the strings. Below the bridge strip the base member includes a plurality of holes, for receiving the strings, passing from its forward surface to its lower surface. A reinforcing strip of metal is inset in the rear surface of the base member and arranged so that the string openings pass therethrough.

3,563,127

MUSICAL TONE PRODUCING DEVICE

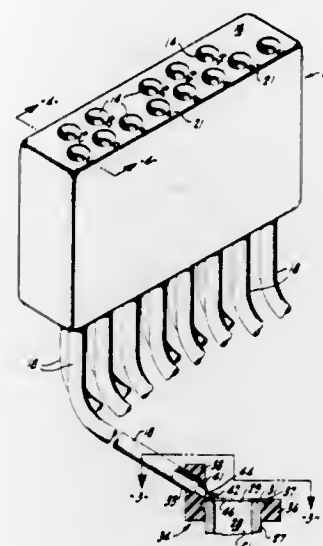
Tadashi Funakoshi, 5925 Maleville Ave., Carmichael, Calif. 95608

Filed June 16, 1969, Ser. No. 833,616

Int. Cl. G10d 7/00

U.S. Cl. 84-330

12 Claims



A vessel having an effective tone-producing air column includes an orifice toward which is angularly directed one end of an air-conducting conduit, the other end of the conduit being capable of receiving air under pressure. By providing a plurality of such vessels, each tuned to emit a tone of predetermined frequency, and by connecting the vessels to conduits extending to corresponding openings in a common mouthpiece member, the user can play a tune by blowing into the appropriate mouthpiece openings. Tuning of the vessels is accomplished by adjusting the effective tone-producing air column therein, either by positioning an adjustable plunger member or by filling the vessel with liquid until the desired pitch is attained.

3,563,128

PERCUSSION MUSICAL INSTRUMENT

Shigeo Suzuki, Hamamatsu-shi, Japan, assignor to Nippon Gakki Kabushiki Kaisha, Shizuoka-ken, Japan

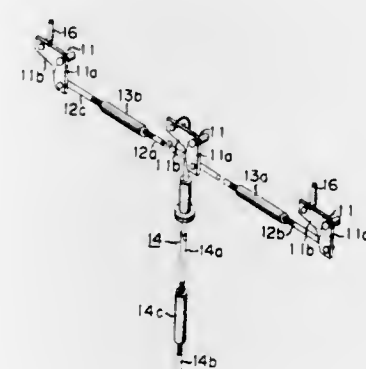
Filed June 4, 1969, Ser. No. 830,401

Claims priority, application Japan, June 28, 1968, 43/54588

Int. Cl. G10d 13/08

U.S. Cl. 84-403

4 Claims



A percussion musical instrument particularly involves three linearly arranged middle, right and left rods each connected to an adjacent rod by a turnbuckle in a manner to allow the space therebetween to be extended, and two bell cranks pivotally connected to said right and left rods respec-

tively and supporting a crossbar for damping the vibrations of tone bars. The horizontal movement of said middle rod causes said crossbar to be moved to and away from said tone bars by the media of said right and left rods and bell cranks. The adjustment of said turnbuckles controls the magnitude of force with which the right and left portions of said crossbar attach themselves to the tone bars.

3,563,129

BASS DRUM PEDAL

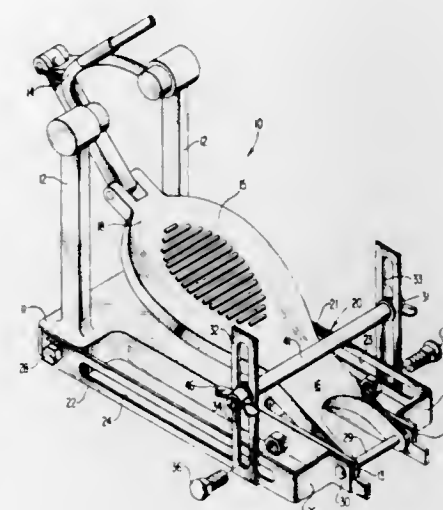
Franklin O. Cantrell, 4930 Roswell Road Apt. 34, Atlanta, Ga. 30305

Filed Dec. 22, 1969, Ser. No. 887,170

Int. Cl. G10d 13/00

U.S. Cl. 84-422

5 Claims



A bass drum pedal assembly which includes a supporting framework, a striking arm assembly pivotally supported by the framework, and a foot pedal having a heel portion pivotally connected to the framework and toe portion connected to the striking arm assembly. Upright support stanchions are positioned on opposite sides of the pedal, and an arch support bar is connected at its ends to the upright support stanchions above the pedal. The arch support bar is moveable vertically along the upright support stanchions, and the stanchions are moveable laterally along the length of the supporting framework, so that the arch support bar can be repositioned as desired to support the arch of the foot of the drummer.

3,563,130

VISUAL INTERPRETATION APPARATUS

Stanley B. Elliott, 7125 Conolly Blvd., Walton Hills, Ohio

Filed Nov. 25, 1968, Ser. No. 778,508

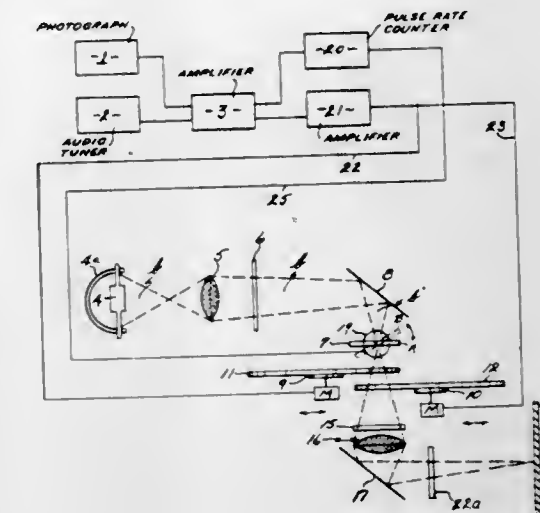
Int. Cl. A63j 17/00

U.S. Cl. 84-464

10 Claims

Visual interpretation apparatus for interpreting electric current signals generated by electronic intelligence devices such as audio sound systems creating music, and the like by means of record players, phonographs, radios, AM and FM tuners, transmitters, receivers and the like and which apparatus has a light optical system for receiving and projecting a light beam(s) onto a viewing surface. A plurality of light polarization and light retardation devices are disposed in the path of the beam and are variably movably responsive to the electric current signals to interpret said intelligence and provide visual light patterns on the viewing surface which correspond to said electric current signals. The polarization and retardation devices may partake of various configurations such as discs, vanes and the like. The variable movement of said devices is in the path of the light beam and is in response to the variation in the electric current signals. A consequent

change or "sweep" of color on the viewing surface may also be accompanied by what appears to be movement of the



imagery within the confines of the image projected onto the viewing surface.

3,563,131

SPACER

Robert L. Ridley, Sr., Palmetto, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

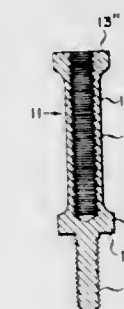
Continuation-in-part of application Ser. No. 712,727, Mar. 13, 1968, now abandoned. This application Apr. 23, 1969,

Ser. No. 825,103

Int. Cl. F16b 35/00, 37/00

U.S. Cl. 85-1

1 Claim



A spacer is provided for use in securing wire clamps in individual, stacked pairs so that only one pair of such clamps need be disconnected at a time. Opposite ends of the spacer terminate in bearing surfaces of precise dimension to assure the support of a cantilevered load. A threaded stud extends from one of these spacer ends and a threaded bore is formed in the other spacer end with matching threads so that the stud of one spacer can coax with the bore of another to accomplish stacking. The wall of the spacer between the bearing surfaces is configured to an optimum strength to weight ratio and a torque applying surface is associated with the bore end of the spacer.

3,563,132

GRENADE LAUNCHER

Walter R. Cashen, Louisville, and George M. Chinn, Harrodsburg, Ky., and William P. Schnatter, Jeffersonville, Ind., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Sept. 19, 1968, Ser. No. 760,936

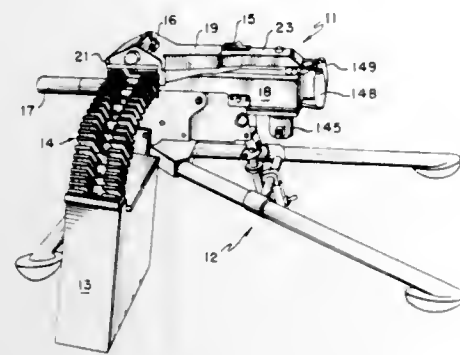
Int. Cl. F41d 9/02, 11/02, 11/16

U.S. Cl. 89-33

1 Claim

An automatic grenade launcher utilizing advanced primer ignition for firing linked grenade rounds and having first cam

means actuated by a reciprocating bolt for indexing rounds at an upper feeding level, second cam means for moving said



rounds from said upper feeding level to a lower firing level, and third cam means for actuating a firing pin in said bolt while said bolt goes forward into battery.

3,563,133

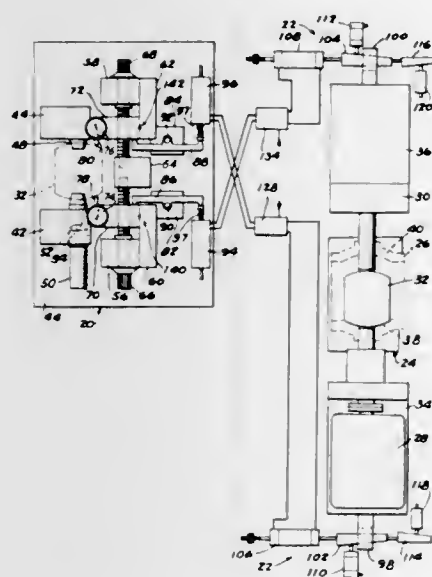
TOOL COMPENSATOR FOR A PRODUCTION MACHINE
Roger C. Asman, and Graham Lloyd, Detroit, Mich., assignors to Snyder Corporation, Detroit, Mich., a corporation of Michigan

Filed July 29, 1968, Ser. No. 748,497

Int. Cl. B23c 3/00; B27g 23/00

U.S. Cl. 90-11

14 Claims



A production machine apparatus which compensates for variations in tools having a remote measuring unit and a control unit. The measuring unit is an adjustable arbor for supporting a cutting tool and a gauge determining the position of a cutting edge of the tool and translating this position into a signal which activates and controls a hydraulic cylinder which positions a movable stop. The stop limits the depth of cut of the tool when it is in a power head which advances the cutting tool into a workpiece.

3,563,134

AIR-OPERATED TOOL

Harvey B. Rodstein, 6419 Shenandoah, Los Angeles, Calif.
Continuation-in-part of application Ser. No. 766,259, Oct. 9, 1968, now abandoned. This application Feb. 10, 1969, Ser. No. 801,925

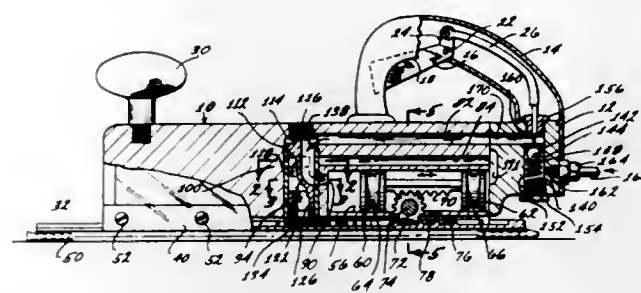
Int. Cl. F01l 31/18, F01b 9/00

U.S. Cl. 91-349

7 Claims

The device is an air-operated tool, particularly of the type used for rubbing, sanding or filing, that is, having a reciprocatory motion. The tool embodies a single double-ended piston in a bore, with a rack positioned between the

ends of the piston. A reciprocable shoe carries a second rack and a pinion gear is mounted between the two racks on a transverse axis the piston and shoe reciprocating in opposite directions. A rotary-type valve controls the admission



3,563,135

PNEUMATIC AMPLIFIER

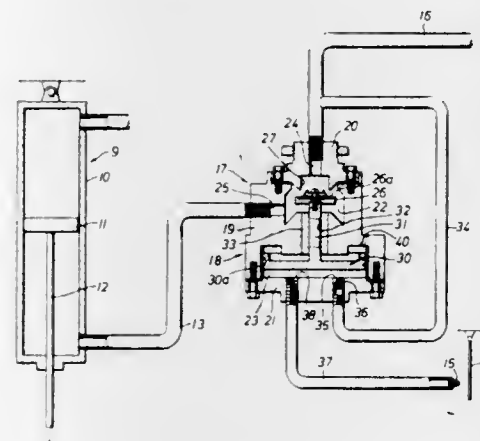
Arthur G. Trader, Houston, and Harold I. Johnson, Seabrook, Tex., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Dec. 12, 1968, Ser. No. 783,374

Int. Cl. F15b 13/16, 13/042

U.S. Cl. 91-385

8 Claims



A pneumatic amplifier is disclosed for controlling a high pneumatic fluid supply pressure and/or flow capacity to a pneumatically powered system. The high supply pressure is controlled by a low pressure at the control side of the pneumatic amplifier. A small pneumatic decrease pulse at the control side of the pneumatic amplifier delivers a larger increased pulse at the output side of the amplifier. By controlling the pressure in the control side of the amplifier, the supply pressure and/or supply flow rate is controlled to the pneumatic system being operated.

3,563,136

VARIABLE FORCE HYDRAULIC PRESS

Raymond L. Valente, Kankakee, Ill., assignor to Manco Manufacturing Co., Bradley, Ill., a corporation of Illinois

Filed Feb. 14, 1969, Ser. No. 799,309

Int. Cl. F15b 15/08

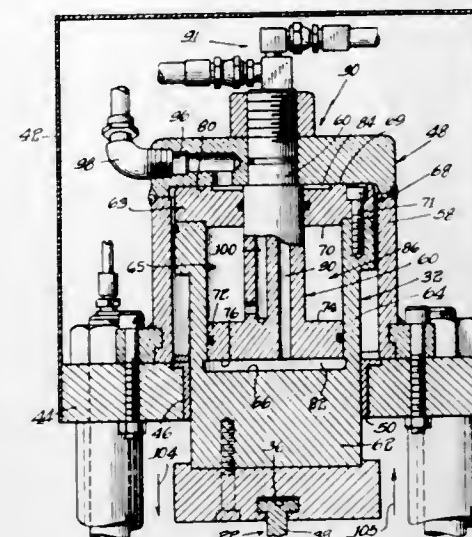
U.S. Cl. 91-411

5 Claims

A variable force hydraulic press of the general type which includes a frame having a base portion with a support surface, and a head portion spaced above said base portion. The head portion has a ram arrangement contained therein, whereby the ram may be reciprocated toward and away from the base portion. Said ram arrangement includes a housing and a pistonlike ram element slidably positioned within said

housing. The ram has first and second piston surfaces facing in the same direction and cooperating with said housing to define first and second piston chambers. Conduit means are provided in said housing to achieve a fluid path from each said chamber to the exterior thereof, said fluid paths being

valve for the transfer circuit, a check valve downstream of the flow divider preventing reverse flow through the transfer circuit, and a piston responsive to transfer circuit pressure to meter fluid displaced from the bucket cylinder and prevent cavitation in the system.



associated with a source of fluid under pressure and control means. Accordingly, a selective application of fluid pressure to either or both said chambers may be attained, with the force exerted by said ram varying according to the total piston surface area subject to said fluid pressure.

3,563,137

HYDRAULIC SELF-LEVELING CONTROL FOR BOOM AND BUCKET

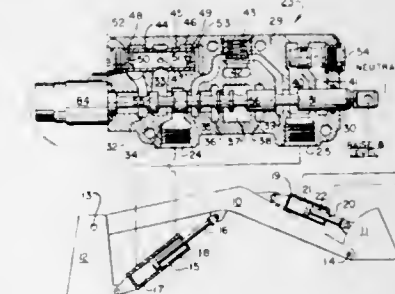
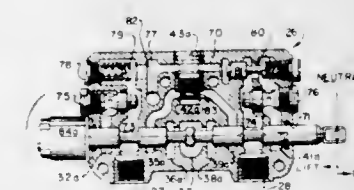
Homer R. Graber, Pretty Prairie, and James W. McFarland, Hutchinson, Kans., assignors to The Cessna Aircraft Company, Wichita, Kans.

Filed June 30, 1969, Ser. No. 837,605

Int. Cl. F15b 11/16

U.S. Cl. 91-414

21 Claims



A control system for the selective operation of hydraulic cylinders positioning the boom and bucket of a front end loader. A multiple spool valve is provided with a control spool for the boom and a control spool for the bucket. When the boom is actuated by directing pressure fluid to one end of the boom cylinder, the fluid displaced from the other end of the boom cylinder is selectively directed through a transfer circuit to a flow divider that diverts a predetermined portion of the displaced fluid to actuate the bucket cylinder and maintain the bucket level when the boom is raised and/or lowered. Additional controls may include a pressure relief

3,563,138
DIFFERENTIAL PRESSURE RESPONSIVE DEVICE WITH DIAPHRAGM EQUALIZATION

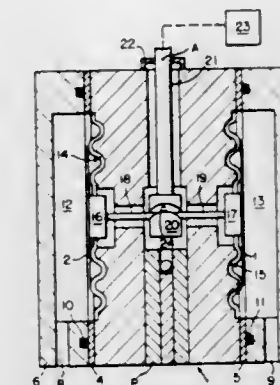
James A. Symonds, Penfield, and John J. Callahan, Chili, N.Y., assignors to Sybron Corporation, Rochester, N.Y.

Filed June 23, 1969, Ser. No. 835,400

Int. Cl. F01b 5/06

U.S. Cl. 92-48

11 Claims



A pair of nominally identical diaphragms are rigidly interconnected with the end of a bar to deflect same. A connector on the end of the bar has an oblique circumferential track. Stems on the diaphragms are clamped in the track. To adjust for diaphragm differences, the stems are unclamped and the connector is rotated to shift the stems, the one stem moving toward the axis of bar deflection, and the other moving away therefrom. In this way, the difference between the diaphragms' responses to pressure is neutralized by difference in effective lever arm of said diaphragms on said bar. The connector may be in the form of two like cylinders, each having nonparallel bases and clamping the stems between them.

3,563,139

SPRING-APPLIED BRAKE MECHANISMS

Wilbur M. Page, Bracebridge Heath, Lincoln, and Ralph Coupland, Lincoln, England, assignors to Clayton Dewandre Company Limited, Lincoln, England

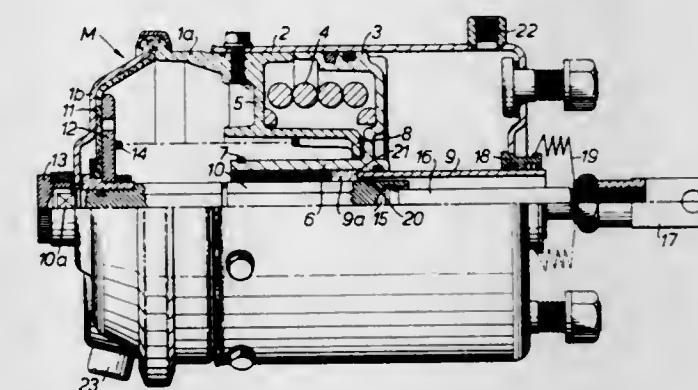
Filed Jan. 24, 1969, Ser. No. 793,703

Claims priority, application Great Britain, Jan. 26, 1968, 4176/68

Int. Cl. F01b 7/04

U.S. Cl. 92-63

9 Claims



A vehicle braking system comprising an air pressure operated brake motor and a spring-applied fluid pressure released motor combined as a unit, said unit including in the spring motor a central sleeve movable with the piston thereof and in screw-threaded connection with a hollow release screw, said screw having operative connection with a push

rod by which the thrust of the unit is transmitted to the brake linkage, and means for rotating the release screw to effect further movement of the piston beyond the "brakes-on" position to decompress the piston loading spring and release the brakes.

3,563,140

PISTON FOR AN INTERNAL COMBUSTION ENGINE

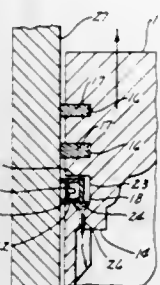
Carl W. Hollingsworth, 538 N. 2nd St., Marshalltown, Iowa 50158

Filed May 23, 1969, Ser. No. 827,318

Int. Cl. F01b 31/10

U.S. Cl. 92-160

1 Claim



The piston has a lowermost ring-receiving groove formed adjacent the inner end of its bottom side with an annular oil-receiving trough. Oil removed from the cylinder wall by the piston ring during the down stroke of the piston is directed into the trough. A series of vertically extended circumferentially spaced holes in the trough function as drain holes for conveying the oil from the trough to the interior of the piston in response to the change in the directional travel of the piston on the completion of its downstroke travel.

3,563,141

PHOTOGRAPHIC CAMERA WITH AN AUTOMATIC, LIGHT-DEPENDENT EXPOSURE SETTING

Franz W. R. Stapp, Calmbach, Black Forest, Germany, assignor to Prontor-Werk Alfred Gauthier GmbH, Calmbach, Black Forest, Germany

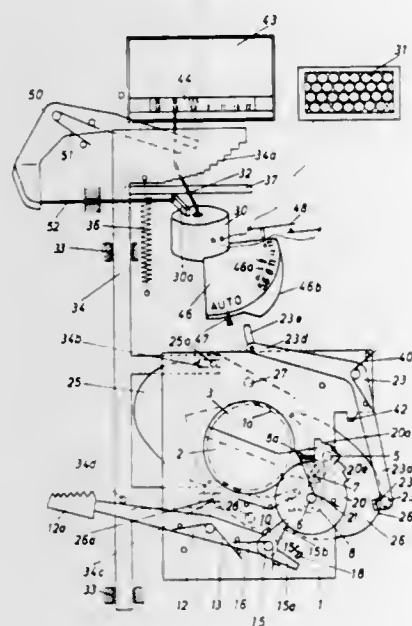
Filed Mar. 13, 1967, Ser. No. 622,548

Claims priority, application Germany, Mar. 12, 1966, P38,975

Int. Cl. G01j 1/04

U.S. Cl. 95-10

15 Claims



A photographic camera having a diaphragm consisting of at least two rotatably mounted blades and an exposure-time-regulating device cooperating with the shutter blade system of the camera, so that by means of an exposure meter built into the camera and a scanning device associated therewith,

both light stop and exposure time are automatically controllable in an "AUTO" range and are presettable manually in another range. The camera has simple automatic programming whereby a part of the components of the automatic programming system is utilized for manually setting the light stop and the exposure time as well as for actuating a working range indicator by a highly advantageous configuration and correlation of parts with a minimum of structural expense. Thus, the camera has a control member, forming part of the exposure-time-regulating device and participating in the positioning motions of the diaphragm blades, that engages one of the diaphragm blades directly, and wherein its setting determines the duration of the exposure by the shutter sectors.

3,563,142

PROGRAMMED SHUTTER

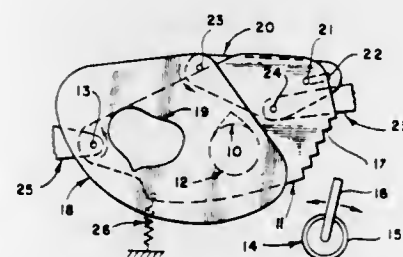
Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Aug. 28, 1968, Ser. No. 755,869

Int. Cl. G03b 9/06, 7/00

U.S. Cl. 95-10

8 Claims



A photographic exposure control system utilizing a simple three-member programmed shutter and a needle trap meter movement. The indicating needle of conventional exposure meter is used to control the relative positions of the shutter members and thereby control the exposure aperture and exposure time provided by the programmed shutter in accordance with the level of field brightness of the subject to be photographed.

3,563,143

EXPOSURE CONTROL SYSTEM FOR DOCUMENT COPYING APPARATUS

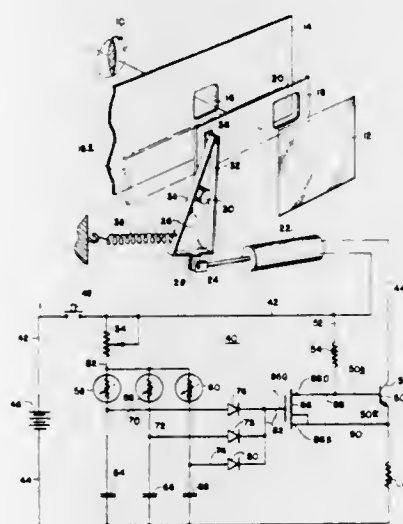
Christian C. Petersen, Westwood, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed July 3, 1968, Ser. No. 742,431

Int. Cl. G03b 7/08, 9/62

U.S. Cl. 95-10

19 Claims



An exposure control system for document duplicating devices which utilizes a multibranch photosensing network to

evaluate variations in reflection characteristics over select portions of a document to be duplicated. The embodiment shows an adjustment of exposure interval timing in correspondence with a reflection evaluation representing the brightest portion of the duplicated document.

3,563,144

PRESSURE PLATE FOR CAMERAS ADAPTABLE FOR FILM WITH OR WITHOUT BACKING PAPER

Kunihiko Fukino, Tokyo, Japan, assignor to Nippon Kogaku K. K., Tokyo, Japan

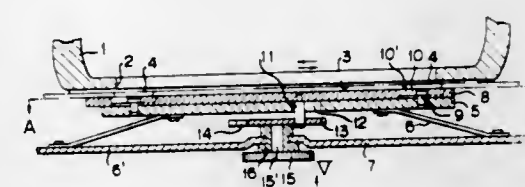
Filed Aug. 1, 1968, Ser. No. 749,483

Claims priority, application Japan, Aug. 23, 1967, 42/72369

Int. Cl. G03b 19/00

U.S. Cl. 95-11

3 Claims



A pressure plate arrangement is provided for a roll film camera accommodating film strips with and without paper backing. A channel is provided between the film guide plate and the film guide surface on the camera body for guiding the film strip past a film exposure frame in the camera body. The clearance in the channel is variable through a selector knob on the exterior of the camera back, a stepped cam arrangement being provided to position the film guide plate relative to the film guide surface.

3,563,145

FILM TRANSPORTING APPARATUS

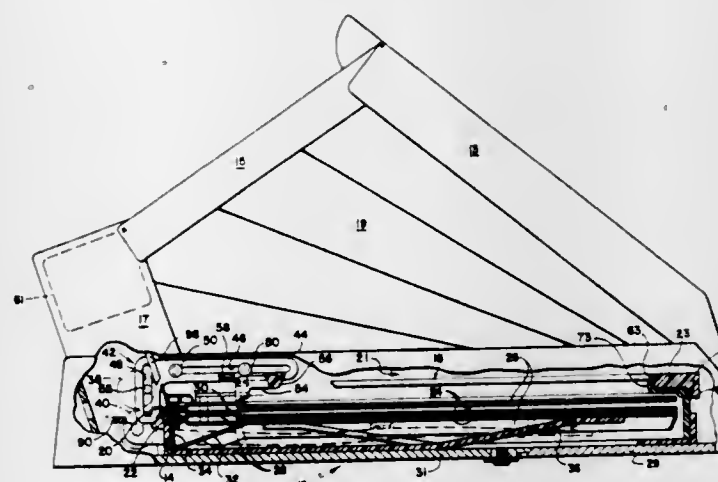
Leonard V. Bendon, Hyde Park, and Irving Erlichman, Wayland, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed July 9, 1968, Ser. No. 743,441

Int. Cl. G03b 17/50

U.S. Cl. 95-13

14 Claims



A self-developing camera including a pair of processing rolls which are mounted for movement away from each other when a film unit enters the nip of the rolls. A reciprocating film unit engaging member is coupled to one of the rolls for movement toward and away from a container housing a plurality of film units to move a film unit subsequent to exposure from the container into engagement with the rolls. The rolls rotate and the film unit engaging member reciprocates continuously and simultaneously and structure is provided for sensing the movement of one of the rolls away from the other to disengage the film unit engaging member to move another film unit from the container at least until the preceding film unit has advanced from engagement with the rolls.

3,563,146

SINGLE LENS PANORAMIC CAMERA

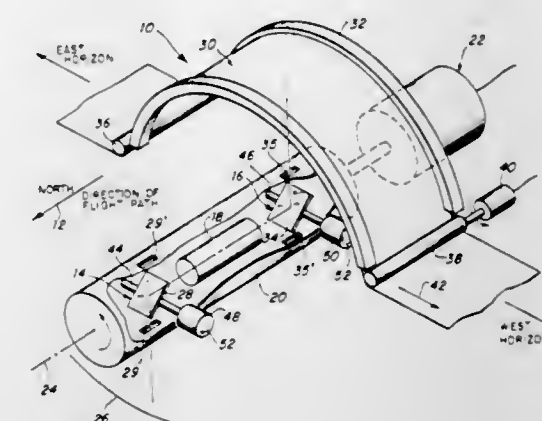
Joseph F. G. Miller, Lincoln, Mass., assignor to Itek Corporation, Lexington, Mass., a corporation of Delaware

Filed Apr. 15, 1968, Ser. No. 721,223

Int. Cl. G03b 37/02

U.S. Cl. 95-16

14 Claims



Apparatus for enabling a panoramic camera to make a plurality of scans of an area of interest during each revolution of the scanning mechanism, including deflection means for scanning the area of interest and means for moving the deflection means relative to an axis transverse to the axis of rotation of the scanning mechanism after a scan has been completed during a first portion of a revolution, to reorient the deflection means to perform another scan of the area of interest during another portion of that revolution.

3,563,147

MASTER CAMERA FOR PRODUCING COMPONENTS FOR INTEGRAL PHOTOGRAPHY

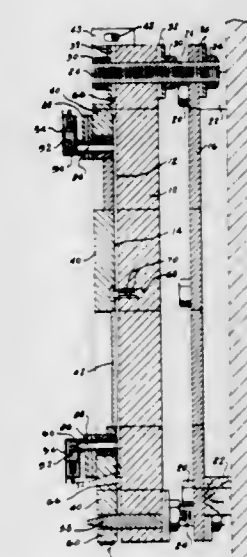
Roger L. De Montebello, 165 E. 66th St., New York, N.Y.

Filed Oct. 11, 1967, Ser. No. 674,440

Int. Cl. G03b 35/00

U.S. Cl. 95-18

7 Claims



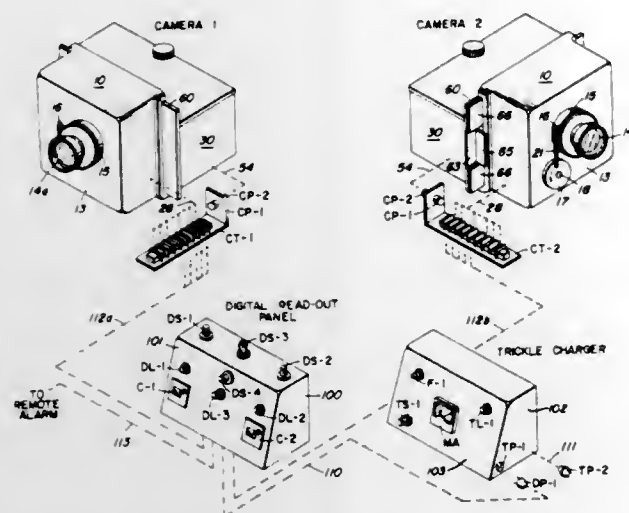
The present invention provides a camera and process for the production of precision components for use in the process of integral photography in which the lenslets of a lenticular sheet have apertured diaphragm sheets and/or apertured field-limiting sheets forming part of the lens system, the apertures being uniformly arranged in square, or more preferably hexagonal array. The camera also includes means for providing a negative to be exposed therein with accurate registering indices which serve to locate the negative and its derivatives so that all apertures as may be accurately coaxially registered with other apertures as well as with the lenslets of the lenticular sheet with which they are to be used.

3,563,148

AUTOMATIC SEQUENCE CAMERA AND SYSTEM
James J. Newman, Salem, Oreg., assignor to LeFebure Corporation, Cedar Rapids, Iowa
Filed June 4, 1968, Ser. No. 734,274
Int. Cl. G03b 19/04

U.S. Cl. 95-31

14 Claims



A remote controlled, sequence camera system for security purposes in banks and similar institutions, each camera featuring a self-contained power supply using a rechargeable battery, an extreme wide-angle lens with fixed focus and great depth of field, and a unique film drive system and circuitry incorporating unperforated roll film. One or more such cameras are connected into a single "digital readout panel" employing film counters, camera test circuits and a relay circuit which activates all cameras. The relay circuit may be connected into standard bank alarm systems and be activated in turn from one or more remote locations. Once activated, each camera continues to operate until shut off or until its film supply is exhausted. A trickle charger connected into the readout panel maintains the battery in each camera.

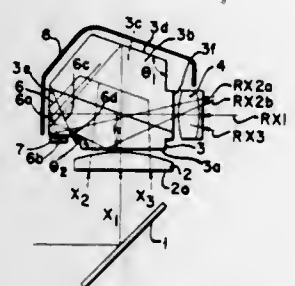
3,563,149

LIGHT-MEASURING SYSTEM EMPLOYING VIEWER SURPLUS LIGHT

Minoru Suzuki, Tokyo-to; Naoyuki Uno, 001-Machi, Irwagun, and Tadazumi Sakazaki, Tokyo-to, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed June 6, 1968, Ser. No. 735,043
Claims priority, application Japan, Mar. 2, 1968, 43/13339
Int. Cl. G03b 19/12

U.S. Cl. 95-42

12 Claims



A through the lens light-measuring system includes a light-transmitting surface at the mirror-reflected focal plane of a reflex camera, a pentaprism having a bottom face confronting the light-transmitting surface, and an eyepiece directed to the prism rear face. Opposite side sections of the prism face are transparent and outside the viewing area of the eyepiece and an upwardly facing photocell is located proximate the bottom edge of each side section and a prism of other reflector directs the image rays reflected from the prism roof through the side sections onto the photocells. One of the photocells is provided with a lens for focusing part of the image. In an alternative form the photocells face the prism

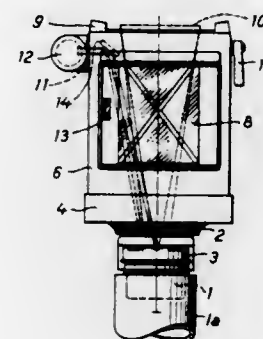
rear face on opposite sides of the eyepiece and are oblique to the optical axis to compensate for light intensity differences consequent to differences in angles between the photocell and the observed image, one of the photocells being provided with a focusing lens for part of the image.

3,563,150

BELLOWS CAMERA HAVING REFLEX MIRROR AND AUTOMATIC EXPOSURE CONTROL
Heinrich Klemann, Burgsolms, Herbert Lelter, Garbenheim, and Klaus Weber, Wetzlar, Germany, assignors to Ernst Leltz GmbH, Wetzlar, Germany
Filed June 14, 1968, Ser. No. 737,040
Claims priority, application Germany, June 15, 1967, L56753
Int. Cl. G03b 19/12

U.S. Cl. 95-42

3 Claims



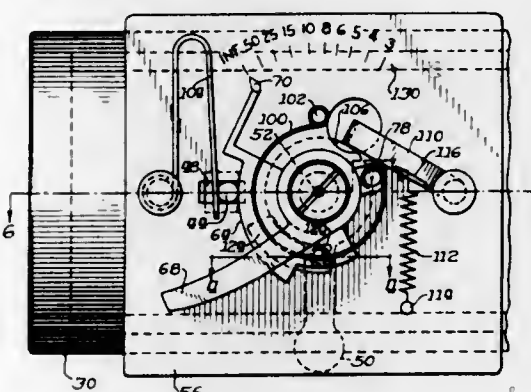
In a bellows camera for particular use on microscopes for photomicrographic purposes there is disposed a pivotable reflex mirror in front of the film plane, which mirror is adapted to reflect the image-forming light rays to a viewing screen. A first diaphragm is arranged in a plane conjugate to the film plane but laterally spaced from the cone of image-forming rays, and a light-sensitive element is placed behind said diaphragm. A second diaphragm is provided in the plane of the viewing screen through which diaphragm the reflex mirror in its viewing position reflects the same rays that are incident on the light-sensitive element when said reflex mirror is in its exposure position.

3,563,151

CAMERA FOCUSING MECHANISM WITH SEPARATED CAM AND PENDULOUS MEMBER
Henry J. Koeber, Deerfield, Ill., assignor to Bell & Howell Company, Chicago, Ill.
Filed Nov. 29, 1968, Ser. No. 780,093
Int. Cl. G03b 3/00

U.S. Cl. 95-45

8 Claims



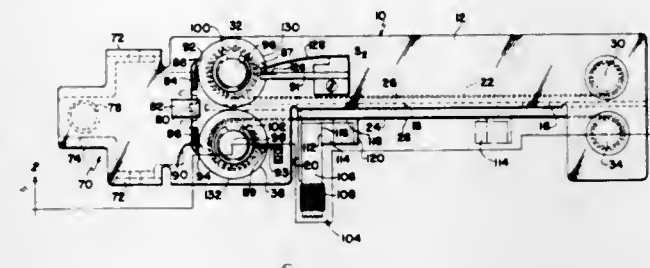
A focusing mechanism for adjusting the lens of a camera according to camera-to-subject distance determined by angular orientation of a pendulous member. The lens is adjusted by a cam which is separate from but oriented in response to the position of the pendulous member. A control is manually operable to adjust the lens independently of orientation of the pendulous member.

3,563,152

EXPOSURE CONTROL APPARATUS
Lawrence M. Douglas, Brockton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed July 1, 1968, Ser. No. 741,741
Int. Cl. G03b 9/28

U.S. Cl. 95-57

6 Claims



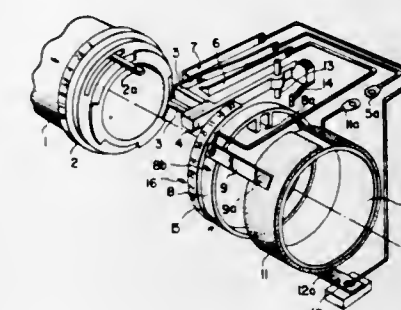
An exposure control apparatus for a photographic camera incorporating a shutter blade formed from planar resilient spring material. The shutter material is formed to assume a spiral orientation when relaxed and is drawn from this orientation when cocked to assume a spring loaded condition. Release of the blade from this spring loaded orientation permits its exposure influencing movement about an exposure aperture.

3,563,153

CAMERA LIGHT MEASURING SYSTEM
Koichiro Watanabe, Tokyo-to, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed Aug. 21, 1968, Ser. No. 754,435
Claims priority, application Japan, Sept. 21, 1967, 42/60745
Int. Cl. G03b 7/02

U.S. Cl. 95-64

6 Claims



A system for measuring the light through a camera lens under diaphragm-open and diaphragm-adjusted positions includes a photoresistor located behind the diaphragm and connected to a meter through a bridge network including in an arm thereof one of a pair of outputs of a variable resistor device. The variable resistor device includes a cylindrical resistance element angularly adjustable in accordance with shutter speed and film rating, a movable contact engaging the resistance element and movable in response to the preset value of the diaphragm and a stationary second contact engaging the resistance element at a point corresponding to diaphragm-open position. A switch is actuatable to alternatively connect the first and second contacts into the circuit with the full opening and adjusted closing of the diaphragm respectively.

3,563,154

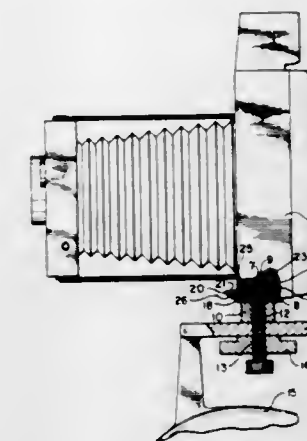
TRIPOD MOUNTING ATTACHMENT FOR CAMERAS
Donovan E. Henning, Box 38 R.R. 1, Egan, Ill. 61026
Filed July 12, 1968, Ser. No. 744,534
Int. Cl. G03b 17/56

U.S. Cl. 95-86

6 Claims

A camera mounting plate that is easily attachable to a camera has a nut affixed onto its lower side to receive the usual screw on a tripod for fastening the camera thereon. The plate is rectangular and has an upwardly projecting flange on one edge with two spaced inwardly projecting ears on it to engage over and grip an edge portion of one wall of

the camera case. The camera case has an outwardly projecting spring catch which snaps over the flange between the ears to fasten the camera detachably onto the mounting plate.



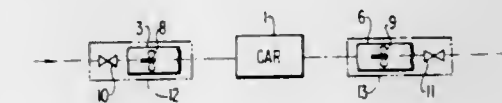
The spring catch is used to fasten a hinged cover in closed position on the camera when the mounting plate is detached therefrom.

3,563,155

VENTILATING EQUIPMENT FOR HIGH SPEED TRAIN
Masahiko Ishizawa, Tokyo, and Takio Fujioka, Kudamatsu-shi, Japan, assignors to Japanese National Railways and Hitachi, Ltd., Tokyo, Japan
Filed Dec. 27, 1968, Ser. No. 787,430
Claims priority, application Japan, Dec. 27, 1967, 42/83,307
Int. Cl. F24f 7/00

U.S. Cl. 98-8

7 Claims



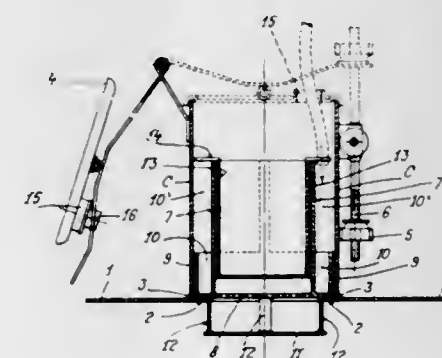
A ventilating equipment for high-speed trains in which the differential flow rate between supply-air and exhaust-air is kept within certain limits to minimize an unpleasant sensation on the part of the passengers, for example, as the train passes through a tunnel at high speeds.

3,563,156

FILTERING APPARATUS CONTAINING VEGETABLE FIBERS
Albert Oreste Del Gamba, 201-203, bld. de la Madeine, Nice, France
Filed Feb. 12, 1969, Ser. No. 798,661
Claims priority, application France, Feb. 16, 1968, Oct. 15, 1968, PV9028;PV9451
Int. Cl. A12h 1/22

U.S. Cl. 99-277.1

5 Claims



An arrangement for protecting the filtering fibers inside a wine-treating vat to protect it against premature soiling, said arrangement comprising a preliminary filter constituted by a

small mass of filtering fibers filling a short tubular upright rising above the conventional opening in the upper cover of the vat which is assumed to be completely filled with filtering fibers. The small prefiltering mass of fibers carried for instance by a basket removably fitted inside the upright can be readily replaced. This ensures a much longer life for the actual large filtering mass of fibers inside the vat. An annular wall may surround the tubular upright and rise above the latter so that the wine poured into the annular gap between the upright and the wall may flow thence over the edge of the upright into the latter and into the vat.

3,563,157

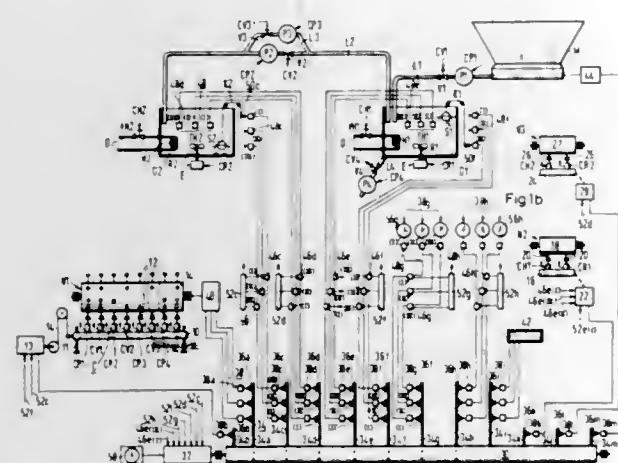
AUTOMATIC BREWING PLANT

Conrad Lenz, Annenhofstrasse 2, 805, Freising, Germany
Filed Oct. 15, 1968, Ser. No. 767,627

Int. Cl. C12c 7/10

U.S. Cl. 99—278

9 Claims



A brewing plant equipped with controls which automatically feed a set amount of mash to vessels, keep the mash in the vessels at closely controlled temperatures for predetermined times, transfer the mash between the vessels, and ultimately discharge it to a lautertub. The manifold control functions are distributed between a master control unit and auxiliary control mechanisms, each of which controls more than one aspect of the brewing process and is itself controlled by the master unit.

3,563,158

PRESSURE COOKING APPARATUS

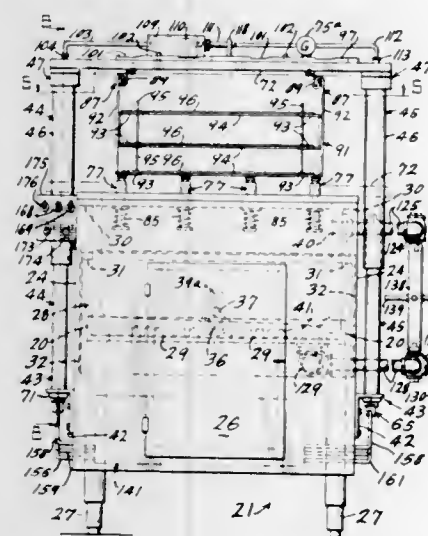
Harold K. Omer, Englewood, Ohio, assignor to Cheffron, Inc., Lima, Ohio, a corporation of Ohio

Filed Apr. 28, 1969, Ser. No. 819,748

Int. Cl. A47j 37/12

U.S. Cl. 99—326

9 Claims



Apparatus for the pressure frying of chicken and other foodstuffs in oil or shortening which includes a support base,

an open topped pot for holding frying oil that is mounted on the base and which has a horizontal flange surrounding the top thereof, a cover for the pot and means for heating the pot. There are hydraulic cylinder means mounted at each side of the pot, and the cover is carried on the hydraulic cylinder means for vertical movement relative to the pot. A plurality of locking pins are mounted vertically in the flange, each of the pins having a shank and an enlarged head above the shank. The cover has vertical holes in its edges which are axially aligned with and correspond in number to the locking pins and are of a size adapted to receive the pins when the lid is in a closed position adjacent the flange. The pins are of such length that when the lid is in closed position the heads and at least a part of the shank portions of the pins project through and extend upwardly beyond the holes in the cover on the upper side thereof. Cover locking means are mounted on the top side of the cover and comprise at least one slidable locking plate having slots corresponding in number and location to the locking pins. Each of the slots is keyhole shaped with the enlarged ends all arranged in the same direction. Means are provided for moving the locking plate between a first, unlocked position with the enlarged ends of the slots aligned with the pins and a second, locked position with the narrower ends of the slots aligned with the locking pins. When the cover is closed and the locking plate is in locking position, the narrower parts of the plate embrace the shanks of the pins to hold the cover tightly closed. The apparatus includes a hydraulic system for actuating the cover lifting cylinders and the locking plate and electrical circuitry for automatically cycling the apparatus to repeatedly cook measured batches of chicken or other food.

3,563,159

ROTISSERIE

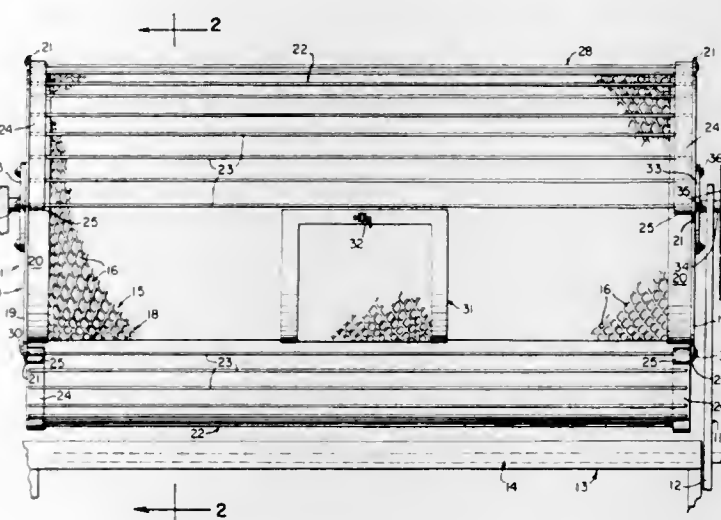
Martha Johnson, 1666 Eleventh Ave., Huntington, W. Va.

Filed Jan. 14, 1969, Ser. No. 790,947

Int. Cl. A47j 37/04

U.S. Cl. 99—339

3 Claims



A rotisserie or cooking appliance that includes a rotary drum that has openings therein, a shell or housing surrounding the drum and provided with a plurality of sections that are provided with members for holding food products thereon that are to be barbecued or cooked and a novel means for applying heat to the food products.

3,563,160

AUTOMATIC APPARATUS FOR BROILING SPITTED FOODS

Kalichi Otsuka, Tokyo, Japan, assignor to Toriichi Shoji Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan

Filed Feb. 3, 1969, Ser. No. 795,887

Claims priority, application Japan, Feb. 6, 1968, 43/7714

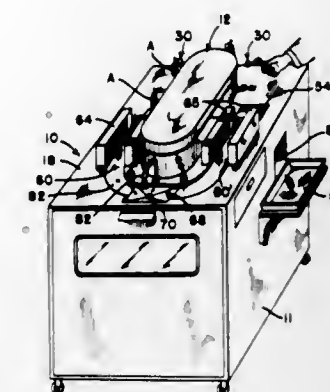
Int. Cl. A47j 37/04

U.S. Cl. 99—345

6 Claims

An automatic apparatus for broiling foods in the spitted form in which the spits of food are hung down from the hold-

ing arm of the circulating carrier are heated and then soy or the like liquid seasoning is applied and heated again and



finished. Finished food is automatically released from the holding arm and received in a tray.

3,563,161

ROTARY PRESSURE COOKER

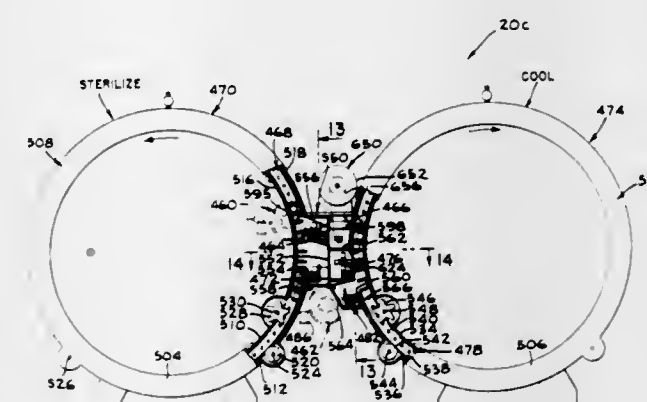
Samuel A. Mencacci, Wilrijk, Belgium, assignor to International Machinery Corporation S.A., St. Nikolaas-Waas, Belgium

Original application Aug. 3, 1967, Ser. No. 658,105, now Patent No. 3,495,523, dated Feb. 17, 1970. Divided and this application Feb. 3, 1969, Ser. No. 823,212

Int. Cl. A23l 3/02

U.S. Cl. 99—366

10 Claims



A high capacity, low speed rotary cooking and cooling apparatus for handling cooker length rows of containers within a series of annular processing housings interconnected by star wheel transfer turrets. A reel in each housing arranged to move each container around an arcuate path, and at least one of said annular housings being of sufficient size to encompass another housing. The apparatus may include pressure feed and discharge valves capable of handling an entire row of containers at one time; or may include shorter pressure feed and discharge valves which handles shorter rows that are less than an entire cooker length row at one time and which are associated with an intermittently driven conveyor that accumulates the short rows and forms them into cooker length rows which are then deflected between the transfer conveyor and the adjacent housing. A modified apparatus includes one or more cylindrical housings with an inner drum that may be driven at a speed different from that of the reel so as to agitate the cooker length rows of containers.

3,563,162

BALE WAGON INCLUDING A BINDER ASSEMBLY

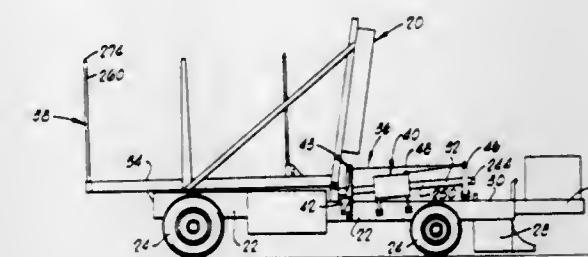
Joe B. Monroe, Box 278, Cherokee, Okla.

Filed May 21, 1969, Ser. No. 826,450

Int. Cl. B65b 13/18

U.S. Cl. 100—7

27 Claims



A bale wagon for transporting, loading, and unloading a stack of bales, having a binder assembly thereon to secure a layer of bales into position, prior to the formation of a stack of bales, thereby providing a more stable and secure stack of bales, and having a stack-retrieving assembly to more efficiently and effectively load and unload a stack of bales.

3,563,163

SCRAP SHEARING APPARATUS

Helmut Schoenauer, Kalkumer-Schlossallee, 4 Duesseldorf-Kaiserswerth, Germany

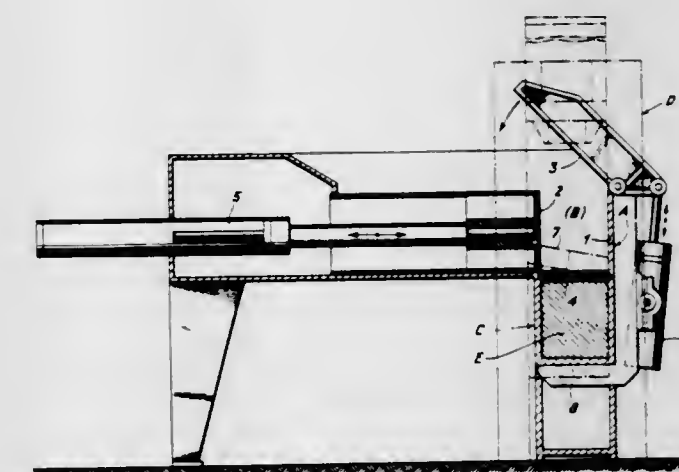
Filed Jan. 21, 1969, Ser. No. 792,438

Claims priority, application Germany, Jan. 27, 1968, P 16 52 783.6

Int. Cl. B30b 15/08

U.S. Cl. 100—95

6 Claims



Scrap shearing apparatus in which scrap is first compacted in a preconsolidating box, the compacted body of scrap then being automatically transferred to a guide box from which it is moved incrementally under the shears. Whilst shearing takes place a further quantity of scrap can be compacted in the preconsolidating box.

3,563,164

REFUSE COMPACTOR

George A. Carkhuff, Somerville, and Richard Jakoplic, Somerset, N.J., assignors to Research Cottrell, Inc., Bridgewater Township, Somerset County, N.J.

Filed Mar. 14, 1969, Ser. No. 808,053

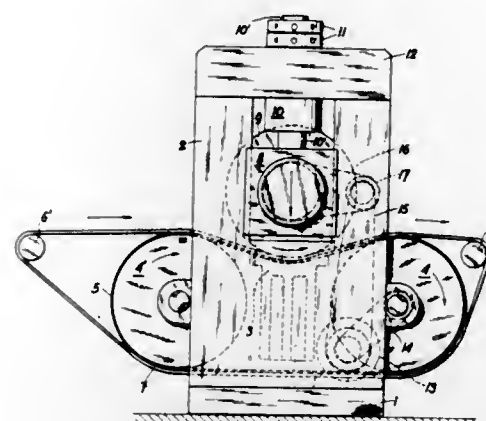
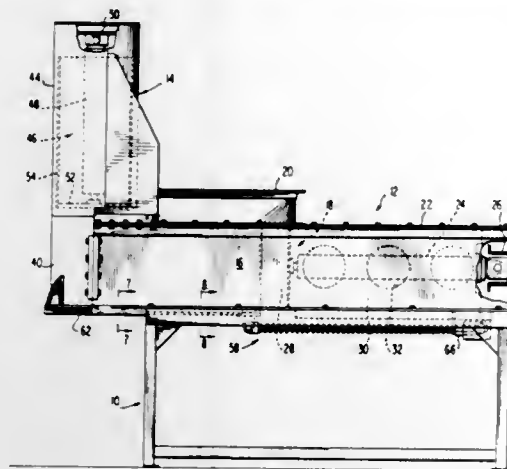
Int. Cl. B30b 15/32, 15/08

U.S. Cl. 100—98

8 Claims

An apparatus for compacting refuse having a chamber with

horizontal and vertical compacting rams communicating therewith. The rams cooperate to sequentially compress with a concavely cylindrical trough on a stationary anvil. The object to be pressed passes through the trough between the cylinder and a laminar belt arrangement moving at the cir-



refuse for ultimate discharge from the chamber as a uniform, discrete slug of compacted refuse.

3,563,165 BALING MACHINES

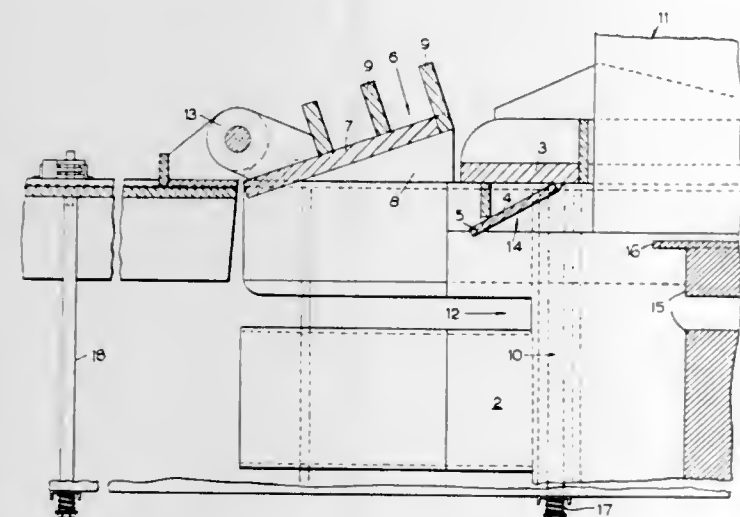
Walter N. Powell, 5 Church Lane, St. Helens, Lancashire; Allan F. Powell, 10 Oak Close Weston, Prescott, Lancashire, and Henry Anderton, 24 North Park Road, Kirkby, Lancashire, England

Filed July 30, 1968, Ser. No. 748,713

Int. Cl. B30b 15/08

U.S. Cl. 100—98

7 Claims



The present invention discloses a baling machine which has a baling chamber in which is housed a reciprocable ram. One wall of the baling chamber has a wedge-shaped cavity which provides relief for any overpressure which may occur while the ram is in operation, in the chamber. Also, adjacent to the wedge-shaped cavity and arranged within the chamber, is a tucker which folds the edges of the feed material to produce a uniform baling configuration, material weakening means also being provided in the chamber to facilitate the folding of feed material edges by the tucker.

3,563,166 ROTARY PRESS

Karel Bajak and Vaclav Oplustil, Krnov, Czechoslovakia, assignors to Strojovnit narodni podnik, Krnov, Czechoslovakia

Filed July 24, 1968, Ser. No. 747,162

Claims priority, application Czechoslovakia, Aug. 7, 1967, 5679/67

Int. Cl. B30b 3/00, 5/04

U.S. Cl. 100—153

4 Claims

A rotary press for smoothing or embossing leather and like flat objects has a rotating pressure cylinder which cooperates

cumferential speed of the roller. The belt arrangement includes an abrasion resisting metal drive belt slidingly engaging the anvil, and a supporting belt of resilient material interposed between the drive belt and the pressed object.

3,563,167 FRAMES FOR PRESSES

John Antony Pennell, Cumberland, and Alan Saunders, Co. Durham, England, assignors to Vickers Limited, London, England

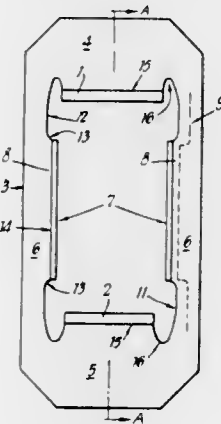
Filed July 26, 1968, Ser. No. 747,857

Claims priority, application Great Britain, July 26, 1967, 34475/67

Int. Cl. B30b 1/00, 1/32

U.S. Cl. 100—214

9 Claims



A press frame made up from a number of platelike subframes, each defining a frame opening, disposed with the frame openings in registry, and interconnected by two platens or part platens secured, in facing-spaced relationship in the registering frame openings, across facing inner edges of opposing members of each subframe. Slide surfaces are also provided in the press frame openings substantially perpendicular to the platens, by or on plates each secured across corresponding inner edges of the members of at least two adjoining subframes.

3,563,168 GARBAGE COMPACTING APPARATUS

William Doninger, Merrick, N.Y., assignor to Combustion Equipment Associates, Inc., New York, N.Y., a corporation of New York

Filed June 18, 1969, Ser. No. 834,446

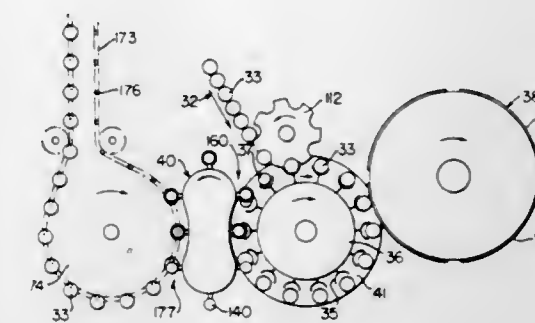
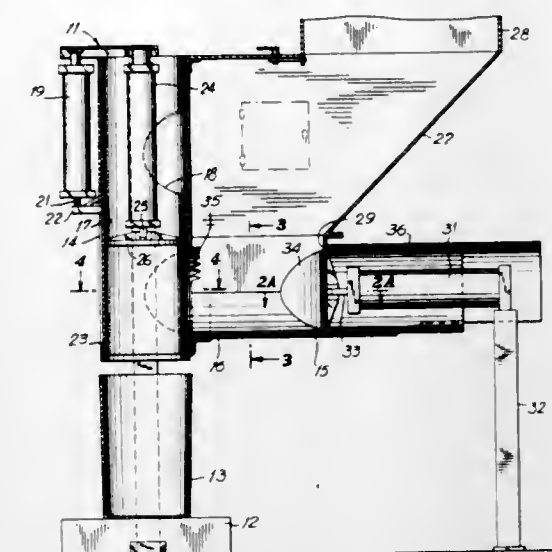
Int. Cl. B30b 15/30

U.S. Cl. 100—215

12 Claims

Garbage compacting apparatus in which garbage is delivered into a first chamber, fed from the first chamber to a second chamber formed by a sleeve which is advanced into a

receptacle and compacted in the sleeve within the receptacle. On completion of compaction, the sleeve is retracted and the vacuum devices operate to move the cans away from



the machine after they have been printed without decreasing the operating speed of the machine.

3,563,171

INTERLOCK MEANS FOR PRINTING DEVICES IN DATA RECORDERS AND TRANSMITTERS

Donald N. Heisner, Mentor, and Russell A. Hansen, Chardon, Ohio, assignors to Addressograph Multigraph Corporation, Cleveland, Ohio, a corporation of Delaware

Continuation of application Ser. No. 698,499, Jan. 17, 1968, now abandoned. This application Dec. 12, 1969, Ser. No. 880,505

Int. Cl. B41j 25/32, 29/40

U.S. Cl. 101—45

10 Claims

3,563,169 APPARATUS FOR PRINTING ARTICLES HAVING AN UPSTANDING FLANGE AROUND THEM

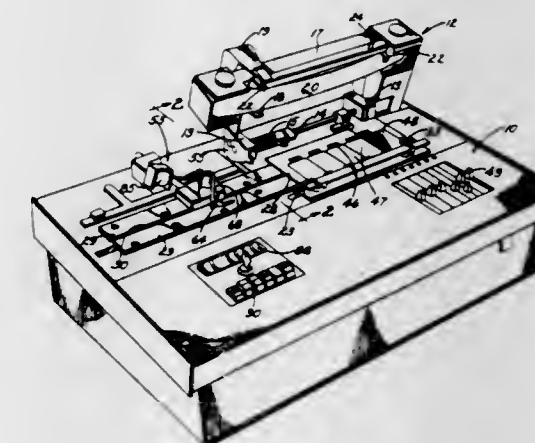
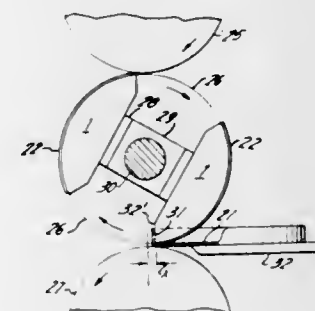
John C. Hovekamp, Elyria, Ohio, assignor to Wood Industries, Inc., Plainfield, N.J.

Filed Sept. 9, 1968, Ser. No. 758,451

Int. Cl. B41f 17/36

U.S. Cl. 101—36

1 Claim



The platen which carries the printing blanket in a dry off-set lid printer is formed by a radial milling operation, producing substantially a right conoid configuration in the article engaging part of the platen which feeds the article as it comes into printing position. A proper relation of the elements is automatically obtained.

3,563,170

MACHINE FOR MARKING THE EXTERIOR CYLINDRICAL SURFACES OF CANS IN A CONTINUOUS NONINDEXING MANNER

Daniel S. Cvacho and Field I. Robertson, Jr., Chesterfield County, Va., assignors to Reynolds Metals Company, Richmond, Va.

Continuation-in-part of application Ser. No. 601,135, Dec. 12, 1966, now Patent No. 3,496,863. This application Apr. 16, 1968, Ser. No. 721,787

Int. Cl. B41f 17/22; B65g 47/52

U.S. Cl. 101—40

19 Claims

A machine for continuously marking the exterior surfaces of cylindrical containers having a continuously rotatable nonindexing cradle-supporting wheel which carries a plurality of cradles about its outer periphery with each of the cradles adapted to receive an associated container from a precision infeed device. The infeed device uses a star wheel to assure rapid and positive placement of each container on an associated cradle in a stable manner. The machine also has a simple pickoff apparatus comprised of a fixed track which

3,563,172

INDEX BAR AND DETENT MEANS IN CHECK WRITERS AND SELECTIVE PRINTING MACHINES

Ardath A. Gopperton, Mount Prospect, Ill., assignor to Theodore B. Hirschberg, Jr., Chicago, Ill.

Filed Dec. 12, 1968, Ser. No. 783,193

Int. Cl. B41j 5/24, 7/34

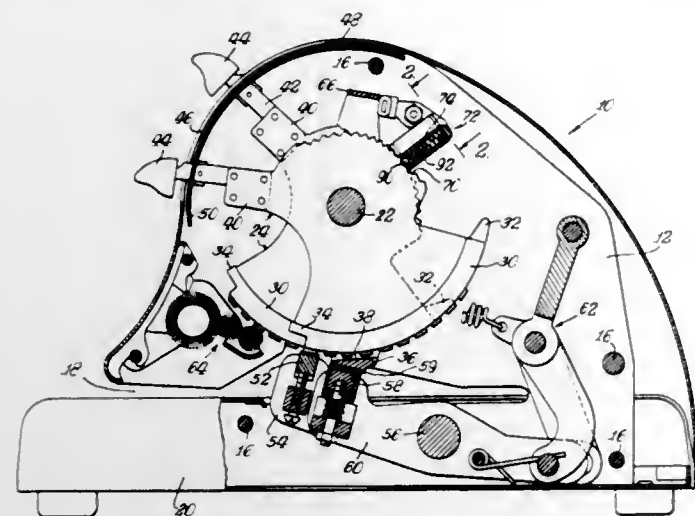
U.S. Cl. 101—95

5 Claims

An index bar for use with check writers and money order printing machines and the like having frame means defining a printing line and a plurality of type segments adjustable to position printing characters on the printing line. The index bar includes an elongated body supported by the frame and having a plurality of transverse bores each of which receives a ball detent for operative association with a rack portion of a corresponding type segment to releasably maintain the type segment in a selected position. Certain of the bores are disposed in offset spatial relation relative to the next adjacent bores to allow the type segments associated with the offset bores to be supported in closer spaced relation than is possible with the bores aligned longitudinally along the index bar.

One embodiment of the index bar has the axes of the offset bores disposed in parallel relation, while an alternative em-

second variable force sheet tensioning devices disposed upstream and downstream, respectively, of the printing assembly. The forces exerted by the tensioning devices are



bodiment disposes the axes of the offset bores in radial alignment with the axis of rotation of the type segment members.

3,563,173

LIQUID-HANDLING MECHANISM

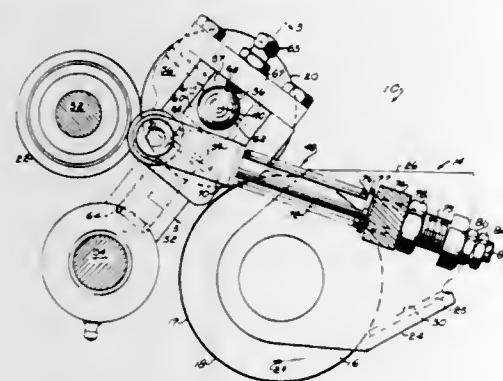
Charles A. Harless, Fort Worth, Tex., assignor to Harris-Intertype Corporation, Cleveland, Ohio, a corporation of Delaware

Continuation of application Ser. No. 624,801, Mar. 21, 1967, now abandoned. This application Sept. 19, 1969, Ser. No. 859,535

Int. Cl. B411 25/16, 25/18; B41f 31/12

U.S. Cl. 101-148

10 Claims



A liquid-handling mechanism in which a ducor roll receives liquid from a fountain roll and transfers it to a distributing or transfer roll. The ducor roll is maintained in peripheral engagement with the distributing roll and has an inner body portion concentric with respect to its axis of rotation and a covering or sleeve which has an outer surface eccentric with respect to the axis of rotation of the ducor roll so that the ducor roll moves toward and from the fountain roll during each revolution thereof. Also, the ducor roll is supported by an adjustable support assembly for the ducor roll which enables the ducor roll to be adjustably positioned laterally toward and from the fountain roll while maintaining a pressure relationship with the transfer roll.

3,563,174

WEB TENSIONING WITH ADJUSTABLE COUNTERWEIGHTS FOR CONTROLLING THE SPACING OF IMPRINTS

Donald C. Anderson, Lafayette, and Momir Kodich, El Cerrito, Calif., assignors to Hexcel Products, Inc., Berkeley, Calif.

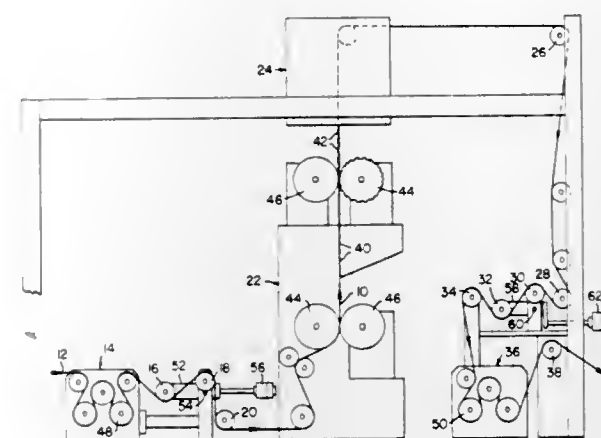
Continuation of application Ser. No. 587,716, Oct. 19, 1966, now abandoned. This application Nov. 20, 1969, Ser. No. 871,709

Int. Cl. B41f 13/02

U.S. Cl. 101-225

3 Claims

A sheet-handling apparatus in which a sheet is moved past a printing assembly and which has independent first and



varied as determined by control means to increase or decrease the speed with which the sheet moves past the printing assembly and thereby control the relative position of imprints from the assembly on the sheet.

3,563,175

SCORE SHEET HOLD-DOWN AND SENSING DEVICE

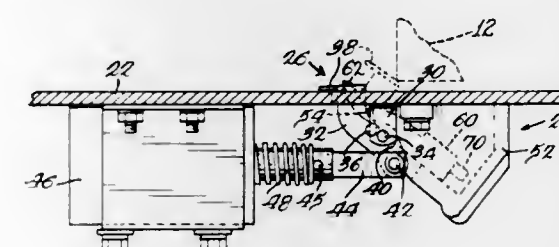
Robert Torresen and William M. Crimmins, Muskegon, Mich., assignors to Brunswick Corporation

Filed Sept. 23, 1968, Ser. No. 761,700

Int. Cl. B41f 1/28, 1/60

U.S. Cl. 101-322

9 Claims



A device for projecting bowling scores and the like including a support surface, e.g., the prism face of a prism projector, for supporting a score sheet during projection, operable holding or clamping means, for clamping the sheet in proper position on the surface, and detection means for detecting the presence of the sheet in proper clamped position. A printer can be mounted for movement relative to the support surface between a retracted position removed from the surface and a printing position overlying the surface and the printer can be automatically shut off or rendered inoperable responsive to a "paper absent" condition as detected by the detection means. The clamp can be moved to an unclamping position responsive to movement of the printer to retracted position, e.g., by limit switch actuation of a solenoid. The clamp can also be arranged to be moved to clamping position responsive to movement of the printer to printing position, e.g., by camming action of the printer housing.

3,563,176

CLAMPING AND TIGHTENING DEVICE FOR BLANKETS AND FLEXIBLE PRINTING PLATES

James McIntyre Ferguson, Teaneck, N.J., assignor, by mesne assignments, to Wood Industries, Inc., Plainfield, N.J., a corporation of Virginia

Filed July 1, 1968, Ser. No. 741,584

Int. Cl. B41f 1/28, 21/00

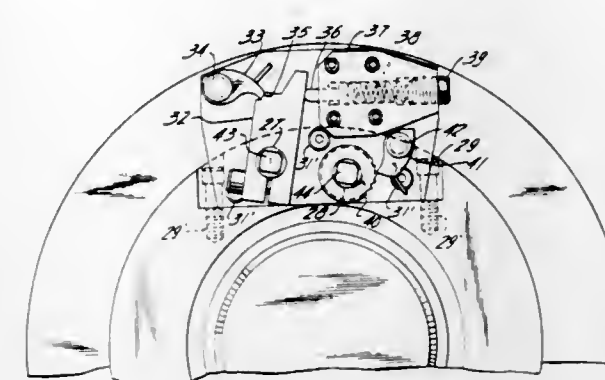
U.S. Cl. 101-415.1

1 Claim

Device for clamping and tightening of a printing blanket on an impression cylinder and/or a flexible printing plate on a plate cylinder of a printing machine. A cam-shaped clamping rod under spring pressure for one edge of the blanket and/or the flexible plate and a separate tightening rod on which the other end of the blanket and/or the flexible plate is

wound. The cam-shaped clamping rod is also designed for a clamping force which increases under the influence of the

material that will ignite when brought together and subjected to compression and shear forces. The ram is supported for longitudinal movement so that it can be moved further into



centrifugal forces with increasing speed of the printing machine.

3,563,177

CASELESS AMMUNITION AND IGNITION MEANS THEREFOR

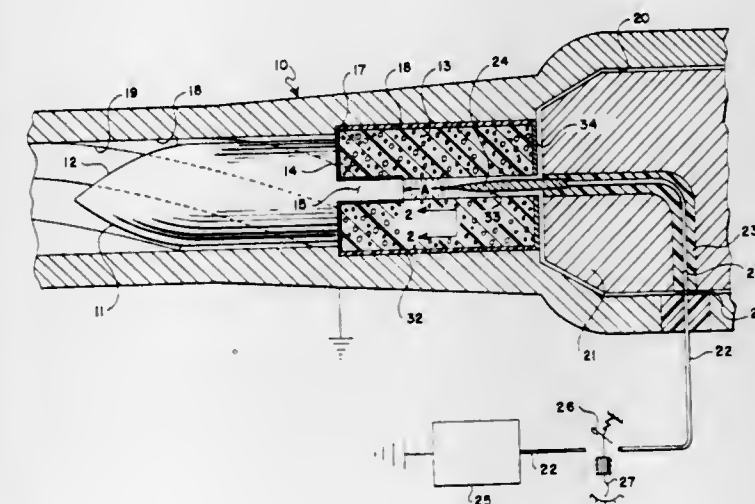
Harold W. Ritchey, Langhorne, Pa., assignor to Thiokol Chemical Corporation, Bristol, Pa.

Filed June 14, 1968, Ser. No. 737,128

Int. Cl. F42b 9/16

U.S. Cl. 102-38

15 Claims



A caseless charge for firearms and a firearm therefor, said charge being porous and made from comminuted or particulated combustible materials having the surface of each particle thereof softened with a solvent. The softened material is consolidated in a combustible pyroxylin tube and inserted in the firearm. Ignition is provided from an electrical discharge between the end of an ignition probe and the projectile attached to the charge.

3,563,178

MECHANICAL PRIMER

Allen Scott Caples, Baltimore, Md., assignor to Catalyst Research Corporation, Baltimore, Md., a corporation of Maryland

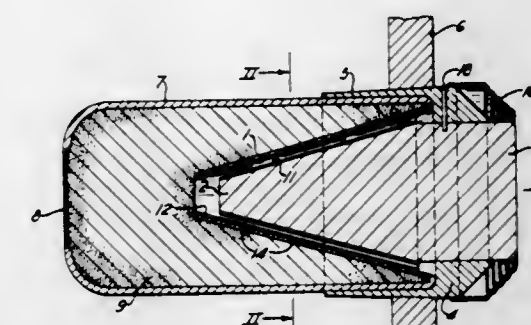
Filed Feb. 19, 1969, Ser. No. 800,572

Int. Cl. F42b 9/10

U.S. Cl. 102-86.5

7 Claims

A rigid conical ram extends into an expandable perforated cone, but is spaced from it. The opposed surfaces of the cone and ram are coated with different components of pyrotechnic



the cone in order to rub the pyrotechnic coatings together under pressure. The ignited material ignites other material around the cone.

3,563,179

SUSPENDED RAILWAY LOCOMOTIVE

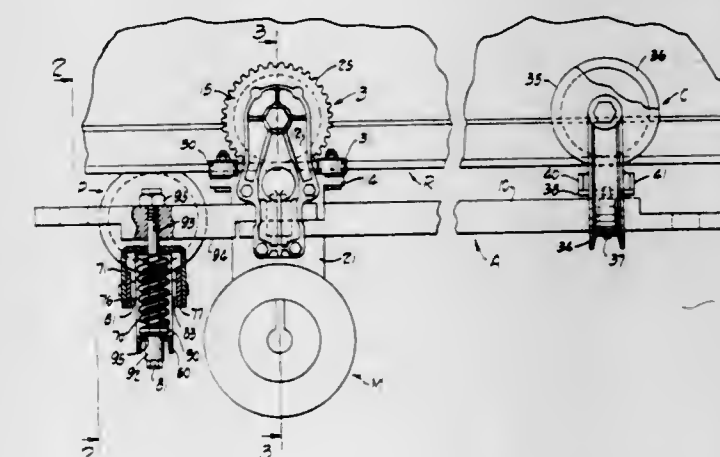
Henry A. Gorjanc, Mentor, Ohio, assignor to McNell Corporation, Akron, Ohio

Filed Aug. 28, 1968, Ser. No. 755,933

Int. Cl. B61b 3/02; B61c 11/00; E01b 25/22

U.S. Cl. 104-95

7 Claims



An overhead monorail carrier-type material-handling system having an articulated assembly movable along an inverted T-shaped monorail and including a drive unit comprising drive wheels engaging one side of the projecting rail flanges and a pressure-producing or traction-increasing unit having pressure wheels biased against the other side of the rail flanges and connected to the drive unit for movement only about an axis nonparallel to the axes of rotation of the drive and pressure wheels.

3,563,180

MOVABLE STORAGE RACK

Melvin C. Rutledge, Riverside, Calif., assignor to Olin Corporation

Filed Jan. 24, 1969, Ser. No. 793,843

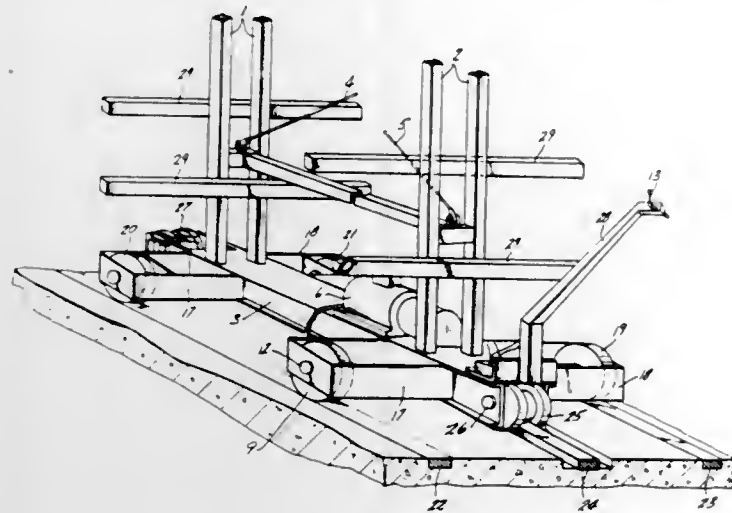
Int. Cl. B60m 7/00; B61f 9/00

U.S. Cl. 104-148

1 Claim

In a rack type storage means the improvement comprising at least two wheels operatively connected to said rack means,

means for driving at least one of said wheels, at least one guide in a position removed from said rack means and at least one guide follower connected to said rack means and in operative engagement with said guide.



least one guide follower connected to said rack means and in operative engagement with said guide.

ERRATUM

For Class 105-199 see:
Patent No. 3,563,185

3,563,181

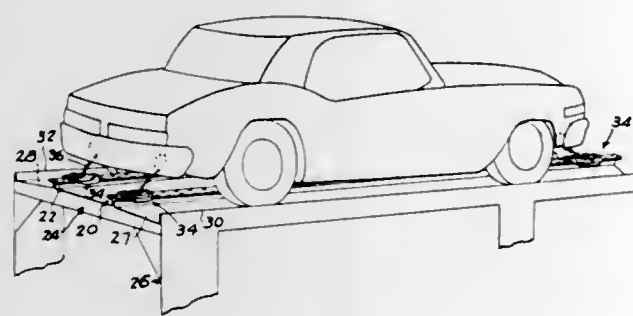
LOW CLEARANCE VEHICLE TIEDOWN

Walter F. Mletla, Dearborn, Mich., assignor to Portec Inc., Chicago, Ill.

Filed Dec. 6, 1968, Ser. No. 781,826
Int. Cl. B61d 45/00; B60p 7/00

U.S. Cl. 105-369

10 Claims



A low silhouette vehicle tiedown device having a frame plate which slidably grips the cross flange of a T-beam of a cargo carrier for movement only along the beam. A dog is mounted for limited universal movement adjacent the plate and is spring biased against the plate. The free end of the dog carries a locking pin which by manipulating the dog is insertable into a hole in the plate for registry of the pin in a hole in the T-beam to lock the tiedown against movement along the T-beam. One or two dogs and variations in plate hole arrangement are disclosed to provide incremental adjustment of the tiedown at intervals less than that of the T-beam hold spacing.

3,563,182

COMBINED SHELVING AND CLOTHES BAR APPARATUS

Walter J. MacFarlane, Kensington, and Edmund F. Reiss, Newington, Conn., and Joffre E. R. Hentzi, Dunedin, Fla., assignors to The Stanley Works, New Britain, Conn.

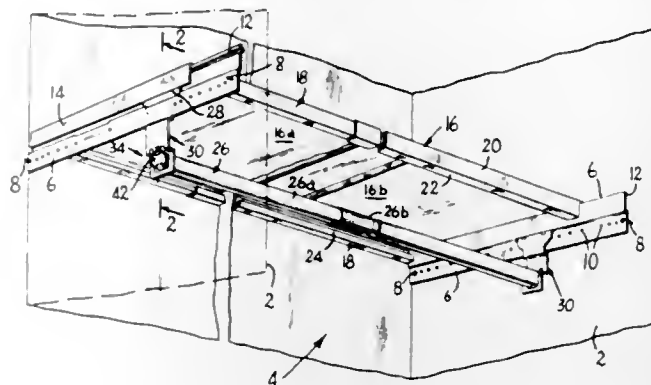
Filed Aug. 12, 1968, Ser. No. 751,966
Int. Cl. A47b 57/00

U.S. Cl. 108-29

12 Claims

A combined shelf and clothes bar structure adapted to be fastened inside of various sized clothes closets. Support mem-

bers for the shelf and clothes bar may be secured by mounting devices either to the sidewalls or back wall of the closet



and the entire structure easily installed without the use of special tools.

3,563,183

PALLET CONSTRUCTION

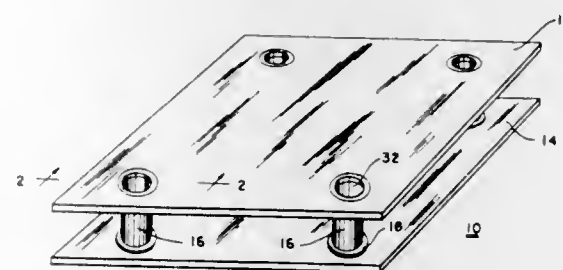
Howard B. Rich, 2533 NE. 37th St., Fort Lauderdale, Fla.

Filed Dec. 26, 1968, Ser. No. 786,873

Int. Cl. B65d 19/18

U.S. Cl. 108-51

2 Claims



A pallet including spaced decks and tubular legs therebetween having doubled flanges engaging inner faces of the decks and end flanges engaging outer faces of the decks to hold the decks and legs assembled.

3,563,184

PALLET

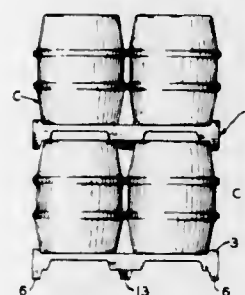
John A. Angelbeck, Jr., Chesterfield, Mo., assignor to Pack-Rite Packaging & Crating Co., Inc.

Filed Apr. 25, 1969, Ser. No. 819,130

Int. Cl. B65d 19/18

U.S. Cl. 108-51

11 Claims



A pallet used for the storage and transporting of containers such as beer kegs and the like. The pallet is formed as a unitary plastic member in a rotational molding operation and includes a pair of spaced outer skins which are internally connected by a plurality of properly spaced webs for internal strength. The skins also have a plurality of strategically located apertures which extend through each of the skins. The pallet has a plurality of downwardly extending shoulders for engagement with containers on its underface and is also

provided with supporting areas on its upwardly presented surface for removably supporting a plurality of like containers.

3,563,185

RAILWAY LOCOMOTIVE TRUCK

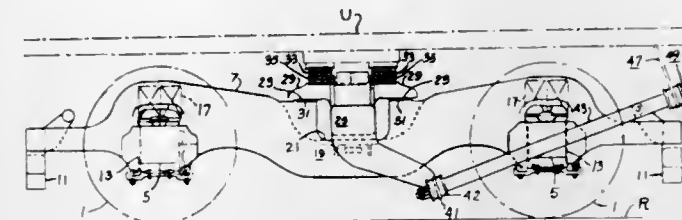
Douglas G. K. Wilmot, Creve Coeur, Robert, M. Seely, Florissant, and Richard, L. Lich, Town and Country, Mo., assignors to General Steel Industries, Inc., St. Louis, Mo.

Filed July 8, 1968, Ser. No. 743,178

Int. Cl. B61f 5/14, 5/16, 5/22

U.S. Cl. 105-199

17 Claims



A railway motor truck for swivelly supporting a vehicle body and connected to the same for the transmission thereto of draft and braking forces at a sufficiently low level to minimize load transference between the axles. The truck comprises a rigid frame resiliently supported on the axles and a transverse bolster supported on the frame for swivel about its center. To provide for relative lateral movement of the body with respect to the truck while preventing substantial vertical movement of the body on the bolster, flat elastomeric pad devices are carried by the bolster at the sides of the truck for directly supporting the body. To minimize the overall height of the truck, the truck frame side members are depressed between the axles and the bolster extends through the depressions. To stabilize the bolster and truck frame against tipping about a transverse axis with respect to each other, the bolster is supported on the truck frame side members by sliding bearings spaced apart longitudinally of the truck and located at opposite sides of the depressions in the truck frame side members. For transmitting longitudinal draft and braking forces from the truck to the vehicle body substantially at rail level so as to minimize load transference, the bolster is connected to the vehicle body at each side by a single longitudinally upwardly and outwardly inclined link, so inclined that its axial projection intersects the transverse vertical central plane of the truck at or near track level. Both links extend in the same in the same direction longitudinally of the truck from the bolster. The lower, or bolster end of each link is at a sufficiently high level above the track to conform to clearance limitations.

3,563,186

BIDIRECTIONAL POSITIONING STAGE

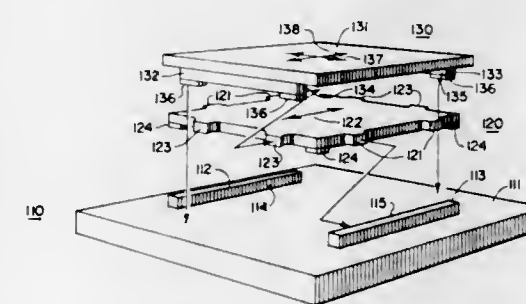
Paul V. Piper, Hayward, and Harold B. Wells, Oakland, Calif., assignors to The Singer Company

Filed Oct. 30, 1968, Ser. No. 771,923

Int. Cl. A47b 11/00

U.S. Cl. 108-143

4 Claims



A bidirectional stage is disclosed in which the said bidirectional stage may be moved independently in either of two directions while maintaining contact with a stationary reference plane. A guide or motion control member is pro-

vided between the reference member and plane and the bidirectional member. The guide member is restricted to a first linear reciprocal motion with respect to the reference member; while the bidirectional stage is restricted to a second linear reciprocal motion with respect to the guide member. The guide member does not support or provide any planar reference for the bidirectional member which refers only to the stationary reference plane.

3,563,187

SEWAGE SLUDGE INCINERATOR

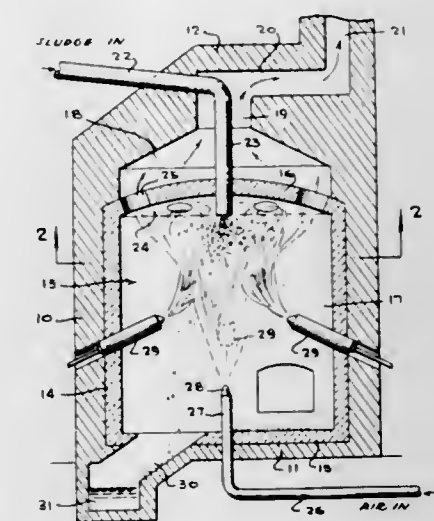
Auram B. Zanft, New York, N.Y., assignor to Hagan Industries, Incorporated, Corona, N.Y.

Filed Sept. 20, 1968, Ser. No. 761,130

Int. Cl. F23g 5/12

U.S. Cl. 110-7

15 Claims



A sewage sludge incinerator including a chamber having a flue, baffle means mounted in the chamber, means for injecting air into the chamber impinging upon the baffle means, means for heating the air injected into the chamber to produce a zone of heated turbulent air and means for injecting sewage sludge into the zone of heated turbulent air.

3,563,188

SMOKELESS TRASH INCINERATOR SYSTEM

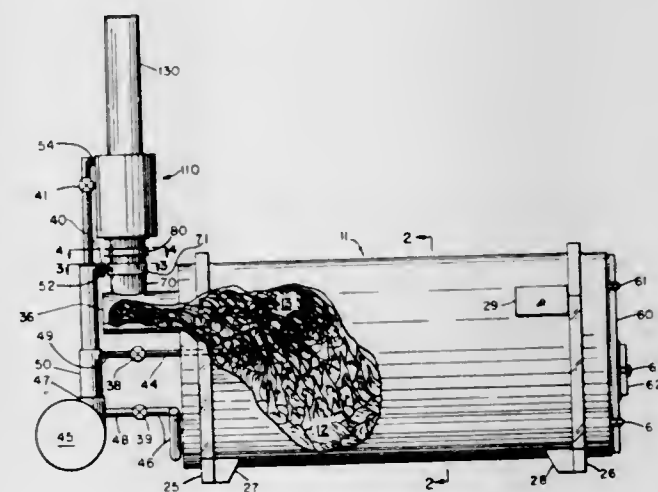
John P. Prosser, Roxboro, N.C., and Lubertus Bakker, South Euclid, Ohio, assignors to Midland-Ross Corporation, Cleveland, Ohio

Filed Feb. 25, 1969, Ser. No. 812,518

Int. Cl. F23g 5/12

U.S. Cl. 110-8

8 Claims



An incinerator unit for disposal of a variety of waste materials having an initial burning chamber of ovoid section providing a lower trash-burning zone and an upper heat-reflecting zone having a narrowed portion of parabolic sec-

tion, an air supply system for presenting air under the fire and over the fire, and an afterburner system arranged along a stack for the incinerator.

The afterburner system provides a supplemental air supply and a preassembled fuel-supported burner unit disposed thereabove. Vertically spaced along the flue, or stack, is a final self-containing fire zone supported by supplemental preheated air passing into the fire zone from a heat exchanger which is mounted on and surrounds the flue.

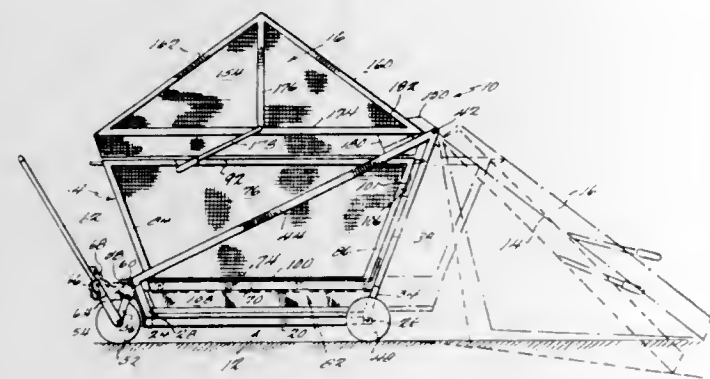
After retention and burning in the final fire zone, the effluent is passed to the atmosphere at an acceptable level of smoke and fly ash.

3,563,189 PORTABLE INCINERATOR WITH REMOVABLE REFUSE CONTAINER

Herbert S. Osburn, 4121 Custis Road, Richmond, Va.
Continuation-in-part of application Ser. No. 742,083, Apr. 17, 1967, now abandoned. This application Nov. 28, 1969, Ser. No. 878,967
Int. Cl. F23g 9/00

U.S. Cl. 110—18

12 Claims



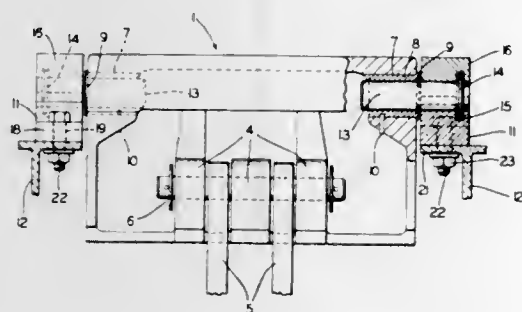
A portable incinerator with a removable wire mesh burning chamber and refuse container and a pivoting scoop for receiving refuse and discharging the refuse into the combined burning chamber and refuse container. The scoop also serves as a cover for the burning chamber.

3,563,190 INCINERATOR STOKER GRATE AND TRUNNION ASSEMBLY

Donald J. Sprague, Massillon; Joseph F. Stenglein, Centerville, and Glenn T. Dubs, Canton, Ohio, assignors to Canton Stoker Corporation, Canton, Ohio, a corporation of Ohio
Filed Aug. 12, 1969, Ser. No. 849,942
Int. Cl. F23b 1/22

U.S. Cl. 110—39

9 Claims

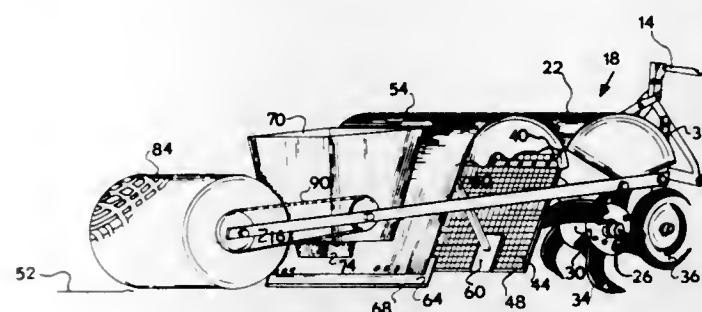


An incinerator stoker grate and trunnion assembly having rows of rocking grates journaled upon pillow blocks mounted upon supporting structures. Trunnion pins are clamped between the pillow blocks and their caps. Each grate has longitudinally disposed apertures in its ends and bushings located in said holes to receive the trunnion pins.

3,563,191
EARTH PREPARING APPARATUS
Robert L. Yovanovich, 166 Kelly St., Metuchen, N.J. 08840
Continuation-in-part of application Ser. No. 648,520, May 23, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 398,968, Sept. 24, 1964, now abandoned.
This application Oct. 11, 1968, Ser. No. 768,614
Int. Cl. A01b 33/02

U.S. Cl. 111—10

5 Claims

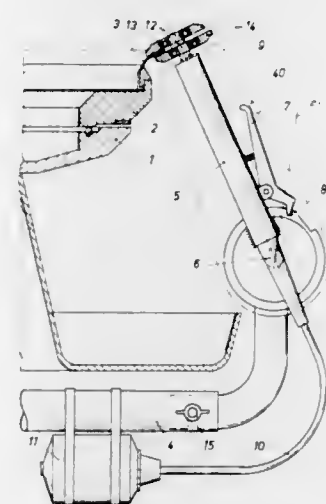


The disclosure is of earth preparing apparatus for separating rocks from soil and includes: a tiller for digging up the earth; a screen positioned behind the tiller and oriented to receive quantities of earth dug up by the tiller and to pass fine soil and reject rocks and other coarse nonsoil constituents; and a hood curved to form a large earth-receiving chamber behind the screen. The hood includes an adjustable blade at its lower edge for adjusting the level of the layer of rock-free soil. The operating stability of the apparatus with respect to maintaining a level course is controlled by the provision of a roller behind the hood whereby the apparatus can be maintained level, even though the earth over which it moves includes ruts, furrows, or other depressions. The apparatus of the invention also includes a seeder ahead of the roller for depositing seed on the rock-free layer of top soil, and it may include an auxiliary rake for removing large rocks.

3,563,192
BINDING MACHINE TRANSFER DEVICE
Rolf Flach, Kempten, Fritz Krause, Durach, Erhard Muller, Kempten, Hermann Fendt, and Otto Butter, Marktoberdorf, Germany, assignors to Kemptener Maschinenfabrik GmbH, Kempten, Allgau, Germany
Filed May 17, 1968, Ser. No. 730,158
Claims priority, application Germany, May 19, 1967, Sept. 27, 1967, K62318; K63468
Int. Cl. D05b 7/00; B23b 25/00

U.S. Cl. 112—26

17 Claims

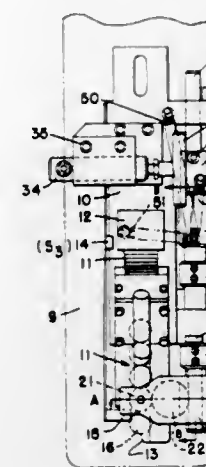


Textile material is pushed onto a rotating ring of needles at a transfer station by two pressure plates, one above and one below the needles, which are respectively moved toward and away from the needles longitudinally thereof by means of two eccentrics 180° out of phase and driven by a common shaft. The shaft may be mounted by means of an arm for pivoting movement between the transfer station and a rest position removed from the needles. Suitable controls are employed for operating the motors to drive the shaft and the ring of needles.

3,563,193
BUTTON DELIVERING DEVICE
Francis H. Hughes and Douglas J. Crawford, Troy, N.Y., assignors to Cluett, Peabody & Co., Inc., Troy, N.Y.
Filed June 27, 1969, Ser. No. 837,190
Int. Cl. D05b 3/22

U.S. Cl. 112—113

6 Claims

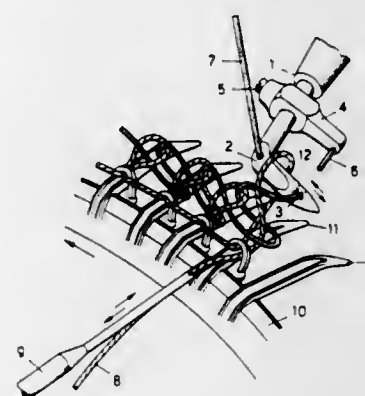


Apparatus for delivering buttons to a sewing head and during the delivery orienting the button with respect to the sewing needle. The apparatus includes a reciprocable feed carriage having means for orienting the button. Pneumatic cylinders reciprocate and tilt the carriage to feed and assist in orienting the button.

3,563,194
LOOPER FOR LINKING AND SEWING MACHINES FOR SEWING BOTH WITH SINGLE-THREAD AND TWIN-THREAD CHAINSTITCH
Cesare L. Conti, Viale Francesco Crispi 5, Milan, Italy
Filed Jan. 10, 1969, Ser. No. 790,315
Claims priority, application Italy, Jan. 22, 1968, 11821 A/68, Patent No. 823,745
Int. Cl. D05b 57/02

U.S. Cl. 112—218

3 Claims



A looper for linking and sewing machines is disclosed, in which an adjustable extension is provided, which is adapted to render the looper alternatively adapted to sewing with a single-thread chainstitch or with a twin-thread chainstitch, as desired by the machine operator, without disturbing the original adjustment of the looper.

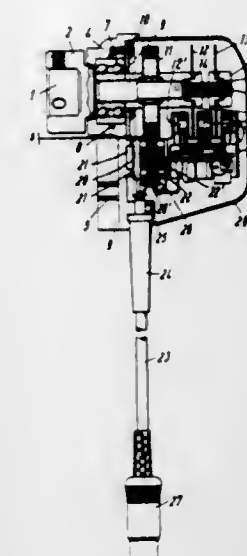
3,563,195
SEWING MACHINE DRIVE WITH POSITION CONTROL MEANS AND ROTATIONAL SPEED MEASURING GENERATOR
Alfred Heidt, Schwetzingen, Baden, Germany, assignor to Frankl & Kirchner, Fabrik fur Elektromotoren und Elektrische Apparate, Schwetzingen Baden, Germany
Filed Oct. 18, 1968, Ser. No. 768,725
Claims priority, application Germany, Mar. 21, 1968, P 17 60 008.7
Int. Cl. D05b 69/22

U.S. Cl. 112—219

9 Claims

A control assembly for a sewing machine comprising a rotational speed measuring generator and a position control

means which form an assembly unit mounted on a shaft portion, which rotates with the driven shaft of the machine, where the rotor of the generator which is a multipole magnet,

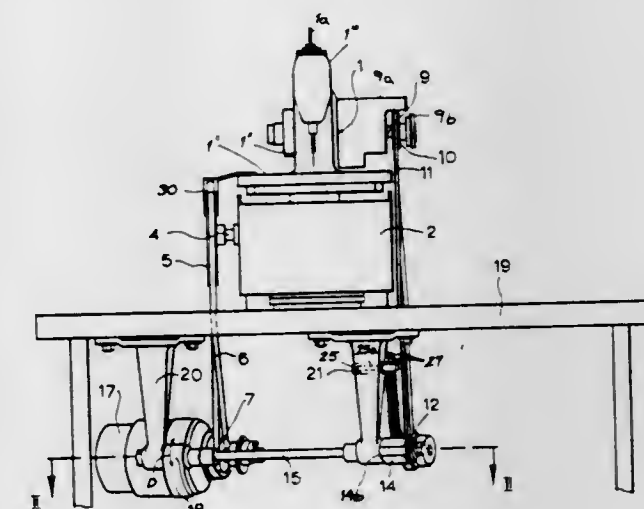


the stator and the position control means occupy very little space, and where the stationary parts are mounted on a common support which is movable or adjustable relative to the rotating parts.

3,563,196
DRIVE ARRANGEMENT FOR SEWING MACHINES
Karl Nicolay, Bielefeld, Germany, assignor to Duerkoppwerke GmbH, Bielefeld, Germany
Filed June 19, 1969, Ser. No. 834,691
Claims priority, application Germany, June 28, 1968, P 17 60 743.1
Int. Cl. D05b 69/02

U.S. Cl. 112—220

9 Claims



A drive arrangement for sewing machines, especially buttonhole-stitching machines, having a needle drive shaft and a stitch-former drive shaft to be independently rotated. The drive arrangement comprises an electric motor whose countershaft is provided with belt drive sheaves at axially spaced locations thereon. The countershaft is pivoted relating to the motor assembly below the fabric feed table of the machine about an axis laterally offset from the shaft axis but parallel thereto and against a spring establishing belt tension. The machine arm or head is tiltable about a horizontal axis and entrains the countershaft with it to eliminate the need for disconnecting the belts passing around the needle-drive-shaft pulley and one of the sheaves.

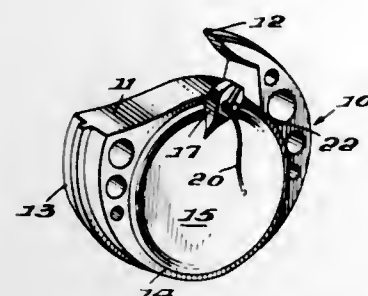
3,563,197

SEWING MACHINE SHUTTLE AND BOBBIN
Gerard M. Manze, Atlanta, Ga. (P.O. Box 111, Verona, Wis. 53593)

Filed Mar. 14, 1969, Ser. No. 807,367
Int. Cl. D05b 57/14

U.S. Cl. 112-231

5 Claims



A shuttle and bobbin for lockstitch shoe sewing machines is illustrated wherein the shuttle is formed with a solid back and the bobbin refill consists of a thread package formed with no spool or metal bobbin thus materially decreasing the cost and increasing the thread capacity of the refill to provide a longer time span between refill changes.

3,563,198

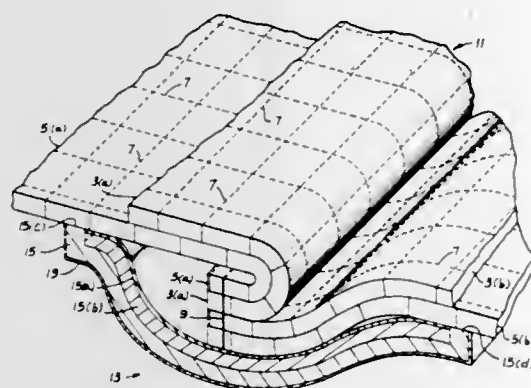
FABRIC FOR MICROMETEOROID PROTECTION GARMENT

Richard S. Johnston, Seabrook, Tex., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Dec. 31, 1969, Ser. No. 889,376

Int. Cl. D05b 93/00

U.S. Cl. 112-402

3 Claims



A structure of fabric layers is arranged so as to eliminate heat shorts therethrough and comprises a plurality of individually grouped layers, each layer consisting of stacked fabrics. Each of the layers of stacked fabrics is stitched together in quiltlike fashion to form a unitary or integral body. The layers are laid one upon another in offset stitch manner, that is, with the stitch lines of each fabric being disposed intermediate the stitch line of the adjacent fabric so as to avoid a common heat transfer avenue through all layers.

3,563,199

CAN TOP CONSTRUCTION AND METHOD OF FABRICATION

Wayne F. Wolfe, Orange, Calif., assignor to Hunt Foods and Industries, Inc., Fullerton, Calif.

Original application June 22, 1966, Ser. No. 559,511, now abandoned. Divided and this application July 15, 1968, Ser. No. 758,176

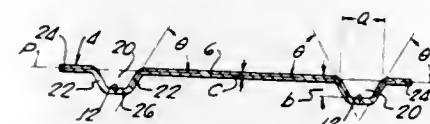
Int. Cl. B21d 51/38

U.S. Cl. 113-121

4 Claims

A tear strip for a can top is formed by first forming a narrow groove having a central portion which defines the tear strip edge and inclined walls on the opposite sides of such

central portion, and thereafter scoring the central portion of the groove to form the tear strip. The stress attendant to



scoring is absorbed by the inclined opposite walls rather than being transmitted to the remainder of the can top metal.

3,563,200

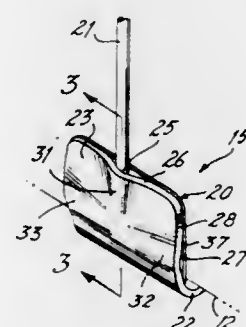
REAR END PARKING GUIDE FOR AN AUTOMOBILE
Saul Grossman, Hartford Road, Moorestown, N.J. 08057

Filed Nov. 7, 1969, Ser. No. 874,766

Int. Cl. B60q

U.S. Cl. 116-28

6 Claims



A specifically configured clip for selective engagement with the rear or side edge of a trunk lid, and a rod to be clamped at one end by the clip for extension upward therefrom to the driver's line of sight to facilitate visual location by the driver of the rearward automobile region.

3,563,201

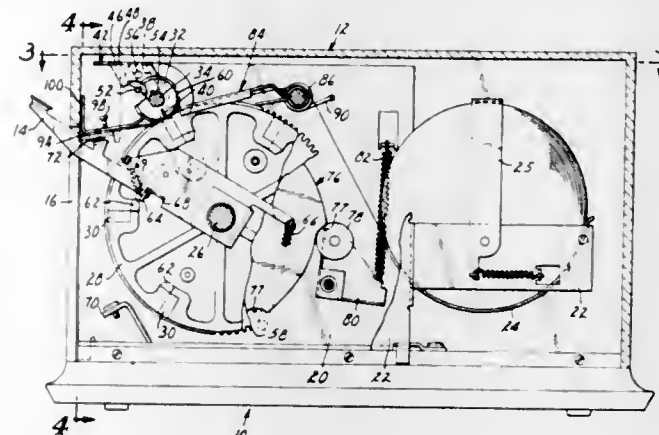
DEFINITE LENGTH TAPE DISPENSER
James E. Smith, Roseville, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed Dec. 26, 1968, Ser. No. 786,875

Int. Cl. B23d 25/12

U.S. Cl. 118-40

9 Claims



A tape dispenser in which a length of tape is advanced and severed between a pair of cylinders as the cylinders are rotated and including cam means for aiding rotation of the cylinders as the tape is severed.

3,563,202

MOBILE EVAPORATIVE FIRING SOURCE

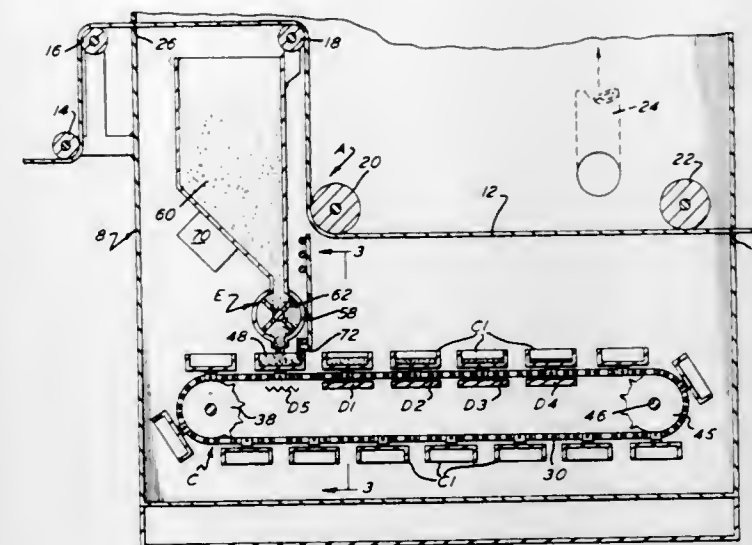
Thomas Mackrael, Cherry Hill, N.J., and William E. Welch, Abington Township, Montgomery County, Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Filed June 25, 1969, Ser. No. 836,334

Int. Cl. C23c 11/00

U.S. Cl. 118-48

10 Claims



Apparatus for evaporatively coating a continuously moving strip comprising a plurality of boats which are filled with a measured quantity of evaporative material at a dispensing station and transported through a vacuum chamber in spaced disposition with the strip. The material is fired from the boats as they pass over stationary heating elements whereby a uniform coating on the substrate is achieved.

3,563,203

SPRAY CHAMBER APPARATUS HAVING PROTECTED CONVEYOR MEANS

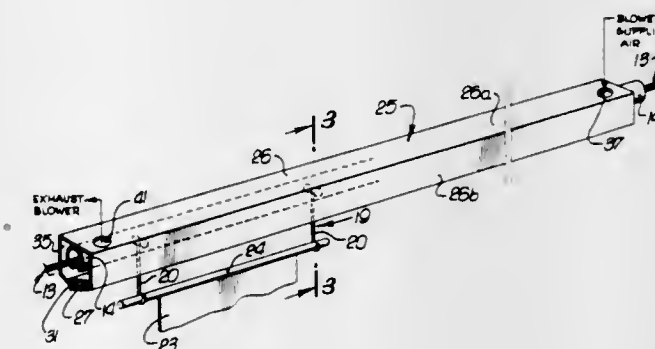
Marshall A. Stiltner, Laguna Beach, Calif., assignor to Purex Corporation, Ltd., Lakewood, Calif.

Filed June 11, 1969, Ser. No. 832,262

Int. Cl. B05c 11/16

U.S. Cl. 118-324

10 Claims



The problem of corrosive sprayed liquid or vapor-contacting conveyors carrying parts through a spray chamber is overcome by enclosing the conveyor in a duct having resilient sealing lips which are locally deflectable to pass parts supports carried by the conveyor. Entry of spray liquid and vapor into the duct past locally deflected sealing lips is positively prevented by provision of pressurized air within the duct to flow outwardly and progressively at the traveling locus of sealing lip deflection.

3,563,204

ILLUMINATED AQUARIUM

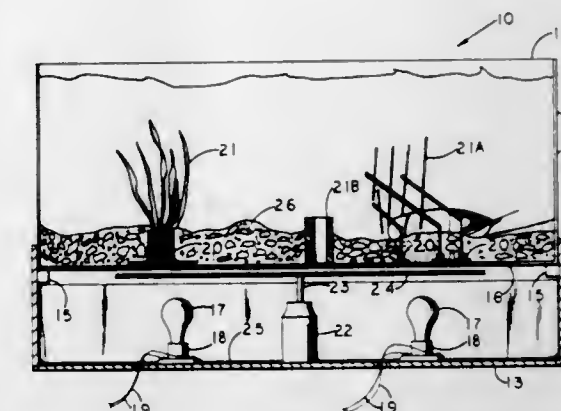
Bela A. Szilagyi, Flushing, N.Y., assignor to Belmontronics, Inc., Long Island, N.Y., a corporation of Delaware

Filed May 15, 1969, Ser. No. 824,982

Int. Cl. A01k 63/00

U.S. Cl. 119-5

9 Claims



This disclosure is directed to an illuminated aquarium comprising a base for containing a hidden light source in combination with an aquarium having a translucent or light pervious bottom supported on the base. Secured to the light pervious bottom of the aquarium are optic or light transmitting means capable of internal reflection, shaped to simulate and/or to define an underwater object or theme which is indirectly illuminated by light of the hidden light source.

3,563,205

BALCONY GUARD RAIL FOR KNOCKDOWN METAL BIRDHOUSE

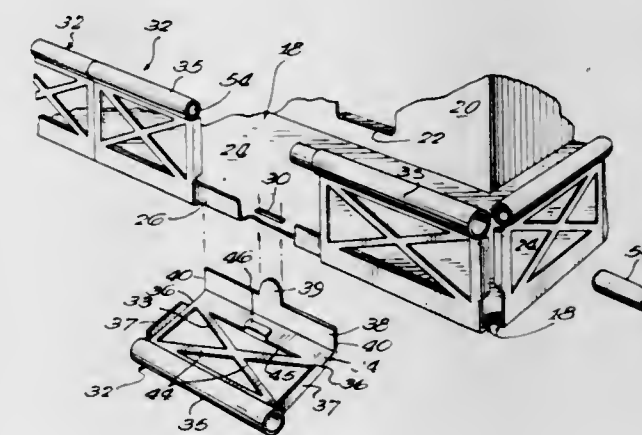
Arthur E. Vall, Griggsville, Ill., assignor to Trio Manufacturing Co., Griggsville, Ill.

Filed July 24, 1969, Ser. No. 844,463

Int. Cl. A01k 31/00, 31/12

U.S. Cl. 119-23

5 Claims



A balcony guardrail for a multicompartiment birdhouse made of lightweight sheet metal. The compartments are arranged in rows which are stacked or tiered to provide multiple levels. The common floor for each row extends forwardly beyond the compartments to provide a balcony extending the length of a row of compartments. The balcony has a marginal upstanding flange its entire length and a plurality of like guardrail members are removably mounted on the flange end-to-end and releasably locked together to form a continuous guard railing along the length of the balcony. The balcony and guardrail members have cooperating slot and flange means for installing said rail members. The rail members have cooperating open-ended cylindrical formations at the upper end thereof for receiving an elongate locking rod member therein which interconnects the individual guard rail members to retain them in a continuous, rigid guardrail installation supported on the marginal flange of the balcony.

3,563,206

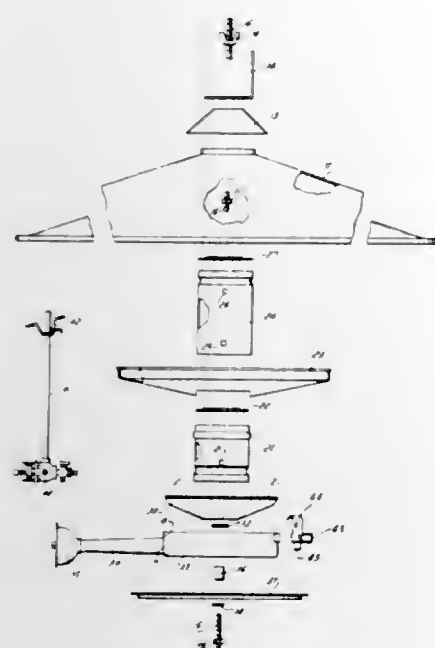
GAS-FIRED BURNER AND BROODER ASSEMBLY
Le Roy Nicholas Hermann, St. Charles, Ill., assignor to H. D. Hudson Manufacturing Company, Chicago, Ill., a corporation of Minnesota

Filed Mar. 6, 1969, Ser. No. 804,954

Int. Cl. A01k 31/20; F24c 3/00

U.S. Cl. 119—32

7 Claims



A gas-fired burner includes a lower bowl and a flared inlet conduit communicating with the interior of the bowl. An upper bowl is adapted for stacking assembly with the lower bowl and is provided with a serrated outer edge so that when the upper and lower bowls are assembled the serrated edge of the upper bowl and the inner wall of the lower bowl define a multiplicity of gas burner ports circumferentially spaced about the bowl assembly. This design substantially eliminates flashback and has turndown characteristics between about 1,000 Btu. and 30,000 Btu. The burner assembly can be included in a vertically assembled chicken brooder which includes a spaced heat shield and overlapping canopy which uniformly distribute the heat by reflection downward to the surrounding nesting area.

3,563,207

POULTRY WATERING CUP

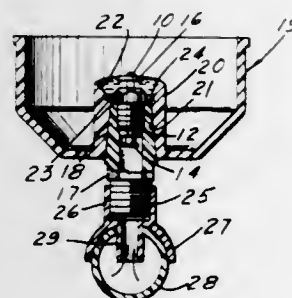
Reed S. Kofford, P.O. Box 453, Van Nuys, Calif. 91408

Filed Jan. 9, 1969, Ser. No. 790,016

Int. Cl. A01k 07/00

U.S. Cl. 119—75

7 Claims



A poultry watering cup having a vertically movable valve stem normally held in an upward position by the water supply force. A cup is removably mounted on the valve assembly by frustoconical friction fit. The cup has a small well which surrounds the upper end of the valve stem. As poultry drink from the well, their beaks engage the upper end of the valve stem and depress it, causing the valve to open and refill the well.

3,563,208

SAFETY YOUTH GUIDER

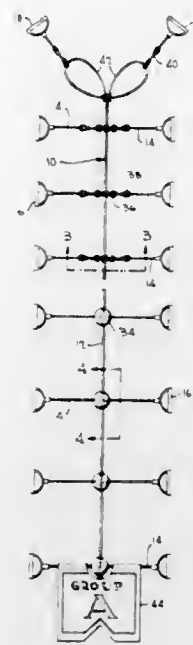
Reginald A. Nero, 8 St. Charles Place, Brooklyn, N.Y. 11216

Filed July 16, 1969, Ser. No. 842,219

Int. Cl. A01k 29/00

U.S. Cl. 119—96

11 Claims



A device for maintaining walking children in an organized, supervised group is disclosed having an elongated center support member, a plurality of laterally extending crossmembers secured along the length of the center support member and handles for children to grasp secured to the distal ends of the crossmembers. At least one of the grasping handles may be utilized by an adult, preferably at the rear end of the center support member. The crossmembers are preferably constructed of weatherproof rope having metal wire reinforcement at its center to maintain the same above the ground when dropped for easy retrieval. Such members are preferably color coded for easy identification by children; the device of the present invention finding particular utility in safely conducting and keeping track of relatively large groups of young children in public.

3,563,209

ANIMAL INSECTICIDE DUST DISPENSER BAG

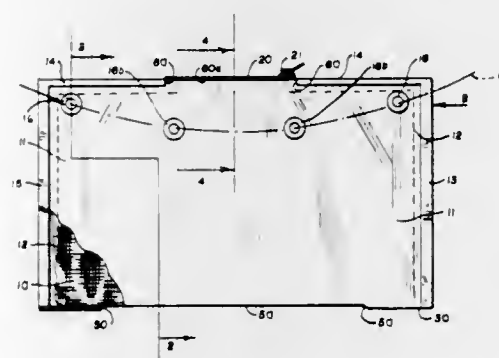
Richard Paul Mommer, Loveland, Colo., assignor to Balcom Chemicals, Inc., Greeley, Colo.

Filed July 9, 1969, Ser. No. 840,445

Int. Cl. A01k 29/00

U.S. Cl. 119—159

8 Claims



An animal insecticide dust dispenser bag having a lower sifter opening and an upper filler opening, and a plurality of grommets in arc alignment adjacent the filler opening and adapted to receive a sagging-rope-holding means therethrough and so that the sifter opening edge of the bag is held in substantially a straight line.

3,563,210

STEAM GENERATOR SYSTEM

Cornells Hoogendam, Houston, Tex., assignor to Struthers Thermo-Flood Corporation

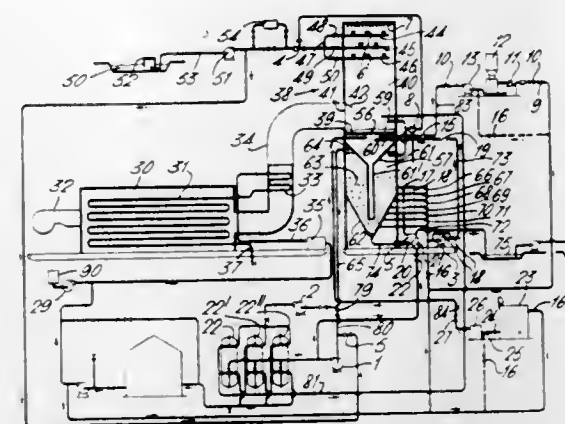
Filed Aug. 15, 1969, Ser. No. 850,507

Claims priority, application Great Britain, Aug. 20, 1968, 39,806/68

Int. Cl. F22b 37/48

U.S. Cl. 122—1

6 Claims



A forced-circulation, once-through steam generator for secondary oil recovery passes flue gases through a spray tower to heat feed water for a lime and soda ash softening treatment by upflow through a sludge blanket.

3,563,211

GAS-FIRED BOILERS OR THE LIKE

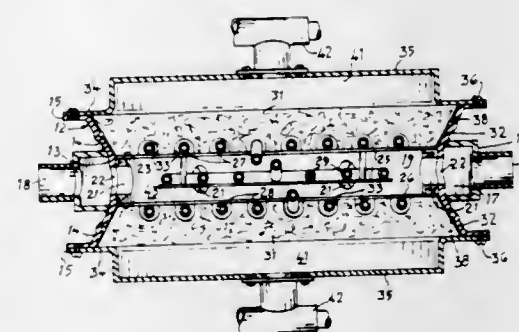
Lloyd H. Hornbostel, Jr., 1638 Emerson St., Beloit, Wis.

Filed Mar. 18, 1969, Ser. No. 808,273

Int. Cl. F22b 27/08

U.S. Cl. 122—250

7 Claims



A steam boiler or analogous heat exchanger is provided with a gas-fired burner comprising a plenum chamber from which a combustible gas-air mixture escapes through an inexpensive and readily replaceable burner member formed of foraminous ceramic material. The porosity and thermal conductivity of the burner member are such as to produce substantially flameless combustion toward the outer surface of the burner member, which causes that surface to incandesce and to radiate heat directly to water-filled boiler elements facing the burner member.

3,563,212

VAPOR GENERATOR

Lawrence C. Hoagland, Concord, Mass., assignor to Steam Engine Systems Corporation, Newton, Mass.

Filed Aug. 27, 1969, Ser. No. 853,264

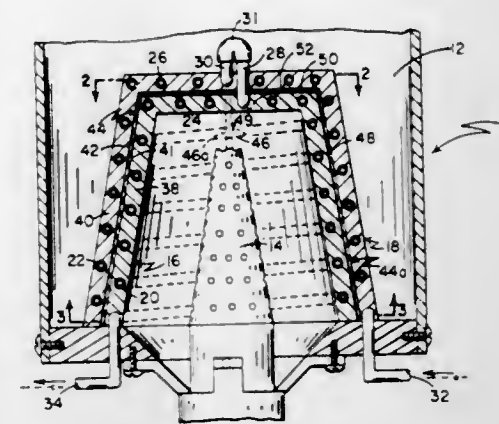
Int. Cl. F22b 27/08

U.S. Cl. 122—250

13 Claims

A vapor generator utilizing heated gases to convert a feed liquid (e.g. water) to superheated vapor comprises at least two nested heat exchange members, each having a coiled tubular portion and a thermally conductive porous (e.g., brazed metal) matrix between adjacent windings of the tub-

ing (or even surrounding the tubular portions entirely), these portions being located in series with respect to both heated gas and liquid flow in cross-counterflow arrangement, and connected in series to define a continuous tubular liquid to



vapor passage and a thermal conduction barrier between the feed liquid heating zone and the vapor superheating zone of this passage, and between the matrices in the region of these zones.

3,563,213

INTERNAL COMBUSTION ENGINE EXHAUST SYSTEM

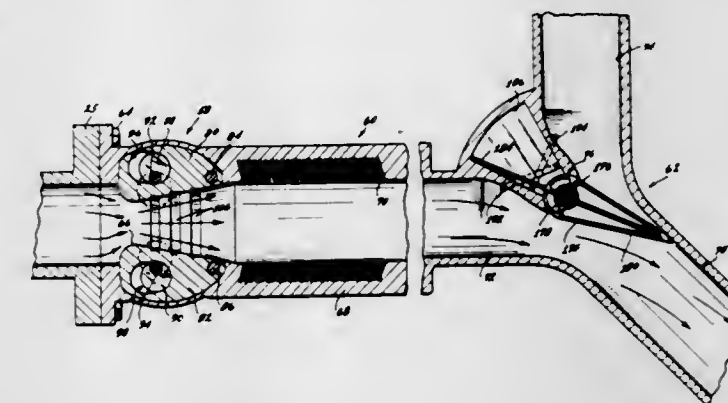
James C. Hambric, Los Angeles, Calif., assignor to K.M.F. Development Corporation

Filed June 27, 1968, Ser. No. 740,639

Int. Cl. F02b 53/06, 27/04

U.S. Cl. 123—8.05

5 Claims



A rotary engine is disclosed, in which a pair of synchronized rotors are driven by combustion to turn in intersecting, annular passages, the combustion gases expanding in spaces defined between a radially extending lobe of the rotors and the walls of the annular passages. An exhaust system utilizes nozzles (shown to include a variable orifice in one embodiment) to purge exhaust gases from the engine. Additionally, the system discloses structure for accomplishing a continuity of exhaust gas flow, including a valved manifold whereby gases from time-displaced combustions are exhausted through a single channel.

3,563,214

INTERNAL COMBUSTION ENGINE WITH RECIPROCATORY PISTON AND CAMSHAFT ABOVE THE CYLINDER

Bernhard Medenus, Bensberg-Lustheide, Germany, assignor to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne-Deutz, Germany

Filed Apr. 16, 1969, Ser. No. 816,572

Claims priority, application Germany, Apr. 28, 1968, P 17 51 208.2

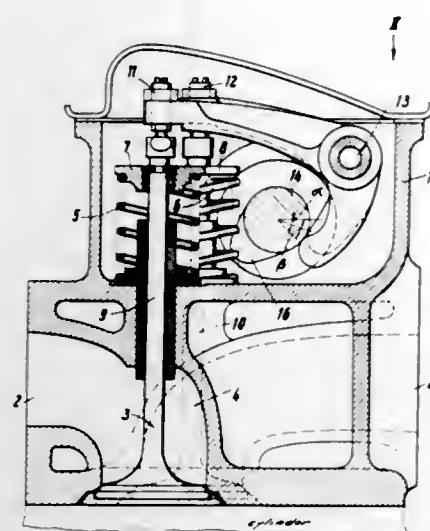
Int. Cl. F01l 1/00, 3/10, 1/14

U.S. Cl. 123—90.27

2 Claims

A reciprocatory piston-operated internal combustion engine with cylinder means having associated therewith two

valves in which the distance of one valve shank from the rocker shaft is greater than the distance of the other valve shank from the rocker shaft while that cam which actuates



the closest valve is in the longitudinal direction of the cam shaft offset to such an extent that it is located laterally of and clears the valve spring for the respective adjacent valve.

3,563,215

ROCKER ARM GUIDE MEMBER

Gray E.D. Ross, Stock, Ingatestone, England, assignor to Ford Motor Company, Dearborn, Mich.

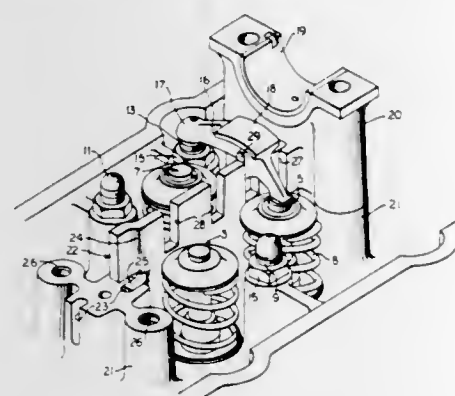
Filed Nov. 25, 1968, Ser. No. 778,434

Claims priority, application Great Britain, Feb. 1, 1968, 5160/68

Int. Cl. F01I 1/18

U.S. Cl. 123-90.42

7 Claims



An overhead camshaft internal combustion engine cylinder has a plurality of inlet valves and an exhaust valve, the rocker arms of some of which are inclined or canted to the vertical; a plate is provided that cooperates with the rocker arm to assure that the rocker arm moves pivotally in a vertical direction.

3,563,216

ROCKER ARM FOR DRIVING POPPET VALVES OF INTERNAL COMBUSTION ENGINES

Satoshi Uemura, Tokyo, Japan, assignor to Nissan Jidosha Kabushiki Kaisha, Yokohama, Japan

Filed Aug. 2, 1968, Ser. No. 749,706

Claims priority, application Japan, Feb. 22, 1968, Sept. 18, 1967, 42-10,802; 42-79,207

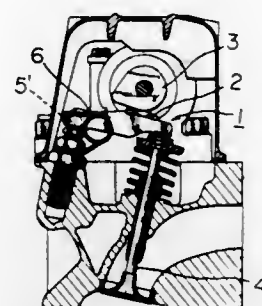
Int. Cl. F01I 1/18; F16h 53/06

U.S. Cl. 123-90.44

6 Claims

A rocker arm and a method for manufacturing the rocker arm, for driving poppet valves of automobile internal combustion engines of overhead cam type, which comprises a rocker arm body made of forged steel. A cast iron piece with a round top is secured to each rocker arm body for forming an arcuate contact surface with a cam driving the rocker arm. The cast iron pieces are mass produced by casting

round top rectangular members, finishing the round top of the rectangular members while assembling them in a cylindrical manner, and cutting laterally each rectangular member thus finished.



3,563,217

VALVE ATTENUATOR FOR INTERNAL COMBUSTION PISTON ENGINES

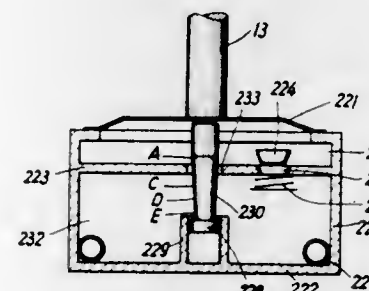
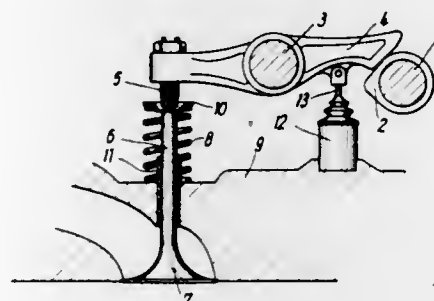
Willy Bartels, Julicher Str. 56, Dusseldorf, Germany

Filed Feb. 13, 1968, Ser. No. 705,204

Int. Cl. F01I 1/00, 1/18; F16k 31/12

U.S. Cl. 123-90.66

8 Claims



A valve control assembly for internal combustion piston engines whose rocker arm is linked to an attenuator member which member is designed in such a manner that the attenuating effect exerted thereby is decreased as the engine speed is increased so that an optimum opening movement of the valve is obtained for any speed up to maximum speed.

3,563,218

VALVE SPRING SPACER

Elwood L. Havens, 1060 Southfield, Lincoln Park, Mich. 48146

Filed July 7, 1969, Ser. No. 839,201

Int. Cl. F01I 3/10; F16f 1/12

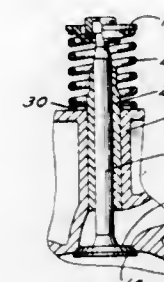
U.S. Cl. 123-90.67

4 Claims

A valve spring spacer for internal combustion engines formed from a strand of metal into a circular shape with a sinuous contour. There are inner runs to locate the spacer around a valve sleeve and other runs to define the outer boundary connected by radial legs which support a valve

spring end away from the engine surface, thereby increasing the spring tension and permitting air flow to reduce tempera-

ture through the primary winding of the ignition coil and voltages sufficiently high to fire the spark plugs will again be generated in the secondary winding.



3,563,220

CARBURETOR-MANIFOLD ADAPTER

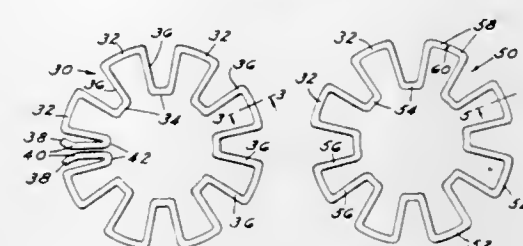
Walter L. Garner, Norwalk, Calif. (c/o Trans-Dapt of California, Inc., P.O. Box 4157, Compton, Calif. 92024)

Filed Sept. 2, 1969, Ser. No. 854,374

Int. Cl. F02m 13/06; F02b 75/20, 75/18

U.S. Cl. 123-127

10 Claims



ture conduction, the device being fashioned to permit assembly around a valve stem without removing the stem.

3,563,219

MAXIMUM ENGINE SPEED LIMITER

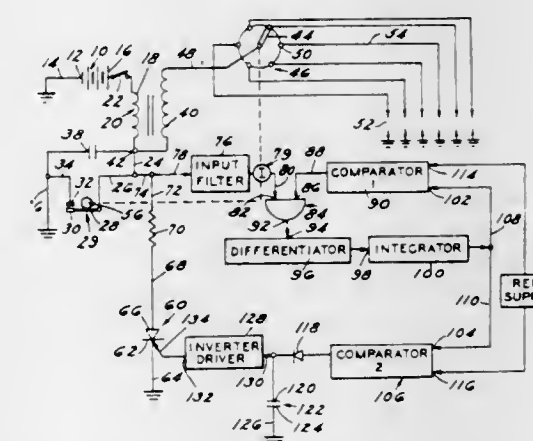
Laurence F. Mieras, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed July 23, 1969, Ser. No. 844,123

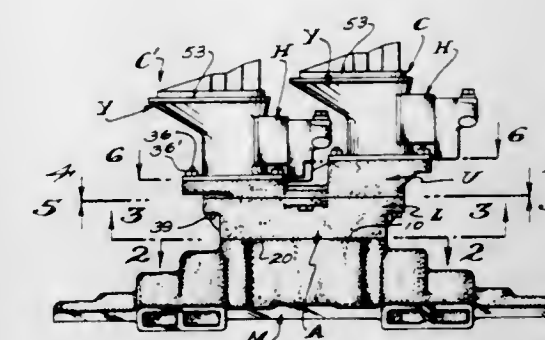
Int. Cl. F02p 11/00

U.S. Cl. 123-118

15 Claims



A maximum engine speed limiter for an internal combustion engine which is operative to limit the speed of the engine to some predetermined maximum. The engine speed is limited by connecting the primary winding of the ignition coil to ground by means of a limiting resistor and a solid state switching device. Circuit means are connected to the means for interrupting current through the primary winding of the ignition coil and to the solid state switching device to switch it to a conducting state when the predetermined maximum engine speed is reached. When this predetermined speed is reached, the solid state switching device becomes a substantially open circuit and current through the primary winding of the ignition coil is diverted from the circuit interrupting current through the primary winding to the limiting resistor and solid state switching device. The current is diverted to an extent that the output voltage of the secondary winding of the ignition coil is reduced to a level where the spark plugs of the internal combustion engine will not fire. The current through the current interrupting means is adequate, however, to permit adequate voltage to be developed across the means for interrupting current through the primary winding so that a speed signal from the ignition system remains available. As soon as the engine speed falls below the predetermined maximum, the circuit means switches the solid state switching device to a nonconducting state. As a result, current is no longer diverted from the means for interrupting current



3,563,221

IGNITION DEVICE FOR INTERNAL COMBUSTION ENGINE

Yasuo Tada, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

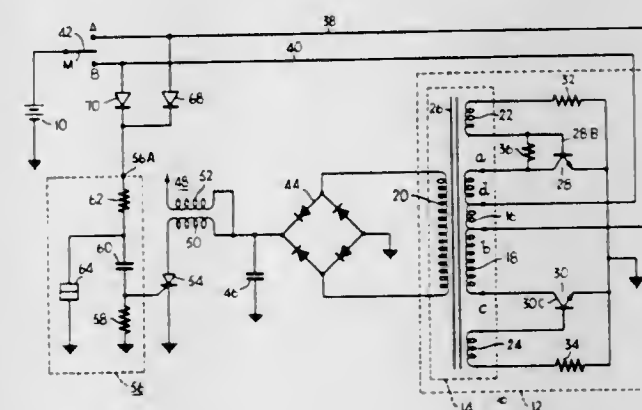
Filed Feb. 14, 1969, Ser. No. 799,260

Claims priority, application Japan, Feb. 19, 1968, 43/12,053

Int. Cl. F02p 3/06

U.S. Cl. 123-148

4 Claims



A low DC voltage boosted by an inverter and a rectifier charges a capacitor a charge on which is, in turn, discharged into an ignition coil under control of a thyristor. Upon starting the engine, the DC voltage is applied to an intermediate terminal of a primary transformer winding in the inverter. Diodes are connected in a circuit for gating the thyristor to prevent the circuit from partly short-circuiting the primary winding through the intermediate terminal.

3,563,222

PERFECTLY BALANCED VIBRATIONLESS ROTATION-RECIPROCACTION DEVICES OF CRANKSHAFT ROTARY MOTION SYSTEM

Kenjiro Ishida, No. 22-22, 1-chome, Hirose-cho, Hamamatsu, Japan

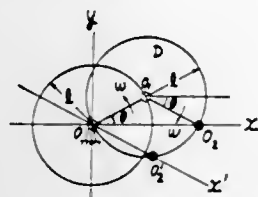
Filed July 8, 1969, Ser. No. 839,956

Claims priority, application Japan, July 16, 1968, 43/49657; 43/49658

Int. Cl. F02b 75/06, 75/32

U.S. Cl. 123-192

4 Claims



A perfectly balanced rotation-reciprocation device providing a rod rotatably supported by a crank pin of a crankshaft through an eccentric collar and cooperating means to produce linear reciprocating motion of the rod, the device further providing balance weight means to theoretically balance the caused unbalance forces irrespective of the fact that the balance weights are secured asymmetrically to the longitudinal axis of the rod.

3,563,223

PERFECTLY BALANCED DOUBLE-ACTING RECIPROCATING MACHINE

Kenjiro Ishida, Hamamatsu, Japan, assignor to President Shizuoka University

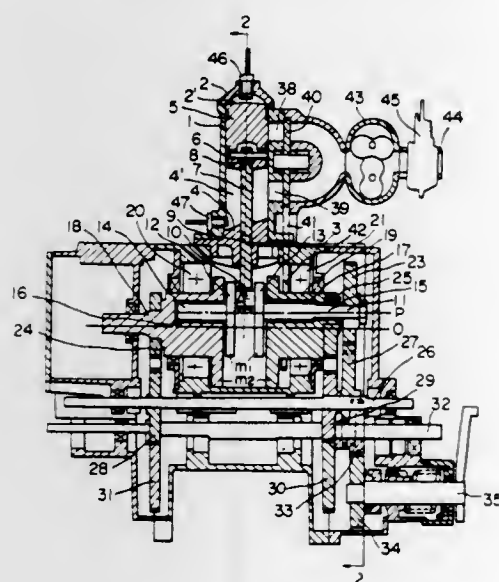
Filed Jan. 15, 1969, Ser. No. 791,327

Claims priority, application Japan, Jan. 30, 1968, 43/5,636; 43/5,637

Int. Cl. F02b 75/06, 75/22, 25/08

U.S. Cl. 123-192

9 Claims



A perfectly balanced reciprocating engine comprising at least one linear reciprocating rod and a rotating and revolving crank mechanism. The crank mechanism has a crank radius l and rotates about a crank axis and also revolves about another axis having an eccentricity l from the crank axis in the opposite direction of crankshaft rotation to effect a linear reciprocating motion with a stroke $4l$. The crank mechanism further comprises a balance weight of mass positioned m_1 at the opposite side of the crank pin and at a distance R_1 from the crank and also another balance weight of mass m_2 secured to a rotatably mounted eccentric collar to effect revolution of the crank directly in the opposite side of the crankshaft positioned at a distance R_2 from the crank axis. Both balance weights are determined to satisfy the formulae $ml = m_1R_1$ and $(m + m_1)m_2 = m_2R_2$ wherein, m is the reciprocating mass, m_2 is the total rotating mass except for

the masses m_1 and m_2 and l is the crank radius. The engine according to the invention provides a perfectly balanced operation.

3,563,224

SMOKE GENERATORS

Denis William Bryer, New Malden, and Leslie Woodgate, Hampton, England, assignors to National Research Development Corporation, London, England, a corporation of Britain

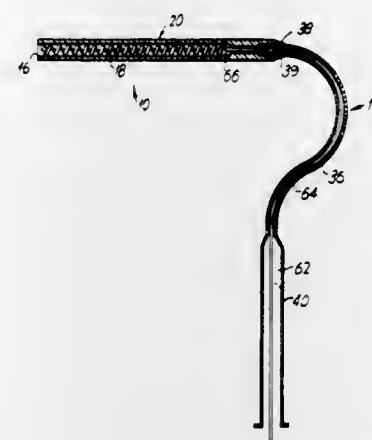
Filed Oct. 21, 1968, Ser. No. 769,324

Claims priority, application Great Britain, Oct. 26, 1967, 48805/67

Int. Cl. A01g 13/06

U.S. Cl. 126-59.5

6 Claims



A smoke generator including ducting for connecting a supply of smoke producing liquid to a discharge aperture and heating means for vaporization of said liquid, the heating means being within the ducting and associated with the discharge aperture.

3,563,225

WARM AIR UNITS

Mario M. Masrieh, Belle Vue, 21 Montacute Road, Lewes, Sussex, England

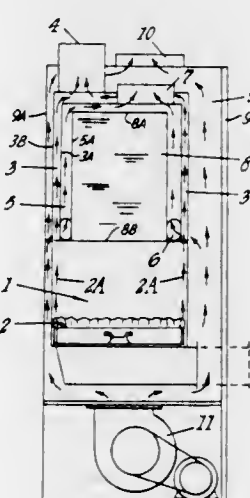
Filed Oct. 31, 1968, Ser. No. 772,268

Claims priority, application Great Britain, Aug. 8, 1968, 37827/68

Int. Cl. F24d 5/10

U.S. Cl. 126-101

4 Claims



A warm air producing unit in which an airflow chamber and a tank for the bulk storage of liquid are both heated by a common combustion chamber is characterized in that part of the surface area of the tank is exposed directly to the heat generated in the combustion chamber so that the water in the tank may be heated, and part of the surface area of the tank is swept over by at least some of the airflow in the airflow chamber, the ratio of the two areas being such that when the combustion gases have heated the water in the tank to a

3,563,226

CHEMICALLY FUELED HEATER

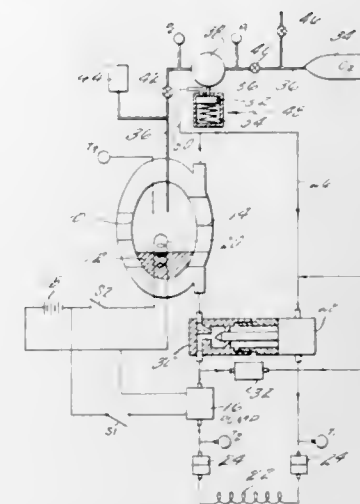
John D. Rockefeller, Glastonbury, and Melvin L. Zwillenberg, Hartford, Conn., and Calvin A. Gongwer, Glendora, Calif., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Apr. 24, 1969, Ser. No. 819,062

Int. Cl. A61f 7/06; F24j 1/00

U.S. Cl. 126-204

25 Claims U.S. Cl. 128-1



A chemically fueled heater is disclosed in which gaseous oxygen is combined with phosphorus in a reactor to generate heat for heating a fluid circulated in the reactor. The heated fluid is circulated into a heating coil or other object to be heated. Automatic controls are provided for the oxygen flow to regulate the temperature of the reaction and also to regulate the temperature of the fluid.

of undenatured collagen by electrophoretic migration of collagen particles from a suspension thereof in contact with the tissue. The layer thus formed is adherent, and in general becomes a part of the animal treated.

3,563,229

CARDIAC SOUND SIMULATOR

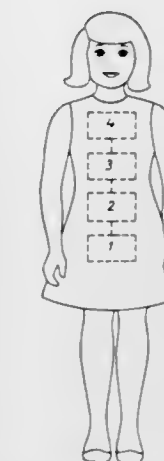
Eriling Olav Valdemar Petrusson, Uppsala, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed Oct. 25, 1967, Ser. No. 678,107

Claims priority, application Sweden, Oct. 27, 1966, 14,742/66

Int. Cl. A61b 19/00

3 Claims



Incorporated within a toy is a cardiac sound simulator. The simulator comprises a pulse generator which generates pulses in pairs. The time between the pulses in each pair being less than the time between pairs and the two pulses of a pair having different time durations. The pulses are fed to a loudspeaker which converts the pulses to a sound having the rhythm of a heartbeat.

3,563,230

APPARATUS FOR TESTING A SUBJECT

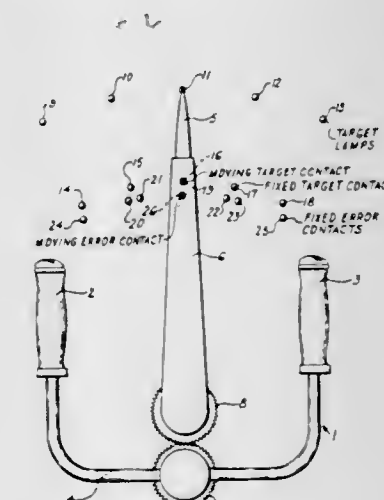
Charles B. Gibbs, Province Ottawa, Canada, and Gladys A. Gibbs, Executrix

Filed May 13, 1968, Ser. No. 728,626

Claims priority, application Canada, May 16, 1967, 990609

Int. Cl. A61b 5/16

8 Claims

**HEAT TRANSFER ASSEMBLY**

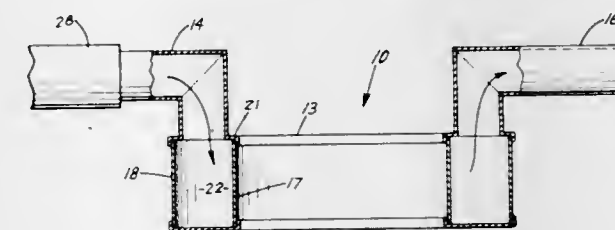
Lewis L. Ruter, 218 26th Ave. N., Apt. 7, Minneapolis, Minn.

Filed Apr. 11, 1969, Ser. No. 815,448

Int. Cl. F24h 1/06

U.S. Cl. 126-271.1

6 Claims



A heat transfer member having an annular chamber connectable to a source of heated fluid, as the exhaust of an internal combustion engine, for changing the temperature of an environment surrounding the heat transfer member. The heat transfer member has a tubular circular shape with an inlet on one side of the member and an outlet on the opposite side of the member.

3,563,228

PROCESS OF FORMING ADHERENT FILMS ON ANIMAL TISSUE

Maurice Seiderman, 3306 Derondo Drive, Hollywood, Calif. 90028

Filed Feb. 28, 1969, Ser. No. 803,421

Int. Cl. A61b 19/00

U.S. Cl. 128-1

6 Claims

Animal tissue, such as bruised skin, skin graft removal sites, corneas, and the like are coated with a protective layer

An apparatus for determining the stress and/or impairment of a test subject by providing a plurality of lamps which are illuminated in sequence, the test subject being required to operate a handle to align a pointer with the lamps as they become illuminated. The responses of the test subject, including his response time, are measured by way of electrical circuits so as to determine particular characteristics of the test subject whereby an indication can be obtained as to his stressed condition or impairment.

3,563,222

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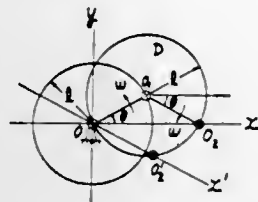
Kenjiro Ishida, No. 22-22, 1-chome, Hirose-cho, Hamamatsu, Japan

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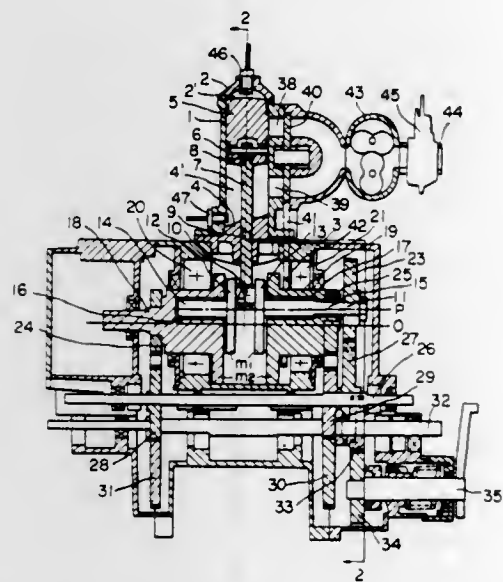
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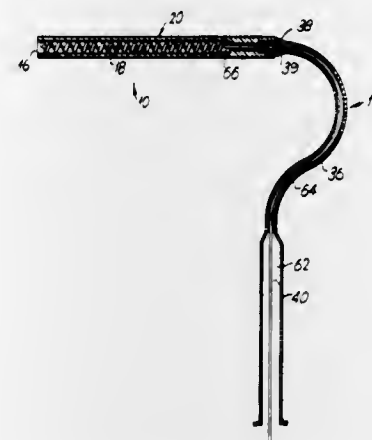
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U.S. Cl. 126-59.5

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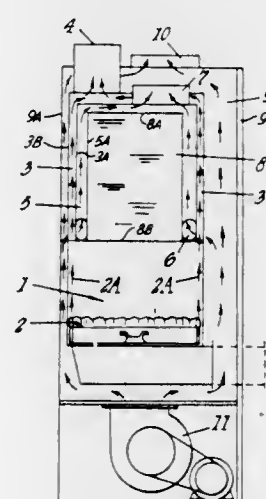
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predetermined temperature the heat loss from the contents of the tank to said airflow is sufficient to prevent said predetermined temperature from being exceeded.

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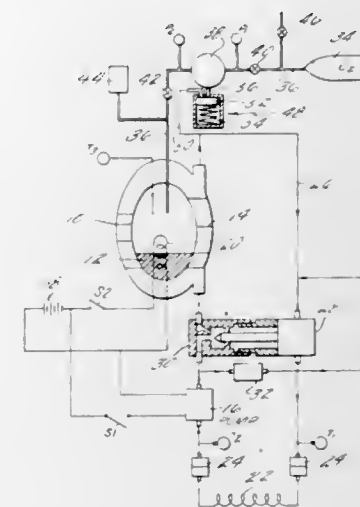
John D. Rockefeller, Glastonbury, and Melvin L. Zwillenberg, Hartford, Conn., and Calvin A. Gongwer, Glendora, Calif., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Apr. 24, 1969, Ser. No. 819,062

Int. Cl. A61f 7/06; F24j 1/00

U.S. Cl. 126-204

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3,563,227

HEAT TRANSFER ASSEMBLY

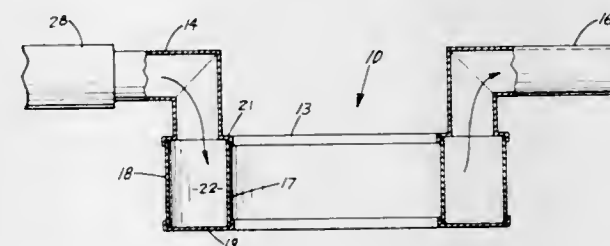
Lewis L. Ruter, 218 26th Ave. N., Apt. 7, Minneapolis, Minn.

Filed Apr. 11, 1969, Ser. No. 815,448

Int. Cl. F24h 1/06

U.S. Cl. 126-271.1

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3,563,228

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Maurice Seiderman, 3306 Derondo Drive, Hollywood, Calif. 90028

Filed Feb. 28, 1969, Ser. No. 803,421

Int. Cl. A61b 19/00

U.S. Cl. 128-1

6 Claims

Animal tissue, such as bruised skin, skin graft removal sites, corneas, and the like are coated with a protective layer

3,563,229

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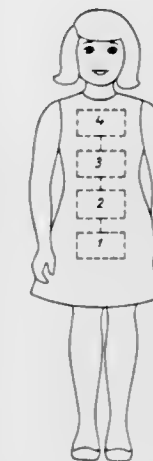
Erilng Olav Valdemar Petrusson, Uppsala, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed Oct. 25, 1967, Ser. No. 678,107

Claims priority, application Sweden, Oct. 27, 1966, 14,742/66

Int. Cl. A61b 19/00

3 Claims



3,563,230

APPARATUS FOR TESTING A SUBJECT

Charles B. Gibbs, Province Ottawa, Canada, and Gladys A. Gibbs, Executrix

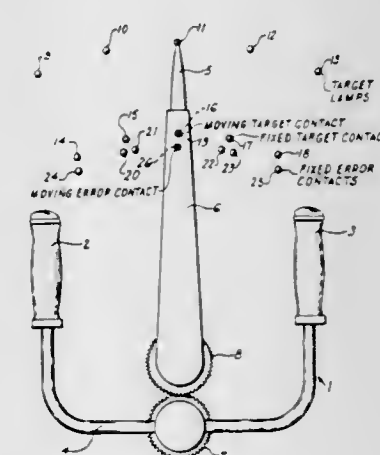
Filed May 13, 1968, Ser. No. 728,626

Claims priority, application Canada, May 16, 1967, 990609

Int. Cl. A61b 5/16

8 Claims

U.S. Cl. 128-2



An apparatus for determining the stress and/or impairment of a test subject by providing a plurality of lamps which are illuminated in sequence, the test subject being required to operate a handle to align a pointer with the lamps as they become illuminated. The responses of the test subject, including his response time, are measured by way of electrical circuits so as to determine particular characteristics of the test subject whereby an indication can be obtained as to his stressed condition or impairment.

3,563,231

ELECTRONYSTAGMOGRAPH CONTROL SYSTEM

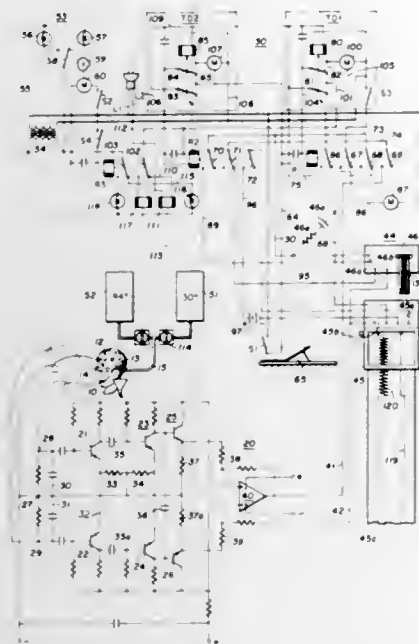
Behrman A. Ducote, Richardson, and Lawrence V. Nicastro, Irving, Tex., assignors to Tracor Inc., Austin, Tex.

Continuation of Ser. No. 586,508, Oct. 13, 1966. This application Feb. 19, 1969, Ser. No. 802,753

Int. Cl. A61b 5/10

U.S. Cl. 128-2.1

5 Claims



An electronystagmograph including a system for irrigating the subject's ear with hot or cold water to cause nystagmus, sensors for measuring the potential in the vicinity of the subject's eyes, 2-channel recording means, and a timing system for controlling a valve in the water supply for establishing the irrigation interval and energizing one recording channel to record the duration of the irrigation interval and, at the end of the irrigation interval, to energize the second channel to record the potential detected by the sensors during a subsequent measuring interval.

3,563,232

VIBROPHONOCARDIOGRAPH

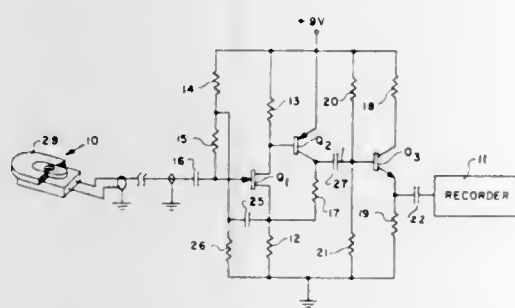
James Webb, Administrator of the National Aeronautics and Space Administration with respect to an invention of Lester N. Wright, Long Beach, and Peter R. Barker, Lawndale, Calif.

Filed Apr. 10, 1968, Ser. No. 720,041

Int. Cl. A61b 5/02

U.S. Cl. 128-2.05

3 Claims



Apparatus is disclosed for monitoring cardiac dynamics comprising an extremely low weight and small volume piezoelectric microphone with an amplifier having high input impedance for high sensitivity and low frequency response in a dynamic range of from about 2 to 2,000 cycles per second.

3,563,233

SONIC DENTAL TOOL FOR MASSAGING GUMS

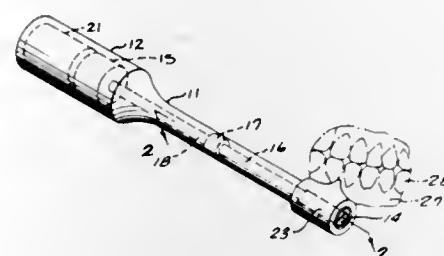
Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406

Filed Mar. 17, 1969, Ser. No. 807,866

Int. Cl. A61h 1/00

U.S. Cl. 128-36

8 Claims



A hollow elastic wand member forms a housing for an orbiting mass oscillator which comprises an eccentric rotor which is coupled by a flexible shaft to a drive motor. The rotor member is rotatably driven at a frequency such as to cause resonant elastic vibration of the wand in a gyratory vibration mode. This resonant frequency is chosen so that it is one at which energy can be efficiently coupled to gum tissue. Removably attached to one end of the wand member is an applicator member of soft resilient material which is utilized to couple the sonic energy to the gum tissue.

3,563,234

SPLINT

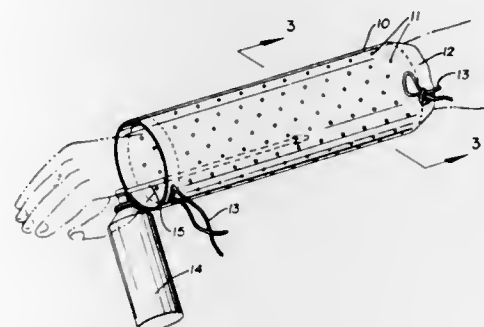
Donald E. Umstead, 24 W. Manor Ave., Youngstown, Ohio 44514

Filed Aug. 21, 1968, Ser. No. 754,367

Int. Cl. A61f 5/04

U.S. Cl. 128-90

4 Claims



A splint for holding a fractured limb or other part of a patient's body in an immovable position and a method of making it wherein a flexible perforated tubular sleeve is positioned about the limb to be immobilized, both of the ends secured to the limb to form closures and a foamable fluent self-hardening material used to fill the area about the limb and within the confines of the perforated sleeve to form a rigid lightweight structure about said limb.

3,563,235

INTRAUTERINE CONTRACEPTIVE METHOD

Jaime A. Zipper, Santiago, Chile, assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Sept. 18, 1968, Ser. No. 760,688

Int. Cl. A61f 5/46

U.S. Cl. 128-130

8 Claims

A method of contraception is disclosed characterized by providing for the presence of elemental copper or zinc in the uterine cavity. This invention is preferably practiced by wrapping a small amount of wire or foil or by placing a sleeve around a conventional intrauterine device prior to implantation. In a modification of this method, two different metals are employed to provide improved effectiveness.

3,563,236

FACE PIECES FOR PROTECTIVE MASKS

Otto Henry Hansson, Beddingstrand, Sweden, assignor to Trelleborgs Gummfabriks Aktiebolag, Trelleborg, Sweden

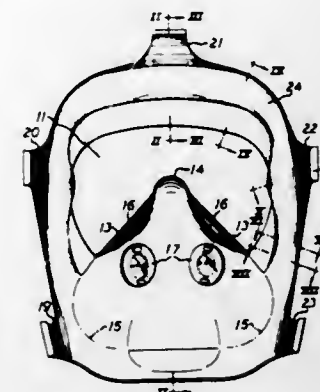
Filed Nov. 20, 1968, Ser. No. 791,830

Claims priority, application Sweden, Feb. 15, 1968, 1979/68

Int. Cl. A61f 9/06

U.S. Cl. 128-141

6 Claims



A face piece for a protective mask is made from a natural or synthetic rubber or a plastic material and has a solid sealing rib projecting from the inner side of the face piece to engage the wearer's face. The width of the sealing rib in the plane of the face piece is larger than the projection of the rib from the inner side of the face piece, and the surface of the rib engaging the wearer's face is profiled to approximately follow the shape of the skull by varying the thickness of the rib longitudinally and transversally thereof.

3,563,237

DISTAL PHALANX BANDAGE

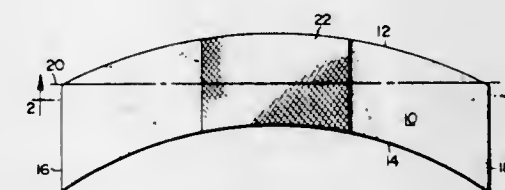
Edwin L. Maxwell, 833 6th St. SW., Washington, D.C.

Filed Nov. 6, 1968, Ser. No. 773,718

Int. Cl. A61f

U.S. Cl. 128-157

6 Claims



A bandage for the distal phalanges is provided. The bandage consists of a strip of adhesive coated material having arcuate longitudinal sides which are substantially parallel to one another.

3,563,238

ELASTIC BINDER

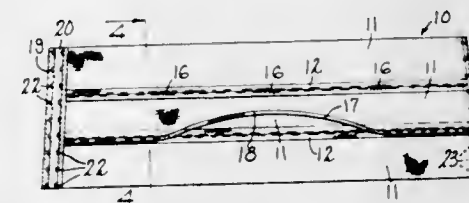
Thomas J. McGuire, South Royalton, Vt., assignor to The Berger Brothers Company, New Haven, Conn.

Filed Dec. 24, 1968, Ser. No. 786,578

Int. Cl. A61f

U.S. Cl. 128-157

13 Claims



An elastic binder for applying support to parts of the body which are damaged or wounded, comprising a plurality of elastic strips which are elastic along their length and substan-

tially inelastic along their width. The adjacent lengthwise edges of each pair of elastic strips are secured together to form a set of at least two combined strips. The combined strips are overlapped along their lengthwise edges and the free lengthwise edges of one combined strip is stitched at measured intervals to the other combined strip which overlaps it. Means are secured at the ends of the combined strips for fastening the strips together in a body-encircling manner.

3,563,239

HYPODERMIC INJECTOR

Clifford W. Hill, Mountainside, N.J. (8 Summit Place, Pleasantville, N.Y. 10570)

Continuation-in-part of application Ser. No. 503,874, Oct. 23, 1965, now Patent No. 3,399,675, dated Sept. 3, 1968. This application June 4, 1968, Ser. No. 734,344

Int. Cl. A61m 5/18; A61b 17/36

U.S. Cl. 128-215

1 Claim



Chilling device for a hypodermic needle comprising a casing of heat absorptive material having sufficiently thick walls to be refrigerated and thereby act as a pain killer for the injections.

3,563,240

DUAL UNIT SYRINGE

Jules Silver, North Franklin, Conn. 06254

Filed July 20, 1966, Ser. No. 566,688

Int. Cl. A61m 3/00

U.S. Cl. 128-234

1 Claim



A dual unit syringe capable of supporting a plurality of isolated medicaments or pharmaceuticals separated one from the other under such circumstances that they will be maintained in stable form for long shelf life. The syringe has means using one liquid medicament and a cannula containing another and different liquid medicament under such circumstances that the medicaments can be mixed in and expelled from the cannula in blended form.

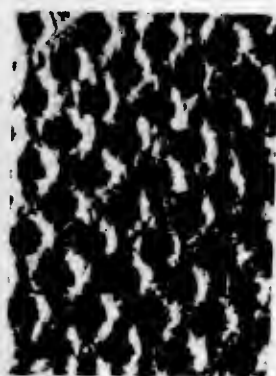
3,563,241

WATER-DISPERSIBLE NONWOVEN FABRIC

Franklin James Evans, Wilmington, Del., and Charles Shambelan, Chattanooga, Tenn., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of application Ser. No. 693,757, Oct. 6, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 660,411, Aug. 15, 1967, now abandoned, continuation-in-part of application Ser. No. 594,024, Nov. 14, 1966, now abandoned, continuation-in-part of application Ser. No. 486,502, Sept. 10, 1965, now abandoned. This application Nov. 14, 1968, Ser. No. 775,767
Int. Cl. A61f 13/16

U.S. Cl. 128—284

38 Claims



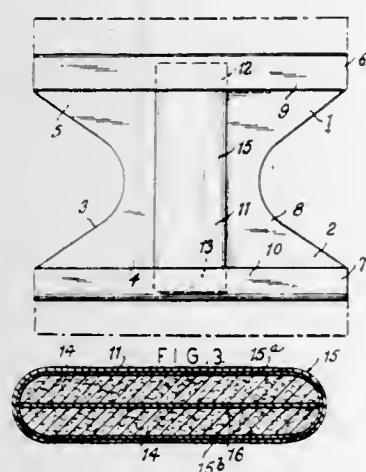
A soft, water-dispersible, nonwoven fabric of fibers secured in place by random fiber entanglement with at least 10 percent of the fibers chemically modified to have a surface that becomes slippery when wet with water to promote water-dispersibility. Processes for producing the above entangled fabrics which include both fiber modification to the water-sensitive form prior to fiber entanglement and subsequent to fiber entanglement are also disclosed.

3,563,242
DIAPER

Bengt Hedstrom, Inspectorbacken 59, Vallingby, and Ebbe Hoden, St. Eriksgatan 67, Stockholm, Sweden
Filed Jan. 25, 1968, Ser. No. 700,576
Int. Cl. A61f 13/16

U.S. Cl. 128—287

2 Claims



A diaper including a thin and flexible, plastic back sheet or swaddle, which is contoured and dimensioned to enable the person handling the infant to adjust it about the infant without separate fastening means, and in which an absorbent pad is removably inserted. The pad comprises one or more covering sheets enclosing wadding having a barrier sheet of liquid-resistant material for enhancing the uniform distribution of fluid through the wadding.

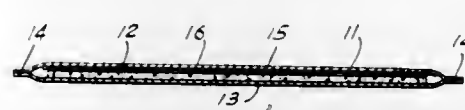
3,563,243

ABSORBENT PAD

Jullus A. Lindquist, Somerville, N.J., assignor to Johnson & Johnson, a corporation of New Jersey
Filed Jan. 19, 1968, Ser. No. 699,096
Int. Cl. A61f 13/16

U.S. Cl. 128—287

8 Claims



Absorbent pads, such as diapers, underpads and the like are made in which a hydrophilic foam sheet formed of hydrophilic polymer is contained between a facing and backing and acts as the primary absorbent in the product. The edges of the hydrophilic foam sheet are completely contained within the peripheral edges of the absorbent pad and secured against lateral extension, when wet. In the preferred structure crepe cellulose tissue is placed in contact with a surface of the hydrophilic foam sheet with the creping of the tissue, particularly where the absorbent pad is for use as a diaper, running lengthwise of the diaper.

3,563,244
CONDOMS

Kunitami Asaka, Tokyo, and Masao Mori, Ichinomiya-shi, Japan, assignors to Hajime Moribe, Tokyo, Japan and Shinataro Ide, Hyogo-ken, Japan
No Drawing. Filed Mar. 15, 1968, Ser. No. 713,293
Int. Cl. A61f 5/42

U.S. Cl. 128—294

10 Claims

A condom, the film of which consists of a blend of a synthetic resinous substance such as saponified polyvinyl alcohol and a rubber latex, said condom being capable of keeping its physical configuration when brought into contact with warm aqueous liquid having a temperature substantially same as that of a human body, yet capable of being decomposed when kept into contact with cold water and after lapse of a certain time period.

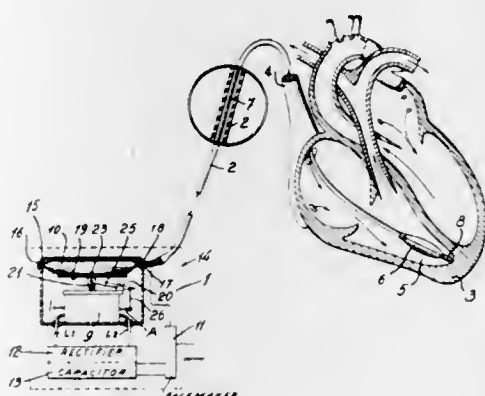
3,563,245

BIOLOGICALLY IMPLANTABLE AND ENERGIZED POWER SUPPLY

Donald Neil McLean, P.O. Box 317, l'Orignal, Ontario; Jacob Rosensweig, 5609 Blossom Ave., Cote St. Luc 29, Quebec, Canada; and John Saunders, 113 Arnold Drive, East Hartford, Conn.
Filed Mar. 15, 1968, Ser. No. 713,400
Int. Cl. A61n 1/00

U.S. Cl. 128—419

6 Claims



The disclosure relates to an electric generation system or device which finds useful application in the power supply units of totally implanted electronic devices such as heart pacemakers; it is particularly intended as an advantageous alternative to limited duration implantable power supplies generally used. The resulting novel power supply unit utilizes fluid pressure transfer means for tapping a small fraction of the energy derived from the muscular contractions of the

heart and transmitting same to a remotely implanted generator wherein the tapped energy is converted to electrical energy.

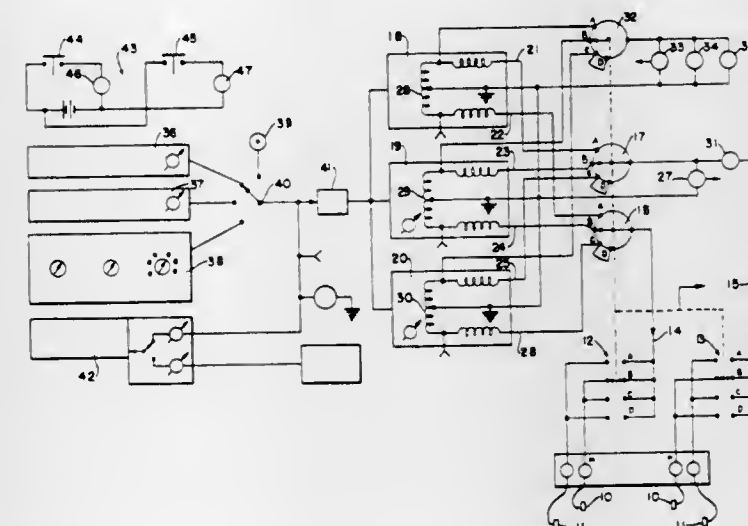
3,563,246

METHOD AND APPARATUS FOR IMPROVING NEURAL PERFORMANCE IN HUMAN SUBJECTS BY ELECTROTHERAPY

Henry K. Puharich, Ossining, and Joseph L. Lawrence, New York, N.Y., assignors to Intelectron Corporation, New York, N.Y.
Continuation-in-part of application Ser. No. 446,267, Apr. 7, 1965, now abandoned. This application Apr. 24, 1967, Ser. No. 653,035
Int. Cl. H05g 1/00

U.S. Cl. 128—422

13 Claims



A method of patient rehabilitation by electrotherapy including periodically electrically stimulating the patient in the region of his facial nerve system by a controlled alternating electrical treatment signal, which signal is an amplitude modulated, double sideband signal of less than 100 kHz. The treatment signal is applied to the patient's head through a pair of electrodes comprised of two bare electrodes or two insulated electrodes, or one insulated electrode and one bare electrode. The patient's head is an element in an LC series resonant circuit established with the treatment signal source.

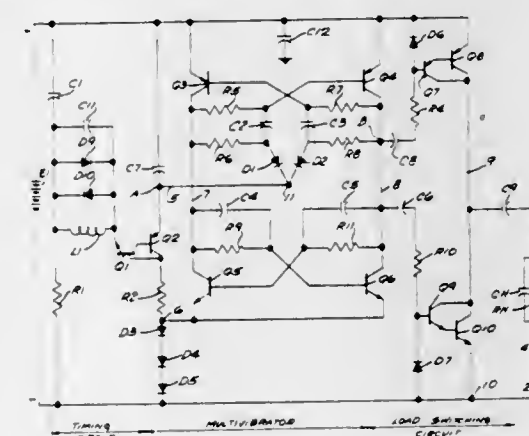
3,563,247

BIDIRECTIONAL HEART STIMULATOR

David L. Bowers, Wauwatosa, Wis., assignor to General Electric Company
Filed Mar. 14, 1968, Ser. No. 713,110
Int. Cl. A61h 31/00

U.S. Cl. 128—422

2 Claims



An implantable electronic heart stimulator has a coupling capacitor in series with the subject's heart to which it is electrically connected. Electronic switches sequentially apply a pulse of one polarity for stimulating the heart by charging the capacitor and apply a second stimulating pulse of opposite

3,563,248

TOBACCO PRODUCT

Tilford F. Riehl, Jr., and John E. Kennedy, Jr., Louisville, Ky., assignors to Brown & Williamson Tobacco Corporation, Louisville, Ky.
Filed May 16, 1969, Ser. No. 825,421
Int. Cl. A24b 15/04

U.S. Cl. 131—17

3 Claims

A tobacco product is described which includes a 3-(2-hydroxycyclohexyl) propionic acid, delta lactone having the structure



Small amounts of this lactone enhance the flavor and aroma of the tobacco and improve the organoleptic qualities of the tobacco smoke.

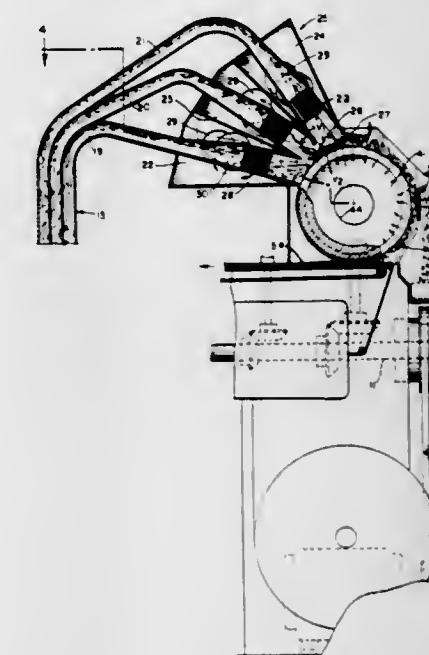
3,563,249

METHOD AND APPARATUS FOR MANUFACTURING CONTINUOUS STRANDS OF A POURABLE MATERIAL SUCH AS SHREDDED TOBACCO

Herbert Geyer and Johannes Herrmann, Dresden, Germany, assignors to VEB Tabak-und Industriemaschinen, Dresden, Germany
Filed July 19, 1968, Ser. No. 746,152
Int. Cl. A24c 5/18

U.S. Cl. 131—84

5 Claims



A method and apparatus for continuously manufacturing a strand of fibrous pourable material, such as shredded tobacco. A tobacco feeding arrangement delivers the material initially into the inlet end of an elongated suction conduit in which the stream of fibrous material is divided into subsidiary streams and delivered to a transfer location from where the material flows into engagement with the perforated peripheral wall of a rotary suction wheel. The initial suction stream terminates at this transfer location, while a second suction stream is applied through the suction wheel to draw the material against the periphery thereof. The several subsidiary suction conduits have a direction of flow which cuts across the periphery of the suction wheel at a predetermined angle providing for movement-free, layered deposition of the several subsidiary streams onto the periphery of the suction wheel with the several streams being distributed one behind the other along the periphery of the suction wheel. The cross

section of each of the several subsidiary suction conduits gradually diminishes to the width of the suction wheel while each subsidiary conduit has a circumferential length several times greater than its minimum width.

3,563,250

DEVICE FOR THE EVACUATION OF AIR FOR APPARATUS OF THE TYPE OF BRUSH OR COMB WITH BELLOWS

Phillippe DeFalandre, 17 Boulevard de la Republique, Versailles 78, France

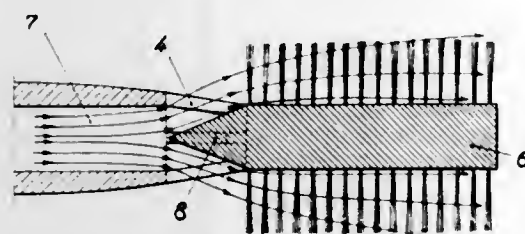
Filed July 11, 1968, Ser. No. 743,989

Claims priority, application France, July 12, 1967, 714154

Int. Cl. A45d 24/00

U.S. Cl. 132-11

6 Claims



The present invention relates to a device for apparatus of the type of comb or brush with bellows permitting it to send at least a part of the air pulsed parallel to the axis of the comb or of the brush and outside of their body.

3,563,251

HAIR CURLER

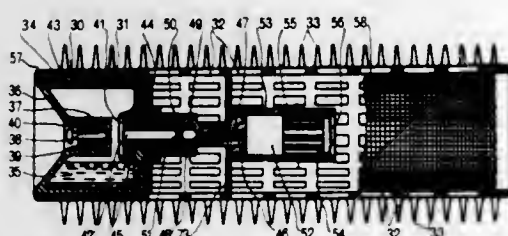
Niels Christian Jorgensen, Vinrankevej 19, 2900 Hellerup, Denmark

Filed Apr. 11, 1969, Ser. No. 815,443

Int. Cl. A45d 2/12

U.S. Cl. 132-33

24 Claims



A hair curler containing a supply of fuel, preferably liquefied fuel such as butane or propane, and a nozzle for releasing gaseous fuel from the supply and for providing a mixture of said fuel and an oxygen containing gas, preferably air, so as to provide a flow or current of a gaseous combustible fuel mixture, which is directed to an area within the hair curler where the fuel of the mixture is oxidated or burned in the presence of an oxidation catalyzing material whereby heat is generated within the curler.

3,563,252

MANICURE DEVICE

Albert R. Spohr, Park Ridge, and Frank J. Di Sesa, Jr., Lombard, Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Continuation of application Ser. No. 536,087, Mar. 21, 1966, now abandoned. This application Oct. 21, 1968, Ser. No. 779,294

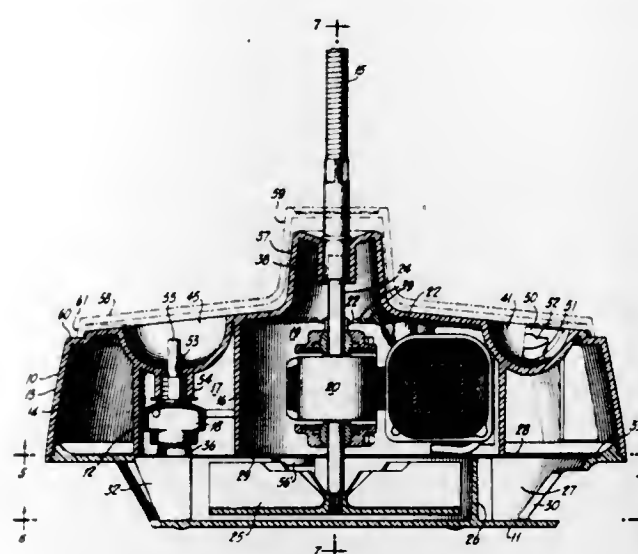
Int. Cl. A45d 29/05

U.S. Cl. 132-73.6

15 Claims

A motor operated manicure device comprising a housing having a central opening and a plurality of spaced depressions formed in its top. A flexible drive cable-to-motor coupler mounted in said central opening and secured to the out-

put shaft of a motor mounted inside the housing. A wall surrounding said motor and spaced from the periphery of the housing to define a chamber for storing the flexible drive cable. An opening being formed in one of the depressions for



providing access to the storage chamber. A motor control switch extending through an opening in another of the depressions. The remaining depressions being adapted to store manicuring attachments for the drive cable.

3,563,253

TOOTHPICKS

Rolf Barman, Olav Kyrresgt. 45, Bergen, Norway

Filed June 12, 1968, Ser. No. 736,316

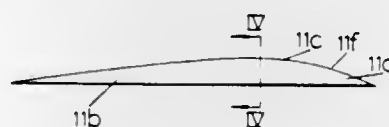
Claims priority, application Denmark, June 19, 1967,

3,167/67

Int. Cl. A61c 15/00

U.S. Cl. 132-89

9 Claims



A toothpick of essentially triangular cross section and tapered at both ends, one or both of the apex edge and base face thereof having an outwardly curved contour. A process for manufacturing said toothpicks involving forming V-shaped grooves of the requisite shape in a raw material and separating the toothpicks therefrom.

3,563,254

COMBINATION COMB AND NAIL TREATMENT DEVICE

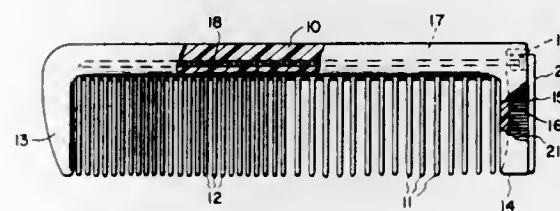
August A. Dapolito, Jersey City, N.J., assignor to Mary A. Gallagher, Jersey City, N.J., fractional part interest to each

Filed May 26, 1969, Ser. No. 827,693

Int. Cl. A45d 24/20

U.S. Cl. 132-104

3 Claims



A comb for the hair having a self-contained nail filing and brushing attachment which is easily withdrawn and separated from the comb during use and which is housed substantially entirely within the comb during periods of nonuse without interfering with the normal usage of the comb.

3,563,255

APPARATUS FOR COLLECTING AND WASHING WELL CUTTINGS

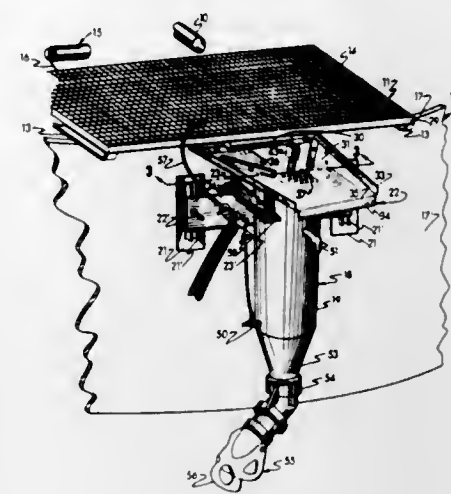
Royden Barnard Morris, 520 Brunswick Ave. SW., Calgary, 6, Alberta, Canada

Filed Dec. 27, 1968, Ser. No. 787,363

Int. Cl. B08b 3/04

U.S. Cl. 134-133

20 Claims



A drill cuttings sample collector and washer, which attaches to the front wall of the mud tank of a drill rig equipped with a vibrating shale shaker table. The sample collector includes a stationary outer water vessel secured to the mud tank and a cuttings collector plate and a cuttings container spring-suspended within the water vessel, taking vibratory motion from the shaker table. An adjustable stream of drill cuttings from the shale shaker is caught by the collector plate and discharged into the vibrating cuttings container, the cuttings falling downwardly over a series of baffles where washing action takes place to remove the mud from the cuttings. The washed cuttings are caught at the bottom of the water vessel and periodically removed for examination.

3,563,256

CONTAINER RINSING AND TREATING APPARATUS

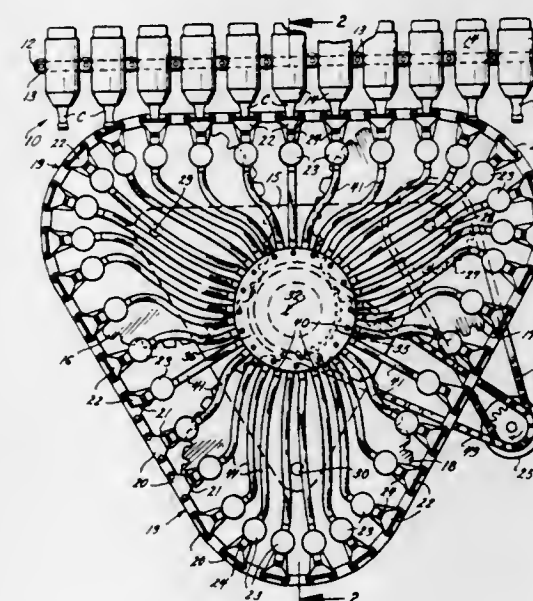
Momir Babunovic, Des Peres, Mo., assignor to Barry-Weh-miller Company, St. Louis, Mo.

Filed Feb. 3, 1969, Ser. No. 795,867

Int. Cl. B08b 3/02; B67c 1/00

U.S. Cl. 134-144

7 Claims



Apparatus for rinsing and treating containers prior to filling in which the containers are brought to the zone of rinsing in single file or in multiple files, a continuously moving conveyor of nozzles is provided with alignment means engageable with the neck or crown ring of the container filling mouth to align the nozzles, and valved means controlling the

supply of rinsing and treating fluid is connected by flexible conduits to the nozzles for injecting the fluid during the period of travel together of the containers and the alignment means.

3,563,257

COLLAPSIBLE AND PORTABLE AIRCRAFT NOSE DOCK

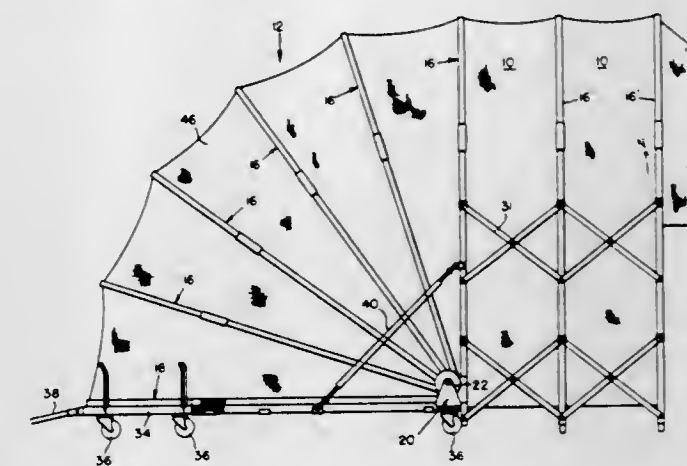
Phil F. Cummins, Fort Worth, Tex., assignor to Stromberg-Carlson Corporation, Rochester, N.Y.

Filed Oct. 21, 1968, Ser. No. 768,987

Int. Cl. E04b 1/347

U.S. Cl. 135-4

1 Claim



A collapsible and portable shelter for the nose of an aircraft including a toroidal section supported on U-shaped bows, the outer ends of which are pivoted for an erecting and collapsing action basically similar to the action of a perambulator hood. The legs of the bows are hinged near the bight portions of the bows so they can be folded inwardly when the structure is collapsed to form a compact bundle. The bow at one end of the structure is mounted on casters for easy maneuverability when the structure is collapsed. Straight vertical sections may be secured to the toroidal section to extend the dock to any desired length.

3,563,258

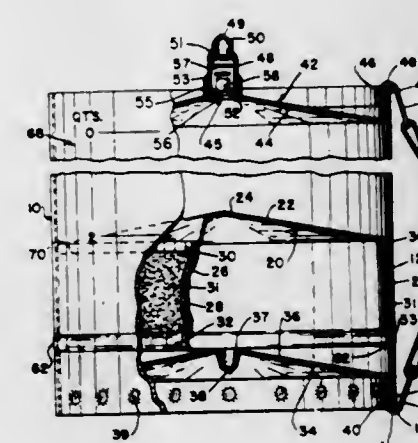
DISPOSABLE HERMETICALLY SEALED CONTAINER AND METHOD

Valentine Hechler, IV, 26 Meadow View Lane, Northfield, Ill. Continuation-in-part of application Ser. No. 545,007, Apr. 25, 1966, now Patent No. 3,431,941. This application Oct. 26, 1967, Ser. No. 678,313

Int. Cl. B65d 83/14

U.S. Cl. 137-1

24 Claims



A one-time use container for intermittently dispensing and storing chemicals out of contact with the air in which a container having a one way movable bottom or follower member is subjected to a suction for the eduction of stored fluid contents through a backflow check valve. The movable bottom slidably engages a cylindrical wall of a container under a sliding interface contact ranging from a close clearance frictional contact to a full contact.

tional fit to an interference fit providing a radial displacement pressure strong enough to progressively expand the container wall as it moves. The interface contacting area is sealed against leakage of liquid and gases, and preferably lubricated, by a highly viscous fluid that is chemically inert to the liquid contents.

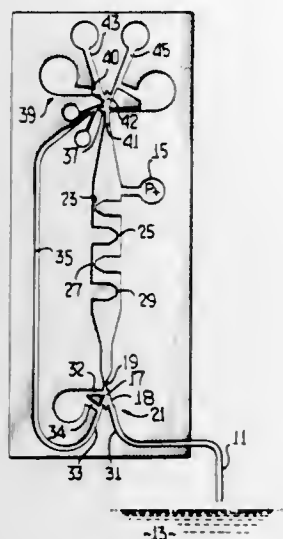
3,563,259

FLUIDIC LIQUID LEVEL SENSOR

Donnie R. Jones, Silver Spring, Md., assignor to Bowles Engineering Corporation, Silver Spring, Md.
Filed Mar. 15, 1968, Ser. No. 713,480
Int. Cl. F15c 1/12

U.S. Cl. 137-1

18 Claims



A fluidic liquid level sensor comprising a fluidic switching element which issues a stream of fluid from a first output passage through a sensor tube unless the sensor tube is blocked by the liquid level being sensed, in which case the stream of fluid issues through a second output passage. The second output passage is connected to the control nozzle of a monostable fluidic logic element, the latter providing a fluid output signal at either of two output passages as a function of the presence or absence of fluid at the control nozzle. The pressure of the stream of fluid issued to the sensor tube is maintained relatively low so as to prevent bubbling and perturbations in the liquid level being sensed as would otherwise be caused by high pressure fluid issuing from the sensor tube.

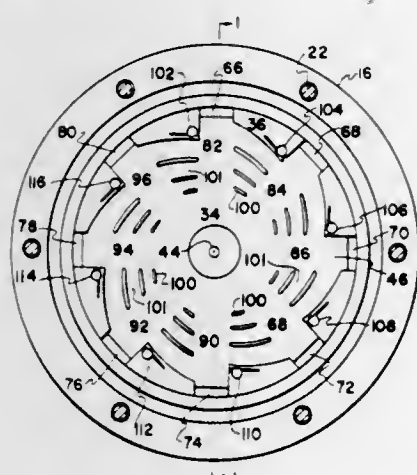
3,563,260

POWER TRANSMISSION

Gaylord O. Ellis, Rochester, Mich., assignor to Sperry Rand Corporation, Troy, Mich., a corporation of Delaware
Filed Nov. 8, 1968, Ser. No. 774,270
Int. Cl. F15c 1/16

U.S. Cl. 137-81.5

11 Claims



A vortex flow control device having a chamber with a main stream input flowing radially inward during one mode of

operation and flowing in a logarithmic spiral path during a second mode of operation for creating a back pressure for a metering element which is inversely proportional to the flow rate of the fluid issuing from said metering element.

3,563,261

LOCKOUT VALVE ASSEMBLIES FOR HYDRAULIC CONTROL SYSTEMS

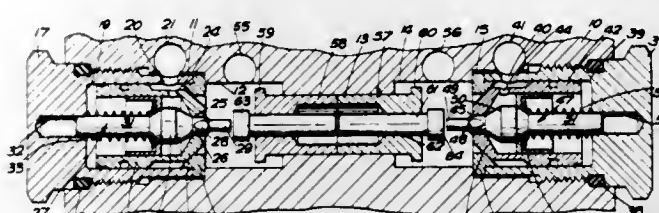
Willard Denis Griffith, Ludlow, and Paul Gerrard Bottrell, Adforton, England, assignors to F. W. McConnel Limited, Ludlow, England

Filed June 11, 1969, Ser. No. 832,256
Claims priority, application Great Britain, June 12, 1968, 27,975

Int. Cl. F15b 15/00

U.S. Cl. 137-87

12 Claims



A lockout valve assembly comprises first and second non-return valves, arranged to permit flow from a hydraulic control valve to the two sides respectively of a double-acting hydraulic ram. Each nonreturn valve comprises a chamber for communication with a service port of the hydraulic control valve, a movable main valve member engageable with a valve seat surrounding an outlet for communication with one side of the double-acting device, and a pilot valve member engageable with a pilot port in the main valve member, there being provided between the first and second nonreturn valves a reciprocable plunger assembly having one end thereof projecting into each valve chamber and arranged, when moved further into the chamber, to engage and move the pilot valve member in a manner to permit flow of hydraulic fluid through the pilot port. There is movable with each valve member a piston part reciprocable within a bore closed at one end there being a restricted passage through which hydraulic fluid can escape as the piston part moves towards the closed end of the bore and through which fluid must pass to enter the bore and cause closure of the pilot valve.

3,563,262

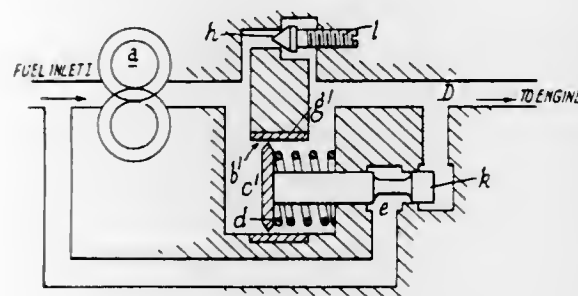
HYDRAULIC SPEED GOVERNORS

Robert S. Wood, Ilford, England, assignor to The Plessey Company Limited
Continuation of application Ser. No. 669,646, Sept. 21, 1967, now abandoned. This application Dec. 22, 1969, Ser. No. 883,672

Int. Cl. G05d 27/00

U.S. Cl. 137-117

5 Claims



To counteract in a hydraulic governor for the effect of the decrease, at increased temperatures, in the flow that is delivered by a high-pressure displacement-type fuel pump upon the pressure drop produced by the flow in a metering orifice, temperature-responsive means are provided which at increased temperatures reduce the area of the metering orifice in proportion with the reduction in the volumetric effi-

ciency of the pump that is due to the drop in viscosity of the hydraulic liquid at such higher temperatures.

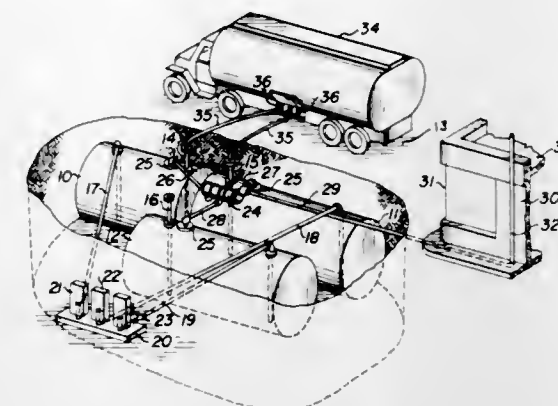
3,563,263

SYSTEM FOR STORING PETROLEUM PRODUCTS

James P. Benson, 54 Gibbon Blvd., Cockeysville, Md. 21030
Filed Jan. 2, 1968, Ser. No. 695,263
Int. Cl. F16k 31/18

U.S. Cl. 137-202

15 Claims



A system and process for storing petroleum products characterized by an underground manifold into which a plurality of underground tanks are vented and which in turn is vented to the atmosphere by a single line. A valving system is employed in conjunction with the vent lines running between the individual tanks and the manifold which automatically closes the vent line during the tank filling operation and stops the flow of the product at a level which provides sufficient additional tank storage capacity to subsequently accommodate the quantity of product in the fill hose. The valving system includes a venting bypass line which can be then opened to recycle the valving system, to permit the quantity of product in the fill line to flow into the tank and to vent the tank to the atmosphere through the manifold.

3,563,264

RESEARCH ANIMAL WATERING APPARATUS

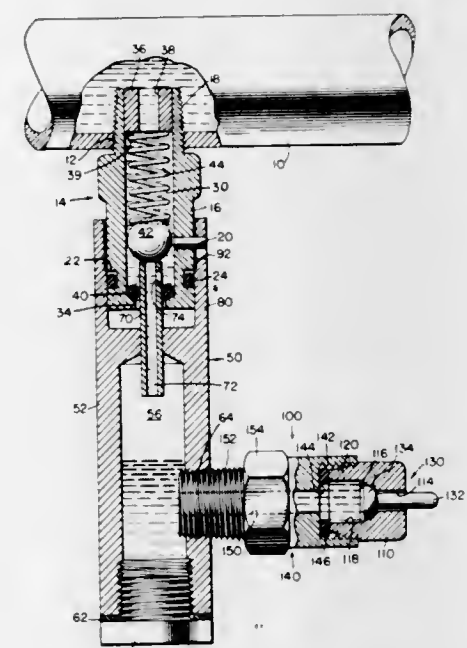
Charles P. Boegli, Woodlawn, and Delbert Steigerwald, Terrace Park, Ohio, assignors to The Fieldstone Corporation, Cincinnati, Ohio

Original application Jan. 31, 1967, Ser. No. 612,855, now Patent No. 3,431,891. Divided and this application Sept. 5, 1968, Ser. No. 757,706

Int. Cl. A01r 7/00

U.S. Cl. 137-209

15 Claims



Watering apparatus actuable by individual animals, and elements thereof including a valved air trap arranged to

prevent communication of disease and contamination amongst caged animals in a battery of cages, the apparatus being easily and quickly serviced without wetting the cage floors and without interrupting the supply of water to cages previously serviced.

3,563,265

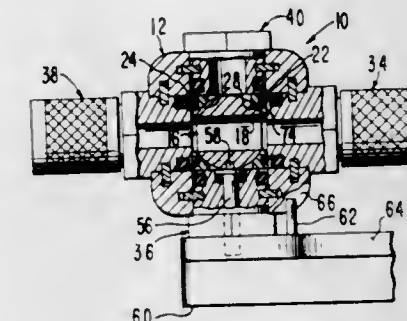
BALL VALVE ASSEMBLY

Charles H. Graham, Mountain View, Calif., assignor to Gra-Tec, Inc., Los Altos, Calif., a corporation of California
Continuation-in-part of application Ser. No. 617,145, Feb. 20, 1967, which is a continuation of application Ser. No. 515,848, Dec. 23, 1965, now abandoned, which is a continuation-in-part of application Ser. No. 432,598, Feb. 15, 1965, now abandoned. This application Sept. 15, 1967, Ser. No. 668,074

Int. Cl. F16l 29/00; F16k 5/06

U.S. Cl. 137-269

19 Claims



An assembly comprised of a distribution block having a plurality of outer faces with each of at least certain of the faces provided with a bore extending into the block and a ball valve member disposed within the block to provide a fluid flow path therethrough. A fitting member is provided for each bore respectively with the fitting members being of any desired configuration to permit the entire assembly to be quickly connected and disconnected in building block fashion, to form a fluid valve from any one of a number of different combinations of blocks and fitting members.

3,563,266

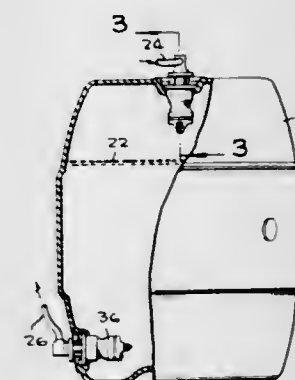
QUICK-CONNECT CONVERSION ADAPTER FOR BEER KEGS

Harry E. Berry, 3510 SW. 32nd Ave., Hollywood, Fla. 33023
Filed Nov. 21, 1968, Ser. No. 777,845

Int. Cl. F16k 43/00

U.S. Cl. 137-323

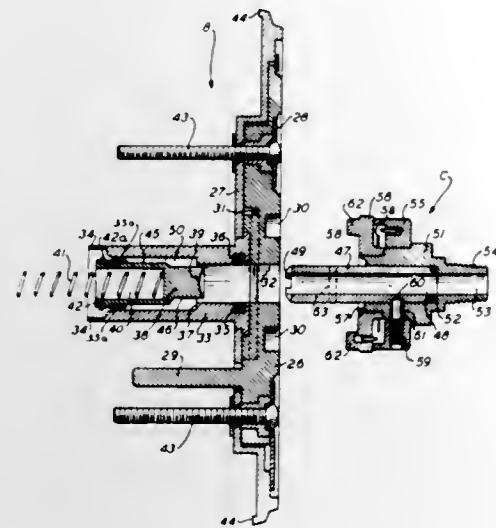
4 Claims



An adapter for enabling the use of quick-connect couplings on conventional beer kegs of the type having a recess butterfly valve on the end of a valve body cup on the interior of the keg, the adapter being a cylindrical tubular body member having one end fitting over a rotatable shaft type actuator for the butterfly valve and having a radially extending flange with a resilient sealing means adjacent the flange and radially extending lugs extending from the flange for engaging an inclined shoulder on the inner surface of the valve body cup so that rotation of the adapter seals the adapter in the valve body cup and also opens the butterfly valve so that all flow must be directed through the adapter.

3,563,267 GAS DISPENSING DOUBLE CHECK VALVE CONSTRUCTION

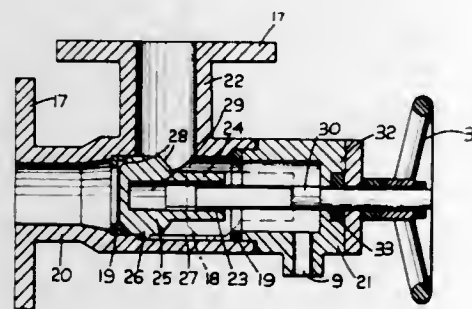
Charles S. Thompson, Madison, Wis., assignor to Air Reduction Company, Incorporated, New York, N.Y.
Filed Sept. 30, 1968, Ser. No. 763,683
Int. Cl. F16k 15/18, 43/00
U.S. Cl. 137—329.1 7 Claims



A valve construction comprising an outlet and an adapter, the outlet comprising a primary and secondary housing adapted to be fitted together under a gas keying arrangement, the primary housing including a primary check valve and the secondary housing including a secondary check valve, the secondary check valve being constantly maintained in open position when said primary housing is gas key fitted into the secondary housing, the dimensions of the respective housings being such that plaster finishes of varying thickness are permitted, the primary housing having an adapter keying arrangement so that only a specific adapter can be fitted thereto, the specific adapter moving the primary check valve to open position to permit gas flow passed the secondary check and primary check through the adapter to the area of its final use, the primary housing and primary check valve therein having at least a pair of seals acting to prevent blow-by through the primary housing.

3,563,268 VALVE SYSTEMS

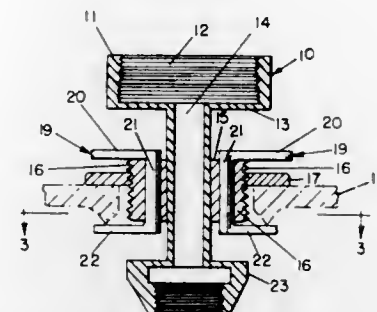
Robert S. Williams, Upper Arley, near Bewdley, England, assignor to G.W.B. Boilers Limited, Dudley, England
Filed Sept. 23, 1968, Ser. No. 761,650
Claims priority, application Great Britain, Sept. 23, 1967, 43,378
Int. Cl. F16k 31/50
U.S. Cl. 137—386 8 Claims



A valve system for a liquid-containing vessel such as a boiler in which a valve chamber between connections leading to the vessel, to a control device and to exhaust contains a valve head which can close the connections to the vessel and to exhaust but can not close the connections to the control device.

3,563,269 LOCK FOR GASOLINE PUMP

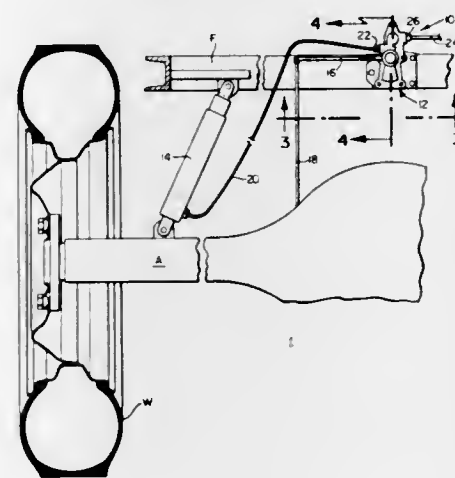
James E. Sarsfield, Rte. 1, Box 138, Goldendale, Wash. 98620
Filed Jan. 14, 1969, Ser. No. 790,997
Int. Cl. F16l 5/00
U.S. Cl. 137—590 3 Claims



This invention consists of an internally threaded vertically disposed hollow receptacle adapted to receive the lower end of a portable gasoline pump that may be of the manually operated type. The aforesaid receptacle has its lower end provided with a hollow rectangular member having an externally threaded shoulder located in the vertical center thereof. The just mentioned shoulder is provided with a nut that rests on top of the gasoline drum to which the pump is secured by means of this novel invention. Two diametrically opposed U-shaped members, which I personally call dogs, each has its vertical portion passing through the aforesaid shoulder. The upper end of each dog is in the form of a handle by which the dog can be rotated to lock the device in place on the gasoline drum since the lower end of each dog terminates in a horizontally disposed member adapted to fit under the inside of the drum when the dog is turned to a locked position, thus locking the gasoline pump to the drum.

3,563,270 VALVE FOR VEHICLE-LEVELING SYSTEM

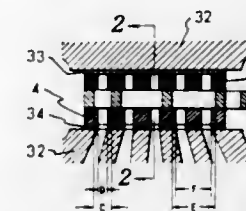
Carl B. Denny, Mc Ewen, Tenn., assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed Aug. 11, 1969, Ser. No. 848,953
Int. Cl. F16k 11/02, 31/12
U.S. Cl. 137—625.21 10 Claims



Valve for vehicle-leveling system includes valve plate apertured to provide precise control of "null band" as plate moves in its plane. Simple dashpot means delays action of valve until it is clear that out-of-level condition is not from road action.

3,563,271 FLAT SLIDE VALVE

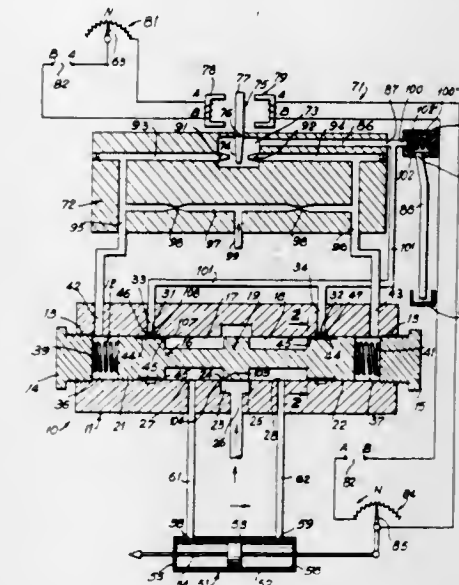
Kazuyoshi Marumo, Tetsuo Kukuminato, and Yoshihiro Nakada, all of 132 Chigusashinden, Osawa-cho, Kimitsugun, Chibaken, Japan
Filed Nov. 1, 1968, Ser. No. 772,603
Claims priority, application Japan, Nov. 9, 1967, 71694
Int. Cl. F16r 11/06
U.S. Cl. 137—625.25 2 Claims



The present invention relates to a flat slide valve characterized in that a pair of spacers and a slide board having connecting ports and pressure balancing holes are fitted intimately between two guide plates having valve holes and pressure balancing holes, with the thickness of said slide board being formed slightly thinner than that of the spacers, and that the pressure balancing holes for preventing augmentation of controlling power of the slide board by fluid pressure are formed in communication with the corresponding valve holes in said two guide plates and said spacers.

3,563,272 SERVOCONTROL VALVE AND SYSTEM

Jean Mercier, 501 Bloomfield Ave., Caldwell, N.J. 07006
Original application Dec. 5, 1966, Ser. No. 599,210, now Patent No. 3,477,472, dated Nov. 11, 1969. Divided and this application Aug. 21, 1969, Ser. No. 851,907
Int. Cl. F16k 11/07
U.S. Cl. 137—625.66 6 Claims

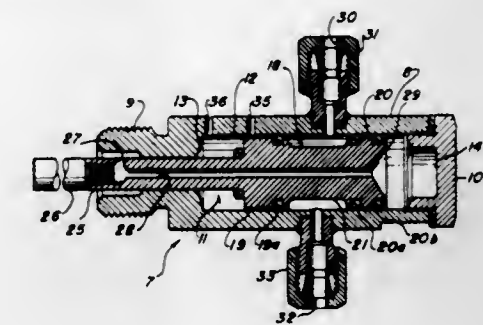


This invention relates to the art of servo systems to effect precise control of a hydraulic actuator, and comprises a distributor valve and a control actuator valve therefor, the distributor valve being conformed to pressurize the hydraulic actuator at all times and having a valve member balanced by capillary passageways to prevent sticking, the control actuator having an associated control system to restrain rapid movement of the hydraulic actuator.

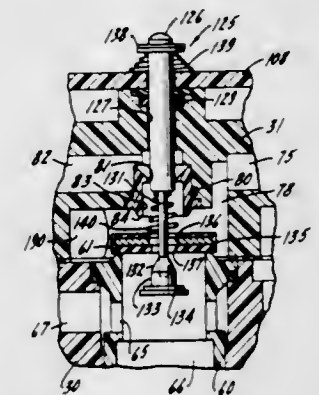
3,563,273 ACTUATOR VALVE

Carl R. Mills, 2626 Diamond Court, Downers Grove, Ill. 60515
Filed Oct. 28, 1968, Ser. No. 771,173
Int. Cl. F16l 11/07; F01l 25/04
U.S. Cl. 137—625.69 6 Claims
An actuator valve for a fluid control used in reciprocating or sequence operations of fluid operated devices. The valve

is characterized by a simplified spool structure reciprocated by an actuating stem projecting into a cylinder cavity con-



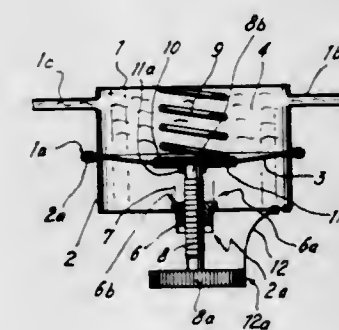
3,563,274
SEQUENTIALLY OPERATED PLURAL VALVES
Edward J. Tischler, St. Paul, Minn., assignor to Ecodyne Corporation, Chicago, Ill.
Original application Nov. 1, 1967, Ser. No. 679,721. Divided and this application Jan. 12, 1970, Ser. No. 002,262
Int. Cl. F16k 11/00
U.S. Cl. 137—630.14 5 Claims



A valve arrangement for controlling a variable cycle water conditioning operation. Main inlet and outlet valves provide three-position, three-way control and three-position, four-way flow control, respectively, with positive prevention of brine leakage and more efficient cycle transition among the advantages.

3,563,275 BALANCING AND CONTROL DEVICES FOR HYDRAULIC CIRCUITS

Jules Antonin Sombardier, Pau, France, assignor to Societe d'ite: Projecteurs Cible, Bobigny (Seine St.-Denis), France, a company of France
Filed Apr. 30, 1968, Ser. No. 725,305
Claims priority, application France, May 3, 1967, 105,165
Int. Cl. F16l 55/04
U.S. Cl. 138—30 3 Claims



A balancing and control device, for use in a hydraulic circuit, which can be adjusted to compensate for loss of hydrau-

lic fluid by leakage, evaporation etc. The device comprises a casing which, together with a diaphragm, forms an enclosure. The enclosure is connected to a hydraulic circuit. The position of the diaphragm and thus the volume of the enclosure is adjustable by adjusting screw means against which the diaphragm is urged by spring means.

3,563,276

PIPE JOINT COCOON

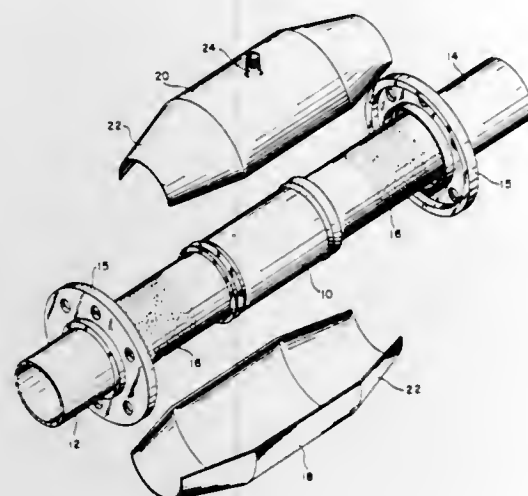
Hanford Z. High, Short Hills, and Stephen Lesky, Metuchen, N.J., assignors to Bonded Products, Inc.

Filed Aug. 29, 1968, Ser. No. 767,601

Int. Cl. F161 55/16; B22b 35/00; F161 47/02

U.S. Cl. 138—99

9 Claims



Upper and lower halves of cocoonlike shell of glass cloth saturated with epoxy resin surrounding the pipe joint, held in place by masking tape, ends and side seams coated with epoxy resin reinforced with crisscrossed glass tape.

3,563,277

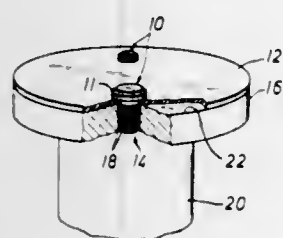
PIPE FLANGE PROTECTIVE COVER

Joseph Klipper, 9262 Florida Blvd., Baton Rouge, La. 70815
Continuation-in-part of application Ser. No. 728,676, May 13, 1968, now abandoned. This application Aug. 29, 1969, Ser. No. 857,287

Int. Cl. B65d 59/00; F161 57/00

U.S. Cl. 138—96

3 Claims



In one exemplar form, a combination of a plastic plate having spaced apertures aligned with bolt apertures of a pipe or valve section flange and a ribbed retaining plug of an elastic material for insertion through the apertures of the plate into frictional gripping contact with the flange bolt apertures to hold the plate snugly in place over the machined surface of the pipe or valve flange.

3,563,278

AIR DUCT MEANS FOR A BUILDING CONSTRUCTION

Daniel J. Schardeln, Erik F. Barkman, Davad R. Johnson, and Ben W. Lillethorup, Henrico County, Va., assignors to Reynolds Metals Company, Richmond, Va.

Filed Oct. 20, 1967, Ser. No. 676,960

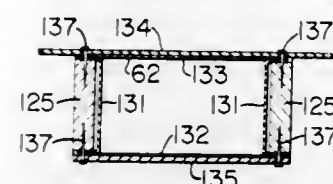
Int. Cl. F161 3/00, 11/04, 11/14

U.S. Cl. 138—107

22 Claims

This disclosure relates to air duct means for a building construction and method of making same in which said air duct

means is made substantially of metallic foil and is readily collapsible for storage and handling and readily expandable for



fastening to associated supporting means comprising the building construction to thereby enable provision of an economical air conduit system in such building construction.

3,563,279

DRIVE MEANS FOR A WEFT CARRYING DEVICE IN CIRCULAR LOOMS

Armand Malchair, Herstal, Belgium, assignor to Peltzer & Fils S. A., societe anonyme, Verviers, Belgium

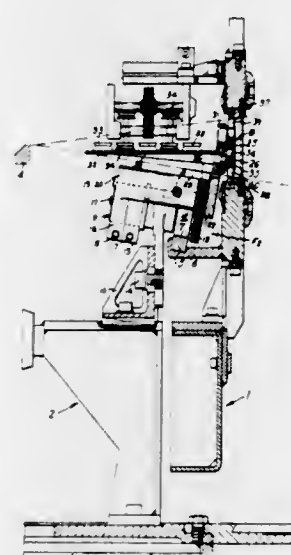
Filed May 27, 1968, Ser. No. 732,329

Claims priority, application Belgium, June 20, 1967, 700,194

Int. Cl. D03d 37/00

U.S. Cl. 139—13

7 Claims



Drive means for a weft-carrying device in circular looms wherein the connection between the drive means and the driven means carried by the weft-carrying device, is a frictional engagement.

3,563,280

METHOD AND APPARATUS FOR TUCKED-IN SELVAGE

John A. Cugini, Hopedale, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa., a corporation of Delaware

Filed June 2, 1969, Ser. No. 830,224

Int. Cl. D03d 47/48

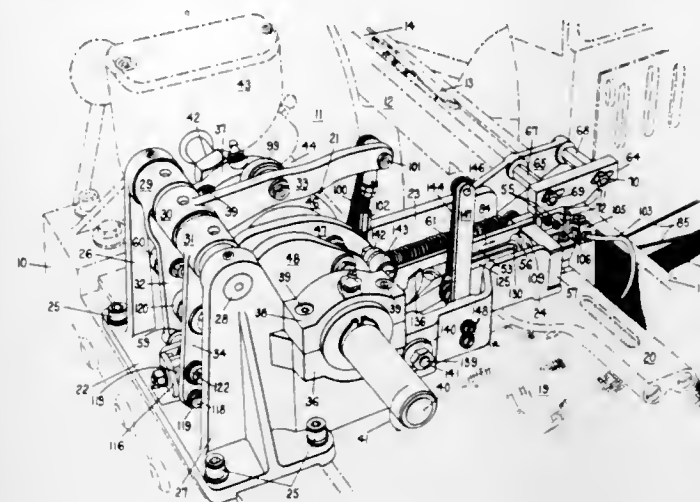
U.S. Cl. 139—122

7 Claims

A selvage forming apparatus for shuttleless looms of the type where cut lengths of filling yarn are introduced into warp sheds, having a mechanical means for receiving and

holding the end of an inserted length of yarn, severing that end to a desired length and thence tucking it back into a

woven with one sheet of warp threads over the whole width of the tape. The cover fabric of the pockets is woven from the other sheet of warp threads and the weft threads over



3,563,281

APPARATUS AND METHOD FOR OPERATING A WEAVING MACHINE

Erwin Pfarrwaller, Winterthur, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland

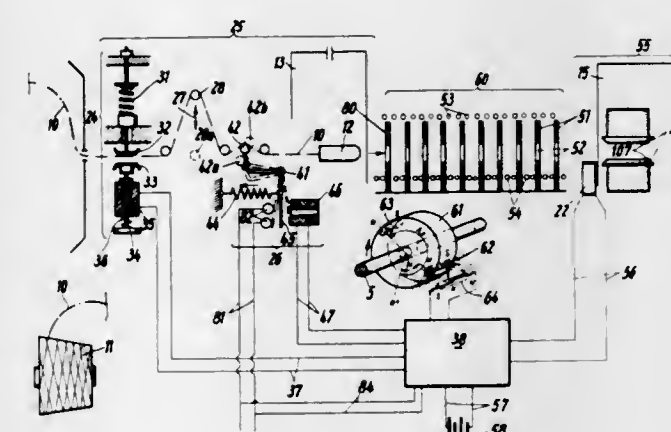
Filed Mar. 6, 1969, Ser. No. 804,813

Claims priority, application Switzerland, Mar. 8, 1968, 3522/68

Int. Cl. D03d 51/18, 51/34

U.S. Cl. 139—336

1 Claim



The actuation of various components such as a weft thread brake or weft thread stop motion are positively controlled in response to the arrival of the weft insertion element at a predetermined point in the catcher. The arrival of the weft insertion element can be determined mechanically, photoelectrically or magnetically and such determination is used to actuate the other machine components in dependence thereon.

3,563,282

METHOD OF WEAVING A POCKETED TAPE

Jean Antonin Philippe Gonon, Saint-Just-Malmont Haute-Loire, France

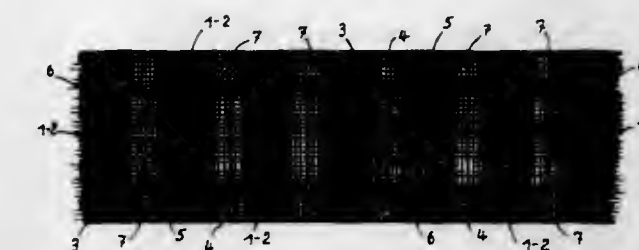
Filed Jan. 13, 1969, Ser. No. 790,675

Int. Cl. D03d 1/04, 23/00

U.S. Cl. 139—390

4 Claims

Woven pocketed curtain tape has spaced pockets which extend across the major part of its width. The base fabric between the pockets is woven from weft threads and two sheets of warp threads. The pockets are defined by ribs formed by a number of weft threads grouped together. The base fabric of the pockets is formed by the weft threads



only a portion of the width of the tape. A number of tapes may be woven contiguously in a single fabric and then separated by cutting.

3,563,283

AUTOMATIC MACHINE FOR MAKING STIRRUPS AND STRUCTURAL REINFORCEMENT

Georgi D. Tufektshiev, Gabrovo, Bulgaria, assignor to Maschinostroitelnen Zavod Mir, Mihailovgrad, Bulgaria

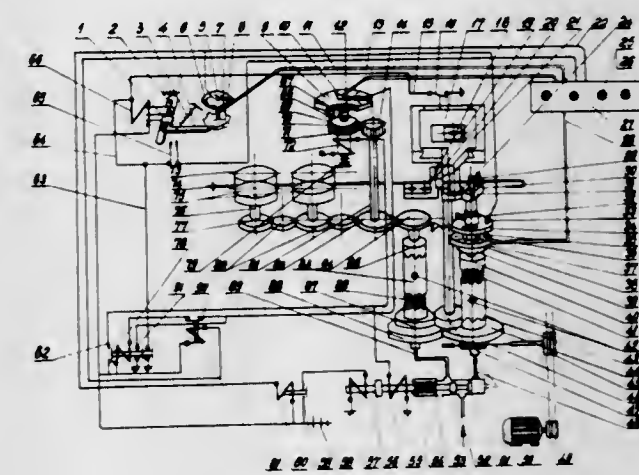
Filed July 5, 1968, Ser. No. 742,715

Claims priority, application Bulgaria, July 7, 1967, 8279

Int. Cl. B21d 7/14

U.S. Cl. 140—71

13 Claims



An electrically programmed automatic apparatus for bending stirrups and reinforcing rod for concrete, wherein pneumatic control is provided for the bending device and a clutch automatically cuts out the feed roller train for the rod and cuts in the bending device in a pneumatically energized state of the clutch system but connects the feed arrangement and disconnects the bender in a pneumatically deenergized state of the latter. Contactor arrangements control the measurement of the rod length and machine settings may be programmed by pushbuttons upon a panel.

3,563,284

SYSTEM FOR FRAMING SCREENS

George F. Gordon, Nashua, N.H., assignor to Industrial Reproductions, Inc., Nashua, N.H.

Filed Aug. 22, 1967, Ser. No. 662,361

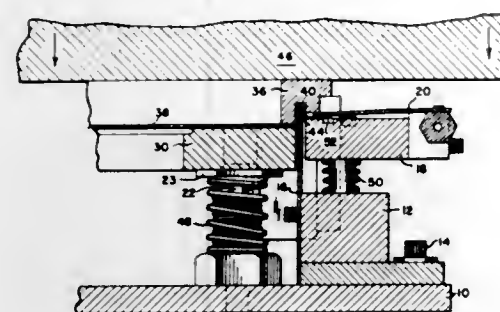
Int. Cl. B21f 33/02

U.S. Cl. 140—109

8 Claims

A system for framing printing screens with uniform tension and deflection includes a fixture for receiving elongated resilient splines in predetermined locations. A screen is placed over the splines so that the splines define the

periphery of a framed screen. A frame, channeled to receive the splines, is then placed over the screen and is compressed



in the fixture to simultaneously jam the splines in the frame channels and thereby lock the screen in the frame.

3,563,285

BAND SAW GUIDE AND APPARATUS

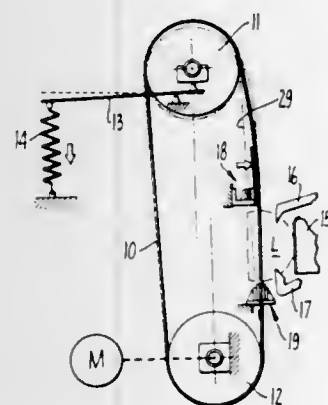
Elbridge W. Thrasher, Ukiah, Calif., assignor to Masonite Corporation

Filed July 10, 1969, Ser. No. 840,613

Int. Cl. B27b 13/08, 13/10

U.S. Cl. 143—27

9 Claims



A band saw of the commercial type employed in lumber mills having a pair of spaced apart first and second wheels and a continuous saw blade or band entrained around said wheels, an improved saw guide and apparatus comprising one or more springs yieldably urging the first wheel in a direction generally away from the second wheel to apply tension to the saw blade; and a rapid response-low inertia saw guide that will eliminate or substantially reduce momentary slack in the saw band while maintaining the cutting edge of the blade in a predetermined cutting plane.

In a band saw of the kind described, the saw guide being more particularly characterized in that it is disposed intermediate the first and second wheels and comprises a contact member positioned to engage the inside surface of the blade as the blade moves from the first wheel toward the second wheel, the contact member having a first contact portion that provides a fixed line of contacts forward of an imaginary line connecting the points of tangency between the wheels and a movable contact portion that contacts the blade in a region intermediate the first contact portion and the first wheel; and a rapid response-low inertia means urging the movable contact portion against the saw blade to maintain tension in that area of the blade between the first wheel and the fixed line of contacts.

3,563,286

SAW

Keene S. Strobel; Washington Everett, and Peter E. Heiser, Issaquah, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash.

Continuation of application Ser. No. 702,858, Feb. 5, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 696,202, Jan. 8, 1969, now abandoned. This application Mar. 18, 1970, Ser. No. 019,531

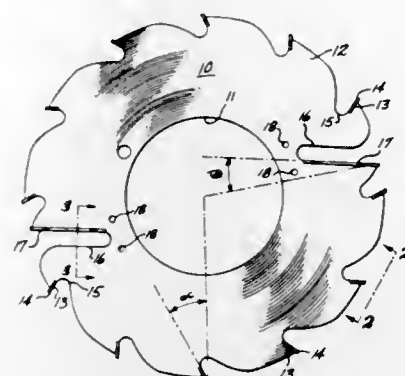
Int. Cl. B27b 33/08

U.S. Cl. 143—140

8 Claims

A saw having a plurality of spaced teeth around the

periphery of a saw disc and a plurality of slots cut inwardly of the periphery of the saw disc, the slots preferably being faced on the cutting side with a facing inlay extending substantially the length thereof, the facing inlay having a width substan-



tially the same, or slightly less than the width of the kerf of the cutting teeth. The cutting edge of the slots is in a negative hook position with respect to saw motion and to a radial line extending from the center of the saw blade to the periphery thereof.

3,563,287

MACHINES FOR FILLING BEER KEGS AND LIKE CONTAINERS

Maurice Ruddick, Strood, Rochester, England, assignor to Burnett & Rolfe Limited, Strood, Kent, England

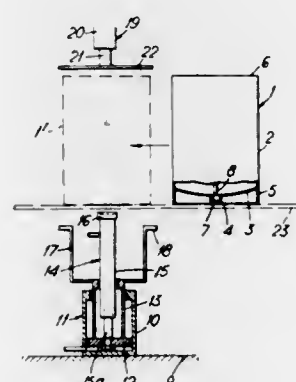
Filed Feb. 3, 1969, Ser. No. 795,988

Claims priority, application Great Britain, Feb. 16, 1968, 7793/68

Int. Cl. B65b 31/06

U.S. Cl. 141—59

5 Claims



A machine for filling from below beer kegs and similar containers having in one end a filling opening provided with a self-closing valve and a spear has a container support which is mounted so that it is movable upwards and downwards by a driving mechanism and has its filling head with the usual duct for the supply of liquid through the filling opening around the spear and a duct for withdrawing gas through the spear arranged so that it is movable with the support to which it is attached by a resilient mounting, which may be for example a pneumatic ram, and has an abutment mounted above the support. The parts of the machine are arranged so that, in order to fill a container after it has been moved into the machine, the support is moved upwards under the container and the container is raised until it is clamped between the support and the abutment and the head is held against the filling opening by the resilient mounting with the force between the filling head and the part of the container surrounding the filling opening dependent entirely upon the resilient mounting.

ERRATA

For Classes 143—27 and 143—140 see: Patent Nos. 3,563,285 and 3,563,286

3,563,288

TREE-HARVESTING AND PROCESSING DEVICES

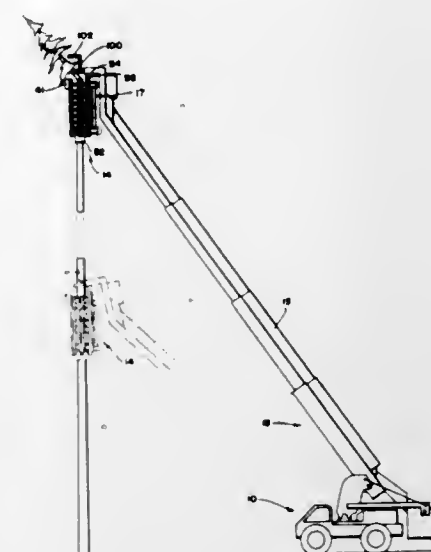
Roy D. Brownell, Aurora, Ill., assignor to Baldwin-Lima-Hamilton Corporation, Chicago, Ill.

Filed Nov. 19, 1968, Ser. No. 784,986

Int. Cl. A01g 23/02

U.S. Cl. 144—309

18 Claims



A tree-harvesting and processing method and device for harvesting standing trees, the device including a severing and crawler unit supported on a vehicle-mounted telescopic boom. The severing and crawler unit is adapted to continuously move the device longitudinally of a standing tree while severing the same into a plurality of sections and includes an endless chain drive having a plurality of fixed cutting and traction elements spaced therealong. Guide means operatively connected to the drive are provided to guide the severing and crawler unit along the longitudinal axis of a standing tree to continuously transversely cut the tree by alternate severing action by each of the cutting elements.

3,563,289

PEPPER CORING APPARATUS

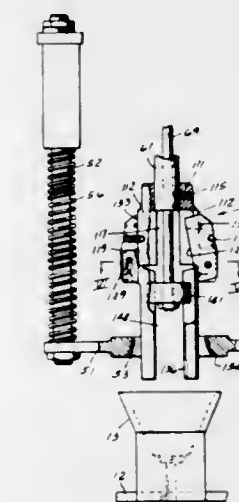
James E. Altman, Box 334, Gray, Ga. 31032

Filed Oct. 24, 1968, Ser. No. 770,147

Int. Cl. A23n 3/12

U.S. Cl. 146—52

20 Claims



An apparatus for coring peppers comprising a frame, an endless conveying means mounted on the frame, a plurality of pepper receiving cups carried by the endless conveying means from a receiving station, through the coring station and then to a discharge station, means mounted on the frame and disposed above the cups for cutting and for removing the cores from the remainder of the pepper, and means for rotating and simultaneously advancing the cutting and removing

means into the peppers. The core cutting and removing means includes a mounting member suspended from the rotating and advancing means, a pair of cutting blades mounted for pivotal movement about a substantially horizontal axis between a cutting position and a core gripping position, each blade being formed with an arcuate configuration in transverse cross section circumscribing an angle substantially less than 180°, and the blades being disposed about a circumference of a common circle to provide a pair of vertically extending openings between adjacent, longitudinal edges of the blades.

3,563,290

POWER UNIT FOR VEGETABLE CUTTER

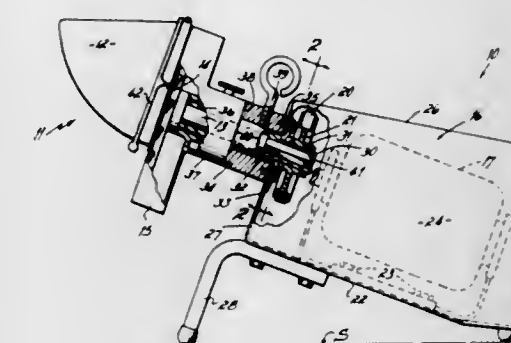
Melvin E. Bricker, 2723 Saddleback Drive, Cincinnati, Ohio

Filed May 20, 1970, Ser. No. 039,002

Int. Cl. B26d 1/28, 4/22

U.S. Cl. 146—115

5 Claims



A unitary power unit for vegetable cutters including a housing, a motor, a speed-reducing drive, and a hub for supporting a vegetable cutter attachment and connecting it to the speed-reducing drive. The hub is mounted on the front wall of the housing. Legs are mounted on the front portion power unit to raise it above its rear portion, thereby tilting it and any implement attached thereto. The legs extend forwardly of the front wall to provide stability during operation.

3,563,291

ROTARY BLADE FOR MEAT GRINDER

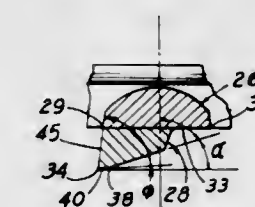
Eugene A. Anderson, Lewis Place, Box 895, Douglasville, Ga. 30134

Filed Oct. 2, 1968, Ser. No. 764,407

Int. Cl. B02c 18/18

U.S. Cl. 146—189

11 Claims



A meat grinder in which a worm conveyor on a horizontal shaft feeds the meat to be ground toward a rotary blade or chopper provided with radially extending blade arms. The blade arms move in a rotary path and cooperate with the surface of the perforated plate for cutting or chopping action. Each blade arm has a wedge-shaped blade block which diverges outwardly. Each blade block, as a leading edge, has a straight cutting edge for riding on the surface of the plate. This cutting edge is disposed forwardly of the radial axis of the blade arm and converges outwardly toward this radial axis. The wedge-shaped blade blocks assure even wearing of the blade blocks against the plate.

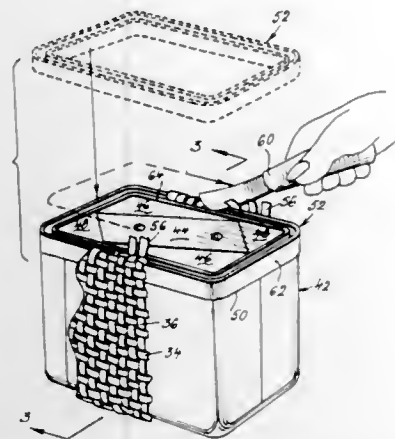
3,563,292

METHOD OF MAKING A BASKET WEAVE HANDBAG
Michael Gordon, and Eric Alba-Teran, 33 East 33rd St., New York, N.Y. 10016

Filed Oct. 30, 1968, Ser. No. 771,901
Int. Cl. B27j 1/02

U.S. Cl. 147-48

9 Claims



A method for the manufacture of an interwoven wicker, plastic strip basket, handbag or luggage which involves interweaving the wicker or plastic strips to form a body and to form a cover for the body of the basket and then anchoring by means of a tool the protruding ends of the strips of the body and of the cover to channel-shaped rails which rest on removable supports in the body, thus forming the frames of the body and cover.

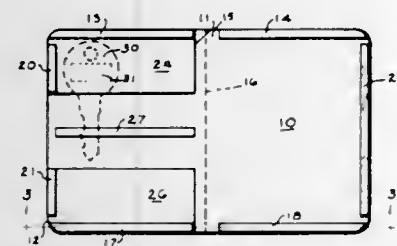
3,563,293
KEY CASE

Robert E. Fisher, 6422 Olde Stage Road, Boulder, Colo.
Filed Apr. 16, 1969, Ser. No. 816,619

Int. Cl. A45c 11/32

U.S. Cl. 150-40

10 Claims



A key case formed of sheet material foldable on itself into a closed container, has strips of magnetized material secured to one-half of the sheet for holding keys that are at least partially paramagnetic or include a magnetic strip thereon, and a plurality of magnetized edge strips are secured to the edges of the sheet for holding the folded material in closed position, and forming when closed a thin key case.

3,563,294

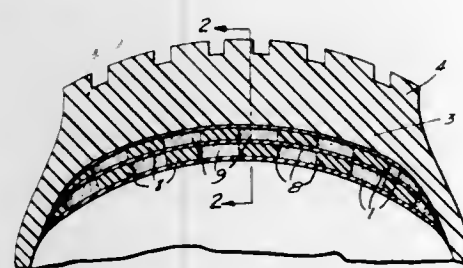
PUNCTURE-SEALING BAND

Alex Chien, 345 W. 3rd St., Long Beach, Calif. 90812

Filed July 2, 1968, Ser. No. 742,041
Int. Cl. B60c 17/00

U.S. Cl. 152-346

4 Claims



This disclosure describes an inner, protective flexible linear or band which is positioned adjacent the inner radial

wall of a pneumatic tire, said linear having a plurality of structural blocks sandwiched therebetween, said plyable sheets along with block structures form fluid retaining pockets whereby a self-sealing fluid composition is encased therein, said fluid being released to fill an aperture formed by a puncture to the pressurized tire.

3,563,295

VEHICLE TIRE CONSTRUCTION AND METHOD OF MAKING SAME

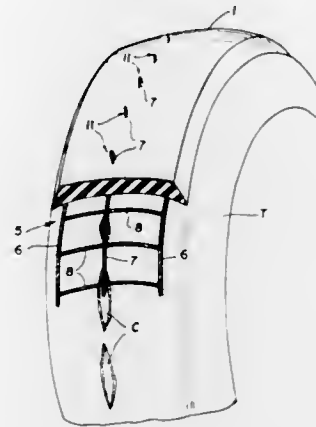
Dean R. Hough, Pittsburgh, Pa., assignor to Washington Rubber Company, Washington, Pa.

Filed May 15, 1968, Ser. No. 729,259

Int. Cl. B60c 9/10

U.S. Cl. 152-361

6 Claims



A method of providing a direct and very short venting path for the cord plies normally built into the carcass of a pneumatic vehicle tire, comprising applying a net of cord onto the inner surface of a camel-back strip while still in hot, plastic condition, projecting circumferentially spaced strands of said net through the thickness of the tread layer, and finally applying the composite tread and net onto the buffed worn surface of the tire in a manner so that certain strands of the net contact the ply layers of cord of the tire carcass.

3,563,296

FOLDED ENDLESS REINFORCEMENT FOR PNEUMATIC TIRES

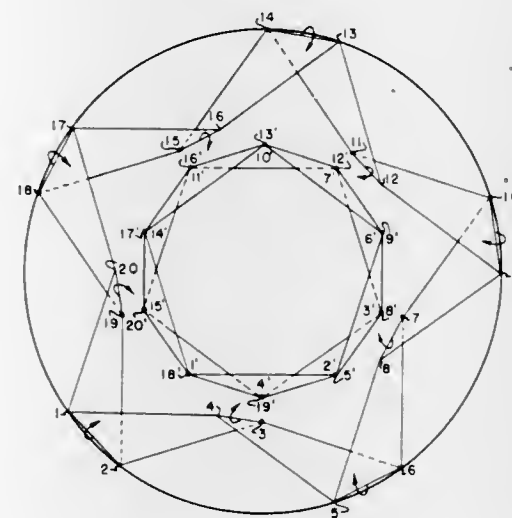
Thomas A. Wells, 504 Glendalyn Ave., Spartanburg, S.C.

Filed Nov. 18, 1968, Ser. No. 776,333

Int. Cl. B60c 9/14

U.S. Cl. 152-361

11 Claims



An endless reinforcement for a pneumatic tire which comprises continuous cord in an endless folded strip, the cord being disposed across the width thereof from one side to the other in a generally zigzag pattern at an angle to the edges with reversals at the edges. Also, the method of producing such a reinforcement.

3,563,297

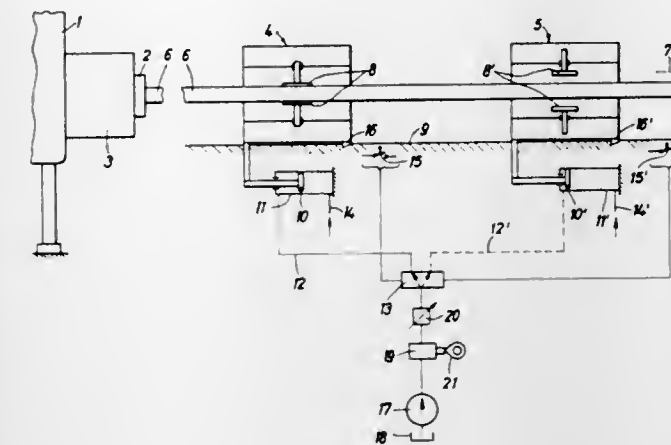
METHOD AND APPARATUS FOR WITHDRAWING CONTINUOUS HORIZONTAL CASTINGS
Alfred J. Werli, Poststr. CH, 8406 Winterthur, Switzerland
Filed Nov. 14, 1966, Ser. No. 593,810

Claims priority, application Switzerland, Nov. 15, 1965, 15689/65

Int. Cl. B22d 11/12

U.S. Cl. 164-82

10 Claims



The continuous casting is pulled from the mold by sequentially engaging the movable withdrawal tables on the casting and pulling the casting with the engaged withdrawal table. The withdrawal tables operate in unison with each other so that as one pulls the casting, the other retreats for a subsequent pull.

3,563,298

METHOD OF CONTINUOUSLY CASTING BARS FOR PREVENTING DISTORTION DURING SOLIDIFICATION OF THE BARS

Werner Stauffer, Emmenbrücke, Armin Thalmann, Uster, and Carl Kueng, Emmenbrücke, Switzerland, assignors to Aktiengesellschaft Der Von Moos, Schen Eisenwerke, Luzern and Concast AG, Zurich, Switzerland

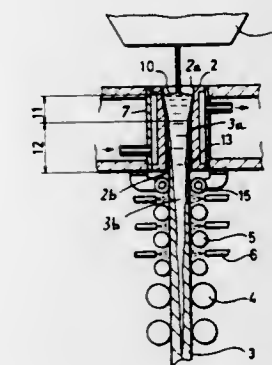
Filed Dec. 27, 1967, Ser. No. 693,884

Claims priority, application Switzerland, Dec. 28, 1966, 18,686/66

Int. Cl. B22d 11/00

U.S. Cl. 164-82

6 Claims



A continuous casting operation for forming bars is comprised of pouring molten steel into the inlet end of a mold chamber in which the bar is formed and from which the bar is withdrawn while it still has a liquid core. Within the mold chamber the molten steel forms a liquid level, and a first section of the chamber having converging walls commencing at the liquid level and extends downwardly for applying a symmetrical cooling effect to the molten steel and, at the same time, constraining the outer surface of the bar as it contracts and develops a solidified outer layer or crust. The constraint afforded by the walls of the first section prevents a distortion in the shape of the bar as it begins to solidify. From the first section of the chamber the bar passes through a second section where the cooling operation is continued but without

any constraint so that a gap develops between the bar and the walls of the chamber. After passage through the second section the bar may be withdrawn from the outlet end of the chamber or, alternatively, it may pass through another section wherein increased cooling is effected and then, if necessary through a further section where the cooling effect is decreased as in the second section. From the outlet the bar is guided to rollers which withdraw it from the mold chamber. Before reaching the rollers, cooling means, such as water sprays, are provided for cooling the casting. The mold chamber is provided with means for circulating a coolant fluid for removing heat from the molten steel within the mold chamber.

3,563,299

PROCESS FOR THE WASHING AND PURIFYING OF MOLTEN METALS

Manfred Schrage, Dudenhofen near Offenbach, Germany, assignor to Messer Griesheim, GmbH, Frankfurt Main, Germany, a corporation of Germany

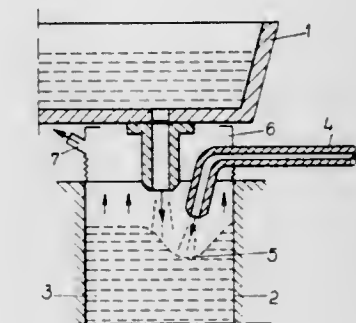
Filed Nov. 1, 1967, Ser. No. 679,684

Claims priority, application Germany, Nov. 12, 1966, M71642

Int. Cl. B22d 11/00

U.S. Cl. 164-82

6 Claims



A process for washing and purifying molten metals in continuous casting operations includes injecting a flash gas on the molten surface of the continuously moving workpiece in such a manner that the drawn off gases prevent the admission of air.

3,563,300

CENTRIFUGAL CASTING OF A COMPOSITE ROLLER
Juntaro Honda, Masahiro Fukuda, Toru Endo, Yoshihiro Nakagawa, and Tamotsu Hashizume, Amagasaki-shi, Japan, assignors to Kubota Iron & Machinery Works, Ltd., Osaka, Japan, a Japanese company

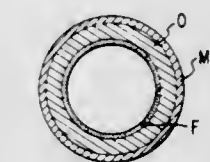
Filed Apr. 22, 1968, Ser. No. 722,913

Claims priority, application Japan, July 1, 1967, 42/42265

Int. Cl. B22d 19/00, 13/02

U.S. Cl. 164-94

4 Claims



A highly viscous flux at high temperature added to a mass of outer layer-forming metal during centrifugal casting to produce and maintain a flux coat of the outer layer subsequent to its solidification and prior to adding the molten mass of inner layer-forming metal with the mold at rest.

3,563,301

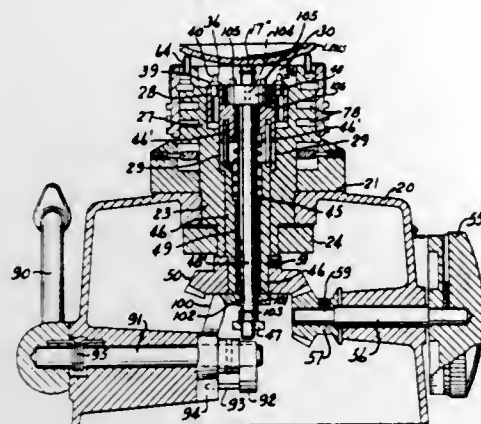
APPARATUS FOR GENERATING A LENS

Richard J. McCall, Summer Hill, and Robert C. Irwin, Stony Creek Township, Pa., assignors to Shuron Continental Division of Textron, Inc., Rochester, N.Y., a corporation of Rhode Island, by mesne assignment.

Original application May 1, 1967, Ser. No. 635,232. Divided and this application Mar. 21, 1969, Ser. No. 834,185

Int. Cl. B22d 17/24

U.S. Cl. 164—332



The apparatus includes a mold having a cavity open at its upper end, and containing two sets of spaced projections defining two reference lines extending diametrically of the cavity. One set comprises a pair of pins mounted on opposite sides of an angularly adjustable ring, which surrounds a piston that is axially reciprocable in the bottom of the mold for ejecting molded blocks therefrom. The second set comprises either two wedge-shaped formations on opposite sides of the cavity wall, or two pins projecting from the face of the piston. The blank, that is to be blocked, is placed sealingly over the upper end of the mold with a layout line thereon registering with the second set of projections. The ring is then adjusted until the line defined by said pins corresponds to the desired cylindrical axis for the blank; and molten blocking material is then fed to the cavity to mold to the blank a block which will contain recesses corresponding to said sets of projections.

3,563,302

AUTOMATIC CASTING HAVING SPRUE-REMOVING MEANS

Marcel Thevenin, Rue de l'Avenir, Champagnole Juea, France

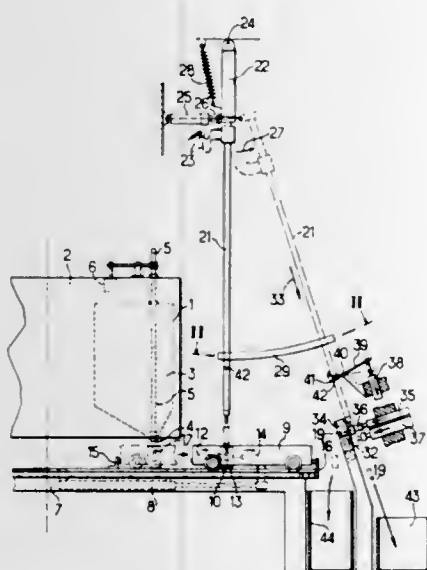
Filed Jan. 22, 1969, Ser. No. 792,986

Claims priority, application France, Jan. 25, 1968, 137,449

Int. Cl. B22d 29/00

U.S. Cl. 164—404

4 Claims



An automatic casting machine is equipped with a transfer rod having a tip adapted to be inserted in the sprue of a cast-

ing while the sprue is still molten. The mold is then opened, the casting lifted out of the mold by the transfer rod, the tip of which is now fast to the sprue, and transferred to a work table at which the transfer rod, sprue and casting separated from each other.

3,563,303

METHOD AND APPARATUS FOR INCREASING UNIFORMITY OF HEAT TRANSFER

Paul Viktor Gilli, Vienna, Kurt Fritz, Klosterneuburg, and Walter Roznovsky, Vienna, Austria, assignors to Waagner-Biro Aktiengesellschaft, Vienna, Austria

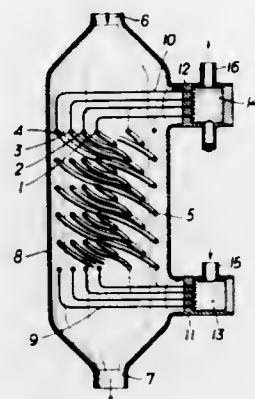
Filed Dec. 20, 1968, Ser. No. 785,491

Claims priority, application Austria, Jan. 15, 1968, A380/68

Int. Cl. F28f 27/02

U.S. Cl. 165—1

13 Claims



A method and apparatus for increasing the uniformity of heat transfer in a heat exchanger. The flow of the medium which is to be heated is regulated in such a way as to provide a uniform outlet temperature of this medium at the outlet ends of the tubes. This is achieved by throttling the flow of the medium into the inlet ends of the tube. After measuring the temperature of the medium at the outlet ends of the tubes, a throttling at the inlet ends is provided to achieve uniform temperatures at the outlet ends, respectively.

3,563,304

REVERSE CYCLE REFRIGERATION SYSTEM UTILIZING LATENT HEAT STORAGE

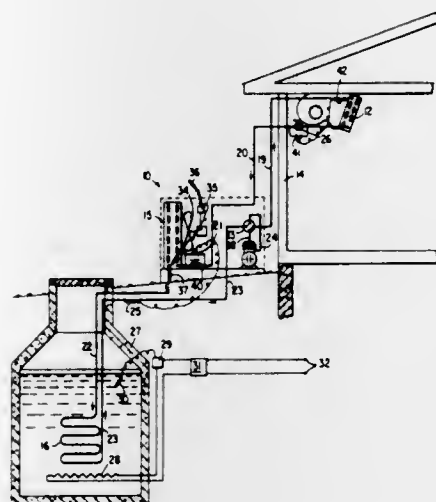
William L. McGrath, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware

Filed Jan. 28, 1969, Ser. No. 794,634

Int. Cl. F25b 29/00

U.S. Cl. 165—2

5 Claims



A reverse cycle refrigeration system having an indoor heat exchanger, an outdoor heat exchanger, a refrigerant compressor, and reversing valve means for selectively operating the system to provide heating or cooling from the indoor heat exchanger. The outdoor heat exchanger includes a portion disposed in heat exchange relation with a pool of water and another portion disposed in heat exchange relation with am-

bient air during heating mode operation. The latent heat of fusion of the water is extracted to provide indoor heating while freezing the water in the system. An electrical resistance heater is provided so that the ice formed in the water may be melted during periods of time when electric rates are low.

3,563,305

PROCESS AND APPARATUS FOR MODULATING TEMPERATURES WITHIN ENCLOSURES

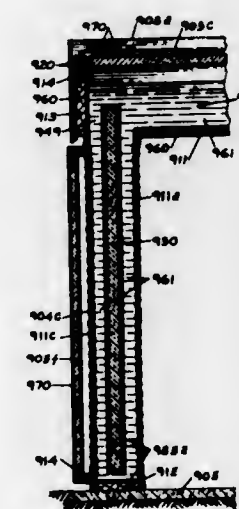
Harold R. Hay, 795 Roble, Menlo Park, Calif. 94025

Continuation-in-part of application Ser. No. 668,202, June 26, 1957, now abandoned, which is a continuation-in-part of application Ser. No. 163,381, Dec. 19, 1961, now abandoned, and a continuation-in-part of 610,597, Jan. 20, 1967, now Patent No. 3,450,192. This application Apr. 14, 1969, Ser. No. 815,785

Int. Cl. F24j 3/02; F28d 21/00

U.S. Cl. 165—2

6 Claims



Enclosure temperatures are modulated by water heated by solar energy and cooled to ambient air. Control means include moving exterior insulation, enclosing or exposing the water, using forced air, and providing special means for heat storage and transfer. Water ponds horizontally disposed atop the enclosure, or in floor plenums and frequently in direct thermal exchange with underlying space, or water circulating in walls by thermosiphon action may be used separately or in combinations with the control means.

3,563,306

APPARATUS FOR AIR-CONDITIONING SYSTEMS

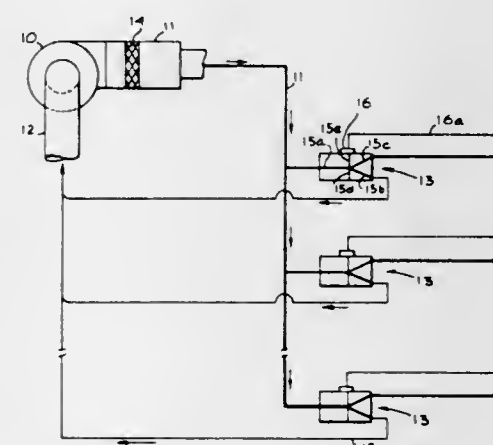
Gene W. Osheroff, 2813 Cameo Circle, Las Vegas, Nev. 89107

Continuation-in-part of application Ser. No. 801,930, Feb. 20, 1969, now abandoned. This application Sept. 15, 1969, Ser. No. 864,931

Int. Cl. F24f 3/00

U.S. Cl. 165—22

12 Claims



The present invention concerns the application of fluidic devices to air-conditioning systems. More specifically, the

3,563,307

RADIATOR DEPLOYMENT ACTUATOR

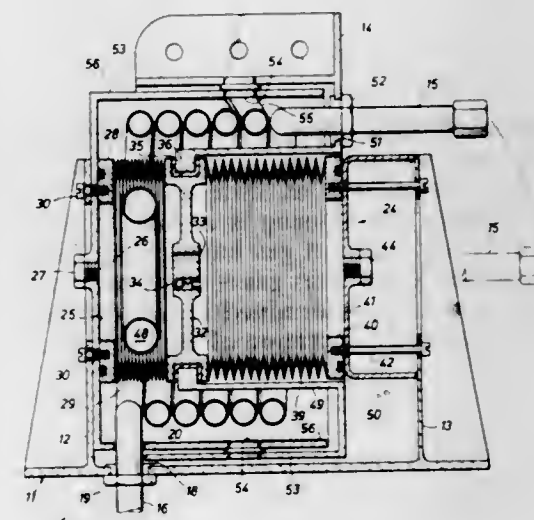
Thomas O. Palne, Administrator of the National Aeronautics and Space Administration in respect to an invention of; Hans M. Kolstee, Glen Cove, and William E. Simpson, Rego Park, N.Y.

Filed Feb. 2, 1970, Ser. No. 007,668

Int. Cl. F28d 11/00

U.S. Cl. 165—86

6 Claims



An apparatus for mounting a radiator or other fluid-communicated vessel for hinged movement which includes a fluid line formed of spring material which is coiled within a housing and which tends to uncoil for deployment of the radiator, the rate of deployment being controlled by a damping means within the housing.

3,563,308

SUBMERGED CORE HEAT EXCHANGER

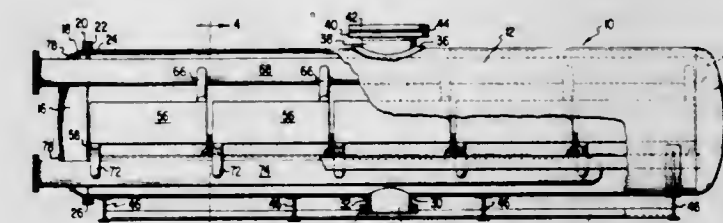
Joseph P. Rutledge, Brussels, Belgium, assignor to Stewart-Warner Corporation, Chicago, Ill.

Filed Apr. 21, 1969, Ser. No. 817,685

Int. Cl. F28d 1/00

U.S. Cl. 165—74

2 Claims



A heat exchanger having all of the separate cores thereof mounted together to form a single core assembly which is removably mounted within a cylindrical pressure vessel. The vessel is supplied with a refrigerant of sufficient depth to either partially or entirely cover the assembly. The separate cores have their respective inputs and outputs manifolded to separate pipes which pass through the walls of the vessel and permit circulation of the fluid to be cooled through the cores.

3,563,309

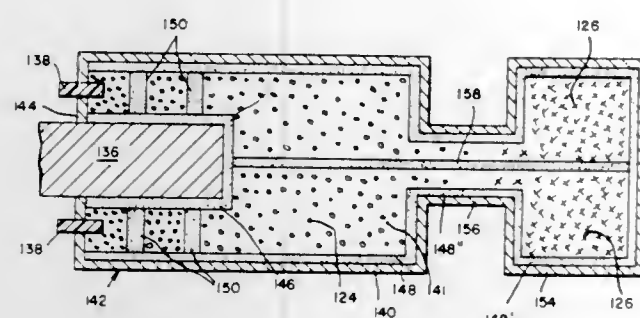
HEAT PIPE HAVING IMPROVED DIELECTRIC STRENGTH

Algerd Basiulis, Redondo Beach, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Sept. 16, 1968, Ser. No. 759,854
Int. Cl. F28d 15/00; H01j 7/24

U.S. Cl. 165-105

8 Claims



The disclosed heat pipe includes a hermetically sealed housing having two portions electrically insulated from one another and maintained at differing electrical potentials. Contained within the housing is a volatile working fluid, a capillary wick and an inert gas having relatively high dielectric strength. Sufficient inert gas is contained within the housing to maintain a predetermined breakdown voltage at the lowest temperature of operation of the heat pipe.

3,563,310

PIPE CASING SIDE CONNECTOR

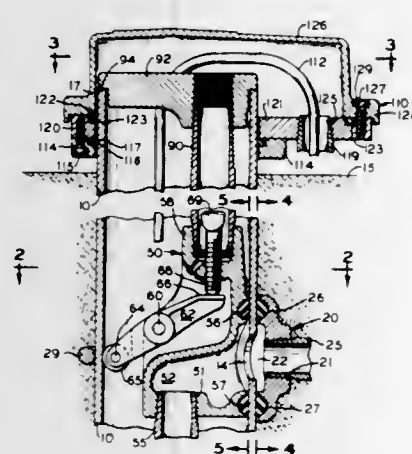
William Wellstein, P.O. Box 430, Fostoria, Ohio 44830

Filed Oct. 31, 1969, Ser. No. 872,900

Int. Cl. E21b 23/00, 33/03

U.S. Cl. 166-85

17 Claims



A pipe casing side connector for use in a well system having a casing with one or two holes therein for connecting a corresponding number of ducts therethrough, which connector comprises an outer member that clamps around the casing over the holes and an inner member which clamps inside the casing over the holes. Each member has a resilient gasket which seals it around the outside of each one of the holes, except when there are two holes, the outside member then has one gasket surrounding the other gasket. The inner member is supported from a freely swinging bridge which extends diametrically across the top of the pipe casing and has a depending rod or pipe preadjusted in length to support the inner member at the same distance from the top of the casing as are the holes in the side of the casing. The clamping means on the inner member comprises a lever which is operated by a screw mounted on the inner member and controlled by a tool which may extend through or along the depending supporting pipe for the inner member.

The top of the casing is provided with a cap independent of the inner member supporting means, which in the case of

a well having a submersible electric pump also may be provided with a side duct for an electrical connection. Thus the inner member, the duct supported thereby and/or pump may easily be removed from the casing and replaced in the exact location by the inner member suspension means without touching or disconnecting the outer member of the connector.

3,563,311

INVESTIGATING A WELL TO DETERMINE SAND ENTRY

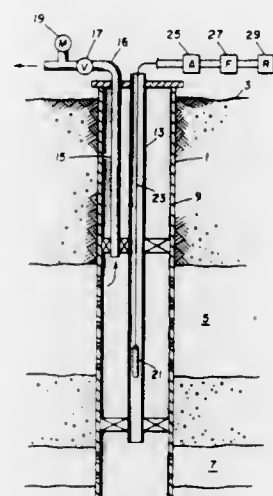
Nathan Stein, Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York

Filed Sept. 2, 1969, Ser. No. 854,395

Int. Cl. E21b 47/10

U.S. Cl. 166-250

7 Claims



This specification discloses a method of investigating a well penetrating a fluid-bearing formation with a sound detector. The well is produced at a plurality of flow rates under conditions such that fluid flowing from the formation impinges against an interface within the well. The sound produced by the impingement of this fluid is monitored by the sound detector at each flow rate. From the information thus obtained, the flow rate and location at which sand is produced from the formation may be determined.

3,563,312

METHOD OF RECOVERING HYDROCARBONS FROM AN UNDERGROUND HYDROCARBON CONTAINING FORMATION

Robert W. Zwicky, Alberta, Canada, assignor to Shell Oil Company, New York, N.Y.

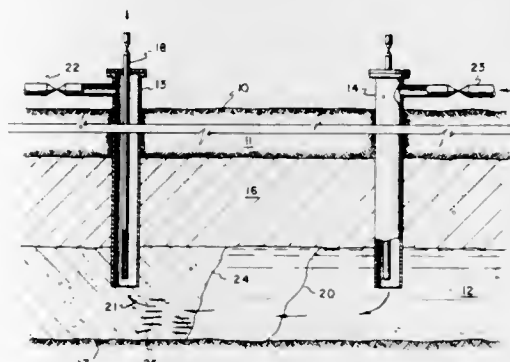
Filed Mar. 14, 1969, Ser. No. 807,196

Claims priority, application Canada, Feb. 21, 1969, 43,671

Int. Cl. E21b 43/24

U.S. Cl. 166-261

2 Claims



An improved method for oil recovery from a formation using a combination of steam and in situ combustion drives comprising injecting steam via an injection well, followed by injecting a combustible gas via a production well and thereafter recovering oil via the injection well.

3,563,313

WELL CEMENTING METHOD USING QUICK GELLING CEMENT

Lloyd B. Spangle, Tulsa, Okla., assignor to The Dow Chemical Company, Midland, Mich.

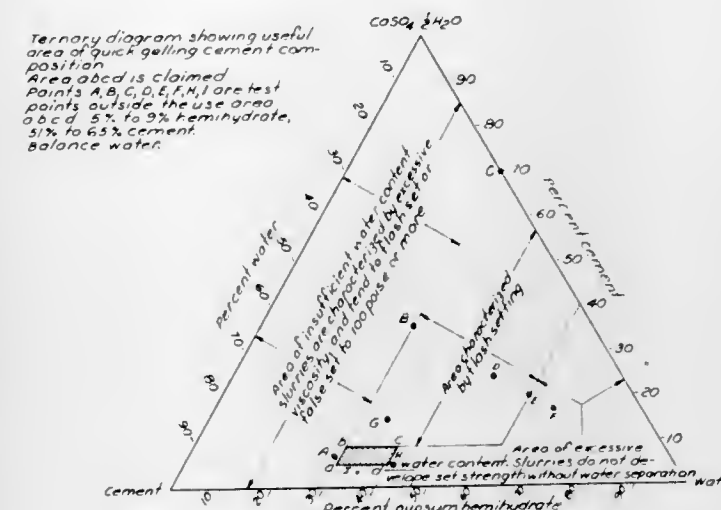
Continuation-in-part of application Ser. No. 749,683, Aug. 2, 1968, now abandoned, which is a continuation-in-part of Ser. No. 701,994, Jan. 31, 1968, now abandoned. This application July 25, 1969, Ser. No. 859,223

No. 859,223

Int. Cl. E21b 33/138

U.S. Cl. 166-292

3 Claims



accurately locating the upper edge of the sleeve of the tool. The assembly of shank and backstop and leaf spring is detachably held together by a bolt passing through them.

3,563,319

PIN-DRIVING AND PULLING MACHINE

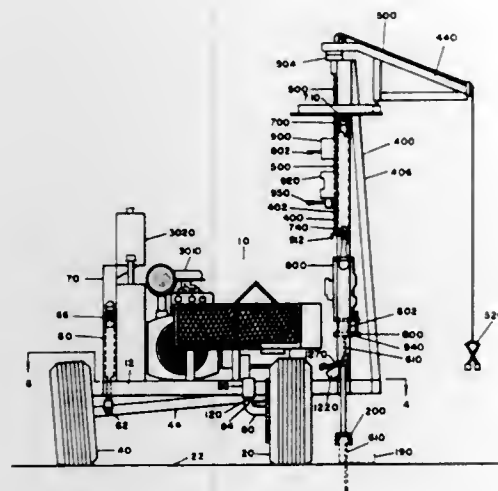
John F. Nixon, Omaha, Nebr., assignor to Form Master Corporation, Omaha, Nebr.

Filed Oct. 25, 1968, Ser. No. 770,730

Int. Cl. B25c 15/00

U.S. Cl. 173-22

4 Claims



A pin-pushing machine for pushing a pin or stake into the ground comprising a frame with supporting wheels, a stake-engaging member, means for vertically pushing the stake-engaging member downwardly for pushing a stake into the ground.

3,563,320

MOBILE EARTH BORING MACHINE

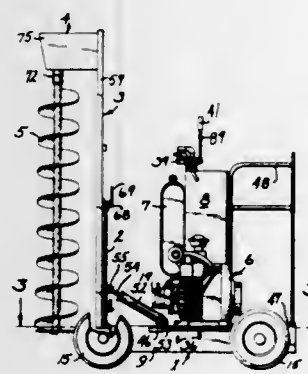
Raymond E. von Ruden, Owatonna, Minn., assignor to General Equipment Co., Owatonna, Minn., a corporation of Minnesota

Filed Jan. 24, 1969, Ser. No. 793,852

Int. Cl. E21c 11/02

U.S. Cl. 173-27

2 Claims



An earth boring machine having a power head including an auger drive shaft movable toward and away from the ground and having means for tilting the auger shaft for boring holes at various angles relative to the vertical. A single prime mover on the machine operates to impart movement thereto over the ground, tilt, raise, and lower the power head, and rotate the drive shaft, selectively, by means of transmission and control mechanisms.

3,563,321

DRILL BOOM STRUCTURE

Pieter Barendsen, Knivsta, Carl Olov Lindgren, Nacka; Erich Voldemar Kimber, and Karl Erik Qvarnstrom, Vendelso, Sweden, assignors to Atlas Copco Aktiebolag, Nacka, Sweden

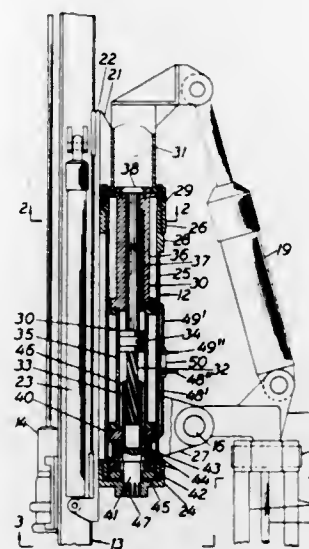
Filed Mar. 10, 1969, Ser. No. 805,638

Claims priority, application Sweden, Mar. 12, 1968, 3236/68

Int. Cl. E21c 11/02

U.S. Cl. 173-43

7 Claims



A feed bar for guiding a rock drill is swingably carried at the end of a swingably mounted boom. Besides being laterally and vertically swingable on the boom, the feed bar is swingable about an axis parallel with its longitudinal axis.

3,563,322

EARTH BORING MACHINE POSITIONING SYSTEM

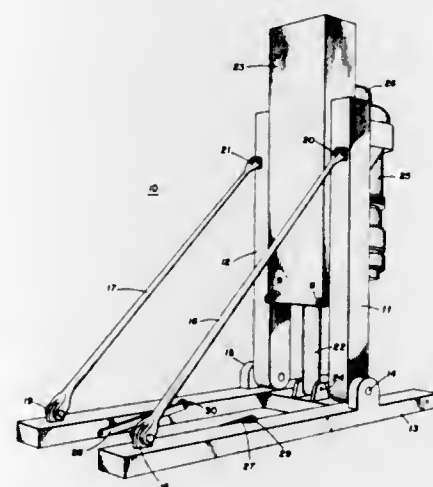
James W. Young, Irving, Tex., and Ernest O. Kunkel, Nevada, Mo., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Sept. 30, 1969, Ser. No. 862,216

Int. Cl. E21c 9/00, 11/00; E21b 7/02

U.S. Cl. 175-57

8 Claims



A system for erecting and changing the position of the drill column of an earth boring machine. The drill assembly is held in place by supports pivotally mounted upon a base. Brace means are attached to the supports which hold the drill assembly in position. Linkages may be attached to drill assembly and the brace means removed. Movement of the main thrust cylinder in the drill assembly causes the support means and consequently the drill column to change position. Support members may again be put in place to hold the drill column in position.

3,563,323

APPARATUS FOR BOREHOLE DRILLING

Howard Trethewen Edgecombe, Filton, England, assignor to Rolls-Royce Limited, Derby, England, a British Company

Filed Jan. 17, 1969, Ser. No. 791,913

Claims priority, application Great Britain, Jan. 19, 1968, 2915/68

Int. Cl. E21b 7/06

U.S. Cl. 175-76

4 Claims



In deviation borehole drilling with a down-hole motor a plurality of flexible collars is disposed in the drill string between the main stand of weight collars and the deviation assembly. In this way the bending moments of the main stand of weight collars are not transmitted to the down-hole motor and better control of deviation is achieved.

3,563,324

MACHINE FOR CUTTING ROCK

Ernst Lauber, Thun, Switzerland, assignor to Atlas Copco MCT AB, Stockholm, Sweden

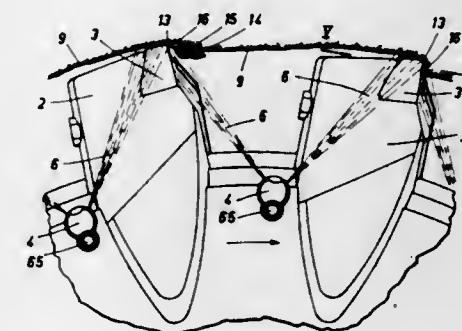
Filed July 9, 1969, Ser. No. 840,312

Claims priority, application Austria, July 16, 1968, A6836/68

Int. Cl. E21c 7/06, 7/08

U.S. Cl. 175-393

12 Claims



In a machine for cutting rock, a rotary cutter for cutting rock comprises a rotary cutter body having a forward end face and a plurality of cutting teeth mounted on said cutter body and spaced around the periphery thereof. Each of said cutting teeth has a cutting edge which is disposed radially beyond the periphery of said cutter body and axially beyond said forward end face. Each of said teeth also has a back surface adapted to define before said forward end face a clearance space with rock being cut by said cutting edge. A plurality of atomizing nozzles are mounted on said cutter body and have outlet ducts directed to said clearance spaces defined by said teeth when cutting in rock.

3,563,325

PERCUSSION BIT

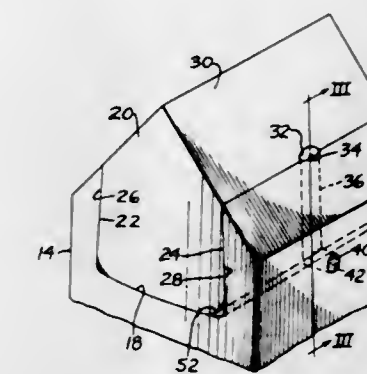
Jack Miller, Bedford, Pa., assignor to Kennametal Inc., Latrobe, Pa.

Filed Sept. 16, 1968, Ser. No. 762,236

Int. Cl. E21c 13/01

U.S. Cl. 175-410

7 Claims



The invention concerns a bit of the percussion type having a bit body with slots for receiving hard blocks, such as cemented tungsten carbide blocks. The slots taper outwardly toward the bottom and the blocks also taper outwardly toward the bottom and are introduced endwise into the slots, preferably with an interference fit. Keys are provided for locking the blocks in the slot.

3,563,326

VEHICLE LOAD INDICATOR SYSTEMS

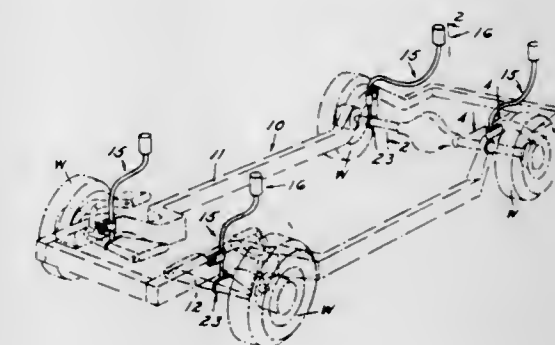
Frank S. Guerriero, 11 Eastman St., East Concord, N.H., and John Quinn, Jr., 25459 Elon Drive, Dearborn Heights, Mich.

Filed Dec. 12, 1968, Ser. No. 783,179

Int. Cl. G01g 19/08

U.S. Cl. 177-138

20 Claims



A vehicle load indicating system comprising a gauge body which is supported within the vehicle. A tubular member extends from the gauge body and has its lower end fixed adjacent a sprung mass of the vehicle. A rod member is slidably mounted within the tubular member and has its upper end in the gauge body and its lower end fixed to the unsprung mass.

3,563,327

ELECTRONIC CONTROL AND GUIDANCE SYSTEM FOR VEHICLES

David Mier, 447 Norway Ave., Trenton, N.J. 08629

Filed Nov. 20, 1968, Ser. No. 777,243

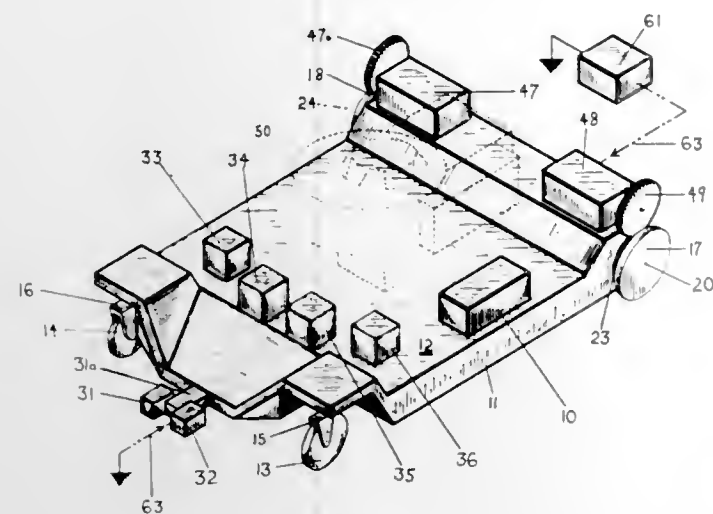
Int. Cl. B62d 11/04

U.S. Cl. 180-65

4 Claims

A vehicle control and guidance system for steering a vehicle along a predetermined path in response to signals picked up from a path defining conductor. The vehicle is driven by two independent electric motor driven wheels located on opposite sides of the vehicle. Each motor is controlled from a signal sensor on the opposite side of the vehicle from the motor being controlled so that a relatively strong signal from

one sensor will increase the speed of the motor on the opposite side of the vehicle. The control link between a sensor



and its corresponding motor is provided by a triac fired by a signal controlled variable time constant circuit.

3,563,328

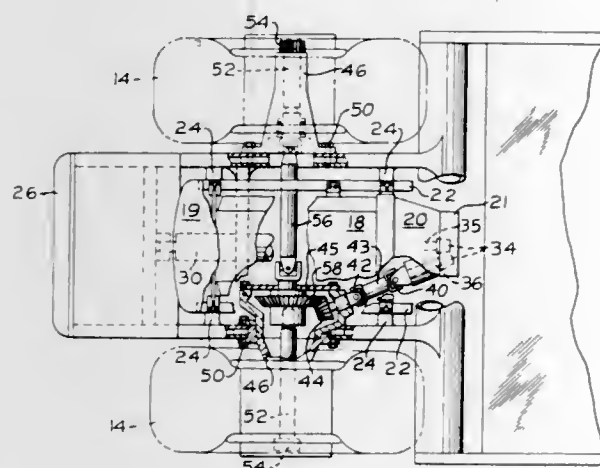
POWER PLANT FOR THE REAR WHEELS OF AN EARTHMOVING SCRAPER

Jacob W. Ahola, John J. Campbell, Vergil P. Hendrickson, and Alfred W. Sieving, Decatur, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Sept. 3, 1968, Ser. No. 757,019

Int. Cl. B60k 17/22

U.S. Cl. 180-56

3 Claims



An arrangement of engine, transmission and drive coupling for the rear wheels of an earthmoving scraper which is of relatively light weight and is readily adaptable to scrapers of conventional design and readily removable and replaceable to facilitate replacement and repair of scraper parts disposed rearwardly of the scraper bowl.

3,563,329

VEHICLE TRACTOR UNIT

Vincent Licari, Saint Joseph, Mich., assignor to Clark Equipment Company

Filed Mar. 22, 1968, Ser. No. 715,335

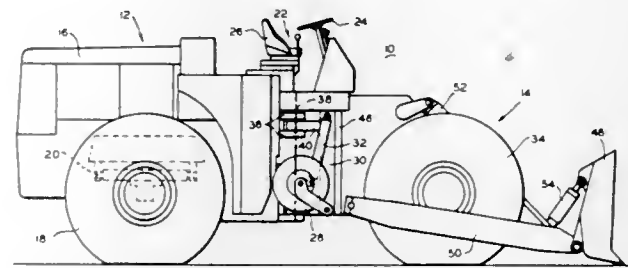
Int. Cl. B06d 7/00; B62d 49/06, 53/04

U.S. Cl. 180-12

4 Claims

A tractor unit for connection to an implement unit to form a complete vehicle, the tractor unit having a body portion, a pair of drive wheels, a connection portion pivotally con-

nected to the body portion, and a pair of retractable auxiliary wheels mounted on the connection portion for use in maneu-



vering the tractor unit into position for coupling it to an implement unit.

3,563,330

HYDRAULIC CIRCUIT FOR MOTOR VEHICLES

Gunter Strauff, Kaarst, Germany, assignor to Langen & Co., Dusseldorf, Germany

Filed May 2, 1969, Ser. No. 821,268

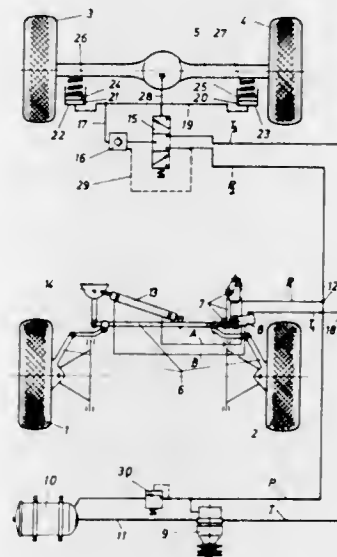
Claims priority, application Germany, May 3, 1968,

P 17 55 390.1

Int. Cl. B62d 5/06

U.S. Cl. 180-79.2

3 Claims



A hydraulic circuit for motor vehicles in which a single pumping means is used for supplying a servo-steering system including an open center valve as well as a level-regulating device.

3,563,331

APPARATUS FOR AUTOMATICALLY RUNNING AUTOMOTIVE VEHICLES AT A SET SPEED

Takaaki Kato, Toyohashi-shi, and Kenji Takeshita, Kariya-shi, Japan, assignors to Nippon Denso Company Limited, Kariya-shi, Japan, a corporation of Japan

Filed Sept. 19, 1968, Ser. No. 760,947

Claims priority, application Japan, Dec. 27, 1967, 42/83,648

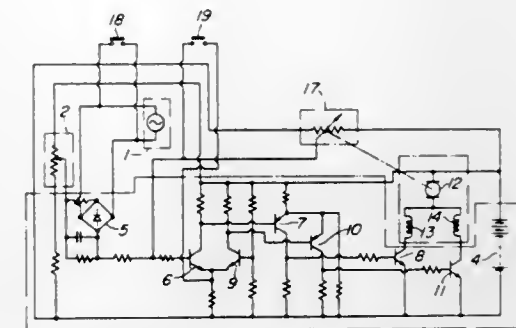
Int. Cl. B60k 31/00

U.S. Cl. 180-105

3 Claims

An apparatus for automatically running an automotive vehicle at a set speed, which is so designed that the speed of the vehicle running at a set speed can be accelerated or decelerated temporarily optionally without releasing the speed control system, said apparatus including two self-restoring switches located in the driver's cabin, one of said switches being inserted in an electric control circuit in such a manner that in a closed position of the switch a signal is given to the speed control system, which always causes the speed of the vehicle to be apparently lower than the set speed independently of the actual speed of the vehicle and the set speed, and another one of said switches being inserted in the electric control circuit in such a manner that in a

closed position of the switch a signal is given to the speed control system, which always causes the speed of the vehicle



to be apparently higher than the set speed independently of the actual speed of the vehicle and the set speed.

3,563,332

UPPER SPEED LIMITING DEVICE

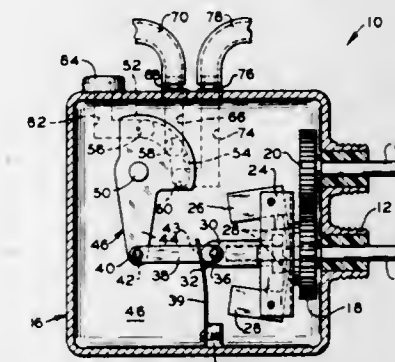
Harry D. Sturdy, Hagerstown, Ind., assignor to Dana Corporation, Toledo, Ohio

Filed Feb. 11, 1969, Ser. No. 798,285

Int. Cl. B60k 31/00

U.S. Cl. 180-108

12 Claims



An upper speed control unit is provided which utilizes a modulated pressure to obtain throttle control. The speed sensing portion of the upper speed limiting unit is directly connected to the valving arrangement providing modulating pressure to a throttle actuating bellows. A spring means calibrated for the specific maximum speed acts against the speed sensing means to insure that the modulated pressure provided for the bellows activates the throttle to a closed position only upon the vehicle's reaching the maximum set speed.

3,563,333

AIR CUSHION VEHICLES

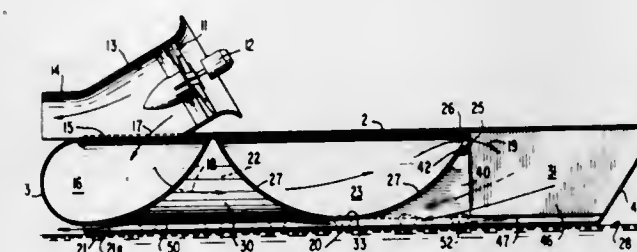
Melville W. Beardsley, 40 Windward Drive, Severna Park, Md.

Continuation-in-part of application Ser. No. 524,764, Feb. 3, 1966, now Patent No. 3,429,395. This application Nov. 27, 1968, Ser. No. 779,576

Int. Cl. B60v 1/04, 1/16

U.S. Cl. 180-118

22 Claims



An air cushion vehicle having a deck and a plurality of flexible inflatable skirts depending downwardly from the

deck and then inwardly and upwardly under the deck to enclose air conduit spaces supplied with air from a blower at the rear of the deck. Narrow elongated bottom skirts extend forwardly under the opposite sides of the vehicle where they are respectively secured to the lowermost portions of the inflatable skirts and held in proper vertical disposition by stiffener members secured to the inflatable skirts. The space under the vehicle deck below the reentrant portions of the inflatable skirts forms a rear lifting plenum, while a front lifting plenum is formed below the front of the deck by means including a transverse flexible partition extending under the deck and being partly connected to reentrant portions of the inflatable skirts. The upper edge of the partition terminates just below the deck to define an inlet port through which air passes into the front plenum from air conduits. The lower portion of the partition is slightly spaced above the lower side edges of the vehicle and defines a discharge port through which air exits from the front plenum rearwardly into the rear plenum.

3,563,334

SEISMIC SOURCE FOR USE WHILE SUBMERGED IN A LIQUID MEDIUM

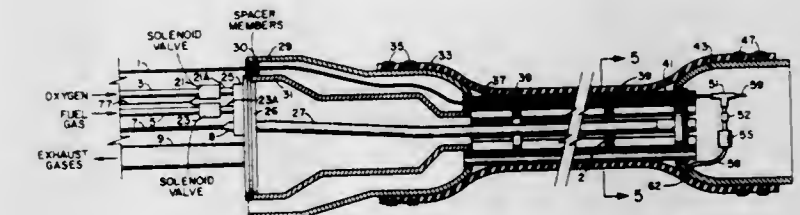
Ed R. McCarter, Houston, Tex., assignor to Esso Production Research Company, a corporation of Delaware

Filed July 3, 1968, Ser. No. 742,387

Int. Cl. G01v 1/04

U.S. Cl. 181-0.5

9 Claims



Seismic source for use in an aqueous medium utilizes an elastomer member supported by and disposed on at least a portion of a supporting structure. The supporting structure preferably includes a number of tubular members connected at the trailing end to a bell-shaped member and at a towing end to a pair of bell-shaped members positioned to discharge liquid from the medium into the tubular members. An explosively combustible fluid is introduced into the chamber formed by the elastomer member and the support structure through a mixing chamber and an elongated pipe that extends into the chamber. The explosive fluid is ignited in the mixing chamber. Pump means is provided for removing liquid from the interior of the chamber.

3,563,335

TUNED MECHANICAL STABILIZER

John F. Holmes, Andover, Mass., and Lawrence C. Frederick, Nashua, N.H., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed Mar. 17, 1969, Ser. No. 807,821

Int. Cl. B63b 45/08

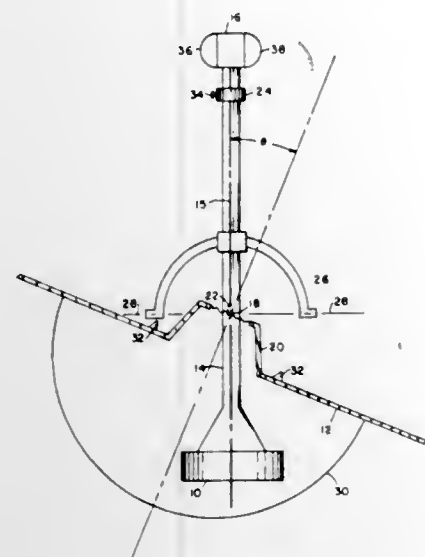
U.S. Cl. 181-0.5

10 Claims

There is herein disclosed a tuned mechanical stabilizer for suspension of transducers from ships. The transducer is affixed to one end of a shaft, the other end of which is provided with a fixed counterweight and an adjustable tuning

weight whereby the natural period of the transducer-stabilizer assembly may be tuned such as to substantially exceed

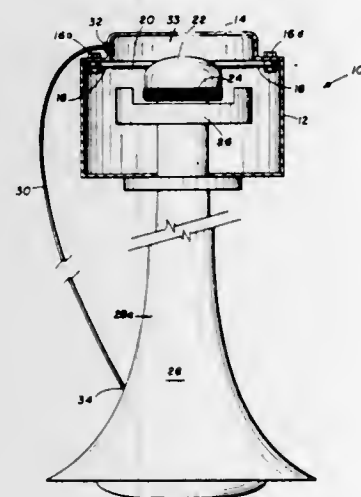
succession of pleats disposed along the circumferential direction of the diaphragm and a multiplicity of pleats running in the radial direction of the diaphragm. The pleats



the roll-pitch period of the vessel and thereby isolate the transducer from vessel pitch and roll.

3,563,336 HORN SPEAKER

Francis A. Miller, Lawton, Okla., assignor to Ben O. Key, Lawton, Okla., a part interest
Filed May 23, 1969, Ser. No. 827,322
Int. Cl. G10k 13/00; H04r 1/28
U.S. Cl. 181-31

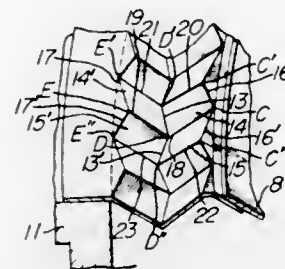


A horn speaker includes a speaker housing with a diaphragm suspended therein to form an air chamber in the rear of the housing. Conventional magnetic voice coil structure is responsive to input electrical signals for vibrating the diaphragm to generate acoustic energy. A speaker horn is connected to the speaker housing for transmitting the acoustic energy generated by the diaphragm. A tube communicates at one end with the air chamber and at the other end with the front portion of the speaker horn in order to equalize the pressure on opposite sides of the diaphragm. A rubber film is applied to the diaphragm suspension to increase the structural strength thereof.

3,563,337 ELECTROACOUSTIC TRANSDUCER

Sinichiro Kawamura, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 3, 1969, Ser. No. 803,890
Claims priority, application Japan, Mar. 6, 1968, 43/16940
Int. Cl. G10k 13/00; H04r 7/00
U.S. Cl. 181-32

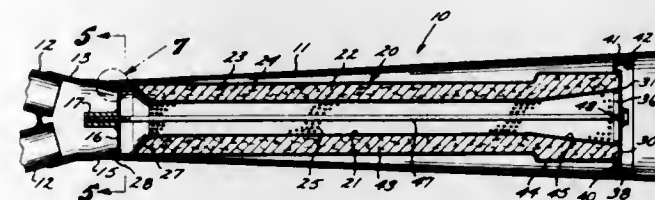
An electroacoustic transducer having an edge of special shape supporting a diaphragm, which edge is provided with a



of the edge make a folding movement in response to movement of the diaphragm so that the edge expands and contracts in its circumferential direction thereby to follow the movement of the diaphragm.

3,563,338 REMOVABLE MUFFLER CARTRIDGE PARTICULARLY ADAPTED FOR A FORWARDLY TAPERING EXHAUST PIPE TIP

Richard L. Rader, 15321 Cascade Lane, Huntington Beach, Calif. 92646
Filed Mar. 4, 1970, Ser. No. 16,394
Int. Cl. F01n 1/10, 7/18
U.S. Cl. 181-61



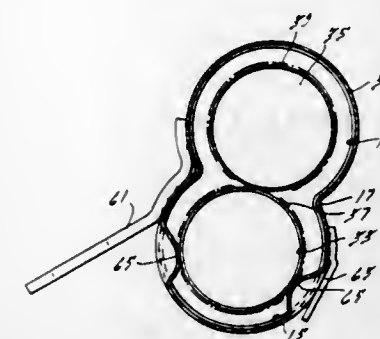
A removable muffler cartridge in combination with a forwardly tapering exhaust pipe tip which has a rearwardly facing V-shaped cross section sealing ring located at the forward end of the cartridge, said cartridge having an inner tube concentrically located within an outer tube to form a muffler chamber therebetween with muffler material therein, said inner tube having a plurality of holes therethrough communicating the muffler chamber with the interior of the inner tube and having a forwardly tapering rear section, said outer tube having a cylindrical front section and a cylindrical rear section which is substantially larger than said front section, said cartridge being provided with radially extending structure at its rear end to index the cartridge concentrically with the exhaust pipe tip, and being removably held in engagement with said V-shaped sealing ring by a bolt extending through the center of the cartridge.

3,563,339 MUFFLER

Donald W. Kellicutt, Horton, Mich., assignor to Tenneco Inc., Houston, Tex.
Filed May 12, 1969, Ser. No. 823,792
Int. Cl. F01n 7/18, 1/08
U.S. Cl. 181-61

A muffler shell of originally circular cross section is shaped into a figure eight cross section and subdivided into chambers by transverse partitions, one of the chambers acting with

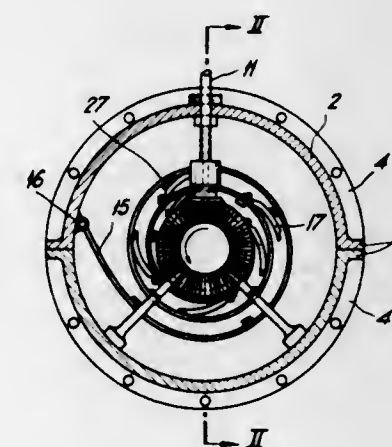
perforated areas in a gas flow tube to attenuate relatively low frequencies and another of the chambers containing over- the lift arms and on opposite sides of the posts, as the base



lapping perforated tubes defining a reverse flow or triflow path for gas passing through it.

3,563,340 RETRACTABLE SILENCING FLAPS FOR JET ENGINE INTAKE

Louis Duthion, Paris, France, assignor to Bertin & Cie, Plaisir, Yvelines, France
Filed Feb. 26, 1969, Ser. No. 802,397
Claims priority, application France, Feb. 29, 1968, 141,781
Int. Cl. B64d 33/02, 33/06; F01n 1/12
U.S. Cl. 181-64



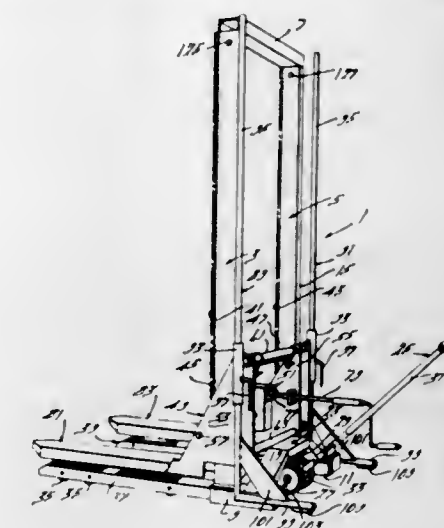
The invention relates to a silencing system for pipes which carry fluids, more particularly fluid inlet pipes for turbojet engines, and is characterized in that the silencing system comprises longitudinal soundproofed flaps so arranged that they can either be extended in order to divide the pipe into soundproofed unit ducts or retracted into a reduced volume.

3,563,341 LIGHTWEIGHT FORKLIFT

Frederick H. Bultman, Racine, Wis., assignor to Tenneco Inc., Houston, Tex.
Filed June 20, 1968, Ser. No. 738,623
Int. Cl. B66b 9/20

U.S. Cl. 187-9

A forklift comprises a pair of upright posts which are secured through rack and gear means to a carriage that moves longitudinally of the posts and includes a pair of arms for positioning beneath a large load to be lifted. The arms on the carriage alternate with a pair of arms attached to the bot-



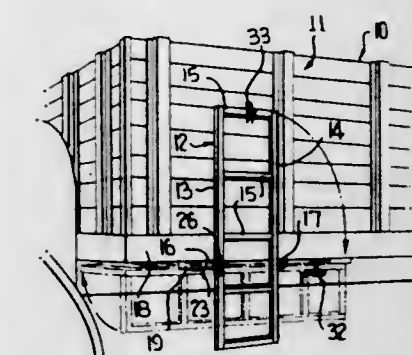
means in transmitting the load on the lift into the floor. A stabilizer structure is provided to prevent tipping of the lift.

3,563,342 TRUCK LADDER

Elvie Lasiter, P.O. Box 9, Caldwell, Kans. 67022
Filed Oct. 24, 1969, Ser. No. 869,023
Int. Cl. E06c 5/04

U.S. Cl. 182-97

6 Claims



The invention consists of a metal ladder to be used on large trucks of the open bed type to permit a person to climb up the ladder to look inside the open bed of the truck, said ladder being attached to the truck bed in such manner that it can be swung into position under the truck bed when not in use and can be pulled out, swung up and attached to the side of the truck for use.

3,563,343 BRACKET FOR USE WITH SAWHORSES AND THE LIKE

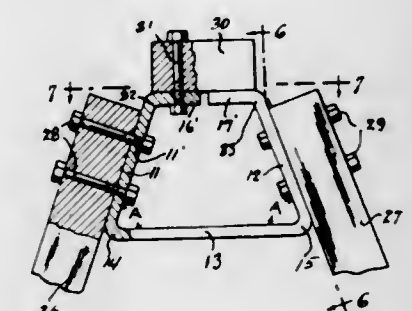
Hartzell M. Kramm, 1111 Nowland Ave., Peoria, Ill.

Filed July 9, 1969, Ser. No. 840,168

Int. Cl. F16m 1/00; E04g 1/32

U.S. Cl. 182-224

4 Claims



Brackets for use in the assembly of sawhorses, barricades, road blocks, trestles and the like are formed of stacked metal

straps having end portions bent upwardly and inwardly from an intermediate bottom portion and with the ends of the end portion bent up either vertically or horizontally inwardly toward one another and so as to support a back piece or cross member with screws or bolts extending through the holes of the end portions. The legs are attached to the upwardly and inwardly bent end portions. This bracket is not only adapted for attachment of the back piece and leg piece by screws but for welding, gluing, to provide a permanent structure.

3,563,344

DEVICE FOR SUPPLYING LUBRICANT INTO SELF-LUBRICATING SLIDING FRICTION BEARINGS

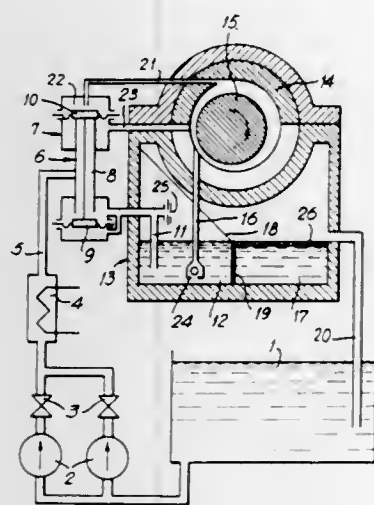
Vladimir Nikolaevich Veller, Autozavodskaya ulitsa, 9/1, kv. 137, and Alexandr Petrovich Zharov, Simonovskiy val. 22, korpus 2, kv. 31, Moscow, U.S.S.R.

Filed Nov. 19, 1968, Ser. No. 777,041

Int. Cl. F16n 7/40

U.S. Cl. 184-6

5 Claims



A self-lubricating bearing system comprises a series-connected drain tank, pumps, pressure piping and a reservoir. Said reservoir being disposed in the lower portion of the bearing casing is characterized by the employment of an additional duct communicating the piping with a space between the journal of the shaft and the hub in the nonloaded portion of the bearing. The employment of the present invention makes it possible to completely eliminate the danger of the breakdown of the bearing and the unit caused by the stoppage of the supply of lubricant into the bearing.

3,563,345

LIFTING DEVICE

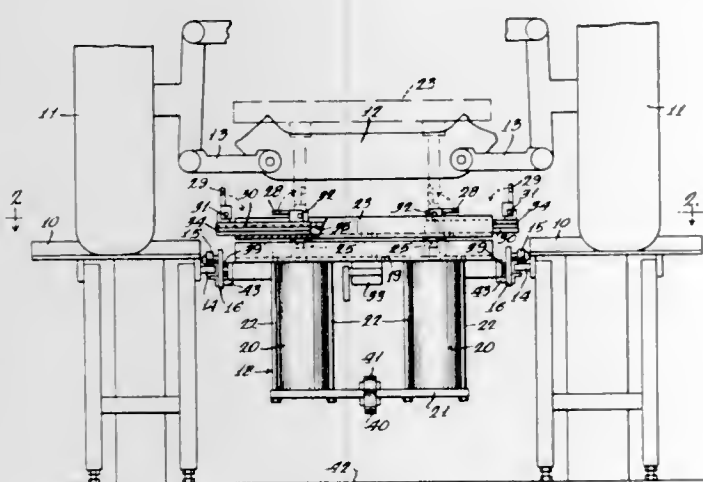
Charles W. MacMillan and Milton A. Wertheimer, Rock Island, Ill., assignors to Applied Power Industries, Inc.

Filed Nov. 12, 1968, Ser. No. 774,932

Int. Cl. B66f 7/00

U.S. Cl. 187-8.43

5 Claims



The combination with a drive-on type motor vehicle lift having spaced runways, of means for lifting the front end of a

motor vehicle and for supporting it free of the front wheels thereof to allow inspection and servicing of the vehicle front end, comprising a front end lift assembly extending between said runways, rollers on said assembly supported on rails carried on the adjacent edges of said runways to permit longitudinal travel of said assembly as a unit, and means for elevating said assembly into lifting contact with a front end underside configuration portion of said vehicle.

ERRATUM

For Class 187-9 see:
Patent No. 3,563,341

3,563,346

EXTENSIBLE AND CONTRACTABLE DEVICES

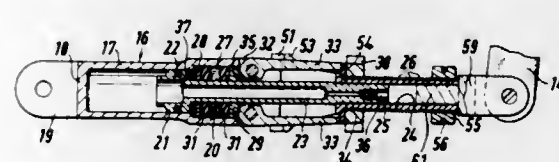
Wilfred N. Bainbridge, Leamington Spa, England, assignor to Automotive Products Company Limited, Leamington Spa, Warwickshire, England

Filed Feb. 3, 1969, Ser. No. 796,050

Int. Cl. F16d 63/00

U.S. Cl. 188-67

6 Claims



A linearly extensible and contractible device comprising a plunger component slidable in a cylinder component has the plunger urged in one direction in the cylinder by compressed gas, and mechanical locking means operative to hold the plunger against movement in the other direction and normally held engaged by the gas pressure are released by exerting thereon an opposing force sufficient to overcome the gas pressure.

3,563,347

DISK BRAKE WITH NOISE-LIMITING BRAKESHOE

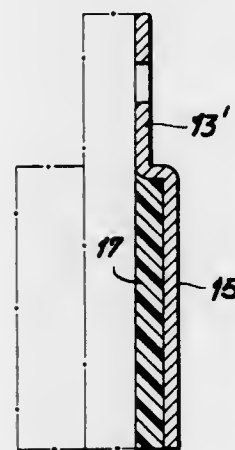
Heinz Gunter Hahn, Frankfurt am Main, Germany, assignor to Alfred Teves G.m.b.H., Frankfurt am Main, Germany

Original application Jan. 10, 1968, Ser. No. 696,847, now Patent No. 3,490,563, Jan. 20, 1970. Divided and this application Aug. 26, 1969, Ser. No. 853,047

Int. Cl. F16d 65/02

U.S. Cl. 188-73.1

8 Claims



A brakeshoe adapted to limit noise generated by a disc brake wherein an intermediate plate, interposed between the backing plate of the brakeshoe and the piston, is affixed to the backing plate and provides force transmission between the piston and the backing plate which is off-center from the center of the disc-engaging surface of the brake lining, the force-transmitting portion consisting at least in part of a thermal insulator.

3,563,348

INTERNALLY EXPANDING BRAKE WITH PILOT MECHANISM

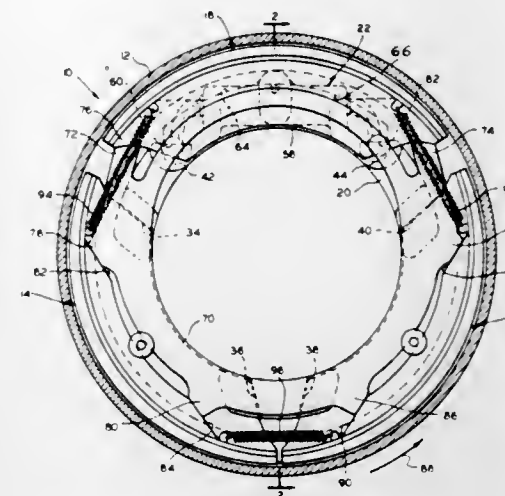
Barry L. Frost, Jackson, Mich., assignor to Clark Equipment Company, a corporation of Delaware

Filed Apr. 30, 1969, Ser. No. 820,399

Int. Cl. F16d 51/70

U.S. Cl. 188-78

2 Claims



An internal expanding shoe brake having an energizer shoe movable radially and circumferentially. Circumferential movement of the energizer shoe rotates an actuator ring which causes radial and circumferential movement of two main brake shoes, thereby applying the brake.

3,563,349

BLOCKABLE DEVICE FOR THE STEPLESS ADJUSTMENT OF FLAPS

Rudolf Spieth, Plochingenstrasse 156, Esslingen, and Erich Blazek, Lindenstrasse 3, Altbach, Germany

Filed Nov. 21, 1968, Ser. No. 777,667

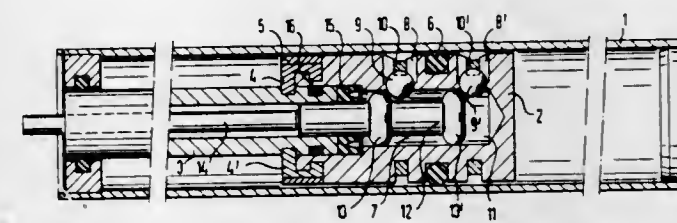
Claims priority, application Germany, Jan. 24, 1968,

1,675,367

Int. Cl. B65h 59/10

U.S. Cl. 188-96

9 Claims



An improved piston-cylinder arrangement, more particularly for the stepless adjustment of table tops, chairs and the like, comprising a piston rod with a piston slidingly mounted in a cylinder containing a pressurized gas, wherein the piston is sealed against the inner cylinder wall by means of an annular seal which is bridged by a continuous flow channel inside the piston, the outlets of which are each closed on both sides of the said annular seal by separate annular-spring biased valves which can be opened by externally actuable means.

3,563,350

ANTISKID BRAKE CONTROL SYSTEM

Heinz Leiber, Leimen, Germany, assignor to Teldix GmbH, Heidelberg, Germany

Filed Feb. 4, 1969, Ser. No. 796,337

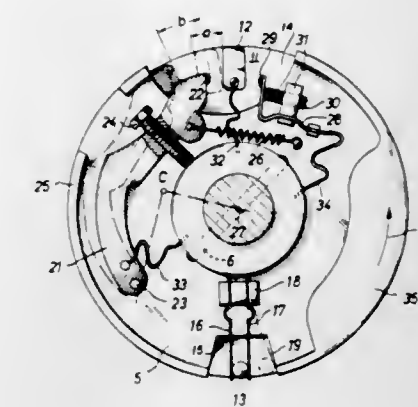
Int. Cl. B60t 8/04

U.S. Cl. 188-181

9 Claims

An antiskid brake control system for preventing the wheels of a braked vehicle from locking. The system is of the type which produces an electrical signal in dependence upon the rotational deceleration of the wheels of the vehicle and reduces the braking force applied to the decelerating wheel

or wheels upon occurrence of this signal. According to the invention, this antiskid brake control system is provided with means for inhibiting the electrical signal when the rotational



speed of the brake-regulated wheel or wheels exceeds a prescribed value. This inhibiting or blocking means renders aperiodic the operation of the antiskid brake control system.

3,563,351

ANTISKID BRAKE CONTROL APPARATUS FOR SENSING CHANGES IN THE ABSOLUTE ROTATIONAL SPEED OF A VEHICLE WHEEL

Heinz Leiber, Im Enklert, and Heinz Wehde, Heidelberg, Germany, assignors to Teldix GmbH, Heidelberg, Germany

Filed Apr. 18, 1969, Ser. No. 817,340

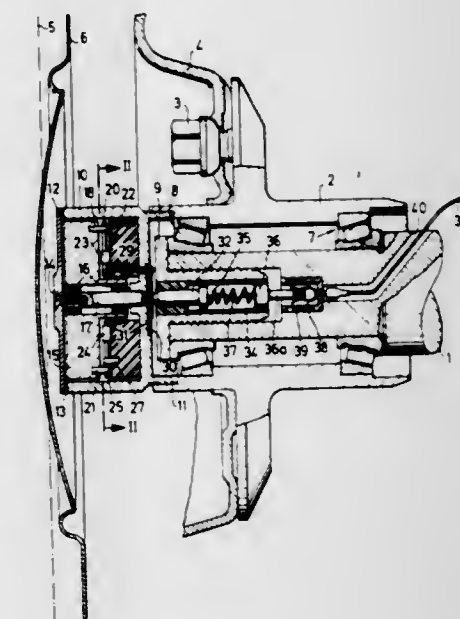
Claims priority, application Germany, Apr. 20, 1968,

1,755,280

Int. Cl. B60t 8/16

U.S. Cl. 188-181

21 Claims



An antiskid brake control system having means for sensing changes in the absolute rotational speed of a vehicle wheel. The sensing means includes a hermetically sealed housing, an inertial mass arranged within the housing and rotatable relative to the housing within a limited angular range, an electrical signaling device responsive to the relative rotation between the inertial mass and the housing and at least one electrical conductor connected to the signaling device and passing through the housing. The brake control system is also provided with an electrically actuable device for controlling the brake pressure applied to the sensed wheel and an electrical line interconnecting the sensing means with this control device. According to the invention, the sensor housing and the vehicle wheel or a member rigidly connected with the vehicle wheel are provided with means for detachably coupling these two parts together. Contact elements are also provided, beneath the side of the sensor housing that faces the wheel, to detachably connect the electrical line to the electrical conductor.

3,563,352

HYDROSTATIC TRANSMISSION WITH FREEWHEEL DRIVE

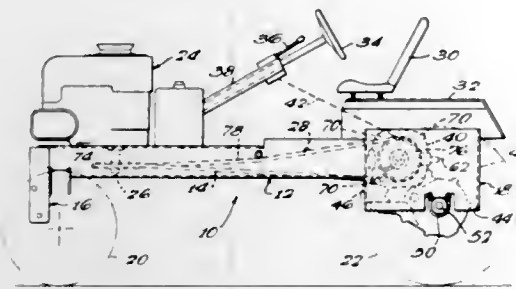
Paul H. Stibbe, Neenah, Wis., assignor to J. I. Case Company, a corporation of Wisconsin

Filed July 14, 1969, Ser. No. 841,353

Int. Cl. F16d 67/00

U.S. Cl. 192—3.5

6 Claims



The drive system of the present application has particular utility in connection with a small vehicle, such as a garden tractor, and the propelling wheels of the vehicle are powered through a system including a belt-driven hydrostatic transmission and a gear reducer, with one-way clutch means being connected between the pulley drive system and the input shaft of the hydrostatic transmission. The one-way clutch means allows the hydrostatic transmission to transmit power to the propelling means in forward and reverse directions when the prime mover is actuated, and when the prime mover is not actuated, the one-way clutch means allows the vehicle to be moved when the control of the transmission is placed in forward or reverse directions, since the input shaft of the transmission is free to rotate in one direction relative to the belt drive system.

3,563,353

AUTOMATIC REVERSING CLUTCHES WITH PILOT BRAKE

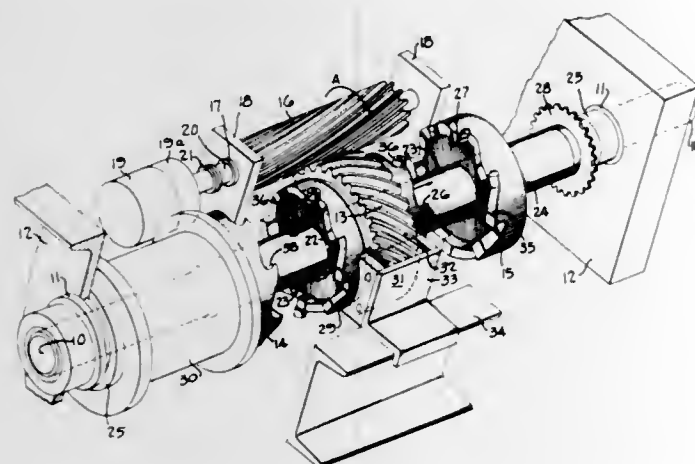
Roy F. LoPresti, Chicago, Ill.; Edwin A. Peterson, Manhasset, and Oswald B. Grimstad, Rockville Centre, N.Y., assignors to United Parcel Service General Service Co., New York, N.Y.

Filed June 27, 1968, Ser. No. 740,708

Int. Cl. F16h 57/10; F16d 43/30

U.S. Cl. 192—21

1 Claim



Torque transmitting apparatus having two intermeshed helical gears which employs the axial thrust of the helical gears to shift the driven gear longitudinally along its axis, in a direction dependent upon the direction of rotation of the driving gear, so as to effect a clutching action between the driven gear and alternately one of two output members disposed on either side of the driven helical gear. Apparatus for synchronizing a positive engaging ratchet tooth clutch including a cam surface on one of the clutch members and a cam follower on the other clutch member to cam the movea-

ble clutch member longitudinally toward the stationary clutch member while maintaining the ratchet teeth out of engagement one with another until the moveable clutch member has moved through its full longitudinal travel and into complete engagement with the other clutch member.

3,563,354

AUTOMATICALLY ENGAGING AND DISENGAGING DOG CLUTCH

Hans Sigg, Widen, Aargau, Switzerland, assignor to Maag Gear Wheel & Machine Company Limited, Zurich, Switzerland, a company of Switzerland

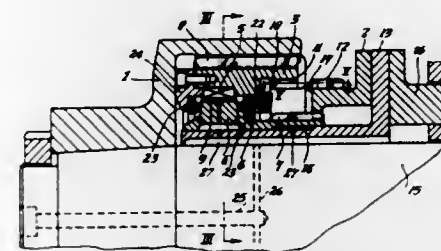
Filed Feb. 19, 1969, Ser. No. 800,415

Claims priority, application Switzerland, Nov. 25, 1968, 17,507

Int. Cl. F16d 23/02, 41/22

U.S. Cl. 192—35

3 Claims



In an automatically engaging and disengaging dog clutch between an input shaft and an output shaft, comprising a first straight-toothed clutch boss, a second helical-tooth clutch boss, an axially slidable clutch spider and a synchronizing sleeve which is retained against axial movement in the clutch spider but is rotatable therein and is connected by screw-threading means of coarse pitch to the second clutch boss, said clutch spider being in constant mesh by way of straight-tooth gearing with the first clutch boss and being adapted for optional engagement with and disengagement from the second clutch boss, automatic clutch engagement being obtained by virtue of the relative engagement phase between the clutch spider and the second clutch boss being sensed by pawls which are adapted to mesh with a ratchet tooth system of the synchronizing sleeve, the clutch spider in a first engagement phase being partially engaged with the second clutch boss due to a helical motion which corresponds to the said coarse-pitch screw thread, the clutch spider, in a second engagement phase, is fully engaged with the second clutch boss as far as a stop under the effect of a torque exerted by the input shaft on the output shaft, the pitch of the helical gear tooth system of the second clutch boss being greater than the pitch of the said coarse screw thread, so that the sensing pawls are disengaged during the second engagement phase and therefore do not participate in transmitting power when the clutch is engaged.

3,563,355

CONTROL SYSTEM FOR VARIABLE SPEED DRIVE

Raymond E. Goodson, West Lafayette, and Dennis Dobrinich and Lindell R. Riddle, New Castle, Ind., assignors to Force Control Industries, Inc., Fairfield, Ohio

Filed Mar. 19, 1969, Ser. No. 808,501

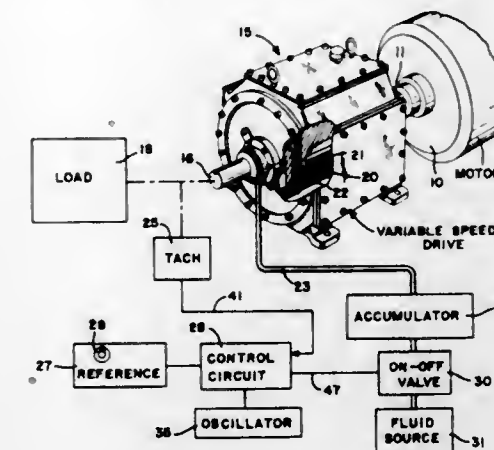
Int. Cl. F16d 43/24

U.S. Cl. 192—104

7 Claims

The control system for maintaining the output speed of a fluid control variable speed drive at a preselected magnitude includes an on-off control valve to supply control fluid to the drive, a tachometer to sense the output speed of the drive, circuit means for comparing the actual output speed with the desired output speed, and means for supplying current to the on-off valve to adjust the fluid to the drive so that the desired output speed is obtained. The control circuit to the on-off valve includes an oscillator, the output wave form of which is superimposed upon a DC voltage representing the difference between desired speed and actual speed. For small error signals, the on-off valve is periodically operated exclusively by that portion of the oscillator output signal which exceeds

the threshold voltage of the on-off valve solenoid. The shape of the oscillator wave form may be selected to compensate the belt whether empty or carrying live or spent ammunition. The links are molded plastic with metal guide surfaces em-



for nonlinearity in the response characteristics of the variable speed drive.

3,563,356

SAFETY MECHANISM

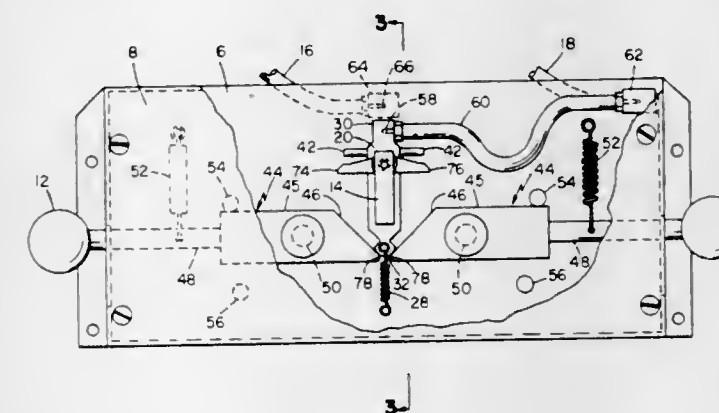
Leon A. Glickman, Westwood, Mass., assignor to Keystone Manufacturing Corporation, Boston, Mass.

Filed Apr. 1, 1969, Ser. No. 812,026

Int. Cl. F16d 9/00

U.S. Cl. 192—131

12 Claims



A safety mechanism includes an operating member movable between a normal position and an actuating position. The operating member has a camming surface and two latch recesses at its lower end and an actuator portion at its upper end. A pair of camming members, each having an inclined ramp surface and a nose portion, cooperate with the operating member. A manual control is connected to each camming member. Substantially simultaneous movement of both manual controls causes the ramp surfaces to impart a balanced camming action on the operating member to move the actuator portion to an actuating position. Should the movement of one inclined surface exceed the movement of the other surface by a predetermined amount, its movable portion and a corresponding recess will be latched, preventing movement of said actuator portion to the actuating position. A manually operable reset structure is provided to release the latched members.

3,563,357

ARTICLE CONVEYING CHUTE

William F. West, Sunland, Calif., assignor to Harvard Industries, Inc., Farmingdale, N.J., a corporation of Delaware

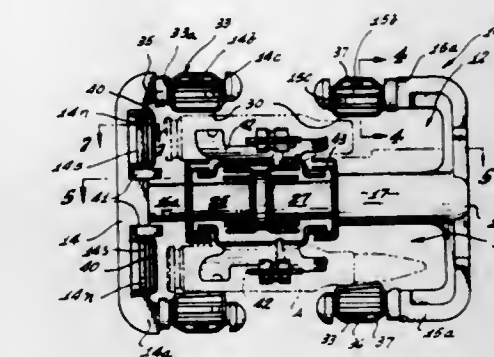
Filed Nov. 18, 1968, Ser. No. 776,665

Int. Cl. B65g 11/10

U.S. Cl. 193—25

19 Claims

A flexible conveying chute particularly adapted to convey ammunition to and from an automatic weapon is designed to provide forward and return paths for an endless belt. The chute itself is made of modular links that provide a multiplicity of guide surfaces which adapt the chute to handling



3,563,358

COIN OPERATED SHOE SHINING MACHINE

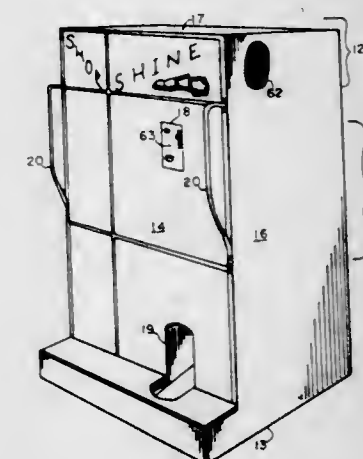
Carl J. Lindeberg, 4604 Pastel Place, Austin, Tex. 78745

Filed Mar. 3, 1969, Ser. No. 803,830

Int. Cl. G07f 13/00

U.S. Cl. 194—13

2 Claims



Coin operated shoe shining machine in which a self shining liquid spray is automatically applied to the shoe while on the customer's feet but with the spraying and shining operation being accomplished within an enclosed housing structure.

3,563,359

AUTOMATIC WORKPIECE TRANSFER AND STORAGE MECHANISM

Ernst J. Hunkeler, Fairport, and Ralph E. Klubertanz, Rochester, N.Y., assignors to The Gleason Works, Rochester, N.Y., a corporation of New York

Filed Apr. 1, 1969, Ser. No. 812,287

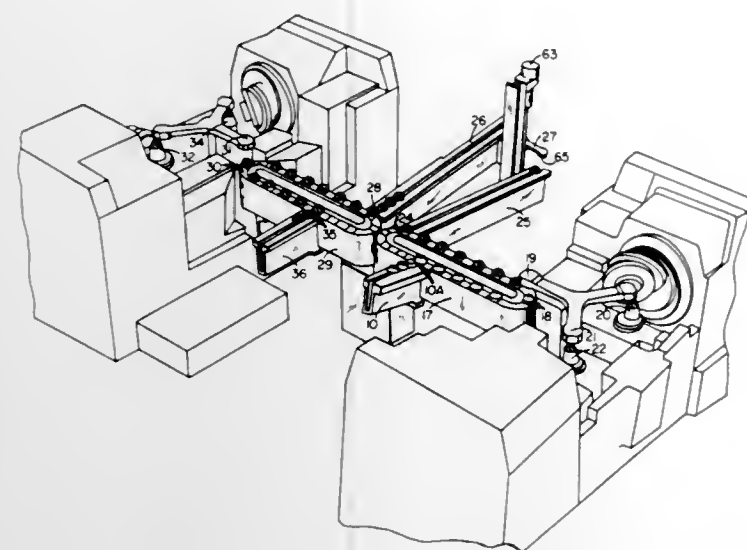
Int. Cl. B23p 23/04; B23q 5/22

U.S. Cl. 198—19

9 Claims

A transfer mechanism for delivering and receiving pinion workpieces to and from a pair of double-station bevel gear cutting machines in timed relation to their operation. The mechanism also includes storage bank means in which partially-processed workpieces may be accumulated, thereby permitting the double-roughing machine to continue operation when the double-finishing machine must be temporarily

shutdown for cutter replacement, daily maintenance, etc., operation of a shuttle mechanism in positioning each to be and similarly providing a continuing supply of workpieces to driven into a part by a driver mechanism. This mechanism in-



the double-finishing machine when the double-roughing machine is temporarily shutdown.

3,563,360

APPARATUS FOR FEEDING ARTICLES TO BE PACKAGED, PARTICULARLY JOURNALS, NEWSPAPERS AND THE LIKE, TO PACKAGING APPLIANCES

August Wickersheim, Industriestrasse 4, Egenbuttel, Hamburg, Germany

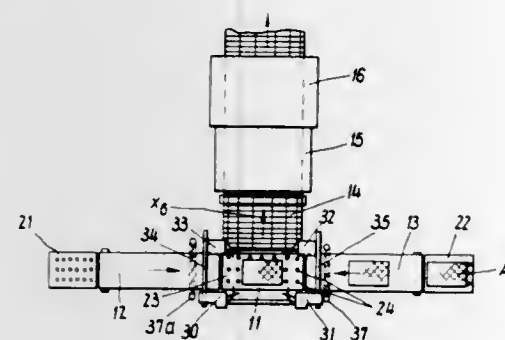
Filed May 23, 1968, Ser. No. 731,585

Claims priority, application Germany, July 18, 1967, W40181

Int. Cl. B65g 47/22

U.S. Cl. 198-29

7 Claims



The invention relates to a means for feeding articles onto a trueing table. In the vicinity of the table there is provided means including gripper arms operatively first to position the articles on the table and then secondly to move the article off from the table. The gripper arms are connected to a control means controlling the individual working movements of the gripper arms.

3,563,361

SET SCREW FEEDING, ORIENTING AND DRIVING SYSTEM

Miroslav J. Piroutek, Stamford, Conn., assignor to Self-Matic Valves Corporation, Stamford, Conn.

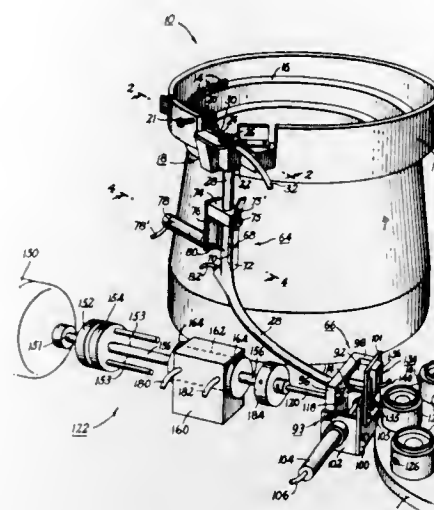
Filed June 4, 1968, Ser. No. 734,463

Int. Cl. B65g 47/24

U.S. Cl. 198-33

3 Claims

The disclosed system includes a vibratory feeder feeding headless set screws successively to an orienting apparatus, which uses an air jet to properly orient the set screws or has a passageway admitting only properly oriented set screws. An escapement mechanism in a delivery of set screws with



cludes an air cylinder and piston for reciprocating a rotating driver element engaging each set screw.

3,563,362

ALIGNING DEVICE FOR USE WITH MACHINES FOR PROCESSING FRUIT

Giordano Tomelleri, Via Montorio 22, Verona, Italy

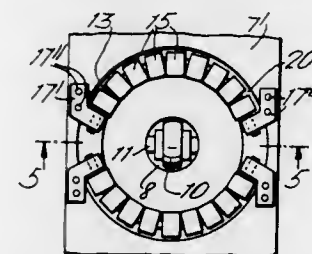
Filed Jan. 17, 1969, Ser. No. 792,101

Claims priority, application Italy, Jan. 19, 1968, 61204-A/68

Int. Cl. B65g 47/24

U.S. Cl. 198-33

7 Claims



This invention relates to a device which helps to mechanically align fruit of substantially round or oval shape and which is to be stoned and/or cored and/or cut into two or more sections in a fruit processing machine, the device comprising a spindle, at least one roller freely rotatably mounted on said spindle for supporting the fruit when it is rotated in a supporting cup of the machine.

3,563,363

CONVEYOR SYSTEM

Grover S. Harben, Gainesville, and Ernest E. Lewis, Flowery Branch, Ga., assignors to Gainesville Machine Company, Inc., Gainesville, Ga., a corporation of Georgia

Filed Jan. 3, 1968, Ser. No. 695,449

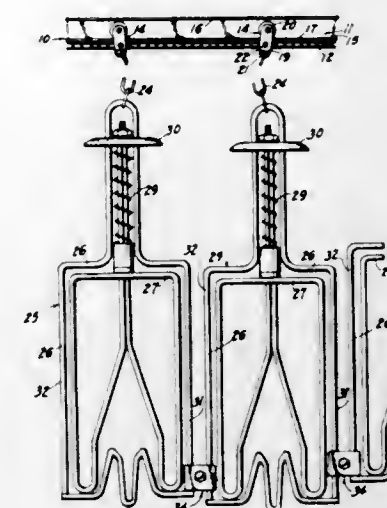
Int. Cl. B65g 17/20

U.S. Cl. 198-177

1 Claim

A conveyor system of the type utilized in a poultry-processing plant, including an elevated conveyor track, a chain movable along the conveyor track, a series of spaced rollers movable with the chain along the conveyor track, a plurality of shackles suspended below the conveyor track and

connected to the rollers, and a connecting member fastened between adjacent ones of the shackles at a point spaced



below the conveyor track for maintaining the adjacent ones of the shackles in spaced relationship.

3,563,364

PORTABLE CONVEYOR

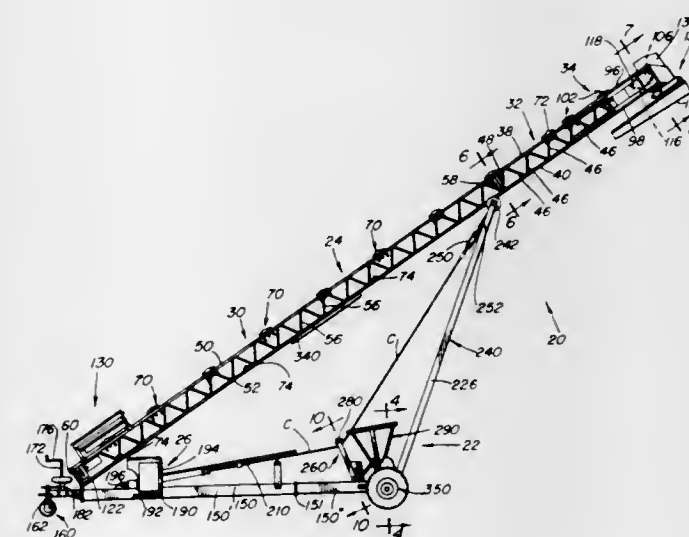
Charles J. Arndt, Valley View, Glen Ellyn, and Roy F. Lo Presti, Chicago, Ill., assignors to Harsco Corporation, Harrisburg, Pa., a corporation of Pennsylvania

Filed Feb. 7, 1969, Ser. No. 797,647

Int. Cl. B65g 21/02

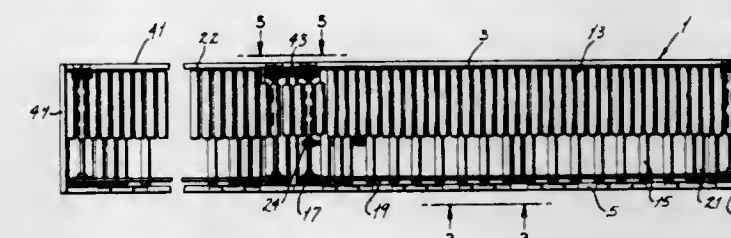
U.S. Cl. 198-120.5

16 Claims



In an improved conveyor of the type including an elongated conveyor-carrying boom pivotally mounted at one end to a wheeled supporting frame, with the other end of the boom being supported by an arm pivotally mounted adjacent the other end of the frame, with a sheave-carrying arm pivotally mounted adjacent the said other end of the support frame, and with a cable passing over the sheave and connected at one end to the support arm and at its other end to a hydraulic cylinder, the sheave arm and support arm are positioned such that the ratio of the reaction force acting on the support arm to the moment arm lying between the support arm pivot point and the point the cable passes over the sheave remains substantially equal for any given position of the conveyor boom. Such a conveyor additionally preferably includes means for adjusting the length of the aforesaid moment arm such that the same structural elements may be employed for booms of varying length.

3,563,365
ACCUMULATING CONVEYOR
Henry Thomas Loberg, 2109 Mockingbird Lane, Jonesboro, Ark. 72401
Filed June 10, 1968, Ser. No. 735,651
Int. Cl. B65g 13/02
U.S. Cl. 198-127
3 Claims



An accumulating conveyor supports transport rollers on a pair of channels with snub rollers below. Adjustable spring means mount the snub rollers. An endless V-belt is trained over the snub rollers and under the transport rollers to be carried by the snub rollers and to actuate the transport rollers. The conveyor is made in sections so that several of these can be attached together, the end transport rollers joined together, and a plurality of units run from a single motor.

3,563,366

COMPOUND ROD-REINFORCED BELT

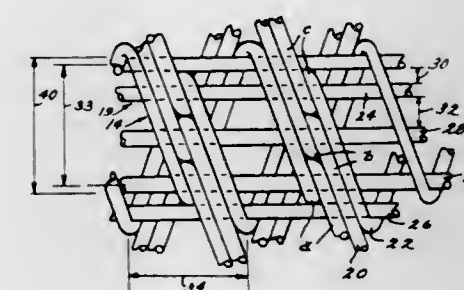
Ronald G. Daringer, Cambridge, Md., assignor to Cambridge Wire Cloth Company, Cambridge, Md., a corporation of Maryland

Filed Mar. 20, 1969, Ser. No. 808,970

Int. Cl. B65g 15/54

U.S. Cl. 198-193

14 Claims



A compound rod-reinforced belt in which spirals of one twist are interwoven and rods are inserted at least through each interlocked juncture of helix vertices, there being at least three rods passing transversely through each spiral with the spacing between two adjacent rods being approximately one-half the spacing between all other adjacent rods.

3,563,367

ATTACHMENT DEVICES FOR SCRAPER CHAIN CONVEYORS

Oswald Breuer, Dortmund-Husen; Alois Hauschopp, Langern, and Bernd Steinkuhl, Lunen, Germany, assignors to Gewerkschaft Eisenhütte Westfalen, Westfalen, Germany, a body corporate of Germany

Filed May 14, 1969, Ser. No. 824,618

Claims priority, application Germany, Jan. 15, 1969, 1,901,773

Int. Cl. B65g 15/60; F16b 1/00, 19/00

U.S. Cl. 198-204

9 Claims

An attachment device having a plate securable to a side of a scraper chain conveyor having outwardly projecting pins which pass through apertures in said plate. Disc elements are placed onto the pins to lie against the plate and a locking rod is passed through diametric bores in the pins at the side of the elements remote from the plate. The elements have

wedge surfaces, preferably helical, on their faces adjacent the locking rod so that upon rotation of one or both discs the

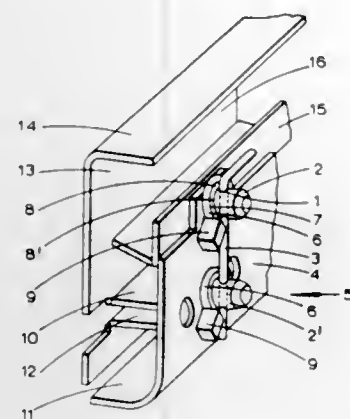


plate will be urged inwardly and axially of the pins and locked in position.

3,563,368

CLOSURE ASSEMBLY FOR CONTAINERS

Wilfred L. MCHugh, 2501 Carleton St., Calgary, Alberta, Canada

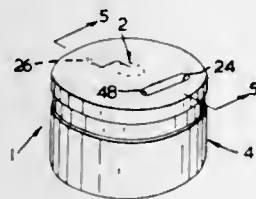
Filed Feb. 7, 1969, Ser. No. 797,518

Claims priority, application Canada, Feb. 8, 1968, 11,957

Int. Cl. B65d 83/04, 43/16

U.S. Cl. 206-42

11 Claims



The invention provides a closure assembly which is either a separate part, or an integral part of a container for medicinal or toxic or nontoxic substances. Before any of the contents can be dispensed, two separate and independent functions must be performed. First the closure assembly must be unlocked, and secondly cap and body portions of the assembly must be manipulated to bring dispensing openings into alignment. Such manipulation involves relative movement which is rotational, translational, or combinations thereof.

3,563,369

DISPLAY CARTON FOR A CLOCK

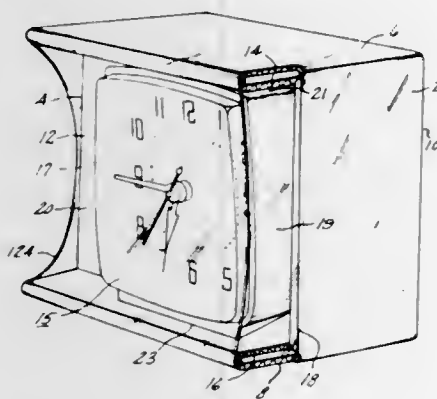
Robert B. Aldrich, Wellesley Hills, Mass.

Filed Feb. 28, 1969, Ser. No. 803,313

Int. Cl. B65d 5/50, 65/16

U.S. Cl. 206-45.14

3 Claims



A display carton for a clock or other article of merchandise wherein a single piece of paperboard is formed to provide top, bottom, side and rear walls.

3,563,370
DISPLAY BOXES

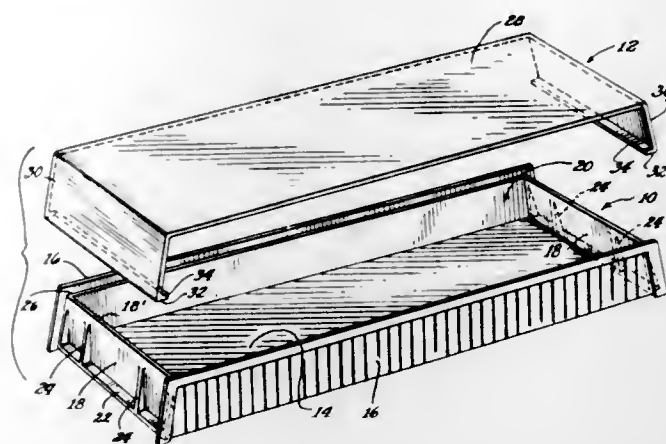
Morris Nozette, 7074 N. Western Ave., Chicago, Ill. 60645, and Robert Podall, Highland Park, Ill.; said Podall assignor to said Nozette

Filed July 14, 1969, Ser. No. 841,323

Int. Cl. B65d 25/00

U.S. Cl. 206-45.31

7 Claims



A display box molded of a plastic material comprising a base member and a removable cover, with the base member having a bottom, spaced sides, end walls, and an open top. The bottom extends outwardly of the end walls so that it forms a lip exteriorly of the end walls adjacent the bottom of the end walls. Each end wall has one or more ribs which extend to the bottom lip which serve as guide members. The removable cover has a top wall and spaced downwardly extending end walls which have an inwardly extending lip adjacent the bottom. The cover is adapted to be positioned on the base member so that the top wall of the cover extends over the top of the base member and the end walls of the cover are adjacent the exterior of the end walls of the base member, with the lips of the end walls of the cover riding over the rib or ribs on the end walls of the base member as same is moved into position and the lips engage the bottom of the base member to detachably lock the cover to the base member.

3,563,371

WET TOWEL PACKAGE

Edward L. Heinz, Montclair, N.J., assignor to W. S. Kirkpatrick & Co., Inc., Upper Montclair, N.J., a corporation of New Jersey

Filed June 12, 1969, Ser. No. 832,755

Int. Cl. B65d 85/00

U.S. Cl. 206-46

4 Claims



A finely perforated sheet of nonwoven fabric composed of nylon and cotton having a width and length of the order of 8 and 11 inches, respectively, is folded six times into superposed plies that are impregnated with a scented liquid, for example, water and lime fragrance, and enclosed between

heat-sealed sheets each of which comprises an innermost layer of vinyl compound, on one side of a layer of aluminum on the other side of which is a coating of polyethylene which has an outer layer of cellophane, the resulting packet being capable of withstanding high temperatures to 420° F. for 20 minutes and low temperatures to 38° F. for 10 minutes.

3,563,372

METHOD AND APPARATUS FOR COATING FASTENING DEVICES, AND IMPROVED COATING AND FASTENING DEVICES

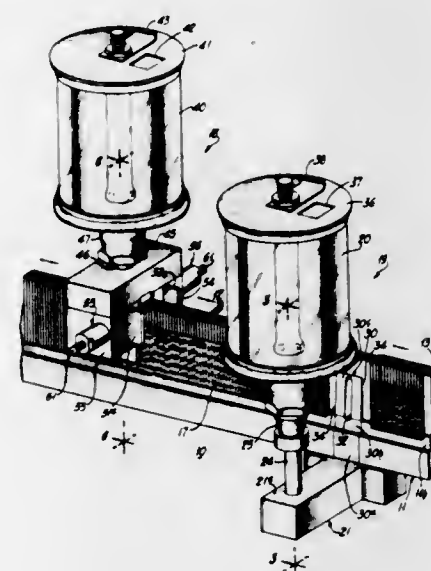
William H. Baum, Westchester, and John Mostetich, Elmhurst, Ill., assignors to Fastener Corporation, Franklin Park, Ill.

Continuation of application Ser. No. 650,135, June 29, 1967, now abandoned, which is a continuation of application Ser. No. 187,372, Apr. 13, 1962, now abandoned. This application Apr. 21, 1969, Ser. No. 818,856

Int. Cl. B65d 71/00; B44d 1/42

U.S. Cl. 206-56

1 Claim



Fastening devices having shank portions with means for securing said devices in a strip with the shank portions in generally parallel relationship, portions of the shank portions of said fasteners being coated with a synthetic resin to improve the holding properties. The coating on the one side of the shank portions being the combination of a rubber resin and a polyester resin in a volatile organic liquid and the coating on another side of the shank portions being the combination of a phenolic resin and a vinyl acetal resin in a volatile organic liquid.

3,563,373

HYPODERMIC SYRINGE ASSEMBLY

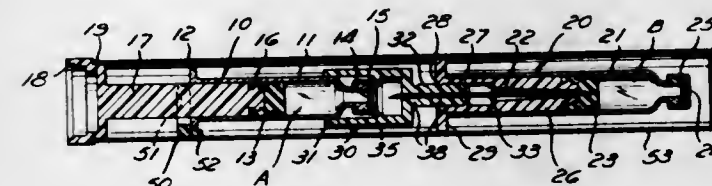
Paul E. Paulson, 2015 Wales Road NE., Massillon, Ohio 44646

Filed Oct. 6, 1967, Ser. No. 673,342

Int. Cl. A61m 5/22; B65d 77/08

U.S. Cl. 206-63.2

6 Claims



Prefilled cartridges assembled and packaged for mixing of dual ingredient hypodermic injections immediately prior to injection. Package may also be employed for prefilled cartridge of single ingredient.

3,563,374

COMBINED PACKAGE FOR, AND CONTAINING TETRAHEDRAL CONTAINERS

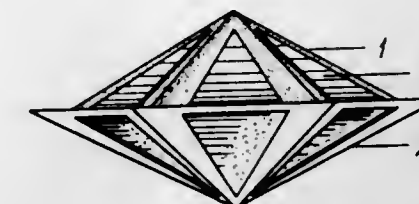
Inge Lennart Carlsson, Lund, and Lars-Goran Andersson, Malmö, Sweden, assignors to AB Tetra Pak, Lund, Sweden, a corporation of Sweden

Filed Dec. 26, 1968, Ser. No. 787,152

Int. Cl. B65d 71/00, 5/00

U.S. Cl. 206-65

5 Claims



Combined package for tetrahedral containers and the blank therefor which is the shape of a pyramid and has flaps integral therewith which secure the tetrahedron containers therein after packaging.

3,563,375

METHOD OF SELECTIVELY SEPARATING SOLID PARTICLES BY ELECTROSTATIC SORTING IN FLUIDIZED BED

Dominique Robert, Vincennes, Val-de-Marne, France, assignor to Societe de Produits, Chimiques D'Auby, Neuilly-sur-Seine, France

No Drawing. Filed July 26, 1968, Ser. No. 747,818

Claims priority, application France, Aug. 8, 1967, 117,154

Int. Cl. B03b 1/00; B03c 7/02

U.S. Cl. 209-9

10 Claims

Separation of particles is obtained by applying a cationic surface-active coating to the particles fluidizing the coated particles, and subjecting the fluidized coated particles to the action of an electrostatic-field-type separation.

3,563,376

PROCESS AND APPARATUS FOR SORTING ELONGATED ARTICLES SUCH AS BOBBIN TUBES OF TEXTILE MACHINES

Giorgio Zegna and Giulio Zegna, Vallemosso, Vercelli, Italy

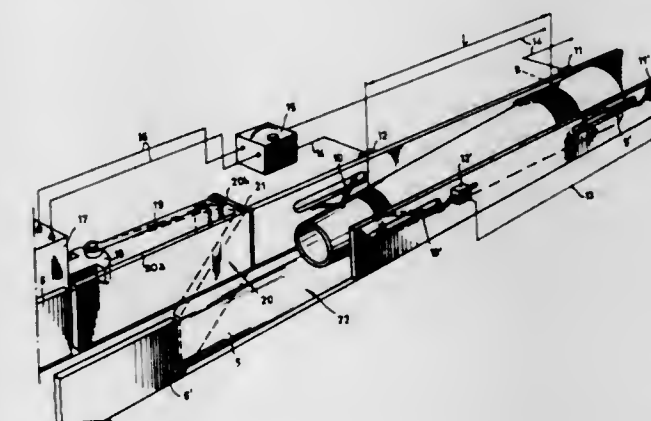
Filed Aug. 7, 1968, Ser. No. 750,983

Claims priority, application Italy, Sept. 27, 1967, 53149.A/67

Int. Cl. B07c 5/344

U.S. Cl. 209-73

1 Claim



Elongated articles such as bobbin tubes are sorted automatically by providing each tube with two bands having different spacings for different article characteristics, e.g. color. The band spacings of the articles are detected automatically, e.g. electrically where the bands are conductive, by conveying the articles successively past different sorting stations, each responsive to a particular band spacing, at which removal of detected articles is effected automatically.

3,563,377

ARTICLE HANDLING APPARATUS

Frederick Southcott, London, England, assignor to Molins Machine Company Limited, London, England, a corporation of Great Britain

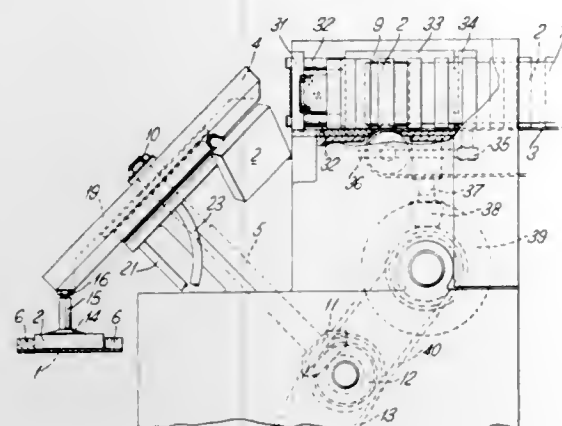
Filed Jan. 26, 1968, Ser. No. 700,757

Claims priority, application Great Britain, Feb. 2, 1967, 5152/67

Int. Cl. B65g 47/24

U.S. Cl. 209-74

14 Claims



A suction transfer device for cigarette packets comprises a rotary transfer disc having suckers which engage broad faces of successive packets lying flat on one conveyor and carry the packets to another conveyor at a higher level, delivering them in an upright position. The transfer disc is mounted on a shaft disposed at 45° to the broad faces of the packets on both conveyors.

3,563,378

REFLECTION CLASSIFIER

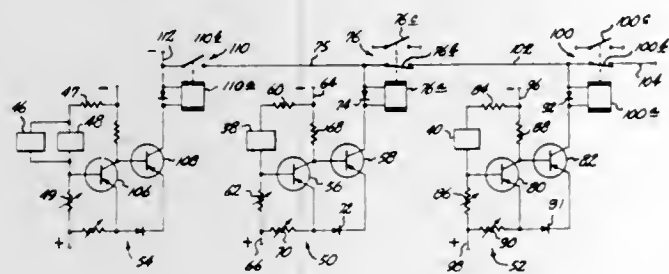
Clifford E. Myers, Medford, Oreg., assignor to Welsh Panel Company, Longview, Wash., a corporation of Washington

Filed Feb. 29, 1968, Ser. No. 709,469

Int. Cl. B07c 5/342

U.S. Cl. 209-111.7

10 Claims



Apparatus for classifying articles according to their surface reflectivities including a conveyor for transporting articles, a light source for illuminating an article supported on the conveyor and plural light-dependent resistors positioned to receive light from the source reflected by an illuminated article. Electrical circuits connected to the resistors interpret the amount of light received thereby, and produce an output signal which is related to the reflectivity of the article's surface.

3,563,379

CONTAINER FILL LEVEL INSPECTION APPARATUS

Virgil Melvin Stapf, St. Louis, and James R. Gender, Kirkwood, Mo., assignors to Barry-Wehmiller Company, St. Louis, Mo., a corporation of Missouri

Filed Nov. 12, 1968, Ser. No. 774,689

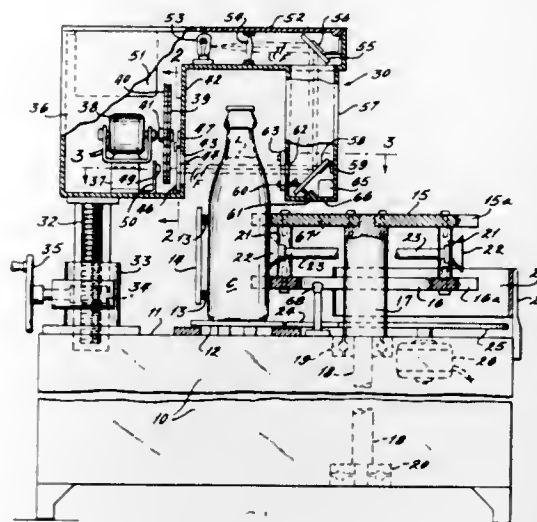
Int. Cl. B07c 5/342

U.S. Cl. 209-111.7

4 Claims

Apparatus for inspecting a moving series of containers to detect improperly filled and empty containers and reacting to reject the same from those properly filled, and including an

inspecting head assembly containing the components which perform the inspecting as rapidly as containers are moved



through an inspection station without necessitating stop and start sequencing.

3,563,380

METHOD OF REMOVING FLOATING CONTAMINANTS FROM STREAMS

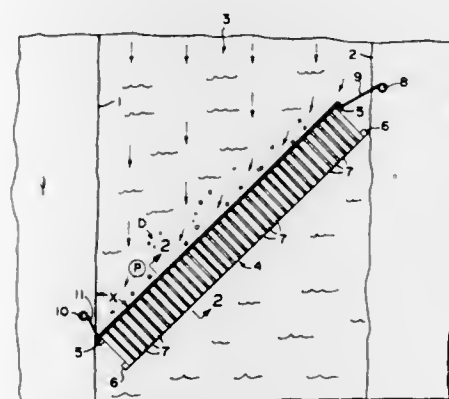
Frank B. Thomas, 713 Evergreen Drive, Akron, Ohio 44303

Filed Dec. 4, 1969, Ser. No. 882,168

Int. Cl. B01d 21/00

U.S. Cl. 210-83

2 Claims



A method of removing oil, grease and other floating contaminants from a stream and it includes floating a barricade, which extends above the surface of the water, in a stream, and positioning this barricade at an acute angle to the direction of flow of the stream. The contaminants collect on the upstream face of the barricade and periodically are removed from the surface of the stream, and adjustable barricade means are present in the apparatus.

3,563,381

DIALYSIS APPARATUS

Andrew Charles Edelson, 10832 Charnock Road, Los Angeles, Calif. 90034, and Clyde Charles Nassau, 20602 Pacific Coast Hwy., Malibu, Calif. 90265

Filed Dec. 18, 1968, Ser. No. 784,830

Int. Cl. B01d 13/00

U.S. Cl. 210-96

7 Claims

The invention is a dialysis apparatus for supplying dialysate at controlled concentration to an artificial kidney. The system provides for a supply of water at controlled temperature, and a supply of dialysate concentrate with means for mixing the controlled temperature water and concentrate to maintain a supply of dialysate at a controlled degree of concentration to be supplied to the artificial kidney. The system does not have a tank or reservoir of dialysate at a maintained degree of concentration. Interlocking safety controls are provided so as to discontinue the flow of dialysate in the event

3,563,383

PURIFICATION SYSTEM FOR ORGANICALLY CONTAMINATED WATER

Ake Hellquist, Svedudden, Djurhamn, and Sigvard Nordgard, 41 Becksjudarvagen, Nacka, Sweden

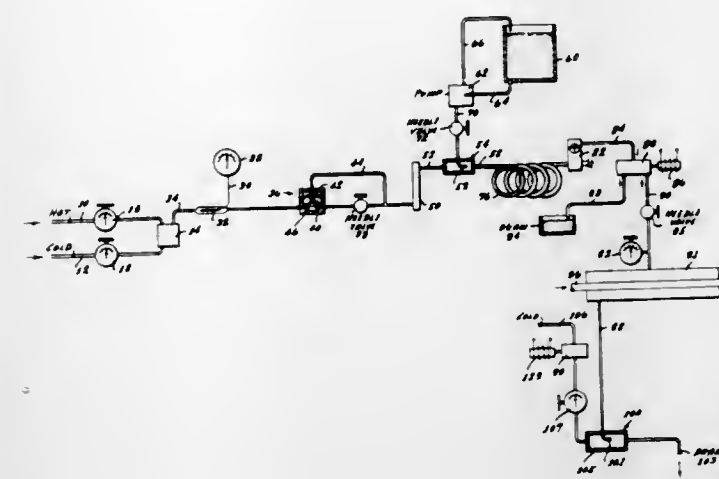
Filed Apr. 3, 1969, Ser. No. 813,195

Claims priority, application Sweden, Oct. 23, 1968, Apr. 24, 1968, 14339/68; 5495/68

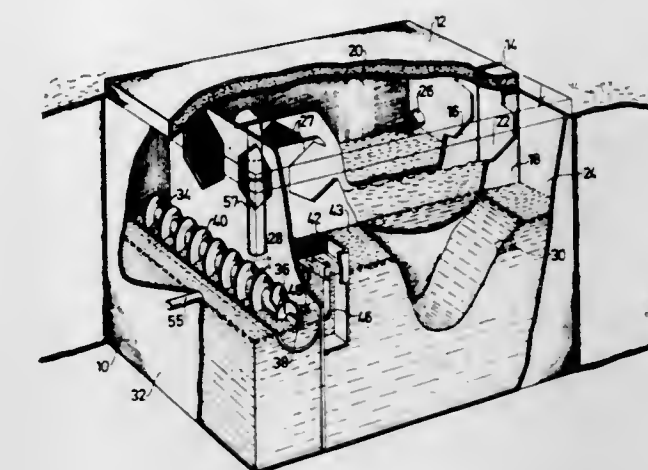
Int. Cl. B01d 21/24

U.S. Cl. 210-124

5 Claims



the indication being both audible and visual. Further, the system provides means to mute the audible signal while still maintaining the machine in operation and further means are provided to safely sterilize the machine without danger to the patient.



A purification system for organically contaminated water. The system comprises supporting areas that are active with respect to microorganisms and that are alternately immersed and withdrawn from the contaminated water while simultaneously being conveyed from an inlet to an outlet in a chamber containing said water.

3,563,382

SEWAGE TREATMENT PLANTS

Jean Joseph Regent, Nantes, France, Compagnie D'Etudes Et De Recherche Des Services Operationnels D'Assainissement in France-Campagne SDAF, Issy Les Moulinaux (Seine) France

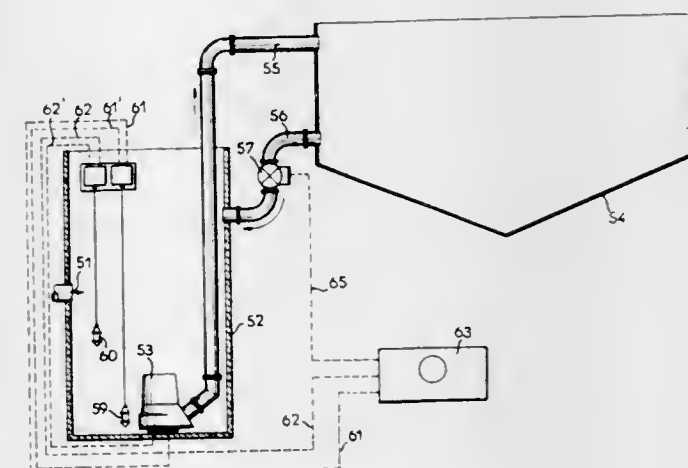
Filed Dec. 11, 1968, Ser. No. 782,817

Claims priority, application France, Dec. 12, 1967, 131,846

Int. Cl. B01d 21/10

U.S. Cl. 210-104

1 Claim



An automatically regulated plant for the treatment of sewage comprises a primary feeding tank for receiving liquid raw sewage, a pump immersed in said primary tank to feed the plant with the liquid discharged in the tank, means for controlling the operation of the pump, at least one digester with biologically active filter bed, means to convey a certain amount of the outflow of the treated effluent from said digester to the primary feeding tank, a valve for controlling the flow of the recirculated effluent, a program timer correlated with the means to control the operation of the pump and adapted to actuate the recirculation valve and to cause said valve to be driven into its open position after expiration of a delay period following the stopping of the pump.

3,563,384

AUTOMATIC MACERATOR UNIT

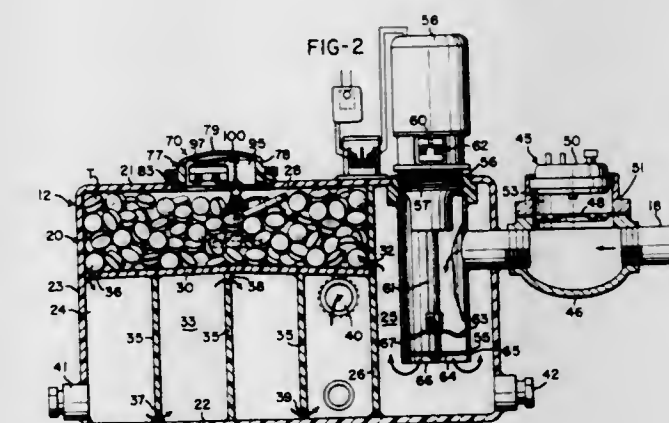
Ronald E. DeLaney, Dayton, Ohio, William H. Smyers, Jr., Wethersfield, Conn., Robert C. Helke, Dayton, Ohio, Ronald D. Russo, Wethersfield, Conn., and Gordon R. Carlson, Dayton, Ohio, assignors to Koehler-Dayton, Inc., Dayton, Ohio, a corporation of Ohio

Filed Oct. 3, 1968, Ser. No. 764,769

Int. Cl. C02c 1/00

U.S. Cl. 210-152

11 Claims



A treatment unit for use on toilets such as used in small ships including a housing having separate holding chambers with a treatment chamber disposed therebetween. A macerator reduces the size of solids in the first chamber from where the effluent flows into the treatment chamber containing a plurality of chemical tablets for purifying the effluent. The effluent then passes into the second holding chamber from which it is discharged from the unit. Sensing apparatus is provided to inactivate the macerator when the level of tablets is below a preset minimum, and a pressure operated time delay switch is utilized to initiate operation of the macerator upon an increase in pressure in the inlet to the unit.

3,563,385

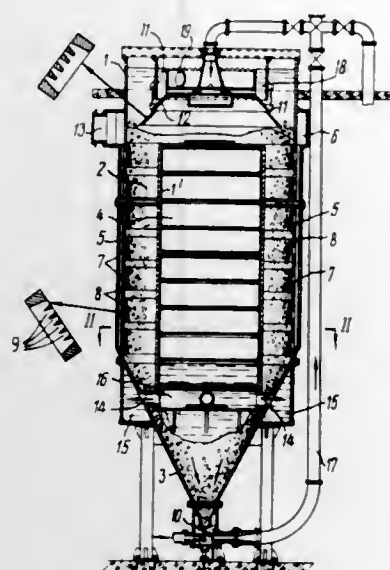
SAND FILTER FOR WATER PURIFICATION
Sergei Ivanovich Bykov, Smolenskaya ul., 10, kv. 156, Moscow, U.S.S.R.

Filed Apr. 23, 1969, Ser. No. 818,596

Int. Cl. B01d 33/16

U.S. Cl. 210-268

6 Claims



A sand filter for water purification comprises external channels for feeding water to be purified to the outer of two spaced, vertical walls which are water permeable along their entire height. The sand charge is between the walls. A water collecting chamber is provided within the inner wall and it communicates with a water collecting manifold arranged in the lower part of the filter. Self-cleaning grates are installed in the path of water flow from the openings in the outer wall to the sand charge between the walls.

3,563,386

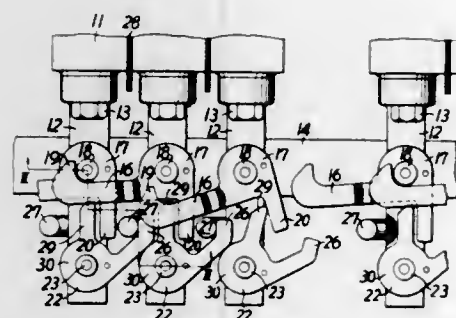
APPARATUS FOR RELEASING AND COUPLING FILTER PLATES IN A FILTER PRESS

Ken-Ichiro Kurita, Suita, Japan, assignor to Kurita Machinery Manufacturing Company Limited, Osaka, Japan
Continuation-in-part of application Ser. No. 780,723, Dec. 3, 1968. This application Mar. 6, 1970, Ser. No. 17,152

Int. Cl. B01d 25/12

U.S. Cl. 210-230

4 Claims



Each of the filter plates is provided with stud members disposed horizontally or vertically on opposite sides. Hook members are pivotally mounted on each filter plate so as to be associated with stud members on the next adjacent filter plate. A release arm formed on the actuating member and adapted to be engaged with a tail member of the hook member is associated with a release pin on the preceding filter plate so that when the preceding filter plate is separated from the following adjacent plate the actuating member on the following plate is forced to operate to release the hook member thereon from the stud member on the next filter plate.

3,563,387

CENTRIFUGAL THICKENER

Alf Torsten Okvist, Skarblacka, and Nils Olof Nilmar, Kall-hall, Sweden, assignors to Maskin AB N.A. Eie

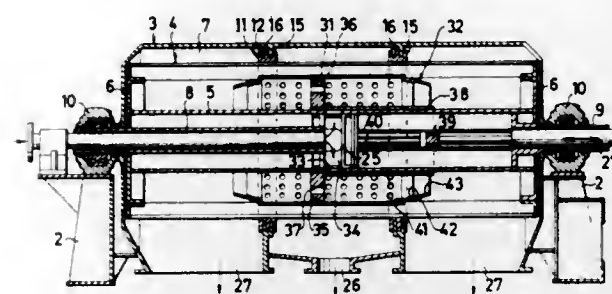
Filed Oct. 31, 1968, Ser. No. 772,253

Claims priority, application Sweden, Nov. 2, 1967, 15,033/67

Int. Cl. B04b 3/02

U.S. Cl. 210-376

5 Claims



A slurry thickener in which are employed both centrifugal force and an axial pressing force. The latter is made possible by the special conical configuration of the end portions of an otherwise cylindrical thickening cylinder.

3,563,388

RADIAL FLOW DISK FILTER

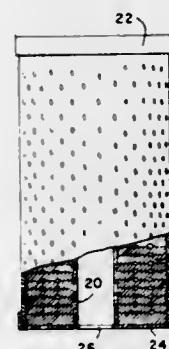
Southwick W. Briggs, Chevy Chase, Md., assignor to William A. Brazerol, Washington, D.C., fractional part interest to each

Filed Feb. 3, 1969, Ser. No. 824,328

Int. Cl. B01j 25/18

U.S. Cl. 210-457

5 Claims



A radial flow filter having fixed end caps, a stack of annular filter discs having their outer edges secured in fixed positions disposed between the end caps, said discs preferably having surface grooves, a pervious center tube, and a discharge outlet in one of said end caps.

3,563,389

GRAVITATIONAL SETTLER VESSEL

Joseph Mizrahi, and Eli Barnea, Haifa, Israel, assignors to Israel Mining Industries-Institute for Research and Development, Haifa, Israel

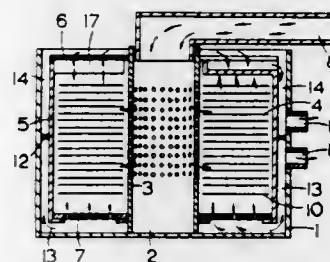
Filed May 29, 1969, Ser. No. 828,988

Claims priority, application Israel, July 3, 1968, 30304

Int. Cl. B01d 21/00

U.S. Cl. 210-521

8 Claims



A gravitational settler vessel for use in combination with a mixer. The settler vessel is adapted for the separation of a

3,563,392

PIPE RACKING PLATFORMS FOR DRILLING RIG MASTS AND THE LIKE

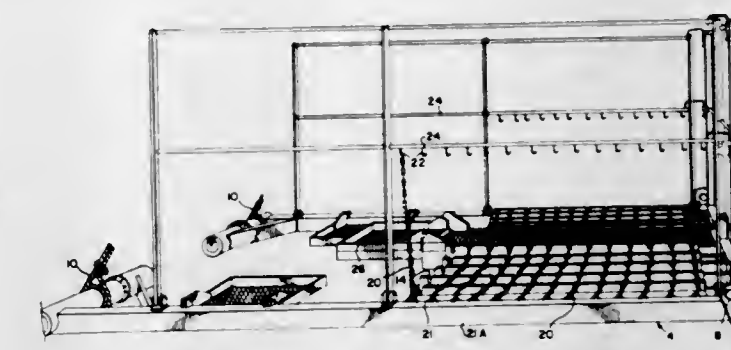
John Hart Wilson, P.O. Box 1031, c/o Wilson Manufacturing Co., Wichita Falls, Tex. 76307

Filed May 28, 1969, Ser. No. 836,684

Int. Cl. A47f 7/00

U.S. Cl. 211-60

7 Claims



A safety device for maintaining racked pipe against lateral displacement, once the pipe is racked in place and secured within the rack by a safety device, which, in the present instance, comprises a series of chains extending across the racking beams, with means on the racking beams, such as recesses to receive the chains. Provision is made to hang up each of the chains once a row of racked pipe is removed from between the beams which receive the pipe.

3,563,393

TRASH-LOADING DEVICE

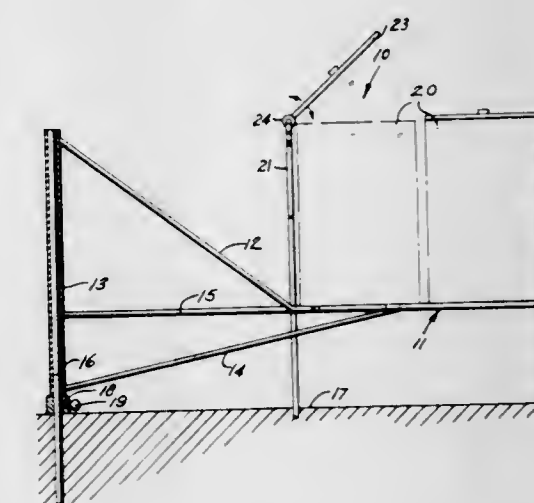
Perry H. Kothe, Glenrock, Wyo., assignor to Leland Oklie Crouch, Glenrock, Wyo., part interest

Filed Sept. 16, 1968, Ser. No. 759,953

Int. Cl. B65f 1/14

U.S. Cl. 211-71

1 Claim



An apparatus for loading trash cans on trucks, the device comprising a pivotable sleeve supported on a post, an extended platform integral with the sleeve and upon which trash cans are placed so as to be pivotally swung in front of or behind a truck.

3,563,394

BIN ASSEMBLY HAVING DETACHABLE SUPPORT MEMBER

James E. Joyce, 878 Darien Circle, Rochester, Mich. 48063

Filed Feb. 11, 1969, Ser. No. 798,372

Int. Cl. A47f 3/14; B65d 21/00

U.S. Cl. 211-126

12 Claims

A storage bin of the type used to hold relatively small arti-

liquid-liquid dispersion in which the dispersed phase amounts to 10 to 70 percent by volume of the total dispersion. It comprises a settling chamber, at least two stacks of sloping, vertically spaced plates, and at the two sides of each such stack there are vertical channels, one of which serves for conducting the ascending lighter phase to a light phase-collecting chamber and the other for conducting the descending heavier phase to the heavy phase-collecting chamber. The vertical channels may be formed either between two vicinal stacks or between a stack and a sidewall of the settling chamber.

3,563,390

SHOE RACK CABINET

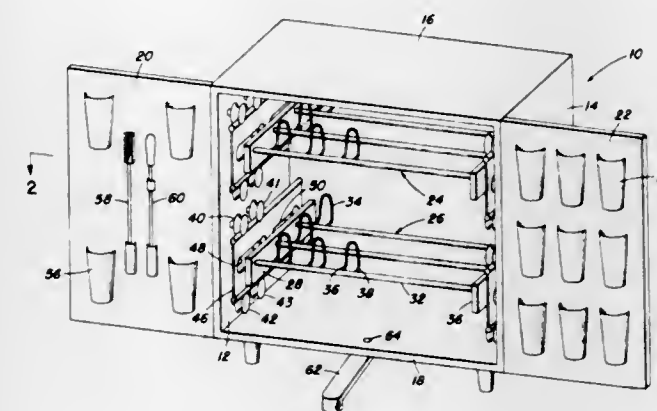
David Kim, 82 Central Ave., Rye, N.Y.

Filed Oct. 20, 1969, Ser. No. 867,665

Int. Cl. A47f 7/08

U.S. Cl. 211-35

10 Claims



A shoe rack cabinet for holding shoes in a generally vertical disposition consists of a cabinet within which are slidably mounted a plurality of shoe rack means. The latter means are adapted to be slid in and out of the cabinet to provide temporary storage and to facilitate ready access to the shoes on the shoe rack means. Suitable shoe holder elements are mounted on the shoe rack means to support shoes in a generally vertically disposed position. The shoe rack cabinet of the present invention is particularly adaptable for use at the entrances to homes to facilitate removal of shoes upon entering the home.

3,563,391

CARD GUIDE

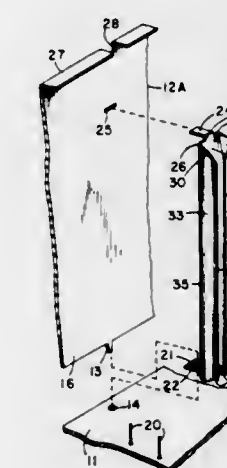
Marvin D. Weltha, Marion, and Howard J. Bronson, Jr., Cedar Rapids, Iowa, assignors to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa

Filed Nov. 1, 1968, Ser. No. 772,784

Int. Cl. H05k 7/14

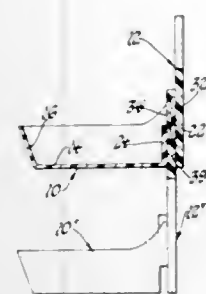
U.S. Cl. 211-41

3 Claims



A circuit board guide mount affixed to parallel spaced sideplates with mechanical indexed mounting for both ends of each guide mount and with adhesive used between each guide mount and its sideplate for obtaining the mounting strength required through an extended service life with repeated insertion and withdrawals of circuit cards or boards.

cles in batch quantities and having a detachable back support axes. The workpieces are manually or automatically properly oriented and placed in a storage unit and are transferred



member which, in the attached condition, permits several similar bins to be stacked in a vertical array.

3,563,395

ELECTRONIC COUNTER MEMORY MEANS FOR SORTING SYSTEMS

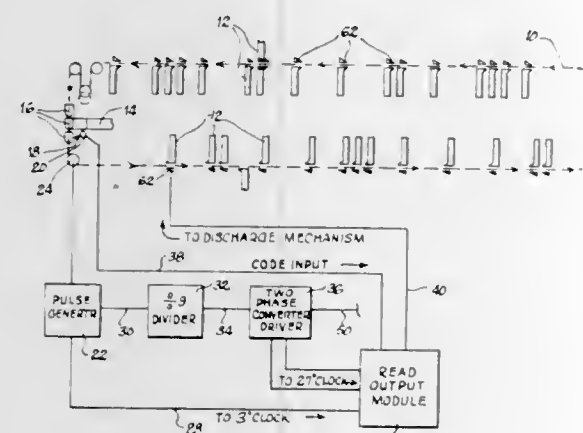
Leo A. Gary, Chicago, Ill., assignor to The Spra-Con Company, Chicago, Ill.

Filed Jan. 19, 1970, Ser. No. 003,930

Int. Cl. B65g 43/00

U.S. Cl. 214-11

10 Claims



A memory means for a sorting system which includes conveyors which have separate article carrying means of the type having mechanisms for discharging articles when the article carrying means reach predetermined locations along the path of conveyor movement. The memory means comprise electronic counters operated in conjunction with the conveyor movement. The counters are connected to discharge mechanisms associated with the respective discharge locations situated adjacent the conveyor. Each counter is designed to operate the discharge mechanisms when a code unique to that counter is applied at a coding station and after the conveyor has moved a specified distance. Each counter has a plurality of terminals which may be alternatively selected to thereby vary the discharge position by distance increments.

3,563,396

WORKPIECE FEEDING MECHANISM

John Leonard, Waynesboro, Pa., assignor to Landis Machine Company, Waynesboro, Pa., a corporation of Pennsylvania

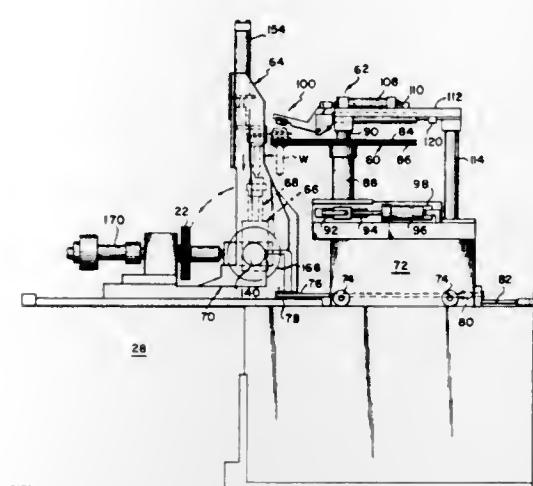
Filed Sept. 30, 1968, Ser. No. 763,653

Int. Cl. B65g 47/06

U.S. Cl. 214-1

1 Claim

Apparatus for feeding workpieces to and removing workpieces from a work forming station, which is typically located between a pair of opposed rolls which rotate about parallel



from the storage unit to the working station and returned to the storage unit.

3,563,397

POWER DRIVEN WHEELBARROW AND DETACHABLE BRICK LIFT

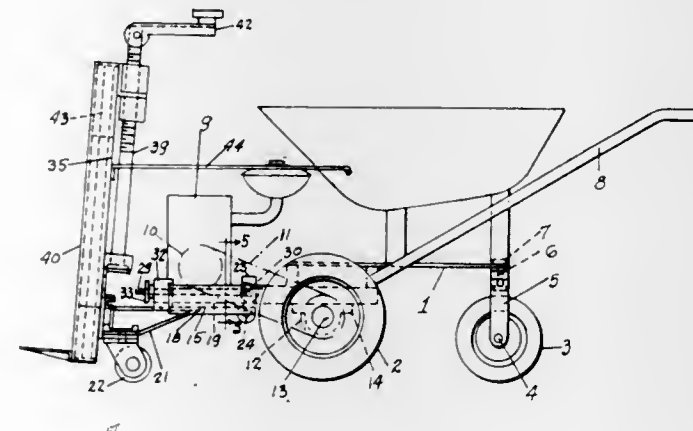
Fred C. Bause, 8861 Winton Road, Hamilton County, Ohio 45231

Filed May 12, 1969, Ser. No. 823,542

Int. Cl. B66b 9/20

U.S. Cl. 214-1

3 Claims



A power-driven wheelbarrow and brick transporting device comprising a motor-driven carriage supporting a wheelbarrow for mortar and a lift for brick and/or building block whereby mortar and a stack of brick and/or building block can be moved about together on a building site, and the brick lift can be detached from the wheelbarrow when it is desired to use the wheelbarrow by itself.

3,563,398

VARIABLE STROKE FEEDER FOR MOVING REFUSE AND LIKE COMPACTABLE MATERIAL

Bertram B. Reilly, 17 Briar Cliff Road, Pittsburgh, Pa., and

Milton F. Guy, 8148 Halcyon Court, Grosse Ile, Mich.

Filed Apr. 11, 1969, Ser. No. 815,423

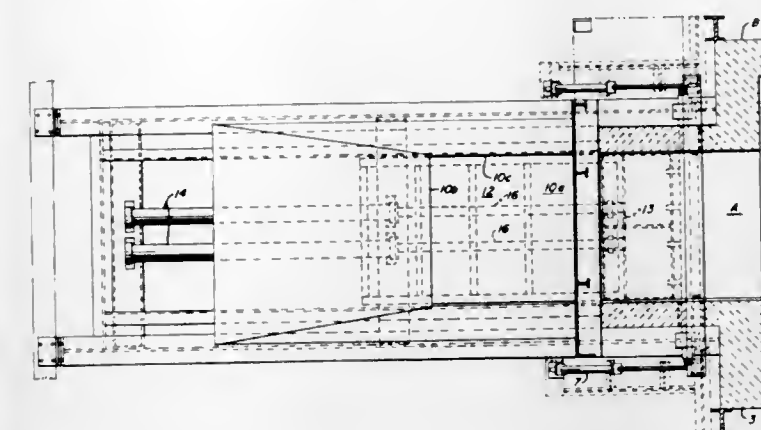
Int. Cl. F23k 3/00

U.S. Cl. 214-23

7 Claims

The disclosure is directed to a variable stroke mechanical feeder for compacting and moving of municipal mixed refuse over the insulated hearth of a combustion furnace. As the degree of compaction of such mixed refuse increases, the re-

sistance of the refuse to moving over the insulated hearth of the furnace also increases. This increased resistance has been



overcome by selectively increasing the length of stroke of the feeder.

3,563,399

METHOD FOR CIRCULATING GRAIN STORED IN A CIRCULAR BIN

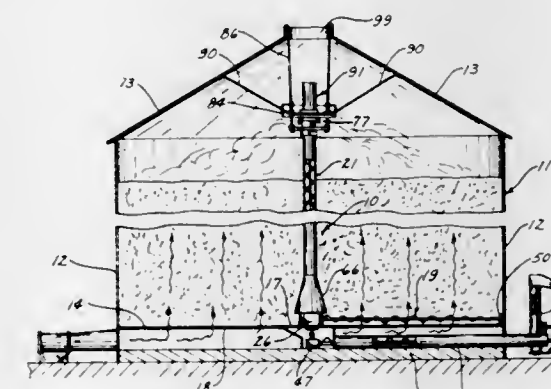
Charles C. Shivers, Corydon, Iowa 50060

Filed May 15, 1967, Ser. No. 638,257

Int. Cl. B65g 65/46

U.S. Cl. 214-152

3 Claims



A sweep auger radially mounted within a storage bin is rotatable horizontally across the bin floor about a vertical axis located centrally of the bin. An upright distributing auger arranged coaxially with the vertical axis has its lower end adjacent the inner end of the sweep auger and its upper end spaced from the roof of the bin. The sweep auger is of a construction such that for each complete revolution across the bin floor it moves predetermined volumes of material over given axial sections thereof for delivery to the distributing auger. The material or grain discharged from the distributing auger is spread across the top surface of the grain stored in the bin. All of the grain in the bin is thus acted upon continuously for circulation through the bin for drying purposes. Field grain may be introduced through the roof of the bin for concurrent distribution and circulation with the grain already in the bin. A bin unloading auger is located below the bin floor to receive grain directly from the sweep auger for discharge exteriorly of the bin.

3,563,400

STORAGE FACILITY

Richard Johnson Greaves, 165 Tramway Parade, Beaumaris, Victoria, Australia

Filed Nov. 8, 1968, Ser. No. 774,429

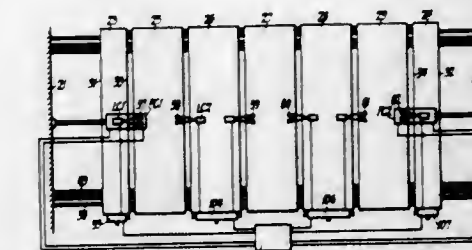
Claims priority, application Australia, Nov. 10, 1967

Int. Cl. E04h 6/34

U.S. Cl. 214-16.1

12 Claims

A mobile storage facility comprising three or more storage structures arranged successively along a track and each movable along the track, drive means operable to move the



apart than the first positions, and coupling means selectively to couple and uncouple each successive pair of structures to and from one another.

3,563,401

HINGED OVERHEAD GUARD FOR TRUCK

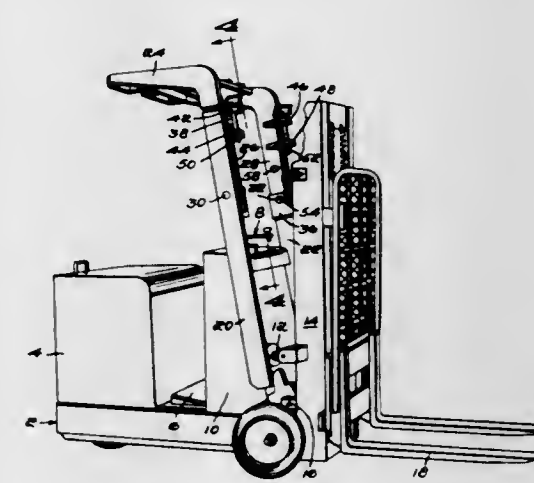
Peter F. Gandolfo, Wellesley, Mass., assignor to Hyster Company, Portland, Oreg.

Filed July 29, 1968, Ser. No. 748,284

Int. Cl. B66f 9/20

U.S. Cl. 214-672

3 Claims



The invention relates to material-handling trucks having a guard of substantial strength positioned above the operator's area to protect the operator against falling objects. The guard, which is normally higher than the minimum height of the truck mast, is mounted on the truck in such manner that it may be lowered to a position behind the operator thereby reducing the overall height of the truck to an extent sufficient to permit the truck to go through lower doorways than possible with the guard in normal overhead protective position.

3,563,402

PLASTIC GASKET RINGS AND GASKET LININGS

Heinrich Arnold, Maetzweg 7, Hamburg-Volksdorf, Germany

No Drawing. Continuation-in-part of application Ser. No. 507,651, Nov. 15, 1965, now abandoned. This application Feb. 9, 1968, Ser. No. 704,235

Int. Cl. B65d 53/06

U.S. Cl. 215-40

11 Claims

Improved gasket linings or rings prepared from novel plastic compositions which are resistant to thermal and mechanical stresses encountered in use, and, when incorporated in a closure, as, for instance, for a glass container, provide a hermetic seal therefor. The plastic compositions comprise a mixture of 50 parts by weight of a polyvinylchloride or a copolymer of vinylchloride with either vinylidene chloride or vinyl acetate, 10-100 parts by weight of a plasticizer into which there has been incorporated 5-200 parts by weight of synthetic rubber. The mixture, after having been worked to form a homogeneous paste, is flowed onto

the inner surface of a metal cap, hood, or like closure and thereafter heat treated whereby the plastic is converted into a gel. Following cooling, the gel is converted into a viscous and coherent film and constitutes the gasket ring or lining.

3,563,403

AIRCRAFT CARGO BOX

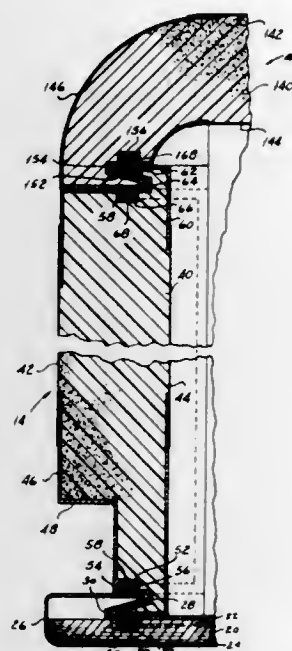
August G. Luisada, Waymart, and Leonard P. Frieder, Clarks Green, Pa., assignors to Gentex Corporation, New York, N.Y., a corporation of Delaware

Filed Mar. 21, 1968, Ser. No. 715,064

Int. Cl. B65d 7/24, 53/00

U.S. Cl. 220-1.5

16 Claims



A cargo box especially adapted for use in housing aircraft cargo, which box is made up of a base or pallet, sides, a top or cover, and ends, all of which may readily and expeditiously be assembled to provide a watertight box which is at once able to withstand relatively heavy gravity loads incident to operation of the aircraft while at the same time being extremely light for the result produced. The construction of the box is such that it may readily be knocked down upon arrival at a destination and reused.

3,563,404

SANITARY INSULATED CONTAINER FOR SEMISOLID SUBSTANCES

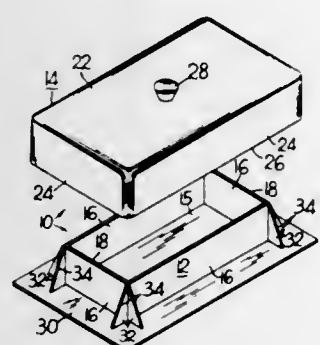
Ward E. Barchus, 2803 W. Burnham St., Milwaukee, Wis.

Filed Oct. 15, 1968, Ser. No. 767,706

Int. Cl. B65d 25/18

U.S. Cl. 220-9

3 Claims



A sanitary insulated container for a semisolid substance such as butter or the like comprises a walled receptacle, a cover with depending sides, cover supporting means associated with the receptacle, and cover directing means associated with the receptacle. As the cover is put in place, it is directed to a predetermined position on the cover supporting means in such a manner that the cover edges and inner sur-

faces of the depending sides do not touch the top edge of the walled receptacle. When in place, a small clearance space exists between the top edge of the walled receptacle and the inside of the cover and thermal insulating space exists between the walls of the receptacle and the depending sides of the cover. If preferred, the top edge of the walled receptacle may touch the inside of the cover to eliminate the clearance space and form a seal.

3,563,405

BREAK APART CONTAINER FOR SMALL ARTICLES

Leonard A. Zaremski, Pittsburgh, Pa., assignor to Ken-

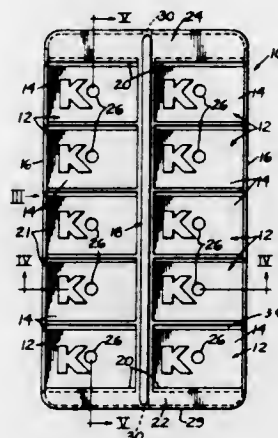
nametal Inc., Latrobe, Pa., a corporation of Pennsylvania

Filed Sept. 18, 1968, Ser. No. 760,578

Int. Cl. B65d 21/00, 83/04

U.S. Cl. 220-23.8

14 Claims



The invention is concerned with a container having a plurality of rectangular compartments therein for receiving small articles for transparent blister members are placed in the compartments to retain the articles therein. The compartments are arranged in two parallel rows in the container and the container has a weakened region which permits it to be stepped into two parts, each part having a row of the compartments therein. The container furthermore has weakened regions between adjacent ones of the compartments so that the compartments can be broken off singly.

3,563,406

CLOSURE UNIT

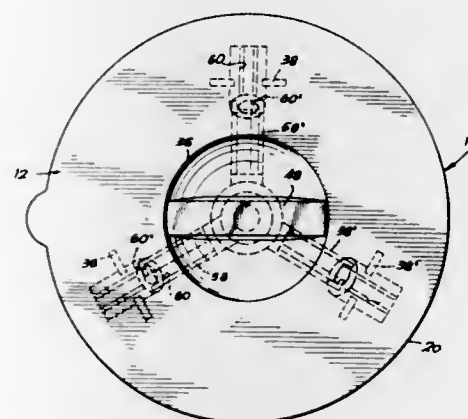
Richard Ferrante, Flushing, N.Y., assignor to BFG Marine Supply Co., Inc., New York, N.Y., a corporation of New York

Filed June 10, 1969, Ser. No. 831,942

Int. Cl. B65d 45/00

U.S. Cl. 220-25

7 Claims



The present invention relates to a closure unit adapted for use in an opening provided in a wall, in a sealing relation. The unit comprises a cover plate mounted on one side of said opening and an anchoring mechanism arranged at the other side for securing the cover plate against said opening. The anchoring mechanism comprises adjustment means rotatably

mounted on said cover plate, operable from both sides of said opening, thrusting means threadably movable in an axial direction upon rotation thereof, and engageable and disengageable means for gripping said cover plate over said opening, operatively connected to said thrusting means.

3,563,407

TEARAWAY TONGUE FOR GASTIGHT CONTAINER

Karl-August Wachter, Lubeck, Germany, assignor to Otto

Heinrich Drager, Lubeck, Germany

Filed Jan. 27, 1969, Ser. No. 794,143

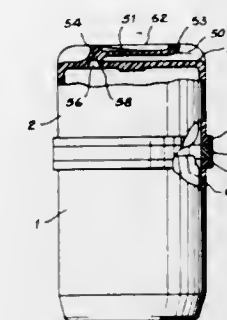
Claims priority, application Germany, May 14, 1968,

P1.759,552

Int. Cl. B65d 17/24, 17/20

U.S. Cl. 220-27

2 Claims



The cover for a gastight container for a breathing apparatus has formed in one piece therewith a tearaway tongue which when pulled off leaves a hole through the cover.

3,563,408

SIDEWALL FOR A PRISMATIC CONTAINER

Leonardus Arnoldus Nicholaas Bijvoet, Bloemendaal, Nether-

lands, assignor to Inland Steel Company, Chicago, Ill.

Original application Oct. 7, 1966, Ser. No. 585,110, now

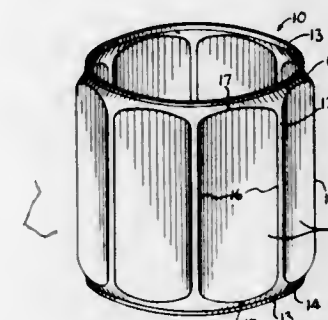
Patent No. 3,459,028. Divided and this application Nov. 22,

1968, Ser. No. 816,427

Int. Cl. B65d 7/02, 7/42

U.S. Cl. 220-83

1 Claim



A sidewall for a prismatic shipping container is disclosed in which radially expandable die segments are used to engage a cylindrical blank of sheet material and thereby form straight axial side edges and convex connecting end edges to define flat prismatic side surfaces.

3,563,409

DEVICE TO ENABLE VERTICAL STACKING OF MARINE GASOLINE TANKS OR CONTAINERS

Everett W. Gray, 700 Hammond St., Bangor, Maine

Filed Apr. 21, 1969, Ser. No. 817,744

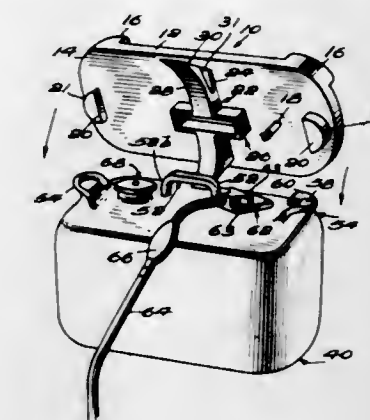
Int. Cl. B65d 21/02; B67d 5/60

U.S. Cl. 220-97

7 Claims

A device for supporting a plurality of containers or tanks in vertically stacked relationship relative to one another, the device comprising an elongated substantially rectangular quadrilateral plate having means projecting from one side thereof cooperating with means on the upper end wall of a conventional first or lowermost marine gasoline tank or container to prevent inadvertent or accidental longitudinal and

lateral shifting of the plate and said first tank relative to one another; and means on said plate projecting laterally from an opposed side thereof to releasably receive therein means cooperating therewith on the lower end of a second conven-



tional marine gasoline tank to prevent inadvertent or accidental longitudinal and/or lateral relative movement between said plate and said second marine gasoline container or tank.

3,563,410

MEDICATION-DISPENSING DEVICE AND METHOD

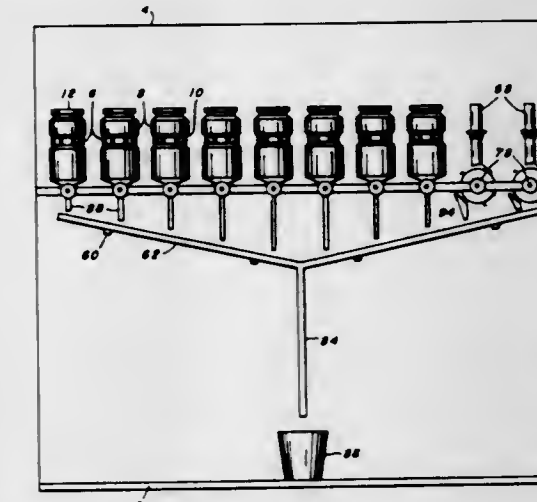
Jerome G. Murray, 69 Amanda St., Pittsburgh, Pa. 15210

Filed June 25, 1968, Ser. No. 739,672

Int. Cl. B65g 59/00

U.S. Cl. 221-1

1 Claim



This invention relates to method and apparatus for dispensing medication in the form of pills or capsules for a number of patients in a ward or wing of a hospital or similar mass treatment institution. There is provided a machine that will release a desired number of pills or capsules of a given kind and dispense the pills into a medication cup. Adjustable selection apparatus is provided for determining and controlling the number of pills or capsules to be released from a given medication reservoir. Audible signals indicating the number of pills or capsules dispensed are simultaneously provided as a safety measure.

3,563,411

CUP DISPENSER

Michael W. Carroll, Bloomingdale Township, DuPage County,

Ill. (250 Lincoln St., Roselle, Ill. 60172)

Filed Dec. 26, 1968, Ser. No. 786,938

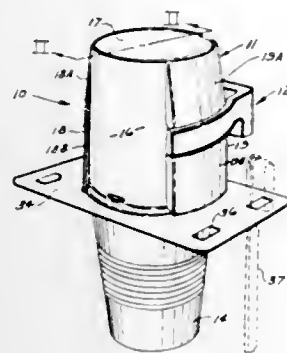
Int. Cl. B65h 1/00

U.S. Cl. 221-63

8 Claims

An inverted, cup-shaped cup dispenser having recesses in opposite sides of the wall thereof for receiving the spaced legs of a substantially U-shaped bracket for supporting the

cup-shaped dispenser upon wall means. The dispenser is made of plastic and has an integral flange near the open,



lower edge thereof with a plurality of openings through which the handles of toothbrushes can be received.

3,563,412

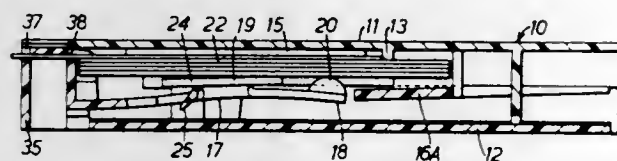
RAZOR BLADE DISPENSERS

Michael James, Welwyn Garden City, England, assignor to Wilkinson Sword Limited, London, England
Filed Nov. 6, 1968, Ser. No. 773,748

Claims priority, application Great Britain, Nov. 8, 1967, Jan. 31, 1968, 50,685/67; 4,862/68
Int. Cl. B65h 5/00

U.S. Cl. 221-224

10 Claims



A razor blade dispenser including a body part and a lid part has a new-blade compartment and a used-blade compartment. The pack of blades in the new-blade compartment is biased by a spring so that the uppermost blade is aligned with a dispensing slot. The two parts are relatively slidable and movement in one direction causes one blade to be dispensed through the slot. In the preferred embodiment, the spring is only energized to bias the blade pack, when the dispensing movement is initiated, the energization being effected by cam followers rigid with the spring and cooperating with rams on the lid part.

3,563,413

CONTAINER DISPENSING DEVICE

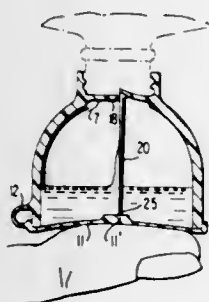
William Gordon, Silver Spring, Md., assignor to Alex Logar, Bethesda, Md., a part interest and B. P. Fishburne, Jr., Washington, D.C., a part interest

Filed June 25, 1969, Ser. No. 836,237

Int. Cl. B67d 7/28

U.S. Cl. 222-83.5

9 Claims



A measuring device for detachable connection to a bottle or other container for fluent materials which is fitted with a resilient cover at its outlet and a flexible slotted diaphragm adjacent to its inlet, with an actuating rod extending therebetween, so that upon momentary flexing of the cover

inwardly when the container is inverted, the actuating rod opens the slots in the diaphragm to permit a desired amount of the fluent material to pass to the measuring device, and which upon release of the resilient cover, permits the slots to reclose and to seal off communication between the measuring device and the container, following which the measured contents of the measuring device may be poured therefrom by opening the cover.

3,563,414

DISPENSING CONTAINER

Maurice Coulombe, 4296 Place Charles Bedard, Charlesbourg, and Yvon Bureau, 1335 St. Henri St., Quebec, Canada

Filed July 12, 1968, Ser. No. 744,425

Int. Cl. B65d 25/38

U.S. Cl. 222-130

6 Claims



A container having an inner cylindrical wall, a stationary radial partition, a rotatable cover for the container and a spatula, secured thereto and extending within the container, whereby rotation of the cover will discharge the contents of the container through an orifice in the cover. In accordance with one embodiment, the container is used for toothpaste and the cover has an upstanding hook-shaped member facing the cover orifice for receiving the head of a toothbrush which is used for rotating the cover with the bristles directed towards the orifice directly receiving the toothpaste issuing from the orifice. The container has preferably a central compartment for storing the tooth brush. In accordance with another embodiment, the container is formed with two coaxial compartments and two separate spatulas depend from the cover and are in respective slidable contact with the walls of the respective compartment to simultaneously discharge two different products in proportionate amounts, such as a polymerizable material and a catalyst therefor.

3,563,415

MULTIDROP ADAPTER

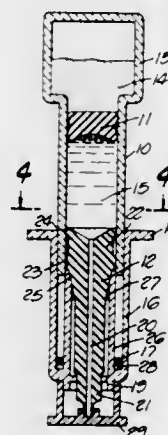
Robert W. Ogle, Newport, Calif., assignor to Multi-Drop Adapter Corporation, Wilmington, Del., a corporation of Delaware

Filed June 4, 1969, Ser. No. 830,308

Int. Cl. B67d 5/60

U.S. Cl. 222-145

10 Claims



A multidrop adapter or dispenser in which a tubular member which may have an enlarged head for containing a powder or substance to be mixed with a liquid in the remainder of the tubular member is telescopically received in a second tubular member which seals one end of a piston which extends into the first tubular member and has a bore which extends out of said second tubular member to expel a drop of liquid when said first tubular member is telescopi-

cally moved into said second tubular member and over said piston; and resilient means biasing said first tubular member out of said second tubular member. A plug in said first tubular member is dispelled into said enlarged head upon movement of said first tubular member over said piston when said enlarged head is employed in the invention.

3,563,416

DEVICE FOR EMPTYING LIQUID CONTAINING PIPES

Paul Dobrink, Lintorf, Germany, assignor to Mannesmann Aktiengesellschaft, Dusseldorf, Germany

Filed Mar. 12, 1969, Ser. No. 806,350

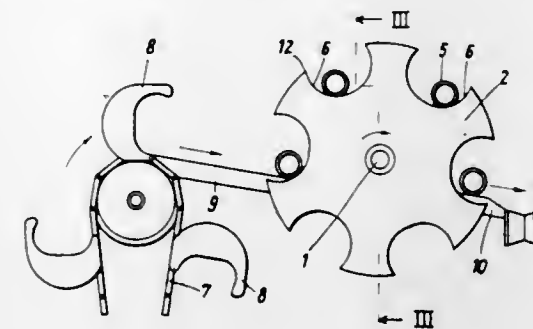
Claims priority, application Germany, Mar. 21, 1968,

P 17 58 018.6

Int. Cl. B67d 3/00

U.S. Cl. 222-166

8 Claims



The device comprises rotating shaft fixedly supporting a number of carrying discs. The discs have at their periphery radially arranged U-shaped recesses for receiving and lifting the pipes. The depth of recesses on consecutive discs is progressively varied so as to incline the pipe at an acute angle during the rotation of the discs.

3,563,417

DISPENSING GRID

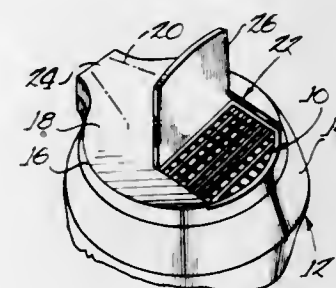
Robert H. Jordan, Chicago, and Robert F. Boldt, Des Plaines, Ill., assignors to Morton International, Inc., Chicago, Ill., a corporation of Delaware

Filed Nov. 25, 1968, Ser. No. 778,463

Int. Cl. A47g 19/24

U.S. Cl. 222-189

6 Claims



A dispensing grid for use in a dispenser for solid, particulate matter, such as salt, features rounded upper surfaces and wedge-shaped lower surfaces, the intersecting ribs comprising the grid preferably being at two levels. The grid is preferably disposed on an interior surface of the dispenser, across an opening through which dispensed material may pass, and beneath a flush-fitting closure. The rounded upper surfaces minimize salt entrapment beneath the flush-fitting closure, and the chisel-point lower surfaces break up agglomerated lumps of the material.

3,563,418

DETERGENT FOAM GENERATOR

Douglas Albert Hahn, Chinnor, England, assignor to Reckitt & Colman Products Limited, Dansom Lane, Hull, England, a British company. By mesne assignments

Filed Apr. 4, 1969, Ser. No. 813,662

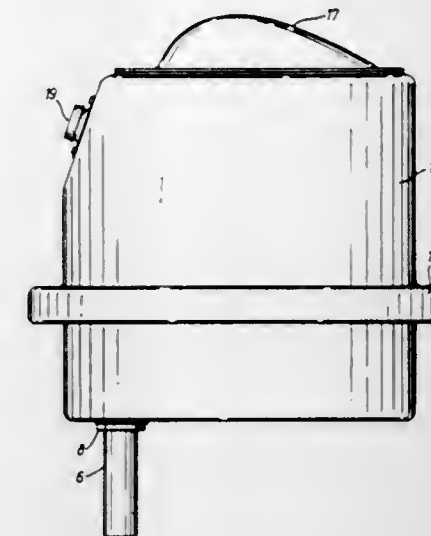
Int. Cl. A47l 13/00; B67d 5/58

U.S. Cl. 222-190

4 Claims

A detergent foam generator attachable to a floor cleaning appliance having at least one rotary brush and comprising a

liquid reservoir casing, which may be made of plastics material, formed with a tubular portion in which is an electric motor driving a fan and having a cap forming an airflow



path containing a nonreturn valve to a pipe extending into the interior of the casing, and a foam outlet pipe leading from the top of the casing out to therebelow.

3,563,419

DISPENSING DEVICE CONTAINER

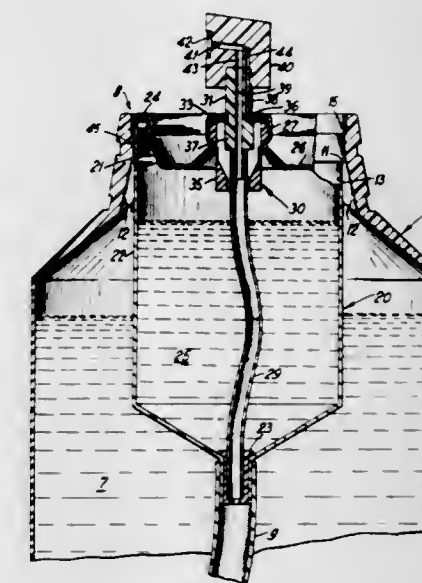
Robert A. Coerver, Jr., New York, N.Y., and Paul A. Marchant, Kansas City, Mo., assignors to Precision Valve Corporation, Yonkers, N.Y. and Imco Container Company, Kansas City, Mo.

Filed Jan. 11, 1967, Ser. No. 608,655

Int. Cl. B67d 5/54

U.S. Cl. 222-193

3 Claims



A pressurized dispenser having separate product and propellant containers comprising an inner container for the propellant fitted into the mouth opening of an outer product container. Passages are formed in the region of the mouth to vent from the product container air displaced by the placement of the propellant container within the product container. These vent passages are closed when the containers are completely assembled.

3,563,420

VIBRATORY EVACUATOR

Charles H. Ansley, 35 Farview Hill, Rochester, N.Y. 14620

Filed June 17, 1969, Ser. No. 834,084

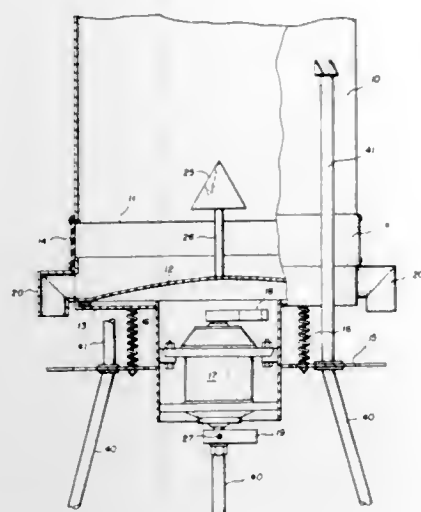
Int. Cl. B65g 3/12

U.S. Cl. 222-199

12 Claims

A vibratory evacuator has a base with coil springs on which a vibratory element is mounted so that its upper sur-

face is arranged below an outlet for material to be evacuated. The vibratory element includes a motor mounted beneath the upper surface and having a vertical shaft turning an upper eccentric above the motor and a lower eccentric below the motor. The upper eccentric impresses an orbital and generally



horizontal vibration on the element, and the lower eccentric impresses successive tilting motions on the element. At least one discharge passageway leads from the upper surface radially outward from the region of the motor for evacuating the material that is fluidized by the vibration motion.

3,563,421

VIBRATING MECHANISM

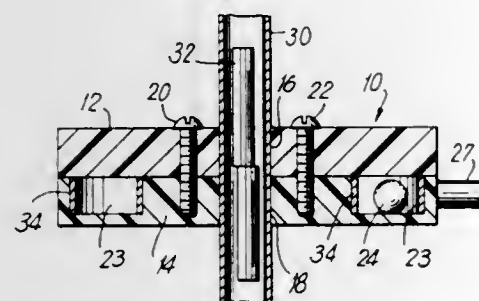
Harold F. Coates, Hatboro, and Samuel J. Greger, Glenside, Pa., assignors to Standard Pressed Steel Co., Jenkintown, Pa.

Filed Aug. 9, 1968, Ser. No. 751,502

Int. Cl. B65g 65/70

U.S. Cl. 222-196

5 Claims



3,563,422

POURING DEVICE FOR A BOTTLE

Charles B. Cruikshank, Glasgow, Scotland, assignor to Daniel Montgomery & Son, Limited, Glasgow, Scotland, a corporation of the United Kingdom of Great Britain and Northern Ireland, a part interest

Filed Mar. 21, 1968, Ser. No. 715,009

Claims priority, application Great Britain, Mar. 22, 1967, 13,332/67

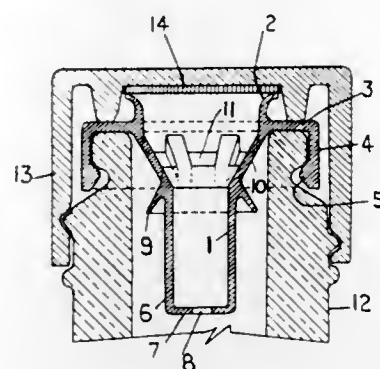
Int. Cl. B65d 23/04, 25/48

U.S. Cl. 222-478

1 Claim

A pouring device for facilitating smooth liquid flow from a bottle by establishing a path for liquid flow from the bottle and a further path for the ingress of replacement air into the bottle. The device has a central tubular portion with an aperture at the inner end and an outwardly flared conical portion at the bottle opening. A flange at the bottle opening attaches the device to the bottle itself. Ports in the outwardly flared conical portion permit outward flow of liquid in an axial

direction while permitting the ingress of air through the central portion of the device and hence into the bottle through the inner opening.



3,563,423

DISPOSABLE PRESSURIZED FLUID DISPENSER

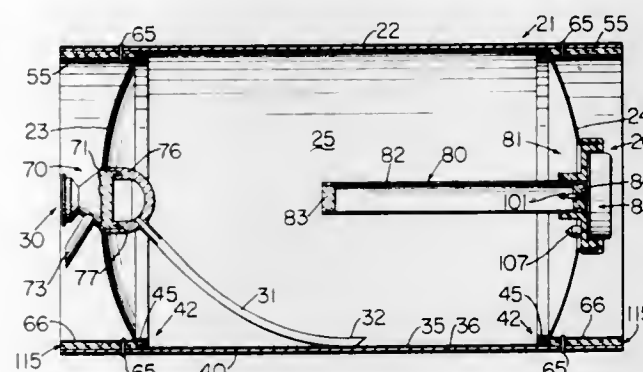
Calvin L. Wilson, Chesterfield County, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Filed Dec. 3, 1968, Ser. No. 780,838

Int. Cl. B65d 83/00

U.S. Cl. 222-396

12 Claims



A self-contained disposable automatic dispenser for fluid products which has a simple spigot assembly comprised of a pair of cooperating portions which are arranged on opposite sides of the front wall of the dispenser and snapfitted together while sandwiching the front wall in a fluidtight manner therebetween. The dispenser is also provided with a pressure regulator assembly which has a bellows member which is also snapfitted in position on an associated support therefor and the support has integral safety means assuring the bellows member is prevented from being blown away from the regulator assembly in the event of a faulty regulator assembly.

3,563,424

BEER TAP

Mack S. Johnston, Rolling Hills, Calif., assignor to Johnston Enterprises, Inc., East Kalispell, Mont.

Continuation of application Ser. No. 676,291, Oct. 18, 1967, which is a continuation-in-part of application Ser. No. 611,610, Jan. 25, 1967, now Patent No. 3,410,458, which is a continuation-in-part of application Ser. No. 587,627, Oct. 18, 1966, now Patent No. 3,422,448, which is a continuation of application Ser. No. 406,682, Oct. 27, 1964, now abandoned, which is a continuation-in-part of application Ser. No. 395,084, Jan. 25, 1966, now Patent No. 3,231,154, which is a continuation of application Ser. No. 150,982, Nov. 8, 1961, now abandoned, which is a continuation-in-part of application Ser. No. 25,592, Apr. 29, 1960, now abandoned, which is a continuation of application Ser. No. 159,818, Dec. 8, 1961, now Patent No. 3,156,252. This application Mar. 26, 1969, Ser. No. 814,883

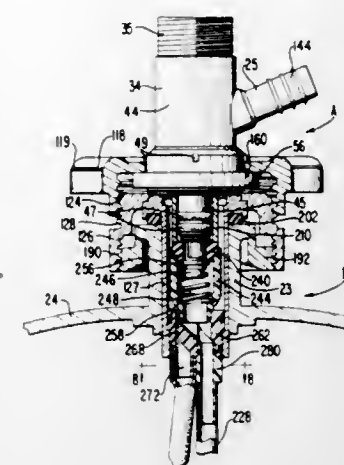
Int. Cl. B65d 83/14

U.S. Cl. 222-400.7

23 Claims

This invention relates to a beer-tapping device and especially to an improved adapter for attachment in the beer out-

let of a standard keg. It comprises a metallically enclosed, readily assembled unit, insertable from outside the keg with a laterally offset liquid passageway through the adapter. The offset passage takes optimum advantage of the limited space



3,563,425

LIQUID DISPENSER HAVING CAPILLARY OUTLET

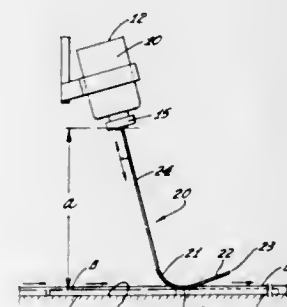
Thomas C. Clark, Playa del Rey, Calif., assignor to Phil Mustain

Filed Jan. 6, 1969, Ser. No. 789,208

Int. Cl. B67d 3/00

U.S. Cl. 222-478

11 Claims



A liquid-dispensing apparatus is disclosed in which an L-shaped capillary tube extends down from a container holding the liquid. The container has capillary relief openings and the tube has a narrow slot in the bent portion of the L, through which liquid is dispensed upon contact with a wettable surface.

3,563,426

PLASTIC CONTAINER TOP WITH COMBINATION CLOSURE AND SPRINKLER

Benjamin M. Bartilson, Columbus, Ohio, assignor to Morton International, Inc., Chicago, Ill.

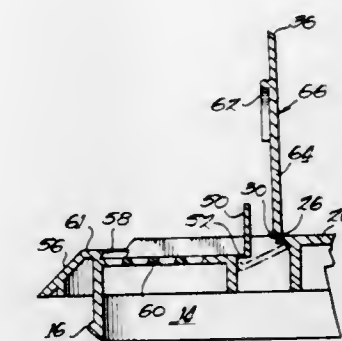
Filed July 3, 1969, Ser. No. 838,927

Int. Cl. B65d 47/00

U.S. Cl. 222-556

10 Claims

This low-cost, one-piece integrally molded plastic container top for containers of particulate substances such as salt features a wall member having an opening with a hinged-attached cover and a recessed perforated sprinkler plate across



leakage by a snap flap molded substantially normal to said sprinkler plate and flexed athwart said opening.

3,563,427

BOW AND FORMING MACHINE THEREFOR

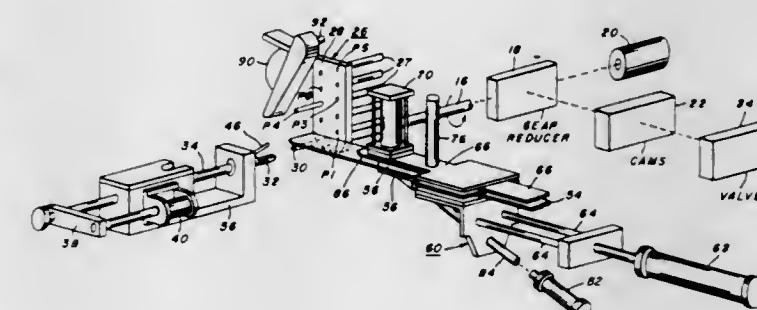
Henry R. Fichter, Pittsburgh, Pa., assignor to Papercraft Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Aug. 14, 1968, Ser. No. 752,535

Int. Cl. A41h 43/00

U.S. Cl. 223-46

10 Claims



Described is a novel bow configuration and apparatus for automatically forming such bows from continuous lengths of ribbon material, the bow being of the type comprising a plurality of spiral convolutions joined, as by a staple, at one point about their peripheries. The apparatus is characterized in that the ribbon is automatically fed to a winding machine, the bow formed, and a piece of pressure-sensitive tape or card stapled to the bow at the peripheral point of contact of the various bows, all of this occurring during one continuous cycle of the machine.

3,563,428

ELECTRIC AIR FINISHER

Peter D. Rasmussen, Milwaukee, Wis., assignor to McGraw-Edison Company, Elgin, Ill.

Filed Jan. 2, 1970, Ser. No. 000,369

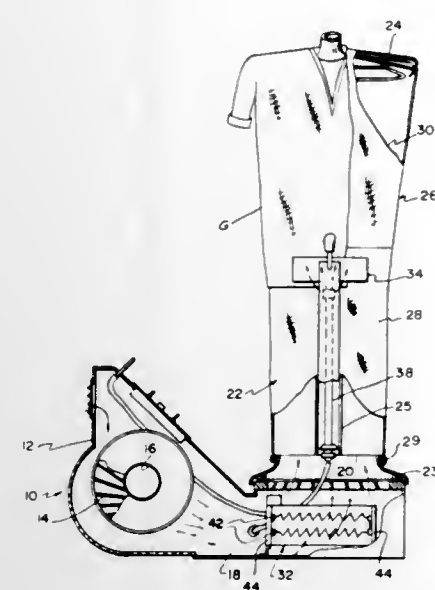
Int. Cl. A41h 5/00, 5/02

U.S. Cl. 223-70

10 Claims

An electric air form garment finisher including a frame upon which the garment is dressed, a blower for forcing air under moderate pressure through the garment, separate electric heaters for heating the air before passing through the garment, and control means for actuating the heaters for a

standby low output situation where the separate heaters are connected in an in series circuit and further for actuating the



heaters for a high output finishing situation where the heaters are connected in an in-parallel circuit.

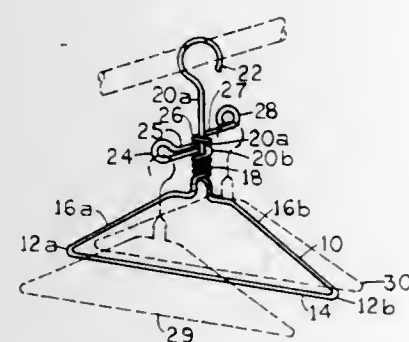
3,563,429 GARMENT HANGER

George R. Monks, 944 Foothill Drive, Colma, Calif. 94015
Filed Dec. 19, 1969, Ser. No. 886,478

Int. Cl. A47j 51/09

U.S. Cl. 223—92

5 Claims



A wire hanger of simple construction for garments which comprises a pair of symmetrically ascending shoulder-supporting runs having their upper end portions bent upwardly and twisted one about the other to hold them together. Above the twisted area one of said end portions is bent in the customary manner into a hook for engagement over a peg or rod, while the other end portion is bent into a loop projecting laterally within a plane substantially at right angles to the plane defined by said shoulder runs, is returned to and wound a full turn about the said first mentioned end portion and is finally formed into a hook on the opposite side of the hanger substantially within the same plane within which said loop is located. Thus, additional hangers with garments supported therefrom may be suspended from the loop and the hook on the opposite sides of the original hanger.

3,563,430

CARRIER FOR ARTICLES SUCH AS PITONS

William E. Forrest, 2034 Franklin St., Denver, Colo. 80202
Filed July 22, 1968, Ser. No. 746,339

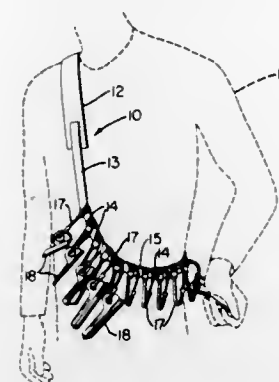
Int. Cl. A45f 51/00

U.S. Cl. 224—5

10 Claims

A carrier for removably supporting a plurality of articles in a sorted arrangement and particularly pitons used for mountain climbing includes a body mount preferably of a bandolier type having spaced support stations, and a piton retainer member is removably attached at selected of the bandolier

support stations and firmly held thereto in a fixed, upright, ready to use position. Each retainer member is comprised of an elongated piece shaped in a closed loop of a particular configuration including a lower hook portion on which the pitons are carried in a depending manner, an upper inclined portion on which the pitons may be temporarily supported



for selective piton removal from the lower hook portion and a pressure responsive gate portion formed in an outer side having an upper free end arranged to move outwardly to open the closed loop for selective piton removal and replacement and arranged to automatically return to the closed position.

3,563,431

SELF-ADJUSTING PACKFRAME

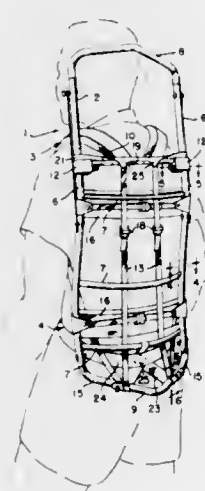
Murray J. Pletz, 5227 Pleasure Point Lane, Bellevue, Wash. 98004

Filed Nov. 6, 1968, Ser. No. 773,912

Int. Cl. A45f 3/08

U.S. Cl. 224—25

5 Claims



A packframe for hikers is constructed using side and cross-members rigidly held together by tension created in straps wrapped around the frame. The packframe has shoulder straps anchored at both ends to substantially a common point near the bottom and out from the general load bearing area of the packframe. A belt is coupled near the bottom of the packframe to absorb a portion of the load and to stabilize the packframe.

3,563,432

HOLDER

Hadassah K. Sage and Robert W. Johnston, both of Commonwealth Ave., Auburndale, Mass. 02166

Filed Oct. 11, 1968, Ser. No. 766,709

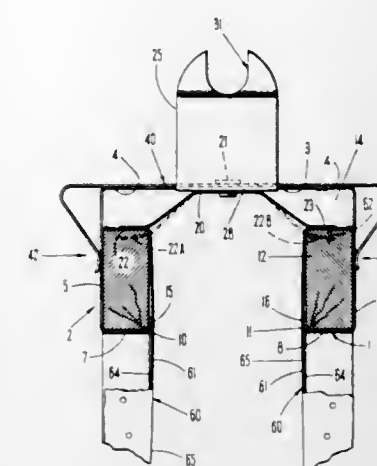
Int. Cl. B65d 61/00

U.S. Cl. 224—45

10 Claims

A holder for oil paintings canvas mounted on rectangular sketch frames and the like in which the canvas is stretched over one side of the frame. The holder consists of a pair of C-shaped clamps integrally connected by a continuous web par-

tially formed of the top legs of the C shapes, with the C shapes opening toward one another and having upwardly extending lips extending from the bottom legs which are



adapted to lie in facing relation with faces of the rectangular members. A spring element engages the upper surfaces of the rectangular members and forces it downwardly toward the bottom leg of the C shaped clamps.

3,563,433

CARRYING DEVICE USABLE IN TWO WAYS

Keiti Yoshiura and Akiko Ito, both of 3,2-chome Ginza-Nishi, Chuo-ku, Tokyo, Japan

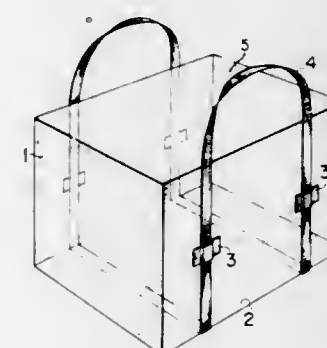
Filed May 21, 1969, Ser. No. 826,441

Claims priority, application Japan, May 21, 1968, 43/41,762

Int. Cl. A45c 13/26

U.S. Cl. 224—45

3 Claims



A device for carrying objects having a body portion which in one mode serves as a container supporting the object to be carried and in the other mode serves to cover the object as it is being carried.

3,563,434

APPARATUS FOR LOADING AND UNLOADING FURNACE

James E. Shriver, Plano, and Gerald M. Streater, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Feb. 27, 1969, Ser. No. 802,916

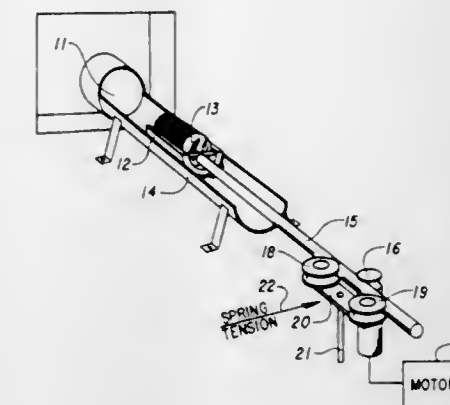
Int. Cl. B65g 39/00

U.S. Cl. 226—187

5 Claims

In order to minimize slip dislocations, the rates of introduction and withdrawal of semiconductor wafers into and from a high temperature furnace are carefully controlled by means of apparatus comprising a conveyor, a pushrod for

moving a furnace boat along the conveyor path, and a novel mechanism for driving the pushrod. The mechanism includes



a roller drive and two idler wheels pivotally supported about an axis lying in a common plane with the roller drive axis.

3,563,435

TAPE CASSETTES

Cecil T. Whitehead, Crowthorne, and James E. Wicks, Ashford, England, assignors to International Computers Limited, London, England, a British company

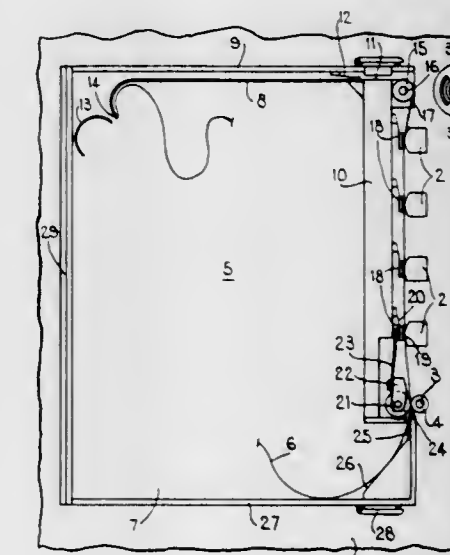
Filed Nov. 12, 1968, Ser. No. 774,635

Claims priority, application Great Britain, Nov. 15, 1967, 51902/67

Int. Cl. G11b 23/12

U.S. Cl. 226—90

4 Claims



This disclosure relates to a recording tape cassette which is removably mounted on a baseplate assembly, which assembly carries a drive capstan and recording heads. The cassette includes a tape guide means having two concave members separated by a gap at the first corner inside of the boxlike cassette. One concave member extends parallel to a first side of the cassette forming a portion of the tape path. The tape path continues through an opening in the second side of the cassette. A face portion of the second side has mounted thereon a plurality of pressure rollers and pressure pads with the tape traversing the pads and rollers outside the cassette. A tape inlet in the second side is provided such that the tape enters the cassette adjacent a second corner diagonally opposite from the first corner and forms loose folds therein. By engaging the cassette with the baseplate assembly, each pressure pad on the cassette maintains the tape in contact with a corresponding recording head.

3,563,436

ENDLESS CONVEYOR FOR FEEDING A FLEXIBLE ELONGATED MEMBER

Remi Reynard, Port Marly, Michel Chatard, Chatou, Roger Tindy, Bougival, and Jean Thiery, Le Pecq, France, assignors to Institut Francais Du Petrole Des Carburants Et Lubrifiants, (Hauts de Seine), France

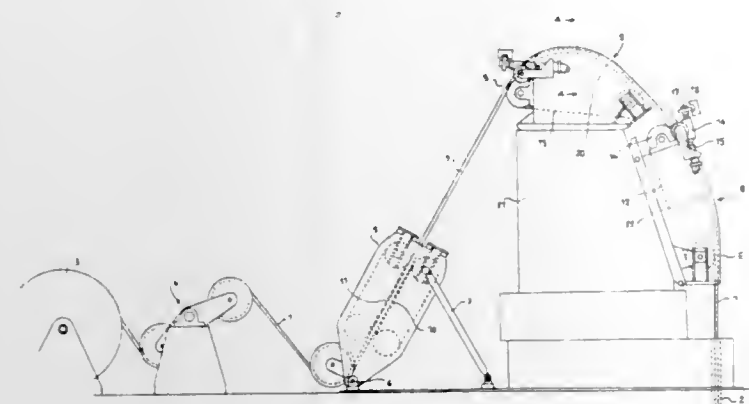
Filed Sept. 18, 1968, Ser. No. 760,491

Claims priority, application France, Sept. 28, 1967, 122,723

Int. Cl. B65h 17/34

U.S. Cl. 226-173

8 Claims



An endless conveyor for feeding a flexible elongated member, comprising endless chain means which are in gripping engagement with the elongated member along a path having a radius of curvature which decreases in the direction of advancement of the endless chain means.

3,563,437

FILM CARRIER

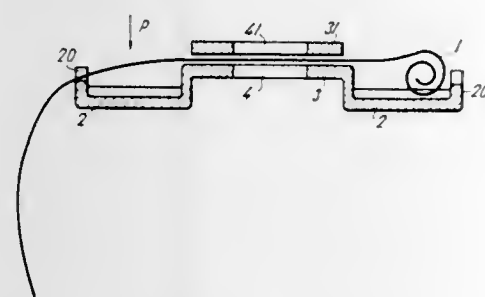
Ladislav Dubny, Prerov, Czechoslovakia, assignor to Meopta, narodni podnik, Prerov, Czechoslovakia

Filed May 21, 1969, Ser. No. 826,494

Int. Cl. B65h 23/02; G03b 1/44

U.S. Cl. 226-196

8 Claims



A film carrier to be used with enlargers or other photographic reproducing apparatus has a pair of apertured plates between which the part of the film which is exposed is held. A pair of elongated guides which extend in the direction of film movement are respectively fixed to and extend from opposed ends of one of these plates. Each of these guides has, in a plane normal to the plane of the film between the plates and extending perpendicularly across the guide and the direction of movement of the film strip, a pair of film-engaging portions which respectively engage only opposed edges of the filmstrip and which extend at least in part along a pair of distinct lines that intersect to form a V-shaped configuration.

3,563,438

FASTENER DRIVING TOOL

Richard H. Doyle, Mount Prospect, and Edward J. Novak, Franklin Park, Ill., assignors to Fastener Corporation, Franklin Park, Ill., a corporation Illinois

Filed Dec. 5, 1968, Ser. No. 781,433

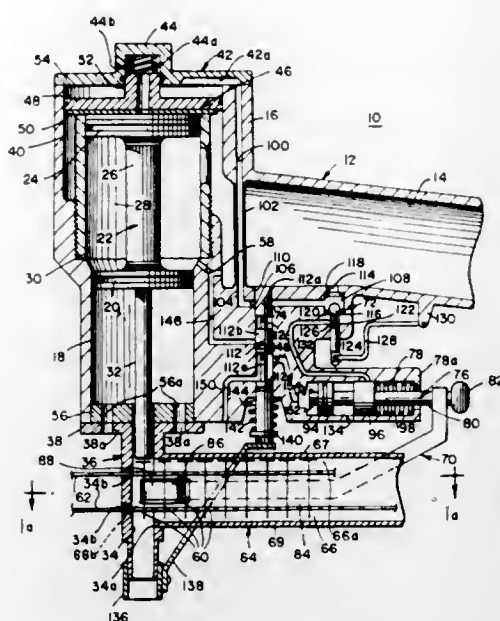
Int. Cl. B25c 7/00

U.S. Cl. 227-8

24 Claims

A fastener driving tool comprising a drive track for guiding fasteners as they are driven, a driver slidable in said track

and movable on a power stroke to drive fasteners and return stroke in the opposite direction, pusher means for feeding fasteners into the lower end of said drive track and movable between a forward position projecting into said drive track



3,563,439

POWDER ACTUATED TOOL

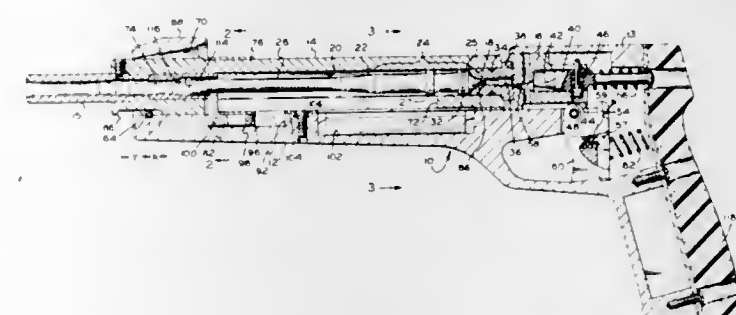
Raymond V. Pomeroy, Portland, Oreg., assignor to Omark Industries, Inc., Portland, Oreg., a corporation of Oregon

Filed June 18, 1968, Ser. No. 737,900

Int. Cl. B25c 1/14

U.S. Cl. 227-8

23 Claims



A captive piston type of powder actuated tool is provided with a barrel pivotally engaged by the forward end of the tool housing so that the breech end of the barrel can be upraised into a loading position. A piston retractor is slidably carried on the barrel and includes a member extending through a slot in the barrel for engaging the head of the piston used for moving of a piston into a firing position. The barrel may be pivotally returned to firing position only after the piston retractor has been moved forwardly and out of the way of piston movement in the subsequent firing of the tool.

3,563,440

APPARATUS FOR ALIGNING AND DRIVING REINFORCING MEMBERS

Donald J. Stuart, Chesterland, Ohio, assignor to United States Steel Corporation

Original application June 14, 1967, Ser. No. 645,929, now Patent No. 3,475,874, dated Nov. 4, 1969. Divided and this application Sept. 6, 1968, Ser. No. 796,621

Int. Cl. B25c 7/00

U.S. Cl. 227-147

12 Claims

This invention relates to the strengthening, preservation and extension of the life of wooden poles and, more particu-

3,563,442

COMBINATION LIP SEAL AND O-RING

Gerald L. Kretzman, Saint Joseph, Mich., assignor to The Bendix Corporation

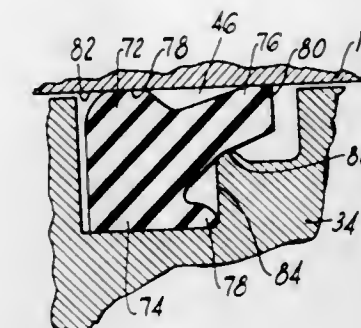
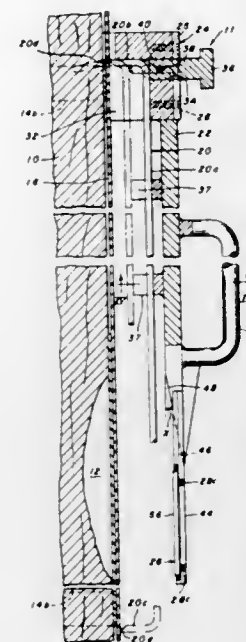
Filed Oct. 31, 1968, Ser. No. 772,324

Int. Cl. F16j 9/20

U.S. Cl. 227-208

5 Claims

larly, to apparatus for aligning and for driving reinforcing members into such wooden poles for this purpose. Such apparatus has an elongated frame having a head end and a tail end, the head end having positioning means adapted to slide on the wooden utility pole and to position the apparatus on the wooden pole. The head end is provided with a leg locating slot adapted to position the pointed end of a first leg of an elongated body portion of the reinforcing member on the



A unique seal is disclosed for use between the piston and cylinder of a fluid motor. A stepped groove is provided in the outer surface of the piston which is defined by inner and intermediate circumferentially extending surfaces. The seal includes a base section disposed in the section of the groove defined by the inner surface, a lip section extending axially from the base section into the section of the groove defined by the intermediate surface, and another section that extends radially from the base section engaging the wall of the bore. The corner defined by the junction of the inner and intermediate surfaces engages one side of the lip section to urge the other side of the latter into sealing engagement with the wall of the bore.

wooden pole to engage a first locating band, the head end being provided with a ram slot in communication with the leg-locating slot. A holding means on the elongated frame secures the reinforcing member in the apparatus and a ram is reciprocable in the ram slot and operable to drive the pointed end of the first leg through the fibrous material and the resinous material and into the wooden pole and to hook the first leg around the first locating band.

3,563,441

TOOL FOR HOLDING AND DRIVING-IN OF CLIPS FOR ELECTRIC CABLES

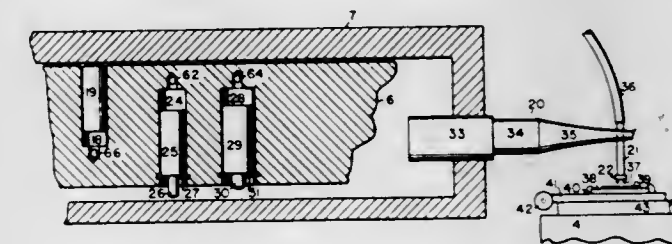
Kjell Christensen, Oslo, Norway, assignor to A/S Elektrofabrikken Arne Brinchmann, Skoyen, Oslo, Norway

Filed Nov. 22, 1968, Ser. No. 778,232

Int. Cl. B25c 7/00

U.S. Cl. 227-149

7 Claims



3,563,443

PNEUMATIC FORCE-EXERTING SYSTEM

Donald G. Pedrotti, Cupertino, and Rainer Reimann, Saratoga, Calif., assignors to Hugel Industries, Inc., Sunnyvale, Calif.

Filed Mar. 19, 1969, Ser. No. 808,416

Int. Cl. B23k 1/06, 5/20

U.S. Cl. 228-1

9 Claims

A system for exerting force in ultrasonic or thermocompression bonding of semiconductor structures. Clamping and leveling pneumatic pistons both supply a combined force initially to level deformable contacts upon a semiconductor chip to the plane occupied by connections upon a substrate by pressing the chip and substrate together. The leveling piston is then disengaged. Bonding is subsequently safely accomplished under a force exerted by only the clamping piston. A balance piston free-floats the chip bonding elements.

3,563,444

APPARATUS AND METHOD FOR FRICTION WELDING

Calvin D. Loyd, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of California

Filed Feb. 12, 1968, Ser. No. 704,873

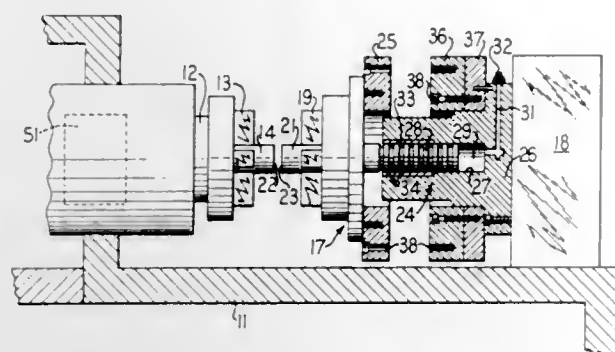
Int. Cl. B23k 27/00

U.S. Cl. 228-2

6 Claims

An inertia welding machine having its nondriven tailstock mounted to permit rotation during welding contact between two weld parts and providing a plurality of flywheels for selective rotational association with the tailstock during

welding. To provide optimum surface velocity between parts and meeting at a point intermediate the depth of the cavities having a small weld interface which would normally result in to provide for easy egg removal, while cradling the eggs; in



excessive rotational energy in relation to weld requirements, the nondriven tailstock is permitted to rotate with an associated inertia mass to absorb a portion of the energy.

3,563,445

PLASTIC TRAY STRUCTURES

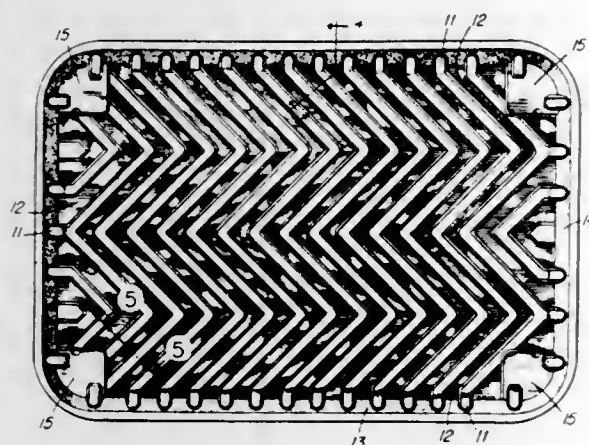
William J. Clayton, Fairport, N.Y., assignor to Mobil Oil Corporation

Filed Sept. 11, 1968, Ser. No. 758,968

Int. Cl. B65d 1/00, 7/42

U.S. Cl. 229-2.5

5 Claims



A thermoplastic tray characterized by having a series of valleys and ridges arranged on the surface thereof in a herringbone-type pattern. The depth and width of the valleys and ridges, the longitudinal extent thereof, and the angular relationship of rib segments are substantially uniform and selected to achieve maximum tray rigidity in the longitudinal, transverse and diagonal directions of the tray structure.

3,563,446

MOLDED EGG CARTON STRUCTURE

Connie Lake, Pittsford, and Nicholas D. Comisso, Victor, N.Y., assignors to Mobil Oil Corporation

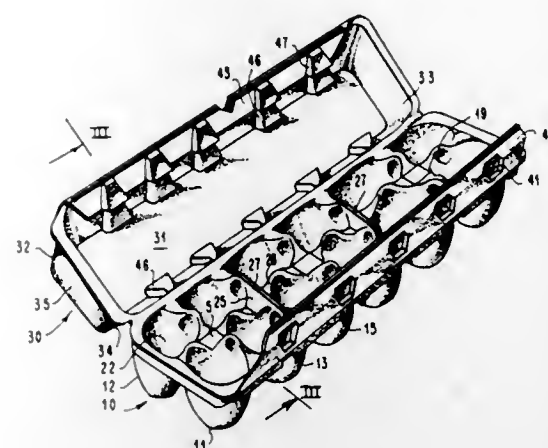
Filed June 12, 1969, Ser. No. 832,683

Int. Cl. B65d 1/00, 45/00

U.S. Cl. 229-2.5

12 Claims

An egg carton, having two rows of cavities of six each, has the cavities separated from each other longitudinally by integrally formed walls extended upwardly with projecting tips (29), and transversely by at least one transverse wall extending across the carton structure, the walls having sloping sides



one form, the top cover has a depression of sufficient depth to bear against a transverse wall between cavities.

3,563,447

CARTON WITH RESEALABLE POUR OPENING

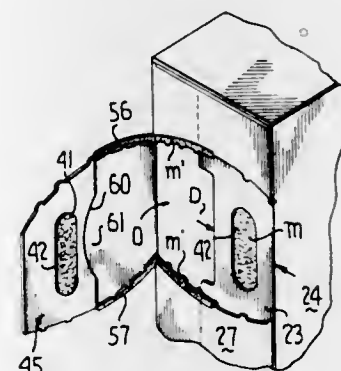
James H. Katzenmeyer, Elkhart, Ind., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Oct. 29, 1968, Ser. No. 771,397

Int. Cl. B65d 5/72, 5/70, 5/54

U.S. Cl. 229-17

10 Claims



This disclosure relates to a carton which includes a tear panel adapted to be opened to form a pour opening, and is particularly directed to means for releasably securing the tear panel to an underlying wall portion of the carton whereby the tear panel cannot be inadvertently and/or accidentally opened, and the releasable means constitutes a minor surface area of adhesion between the tear panel and the underlying wall portion whereby the tear panel can be readily ruptured relatively evenly and accurately along tear lines thereof.

3,563,448

CONTAINER END STRUCTURE

Thomas E. Croley, Worthington, Ohio, assignor to Corco Inc., Columbus, Ohio

Filed Oct. 7, 1969, Ser. No. 864,323

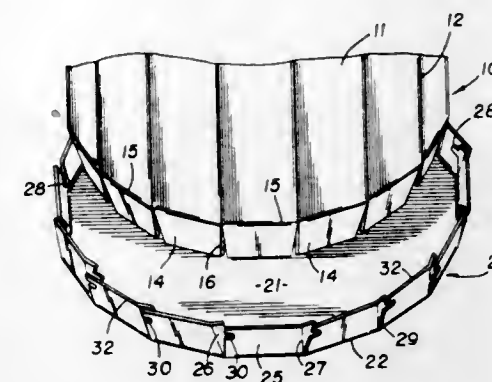
Int. Cl. B65d 3/04, 13/00

U.S. Cl. 229-23

4 Claims

An end structure, either top or bottom, for a container body which is of tubular form and of multisided polygonal transverse cross section. The end closure comprises a flat substantially disclike end with attaching flanges hinged thereto and extending inwardly from the plane thereof, being in number and lateral extent equal to the sides of the body and extending axially inwardly into overlapping relationship thereto. Each flange carries at one of its lateral edges a tab hinged thereto and adapted to overlap the adjacent lateral

edge of the next flange for purposes of sealing and strengthening the joints between adjacent flanges. The



flanges are suitably secured in overlapping relationship to the cooperating sides of the tubular body.

3,563,449

CONTAINER FOR TWO DIFFERENT PRODUCTS

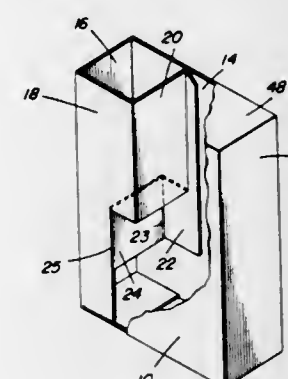
Hampton E. Forbes, Jr., Wilmington, Del., assignor to Westvaco Corporation, New York, N.Y.

Filed Mar. 6, 1969, Ser. No. 804,925

Int. Cl. B65d 5/48

U.S. Cl. 229-27

6 Claims



A container for housing two different products is presented wherein the container comprises a primary carton and a secondary carton, with the primary carton being designed to retain the secondary carton in a proportional compartment formed in the primary carton.

3,563,450

MOLDED EGG CARTON

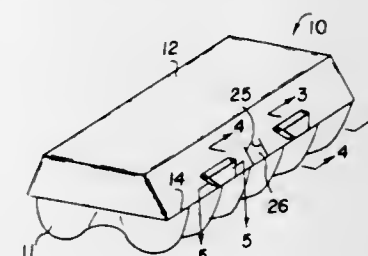
Kurt G. Dahlberg, Rochester, N.Y. (71 Stuyvesant Road, Pittsford, N.Y. 14534)

Continuation of application Ser. No. 770,264, Oct. 24, 1968, now abandoned. This application Jan. 2, 1969, Ser. No. 800,791

Int. Cl. B65d 5/66

U.S. Cl. 229-44

6 Claims



A molded egg carton has a latch flap extending from the base and disposed to tuck inside the cover and interlock with a latch region of the cover, and the flap and cover respectively carry a male member with oblique side surfaces and a female member with gripping surfaces for engaging the male surfaces to latch the cover down.

3,563,451
CARTON WITH TEAR FLAP AND INNER PROMOTIONAL PANELS

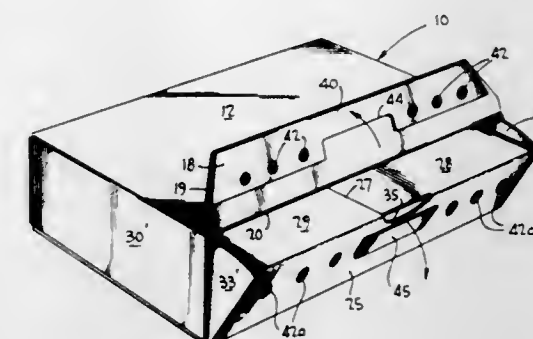
Charles W. Rosenberg, Jr., North Tonawanda, N.Y., assignor to F. N. Burt Company, Buffalo, N.Y.

Filed Mar. 25, 1969, Ser. No. 810,097

Int. Cl. B65d 5/54

U.S. Cl. 229-51

1 Claim



Double cooperating overlapping closure flaps are provided to form one sidewall of a carton and detachably secured to an edge of one of the flaps is one or more coupons, which are longer in extent than the corresponding dimension of the sidewall of the carton; and to obviate obstruction in the insertion of the coupon upon closing the side flaps after the filling of the carton, provision is made for the supplying of the contents through one end of the carton rather than through the side closure. The end closure, for this purpose, comprises overlapping flaps extending from end edges of the front and back panels of the carton and tabs hinged to one of said sidewall flaps and to the opposite sidewall panel of the carton respectively.

3,563,452

WASTE RECEPTACLE

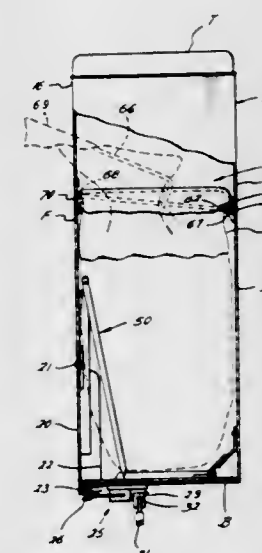
Richard C. Cantella and David Schroeder, Houston, Tex., assignors to Reserv-A-Roll Co., a partnership

Filed May 26, 1969, Ser. No. 827,503

Int. Cl. A65f 1/00

U.S. Cl. 232-43.2

11 Claims

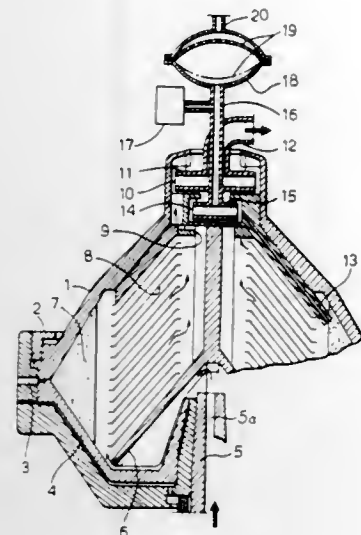


An enclosed, suspended receptacle having an opening in its upper portion for receiving waste with a hinged door in the lower portion of the front of the receptacle and a bottom on the receptacle that is hinged adjacent the rear of the receptacle, the bottom and door having a linkage connecting them so as to move the bottom downwardly relative to the receptacle as the door pivots outwardly away from the receptacle to form a waste exit in the receptacle.

3,563,453
METHOD AND APPARATUS FOR INDICATING SLUDGE LEVEL IN SLUDGE CENTRIFUGE
 Paul Kompert, Stockholm, and Carl-Goran Nilson, Tullinge, Sweden, assignors to Alfa-Laval Ab, Tumba, Sweden
 Filed Feb. 20, 1969, Ser. No. 800,908
 Claims priority, application Sweden, Feb. 23, 1968, 2343/1968
 Int. Cl. B04b 11/00

U.S. Cl. 233-20

8 Claims



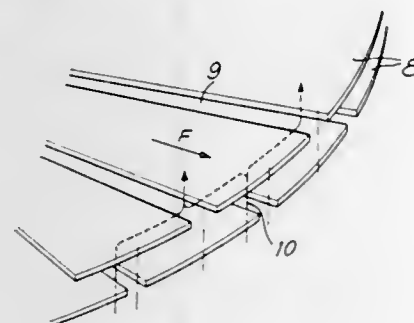
The centrifugal rotor is provided with a channel extending inwardly from the sludge space toward the axis of the rotor, and a reciprocating movement is imparted to a quantity of liquid in this channel. When the outer end of the channel becomes clogged by accumulated sludge, a substantial change occurs in the resistance to movement of the reciprocating liquid, and this change is sensed to indicate the sludge level.

3,563,454
METHOD OF AND APPARATUS FOR SEPARATING THE VARIOUS PHASES OF A FLUID MIXTURE
 Pierre H. L. Saget, 36 Avenue de la Grande-Armee, Paris, 16, France

Filed June 18, 1968, Ser. No. 737,897
 Claims priority, application France, June 21, 1967, PV111,337
 Int. Cl. B04b 7/00

U.S. Cl. 233-44

19 Claims



A method of separating the various phases of a fluid mixture in which the mixture is subjected to a centrifugal field and simultaneously suddenly diverted along the whole of its flow path which is substantially perpendicular to the centrifugal directions. Also included is an apparatus for use in carrying out the method.

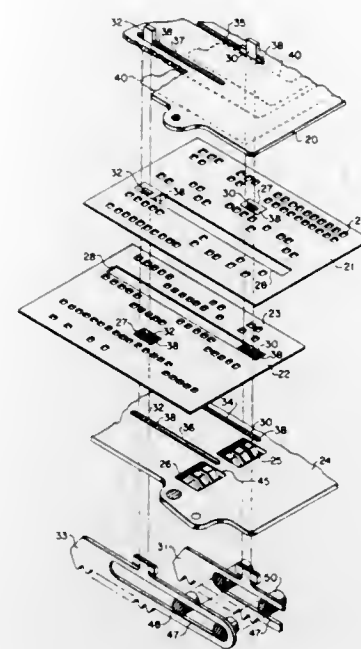
3,563,455
MATRIX SWITCH MECHANISM
 Louis E. Zurbuchen and Karl C. George, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
 Filed May 16, 1969, Ser. No. 825,141
 Int. Cl. G07g 1/00

U.S. Cl. 235-7

5 Claims

A matrix plate switch controlled by a cash register for use in operating a change-dispensing mechanism which includes

a printed circuit board and a switch blade frame separated by a pair of movable mylar matrix plates. The matrix plates are connected to and positioned by rack members in the cash register to align holes located in said matrix plates so as to



allow switch contacts to sense a predetermined area of the circuit board, thereby selectively operating the change dispenser to dispense change according to the setting of a rack member of the cash register.

ERRATUM

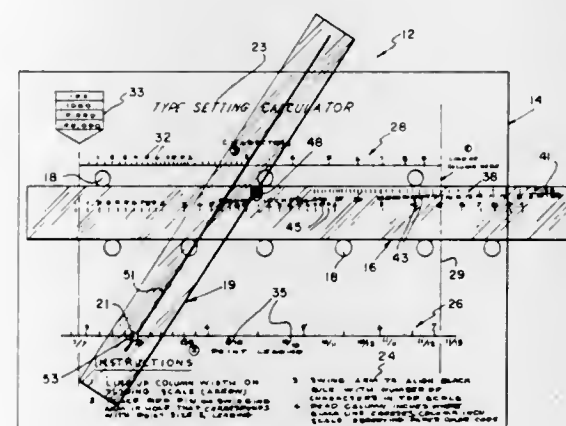
For Class 235-60.25 see:
 Patent No. 3,564,208

3,563,456
TYPE-FITTING CALCULATOR APPARATUS
 Wendell H. Hendricks, Wichita, Kans., assignor to Robert A. Strong, Wichita, Kans.

Filed Sept. 8, 1969, Ser. No. 855,864
 Int. Cl. G06c 3/00

U.S. Cl. 235-89

8 Claims

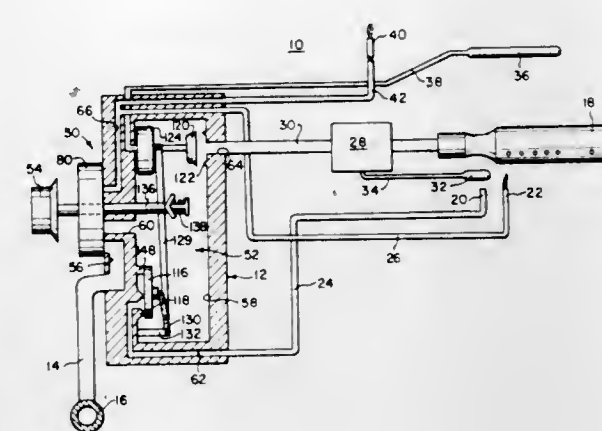


This invention is a type-fitting calculator apparatus having a type-fitting calculator chart with a plurality of indicia thereon; an actuator slide member provided with indicia thereon movable relative to the calculator chart; and a swing slide member having line indicia thereon adapted to cooperate with the indicia on the slide member and the calculator chart. More particularly, this invention is a calculator apparatus providing for the logarithmic relationship of various indicia in order to correlate the number of characters in a given newspaper or printed article relative to the size of the type; the amount of spacing between lines; the selection of type; and the width of the particular column so as to ascertain the resultant length or depth of the column to be arrived therefrom to aid in type-setting operations.

3,563,457
OVEN CONTROL WITH SHUTOFF FOR STANDING PILOT
 Frank H. Bergquist, Justice, and Richard U. Ives, Flossmoore, Ill., assignors to Harper-Wyman Company, Hinsdale, Ill., a corporation of Illinois
 Continuation of application Ser. No. 784,301, Dec. 17, 1968, now abandoned. This application Mar. 13, 1970, Ser. No. 18,376
 Int. Cl. F23n 5/06

U.S. Cl. 236-15

9 Claims

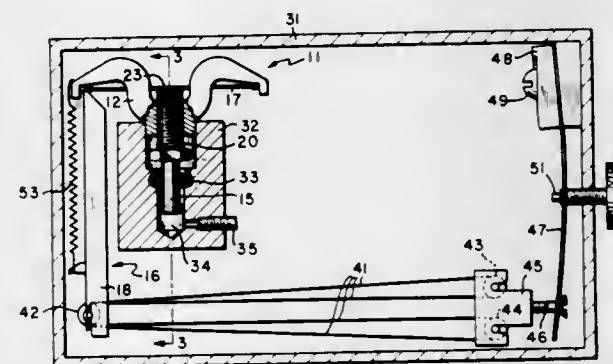


An oven control particularly useful for vehicle-mounted ranges and the like includes a single knob controlling a manual valve and a thermostatic valve. The knob may be moved to select a desired operating temperature and the manual valve is opened to supply fuel to a standing pilot, a control pilot and a safety valve which opens to supply fuel to the oven burner when a flame indication is sensed at the control pilot. The thermostatic valve is controlled by the knob setting to maintain a selected oven temperature. When the knob is turned to a normal off position, the flow through the manual valve to the control valve pilot and safety valve is discontinued, but the standing pilot remains ignited to provide subsequent automatic ignition. An additional off position is provided for conveniently discontinuing all fuel flow to the range, including flow to the standing pilot.

3,563,458
CONDITION CONTROL DEVICE
 Ronald L. Martin, Mount Prospect, Ill., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
 Filed Dec. 23, 1968, Ser. No. 785,972
 Int. Cl. F15b 5/00; G05d 22/00

U.S. Cl. 236-44

8 Claims

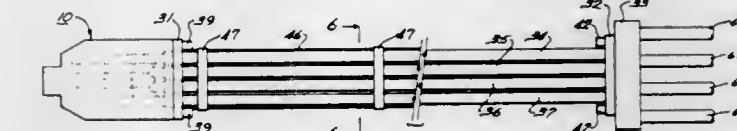


A pneumatic nozzle-flapper combination, the flapper of which is controlled by a flexible L-shaped lever simply supported at one end and at the corner. A nylon ribbon is operably connected to the free end of the lever, and in response to changes in relative humidity that portion of the lever between the supports undergoes a bowing movement with respect to the nozzle. This movement, which is directly in line with the nozzle axis, is utilized to valve air supplied to the nozzle, resulting in an output pressure signal that varies as a function of relative humidity.

3,563,459
DISPERSION METHOD
 Glenn E. Kautz, Sewickley, Pa., assignor to H. H. Robertson Company, Pittsburgh, Pa., a corporation of Pennsylvania
 Original application Dec. 19, 1966, Ser. No. 602,987, now Patent No. 3,462,083. Divided and this application Feb. 10, 1969, Ser. No. 823,215
 Int. Cl. B05b 15/06

U.S. Cl. 239-8

3 Claims

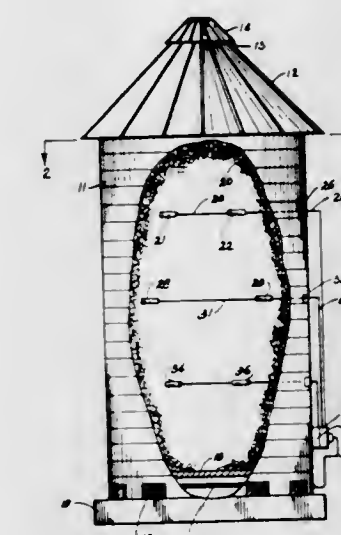


A method for producing polyurethane foam at a remote location. Two streams of polyurethane foam ingredients are delivered to a delivery nozzle in the remote location along with a stream of inert gas. The inert gas creates turbulence in the mixing nozzle for the mixing of the two urethane foam ingredients.

3,563,460
GRAIN BIN AERATION CONTROL
 Philip L. Nipe, Indianapolis, Ind., assignor to Curtis Dyne-Products Corporation, Wistfield, Ind., a corporation of Ohio
 Filed Oct. 25, 1968, Ser. No. 770,702
 Int. Cl. G05d 23/24, 7/06

U.S. Cl. 236-49

7 Claims



A weather-proof housing on the exterior of a grain bin has a socket receiving the plug of an aeration fan under the bin. Temperature sensing probes, each including a thermistor, are disposed at spaced locations in the bin. Bridge circuits in the housing share a manual variable temperature setting resistor, each circuit having a thermistor therein. Unbalance detector transistors are provided for each bridge circuit and responsive to a sensed temperature change beyond a predetermined range to operate a relay to connect 110 volt, 60 cycle per second (Hz) power to the socket to energize the fan.

ERRATUM

For Class 239-8 see:
 Patent No. 3,563,459

3,563,461

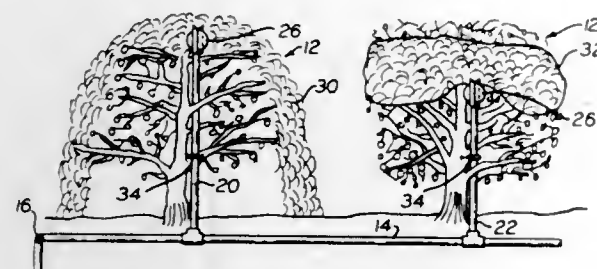
AGRICULTURAL SYSTEM FOR IRRIGATING AND PROTECTING CROPS

Howard W. Cole, Jr., 12 Vale Drive, Mountain Lakes, N.J. 07046, and Alan G. Beattie, 16 Omaha Ave., Rockaway, N.Y. 11693

Filed July 25, 1968, Ser. No. 747,556
Int. Cl. A62c 1/12

U.S. Cl. 239—9

10 Claims



This specification discloses a method and apparatus for a total agricultural control system having piping leading to all of the trees of an orchard, or all of the crops growing in a field, with the system equipped for selectively irrigating, spraying, dusting, and protecting the crops from freezing. The system generates foam which is used to protect the crops from freezing, and this foam provides a vehicle for carrying fertilizers, insecticides and herbicides to the crops. The foam distribution system is used also for water when irrigating and the water can be used to wash foam from the crops after a cold spell is over. The disclosure includes a special type foam generator in which water, air and foaming agent are forced through a turbilizer under controlled conditions, and a diffuser nozzle with a rotating deflector which throws the foam in different directions necessary to spread it over the crops. The specification discloses a special method for protecting heavily pruned trees from frost by expanding foam outwardly over the closely growing branches.

3,563,462

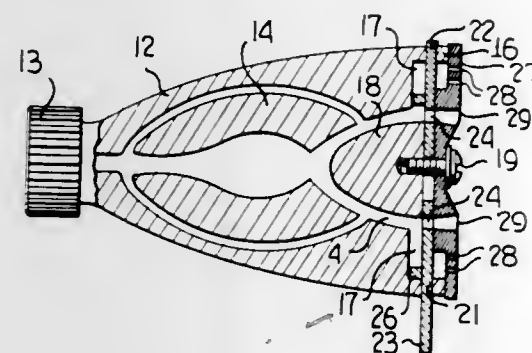
OSCILLATOR AND SHOWER HEAD FOR USE THEREWITH

Peter Bauer, Germantown, Md., assignor to Bowles Engineering Corporation, Silver Spring, Md., a corporation of Maryland

Filed Nov. 21, 1968, Ser. No. 777,694
Int. Cl. B05b 3/14

U.S. Cl. 239—102

22 Claims



A gas-liquid fluidic oscillator is provided employing liquid as the operating fluid and gas as the control fluid, a pair of feedback channels to opposed central passages are provided, the liquid stream sealing one feedback channel while gas admitted to the other feedback channels produces stream switching.

A shower head is also provided which may operate conventionally as a spray source or by rotation of a lever or a ring on the shower head or other suitable means may be converted to a source of fluid pulses generated by the oscillator located in the head to provide a fluidic massaging device.

3,563,463

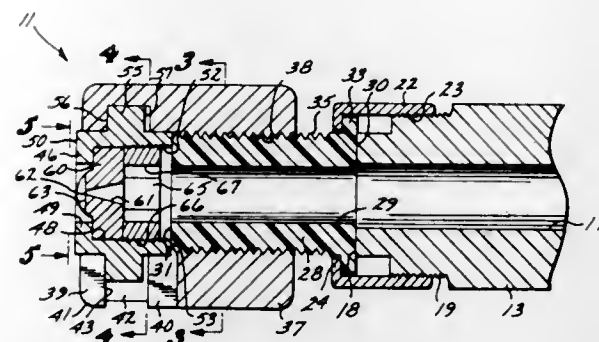
SPRAYER NOZZLE

Willis F. Walker, Anaheim, Calif., assignor to Richard N. Gerold, Garden Grove, Calif., a part interest

Filed Dec. 9, 1968, Ser. No. 782,127
Int. Cl. B05b 15/02

U.S. Cl. 239—119

8 Claims



An airless sprayer nozzle attachment having provision for mounting a reversible spray tip unit wherein there is provided a semiresilient adapter member to be held to the barrel of a conventional airless sprayer, and there being threadedly received on the adapter member a collar having at its forward end a receiver section with a cross slot therein opening through one side of the collar, which cross slot receives therein a reversible spray tip unit which includes a retainer ring surrounding an orifice containing spray tip insert, said retainer ring being provided with annular faces on the opposite ends thereof, which faces are adapted to be engaged with and seal against the adjacent end of the adapter member by means of rotating the collar, and yet, the spray tip unit may be quickly removed for reversible purposes by merely rotating the collar slightly to disengage the associated face of the retainer ring from the adapter member and sliding the spray tip unit out of the slot.

3,563,464

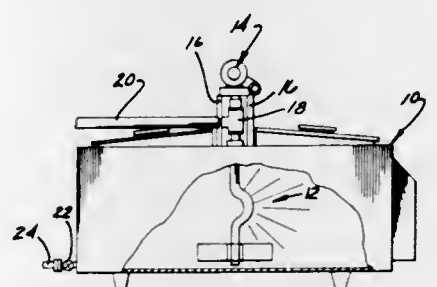
SPRAY MEANS FOR BULK TANK WASHERS

George H. Doornbos, Grand Rapids, and John W. Knutson, Spring Lake, Mich., assignors to Werner Machinery Company, Grand Rapids, Mich.

Filed Apr. 6, 1967, Ser. No. 628,873
Int. Cl. B05b 9/00

U.S. Cl. 239—142

8 Claims



An elongate shaft of generally tubular form which is mountable vertically within a bulk tank from its upper or top end, to be rotatably driven about its longitudinal axis. The shaft has agitator blades attached to its lower extremity, and a central portion of the shaft is laterally offset from the said axis in a smoothly curved U-shaped configuration. The shaft has a series of vertically spaced spray apertures formed therein along said U-shaped offset for spraying liquid pumped through the hollow shaft outwardly therefrom into the interior of the bulk tank over a semicircular arc of approximately 180°

3,563,465

WATER SPRINKLER

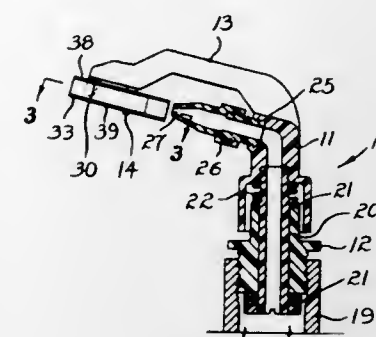
Martin Foreman, Merbein, Victoria, Australia

Filed Mar. 24, 1969, Ser. No. 809,609

Claims priority, application Australia, Mar. 26, 1968, Aug. 27, 1968, 35544/68; 42647/68
Int. Cl. B05b 3/02

U.S. Cl. 239—230

13 Claims



A water sprinkler of the type having an oscillating paddle pivoted to the body in alignment with but displaced from the nozzle to be in the jetstream thereof, the paddle having a primary ramp face between the pivot pin and the nozzle, and a secondary ramp face extending beyond the pivot pin, and having upper and lower wings above and below the ramp faces.

3,563,466

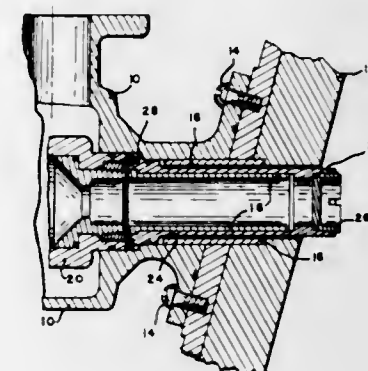
ROCKET MOTOR THRUST VECTOR CONTROL SEAL

Thomas S. Clark, Saratoga, and William S. Kennedy and Gerald E. Kuskie, San Jose, Calif., assignors to the United States of America as represented by the Secretary of the Air Force

Filed Feb. 25, 1969, Ser. No. 802,085
Int. Cl. B64d 33/04

U.S. Cl. 239—265.15

3 Claims U.S. Cl. 239—318



A thrust vector control seal assembly including a tube which fits within the injection port of a rocket motor fluid-injection thrust vector control system and carrying at its inner end, a deformable stainless steel ring that positions the tube and provides frictional torque during assembly. The seal assembly also carries a disposable cap on its outer end providing a seal for the port, preventing fluid passage until it is removed and an insulating liner to protect the tube from the rocket exhaust. Removal of the seal takes place only after predetermined conditions have been met. The necessary condition is the ignition of the solid fuel rocket motor. Other conditions may be a preset time delay determined by conditions of heat and pressure.

3,563,467

ROCKET MOTOR THRUST NOZZLES

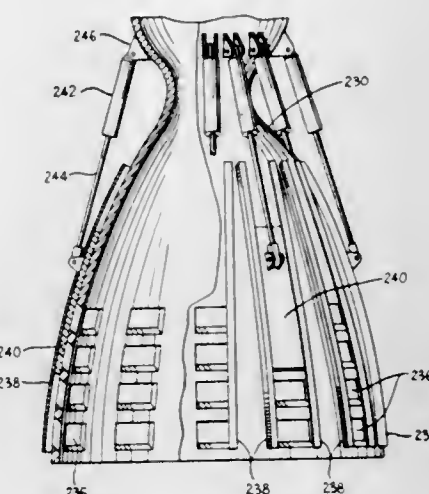
Walter R. Marsh, Hopatcong, and Edward J. Davis, Convent, N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa.

Original application Sept. 7, 1966, Ser. No. 579,798, Patent No. 3,469,787. Divided and this application Jan. 21, 1969, Ser. No. 825,458

U.S. Cl. 239—265.17

Int. Cl. B64c 15/02

1 Claim



A thrust nozzle for a rocket motor wherein said nozzle is constructed with aperture means for selectively admitting atmospheric air into the interior of said nozzle. The aperture means has movable covers for controlling the flow of air into the nozzle thereby resulting in a more efficient rocket motor when operating in the lower regions of the atmosphere.

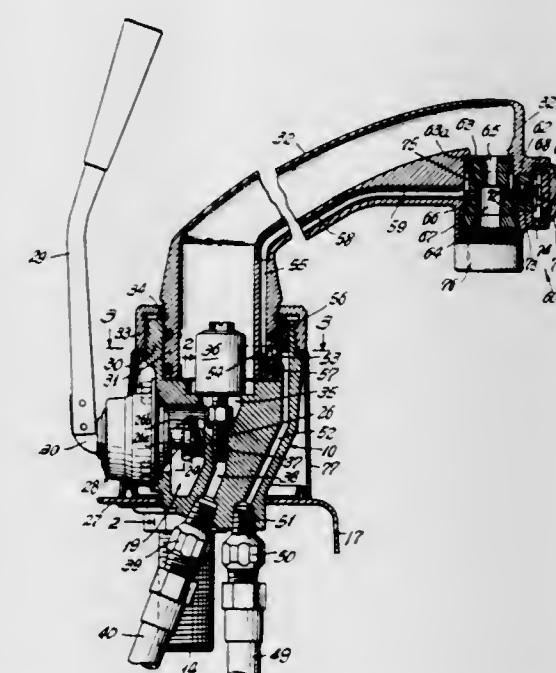
3,563,468

MIXING FAUCET

James R. Holzinger, Fairfield, Conn., assignor to Jo-Anne Tallcouch, Fairfield, Conn., a part interest

Filed June 23, 1969, Ser. No. 835,379
Int. Cl. B05b 7/30

9 Claims



A hot and cold water faucet having a body and a spout having a base which is horizontally swingable within limits on the faucet body which is provided with an inlet connection to receive a conduit for supplying to a detergent conduit in the body liquid detergent from a countermounted refillable detergent container, the spout having embodied within it a detergent conduit leading from the base of the spout to a manually controllable aspirating means at the outlet end of

the spout, the base of the spout and the body of the faucet having communicating detergent passages connecting the detergent conduit in the body of the faucet with the detergent conduit in the spout in all positions of the spout on the body within the limits of its horizontal movement at which discharge of detergent is desirable. The faucet is provided with the conventional diverter and connections to a hand-manipulated spray nozzle.

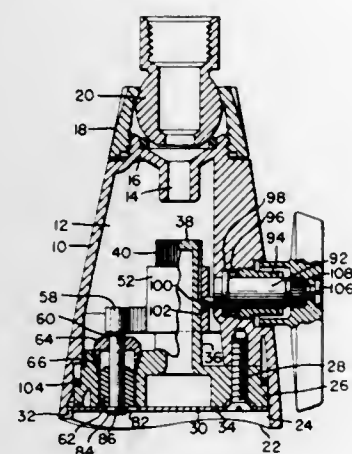
3,563,469

SHOWER HEAD WITH ROTATABLE VALVING MEMBERS

Cecil E. Stacey, Rockford, Mich., assignor to Wolverine Brass Works, a Division of Wolverine Industries, Inc., Grand Rapids, Mich., a corporation of Michigan
Filed Feb. 18, 1969, Ser. No. 800,099
Int. Cl. B05b 1/34

U.S. Cl. 239—383

23 Claims



The shower head is characterized by a plurality of rotatable nozzle elements which produce a spray pattern which not only meets existing federal specifications but provides a spray characterized by a highly invigorating hydrotherapeutic effect upon the body of the user.

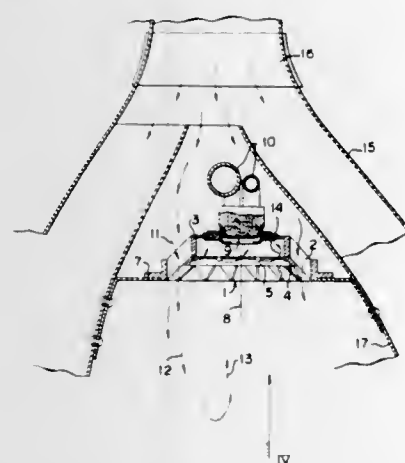
3,563,470

AIR SWIRLING VANES FOR BURNER

Kunio Suzuki and Teikichi Otsuka, Tokyo, Japan, assignors to The director of National Aerospace Laboratory of Science and Technology Agency, Akiyoshi Matsura, Tokyo, Japan, an authority of the Japanese Government
Filed Sept. 16, 1968, Ser. No. 762,247
Claims priority, application Japan, Oct. 3, 1967, 42/63,241
Int. Cl. B05b 7/10

U.S. Cl. 239—402

2 Claims



The present invention provides an improved burner performance adapting air-swirling vane device comprising air blades fixedly supported and arranged in cone shape between an inner supporting ring and an outer supporting ring, and a restriction ring connected to the inner ring or integrally formed therewith in such a manner that the outlet area of air outgoing through the blades is smaller than the inlet area of air entering into the blades, whereby the widening of the air reversal zone behind the swirling is restricted to a necessary

extent, the flame shape is held small, the stability of the holding flame is improved, the range of an oscillating burning is reduced, and an appropriate counter air flow velocity is reduced in the reversal zone for improving the combustion loading. Furthermore, if necessary, a plurality of small holes are formed along a circumference of substantially the middle of the inner ring integrally formed with the restriction ring or along a circumference of the inside diameter side of the restriction ring when this is connected to the inner ring to allow the flow of air to prevent carbon deposit from being accumulated on the vane device.

3,563,471

ADJUSTABLE AIR JET ORIFICE

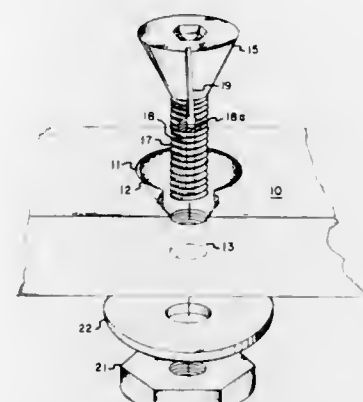
Theodore Watkin, Stamford, Conn., assignor to Ivanhoe Research Corporation, New York, N.Y., a corporation of Delaware

Filed Nov. 27, 1968, Ser. No. 779,561

Int. Cl. B05b 1/32

U.S. Cl. 239—451

4 Claims



A rotationally adjustable (aimable) orifice or nozzle for fluid under pressure is made by combining a coupling (screw) which has a confined channel along the shank and a slot along the shoulder of the screw. A countersunk hole or aperture in a surface receives the coupling and the countersunk portion of the aperture fits against the shoulder of the coupling to form a channel from the slot. The coupling may be held in the aperture by a nut, for example and the coupling may be turned or rotated in the aperture for directing the flow of fluid exiting from the orifice.

3,563,472

APPARATUS FOR PESTICIDE SPRAYING

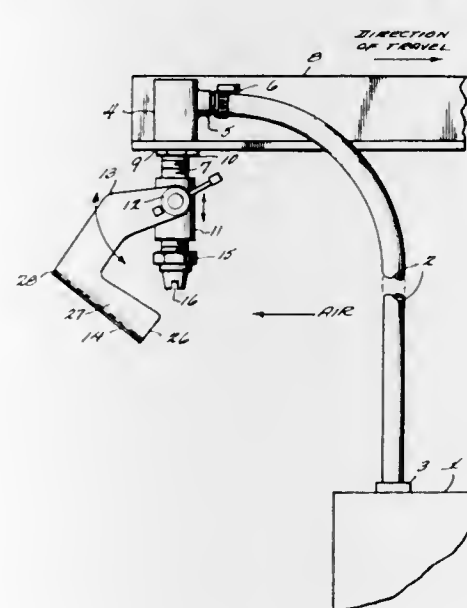
Johann S. Skaptason, Leawood, Kans. R.R. 1, Stilwell, Kans.

Filed July 15, 1968, Ser. No. 744,853

Int. Cl. B05b 1/28

U.S. Cl. 239—511

4 Claims



A device, adapted to be used with pesticide spraying equipment, intercepts a portion of the pesticide spray containing

the very small droplets, coalesces said droplets and discharges them as larger desired droplets thus minimizing or preventing pesticide spray drift. A modification will intercept both the very small and the largest range droplets reforming them into medium desired range droplets.

3,563,473

GAS BURNER UNIT

Tredicesimo Luciano Ferrol, San Bonifacio, Italy, assignor to Fer Fabbrica Europea Riscaldamento S.p.A., San Bonifacio, Italy

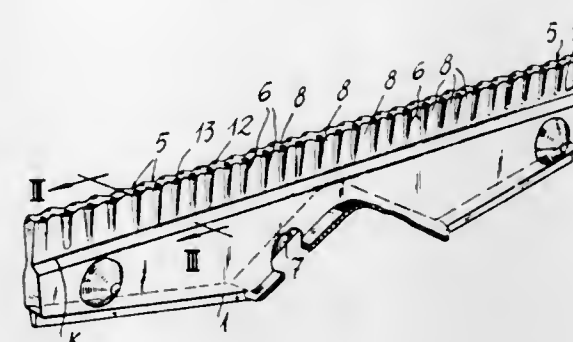
Filed Oct. 14, 1968, Ser. No. 767,337

Claims priority, application Italy, Oct. 17, 1967, 9979B/67

Int. Cl. B05b 1/14

U.S. Cl. 239—557

3 Claims



A gas burner unit for providing a discharge of a combustible gas to mix with the surrounding air so as to support a flame. The gas burner unit has gas-receiving and gas-discharging chambers which are defined, in part, between a pair of opposed longitudinally extending sidewalls which define between themselves a narrow longitudinally extending slit through which the gas-receiving and gas-discharging chambers communicate with each other. At the gas-discharging chamber these walls are of an undulatory, wavy configuration and are "in phase" so that the alternating ridges and depressions of one wall are respectively in alignment with the alternating depressions and ridges of the other wall. These walls terminate distant from the slit in elongated wavy edges between which a front wall of the burner unit extends, with this front wall being also of a wavy configuration and being formed with discharge openings through which gas discharges. These openings are respectively situated adjacent the ridges of the walls so as to form two rows of openings with the openings of one row laterally offset from and longitudinally staggered with respect to the openings of the other row.

3,563,474

AIR FILTER WASH DEVICE

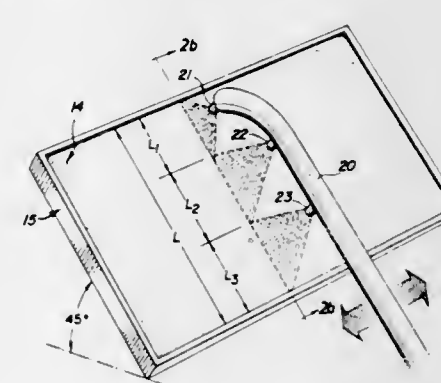
Joseph William Robinson, 1632 Midland Ave., Scarborough, Ontario, Canada

Filed Jan. 12, 1968, Ser. No. 697,393

Int. Cl. B05b 1/14

U.S. Cl. 239—561

6 Claims



Apparatus for cleaning filter elements comprising a plurality of nozzles for spraying water mounted asymmetrically with respect to the filter element to provide an asymmetric spray pattern whereby optimum utilization of the available water supply is obtained.

3,563,475

TRAILER FOR TRANSPORTING AND DISPENSING PULVERULENT MATERIAL

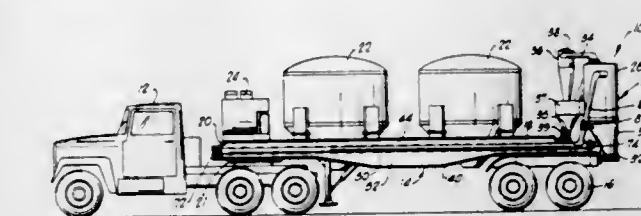
Robert B. Emery and Richard F. Bailey, Duncan, Okla., assignors to Halliburton Company, Duncan, Okla., a corporation of Delaware

Filed July 15, 1969, Ser. No. 841,910

Int. Cl. A01c 15/04

U.S. Cl. 239—654

9 Claims



The present invention relates to an improved trailer for transporting and dispensing pulverulent material having at least one bin for storing said material and a source of compressed air for unloading said bin and conveying said material mounted thereon. The trailer includes a frame having a load support rail extending along each side thereof, and having a wheel assembly and means for connecting the frame to a motor vehicle attached to opposite ends thereof. A material conveying line is integrally incorporated in one or both of the load support rails thereby greatly increasing the strength of the frame and obviating the need for supporting the material conveying lines above or below the frame.

3,563,476

GRAIN BAFFLE MEANS

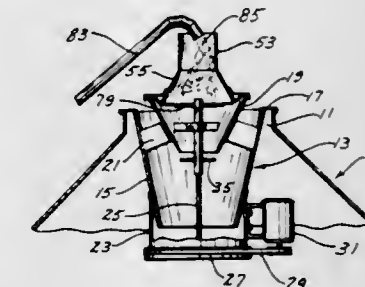
Harlan J. Donelson, Jr., West Highway 330, Marshalltown, Iowa 50158

Filed Sept. 26, 1968, Ser. No. 762,715

Int. Cl. A01c 17/00

U.S. Cl. 239—668

10 Claims



A grain baffle means for use with a grain spreader, the grain spreader including a housing having a grain intake opening formed at the upper end thereof. A vertically movable and rotatable control plate valve means is mounted in the grain spreader housing below a hopper means for controlling the flow of grain through the grain spreader. The baffle means is mounted on the upper end of the grain spreader and has an open upper end adapted to receive grain being supplied thereto by a conveyor means. The baffle means has a discharge opening provided at its lower end which is in communication with the upper end of the grain spreader. A baffle plate is mounted in the lower end of the baffle means and has a diameter less than the diameter of the lower end of the baffle means. The baffle plate is provided with a central opening through which extends the shaft supporting the control plate valve means.

3,563,477

SEPARABLE PORTABLE PROCESSING PLANT

Harry W. Schroeder, Wauwatosa, and Raymond S. Tylinski, Milwaukee, Wis., assignors to Hewitt-Robins Incorporated, Stamford, Conn.

Filed Oct. 8, 1968, Ser. No. 765,856

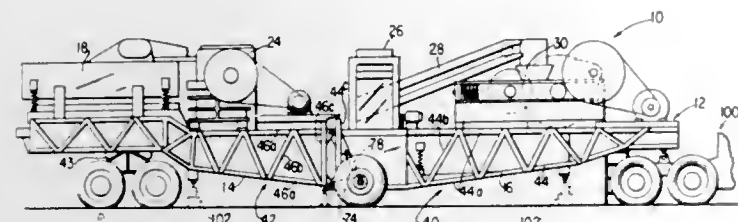
Int. Cl. B02c 21/02

U.S. Cl. 241—101

4 Claims

A portable bulk material processing plant is provided which comprises two trailer sections which can be joined

together into a unitary trailer vehicle or which may be separated and formed into individual vehicles for independent highway travel. A retractable wheel is provided on one of the trailer sections so that the section may be supported for wheeled movement during coupling and uncoupling operations of the two sections. The retractable wheel is specifically provided with an adjustable support system which enables the one trailer section to be adjusted vertically relative to the second trailer section so as to thereby facilitate verti-



cally aligning the cooperating coupling elements on each of the trailer sections. In addition, guide elements are provided on the trailer sections which serve to indicate proper lateral alignment of the two trailer sections before the coupling on the two trailer sections are brought into proper interfitted engagement. Finally, the processing equipment on each trailer section is positioned such that, when the two sections are joined together, the combination of the equipment on both sections serves to perform a substantially continuous series of operations on the bulk material being handled.

3,563,478

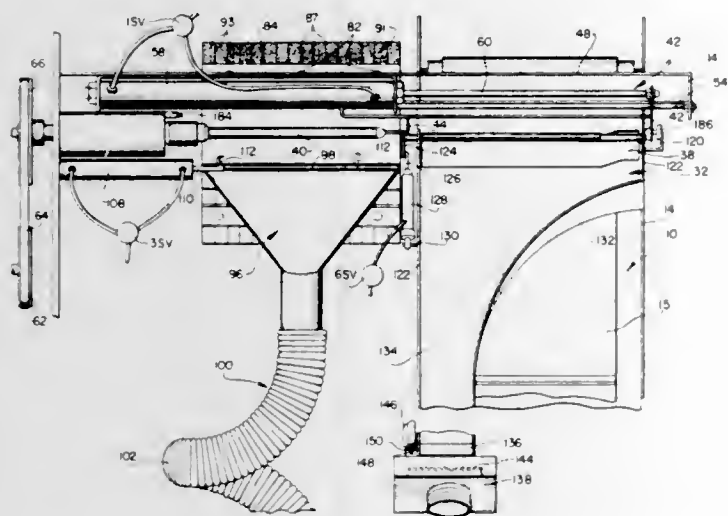
BOBBIN PROCESSING

Charles C. Bell, Warwick, R.I., assignor to Leesona Corporation, Warwick, R.I., a corporation of Massachusetts
Filed Jan. 2, 1969, Ser. No. 788,381

Int. Cl. B65h 54/22

U.S. Cl. 242—35.6

29 Claims



A method and apparatus for locating and withdrawing the free unwinding end of yarn from a bobbin randomly wound, rewinding a portion of the free end about the body of yarn with the remainder of the free end deposited on the bobbin for retention thereon until subsequent retrieval and withdrawal of the free end. Rewinding the end of yarn facilitates initial over end withdrawal of the yarn from the bobbin during subsequent unwinding, as at an automatic winding machine. The bobbin is telescoped onto and off of a horizontal spindle and is then dropped vertically through an adjacent chute. A spiraled suction tube effectively prevents fraying a long length of yarn drawn therethrough.

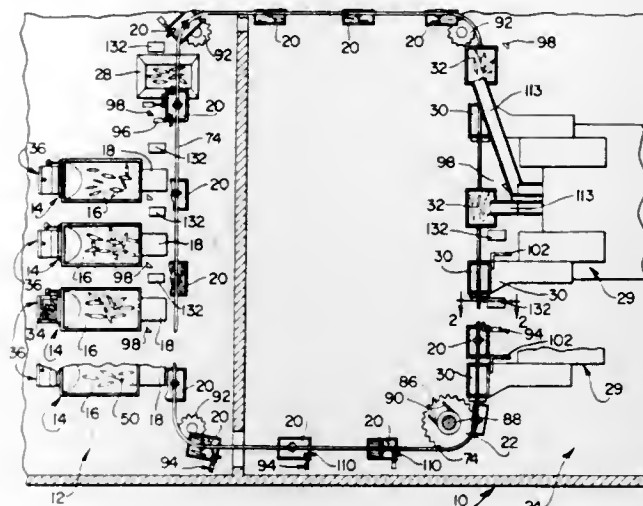
3,563,479

BOBBIN HANDLING SYSTEM

Charles W. Brouwer, East Greenwich, and Raymond V. Tata, Warwick, R.I., assignors to Leesona Corporation, Warwick, R.I., a corporation of Massachusetts
Continuation-in-part of application Ser. No. 666,625, Sept. 11, 1967, now abandoned. This application June 12, 1968, Ser. No. 736,354
Int. Cl. B65h 54/02

U.S. Cl. 242—35.5

9 Claims



A system for automatically handling bobbins during processing of the bobbins. Various types of bobbins to be processed are stored in a supply area such as a spinning room where each type is separated into units of predetermined quantity. The units are automatically delivered by means of loading hoppers to suspended containers of a conveyor system for transport to bobbin processing apparatus. Following processing, the bobbins pass to another hopper and are returned to the containers and removed from the processing area to the supply area for additional processing such as stripping off residual yarn, sorting and refilling with yarn. A control system operates the handling system by discriminating between the conveyor containers each of which is designated for handling but one type of bobbin, and determining the condition of each container, whether it is empty or carrying bobbins and if it is carrying bobbins whether the bobbins are processed or are to be processed, and whether or not the hoppers are prepared to deliver the bobbins and the processing apparatus ready to receive a unit of bobbins.

3,563,480

APPARATUS FOR STOPPING A TAKEUP BOBBIN

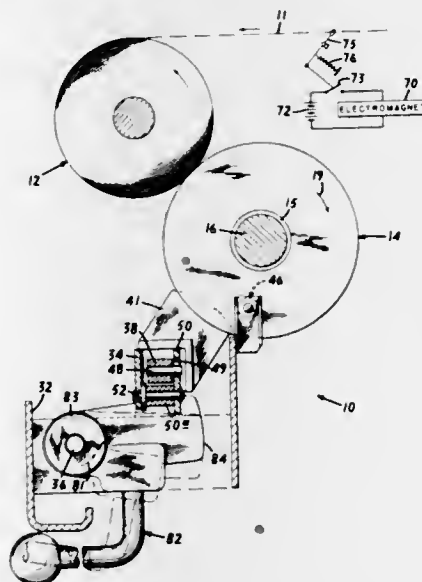
Charles Crouzet, Roanne, France, assignor to Ateliers Roannais de Constructions Textiles, Roanne, (Loire) France
Filed Sept. 23, 1968, Ser. No. 761,639

Claims priority, application France, Sept. 21, 1967, 121,704

Int. Cl. B65h 63/00

U.S. Cl. 242—36

14 Claims



A system for stopping a bobbin adapted to be rotated by a

drive shaft including a driving roller coupled to the bobbin and journaled on the drive shaft for rotation and axial displacement with respect thereto, a first clutch member mounted on the drive shaft, a second clutch member mounted on the driving roller, and a magnet for locking the first and second clutch members together.

3,563,481

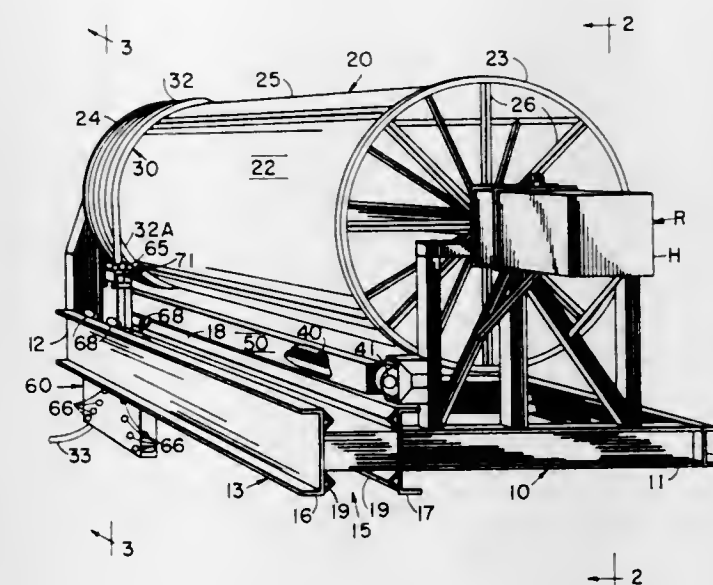
CONTROLLABLY WOUND CABLE TAKEUP REEL

Bernhardt Stahmer, 1509 Chicago St., Omaha, Nebr. 68102
Filed Oct. 3, 1968, Ser. No. 764,883

Int. Cl. B65h 75/00

U.S. Cl. 242—54

9 Claims



This invention relates to spool-type reel apparatuses for the controlled storage, unwinding, and rewinding of elongate flexible cable members, such as electrical conductor conduits and fluids conducting hoses, upon a substantially cylindrical contour of a rotatable spool that is dynamically maintained under constant torque conditions by a braking means. In particular, this invention provides a spool-type reel apparatus wherein one or more elongate flexible cable members are each helically maintained along the spool elongate cylindrical contour during all stages of winding and unwinding, said helically controlled storage being afforded by a novel cable-guide structure adapted to be controllably reciprocated in the horizontal direction with a special shroudable rotatable lead screw unit; sophisticated embodiments of this invention include a smoothing roller component to ensure closely spaced kink-free positioning of the cable helices and include a hydraulic drive system to dynamically maintain the spool under constant torque conditions.

3,563,482

MAGNETIC TAPE CARTRIDGE CONSTRUCTION

Samuel H. Auld, Newport Beach, Calif., assignor to Gates Learjet Corporation, Wichita, Kans., a corporation of Delaware
Original application June 28, 1965, Ser. No. 467,599, now Patent No. 3,482,792. Divided and this application Feb. 13, 1969, Ser. No. 799,015

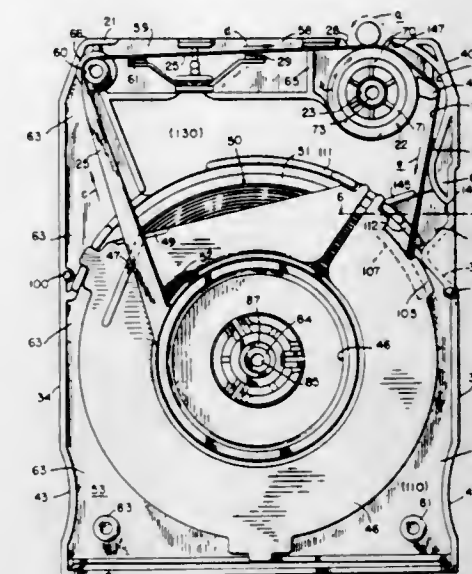
Int. Cl. B65h 17/48

U.S. Cl. 242—55.19

3 Claims

The endless magnetic tape cartridge described contains a single reel of tape in spiral array on a rotatable platform. When in play operation, the inner turns are withdrawn causing the reel to rotate with the platform. The tape is transported beyond the transducer and thereupon presented as outer turns onto the reel. The housing of the cartridge is con-

structed of a mating rectangular base and cover, of tough molded material. Arrangements are herein provided along



the sidewalls of the base and cover to maintain their assembly stable despite rough handling or drop onto a hard floor.

3,563,483

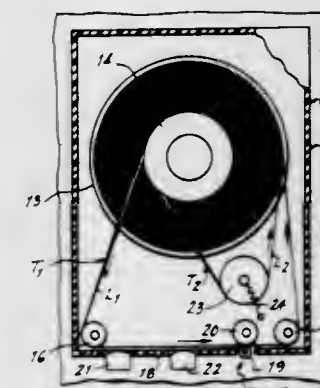
ENDLESS TAPE CARTRIDGE

Masaaki Morita, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Feb. 28, 1969, Ser. No. 803,332

Claims priority, application Japan, Mar. 1, 1968, 43/13270
Int. Cl. B65h 17/48

U.S. Cl. 242—55.19

8 Claims



In an endless tape cartridge, an endless magnetic tape and an endless slippery tape are coiled on a rotatable spool with their convolutions arranged alternately, and loops of the magnetic and slippery tapes extending between their innermost and outermost convolutions are guided so that at least a portion of the magnetic tape loop is spaced from the slippery tape loop for engagement individually by a tape drive and also, if desired by one or more magnetic transducers.

3,563,484

EDGE GUIDE

Harry C. Bray, Jr., Takoma Park, Md., assignor to Bowles Engineering Corporation, Silver Spring, Md., a corporation of Maryland
Filed Nov. 21, 1968, Ser. No. 777,696

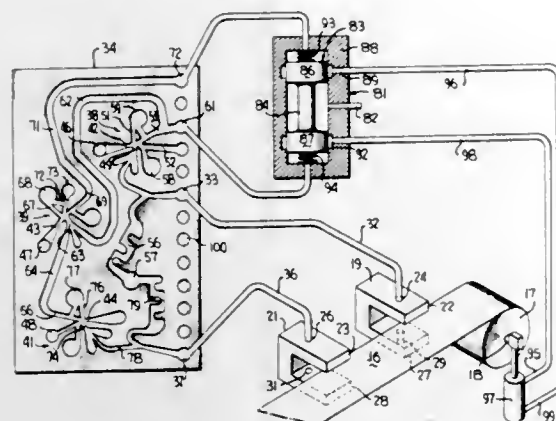
Int. Cl. B65h 25/08

U.S. Cl. 242—57.1

6 Claims

A fluidic circuit and manifold arrangement is provided for achieving control of the position of the edge of a moving web of paper or other strip material. The circuit manifold is provided with a cavity to which pressurized fluid is supplied from an external source. Pressurized fluid is then available to any part of a fluid circuit disposed over the cavity and selec-

tively communicating therewith through a subplate. The fluid circuit, comprising only three fluid elements, senses fluid



signals supplied by a pair of fluid edge sensors to move the web left or right as commanded by the signals from the sensors.

3,563,485

METHOD OF AND APPARATUS FOR WINDING A WEB OF MATERIAL

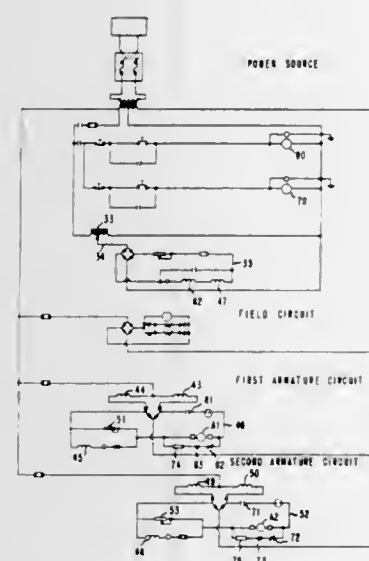
Terrance D. Phillips, Richmond, Va., assignor to E.I. duPont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Apr. 30, 1969, Ser. No. 820,488

Int. Cl. B65h 75/34, 59/38, 77/00

U.S. Cl. 242-64

4 Claims



Apparatus for winding a web of material, such as plastic film, including a web tension feedback controller means operatively connected to all of the windup rolls mounted on a turret wherein all such windup rolls respond to a control signal from a web tension-sensing device, whether they are loaded or not. Method of winding a web while maintaining required web tension including controlling the speeds of loaded and next-to-be-loaded windup rolls mounted on a turret by means of a web tension-sensing device whereby the unloaded windup roll is driven at a speed greater than the speed of the loaded windup roll during transfer of the web from the loaded windup roll to the unloaded windup roll.

3,563,486

WEB PROCESSING DEVICE

Louis Achilles Meeussen, Mortsel, and Emile Frans Stievenart, Antwerp, Belgium, assignors to Gevaert-AGFA N.V., Mortsel, Belgium, a Belgian Company

Filed Feb. 8, 1968, Ser. No. 704,168

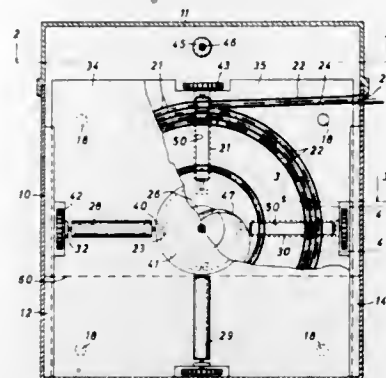
Claims priority, application Great Britain, Feb. 8, 1967,

6133/67

Int. Cl. B65h 17/12, 17/48

U.S. Cl. 242-67.1

3 Claims



A feeding device for lengthy webs such as photographic strip film and the like wherein spiral ribs define a spiral path having a substantial number of convolutions therethrough which the web is to be fed. A plurality of driving rollers are arranged in angularly spaced location around the spiral path on each of its sides with the roller peripheries intruding through the rib convolutions so as to engage the extreme marginal edges of the web to advance the web as the rollers are rotated. The rollers are preferably arranged on the sides of the ribs in cooperating pairs with the clearance between the peripheries of such pairs being slightly less than the transverse width of the web. Each of the rollers is formed on its periphery with successive frustoconical steps to give a sawtooth profile with the axial length of each step corresponding to the spacing between the ribs, with one step being provided for each convolution of the spiral. The larger diameter of each step is located nearer the center of the spiral so that an increase in tension in the web within any given convolution draws the web towards the larger diameter and thus increases the feeding rate of the web to thereby automatically compensate for tension variations. The rollers are arranged so that their axes of rotation intersect at least one of the spiral convolutions and preferably all of them at an angle extending generally normal to a line drawn tangentially to the spiral at the point of intersection of the corresponding roller axis therewith. The device can be enclosed within a housing which can be arranged to contact the web with a fluid processing medium, for example for photographic development. The device is also useful for storage in the handling of an endless web.

3,563,487

METAL REEL

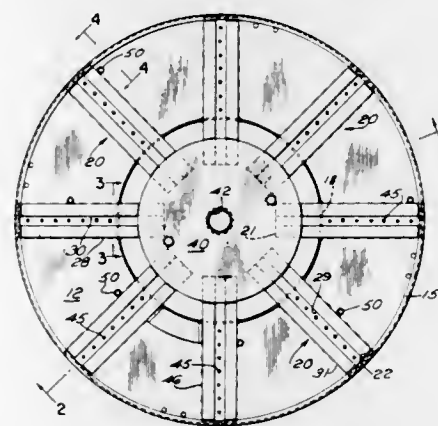
Everett O. Starratt, Cumberland, R.I., assignor to Wanskuck Company, a corporation of Rhode Island

Filed Oct. 23, 1968, Ser. No. 769,887

Int. Cl. B65h 75/18

U.S. Cl. 242-77.3

4 Claims



A metal reel having a barrel with heads at each end, which heads are reinforced by a plurality of radially extending ribs,

each rib comprising, in cross section, spaced channels opening toward the head, which channels are connected by an intermediate channel opening outwardly from the head, the inner ends of the ribs being tied together by a disc contacting their outer surfaces with the discs being tied together by a center tube.

3,563,488

REEL FOR LAYING ROD OR WIRE

Georg Bollig, Dusseldorf, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany, a corporation of Germany

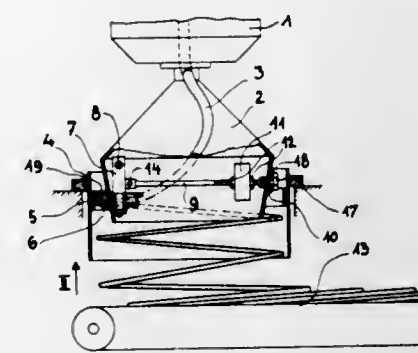
Filed Jan. 3, 1969, Ser. No. 788,780

Claims priority, application Austria, Jan. 4, 1968, 106/68

Int. Cl. B21c 47/00

U.S. Cl. 242-82

7 Claims



A laying reel with a fixed annular guide surrounding the laying member outlet with an internal diameter equal to the external diameter of the turns formed by the reel, and a radially movable roller for rolling on the stock as it issues from the laying member outlet.

3,563,489

DEPTH-GAUGING MEANS FOR FISHING REELS

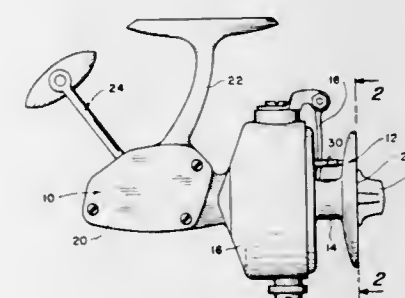
Chester L. Coshaw, 1113 Center, Collinsville, Okla. 74021

Filed May 7, 1969, Ser. No. 822,463

Int. Cl. A01k 89/00

U.S. Cl. 242-84.1

8 Claims



A fishing reel including metering means for paying-out predetermined lengths of line, comprising a rotatable reel having a peripheral surface upon which line can be wound, and a gauge member removably secured on the rotatable spool spaced from the peripheral surface thereof whereby the length of line subsequently payable from the spool when the gauge member is in position thereon is limited to those line windings supported by the gauge member. In addition, an open face type spinning reel comprising a normally stationary spool revolvable against a friction brake and including a gauge member removably secured on the spool in spaced relationship with the peripheral surface thereof whereby subsequent line payed from the spool will be limited to the line windings supported by the gauge member.

3,563,490
YARN TUBE

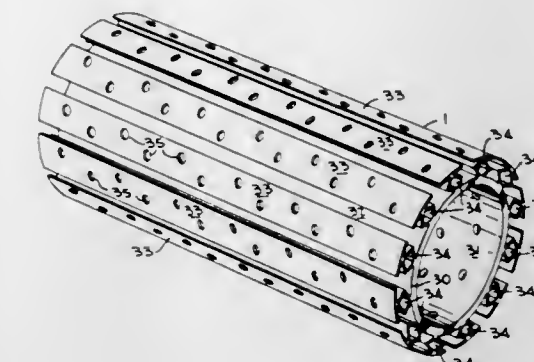
Max Steven Berger, Water Street Road, Collegeville, Pa. 19426

Continuation-in-part of application Ser. No. 621,252, Mar. 7, 1967, now abandoned. This application Sept. 22, 1967, Ser. No. 695,299

Int. Cl. B65h 75/24

U.S. Cl. 242-118.11

29 Claims



A radially flexible and porous yarn tube is employed as the core for a yarn package wound on an up-twister in the last step of a throwing sequence. Without prior shrinking or re-winding, this yarn package is dyed, the yarn tube accommodating the forces attendant the shrinkage of the yarn. The tube may be cylindrical or conic and has a plurality of axial slats surrounding it, each slat being attached by a member capable of undergoing pantographic distension. A plurality of radial holds through the tubes and slats render the core porous.

3,563,491

TEXTILE-TREATING SLEEVE

Gerhard Herbert Hahm, Aachen, and Walter Henning, Hoenen near Aachen, Germany, assignors to Joseph Zimmermann

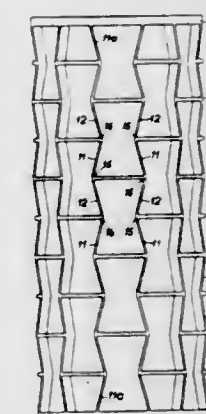
Filed July 3, 1969, Ser. No. 848,379

Claims priority, application Germany, July 5, 1968, Jan. 7, 1969, 1,760,818; 1,900,500

Int. Cl. B65h 75/02

U.S. Cl. 242-118.11

12 Claims



A textile-treating sleeve made of thermoplastics material has a cylindrical or conical shell comprising consecutive rows of rigid ring sections. These ring sections extend circumferentially and are spaced apart in the axial and transverse directions. The ring sections of adjacent rows are offset relative to one another, and the ends of ring sections of adjacent rows are connected by longitudinal webs which are elastically and plastically yieldable in circumferential direction when axial and/or radial pressure is applied to the sleeve.

3,563,500

AEROPLANE, IN PARTICULAR GLIDER WITH PROPELLER AUXILIARY DRIVE

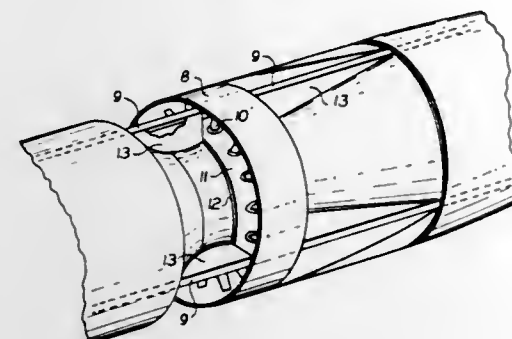
Hans-Otto Fischer, Kickenstrasse 44a, Neersen near Dusseldorf, Germany

Filed Oct. 21, 1968, Ser. No. 769,211

Int. Cl. B64c 11/00

U.S. Cl. 244-65

8 Claims



An airplane, in particular a glider which comprises an extended fuselage of circular cross section and a propeller disposed in the fuselage and rotating as an auxiliary drive about the longitudinal axis of the fuselage. The latter is cross-wise divided in its center to form two fuselage parts. Planking sheets are provided which have an elongation and longitudinal carriers or frames, extending in the elongation, are uniformly distributed about the periphery of the fuselage, holding together the two fuselage parts spaced apart from each other to define a space therebetween. Means for rotating the propeller in the space are arranged and the planking sheets forming an inward restriction in front of and behind the propeller.

3,563,501

AIRBORNE VEHICLE

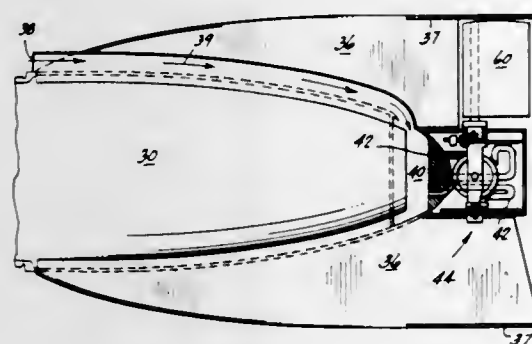
Homer Jensen, Elkins Park, Pa., assignor to Aero Service Corporation, Philadelphia, Pa., a corporation of Delaware

Filed Nov. 25, 1968, Ser. No. 778,427

Int. Cl. B64c 17/06

U.S. Cl. 244-79

3 Claims



A vehicle for use in airborne geophysical surveys to convey instrumentation for measuring geophysical variables. A single axis of the freedom gyroscope is affixed to the vehicle and has an aerodynamic control surface attached to its gimbal mount so that the precession of the gyroscope, as a consequence of changing roll attitude, moves the control surface, resulting in a movement of the vehicle sufficient to return it to a predetermined path.

3,563,502

ANCHOR BASE FOR LIGHTING STANDARDS

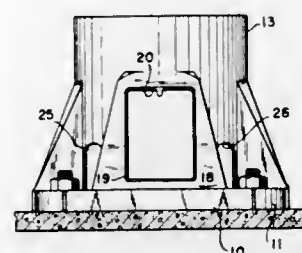
Arthur R. Dayson, Hendersonville, Tenn., assignor to Harsco Corporation, Harrisburg, Pa.

Filed Dec. 4, 1968, Ser. No. 781,108

Int. Cl. E04h 12/22

U.S. Cl. 248-44

3 Claims



An anchor base for lighting or other standards has a cast construction including a hollow cylinder for receiving the standard and a generally square base supporting the cylinder. Four integrally cast buttresses extend from the base partway up the cylinder to strengthen the same. The base is open interiorly and slots for hold-down bolts extend from outside of the cylinder through the base and through the cylinder and open into the open base. Stops are provided within the cylinder for limiting the telescoping movement of the standard.

3,563,503

PIPE INSULATION SUPPORT

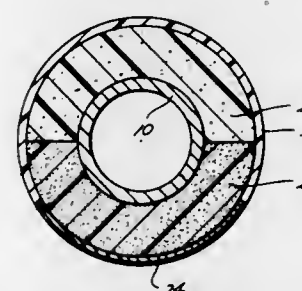
Charles C. Lancaster, 6140 Grape, Houston, Tex.

Filed Nov. 29, 1968, Ser. No. 780,021

Int. Cl. F16l 3/02

U.S. Cl. 248-49

5 Claims



An insulating support for supporting and protecting a pipe from ambient temperatures having a high density polyurethane insulation member which is semicircular in cross section and adapted to be positioned under the bottom of the pipe and which is bonded to a metal load-bearing semicircular member which is adapted to be supported from a support member, and a second insulation member being semicircular in cross section and adapted to be positioned over the top of the pipe and coact with the first member to insulate the pipe. The first member having a density of at least 7 pounds per cubic foot. The second member being polyurethane having a density of approximately 2 pounds per cubic foot. A vapor cover surrounding and bonded to the first and second members and the load bearing member.

3,563,504

DIE-CAST CABLE PANS

Harry K. Gordon, 402 N. 46th, and Dennis H. Baerwald, 773 N. 74th, Seattle, Wash.

Filed Mar. 5, 1969, Ser. No. 804,545

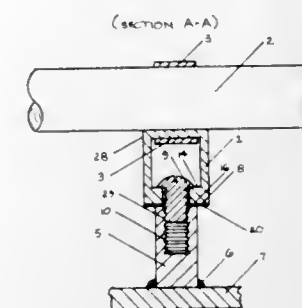
Int. Cl. F16l 3/22

U.S. Cl. 248-68

3 Claims

This invention relates to cable and pipe supporting hangers and hanger supports. The pan is die-cast and is of rectangular

cross section at its middle with sides sloping upward from the bottom of the middle portion to form a top portion upon the opening is one piece from top to bottom of the casting



3,563,505

REFUSE BAG HOLDER

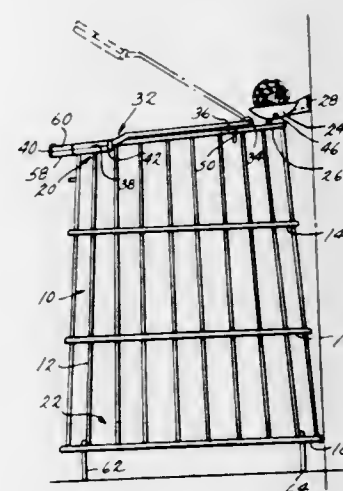
Wesley Burton Langley, Rte. 3, Elizabethtown, Ky. 42701

Filed Oct. 13, 1969, Ser. No. 865,879

Int. Cl. B65h 67/12

U.S. Cl. 248-101

10 Claims



A refuse bag holder having a frame member with two open ends for holding a refuse bag in an upright position with the mouth of the bag open for receiving refuse and including a bag storage member mounted on the frame for storing a roll of refuse bags. The frame member is provided with a cover that is rotatably mounted on the frame member adjacent to the bag storage member for receiving and clamping a bag located on an end of the bag roll and for enabling the clamped bag to cover one of the open ends of the frame member in a flytight manner when the cover is in its closed position.

3,563,506

INGOT MOLD HOT TOP CASING

Joseph Perri, Coraopolis, Pa., assignor to The Susquehanna Corporation, Chicago, Ill., a corporation of Delaware

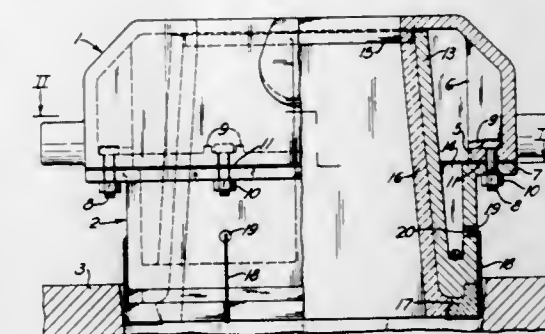
Filed Jan. 15, 1968, Ser. No. 698,014

Int. Cl. B22d 7/10

U.S. Cl. 249-197

3 Claims

A hot top casing is formed from a metal casting provided with a central vertical opening, the casting being divided into



3,563,507

PNEUMATIC CONTROL SYSTEM AND PARTS THEREFOR OR THE LIKE

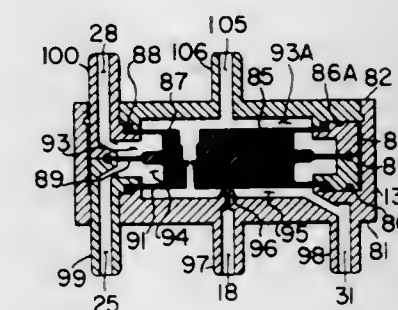
Larry V. Nisley, Klaus P. Mueller, and Kenneth G. Kreuter, Goshen, Ind., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware

Continuation-in-part of application Ser. No. 719,495, Apr. 8, 1968. This application Nov. 1, 1968, Ser. No. 772,788

Int. Cl. F16k 7/17

U.S. Cl. 251-61

16 Claims



This disclosure relates to a vacuum temperature control system wherein a pair of vacuum signals respectively from a temperature sensor and a temperature selecting means are translated by a comparator into a vacuum control signal that operates a temperature output means for the system in relation to the vacuum control signal to produce a proportional action thereof, the system, however, having vacuum signal means for resetting the comparator to slowly eliminate the proportional action caused by the comparator. The comparator comprises a valve means having a one-piece diaphragm means provided with three spaced and stacked diaphragm portions.

3,563,508

VALVE INCLUDING PISTON WITH SPACED APART PLATES

Bruce L. DeLorenzo, 124 Fenner Ave., Clifton, N.J. 07013

Continuation-in-part of application Ser. No. 547,560, May 4, 1966, now abandoned. This application Dec. 13, 1968, Ser. No. 783,666

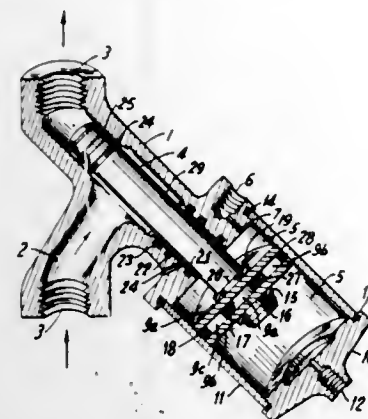
Int. Cl. F16k 31/12

U.S. Cl. 251-63.5

9 Claims

A valve arrangement has a piston integral with the plunger.

The walls of the housing surrounding the plunger are provided with fluidtight seals. The walls of the housing adjacent



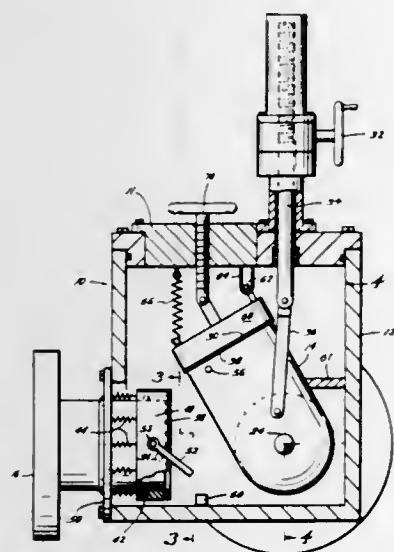
the seals are cutback. The plunger may terminate in a disc formed from two spaced apart plates.

3,563,509 VALVE

Clyde H. Chronister, 4 Kings Row, Rte. 14, Houston, Tex.
Filed July 7, 1969, Ser. No. 839,280
Int. Cl. F16k 1/02

U.S. Cl. 251-159

13 Claims



A pipe elbow in a valve housing, which has an inlet and an outlet, with the first end of the elbow rotatably connected to the outlet and a trunnion axially aligned with the outlet whereby the elbow may be rotated about the trunnion and first end to bring the second end into and out of alignment with the inlet. Seal means for closing off the second end when the second end is moved out of alignment with the inlet into a valve closed position. A collar slidably engaging the inlet with engaging means actuated by the elbow upon movement of the second end into alignment with the inlet for moving the collar towards and sealing with the pipe second end. Seal means for closing said valve being pivotally supported at an edge remote from the inlet and spring means connected to the edge nearest the inlet for normally retracting the seal from the second end of the pipe and means operable outside of the housing for moving the seal towards and away from the second end of the pipe.

3,563,510 VALVE SEALED BY CALKING RING ANCHORED IN SUPPORT GROOVE

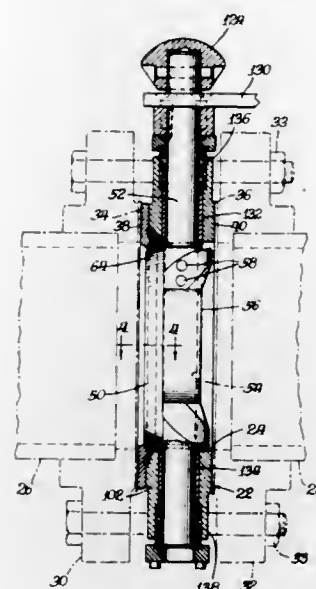
Werner K. Priebe, Barrington, Ill., assignor to Hills-McCanna Company, Carpentersville, Ill.
Filed Aug. 6, 1969, Ser. No. 848,008
Int. Cl. F16k 5/14

U.S. Cl. 251-173

16 Claims

A valve that is sealed, when closed, by the calking action against a sealing surface of a dynamic calking ring held by an

integral anchoring flange in an annular support groove closely confronting the sealing surface. Relatively thin in relation to the calking ring, the anchoring flange is anchored in an annular position generally perpendicular to a transverse tangent to the sealing surface. The ring support groove is dimensioned laterally in relation to the ring to define on opposite sides of the ring annular plenum spaces opening into the groove to the groove bottom to fully expose the corresponding side surfaces and back of the ring to fluid pressures on the respective sides of the valve. The side surfaces of the



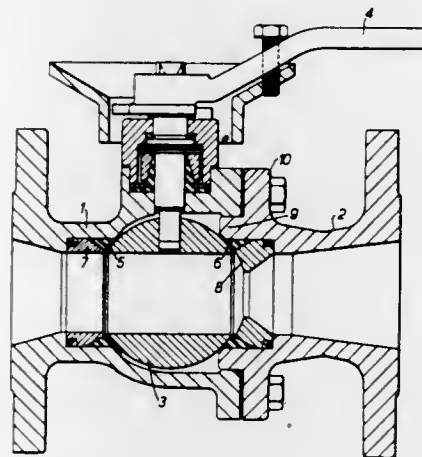
groove confront the sealing surface at angles lacking any material degree of obtuseness all to the end that mechanical initial sealing of the valve is intensified by a fluid pressure energized calking action of the ring having a maximized effectiveness with respect to differential pressure in either direction. Comprised of a yieldable, annular pressure sustaining core sheathed in a yieldable polymeric material, the calking ring can be sheathed in and otherwise formed partially or wholly of metal for high temperature and other special applications.

3,563,511 FLOW CONTROL DEVICES

Herbert Bentley-Leek, Hereford, England, assignor to Saunders Valve Company Limited
Filed July 29, 1969, Ser. No. 845,802
Claims priority, application Great Britain, Aug. 7, 1968, 37708/68
Int. Cl. F16k 5/12, 5/06

U.S. Cl. 251-209

9 Claims



A plug-cock-type flow control valve wherein one of the ports of the bore of the plug coacts with a member having an aperture which is asymmetrically shaped with respect to the axis of the plug bore, the apertured member being settable in any one of a number of different angular positions relative to the plug bore axis to provide different patterns of develop-

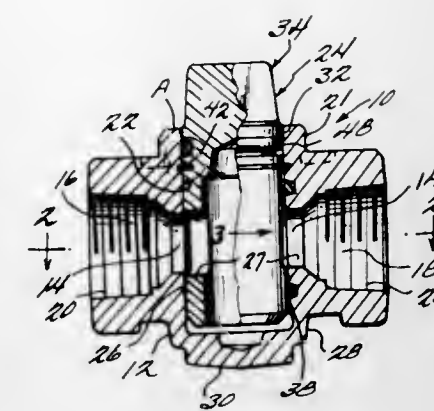
ment of the effective flow passage through the valve as the plug is rotated between the closed and open positions of the valve.

3,563,512 TAMPERPROOF ROTARY VALVE ASSEMBLY

William L. Hauffe, Warrensburg, Ill., assignor to Mueller Co., Decatur, Ill.
Filed Dec. 8, 1969, Ser. No. 883,125
Int. Cl. F16k 5/04, 41/00

U.S. Cl. 251-312

11 Claims



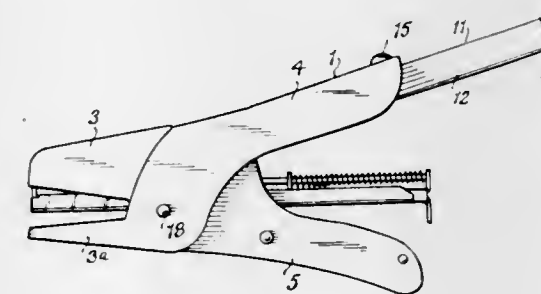
A rotary valve assembly having a valve housing member with a flow passage therethrough and a key member which includes a valve member for coacting with valve seat means in the housing member. The key member is rotatable in a key seat in the housing member and means are provided to prevent unauthorized disassembly of the key member from the valve housing member. Additionally, means are provided to protect against corrosion at least between the key member and the key seat of said housing member whereby easy turning of the key member is insured throughout the life of the valve assembly. The means for making the valve assembly tamperproof against unauthorized disassembly includes utilization of a split snapping for preventing axial movement of the key member relative to the housing member and inaccessible from the exterior once the key member is assembled in the valve. A seal and anticorrosive coatings on pertinent parts of the valve assembly protect the split snapping and insure easy turning of the key member in its key seat.

3,563,513 STAPLER REMOVER ATTACHMENTS FOR STAPLING MACHINES

Arthur L. Rubin, 3801 S. Ocean Drive, and Harry Radzinsky, 2501 S. Ocean Drive, both of Hollywood, Fla. 33020
Filed Dec. 18, 1968, Ser. No. 784,600
Int. Cl. B25c 11/00

U.S. Cl. 254-28

7 Claims



A staple-applying and removing apparatus comprising a stapler provided with an operating handle and a staple remover housed in the handle and attached thereto and adapted to be manually projected from the handle without detaching it therefrom, into operating position.

3,563,514 PLASTICIZER WITH FULL DIAMETER ROTOR

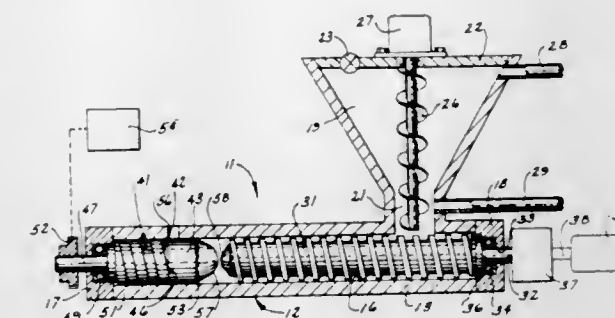
Robert Shattuck, Chicago, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Delaware

Filed Mar. 11, 1968, Ser. No. 712,175

Int. Cl. B01f 7/08

U.S. Cl. 259-9

7 Claims



A plasticizing apparatus comprising a feed barrel having a constant diameter opening therethrough, the feed barrel having a rotatable feed screw mounted at one end thereof and a rotatably driven plasticizing element mounted in the other end thereof. The feed screw and the rotor both have a diameter substantially equal to the interior diameter of the feed barrel opening and are coaxially positioned within the opening so as to define a compression and plasticizing zone. The end of the rotor adjacent the feed screw is provided with a steep conical face thereon for coacting with the plastic material for plasticizing same. The screw feeds particulate plastic material into the compression zone whereby the powder is highly compacted and compressed within this zone, the compressed powder thus being forced against the face of the rotor so as to plasticize the material. Passageways are provided for withdrawing the volatiles from the plasticizing region, the volatiles being withdrawn through the compacted and compressed material within the compression zone.

3,563,515 MIXING MACHINE

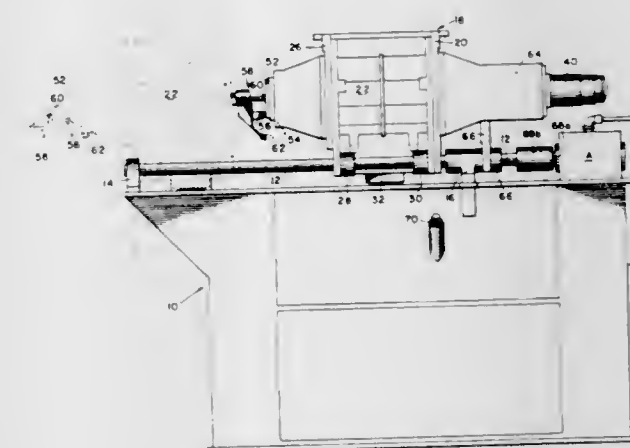
William D. Chapman, Au Gres, Leon Yablonski, Owen W. Rohn, and Richard J. Balazer, Saginaw, Mich., assignors to Baker Perkins, Inc., Saginaw, Mich., a corporation of New York

Filed Sept. 5, 1968, Ser. No. 757,603

Int. Cl. B01f 7/02

U.S. Cl. 259-104

17 Claims



A mixing machine including a generally horizontally disposed mixing trough having a pair of independently driven mixing elements journaled in one end wall of the mixing trough. The opposite end wall of the mixing trough may be moved relative to the first-mentioned end wall and mixing elements for purposes of cleaning. Also, the assembly of the mixing trough, mixing elements, and associated drive means may be tilted relative to the remainder of the machine for emptying the mixed constituents therefrom.

3,563,516

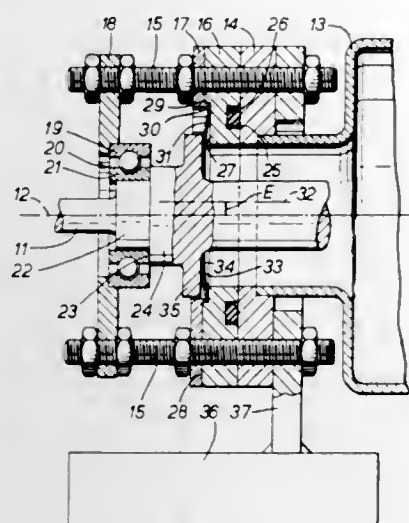
SEALS FOR ROTATABLE SHAFTS

William Paul White, Whitby, England, assignor to United Kingdom Atomic Energy Authority, London, England
Filed Aug. 25, 1969, Ser. No. 852,831

Claims priority, application Great Britain, Sept. 5, 1968, 42369/68

Int. Cl. B01f 7/00; F16j 15/34

U.S. Cl. 259-106



A seal between a shaft and a housing relative to which the shaft is rotatable comprises a resilient washer one of whose two peripheral edges is fixed fluid-tightly to the shaft or the housing the other edge being in rotatable contact with the housing or the shaft. The longitudinal axis of the washer is disposed parallel to, but is offset from, the axis of rotation of the shaft.

3,563,517

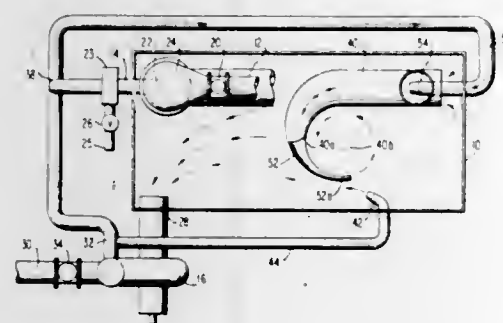
CEMENT SLURRY MIXING SYSTEM

Donald W. Harriman, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Apr. 25, 1969, Ser. No. 819,265

Int. Cl. 28c 5/02

U.S. Cl. 259-148



A slurry reservoir is supplied with a flow of dry bulk cement and mixing water. Mixed slurry from the reservoir is recirculated to a mixing slurry jet disposed in the flow of dry bulk cement and to a plurality of slurry agitator jets disposed within the reservoir, below the surface of the slurry retained therein. The mixing slurry jet cooperates with a mixing water inlet to thoroughly mix the incoming dry bulk cement before the dry bulk cement is added to the slurry in the reservoir. An eductor member, formed with an arcuate vane disposed on a discharge end thereof, may be disposed within the reservoir for providing additional swirling agitation to the body of slurry retained therein. A density measuring device may be connected within the slurry mixing system and used as an indicator by an operator as he varies the inflow of dry cement and water in order to control the final density and quantity of slurry mixed.

ERRATUM

For Class 261-50 see:
Patent No. 3,563,524

3,563,518

CONTINUOUS HEAT TREATMENT OF MATERIALS

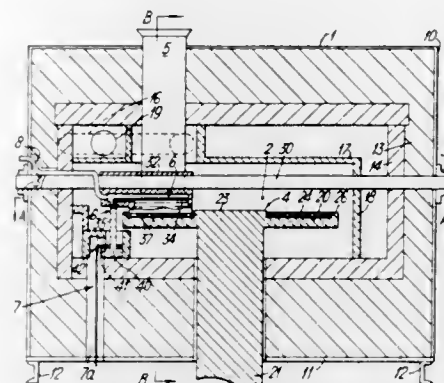
John Victor Alderson, Southport, Robert Smith, Ormskirk, and Geoffrey Wells, Burscough, England, assignors to Pilkington Brothers Limited, Liverpool, England
Filed Apr. 28, 1969, Ser. No. 819,618

Claims priority, application Great Britain, May 2, 1968, 20951/68

Int. Cl. F27b 14/00

U.S. Cl. 263-12

14 Claims



A continuous stream of molten glass or glass fibers is produced by continuously and evenly distributing glass-forming materials onto a hearth, exposing the materials to high temperature to convert the materials into molten glass, and continuously and progressively removing the molten glass upwardly from the hearth by means of suction at the same rate at which materials are distributed onto the hearth.

3,563,519

INSTALLATIONS FOR PREHEATING PULVERULENT SUBSTANCES BY THE WASTE GASES OF A FURNACE FOR TREATING THE SUBSTANCES

Jean-Pierre Lippmann, Vaucresson, France, assignor to Societe Des Forges Et Ateliers Du Creusot, Paris, France

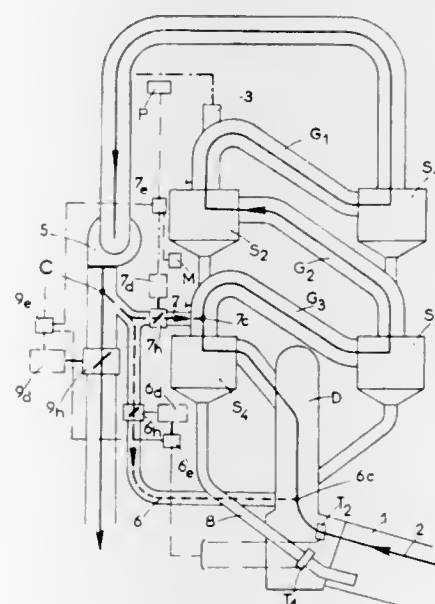
Filed Mar. 11, 1969, Ser. No. 806,181

Claims priority, application France, Mar. 29, 1968, 146,361

Int. Cl. F27b 15/00

U.S. Cl. 263-21

1 Claim



An installation for preheating pulverulent substances by the waste gases of a furnace for treating the substances, in which a fraction of the preheating gases having passed through the preheaters of the installation feeds of a recycling

circuit at at least two places of reintroduction into the reheating cycle, the fraction being taken from a fan sucking in the gases passing through the installation flow in one branch being controlled in response to temperature and in the other branch in response to flow in the preheating circuit.

3,563,520

SIDE PLATE FOR USE IN SINTER GRATES

Fritz Muller, 3 Am grünen Weg, Knapsack near Cologne; Winfried Schmidt, 8 Am Sonnenhang, Kendenich near Cologne, and Hugo Werner, 11 Brunhildstrasse, Hermulheim near Cologne, Germany

Filed Sept. 5, 1969, Ser. No. 855,698

Claims priority, application Germany, Sept. 11, 1968, 1,758,985

Int. Cl. F27b 9/00

U.S. Cl. 263-28

6 Claims



A sideplate for use in gratings for the drying, calcining and sintering of ores, minerals or similar materials, e.g. crude phosphate pellets. The sideplate is comprised of individual sideplate elements arranged to be substantially half overlapped by the side plate elements disposed nearest thereto on the two sides of it, and the overlapping contact between the individual sideplate elements is produced by positioning the head portion of each sideplate element so as to be parallel, at an interval corresponding approximately to wall thickness, with the tail end portions thereof. The base portion of each sideplate element has two bolt-receiving oblong holes disposed therein so as to coincide with each of the holes in the sideplate elements nearest to said element on the two sides of it. The ratio of the sideplate height to the hole spacing therein is selected to correspond to a value higher than 0.86, and the frontal surface area of each sideplate element has a substantially circular base portion and a substantially linear head portion, tangential with respect to the circle arc.

3,563,521

MATERIALS LIFTER CONSTRUCTION AND INSTALLATION IN KILNS

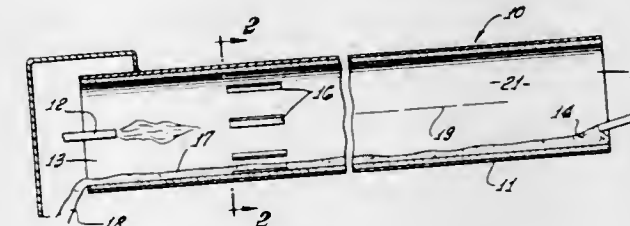
George F. Olsen, Colton, Calif., assignor to California Portland Cement Company, Los Angeles, Calif.

Filed Feb. 26, 1969, Ser. No. 802,551

Int. Cl. F27b 7/00; F23m 5/00

U.S. Cl. 263-33

11 Claims



The disclosure concerns apparatus and methods enabling rapid installation of materials lifters in a kiln, with desirably positive connection of the lifters to the kiln shell.

3,563,522

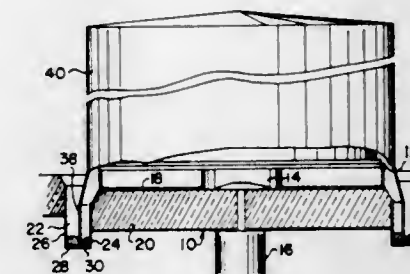
SEALING DEVICE

Calvin C. Blackman, 24272 W. Lake Road, Bay Village, Ohio
Continuation-in-part of application Ser. No. 575,577, Aug. 29, 1966, now Patent No. 3,411,763. This application Apr. 29, 1968, Ser. No. 725,043

Int. Cl. F27b 5/00

U.S. Cl. 263-40

15 Claims



A sealing device for a bell-type furnace which includes a quantity of loose, temperature resisting material such as sand encased within flexible temperature resisting material such as asbestos cloth.

3,563,523

LINING APPARATUS

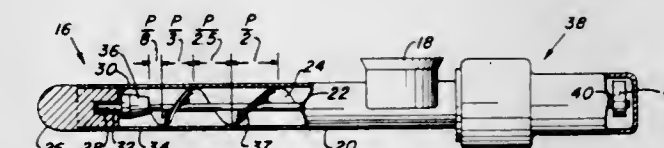
John S. Wendt, Jr., Sewickley, Pa., assignor to Dravo Corporation, Pittsburgh, Pa.

Filed Aug. 26, 1968, Ser. No. 755,138

Int. Cl. C21b 7/12

U.S. Cl. 266-42

10 Claims



An apparatus for relining metallurgical furnace tap-holes is disclosed. The apparatus is adapted to be inserted in a furnace tap-hole and includes a tubular housing, a supply hopper communicating with the housing for introducing a lining material into the housing and a screw conveyor for advancing the lining material from the hopper forwardly through the housing. The forward end of the housing is closed by a nose piece and the housing has openings around its periphery to the rear of the nose piece. A discharge member is provided within the housing between the forward end of the screw conveyor and the nose piece and generally in the transverse plane of the openings for forcing material radially through the openings. Means are provided for driving the screw conveyor and simultaneously imparting a vibratory motion to the housing so that as lining material is discharged through the openings, the housing's outer wall compacts the lining material against the inner wall of the tap-hole.

3,563,524

CARBURETOR FOR INTERNAL COMBUSTION ENGINES

Edgar D. Jelken, R.R. 1, Jeffers, Minn. 56145
Filed May 28, 1969, Ser. No. 828,521

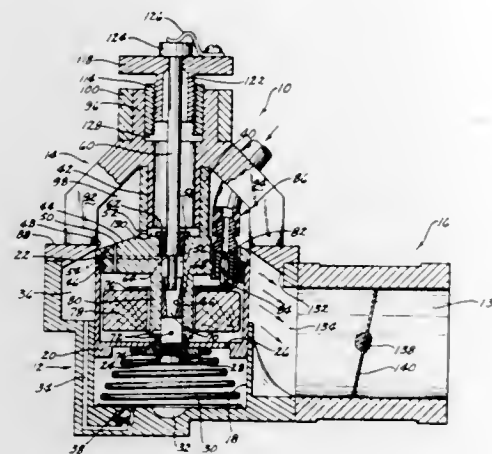
Int. Cl. F02m 3/00, 7/22

U.S. Cl. 261-50

10 Claims

A carburetor for internal combustion engines comprising a housing having a compartment area therein adapted to be in communication with the intake manifold of the engine. The housing also is provided with a cylindrical bore area formed therein below the compartment area. A throttle valve means is slidably mounted in the housing and is adapted to variably restrict the entrance to the compartment area. A carburetor bowl adapted to contain the fuel therein is secured to the throttle valve means and is slidably mounted in the bore of the housing. A spring means is mounted in the bore and yieldably urges the throttle valve upwardly to restrict the en-

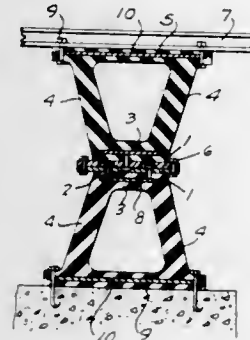
trance to the compartment area. The throttle valve has a combustible fluid passageway formed therein which movably receives a needle valve extending thereinto. The throttle valve has a fluid exit passageway means having one end connected to the passageway of the throttle valve and its other end communicating with the inside of the compartment area. A first conduit communicates with the inside of the fuel bowl and a source of fuel while a second conduit communicates with the compartment area and the inside of the bore. The throttle valve passageway has a tapered valve seat positioned therein which receives an elongated cylindrical end portion of the needle valve to variably restrict the flow of fuel through the throttle valve passageway. Manifold pressure applied to the compartment area causes the throttle valve to



move downwardly against the spring means to increase the amount of air entering the entrance area into the compartment area. As the throttle valve moves downwardly, the tapered valve seat moves outwardly from the needle valve to permit a larger volume of fuel to be drawn through the passageway and to be discharged from the fluid exit passageway of the throttle valve. The incoming air mixes with the discharge fuel and the mixture is drawn into the intake manifold. Means is also provided to achieve "fine" adjustment of the carburetor. A modified version of the carburetor is also disclosed and the primary difference of the same with respect to the first embodiment is the location of the fuel bowl with respect to the umbrella portion of the throttle valve.

3,563,525 FENDER

Jiro Narabu, Tokyo, Japan, assignor to Seibu Gomu Kagaku Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 19, 1968, Ser. No. 777,059
Claims priority, application Japan, Aug. 10, 1968, Sho 43/56,523
Int. Cl. F16f 1/40
U.S. Cl. 267-140

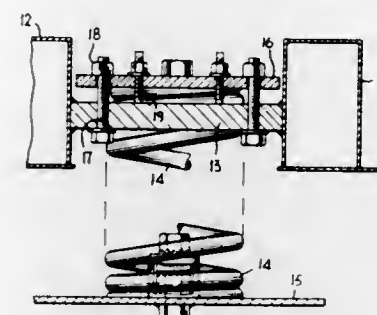


The present invention relates to a fender which consists of a pair of supports and a buffer and is applicable to a quay-wall or a dock, said fender comprising at least a pair of similar supports with elasticity, said pair of similar supports being either connected at the middle parts thereof or formed by two elastic members, each being composed of a flat top

and a pair of supports, said two elastic members being combined at the flat tops, and opposite supports in series on both sides being connected to be substantially finished into a pair of supports connected at the middle parts.

3,563,526 FLOATING FLOOR AND SPRING RETAINING CLAMP THEREFOR

Billy Y. K. Mui, Astoria, N.Y., assignor to Korfund Dynamics Corporation, Westbury, N.Y.
Filed July 5, 1968, Ser. No. 742,763
Int. Cl. F16f 1/12
U.S. Cl. 263-178

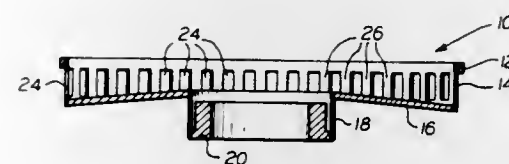


A lightweight floating floor construction for use in a moving vehicle which includes a plurality of parallel supports connected in spaced apart side-by-side fashion by transverse connections and supported above an underneath floor by a plurality of extensible and compressible springs interposed between the underneath floor and spring retaining plates recessed between the supports and mounted on the transverse connections.

A spring retaining clamp for mounting the ends of a spring to a spring retaining surface and including a center hub, oppositely disposed arms extending outwardly from the center hub and having convexly curved ends, and helically extending protuberances at different heights extending across the opposite ends of the arms.

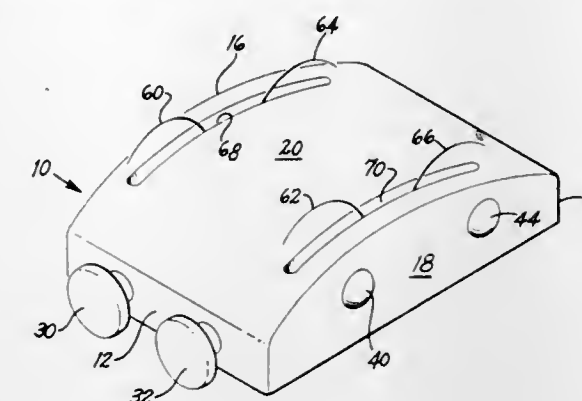
3,563,527 SPRING ASSEMBLY

Alfred Tillman, Mt. Tabor, N.J., assignor to Marotta Valve Corporation, Boonton, N.J.
Filed Mar. 20, 1969, Ser. No. 808,790
Int. Cl. F16f 1/34
U.S. Cl. 267-181



A spring assembly having an annular disc of spring material connected at its inner and outer edges to cylindrical elements that connect the disc between the parts with which the spring is to function. The cylindrical elements are constructed with cutouts that divide the elements into secondary spring elements which are angularly spaced around the edges of the disc and which bend to give the assembly a low hysteresis.

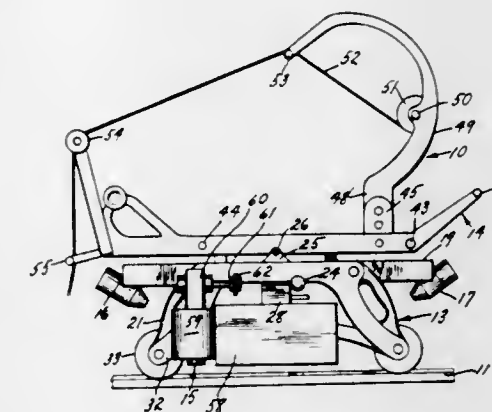
3,563,528
MECHANICAL WIG HOLDER
Joseph Campo, 151 Baldwin St., Bloomfield, and Harold E. Murray, 94 Orchard St., Garfield, N.J.
Filed Sept. 16, 1968, Ser. No. 762,238
Int. Cl. A45d 44/04, 44/14
U.S. Cl. 269-289



A mechanical wig holder comprising a housing carried in a head form and having catch means pivotably mounted therein, and control means for controlling the movement of the catch means between an operative and an inoperative position.

3,563,529 EDGE CONTROL FOR TURNABLE CLOTH LAYING MACHINES

Berthold Gottschalk, Brooklyn, and Thomas G. Monaghan, Kew Gardens, N.Y., assignors to Cutting Room Appliances Corp., New York, N.Y.
Filed Mar. 20, 1969, Ser. No. 808,938
Int. Cl. B65h 29/46, 25/26
U.S. Cl. 270-31

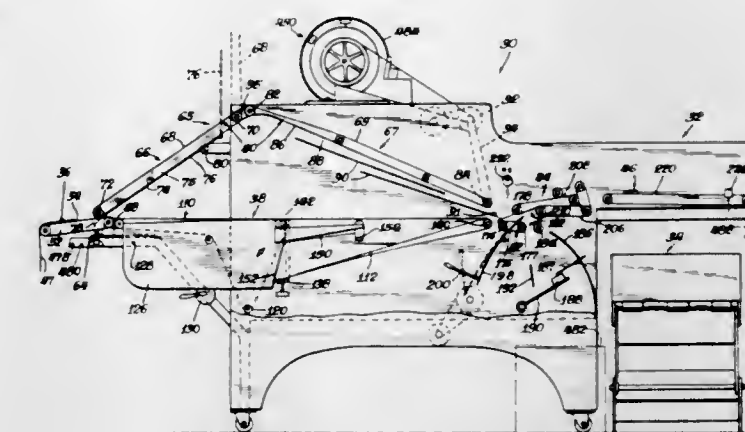


A turntable cloth laying carriage including a laterally shiftable component supporting a cloth web supply source. A pair of longitudinally aligned sensing means are selectively actuated depending upon the relative rotational position of the turntable with respect to a rectilinearly moving base to control movement of said shiftable component, thereby maintaining one edge of the web in aligned relation with respect to previously laid goods, the aligned edge depending upon the rotational position of the platform.

3,563,530
SENSING AND ACTUATING MEANS FOR LAUNDRY FOLDER
Frederick W. Grantham, 152 W. Pico Blvd., Los Angeles, Calif. 90015
Continuation-in-part of application Ser. No. 545,823, Apr. 25, 1966, now Patent No. 3,462,138, dated Aug. 19, 1969.
This application July 24, 1969, Ser. No. 844,505
Int. Cl. B65h 45/18

U.S. Cl. 270-66
A laundry folder for small pieces in which the pieces are folded at an intermediate point such as the middle, including

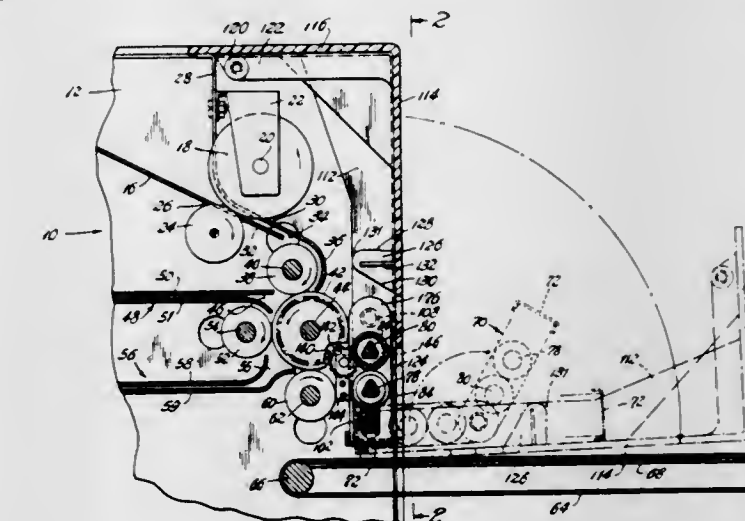
a pair of sensors spaced along the line of travel of the laundry pieces, each laundry piece engaging the first one of the sensors which starts a slow speed advancement of an actuating element away from a control element, and then engaging the



second one of the sensors which starts a fast speed return or retracting movement of the actuating element toward the control element, the latter controlling a folding member for folding the laundry piece at a corresponding position between the ends thereof.

3,563,531 PERFORATING, SCORING OR SLITTING DEVICE FOR FOLDING MACHINE

Thomas J. Gavaghan, Norwalk, and Anthony Luvara, Stamford, Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.
Filed Feb. 23, 1968, Ser. No. 707,627
Int. Cl. B65h 45/14
U.S. Cl. 270-68

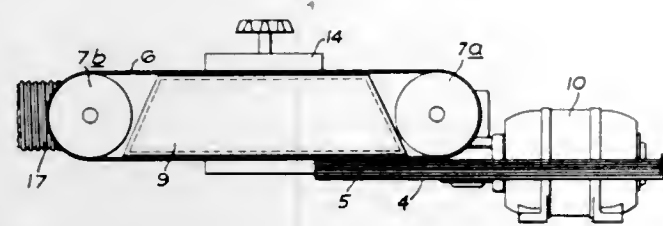


A device for perforating, scoring or slitting folded sheets of paper as they emerge from a folding machine. The device is permanently mounted in the folding machine and is pivotably connected to a movable panel forming part of a housing for the folding machine so that it can be readily shifted between an operative position and an inoperative position when the housing panel is open and maintained in either position when the housing panel is closed.

3,563,532
AUTOMATIC DOCUMENT PROCESSING APPARATUS
Leslie John Street, Cotham Park, Bristol, England, assignor to Parnall & Sons Limited, Birmingham, England, a British Company
Filed July 22, 1968, Ser. No. 746,345
Claims priority, application Great Britain, Aug. 18, 1967, 38,175
Int. Cl. B65h 3/12

U.S. Cl. 271-26
A ported belt type single sheet feeder having a variable speed drive transmission between means for driving the belt

and a rotary valve controlling application of subatmospheric pressure to a shoe behind the ported belt to permit variation



of the frequency of application of the subatmospheric pressure in the shoe relative to the speed of the drive of the belt so as to vary the spacing of sheets drawn onto the belt.

3,563,533

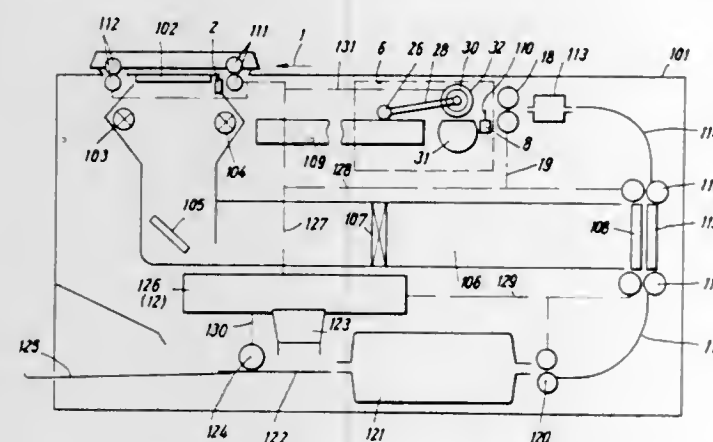
COPY SHEET SUPPLY DEVICE

Walter Limberger, Hamburg-Poppenbützel, Germany, assignor to Lumoprint Zindler K.H., Hamburg, Germany
Filed Apr. 23, 1969, Ser. No. 818,700
Claims priority, application Germany, Apr. 27, 1968, P1761287

Int. Cl. B65h 3/06, 7/00

U.S. Cl. 271—36

9 Claims



A copy sheet supply device wherein the original and the copy sheets trip respective switches which control the operation of an intermittent drive for a pickup roller for the copy sheets. The pickup roller has a different sheet transport speed compared with subsequent conveyor means for the copy sheets, and a slipping clutch controls a sheet feed roller combination in dependence on this speed differential.

3,563,534

RECORD CARD HANDLING AND LOCATING APPARATUS

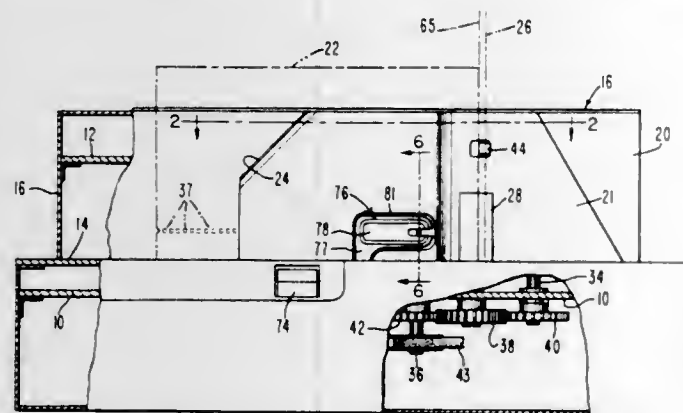
Georg K. Caspari, Plymouth, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed June 27, 1968, Ser. No. 740,623

Int. Cl. B65h 7/08, 9/06

U.S. Cl. 271—53

5 Claims



The disclosure embodies a guideway into which a record card is manually inserted and moved therealong until the

leading edge of the card is stopped by a retractable stop member which locates the card at a reference point to a card punching station. A portion of the guideway, anterior to the punching station, is restricted by a holder which frictionally holds the card in its precisely located position and is displaceable laterally to move the card against a feed means or pin wheel which thereafter incrementally feeds the card past the punch. The holder is differentially biased in opposite directions so that normally it functions as a restricted portion of the guideway, the differential being overcome by a manually operated means for retracting the stop member. A latch member responsive to retraction of the stop member holds the latter and the holder retracted and the latch member initiates a latch releasing cam.

3,563,535

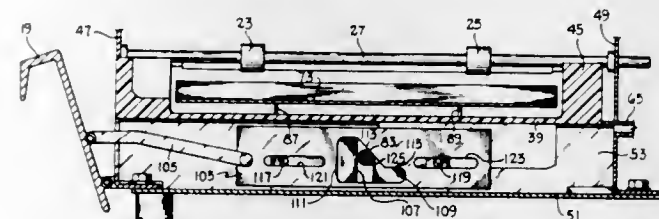
SHEET FEEDING ASSEMBLY

Gerard A. Vitu, Deerfield, Henry R. Kuksa, Chicago, Ill., and Theodore B. Bennett, Kenosha, Wis., assignors to SCM Corporation, New York, N.Y., a corporation of New York
Filed May 5, 1969, Ser. No. 821,762

Int. Cl. B65h 1/12

U.S. Cl. 271—62

15 Claims



In a photocopying machine for copying original objects, for example books, a stack of copy paper sheets is contained in a paper feed drawer located at an operating position inside a compartment which is covered by a door. The forward end of the stack is lifted upwardly by an upwardly biased lifting member to a feeding position where the topmost sheet of the stack engages feed rollers which are rotatably driven to advance the sheets separately from the compartment for further use in the photocopying machine. To load the photocopying machine with another stack of copy paper sheets, the door is moved to uncover the compartment, and a cam connected to the door lowers the lifting member beneath the paper feed drawer. The paper feed drawer is held at the operating position by a latching mechanism, and an actuating member connected to the door releases the latching mechanism and enables the paper feed drawer to be pushed from the operating position by a resiliently biased plunger. The paper feed drawer may then be pulled to a loading position and a fresh stack of copy paper sheets placed therein. The drawer is then pushed to the operating position inside the compartment, thereby pressing the resiliently biased plunger backwardly until the latching mechanism again holds the drawer at the operating position. The door is then moved to cover the compartment, and in so doing moves the cam backwardly to enable the lifting member to move upwardly through the paper feed drawer and lift the forward end of the stack to the feeding position where the topmost sheet engages the paper feed rollers.

3,563,536

DEVICE FOR GRIPPING PAPER SHEETS

Rudolf Hanzlik, Adamov, and Vladimir Drlik, Bilovice, Czechoslovakia, assignors to Adamovske strojirny narodni podnik, Adamov, Czechoslovakia

Filed Apr. 21, 1969, Ser. No. 817,716

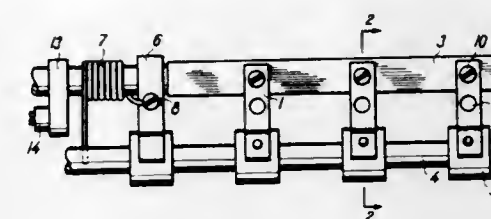
Int. Cl. B65h 29/02

U.S. Cl. 271—79

9 Claims

A device to be used in printing presses and the like for gripping paper sheets during transportation thereof includes a pair of parallel shafts one of which is a carrier shaft and the other of which is a stop shaft. The stop shaft carries a plurality of rubber stops which are distributed therealong while the carrier shaft carries a plurality of springy grippers which are fixed thereto and extend therefrom into overlapping relation

with respect to the several stops. The grippers are all made of springy flat leaf spring material. At their ends where they overlap the stops the grippers respectively carry rubber



plates situated between the leaf springs and stops and directly engaging the latter when there is no sheet gripped between these rubber plates and rubber stops.

3,563,537

SHEET STACK FEED DEVICE WITH SHIFTABLE THROAT RESTRICTOR

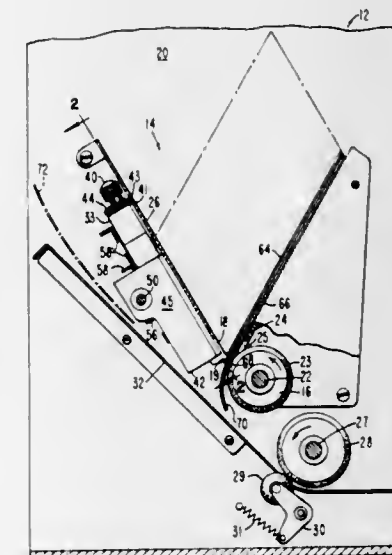
Paul John Thut, Penfield, N.Y., assignor to Burrough Corporation, Detroit, Mich.

Filed Oct. 14, 1968, Ser. No. 767,310

Int. Cl. B65h 1/06

U.S. Cl. 271—41

2 Claims



The disclosure embodies a V-shaped sheet stack hopper having a downwardly directed opening at its apex. At the apex of the hopper, and in part forming one of the walls thereof, is a shiftable or positionable restricting member which forms a card restricting outlet with a resilient tire of a card feed roller. Mounted on the hopper and supporting the positionable restricting member is a body on which there is an adjustment member operable to establish a set restriction with the tire, corresponding to a given card thickness. Also mounted on the body is a shifter member by means of which the positionable member may be readily shifted to change the restriction to one for accommodating cards of other thickness.

3,563,538

PUPPET STAGE

Mary A. Harper, Mansfield, Conn. (Rte. 1, Box 183D Stors, Conn. 06268)

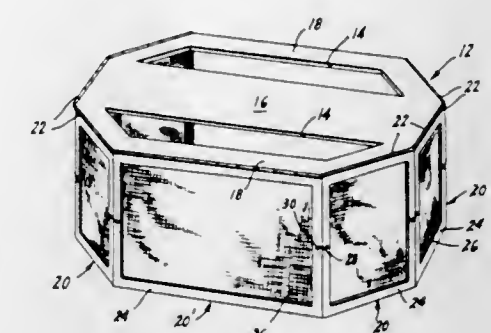
Filed July 8, 1968, Ser. No. 743,206

Int. Cl. A63j 19/00

U.S. Cl. 272—1

6 Claims

A puppet stage comprises a platform having a relatively large aperture therethrough and a multiplicity of support members hingedly joined to the platform at spaced locations on the periphery thereof. The support members are movable



3,563,539

VERTICALLY ADJUSTABLE EXERCISING APPARATUS

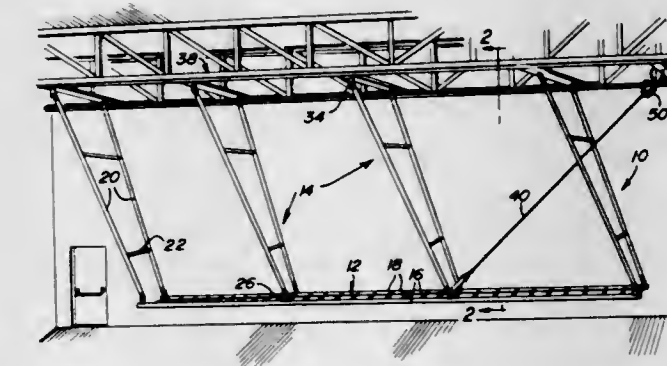
Clarence R. Rogers, 1857 Carl St., Walla Walla, Wash. 99362; Tom Lamb, Rte. 1, Waitsburg, Wash. 99361; Marvin Dahl, 518 Balm St., Walla Walla, Wash. 99362; and Harvey Morrison, 148 Hobson St., Walla Walla, Wash. 99362

Filed Mar. 14, 1968, Ser. No. 713,117

Int. Cl. A63b 17/02

U.S. Cl. 272—63

7 Claims



A horizontally orientated exercising ladder suspended from an overhead support by a plurality of rigid pivotally connected suspension members which enable a vertical swinging of the ladder between a raised storage position and any one of a plurality of different height exercising positions. The adjustment of the apparatus is effected through a winch controlled cable. Further, auxiliary equipment can be mounted on the adjustable ladder for adjustment therewith.

3,563,540

FULCRUM SHIFTING DEVICE FOR DIVING BOARDS

Henry Hopfeld, Valley Head, Ala.

Filed Jan. 24, 1969, Ser. No. 793,871

Int. Cl. A63b 5/10

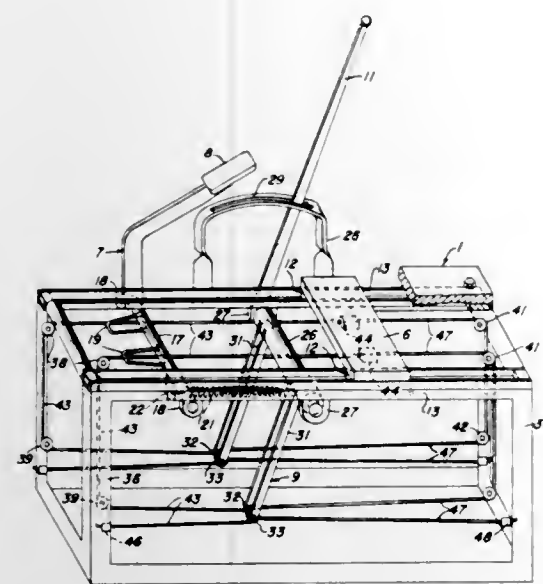
U.S. Cl. 272—66

10 Claims

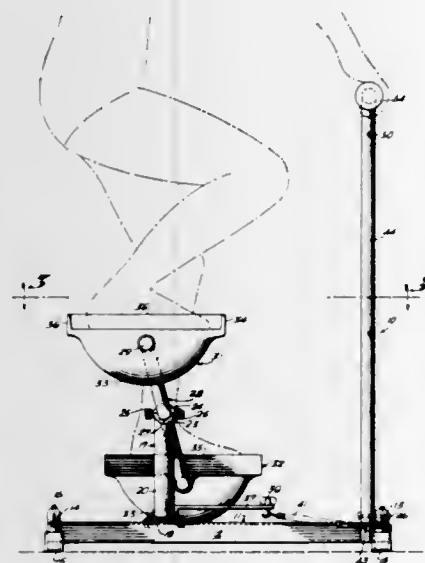
A fulcrum is formed near the secured end of the diving board by a transverse fulcrum member on which the diving board rests and about which the springing of the diving board is fulcrumed. The fulcrum member is supported at its ends slideably longitudinally with respect to the diving board to change the location of the fulcrum thereby to change the stiffness or springing action of the diving board. The fulcrum is shifted by means of one or more lines secured to the fulcrum member and played over fixed guides and over movable guides and fixedly anchored at their free ends.

A diving board lifting device raises the diving board to free the fulcrum member from the weight of the board while the fulcrum member is pulled into selected position. The

manipulating handle for pulling said lines for shifting the fulcrum member and a pedal for operating the diving board lift-

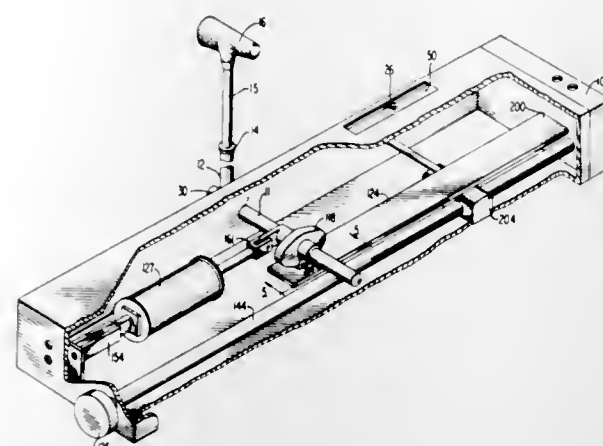


3,563,541
FOOT PEDAL EXERCISE MACHINE FOR SIMULATING JOGGING
Herbert G. Sanquist, 20610 NW. 2 Court, Miami, Fla. 33169
Filed Dec. 23, 1968, Ser. No. 786,266
Int. Cl. A63b 23/04
U.S. Cl. 272-73 7 Claims



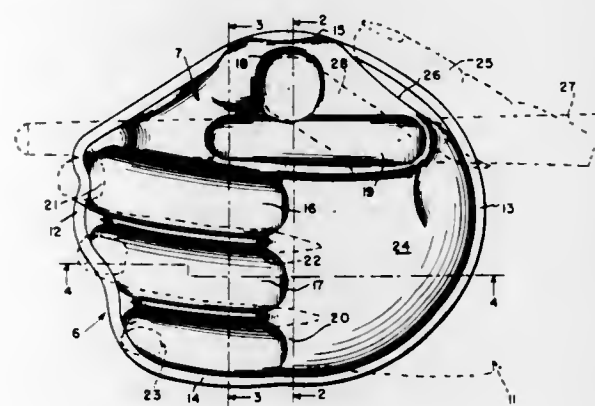
A stationary exercise machine for simulating standup jogging or running-type exercise wherein a pedal-type mechanism is swivelly supported on a vertical axis and has pedal platforms heavily weighted to impart an oscillatory twisting or side-to-side movement to the crank mechanism upon operation. Adjustable return-to-center spring means controls the amplitude and uniformity of the twisting motion to suit the requirements of the operator. Center of gravity of pedal weight is located well below the pedal platform axis so that the pedal platforms will seek horizontal or level rest positions.

3,563,542
ARM EXERCISER
James M. Wellman, Lakeland, Fla. (c/o Wellman-Lord, Inc., New Mulberry Hwy., P.O. Box 2436 Lakeland, Fla. 33803), and James I. Baer, Lakeland, Fla.; said Baer assignor to said Wellman
Continuation-in-part of application Ser. No. 623,258, Mar. 15, 1967. This application July 18, 1968, Ser. No. 745,909
Int. Cl. A63b 21/00
U.S. Cl. 272-83 17 Claims



Apparatus for imparting tension in a smooth manner having tension imparting means adapted to impart smooth tension through the action of a tension transmission means and the incorporation of this apparatus in an arm exercising mechanism providing an actuating arm which can be placed under tension when force is applied and means to avoid fly-back of the arm.

3,563,543
CUE GUIDE
Matthew Kenneth Hamilton and Sophie Hamilton, Sylan Shores Motel & Hotels, Mount Dora, Fla. 32757
Filed Sept. 17, 1968, Ser. No. 760,317
Int. Cl. A63d 15/10
U.S. Cl. 273-23 4 Claims



A cue guide and hand rest for use in playing pool and billiards which is positioned on a pool or billiard table for supporting the hand of the player, which normally guides the cue, in a correct position with the hand properly cupped and with the third, fourth and fifth fingers properly spread in the position of the hand as normally assumed by an experienced player.

3,563,544
PORTABLE TENNIS INSTRUCTION AND PRACTICE BOARD
Andrew J. Hedrick, 1319 Azalea Drive, Jacksonville, Fla.
Filed July 15, 1968, Ser. No. 744,844
Int. Cl. A63b 69/00
U.S. Cl. 273-29 3 Claims

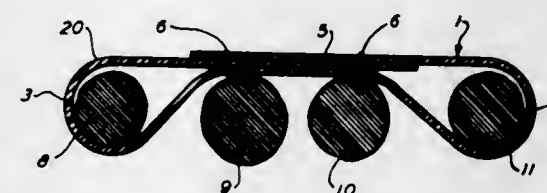
A portable tennis instruction and practice apparatus having a large vertically disposed rectangular board with verti-

cally disposed rectangularly shaped nets located along the upper and lower edges thereof, and extending above and



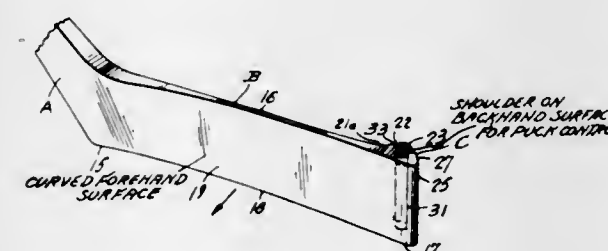
below the respective edges thereof. The board is held in an upright position by pivotally attached column support members.

3,563,545
FINGER SUPPORT FOR BOWLERS
Albert E. Rasche, 23 Morris Road, West Orange, N.J.
Filed Feb. 10, 1966, Ser. No. 526,612
Int. Cl. A63b 71/14
U.S. Cl. 273-54 6 Claims



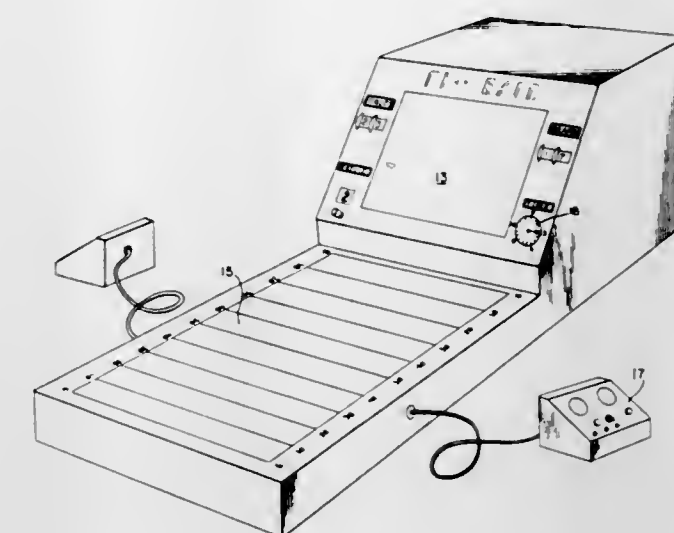
A finger support for bowlers in the form of an elongated member extending transversely the fingers between the palm and the first adjacent finger joints and having two flexible end loop portions encircling the index finger and the little finger respectively, and a supporting middle portion engaging the backs of the middle finger and the ring finger.

3,563,546
HOCKEY STICK WITH SHOULDER ON BACKHAND SURFACE FOR PUCK CONTROL
Frank Earle Dawe, 18 Hillcrest Ave., St. Catharines, Ontario, Canada
Filed Sept. 30, 1968, Ser. No. 763,766
Int. Cl. A63b 59/12
U.S. Cl. 273-67 8 Claims



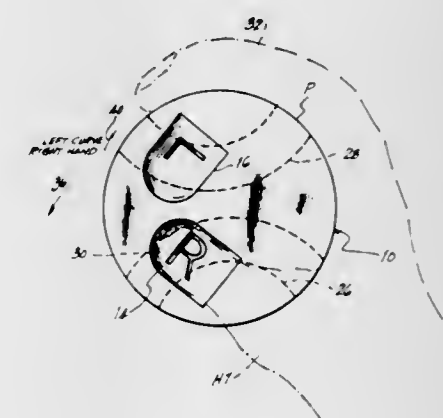
The blade of the hockey stick is provided on its backhand surface adjacent the toe with a shoulder extending in the backhand direction and having a surface forming a continuation of the backhand surface providing a puck-cradling bay adapted to deter the puck from sliding off the end of the stick, which is specially useful when the blade is curved in the forehand direction to improve the forehand shot.

3,563,547
FOOTBALL GAME WITH PLAY PROJECTION
Lawrence B. Marsh, Baltimore, Md. ((12825 Littleton St., Silver Springs, Md., 20906))
Filed Mar. 5, 1968, Ser. No. 710,475
Int. Cl. A63f 7/06; G03b 21/04
U.S. Cl. 273-94 7 Claims



An electromechanical simulation of a football game including a plurality of films showing different actual football plays and a projection system for showing the film. Provision is made for selection of offensive and defensive plays respectively from a plurality of choices. The particular selections operate electrical switches, with the combined selection determining the particular film to be shown. The selection is accomplished through a motor driven gearing associated with a circular rack which holds a plurality of films for alignment with the projector. To introduce an additional element of chance into the device, switches are provided which override the offensive and defensive play selections, and position the rack randomly. A mockup of a football field is included so as to show the position of the ball as the game proceeds.

3,563,548
PUCK FOR BATTING GAME
Carl Tolotti, 1871 N.W. 63rd Ave., Fort Lauderdale, Fla.
Filed May 12, 1969, Ser. No. 823,713
Int. Cl. A63b 65/00
U.S. Cl. 273-95 4 Claims

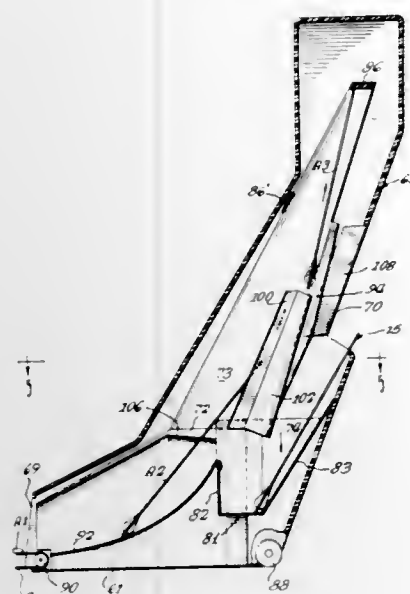


A game played by two competitive teams employs a flat circular puck which is pitched to a batter who attempts to strike the puck with a flat bat. The batters run between bases on opposite sides of a playing field until the puck is returned to a base on either side of the field. The puck is formed with recesses on one side and arcuate grooves on the other side to facilitate grasping the puck for pitching it.

3,563,549
ARROW STORAGE QUIVER AND CONVEYOR BELT FOR TRANSPORTING ARROWS TO THE QUIVER
 John J. Dragone, North Muskegon, and Thomas W. O'Connor, Ravenna, Mich., assignors to Brunswick Corporation
 Filed Feb. 14, 1969, Ser. No. 799,443
 Int. Cl. F41b 5/06

U.S. Cl. 273-103

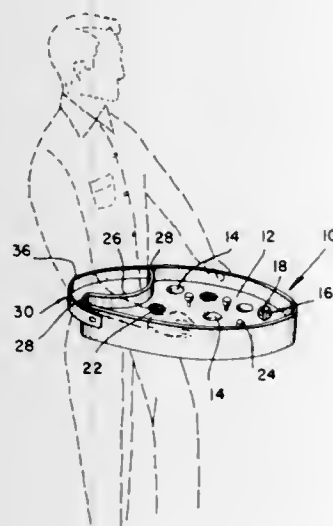
14 Claims



An arrow storage quiver adjacent the firing line of an archery range which receives arrows from a conveyor belt running from the target to the firing line. The storage quiver stores arrows in an upright position which is readily accessible to an archer.

3,563,550
BODY MANIPULATED GAME
 Harvey Ronald Saunders, 412 Sinclair St., Norfolk, Va. 23505
 Filed Apr. 22, 1968, Ser. No. 723,031
 Int. Cl. A63b 67/14
 U.S. Cl. 273-113

5 Claims

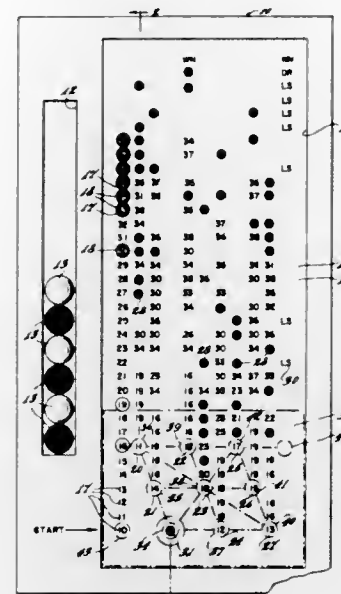


The invention comprises a game board having a plurality of disqualifying holes disbursed randomly in said board. Also disposed on the board is a multiplicity of scoring area into which an object may be moved by manipulating the board. A portion of the periphery of the board is curved and a strap is connected to the board so that the board may be releasably held to the body of the player. The board being manipulated by the gyrations of the person to whom the board is releasably fastened so that a score may be added by moving at least one ball in and out of the scoring areas attempting to avoid the disqualifying holes in the board. A plurality of obstacles may be randomly disbursed on said board.

3,563,551
PREPROGRAMMED SOLITAIRE BOARD GAME APPARATUS
 Joseph A. Weisbecker, 1220 Wayne Ave., Erlton, Cherry Hill, N.J. 08034
 Filed Apr. 15, 1968, Ser. No. 721,353
 Int. Cl. A63f 3/00

U.S. Cl. 273-130

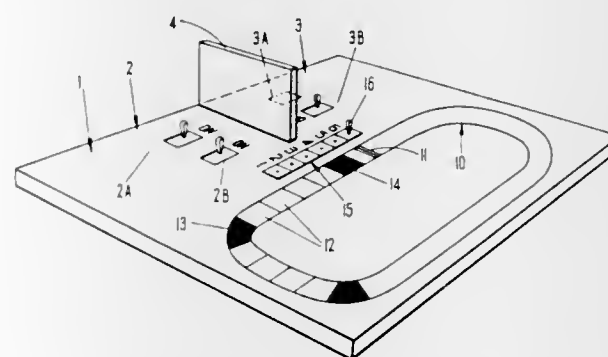
7 Claims



Disclosed herein is a game device including a board having position indicators associated therewith and a carrier movable along the board to positions indicated by the indicators. The carrier is provided with windows exposing markings on the board, and playing pieces are removably positionable over the windows for determining a relationship between a marking covered by a playing piece and carrier movement. The instant game device may be employed in the play of tic-tac-toe, an individual playing against the preprogrammed game.

3,563,552
LOGIC GAME
 David Korff, 19 Carriage Drive, Lexington, Mass. 02173; and Adolph Baker, 7 Gage Road, Wayland, Mass. 01778
 Filed Nov. 26, 1968, Ser. No. 779,130
 Int. Cl. A63f 9/00
 U.S. Cl. 273-135

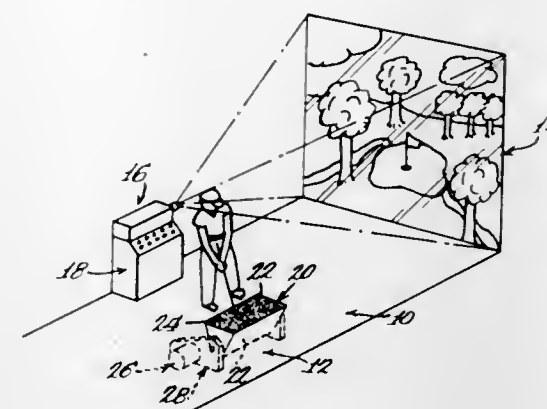
5 Claims



A computerlike game which applies counting, memory and decision-making functions to privileged input signals independently and sequentially received from contesting players in emitting or not emitting an output signal. In its simplest form two pairs of "on-off" electrical switches are provided, with each pair secretly controlled by a contestant to generate "on" or "off" input signals. Circuit means count the total "on" signals received and store them in a memory means. A decision-making means generates an output signal when two "on" signals are received in the memory means. The output signal is used to indicate a winner of game or particular round.

3,563,553
AUTOMATIC INDEXING OF INDEXIBLE TEE FOR AUTOMATIC LIE SELECTION
 Bradford J. Baldwin; Robert M. Conklin, and Jack A. Russell, Muskegon, Mich., assignors to Brunswick Corporation
 Filed Apr. 29, 1969, Ser. No. 820,102
 Int. Cl. A63b 67/02, 69/36
 U.S. Cl. 273-176

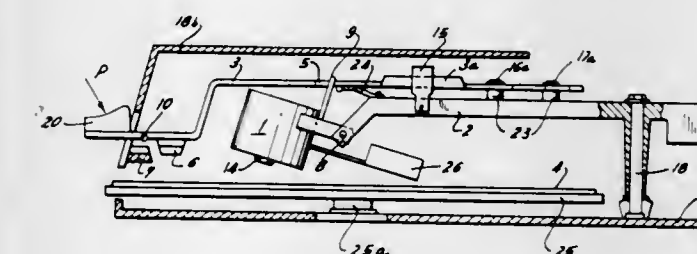
18 Claims



An automatic lie selection control for indexible tee constructions which are adapted to dispose any one of a plurality of different lie simulating mats at a predetermined location in a tee area of an indoor golf game. In one embodiment, lie material information is derived from scene selection switches of a projector that projects scenes of different portions of holes on a golf course to a screen for display purposes for a golfer playing the game. In another embodiment, lie selection information is derived from a coding associated with each frame on a film illustrating various scenes from a golf course so that projection of a selected scene results in the disposition of a corresponding lie material at a predetermined location at the tee area.

3,563,554
APPARATUS FOR SETTING A TONE ARM AND HEAD ON SELECTED PORTIONS OF A RECORD CARRIER
 Peter Hess, Mammolshain; Wolfgang Fronck; Heinz Gierjets, and Jorg Rodenbeck, Wilhelmshaven, Germany, assignors to Olympia Werke Aktiengesellschaft, Wilhelmshaven, Germany
 Filed June 13, 1969, Ser. No. 833,014
 Claims priority, application Germany, June 15, 1968, Apr. 26, 1969, P1,772,666; P1,921,350
 Int. Cl. G11b 17/06
 U.S. Cl. 274-13

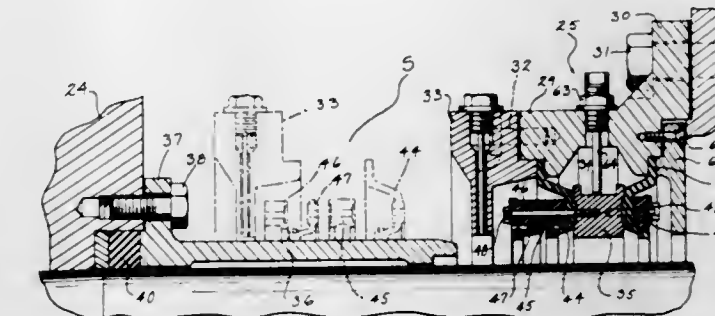
19 Claims



A tone arm and head thereon can be placed by manual setting means on selected portions of the record carrier. The setting means has a normal inoperative position and a setting position, and first control means place the head in a retracted position when the setting means is moved to the setting position. Second control means prevent the setting means in the inoperative position from moving the tone arm while the head engages the record carrier. The control means prevent together any accidental movement of the head in the active position across the record carrier.

3,563,555
METHOD OF REPLACING SEALING RINGS AROUND SHAFTS
 Harold O. Koons, New Berlin, Wis., assignor to Waukesha Bearings Corporation, Waukesha, Wis., a corporation of Wisconsin
 Filed Mar. 29, 1968, Ser. No. 717,297
 Int. Cl. F16j 9/00; E21b 33/00
 U.S. Cl. 277-1

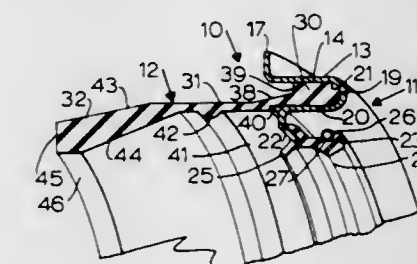
9 Claims



In a method of replacing flexible sealing rings around shafts in massive installations, the steps of disconnecting and axially shifting parts to provide working space, radially cutting each new sealing ring to provide separable adjacent ends which may be flexed and spread to install the sealing rings around the shaft by transverse movement into installed position, adhesively bonding the cut ends together while around the shaft, cutting off the worn sealing rings, and reassembling the parts.

3,563,556
BOOT-TYPE SHAFT SEAL UNIT
 Arthur M. Scott, Twin Falls, Idaho, assignor to Federal-Mogul Corporation, Southfield, Mich.
 Filed July 30, 1969, Ser. No. 846,204
 Int. Cl. F16j 15/38
 U.S. Cl. 277-65

9 Claims



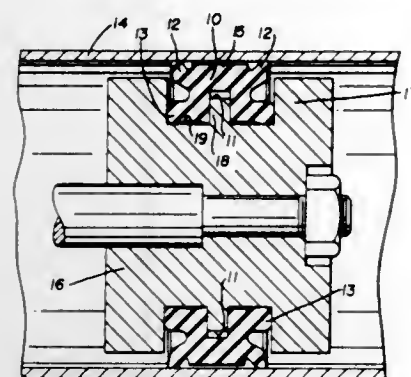
An annular metal case supports a shaft-engaging elastomeric sealing member and has a pair of radially spaced apart cylindrical walls providing a bore-fitting surface and an annular recess between the walls. A separable elastomeric boot has an end portion anchored in the recess, an axially collapsible sleeve portion, and an outer end portion providing a ring in light reciprocating and rotary contact with the shaft.

3,563,557
DUAL PISTON SEAL
 Kingsley A. Douth, Alpena, Mich., assignor to Scovill Manufacturing Company, Waterbury, Conn.
 Filed Nov. 4, 1968, Ser. No. 772,975
 Int. Cl. F16j 9/04, 15/32
 U.S. Cl. 277-178

1 Claim

A piston seal for a piston and cylinder assembly and comprising an annular sealing member or ring having oppositely disposed sidewardly extending flanges for sealing engagement with said cylinder and an intermediate transversely flat annular bearing surface. The piston seal having secondary op-

positely disposed flanges adjacent its point of contact with the piston and the outer annular edges of said flanges being rounded in a modified O-ring configuration. The innermost



transverse surface of the annular seal having an annular groove registry with an annular rib on a piston on which the piston seal is positioned.

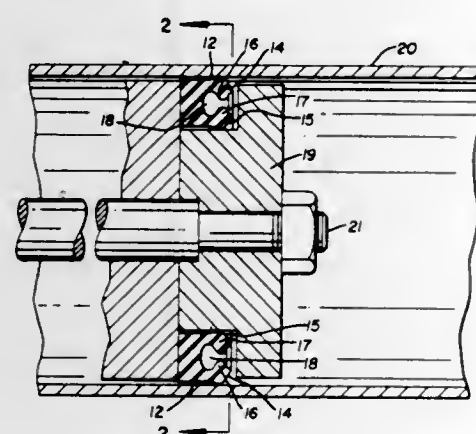
3,563,558

PISTON SEAL WITH DISTORTABLE RIBS

Kingsley A. Doult, Alpena, Mich., assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed Nov. 4, 1968, Ser. No. 772,976
Int. Cl. F15j 15/32

U.S. Cl. 277-205

4 Claims



A piston seal for a piston and cylinder assembly to effect sealing contact between the piston and the cylinder having oppositely disposed annular flanges inwardly of one side thereof and of a size resulting in the distortion of said flanges when said piston seal is installed on a piston and positioned in a cylinder whereby the annular ribs are moved into an undulating shape adding increased resiliency and shape retaining characteristics to the piston seal.

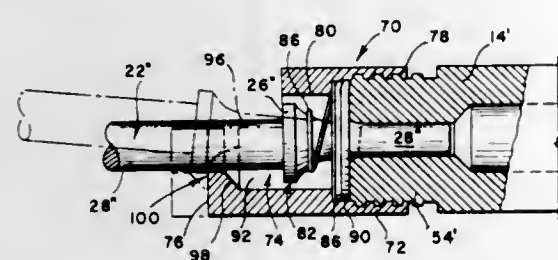
3,563,559

SAFETY LOCKING TOOL HOLDER FOR PNEUMATIC HAMMER

James O. Taylor, Lantana, Fla., assignor to Florida Pneumatic Manufacturing Corporation, Lantana, Fla.
Continuation-in-part of application Ser. No. 710,235, Mar. 4, 1968. This application July 15, 1968, Ser. No. 745,050
Int. Cl. B23b 31/06

U.S. Cl. 279-19

6 Claims



A safety locking holder for mounting an attachment tool onto a pneumatic hammer prevents tool removal when the

holder is fully screwed onto the hammer. The holder includes a slotted end portion and an open chamber portion which permit ready insertion and removal of an attachment tool when the holder is in nonlocking engagement with the hammer.

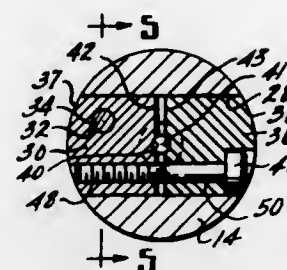
3,563,560

CHUCK ASSEMBLY

Robert C. Johnson, 9 Flower Court, Lakeside Park, Ky.
Filed Dec. 13, 1968, Ser. No. 783,644
Int. Cl. B23b 31/04, 31/10

U.S. Cl. 279-67

8 Claims



A chuck assembly and deep hole tool therewith, the chuck comprising a head, a shank and a centrally aligned bore for supporting the tool. A pair of complementary plugs are mounted in the head of the chuck in a bore diametrically extending therethrough. A dowel pin is disposed in the head offset to its axis, and attaches the first plug thereto. An allen screw, exposed to the peripheral exterior of the chuck assembly, extends through the second plug into the first plug, generally at right angles to the line of the dowel pin, whereby the second plug is drawn towards the first plug upon tightening said screw and thereby securely seats both plugs to within the head of the chuck. Corresponding grooves in the central faces of the plugs are provided for engaging the shank of the tool tightly held by such chuck assembly.

The tool itself comprises a cutting tip brazed to an elongated shank, a second shank integrally formed upon the first and having a greater diameter thereover, and a third shank integrally formed upon the second shank and having a greater diameter therefrom. A pair of O-rings are spacedly mounted in their respective annular grooves about the periphery of the third shank whereby upon insertion of the third shank in a spindle mounted in a stock of a tooling machine, seepage of coolant and lubricating oil about the tool's shank is prevented and all such oil flows within the tube's bore to the cutting tip itself.

3,563,561

SKI BINDING WITH AUTOMATIC RELEASE

Willy Bernard Mottet, 80, Route de Brugg, 2500 Bienne, Berne, Switzerland

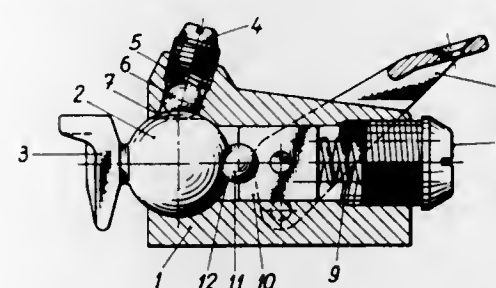
Filed Aug. 21, 1968, Ser. No. 754,303

Claims priority, application Switzerland, Nov. 20, 1967, Aug. 28, 1967, 16,334/67, Aug. 28, 1967, 8,694/67

Int. Cl. A63c 9/084

U.S. Cl. 280-11.35

4 Claims



A ski binding to enable automatic release of the boot on falling, has a front stop element and a heel element each including a ball joint. The ball joint has a cavity into which a suitably shaped piston or piston and roller are urged by a spring, the tension of which is adjustable by a screw. The ball

joint may have a second ball and socket detent in the heel element, also adjustable by means of a spring and a screw. The heel element includes a release lever, arranged so that pressure on the lever counteracts the action of the spring urged piston or roller.

3,563,562

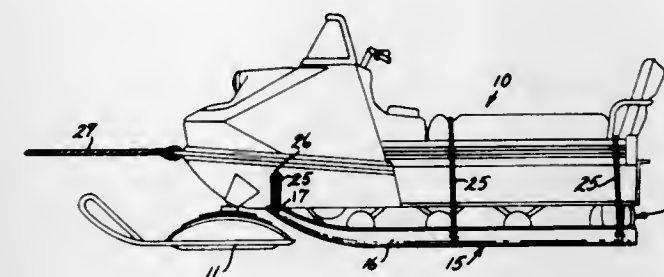
DEVICE FOR RENDERING SNOWMOBILES AND THE LIKE TOWABLE

Eunice A. Carlin, 5301 Hollywood Road, Edina, Minn. 55424
Filed May 16, 1969, Ser. No. 825,365

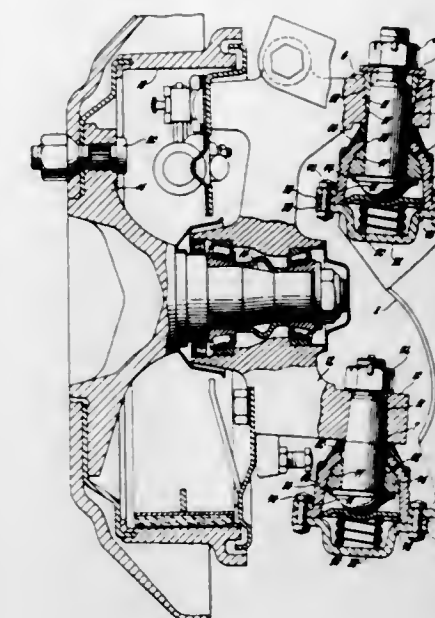
Int. Cl. B62b 15/00

U.S. Cl. 280-19

3 Claims



A sheet of plastic having holes adjacent the edges thereof affixed to the underside of a snowmobile so as to underlie the drive mechanism and form a runner thereunder to render a snowmobile towable.



3,563,565

TELESCOPE SUSPENSION FOR INDEPENDENT WHEELS OF VEHICLES

Roberto Perlini, Viale dell'Industria, San Bonifacio, Verona, Italy

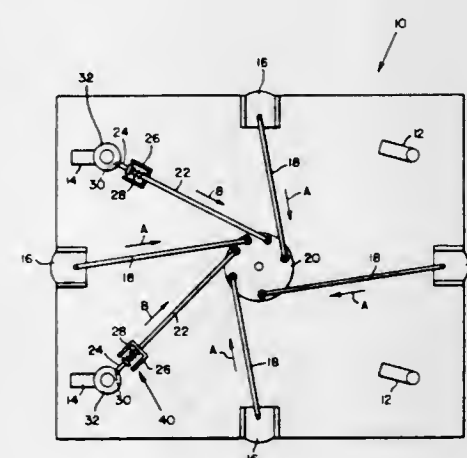
Filed June 18, 1968, Ser. No. 738,013

Claims priority, application Italy, July 3, 1967, 61248/67

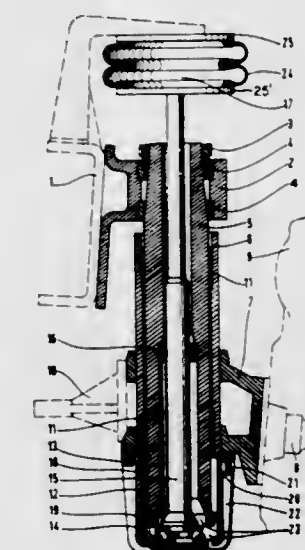
Int. Cl. B60g 11/28, 3/00

U.S. Cl. 280-96.2

8 Claims



A frame (12,14) for supporting containers and the like is provided with castors (12,14) for rolling the frame along the floor surface. Two of the castors (14) are lockable to facilitate handling of the frame as it is being manually pushed along the floor surface, the castors being unlocked automatically to facilitate the movement of the frame along the floor surface by mechanical means.



A telescope suspension for individual wheels, preferably of motor vehicles, comprising a telescopically movable unit inserted between a wheel and the frame of the vehicle. A load-carrying resilient supporting element is arranged outside the telescopically movable unit to avoid the use of gaskets and possible leaks resulting therefrom. The telescopically movable unit includes an inner and an outer cylinder movable relative to each other and a hydraulic fluid expansion chamber interposed between said cylinders and communicating through a valve with a reserve fluid chamber to cushion the movements of said cylinders and thereby those of the supported wheel with respect to the frame of the vehicle.

3,563,564

VEHICLE WHEEL MOUNTING

Walter A. Bartkowiak, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 21, 1969, Ser. No. 826,511

Int. Cl. B62d 7/18

U.S. Cl. 280-96.1

5 Claims

A wheel-mounting assembly having a kingpin-type steering knuckle connected by a pair of tension-type ball joints to a

3,563,566

VEHICLE STABILIZING MEANS

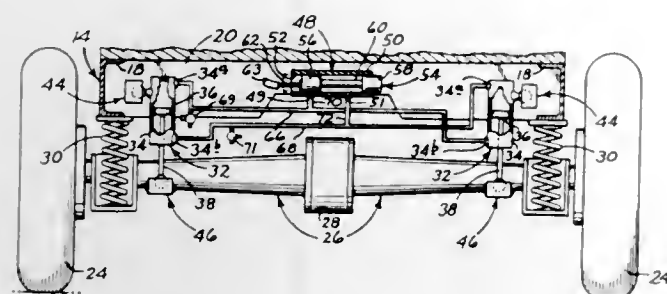
Steven L. Weber, Rte. 5, Box 733, Oregon City, Oreg. 97027

Filed Oct. 15, 1968, Ser. No. 767,707

Int. Cl. B60g 9/00

U.S. Cl. 280-124

5 Claims



A vehicle including a pair of fluid-operated rams disposed adjacent opposite sides thereof, with each ram interposed, and accommodating relative movement, between the vehicle's frame and an axle beneath the frame. Interconnecting the rams is a conduit system including a valve which is adjustable from within the vehicle's cab to control fluid flow to and from the rams. In one position, the valve produces fluid interchange between the rams whereby a change in the effective length of one causes a related change in the effective length of the other. In another position, the valve frees the rams for independent operation.

3,563,567

LANDING GEAR FOR SEMITRAILERS AND THE LIKE

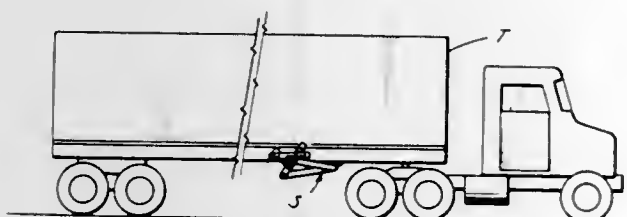
Charles E. Harp, 2110 Harper St., Pasadena, Calif. 77502

Filed May 27, 1969, Ser. No. 828,306

Int. Cl. B60s 9/04

U.S. Cl. 280-150.5

4 Claims



Landing gear for supporting the forward end of a semitrailer and the like, after the prime mover or tractor has been removed.

3,563,568

VARIABLE RATIO ROTARY DRIVE MECHANISM AND WHEEL CHAIR EMBODYING SAME

Reuben V. Sasse, 703 Verde Vista, Pomona, Calif., 91767, and John A. Charvat, 1138 W. "B" St., Ontario, Calif. 94662

Filed Sept. 20, 1968, Ser. No. 761,114

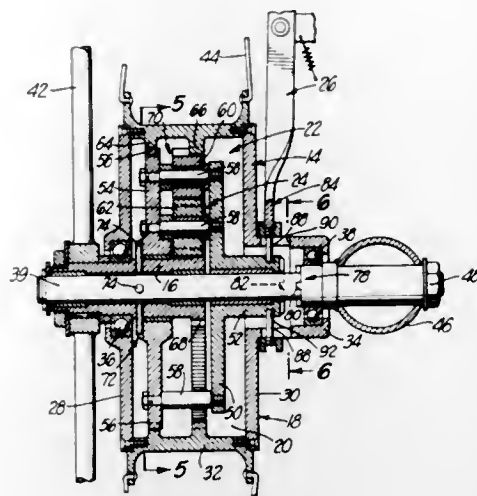
Int. Cl. B62m 1/16, 11/16; F16h 57/10

U.S. Cl. 280-230

2 Claims

A variable ratio rotary drive mechanism is provided for wheel chairs and other uses. The drive mechanism has a pair of concentric driving and driven members defining an intervening annular space containing a variable ratio gear train which drivably couples the members, whereby rotation of the driving member drives the driven member in rotation. A shift lever is provided for operating the gear train to vary its ratio and thereby the mechanical advantage of the drive

mechanism. A wheel chair is provided having wheel assemblies embodying the rotary drive mechanism to permit adjust-



ment of the force which the occupant of the chair must exert on the wheels to propel the chair.

3,563,569

DUAL CONNECTION TUBULAR FITTING

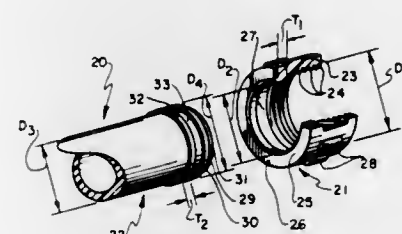
Roy Calvin Wilson, 947 Grant Line Road, Santa Paula, Calif. 93060

Filed Dec. 26, 1968, Ser. No. 787,132

Int. Cl. F16l 19/02, 47/00

U.S. Cl. 285-5

1 Claim



A tubular fitting includes one end arranged for permanent connection with an insertable hose and another end arranged for detachable connection with a detachable hose. The detachable hose includes an internally threaded swivel collar that can be quickly and easily screwed onto an unthreaded from the tubular fitting.

3,563,570

CONNECTOR FOR USE WITH REFRIGERATED CONTAINERS

Rupert Munton, Croydon, England, assignor to Shipowners Refrigerated Cargo Research Association, London, England

Filed Oct. 10, 1969, Ser. No. 865,433

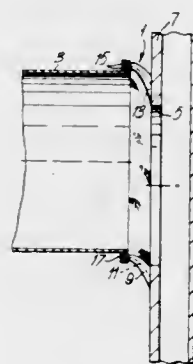
Claims priority, application Great Britain, Oct. 8, 1968,

49875/68

Int. Cl. F16l 25/00

U.S. Cl. 285-9

6 Claims



A connector nozzle or coupling device for connecting a transportable container to a supply of fluid under pressure

and in particular for connecting refrigerated containers with a refrigeration system, the coupling being formed of at least two layers of bristles having an impermeable membrane sandwiched therebetween, said bristles and membrane being clamped at one end and engageable around a duct leading from the refrigeration system and the free end of the thus formed coupling being arranged to abut around an aperture in the container, the arrangement being such that the bristles will automatically accommodate movement of the container at the coupling station and still maintain a seal with the coupling and will automatically effect the seal with the container when the container is delivered to the coupling station, the coupling automatically defecting a seal and not requiring any form of power operated device to move it between a coupled position and an uncoupled position.

3,563,571

ASEPTIC JOINTS

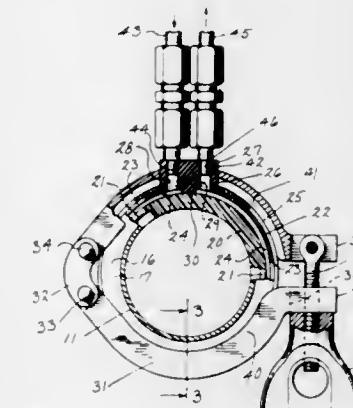
Bruno H. Werra, Waukesha, Wis., assignor to Ladish Co., Cudahy, Wis., a corporation of Wisconsin

Filed July 9, 1969, Ser. No. 840,198

Int. Cl. F16l 53/00

U.S. Cl. 385-41

10 Claims



An aseptic joint has a sealing gasket interposed between the flanges of two pipe ends, there being a rubber ring around the gasket to form an annular steam chamber between the rubber ring and the OD of the gasket, and there being means including a steam inlet and outlet nipple with a dam between for continuously circulating steam throughout the length of the steam chamber. A clamping ring acts on the flanges of the two pipe ends to engage the gasket and rubber ring therebetween, the clamping ring having a slot through which the steam nipple projects.

3,563,572

COMPOSITE COUPLING FOR INSULATED HIGH TEMPERATURE FLUID CARRYING CONDUITS

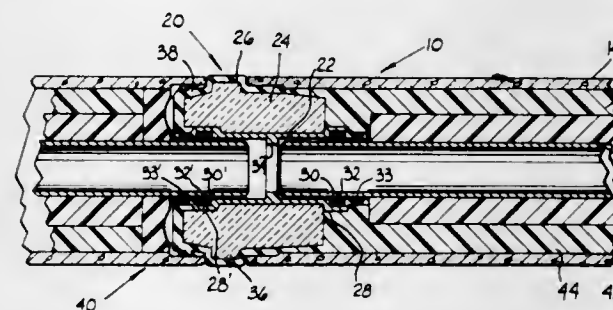
David Walter French, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

Filed June 23, 1969, Ser. No. 835,592

Int. Cl. F16l 59/16

U.S. Cl. 285-47

19 Claims



Thermal insulated fluid carrying conduit composed of concentric lengths of pipe spaced apart from each other by intermediate insulating material, having assembled thereon a push-in composite coupling unit providing a male type linkage for cooperating union with a corresponding female type linkage

on an adjacent section of such a conduit which upon simple insertion joining, forms a slip joint connection uniting and fluid sealing each of the adjacent concentric pipes with their respective counterparts and which also provides a thermal expansion joint.

3,563,573

PIPE ASSEMBLIES

John L. F. Crompton, Handforth, and Walter C. Peart-Davies, Knutsford, England, assignors to The Dunlop Company Limited, London, England, a British company

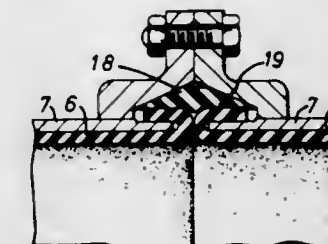
Filed Mar. 19, 1969, Ser. No. 808,458

Claims priority, application Great Britain, Apr. 2, 1968, 15704/68

Int. Cl. F16l 9/14

U.S. Cl. 285-55

5 Claims



A pipe assembly comprises two lengths of elastomer-lined pipe, particularly fibreglass-resin pipe, the lining of each length extending around the end to be coupled and folding back in a snug fit over the surface of the length, each length carrying a dished coupling member, the coupling members together providing a channel between them in which lies an annular sealing member, usually of elastomeric material, and pressing the sealing member against the folded-back portions of the lining.

3,563,574

COUPLING FOR PLASTIC PIPE

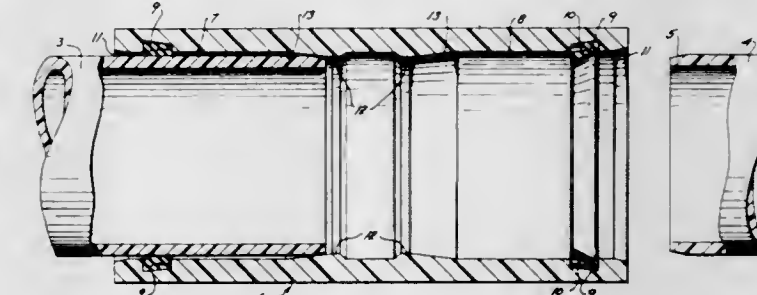
Joseph C. Jackson, Ambler, Pa., and Joseph C. Giuffre, McPherson, Kans., assignors to Certain-teed Products Corporation, Ardmore, Pa.

Filed Jan. 28, 1969, Ser. No. 794,646

Int. Cl. F16l 27/10, 47/00

U.S. Cl. 285-187

5 Claims



A coupling or joint for use in interconnecting adjacent ends of sections of pipe made of plastic material, comprising a coupling sleeve with sockets to receive the ends of adjacent pipe sections, sealing rings between the pipe ends and the inside of the sockets, and mechanism for limiting assembly movement of the pipe ends into the sockets comprising annular abutments having inclined abutment faces spaced from each other, the inclined abutment faces being configured and proportioned in relation to the ends of the pipes to accommodate thermal expansion of the pipes.

3,563,575

PIPE COUPLINGS

Richard Ayshford Sanford, Broadway, Worcestershire, England, assignor to The Tungum Company Limited, Cheltenham, England

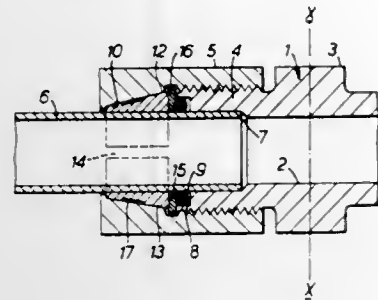
Filed Nov. 4, 1968, Ser. No. 772,920

Claims priority, application Great Britain, Nov. 9, 1967, 50,966

Int. Cl. F16l 21/06

U.S. Cl. 285—323

1 Claim



A pipe coupling comprising a body with a bore adapted to receive the pipe as a sliding fit and formed with a recess for an O-ring to encircle and seal against the pipe. A nut threaded on the body has an internal wedge surface, and a longitudinally split pipe-gripping collar encircles and grips the pipe and has an external wedge surface which is complementary to and cooperates with the wedge surface in the nut. The external wedge surface on the collar is relieved intermediate the ends of the collar, by a rectangular-section annular groove so as to decrease the area engaging the nut without decreasing the effective overall length of the wedge surface.

3,563,576

TUBULAR JOINT CONSTRUCTION

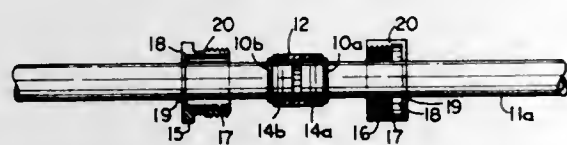
Thomas E. Lee, 1019 Upper Happy Valley Road, Lafayette, Calif.

Filed Apr. 21, 1969, Ser. No. 817,706

Int. Cl. F16l 17/00

U.S. Cl. 285—353

5 Claims



A joint construction for joining juxtaposed tubular ends of glass tubing, laboratory glassware, and the like which comprises a peripheral flange formed on each of the tube ends to be joined, a sealing sleeve in sealing engagement with the outside surfaces of the tube ends and disposed between the inside faces of the flanges, and male and female slotted and threaded coupling elements which thread together over the sleeve and seat upon the exterior faces of the flanges.

3,563,577

WALL PANEL ASSEMBLY

Erich Wittenmayer, Altensteig, Germany, assignor to Christian Holzapfel K.G., Ebhausen, Württemberg, Germany

Filed Feb. 7, 1969, Ser. No. 797,500

Claims priority, application Germany, Feb. 22, 1968, H61876

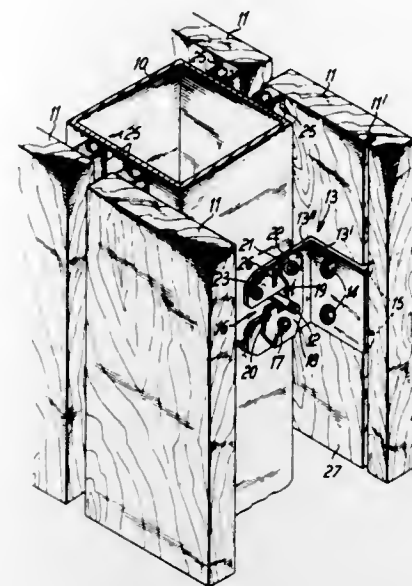
Int. Cl. F16b 7/00

U.S. Cl. 287—20.92

11 Claims

Cover members such as wall panels are releasably attached to a load-bearing member by cooperating male and female connecting means. The connecting means are secured against

unintentional disengagement by a mechanical locking device which is actuatable by the connecting means during movement of the cover members relative to the load-bearing



member. The force applied in moving the cover members away from the load-bearing member releases the locking device.

3,563,578

PANEL JOINT

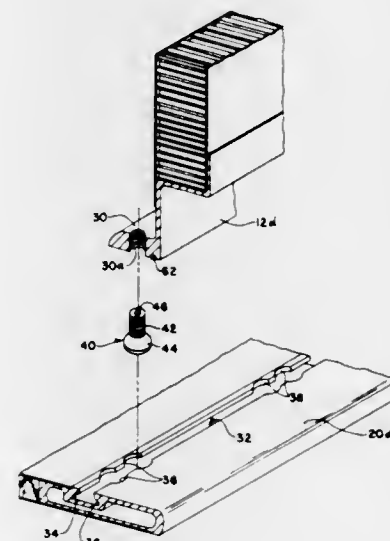
Oscar W. Meller, Akron, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio

Filed Mar. 19, 1969, Ser. No. 808,481

Int. Cl. F16b 5/07

U.S. Cl. 287—20.924

6 Claims



The invention relates to a unique panel joint specifically adapted for quickly assembling or disassembling panels to the configuration of a container, a building structure, or the like. Specifically, a unique flexible hinge arrangement is provided for vertical joints, while a quick-fitting locking arrangement is provided at all base horizontal joints. The base joint comprises a flange on the vertical member mating with a recessed beveled groove on the base member, and a plurality of screws threadably received in the flange of the vertical member having tapered heads slidably received in the beveled groove of the base member whereby when the screws are tightened, they lock into the groove of the base member and secure the vertical member to the base member.

3,563,579

STRUCTURAL JOINTS

Kenneth Reiner, 7875 Telegraph Road, Pico Rivera, Calif. 90660

Filed July 1, 1968, Ser. No. 741,597

Int. Cl. F16b 12/40

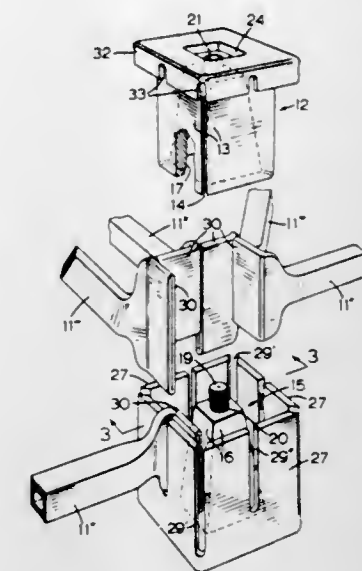
U.S. Cl. 287—119

11 Claims



This invention relates to structural joints and more specifically to joints of a type wherein a plurality of elements have the terminal ends thereof attached to the tubular end portion of another element, one example being the attachment of three supporting legs to an upright post or standard. The structures of the invention are characterized in that the ends of the leg elements are of reduced cross section and inserted into the open tubular ends of post elements to provide economical, easily assembled and disassembled, or physically more attractive constructions. Various alternative means have been described for positioning the parts and for inhibiting relative movement thereof.

and bolt assembly interconnecting the two members. One of the members has sidewalls spaced from the other member by a distance which is decreased by axial urging together of the members, and which is increased by axial urging apart of the members. The sidewalls are provided with openings through



which end portions of structural members are disposed, these end portions being located between the sidewalls and the above-mentioned other member thereby to be securely clamped therebetween when the members are axially urged together, and to be released when the members are axially urged apart.

3,563,580

FRAME JOINT

Anthony Frederick Black, 50 Crofton Lane, Orpington, Kent, England

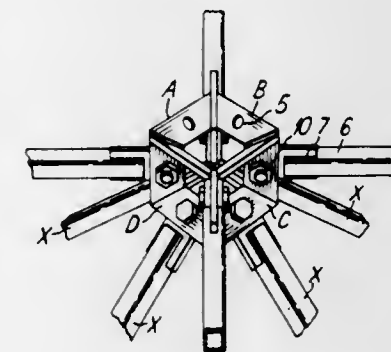
Filed Sept. 11, 1968, Ser. No. 759,133

Claims priority, application Great Britain, Oct. 16, 1967, Apr. 3, 1968, 46995/67; 16101/68

Int. Cl. E04h 12/10; F16b 9/02

U.S. Cl. 287—189.36

1 Claim



A jointing member for limbs of a frame is in the form of a hollow tapered unit open at its wider end, comprising more than two flat wall surfaces each inclined to each neighboring flat wall surface by an angle differing substantially from 90°, and some of said wall surfaces being apertured to receive bolting means. The member may be shaped as a truncated pyramid. In setting up a frame a flattened end of a frame limb is held between facing wall surfaces of two of said jointing members, by bolting means passing through the jointing members and the frame limb.

A spline joint for joining panels constructed of fragile resilient material such as expanded polystyrene, to form a rigid assembly. The panels have a seat comprising at least a portion running the length of each abutting end to be joined. The spline is a relatively hard strip having barbed end portions which are embedded in the walls of the seat. A central shoulder rests in the seat permitting the panels to be pushed together so that the spline itself is not seen in the assembly.

3,563,581

MACHINE FOR TYING KNOTS

Joe P. Gentry, East Lansing, Mich., and George R. Giannini, Davis, Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Filed Apr. 17, 1969, Ser. No. 817,000

Int. Cl. A01d 59/04

U.S. Cl. 289—2

10 Claims

A machine for tying knots on a wire withdraws twine from a source and blows a length of the twine to lie between two

3,563,581

JOINT FOR STRUCTURAL ASSEMBLIES

Michael Sommerstein, 647 Vaughan Road, Toronto, 345, Ontario, Canada

Filed Sept. 29, 1969, Ser. No. 861,632

Int. Cl. F16b 7/04

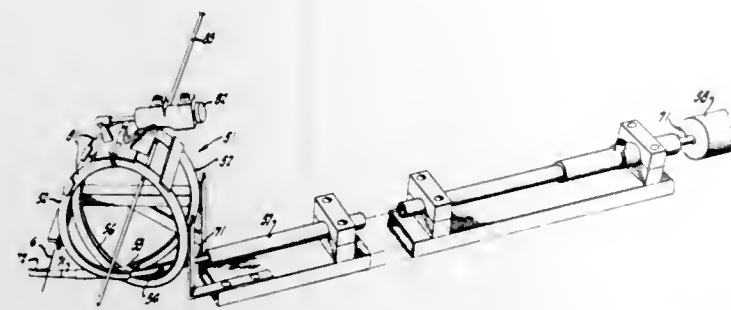
U.S. Cl. 287—189.36

9 Claims

A joint comprising a first member, and a second member which is axially urged relative to the first member by a nut

grippers located to hold the twine length near the ends thereof. The length is cut from the source and is engaged by a hook on the projected end of a flexible rod reciprocated within a convolute comprised of a longitudinally slit tube shaped like a clove hitch and encompassing the wire at a station thereon. The flexible rod withdraws through the con-

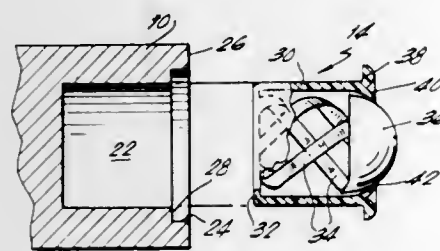
such as generally include a top and a bottom latch unit and an intermediate, panic bar-actuated mechanism that is opera-



volute, the hook holding one end of the twine length, pulling that twine end from the adjacent gripper and pulling the twine length through the convolute and around the wire. The other gripper holds the twine length for final tensioning and tightens the knot so formed. The machine advances along the wire to the next station leaving the knot on the wire.

3,563,584 BULLET CATCH

Gilbert Schwartzman, 20 Wilmet Circle, Scarsdale, N.Y.
Filed Sept. 3, 1969, Ser. No. 855,156
Int. Cl. E05c 5/00, 19/02
U.S. Cl. 292-71 4 Claims



A one-piece integrally formed bullet catch preferably formed of nylon comprising an open ended cylindrical casing having an inwardly extending flange at one end and an outwardly extending flange at the other end. Helical springs are integrally formed with the inwardly extending flange and with a hemispherical head which extends partially through the opposite end and is resiliently held with the integral springs under compression by a swaged tapered retainer member which has a circular line of contact with the hemispherical head and which is resiliently engaged with the hemispherical head to hold the hemispherical head against accidental movement.

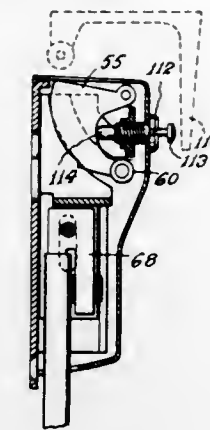
3,563,585

A LATCH UNIT FOR A DOOR LOCK

Nicholas A. Welch, West Hartford, Conn., assignor to Emhart Corporation, Bloomfield, Conn.
Original application Sept. 3, 1964, Ser. No. 394,275, now Patent No. 3,324,692, dated June 13, 1967. Divided and this application Oct. 28, 1966, Ser. No. 620,566
Int. Cl. E05c 3/16
U.S. Cl. 292-92 7 Claims

This invention relates to door locks of the type generally referred to in the trade as "emergency exit locks," and more specifically to emergency exit locks of the vertical rod type

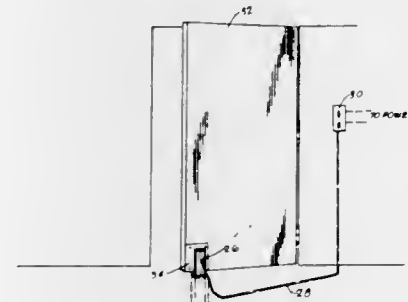
tively connected to said latch units by rods disposed vertically on the door.



3,563,586

FLOOR BAR LOCK: FAIL SAFE

John M. Creamer, and Jane Catherine Creamer, 175 Duckpond Drive North, Wantagh, N.Y. 11793
Filed July 28, 1969, Ser. No. 845,452
Int. Cl. E05c 17/48, 17/58
U.S. Cl. 292-144 4 Claims

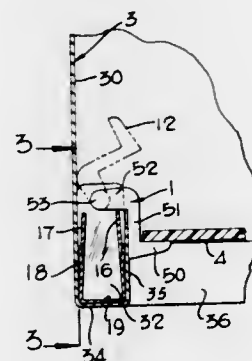


A vertical member is disposed in a floor mounted vertical hollow cylinder adjacent a door. Means are provided to move the member upwardly from the cylinder to block movement of the door or to move the member downwardly into the cylinder whereby the top of the member and the top of the cylinder are flush with the floor and the door can be opened and closed freely.

3,563,587

LENS SUPPORT LATCH

Charles O. Hughes, St. Louis, and Thomas Akin, Clayton, Mo., assignors to Emerson Electric Co., St. Louis, Mo.
Filed Aug. 15, 1969, Ser. No. 850,451
Int. Cl. E05c 3/04, 19/12
U.S. Cl. 292-194 7 Claims



In a lighting fixture in which the walls of a housing define an opening and a lens panel is mounted in the opening in

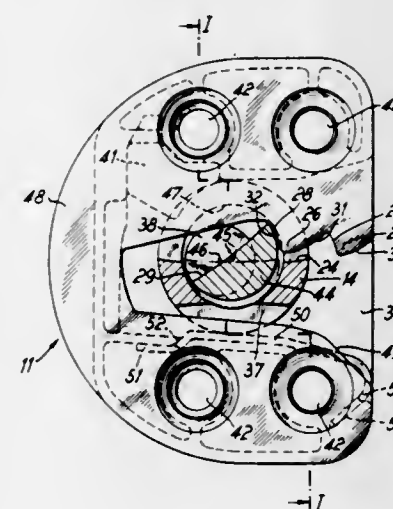
such a way as to leave a substantial span of the panel unsupported, said panel extending inboard of and spaced from the opening defining wall, a lens support latch is provided of steplike design, including a supporting ledge beneath and in supporting relation to the panel along the otherwise unsupported span of the panel, a riser part extending between the edge of the panel and the opening-defining wall of the housing, and a pivotally mounted upper step part. The latch is supported by the housing.

In the preferred embodiment, the housing wall has along its lower edge a U-shaped channel, the inner wall of which defines the opening, and the latch includes a mounting bracket seated in the channel of the housing. The mounting bracket has inner and outer broad sides lanced to provide anchoring points, and end walls projecting above the inner wall of the channel. The stepped latch member is pivotally supported by these end walls.

3,563,588

FASTENING MEANS FOR A MOTOR VEHICLE DOOR

Peter U. Putsch, Mannweiler Pfalz, and Karl D. Schoerken, Wuppertal-Ronsdorf, Germany, assignors to Fritz Keiper, Remscheid-Hastorf, Germany
Continuation-in-part of application Ser. No. 667,717, Sept. 14, 1967, now Patent No. 3,416,826. This application Oct. 7, 1968, Ser. No. 765,334
Int. Cl. E05c 3/00
U.S. Cl. 292-198 13 Claims



A latch, particularly for vehicle doors, includes a keeper for mounting on a door frame and provided with a recess. A catch for mounting on a door which is associated with a door frame includes a catch pin receivable in the recess and adapted for rotation about its axis. The catch pin includes an abutment face which cooperates with the keeper upon penetration of the catch pin into the recess to thereby prevent opening of the door.

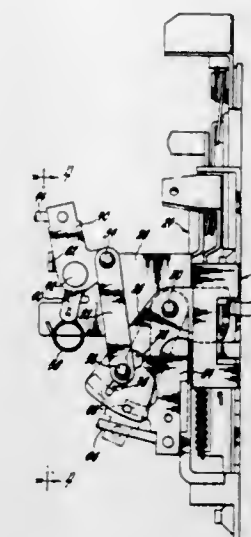
3,563,589

CLOSURE LATCH

Stanley Kwasiborski, Jr., Hazel Park, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Aug. 13, 1968, Ser. No. 752,262
Int. Cl. E05c 3/16
U.S. Cl. 292-216 6 Claims

A vehicle body door lock includes a detent movable between holding and released positions with respect to a bolt. The inside remote handle is connected to a remote lever having an operating foot. A detent release lever is connected to the detent and includes a slot. A pin movable within this slot is located in and out of the path of the remote lever foot to thereby couple and uncouple the inside remote handle and the detent. The pin is connected to a shiftable link which in turn is pivoted to a garnish button operated lever located by an overcenter spring in either coupled or uncoupled position to thereby locate the pin either in or out of the path of movement of the remote lever foot. When the remote handle is

operated to open the door, the detent release lever slot cams the pin and causes the overcenter spring to move the garnish button lever to uncoupled position. This provides for automatic inside remote handle free wheeling. If the garnish but-

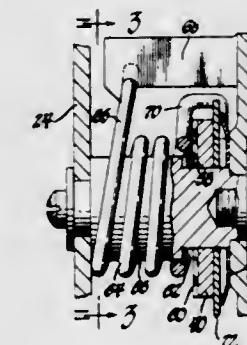


ton lever is moved to coupled position when the door is open, and the door is then closed, reverse rotation of the bolt rotates the detent release lever sufficiently toward released position to cause the spring to go overcenter and move the garnish button operated lever to uncoupled position.

3,563,590

CLOSURE LATCH

Barthold F. Meyer, St. Clair Beach, Ontario, Canada, assignor to General Motors Corporation, Detroit, Mich.
Filed May 5, 1969, Ser. No. 821,664
U.S. Cl. 292-216 4 Claims



A vehicle body door lock detent lever is pivotally and slidably mounted on a stud carried by the lock frame. A combined compression and torsion spring normally biases the detent into detented engagement with the bolt and also holds serrations on the detent out of engagement with mating serrations on the stud. This spring is opposed by a Belleville washer and is normally stronger than the spring. If for any reason the washer becomes stronger than the spring, the detent shifts axially of the stud to engage the serrations.

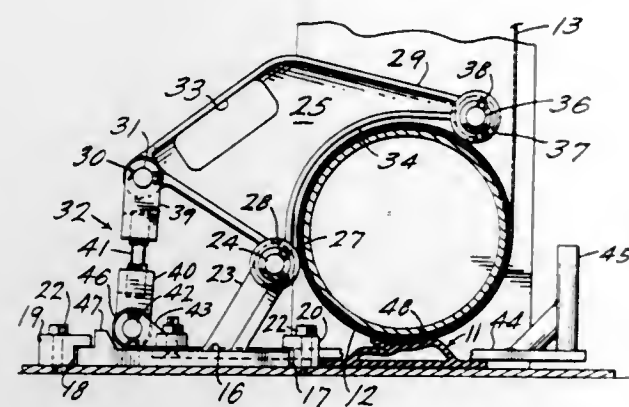
3,563,591

DOOR CLAMP DEVICE

Ralph L. Kuss, Findlay, Ohio, assignor to R. L. Kuss Co., Inc., Findlay, Ohio
Filed Nov. 13, 1968, Ser. No. 775,325
Int. Cl. E05c 19/14
U.S. Cl. 292-237 10 Claims

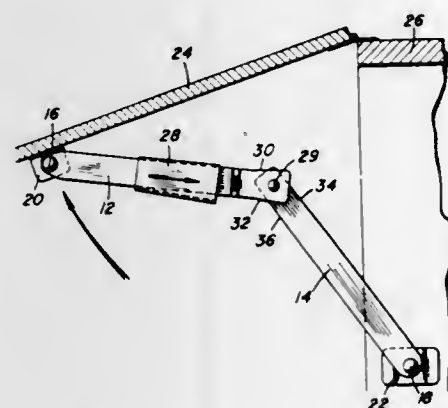
A clamp device for securing rolling doors or partitions in closed position. The device includes a pivot arm movable from an open position to a closed position extending over the bottom roller of the flexible door and means for locking the pivot arm in the closed position to resist upward movement of the door roller. Cooperating with the pivot arm is a flexi-

ble gasket below the roller which engages the roller through its axial length so that wind forces upon the closed door will cause the roller to engage and embed itself within the gasket.



The entire door clamp device, when desired, may be removed from the supporting floor structure and may be opened and closed from either side of the door.

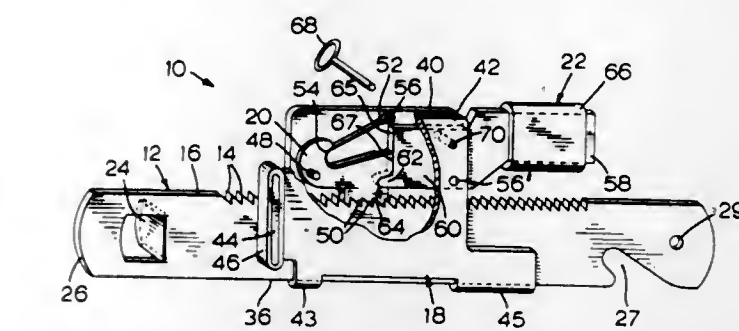
3,563,592
LOCKABLE FOLDING BRACE SYSTEM
Robert Preston, Falls Road, Monkton, Md. 21111
Filed Feb. 19, 1969, Ser. No. 800,444
Int. Cl. E05c 17/32; B65d 43/24; B25g 3/38
U.S. Cl. 292-263 4 Claims



A lockable brace linkage system is disclosed for supporting a hinged structure in an opened condition. A jointed linkage is arranged to open from a folded condition to colinearity. The median joint is locked with a tapered sliding sleeve which moves over the common jointed ends of the linkage. These ends are tapered in width, one inwardly and one outwardly, to facilitate the movement of the sleeve thereover and seat with wedge action. Another embodiment of the invention useful where the lock sleeve is too light weight to slide positively, incorporates a spring bias which assists the movement of the sleeve to the lock position and also tends to maintain the linkage in the folded position.

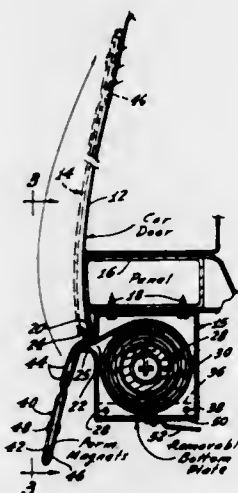
3,563,593
INSIDE DOOR LOCK
Edward J. Leier and Jack Edgar, Edmonton, Alberta, Canada, assignors to Peter J. Verbeke and John G. Abbott, Saskatchewan, Canada
Filed Mar. 17, 1969, Ser. No. 807,484
Int. Cl. E05c 19/18
U.S. Cl. 292-296 1 Claim

An auxiliary lock for locking a door securely against a door jamb having a lock blade with a lug struck out near its outer end for engagement with the jamb, and a plurality of serrated teeth along one edge of the blade which are engaged by complementary teeth carried by a pivoted ratchet pawl mounted on a body member which is slideably mounted on the blade. The body member has an integral shoulder which



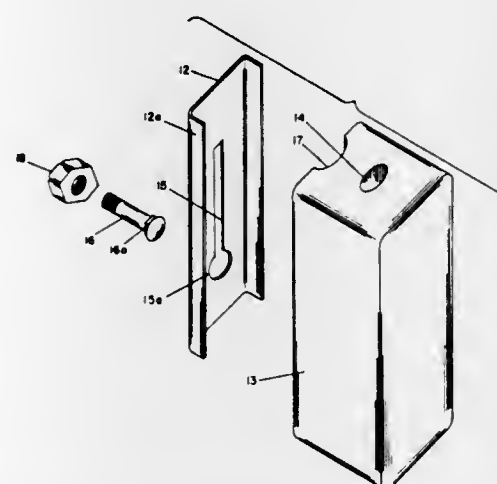
ratchet pawl from the teeth to permit removal of the body member.

3,563,594
RETRACTABLE FLEXIBLE CAR BODY PROTECTOR
Arnold B. London, 345 S. Rexford Drive, Beverly Hills, Calif. 90212
Filed May 2, 1969, Ser. No. 821,403
Int. Cl. B60j 11/00; B60r 19/00; B61d 39/00
U.S. Cl. 293-1 4 Claims



A flexible protective sheet wound on a spring-actuated roller in a casing mounted below and at the lower edge of a vehicle body is extendible upward over the side surface of the body to be releasably held in place by permanent magnet means.

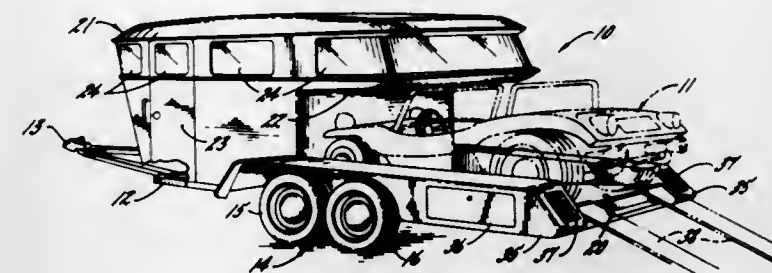
3,563,595
RESILIENT BUMPER GUARD FOR MOTOR VEHICLES
Coleman M. Slavney, 1618 Jefferson St., Madison, Wis. 53711
Filed Feb. 3, 1969, Ser. No. 795,980
Int. Cl. B60r 19/04, 19/08; B61f 19/04
U.S. Cl. 293-67 2 Claims



A bumper guard for motor vehicles having a rigid, channel-shaped, base plate imbedded in and bonded to a resilient

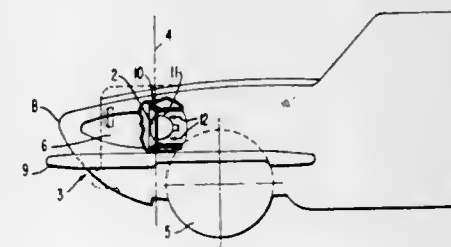
cushioning member. The base plate has a substantially vertical elongate slot with an enlarged end and the resilient cushioning member has a groove in the rear face thereof communicating with the slot for receiving the head of a mounting bolt for securing the guard to the bumper of a vehicle at the desired elevation.

3,563,596
CAMPER-HAULER
George Gordon Davis, 3500 Greenleaf Blvd., Elkhart, Ind. 46514
Filed Mar. 20, 1969, Ser. No. 808,864
Int. Cl. B60p 3/32
U.S. Cl. 296-23 2 Claims



A camper-hauler vehicle combining, on one trailer chassis, a body shell containing living facilities and a platform for carrying an auxiliary load like a boat or sport vehicle. The body shell is formed with a ledge portion overlying the platform and containing a sleeping area. Structure on each side of the platform defines wheel fenders and platform side rails.

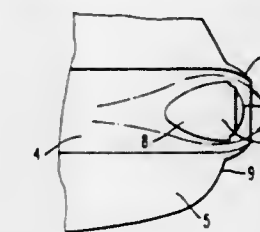
3,563,597
MOTOR VEHICLE BODY END SECTION
Karl Wilfert, Gerlingen-Waldstadt, and Bela Barenyi, Stuttgart-Vaihingen, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed June 6, 1968, Ser. No. 734,939
Claims priority, application Germany, June 8, 1967, D53290
Int. Cl. B62d 25/00
U.S. Cl. 296-28 14 Claims



A motor vehicle body end section, particularly a front end section for passenger motor vehicles which is characterized by headlights arranged in a plane extending transversely to the vehicle longitudinal axis directly in front of the front wheels of the vehicle and by lateral body flanks which extend at an inclination to the vehicle longitudinal axis in the direction toward the front end of the vehicle whereby the lateral body flanks are so inclined that they are matched approximately to the boundary of the light cones of the headlights.

3,563,598
INSTALLATION FOR THE REDUCTION OF SOILING OF REAR LIGHTS OR THE LIKE AT MOTOR VEHICLE BODIES
Karl Wilfert, Gerlingen-Waldstadt, and Hans Gotz, Magstadt Wurttemberg, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Aug. 8, 1968, Ser. No. 751,238
Claims priority, application Germany, Aug. 8, 1968, 53790
Int. Cl. B60q 1/00
U.S. Cl. 296-28 14 Claims

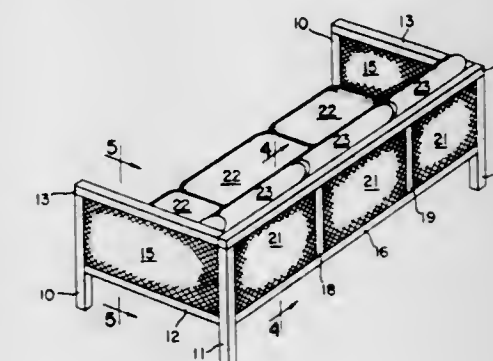
An installation for reducing the soiling of rear lights or the like at motor vehicle bodies by means of an air guide system which includes air guide channels extending on the inside of



the body; air enters the air guide channels by way of inlet apertures provided laterally of the body and is discharged out

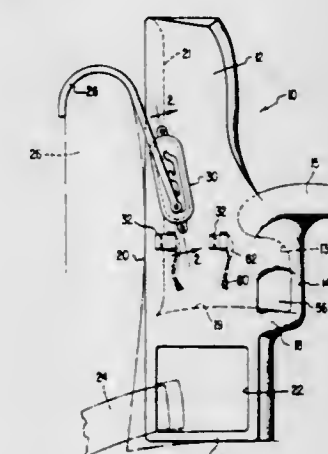
of the air guide channels by way of annularly shaped discharge apertures surrounding the rear lights.

3,563,599
FURNITURE CONSTRUCTION WITH REMOVABLE PANELS AND CUSHIONS
Jules M. Heumann, San Francisco, Calif., assignor to Metropolitan Furniture Manufacturing Company, San Francisco, Calif., fractional part interest to each partnership
Filed Mar. 17, 1969, Ser. No. 807,614
Int. Cl. A47c 4/30, 4/02
U.S. Cl. 297-218 13 Claims



A furniture construction comprises a rigid frame having a plurality of upholstered panels removably mounted thereon by pairs of identical interlocking fastening means. Each fastening means of each pair comprises a plurality of resilient elements adapted to be snapped into locked position with respect to the elements of a mating fastening means. A plurality of cushions are detachably secured to the frame by means of belts having reversible snap fasteners attached to the ends thereof.

3,563,600
INFANT SAFETY CAR SEAT
Maurice Converse, 1311 Briarhill Drive, Akron, Ohio 44313
Continuation-in-part of application Ser. No. 657,992, Aug. 2, 1967, now abandoned. This application Mar. 11, 1969, Ser. No. 814,225
Int. Cl. A47d 1/10
U.S. Cl. 297-254 14 Claims



An infant seat of the type adapted to be releasably secured to an automobile seat by means of the standard automobile

seat belt extending about the base thereof and an additional connecting device securing the top portion of the infant seat to the back of the automobile seat is constructed from a molded plastic shell-like member having a removable front portion which substantially encapsulates the child. The detachable front portion may be slidably or pivotally arranged with respect to the main seat portion and secured in place by means of a suitable quick release latch device. Additional child-restraining belt devices may be provided within the infant seat.

3,563,601

ORTHOPEDIC DEVICE

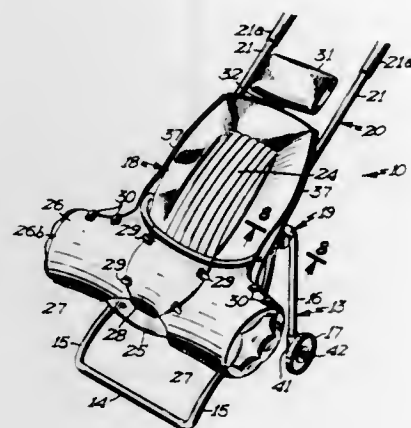
Patricia C. Dickey, South Watertown Road, Long Lake, Minn. 55356

Filed Oct. 23, 1968, Ser. No. 769,800

Int. Cl. A47c 1/08

U.S. Cl. 297—390

5 Claims



An orthopedic device adapted for handling of a child confined within a Spigi cast or Frejka pillow splint providing the handler of the child with ease and convenience and provide the child with a proper amount of support and adequate comfort. The orthopedic device having provision for use as an infant seat, a car seat, a stroller, a bed and a jumper.

3,563,602

ADJUSTABLE HEADREST FOR VEHICLE SEAT

Seizho Ohta, Toyota-shi, and Motokuni Kage, Aichi-ken, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan

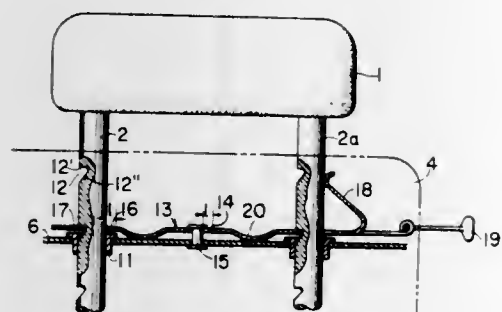
Filed Oct. 2, 1968, Ser. No. 764,486

Claims priority, application Japan, Oct. 4, 1967, 84015

Int. Cl. A47c 7/36, 7/42

U.S. Cl. 297—410

9 Claims



An adjustable head rest for a vehicle seat is formed by supporting rod fitted at its upper end into a head rest member and at its lower end into the frame of the vehicle seat. Means are adjustably positionable on the supporting rod for varying the height of the head rest above the seat. For such adjustable positioning a plurality of recesses are formed along the supporting rod. The edge of a hole through which the supporting rod passes is brought into engagement within one of the recesses under the biasing force of a resilient tongue in the retaining member propped against the supporting rod.

3,563,603

HEADREST ASSEMBLY

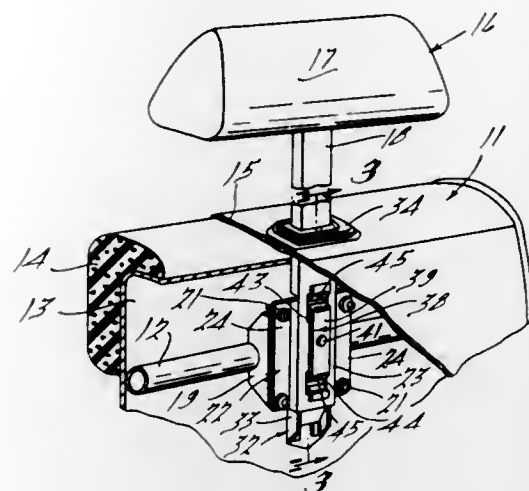
Joseph F. D'Aprile, Detroit, and Alfons Olada, Dearborn Heights, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Sept. 4, 1969, Ser. No. 855,162

Int. Cl. A47c 7/36, 7/42

U.S. Cl. 297—410

14 Claims



A headrest assembly for a cushioned seat back comprising a fixed bracket mounted within the seat back, a sleeve having an escutcheon at the upper end thereof, and a cushioned headrest member attached at one end to a support post. The sleeve is telescopically received within the bracket to a depth determined by engagement of the escutcheon with the upper surface of the cushioned seat back and the support post is telescopically and vertically adjustably received within the bracket and sleeve subassembly. Insertion of the support post into the sleeve causes the latter to be locked to the bracket.

3,563,604

CHAIR ASSEMBLY HAVING A MOVABLE ARMREST

Chester J. Barecki, Grand Rapids, Mich., assignor to American Seating Company, Grand Rapids, Mich.

Filed Feb. 10, 1969, Ser. No. 797,989

Int. Cl. A47c 7/54

U.S. Cl. 297—417

9 Claims



An armrest for a vehicle chair assembly in which the armrest is equipped with three linkage members to permit the armrest to fold completely out of the way, between the backs of the chairs, when the armrest is not needed.

3,563,605

ROCKING AND ROLLING LEG REST WITH LOCK MEANS

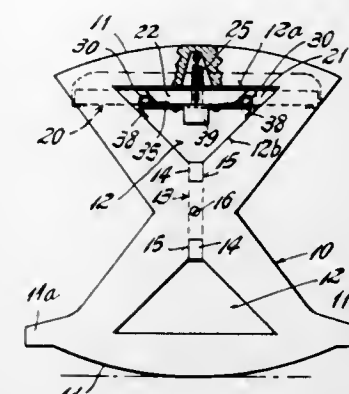
David Pinkas, 207 Wolfpit Ave., Norwalk, Conn. 06851

Filed June 30, 1969, Ser. No. 837,421

Int. Cl. A47c 9/12

U.S. Cl. 297—439

5 Claims



A rocking and rolling leg rest including end members provided with apertures having inclined supporting surfaces and a body supporting member resiliently and rollingly carried by the end members and normally located in an upper position, the supporting member having projecting tongues disposed in the apertures to engage the supporting surfaces of the apertures when the supporting member is tilted and moved downwardly and rolled sidewise under pressure applied to the top thereof. Rollers are provided on the support engaging portions of the tongues to facilitate tilting thereof and means can be provided to lock the supporting member in the upper position.

3,563,606

METHOD FOR IN-SITU UTILIZATION OF FUELS BY COMBUSTION

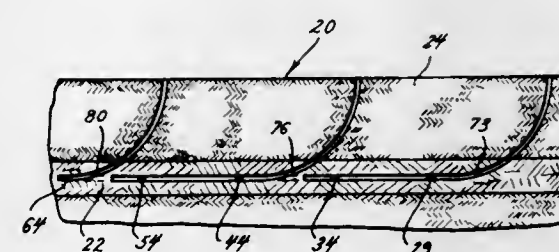
Howard V. Sears, Flat River, Mo., assignor to St. Joe Minerals Corporation, New York, N.Y.

Filed Mar. 24, 1969, Ser. No. 809,571

Int. Cl. E21c 43/00

U.S. Cl. 299—2

15 Claims



Subsurface combustible material, such as coal, can be burned in situ by providing a number of passages which extend downwardly from the surface and which extend to, and generally horizontally through, the combustible material, by forming a combustion chamber within said combustible material adjacent to and in communication with the ends of said passages, and by using one of said passages to supply air to said combustion chamber while using another of said passages to remove products of combustion from said combustion chamber. The wall of said combustion chamber, which is adjacent the inner ends of said passages, will progressively burn away, and thus cause said combustion chamber to "move" toward said passages; and the overburden adjacent said wall will provide a self-supporting overhang which will enable air to continue to enter said combustion chamber from said one passage and will enable products of combustion to move to and outwardly through said other of said passages — even though the overburden adjacent the opposite wall of said combustion chamber slumps down into said combustion chamber adjacent to said opposite wall, reach the area where that combustible material is being burned.

3,563,607

SUBAQUEOUS MINING

Bede A. Boyle, Newcastle, New South Wales, Australia, assignor to Laurice Winifred Boyle, Newcastle, New South Wales, Australia, a fractional part interest to each part interest

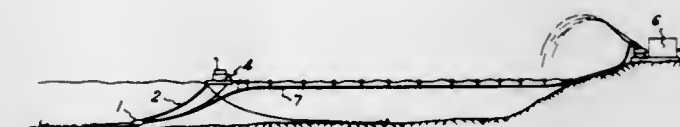
Filed Apr. 15, 1969, Ser. No. 816,200

Claims priority, application Australia, May 2, 1968, 37225/68

Int. Cl. E21c 45/00; E02f 3/88

U.S. Cl. 299—9

7 Claims



A subaqueous mining machine having an underwater suction head which has a suction pump mounted on it. The pump is driven by a high pressure air hose and a semibuoyant discharge hose is used to conduct the pumped slurry to a shore-based treatment means. The underwater head can be steerable by means of jet control pumps which are part of it.

3,563,608

RIPPING MACHINE

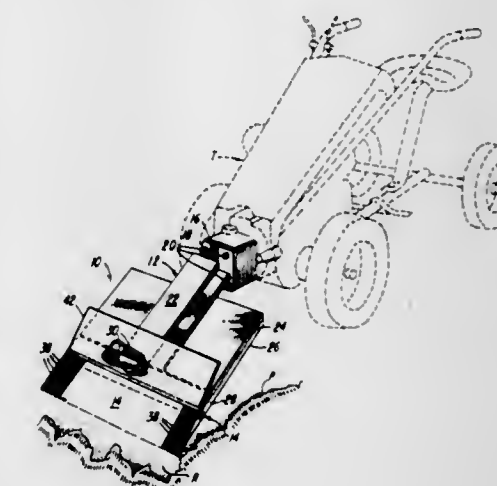
Daniel P. Crispino, 451 Fawcett St., Baltimore, Md. 21218

Filed Mar. 14, 1969, Ser. No. 807,359

Int. Cl. E04d 15/00

U.S. Cl. 299—37

5 Claims



An attachment for a tractor is provided which is used to thrust along the surface of a deck to break loose and remove old roofing paper from a roof. The machine, in addition to the tractor, consists of a thrust distributor assembly and a fork assembly. The fork is provided with a plurality of tapered teeth to break loose and remove the paper when driven forward by the tractor.

3,563,609

NOVEL FILAMENT STOCK BOX

John C. Lewis, Jr., Middlebury, Vt., assignor to Tugel Industries, Inc., Middlebury, Vt.

Filed Nov. 25, 1968, Ser. No. 778,741

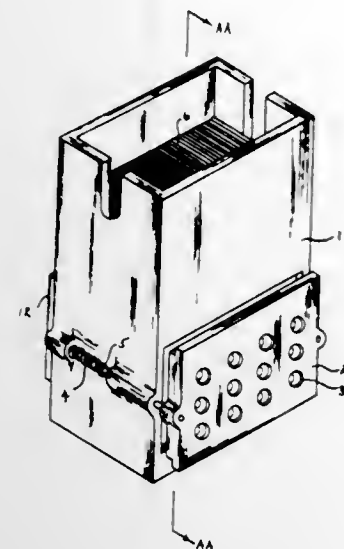
Int. Cl. A46d 1/04

U.S. Cl. 300—7

3 Claims

This invention relates to new and useful filament holding containers. More specifically, it is concerned with filament stock boxes which accept cut-to-length parallel synthetic fila-

ment in such a manner that picking devices can engage the filament at one end (longitudinal to the filament's length)



and remove at least two prearranged filament tufts prior to insertion of said tufts into a brush construction.

3,563,610

APPARATUS FOR MIXING AND UNLOADING PULVERULENT MATERIAL

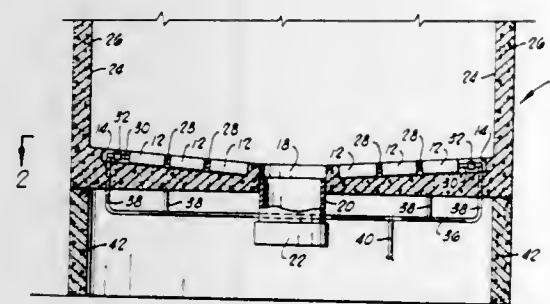
A. J. Speegle and John F. Mason, Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Jan. 15, 1969, Ser. No. 791,435

Int. Cl. B65g 53/04

U.S. Cl. 302-29

8 Claims



Apparatus for mixing and unloading pulverulent material stored in a silo comprising a plurality of aeration troughs positioned end to end in the floor of said silo forming at least one row therein. Said aeration troughs include self-contained air tight compartments for conducting air from one aeration trough to another thereby eliminating the necessity of separate air piping. The aeration troughs and air conducting compartments contained therein are connected together by means of resilient tubular connectors slidably secured in openings in the ends of said troughs.

3,563,611

VEHICLE BRAKE SYSTEMS

Denis Sharp, Crawley, Sussex, England, assignor to U. S. Philips Corporation, New York, N.Y.

Filed Sept. 4, 1968, Ser. No. 757,255

Claims priority, application Great Britain, Sept. 4, 1967, 40348/67

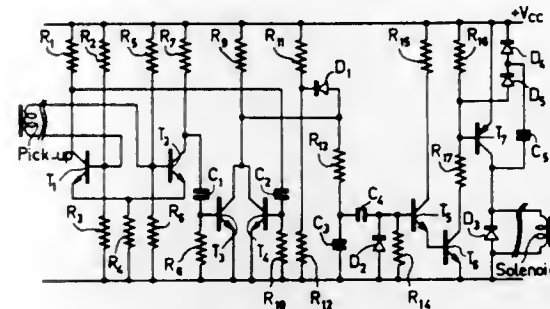
Int. Cl. B60t 8/08

U.S. Cl. 303-21

10 Claims

An antilock brake control system that includes means for producing a constant amplitude DC signal for all wheel

speeds above 6 m.p.h. When the speed drops below 6 m.p.h.,



the amplitude of the DC signal changes. This voltage change is coupled to the brake release solenoid via a capacitor.

3,563,612

LOAD SENSING CONTROL MECHANISM FOR VEHICLE HYDRAULIC BRAKE SYSTEM

Tosiaki Okamoto and Sinji Kawai, Kariya-shi, Japan, assignors to Aisin Seiki Company Limited, Aichi-ken, Japan

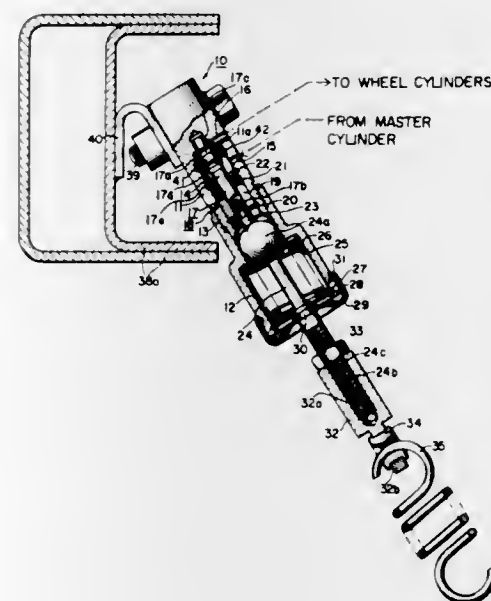
Filed May 2, 1969, Ser. No. 821,253

Claims priority, application Japan, May 4, 1968, 43/29975

Int. Cl. B60t 8/18, 15/00

U.S. Cl. 303-22

3 Claims



A hydraulic pressure control mechanism of load sensitive type inserted in a hydraulic piping extending between a hydraulic master cylinder and wheel brake cylinders of a powered vehicle for control of the pressure prevailing in the latter cylinders. The control mechanism is resiliently bridged between a chassis frame and a wheel axle of the vehicle through the intermediary of a load-sensing spring, and having a ball joint inserted between a valve piston and a motion transmitting rod for the piston.

3,563,613

ENDLESS TRACK WITH SEALED BEARING FOR THE JOINTS

Horst Schulz, Stosdorf, and Wilhelm Jansen, Bensberg-Refrath, Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne, Germany

Continuation of application Ser. No. 625,150, Mar. 22, 1967.

This application May 12, 1969, Ser. No. 827,085

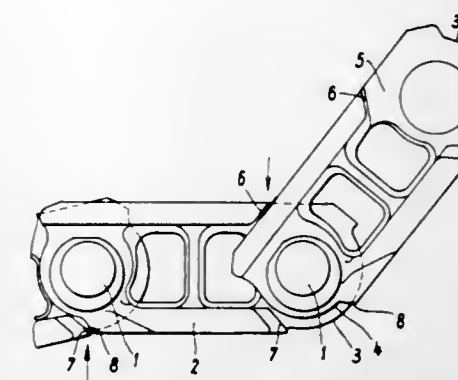
Int. Cl. B62d 55/22

U.S. Cl. 305-11

2 Claims

The present invention concerns an endless track in which the track links are pivotally interconnected and in which the pivot means for pivotally interconnecting the track links have associated therewith, elastic sealing means which permits a

limited angular movement only of adjacent links, while the sidewalls of the links are provided with abutment means for



positively limiting said limited angular movement of adjacent links.

3,563,614

TRACK LINK WITH DRIVING LUG RELEASABLY SECURED TO TRACK SHOE

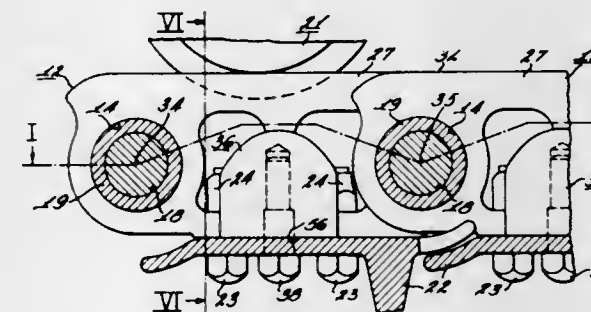
Roby A. Parks, Springfield, Ill., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Dec. 15, 1967, Ser. No. 690,921

Int. Cl. B62d 55/26

U.S. Cl. 305-54

2 Claims



A drive lug is releasably secured to each shoe of an endless track to provide a center pitch track. The teeth of the drive sprocket engage the drive lugs instead of the track bushings. The relative velocity at which the drive lug impacts the sprocket tooth is very substantially reduced thus reducing noise and wear.

3,563,615

SHAFT BEARING ASSEMBLY

Eberhard Dobelin, Villingen, Germany, assignor to Kienzle Apparate G.m.b.H., Villingen, Black Forest, Germany

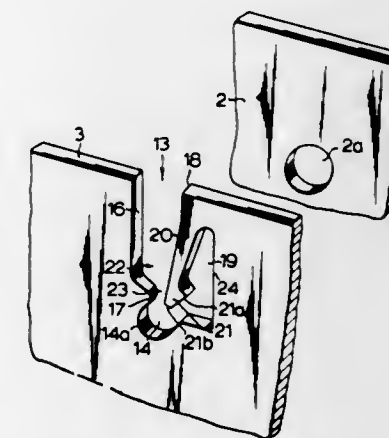
Filed May 2, 1969, Ser. No. 821,264

Claims priority, application Germany, May 3, 1968, P 17 50 449.3

Int. Cl. F16c 13/00

U.S. Cl. 308-15

5 Claims



A journal portion of a shaft is inserted through an open slot in a support wall into an open bearing, and

retained in the same by an arm which resiliently yields laterally during insertion of the shaft. The journal portion is formed by a circular groove preventing axial displacement of the shaft in the open bearing, and the other end of the shaft is inserted in axial direction into a bearing bore in another support wall. The longitudinally rigid arm blocks removal of the journal portion from the open bearing.

3,563,616

LINEAR MOTION BEARINGS

Ernest Leonard Allen, Dunstable, England, assignor to Rotax Limited, London, England

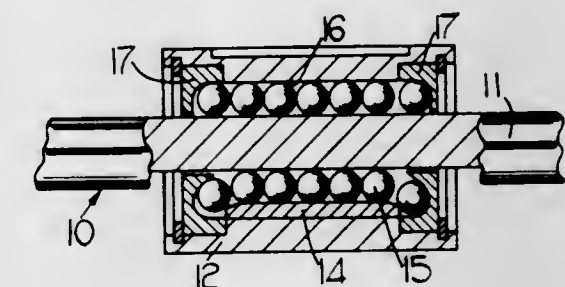
Filed Jan. 7, 1969, Ser. No. 789,523

Claims priority, application Great Britain, Jan. 22, 1968, 3221/68

Int. Cl. F16c 29/06

U.S. Cl. 308-6

2 Claims



A linear motion ball bearing comprising a pair of telescopic members, the member having grooves which in association with grooves formed on the member, define tracks for ball bearings under load, there being formed in the member recesses which permit the return movement of the balls, there being provided a pair of end plates having channel portions which guide the balls between the ends of the tracks and the adjacent ends of the recesses.

3,563,617

ANTIFRICTION WAY SYSTEM FOR PRECISION INSTRUMENTS

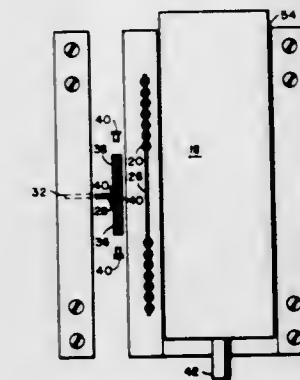
James L. Pritchard, 52 Needham St., Norfolk, Mass. 02056

Filed June 9, 1969, Ser. No. 831,345

Int. Cl. F16c 29/06

U.S. Cl. 308-6

8 Claims



A linear, horizontal ball-bearing system including preloaded spring centering and spacing means for the balls comprising a flexible sheet perforated for ball retention and having spring connection to a post affixed to a way by compression springs positioned in an aperture in the spacing means.

3,563,618

GAS- OR LIQUID-LUBRICATED HYDROSTATIC DOUBLE-ACTION THRUST

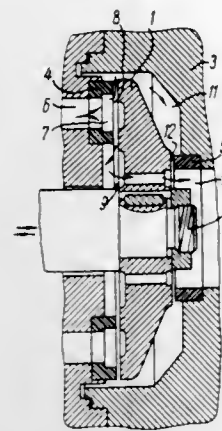
Viktor Vasilievich Ivanov, Krasnoprudnaya ulitsa, 26, kv. 26, Moscow, U.S.S.R.

Filed Aug. 13, 1969, Ser. No. 849,659

Int. Cl. F16c 17/16

U.S. Cl. 308—9

1 Claim



A gas- or liquid-lubricated hydrostatic double-action thrust bearing intended for taking axial loads in machines, for example, in centrifugal pumps. The bearing has a disc-shaped thrust plate with collars located at both sides thereof, the collars being mounted in the stationary body of the machine, which is also provided with passages for supplying power fluid into the face space, which, together with a collar, forms an annular chamber. The annular chamber through annular gaps communicates with a reduced pressure space and with a chamber located at the opposite face of the thrust plate, which, in turn, communicates with the reduced pressure chamber through a gap which is closer to the longitudinal axis of the thrust bearing than the said annular gaps.

3,563,619
BEARINGS

Philip H. Evans, Stourbridge, England, assignor to BSR Limited, Worcester, England

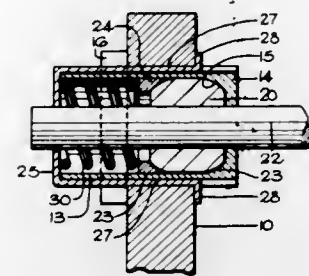
Filed Nov. 5, 1968, Ser. No. 773,421

Claims priority, application Great Britain, Nov. 8, 1967, 50,705/67

Int. Cl. F16c 27/04, 35/06

U.S. Cl. 308—15

1 Claim



A bearing assembly for a rotating shaft comprising a support bracket having a substantially circular aperture in which is mounted a substantially cylindrical bearing housing having therein a self-aligning bearing sleeve through which the shaft passes, the bearing housing having an end cap with two arms projecting parallel to the axis of the housing and engaging in grooves on the exterior of the housing, each arm having an outwardly turned lug which engages against the side face of the bracket and there being a spring disposed within the housing and acting against the end cap to urge it outwardly and urge the said lugs into engagement with the said side face of the bracket.

3,563,620

FLUID SEALS

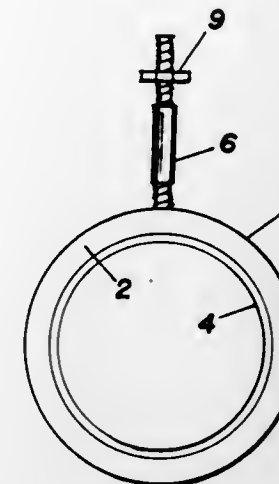
Richard H. Weichsel, Hudson, Ohio, assignor to The Apex Bearings Company, a corporation of Ohio

Filed Oct. 28, 1968, Ser. No. 787,284

Int. Cl. F16c 1/24

U.S. Cl. 308—36.3

9 Claims



The combination of a shaft and a fluid seal including a housing surrounding the shaft and having a curved outer wall and a circular inwardly extending spaced first and second side walls, the second side wall being longer and thicker than the first side wall and having a circular offset portion arranged inwardly of the peripheral free end of the first side wall. The second side wall has a grooved inner periphery to receive a plastic O-ring having a low coefficient of friction. The housing also includes a porous collar having one end portion extending into and being secured to the offset portion of the second side wall and its other end portion engaging and being secured to the periphery of the free end of the first side wall to provide a circular channel to receive fluid which may be passed through the porous collar to form a fluid seal around the shaft.

The seal may be utilized in combination with a bearing for supporting the shaft and means secured to the seal and a machine housing is provided to maintain the seal spaced from but in close tolerance with the shaft with the longer and thicker side wall arranged adjacent to one side of the bearing and with the plastic O-ring on the inner portion of the thicker side wall protruding from the wall and engaging the shaft to prevent contaminants from passing into the bearing and for retaining the original lubricant provided by the manufacturer. If the bearing is open on both sides, a similar seal may be arranged on the opposite side of the bearing in which case the side walls of the second seal are reversed relative to the side walls of the first seal so that fluid passing through the porous collar of the second seal forms a fluid seal around the shaft which is passed along the shaft in a direction away from the bearing which is opposite to the direction that the fluid is passed along the shaft from the first seal.

3,563,621

BEARING SLEEVE ASSEMBLY

Walter Gruss, Goppligen-Jebenhausen, Germany, assignor to Feldmuhle Aktiengesellschaft, Dusseldorf, Germany

Filed Feb. 8, 1968, Ser. No. 704,150

Claims priority, application Germany, Feb. 10, 1967, F 51,489

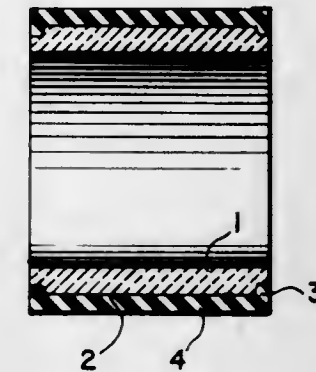
Int. Cl. F16c 27/00

U.S. Cl. 308—238

8 Claims

A bearing sleeve assembly consisting of a tube of commercially pure, polycrystalline, sintered aluminum oxide

and an axially coextensive tubular rubber layer fixedly vulcanized to the outer face of the tube which has annular recesses at both axial ends so that the axially central portion of the tube projects into the conforming



rubber layer. The free inner face of the tube is ground and polished, whereas the rubber-covered outer face is relatively rough, not having received any finishing treatment after sintering.

3,563,622

CABINET STRUCTURE

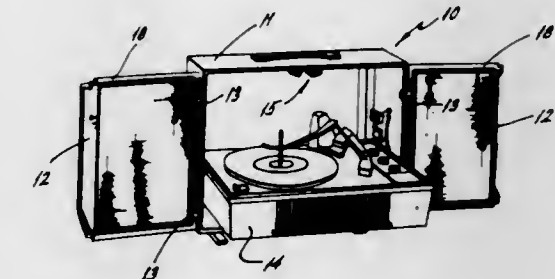
Alfred A. Cote, Langhorne, Pa., assignor to Philco-Ford Corporation, Philadelphia, Pa., a corporation of Delaware

Filed Oct. 23, 1968, Ser. No. 769,827

Int. Cl. A47b 81/06

U.S. Cl. 312—8

5 Claims



A unitary, molded plastic latching device for maintaining stored position of a pair of adjacent, hinged mounted speaker enclosures of a portable phonograph cabinet. The enclosures are oppositely hinged, and are movable between a stored, latched position in which they cover the changer compartment, and a playing, unlatched position in which they open the changer compartment. The latching device is disposed intermediate the adjacent, free edge portions of the enclosures and includes a horizontally extending U-shaped latching member.

3,563,623

ROTATIONAL ENERGY STORAGE AND DELIVERY DEVICES

Richard Rhodes Walton, 10 W. Hill Place, Boston, Mass. 02114

Filed May 15, 1969, Ser. No. 824,799

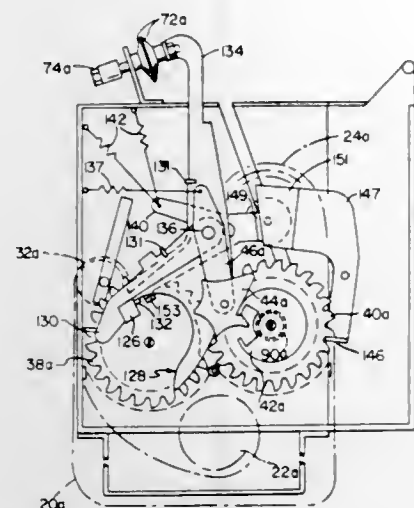
Int. Cl. B65h 19/00

U.S. Cl. 312—38

14 Claims

Towel dispensers using rotational energy storage and delivery devices, web drives using such devices, and such devices by themselves using helical springs which have upper and/or lower torque and stored-energy limits determined by the sizing of the spring and a co-operating surface. In towel dispensers a helical spring, receiving energy

from the pull-down of the towel by the user, accomplishes take-up (between uses) of portions of an extended

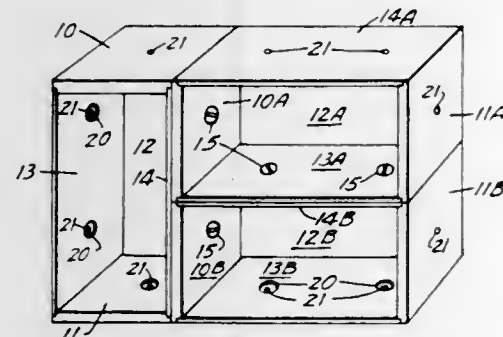


length of towel as well as take-up of the final tail of the towel without adding excessive resistance to pull of the towel by the user.

3,563,624
FAMILY ENTERTAINMENT CENTER
James Daniel Stice, 416 S. 4th St.,
Stillwater, Minn. 55082
Filed July 1, 1969, Ser. No. 838,132
Int. Cl. F16b 12/00

U.S. Cl. 312-111

9 Claims



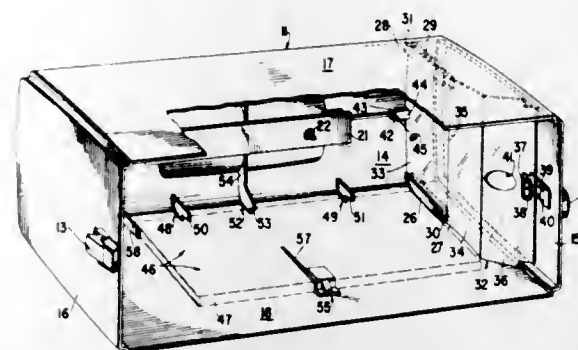
New concepts and basic units for utility centers are taught and permit versatile and convenient alteration of the total structure of utility centers as functional needs change. The approach taught is that of forming easily altered "Family Entertainment Centers" for games, arts, crafts, toys, and hobby activities.

The basic units utilized in the invention are receptacles open on one side. They have a volume represented by two cubes adjacent each other. Receptacles other than of two-cube volume are also provided; and these have such a structural relationship between the walls forming the same as to permit ready conversion into receptacles capable of modular mating with those of two-cube volume.

The basic preferred receptacle is one having five outer walls and eight outer-facing module surfaces on those walls. Any modular surface on any one receptacle may be mated to any modular surface of another to form the utility centers.

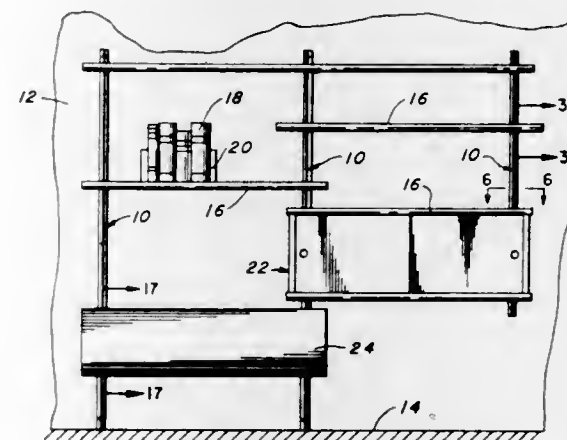
Disengageable fastening means are also provided to hold modular surface areas in mated position; and a variety of auxiliary items such as game boards and the like are employed in combination with the utility centers to form the total structure characterized herein as a "Family Entertainment Center."

3,563,625
STORAGE COMPARTMENTS FOR A SEWING MACHINE CARRYING CASE
George L. Zilg, Dunellen, and Henry J. Milan, Clark, N.J., assignors to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 25, 1968, Ser. No. 770,599
Int. Cl. A47b 21/00
U.S. Cl. 312-208 3 Claims



A novel construction for the cover of a sewing machine carrying case for providing separate storage facilities therein for an article having utility with a sewing machine, such as a foot controller, an attachment box or the like, and for material such as an instruction manual of predetermined size. The storage compartment for the article is provided adjacent an end wall of the cover and includes a retaining panel constructed and arranged to form an open-ended compartment of sufficient size to receive and hold the article until it is needed for the sewing operation. Means are provided for releasably closing the open end of the compartment. A second storage facility is provided adjacent one of the longitudinal cover walls for holding an instruction manual or other material in sheet or pamphlet form of proper size, comprising a plurality of ribs proximate the top of the cover wall which cooperate with a lower support member to form a rack for supporting the instruction manual or the like material inside the cover of the carrying case.

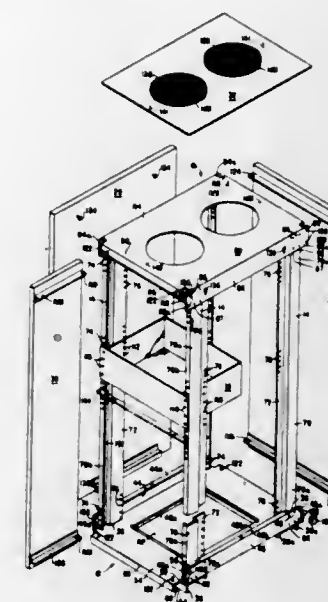
3,563,626
MODULAR ADJUSTABLE WALL SHELVING
Irwin J. Ferdinand, Glencoe, and Irwin R. Kulbersh, Niles, Ill., assignors to Hirsh Company, Skokie, Ill., a corporation of Illinois
Filed July 16, 1968, Ser. No. 745,287
Int. Cl. A47b 47/00
U.S. Cl. 312-242 11 Claims



Modular knockdown shelving having vertical supports for vertically adjustable brackets that are received and concealed within the body portion of fabricated wooden shelves. The shelves are readily slidable over the brackets for holding them in adjusted position against removal and the brackets releasably hold the shelves in working

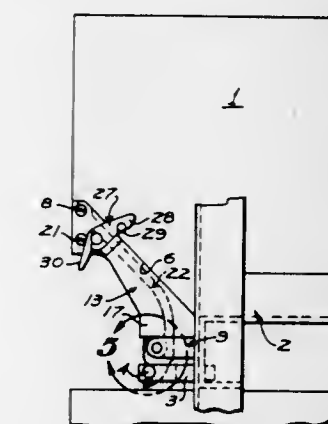
position against inadvertent dislodgement. The shelves are uniform and are constructed for open shelving, closed shelving or cabinets with or without sliding doors. They can serve also as desks both flat and inclined.

3,563,627
CABINET CONSTRUCTION
George E. Whipps, Boxboro, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.
Filed Dec. 3, 1968, Ser. No. 780,775
Int. Cl. A47b 43/00, 47/00
U.S. Cl. 312-257 22 Claims



An improved cabinet employs a relatively few load bearing frame members which consist of inexpensive metal stampings formed so that they can be secured together using conventional welding techniques. Yet they still possess substantial structural rigidity and are configured specifically to enable the cabinet to withstand considerable sideways tilting and vertical impact forces. The frame members are formed initially with a large variety of fastening holes to give the user relatively great flexibility in the placement of shelves or drawers within the cabinet. Interchangeable panels are removably secured to the frame members to protectively enclose the cabinet contents.

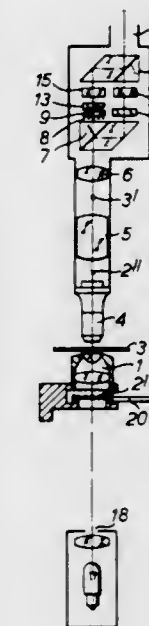
3,563,628
LIMITED LOAD DRAWER LATCH
Lloyd Richard Poe, Beverly Hills, Calif., assignor to Hartwell Corporation, Los Angeles, Calif., a corporation of California
Filed Dec. 5, 1968, Ser. No. 781,560
Int. Cl. A47b 58/00, 95/02
U.S. Cl. 312-320 5 Claims



A limited load latch intended primarily for a drawer designed to carry electronic equipment and provided with separable connectors at its inner ends which are

joined during the final closing movement of the drawer; the latch being incorporated in a handle pivotally connected to the outer, underside of the drawer and having a pair of elongated, laminated latch springs terminating in latch hooks capable of limited displacement on engagement with latch pins carried by the rack structure in which the drawer slides.

3,563,629
DEVICE FOR MEASURING PATH DIFFERENCES ON OBJECTS
Hermann Beyer and Gunter Schoppe, Jena, Germany, assignors to Jenaoptik Jena G.m.b.H., Jena, Germany
Continuation-in-part of application Ser. No. 566,292, July 19, 1966. This application June 27, 1969, Ser. No. 843,905
Int. Cl. G02b 21/14
U.S. Cl. 350-13 4 Claims



The illumination aperture of a splitting interferometer operating with a monochromatic light is increased and the subsequent condenser focus plane is equipped with interchangeable gratings having a plurality of slits.

3,563,630
RECTANGULAR DIELECTRIC OPTICAL WAVEGUIDE OF WIDTH ABOUT ONE-HALF WAVELENGTH OF THE TRANSMITTED LIGHT
Dean B. Anderson, Whittier, Rudolf R. August, Laguna Beach, William A. McDowell, Orange, and Siegfried G. Plonski, Santa Ana, Calif., assignors to North American Rockwell Corporation, a corporation of Delaware
Filed Dec. 7, 1966, Ser. No. 599,833
Int. Cl. G02b 5/14
U.S. Cl. 350-96 13 Claims



A dielectric waveguide consisting of a ribbon of dielectric material of transverse dimensions near the wavelength of the infrared, ultraviolet or visible light to be

transmitted and which is mounted on a dielectric layer carried by a substrate. Said ribbon having an index of refraction greater than that of the dielectric layer and further being clad with a metal layer.

This invention relates to an optical waveguide and more particularly to a dielectric waveguide capable of propagating infrared, visible, or ultraviolet light, and having cross-sectional dimensions comparable to the wavelength of the guided light.

3,563,631

MODIFIED ELECTRO-OPTIC KERR CELL

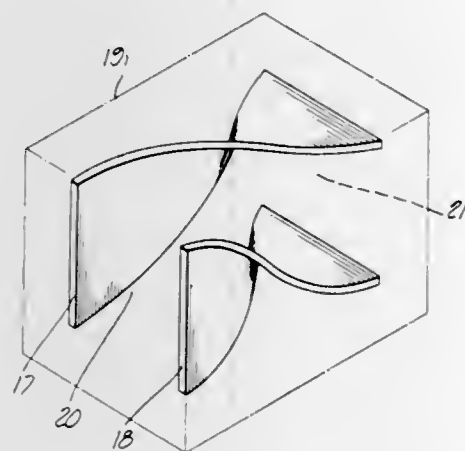
John B. Sledge, Los Angeles, Calif., assignor to Metro-Goldwyn-Mayer, Inc., Culver City, Calif., a corporation of Delaware

Filed Nov. 25, 1968, Ser. No. 778,495

Int. Cl. G02b 5/30

U.S. Cl. 350—150

9 Claims



An electro-optical cell in which a pair of plates or electrodes are bent or twisted 90° so that their orientation at the exit face of the cell is perpendicular to their orientation at the entrance face of the cell. The cell is filled with a gel made up of nitrobenzene and methacrylate. A display screen or matrix made up of a plurality of such cells addressed on the horizontal and vertical axes by cathode ray tubes is also disclosed.

3,563,632

DIGITAL OPTICAL FOCAL LENGTH MODULATOR

Uwe Schmlidt, Pinneberg, Germany, assignor to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

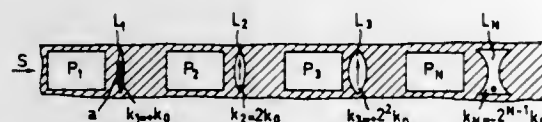
Filed Apr. 7, 1969, Ser. No. 813,939

Claims priority, application Germany, Apr. 6, 1968, P 17 64 132.6

Int. Cl. G02f 1/26

U.S. Cl. 350—150

5 Claims



A digital optical focal length modulator where a number of aligned successive stages, each having a Kerr cell and a birefringent lens of progressively increasing curvature are immersed in a common electrolyte tank. Temperature compensation is achieved by making the sign of curvature of the strongest lens opposite to that of the other lenses in the modulator.

3,563,633
PHASE-COMPENSATED TRIHEDRAL REFLECTORS FOR INTERFEROMETER SYSTEMS

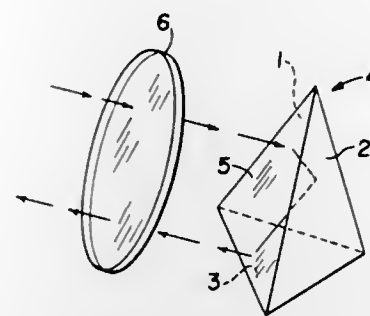
Paul B. Mauer, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed June 27, 1968, Ser. No. 740,741

Int. Cl. G02b 27/28

U.S. Cl. 350—157

5 Claims



A trihedral reflector is disclosed having means for reflecting plane-polarized light with the same polarization state as the incident light. Such a reflector is particularly useful in an interferometer system employing a laser light source. A trihedral reflector with phase-compensating coatings on the reflective surfaces is combined with a quarter-wave plate which converts incident plane-polarized light into circularly-polarized light and reconverts reflected circularly-polarized light back into plane-polarized light, so that the final polarization state is the same as that of the incident light. Additional thin film coatings are provided to advance or retard the longitudinal phase of light incident in any one sextant with respect to light incident in adjacent sextants to compensate for a relative phase retardation or advancement which is effected according to the sextant in which the light is incident.

3,563,634

SYSTEM AND APPARATUS FOR IMPROVING THE CONTRAST OF OR FOR THE BINARISING OF ANALOGUE DENSITY PATTERNS

John Ronald Parks and Ralph Eric Rengger, Teddington, England, assignors to National Research Development Corporation, London, England, a British corporation

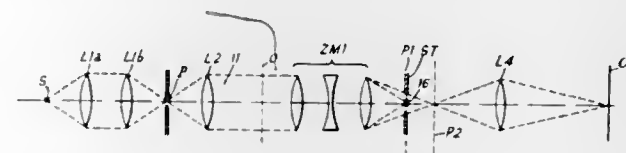
Continuation-in-part of application Ser. No. 579,268, Sept. 14, 1966. This application Dec. 14, 1967, Ser. No. 690,551

Claims priority, application Great Britain, Sept. 15, 1965, 39,435/65

Int. Cl. G02b 27/38

U.S. Cl. 350—162

26 Claims



Optical arrangements for isolating chosen spatial frequency components of an analogue form density or intensity object pattern, e.g. a printed character, in which a transparency of the object pattern is disposed in a collimated light beam and by means of an optical system a diffraction pattern is produced in or beyond the Fourier plane, said Fourier plane containing a light stop having an annular pass aperture and the light passing said stop being imaged in a resultant image plane.

3,563,635

TELEVISION CAMERA HAVING A THICK BIREFRACTIVE PLATE BEFORE THE LIGHT-SPLITTING SYSTEM

Hendrik de Lang, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

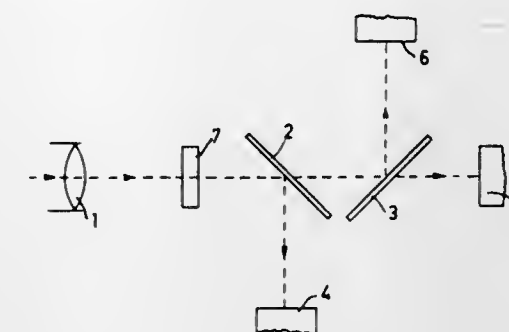
Continuation of application Ser. No. 604,314, Dec. 23, 1966. This application Nov. 12, 1969, Ser. No. 871,577

Claims priority, application Netherlands, Jan. 8, 1966, 6600239

Int. Cl. G02f 1/24

U.S. Cl. 350—171

2 Claims



A television camera employing a dichroic mirror light-splitting system and a birefractive plate between the dichroic mirror and an objective lens for projecting an image of a scene in the camera tubes. The birefractive plate is positioned between the objective lens and the dichroic mirror and has a thickness sufficient to modify polarized light from the scene before it is incident on the dichroic mirror.

3,563,636

HIGH-SPEED VARIFOCAL OBJECTIVE SYSTEM

Karl Macher, Bad Kreuznach, Germany, assignor to Jos. Schneider & Co. Optische Werke Kreuznach, Bad Kreuznach, Rhineland, Germany

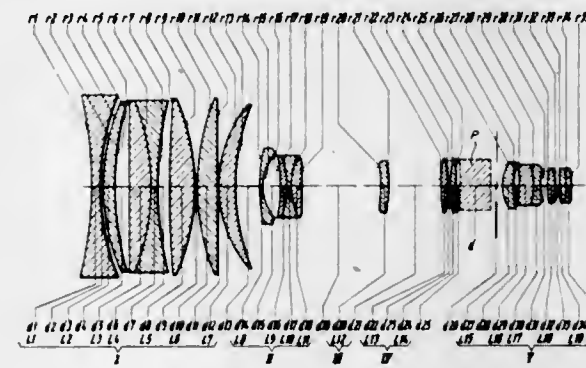
Filed Jan. 2, 1969, Ser. No. 788,427

Claims priority, application Germany, Jan. 5, 1968, Sch 41,799

Int. Cl. G02b 15/14, 17/00

U.S. Cl. 350—184

2 Claims



Varifocal objective system with a relative aperture of 1:1.8 and a varifocal ratio greater than 13:1, including a basic multilens objective and a four-component front attachment with two movable negative components bracketed by two substantially fixed positive components; the first component, which may be limitedly shiftable (in whole or in part) for focusing purposes, includes a negative front lens, a positive singlet, a negative doublet and three further positive singlets; the second component consists of a negative singlet followed by a negative triplet; the third component is a meniscus-shaped singlet; and the fourth component consists of two air-spaced positive singlets.

3,563,637

ADJUSTABLE PLURAL LENS SYSTEM

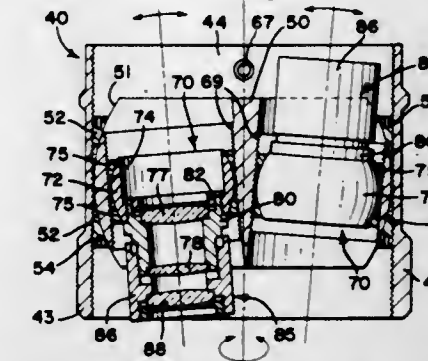
Harold G. Ferguson, Dayton, Ohio, assignor to Progressive Industries Corporation, Dayton, Ohio, a corporation of Ohio

Filed May 19, 1969, Ser. No. 825,618

Int. Cl. G02b 7/04

U.S. Cl. 350—255

5 Claims



Multiple prints of different sizes are produced on a photographic printer incorporating a plurality of lenses each supported for independent universal angular movement within a ball which, in turn, is supported for universal angular movement within a common barrel. The ball is also rotatably and axially adjustable within the barrel, and the lenses are also individually adjustable on their optical axes.

3,563,638

MIRROR ASSEMBLY HAVING A TWO-PIECE MOLDING

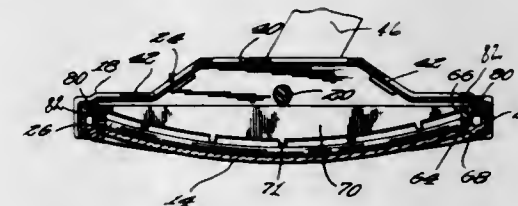
William A. Panozzo, Chicago, Ill., assignor to Sure Plus Manufacturing Co., Chicago, Ill., a corporation of Illinois

Filed Aug. 26, 1968, Ser. No. 755,174

Int. Cl. B60r 1/06; G02b 5/10

U.S. Cl. 350—293

5 Claims



A mirror assembly for a vehicle having a convex mirror, a resilient two-piece molding engaging the edges of the convex mirror surfaces, a housing plate forming a pair of parallel vertical channels adapted to engage the resilient molding, a pair of end caps for the housing plate, and a mounting rod which passes through the end caps to secure the mirror assembly and attach the assembly to a pair of mounting members. A multivision mirror assembly including a convex mirror assembly as hereinabove described in a combination with a planar mirror fitted into a slot provided by the two-piece molding engaging the edges of the convex mirror and a housing having a channel for engaging an upper edge of the planar mirror and opposed longitudinally extending edges thereof to hold the planar mirror in an assembled relationship with the convex mirror.

3,563,639

SELF-TRACKING MIRROR DEVICE WITH MANUAL OVERRIDE FOR VEHICLES

William F. Bowler, 1623 NE. 104th Ave., Portland, Ore. 97220

Continuation-in-part of application Ser. No. 567,993, July 26, 1966. This application Aug. 6, 1969, Ser. No. 848,064

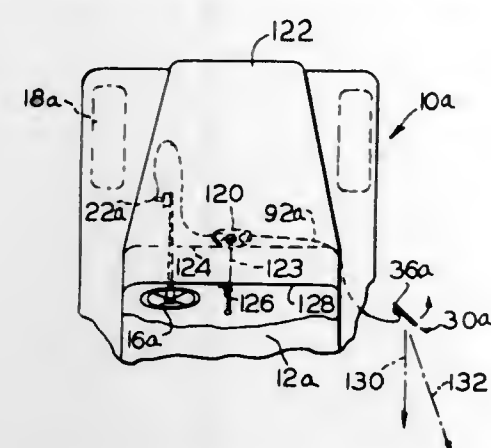
Int. Cl. G02b 5/08

U.S. Cl. 350—307

7 Claims

An outside rear-view mirror for a tractor-trailer vehicle combination wherein the angulation of the mirror changes

progressively during the course of a turn to provide the vehicle operator with continuous rear vision at and beyond the rear of the trailer. Mirror angulation changes are provided by an operable interconnection between the mirror

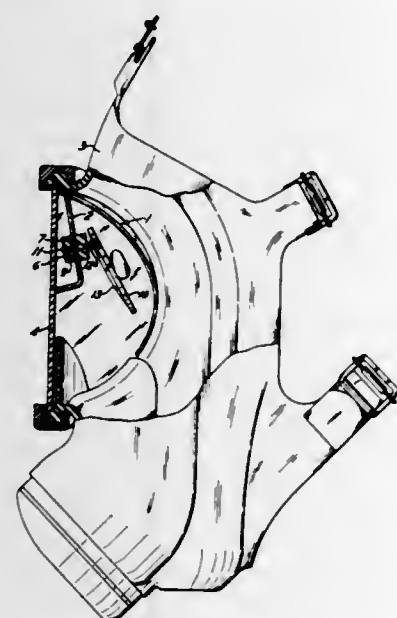


and the vehicle's steering assembly. A manual override is operably connected to the interconnection and is controlled by the operator in the vehicle cab to enable lane scouting and thereby facilitate lane changes during straight-ahead road travel.

3,563,640 DEVICE FOR HOLDING SPECTACLES IN A MASK

Layton A. Wise, Washington, and Elmer E. Buban, Pittsburgh, Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 12, 1968, Ser. No. 751,864
Int. Cl. G02c 3/02
U.S. Cl. 351-158

4 Claims



A friction member is supported for vertical adjustment behind the window of a mask face piece, in which the device can be mounted, and is provided with an opening extending forward from its rear side. A spectacles frame behind the friction member is provided with a central support that extends forward into the friction member opening so that the frame can be adjusted forward and backward.

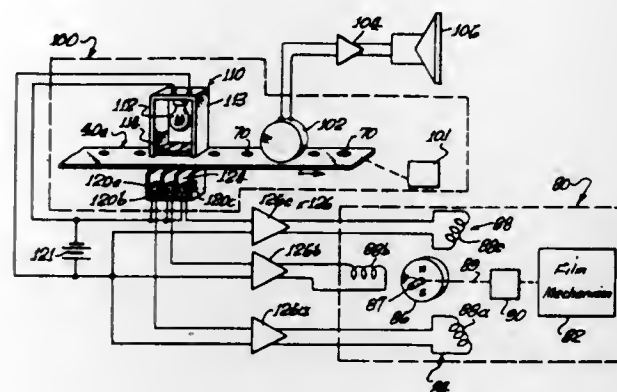
3,563,641 SOUND SYNCHRONIZING SYSTEM Loren L. Ryder, Sherman Oaks, Calif. (1147 N. Vine St., Hollywood, Calif. 90038) Filed Aug. 5, 1968, Ser. No. 750,348 Int. Cl. G03b 31/00

U.S. Cl. 352-17

18 Claims

Motion picture film and magnetic sound tape are synchronized by providing on the tape synchronizing sig-

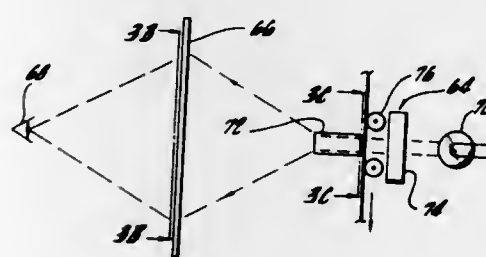
nals of a form that can be sensed with the tape stationary and by sensing such signals in multiphase. The camera or projector is driven by multiphase current derived from the respective signal components, using a step-synchronous motor. The tape can then be driven without compromising the sound quality, and the film maintains sync during stop, start and reversal of the tape. The sync signal of stationary readable form may comprise a punched hole or other visible mark for each picture frame. Such marks are readable by photosensors and



facilitate hand synchronization, especially during editing. The stationary readable signal may be pre-recorded on the tape and employed to drive the camera during recording and to drive the projector during reproduction. Or, if a camera-generated sync signal is magnetically recorded on the tape along with the sound, that signal can be later sensed magnetically and a stationary readable signal applied to the tape under its control. Such conversion permits many tapes recorded by previous processes to be reproduced by the present method.

3,563,642
PROJECTION SYSTEM
Arthur Rak, Altadena, Calif., assignor, by mesne assignments, to Bell & Howell Company, Chicago, Ill., a corporation of Illinois
Filed Aug. 28, 1967, Ser. No. 663,873
Int. Cl. G03b 21/10, 21/43
U.S. Cl. 352-40

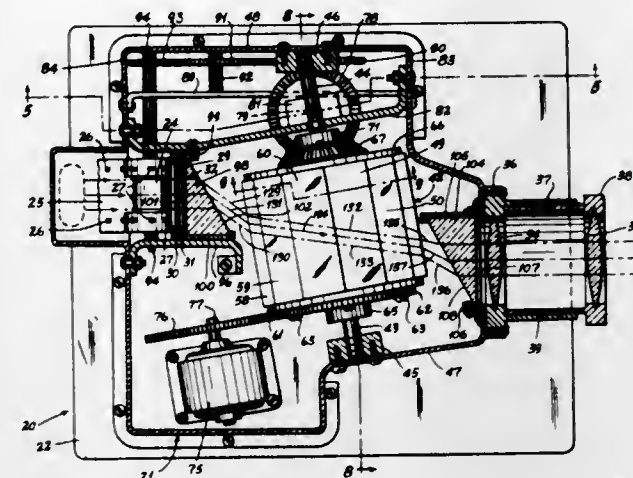
13 Claims



A projection system for use in presenting backlighted projections. In this system a motion picture projector equipped with a conventional right-hand sprocket drive engages a motion picture film along the sprocket holes provided on the right-hand edge of the film, but differs from other projection systems in that the physical locations of the lens and light source in the projector are reversed. With this arrangement light from the source is directed at and through the film from the film side normally adjacent the lens and exits through an aperture provided in the rear of the projector. Illumination emanating from the projector is then directed onto the backlighted screen without the interposition of any optical or reflective elements.

3,563,643
OPTICAL COMPENSATOR
Viktor Jeney, 15 Beverly Place, St. Louis, Mo. 63112
Filed Jan. 2, 1968, Ser. No. 694,990
Int. Cl. G03b 41/08
U.S. Cl. 352-119

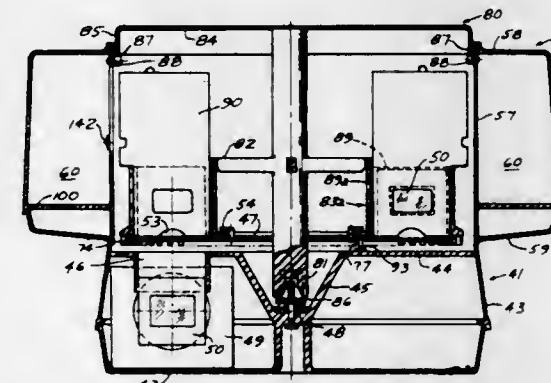
11 Claims



An optical compensator to enable continuous and uninterrupted motion of movie film in a movie projector, camera or viewer. A rotating multi-faced prism is oriented with its axis inclined to the direction of the rays passing through the film and lenses to establish a greater effective prism diameter, thereby enabling use of a prism with faces equal in height to the height of the picture sections of the film. The prism enables the projection of stationary images from a film advanced with a uniform speed, synchronized with the rotational speed of the prism so that at all times the deviation of the beam of light caused by the refraction through the prism is equal with and opposite in direction to the displacement of the film. Triangular light refracting prisms on opposite sides of the rotary prism permit more compact construction of the optical compensator.

3,563,644
SOUND SLIDE PROJECTOR SYSTEM
William Castedello, Southington, and Ray L. Marquis, Brookfield, Conn., assignors to The Kalart Company Inc., Plainville, Conn., a corporation of New York
Filed May 12, 1969, Ser. No. 823,812
Int. Cl. G03b 31/06
U.S. Cl. 353-19

26 Claims

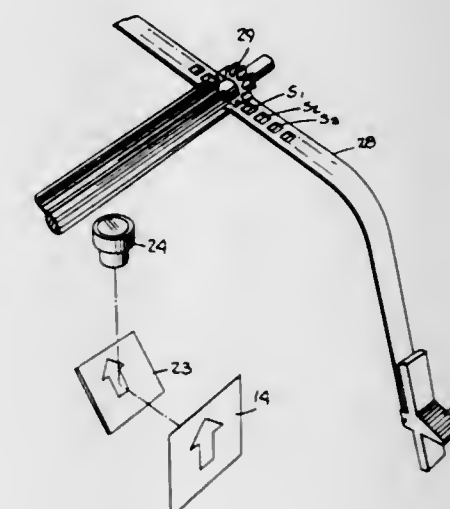


A sound slide projector system for projecting still pictures, particularly slides, and playing back sound recorded on magnetic tape or recording sound on such tape including a projector comprising a tray for accommodating a plurality of cassettes each including magnetic tape from which sound is to be played back or on which

sound is to be recorded and a compartment for releasably retaining a slide to be projected. The tray has a plurality of compartments open at the bottom and each accommodating one of the cassettes and is movable with reference to a platform including a discharge slot. Stepwise movement of the tray brings successive cassettes into registry with the discharge slot to permit dropping of the respective slide into a presentation position. Each slide is returned from the presentation position into the respective cassette upon completion of a presentation. The sound projector further has an optical system for projecting a slide in the presentation position and a sound system for reproducing sound from the tape of the respective cassette or recording sound on such tape. A common drive mechanism including a play-back capstan pulls the tape in a cassette in the presentation position past the sound head of the projector and a common rewind mechanism including a rewind capstan rewinds the tape upon completion of a play-back or recording. A cycling mechanism electronically controlled by means of a signal of selected frequency recorded on the tape operates tray moving means, the sound system, the optical system and slide returning means in a predetermined sequence and time relationship. The cycling mechanism may also be utilized to control one or more slave projectors.

3,563,645
COMPACT MICROFILM READER
Frederick A. Burke, Mamaroneck, and Robert C. Schwartz, Jamaica Estates, N.Y., assignors to Motiva Ltd., Jamaica Estates, N.Y., a corporation of New York
Filed Mar. 13, 1969, Ser. No. 806,910
Int. Cl. G03b 23/08
U.S. Cl. 353-27

9 Claims



A microfilm reader adapter to project selected zones or frames of a microfilm record containing a greatly reduced image of a large map or other data, or an array of microfiche frames. The record to be projected is laminated to or printed on the transparent window of a rectangular carrier which is shiftable in X and Y coordinates with respect to the optical axis of an optical projection system arranged to concentrate light on a limited zone or frame on the record. The carrier is insertable between two pinions rotatably mounted at spaced positions at right angles to each other, the upper pinion engaging racks formed on the top face of one pair of parallel sides of the carrier, the lower pinion engaging racks formed on the under face of the other pair of parallel sides. Indexing means are provided to rotate the pinions and thereby incrementally shift the carrier to a position aligning a selected zone or frame on the record with the optical system.

3,563,646

LAP DISSOLVE SYSTEM FOR TRANSPARENCY PROJECTION

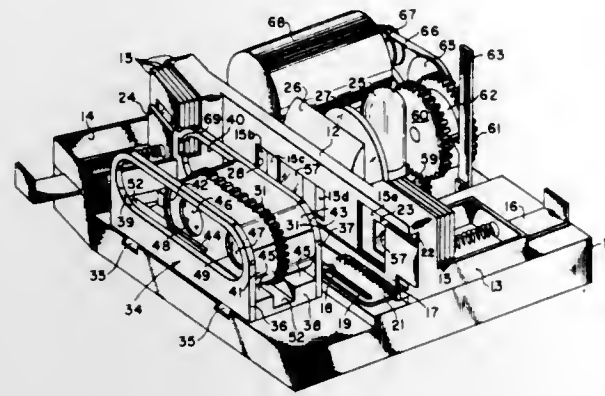
Donald M. Harvey, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Jan. 31, 1969, Ser. No. 795,466

Int. Cl. G03b 27/78

U.S. Cl. 353—83

10 Claims



A dissolving projector includes two objective lens systems movable laterally while in alignment with corresponding laterally movable slides or the like to concurrently remove one slide and its respective lens system from a projection position as the succeeding slide and its lens system move into that position; whereupon the lens system beyond the projection position is transposed into alignment with the slide to be displayed next to complete the repetitive slide changing cycle.

3,563,647

OPTICAL SIGNAL TRANSLATOR

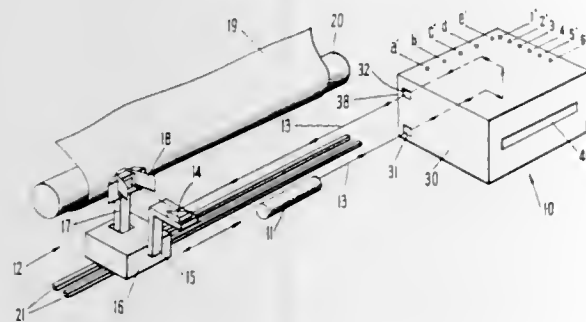
Edward D. Kittredge, Nashua, N.H.
(P.O. Box 152, Kittery Point, Maine 03060)

Filed May 21, 1968, Ser. No. 733,737

Int. Cl. G03b 27/70; B41b 13/00

U.S. Cl. 355—43

4 Claims



An optical signal translator is provided for use in printing and other applications. The signal translator has a first row of first selectors comprising a plurality of light reflecting surfaces for against deflecting the beam of light substantially parallel to the row. A second aligned row of second selectors comprises a plurality of aligned light reflecting surfaces for again deflecting the beam of light. An image means carries a plurality of images in predetermined relationship to the first and second rows. Means are provided for selecting one of the first plurality light reflecting surfaces and moving it into an operative position with respect to the beam of light to cause reflection of said beam of light through a selected one of said images to translate said beam of light into a light image. The optical signal translator is preferably used in

conjunction with a parallel axis light beam which is deflected by the translator to produce a desired image which can be in turn converted into a recorded image.

3,563,648

STEP AND REPEAT CAMERA WITH COMPUTER CONTROLLED FILM TABLE

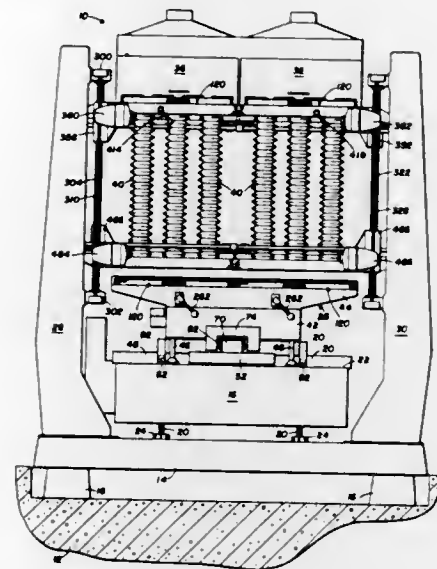
Leonard Baggaley, Richardson, Samuel A. Harrell, Plano, Edmond D. Jackson, Richardson, and Charles Fort and Hans Jaeger, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Oct. 18, 1967, Ser. No. 676,315

Int. Cl. G03b 27/44

U.S. Cl. 355—46

6 Claims



A film support table is movable in the X and Y coordinate directions by X and Y drive systems. A laser interferometer and fringe counter detects movement of the table in the X and Y coordinate directions by fringe counts. A projection system simultaneously projects a plurality of images onto the film carried by the table after the table is moved to each of a plurality of predetermined exposure positions. A reference detector system detects when the table is at a zero reference position and resets the counters. A digital computer is programmed to compute the coordinate of each exposure position and then, based on the current barometric pressure, compute the distance in fringe counts from the reference position to the first exposure position. The computer then operates the drive system in such a manner as to move the table to the exposure position by continuously computing the position and velocity of the table from the readings of the fringe counters. The table is maintained at the exposure position during the exposure period by continuously determining the position of the table from the fringe counters and operating the drive system to produce forces for correcting the positional error. The computer then computes the location of the next exposure position in fringe counts from the reference position based on the then current barometric pressure and the procedure repeated.

3,563,649

APPARATUS FOR MEASURING COPY PAPER CONSUMPTION

Richard J. Biscow, Mount Vernon, N.Y., and Harold W. Timmerman, Ridgewood, N.J., assignors to Savin Business Machines Corporation, New York, N.Y., a corporation of New York

Filed July 11, 1968, Ser. No. 744,019

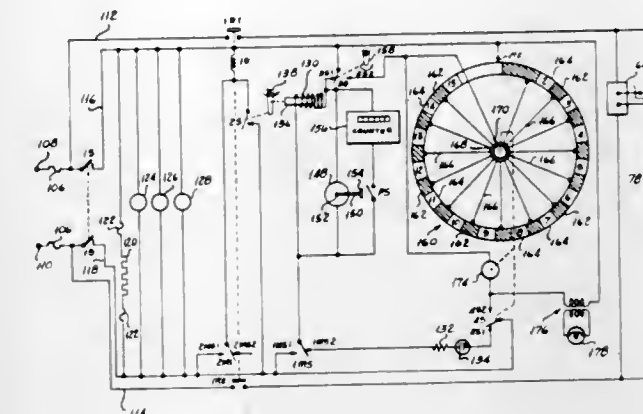
Int. Cl. G03b 27/48

U.S. Cl. 355—50

14 Claims

Apparatus for producing a direct measure of the amount of copy material consumed in a copy machine in which

actuation of a copy paper feed clutch under the control of an original passing through the machine energizes a 60 r.p.m. motor which pulses a counter once each revolu-

**FLASH DISCHARGE LAMP DEVICE FOR PHOTOGRAPHY**

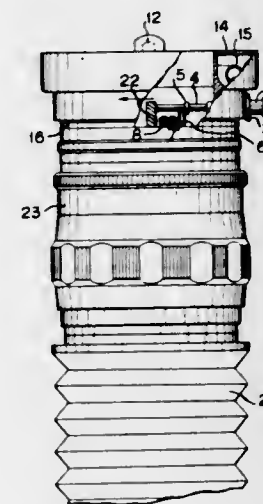
Keno Okuno, Kawasaki-shi, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan, a corporation of Japan

Filed Aug. 5, 1968, Ser. No. 750,055

Claims priority, application Japan, Aug. 26, 1967, 42/73,111

Int. Cl. G03b 27/76

U.S. Cl. 355—71



A flash discharge lamp device is provided for a camera lens for a magnifying or close-up photographic device. An adapter fitting the lens mounting of an inversely mounted lens on the extension bellows secured to the camera body, is provided with an illuminating lamp and a flash discharge lamp. A push button and plunger, upon depression, closes a switch to complete an electrical circuit for the illuminating lamp and operates a diaphragm lever to open the lens diaphragm to its full aperture to permit focussing of the illuminated object to be photographed. Release of the push button opens the switch and permits the diaphragm to be closed down by the diaphragm spring mechanism of the lens to a preset opening and permits a flash exposure to be made in the usual manner.

3,563,651

AIRCRAFT WARNING SYSTEM

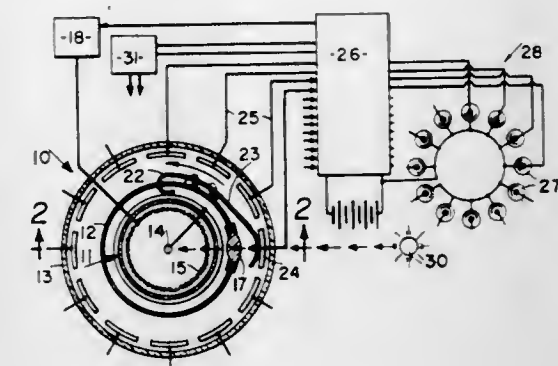
Luis W. Alvarez, Berkeley, and William E. Humphrey, Oakland, Calif., assignors to Optical Research and Development Corporation, Oakland, Calif., a corporation of California

Filed July 22, 1968, Ser. No. 746,375

Int. Cl. G01c 3/08

U.S. Cl. 356—4

13 Claims



An aircraft warning system in which a light source generates light in the wavelength range of 2,000 A. to 3,000 A. and a detector constructed and arranged to sense light only in the wavelength of a source is employed to render activation of a warning device upon detection of a light source. The detector and warning device are used in combination with sensing elements to register bearings of the light source.

3,563,652

HOLOGRAPHIC METHOD OF PHOTOELASTIC STRESS ANALYSIS

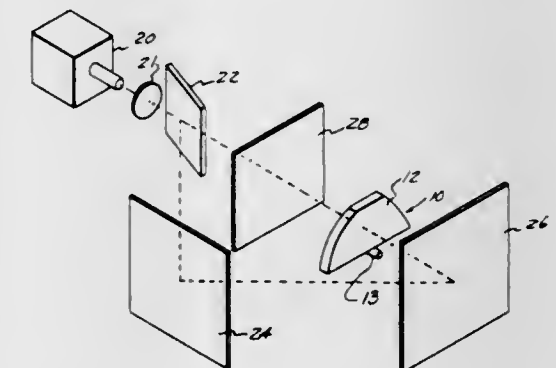
Robert Powell, Ann Arbor, and Joseph Der Hovanesian, Farmington, Mich., assignors, by mesne assignments, to GCOptronics, Inc., Ann Arbor, Mich., a corporation of Delaware

Filed Feb. 13, 1967, Ser. No. 615,809

Int. Cl. G01b 11/16

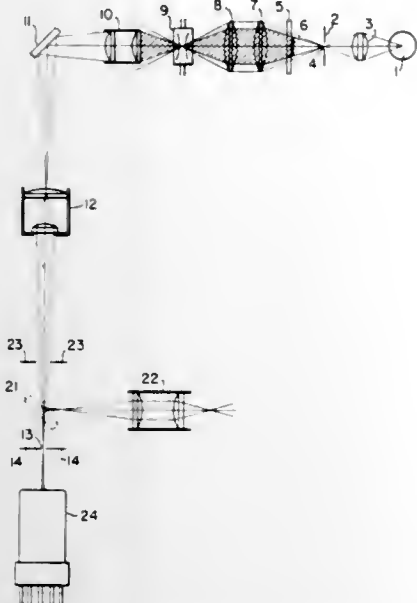
U.S. Cl. 356—32

6 Claims



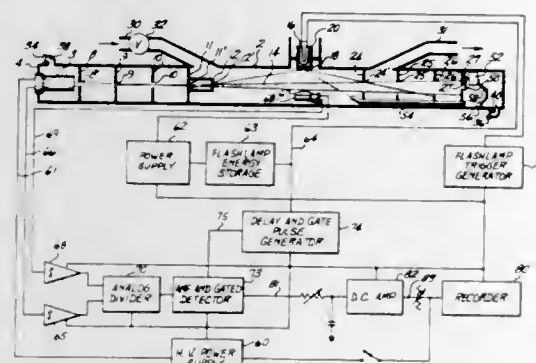
To determine the pattern of stress (or strain) distribution in a member under stress a transparent model of a member is formed and a first exposure hologram or photographic record of the interference pattern between coherent light passed through the model and light directly from the coherent source is made. The model is then stressed and a second exposure is recorded on the same hologram. After developing, the hologram is appropriately illuminated to provide a visual reconstruction of the object with fringe lines visible which constitute the interference pattern between the light rays emanating from the object during the two exposures. These fringes may also be viewed as the interference pattern between the light which reconstructs the images of the object as seen during the two exposures. These fringe patterns contain information relating to both the locus of lines wherein

with size of the particle. The size and shape of the image can be measured mechanically with slit gates. A decrease



3,563,661
INTEGRATING NEPHELOMETER
Robert J. Charlson and Norman C. Ahlquist, Seattle, Wash., assignors, by mesne assignments, to The Battelle Development Corporation, Columbus, Ohio, a corporation of Delaware
Continuation-in-part of application Ser. No. 729,812, May 16, 1968. This application Aug. 29, 1969, Ser. No. 854,214
Int. Cl. G01n 21/00, 21/12, 21/21
U.S. Cl. 356—103

15 Claims

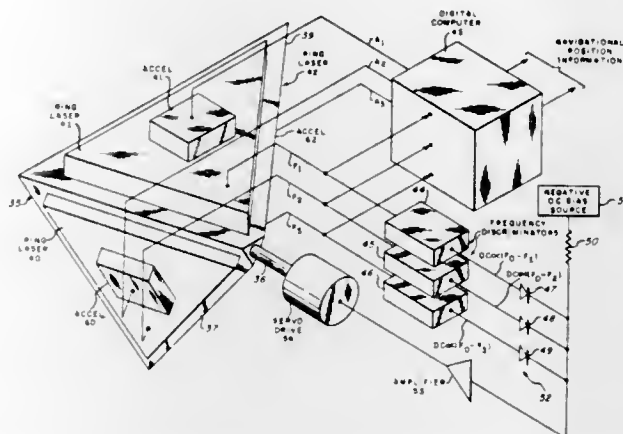


An improved integrating nephelometer applicable for mobile or static monitoring of the atmospheric extinction coefficient by measuring the extinction coefficient due to the scatter of light in a sample of atmospheric aerosol. A flashlamp aims a light pulse directly at a reference phototube through the sample, and indirectly at a measuring phototube which has a predetermined beam pickup. The intensity of the light pulse reaching the reference phototube establishes a standard against which the intensity of the light pulse scattered by the aerosol may be measured. The two phototube output signals are integrated, then passed through an analog device which divides the measuring phototube signal by the reference phototube signal to eliminate variations in readings due to fluctuations in light intensity. The analog device output is a voltage pulse which is amplified and passed through a delayed gate circuit which allows the light pulse to be completed and the analog divider to stabilize. The delayed gate circuit samples and holds the voltage level of the pulse, producing a DC signal which is averaged to provide an indication directly proportional to the extinction coefficient due to light scattering. Secondary indicating scales

are provided for mass concentration and visual range. Modifications allow use of the nephelometer for measuring the wavelength dependence of the extinction coefficient due to light scattering and for the measurement of the properties of deliquescent aerosols.

3,563,662
APPARATUS FOR SENSING MOVEMENT ABOUT A PLURALITY OF AXES
Willis G. Wing, Glen Head, N.Y., assignor to Sperry Rand Corporation, a corporation of Delaware
Filed June 13, 1966, Ser. No. 557,301
Int. Cl. G01b 9/02
U.S. Cl. 356—106

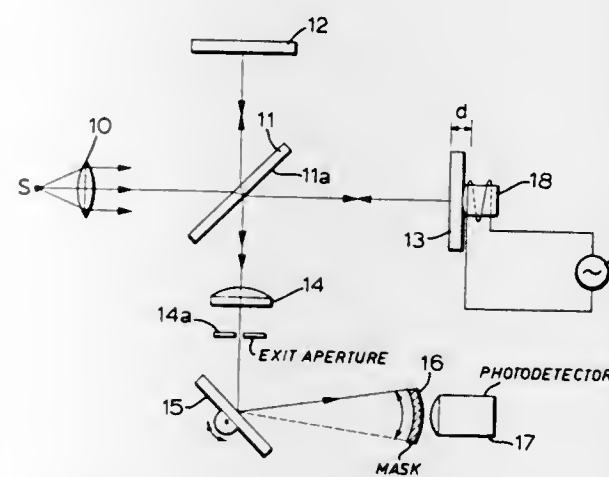
5 Claims



Apparatus for sensing movement about a plurality of axes including a like plurality of ring lasers mounted on surfaces defining a geometric figure, for example, an orthogonally mounted triad of ring lasers mounted on mutually perpendicular surfaces of a cube wherein the cube is rotated about one of its diagonal axes for imparting equal components of rotation to each of the ring lasers thereby eliminating mode locking and assuring that the beat frequency obtained by heterodyning the counter-rotating light waves is linearly related to the component of rotation rate measured parallel to the input axis of the respective ring laser.

3,563,663
ANALYSIS OF SPECTRA BY CORRELATION OF INTERFERENCE PATTERNS
Anthony Rene Barringer, Willowdale, Ontario, Canada, assignor to Barringer Research Limited, Rexdale, Ontario, Canada, a corporation
Filed July 13, 1967, Ser. No. 653,228
Claims priority, application Great Britain, July 13, 1966, 31,363/66
Int. Cl. G01b 9/02
U.S. Cl. 356—106

4 Claims

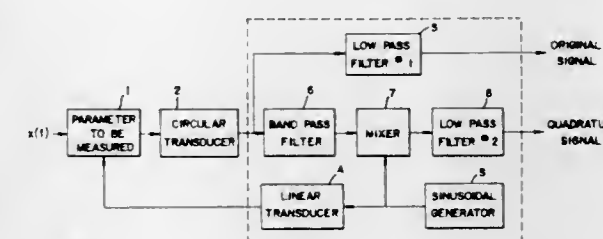


A scanning interferometer of the Michelson type wherein the path length difference of the two interfering beams

in the interferometer is continuously varied in a predetermined manner, and a rotatable mirror is provided for scanning or dispersing the emergent, intensity modulated light synchronously with the varying path length difference across a mask containing a series of lines corresponding to a pattern produced by intensity modulated light of known spectral content.

3,563,664
METHOD AND APPARATUS FOR RESOLVING TRANSDUCER AMBIGUITY
James W. Campbell, 1205 Madeira SE., Albuquerque, N. Mex. 87108, and Virgil Erbert, Albuquerque, N. Mex.; said Erbert assignor to said Campbell
Filed Nov. 9, 1967, Ser. No. 681,686
Int. Cl. G01b 9/02; H01s 3/00
U.S. Cl. 356—106

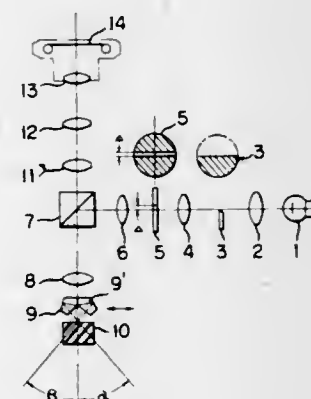
10 Claims



A method and apparatus for resolving ambiguity in the output of circular function transducers by generating a signal in quadrature with the original transducer output is disclosed.

3,563,665
OPTICAL SYSTEM FOR EXAMINING SURFACE PROFILES OF OBJECTS BY THE OPTICAL INTERSECTION METHOD
Kinji Takahashi, Yokohama-shi, and Jinichi Kato, Tokyo, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan, a corporation of Japan
Filed May 13, 1968, Ser. No. 728,392
Claims priority, application Japan, Feb. 7, 1968, 43/8,050; Mar. 22, 1968, 43/21,950
Int. Cl. G01b 11/30
U.S. Cl. 356—120

5 Claims

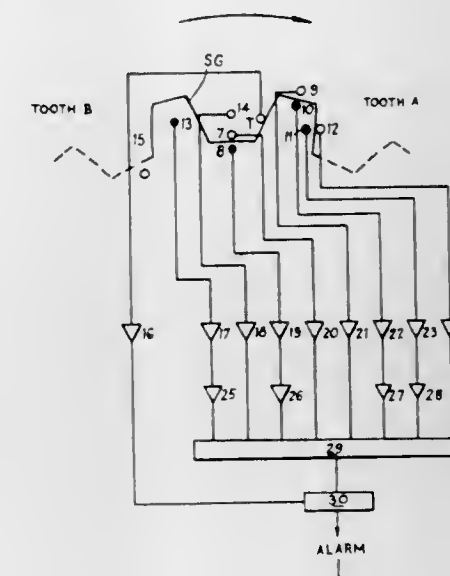


An optical system is provided for examining and photographing surface profiles of specimens by the optical intersection method. A slit element is provided for projecting light rays onto the surface of the specimen to be examined by a mirror or prism on the optical axis of an objective lens, through the objective lens and through a double pentaprism arrangement onto the specimen surface. The specimen reflected light rays again pass through the double prism arrangement and the objective lens to an

eyepiece or the objective lens of a camera. The arrangement is such that the double pentaprism or the slit element is movable transversely relative to the optical axis.

3,563,666
AUTOMATIC INSPECTION OF PROFILES
David B. Foster, Windlesham, England, assignor to North Atlantic Research Products Limited, London, England, a British company
Filed Sept. 9, 1968, Ser. No. 758,313
Claims priority, application Great Britain, Sept. 11, 1967, 41,446/67
Int. Cl. G01b 11/24; G01m 13/02
U.S. Cl. 356—168

1 Claim



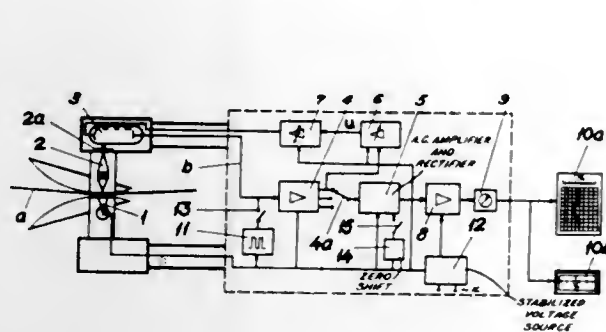
This invention relates to automatic inspection of profiles regularly projecting from a body, examples of which are the inspection of screw threads or gear teeth. In accordance with the invention, a magnified image of the profile is projected onto a receiving surface that includes pairs of photoelectric cells disposed in positions relatively indicative of undersize and oversize dimensions of an ideal profile. These photoelectric cells then establish a decision in electronic logical circuits to which they are connected that the profile is within predetermined gauging limits. A "read now" signal is announced to the logical circuits by a trigger device also disposed in or on said surface.

3,563,667
DEVICE FOR MEASURING THE FORMATION AND THE WIRE MARK OF PAPER
Jouni Aslak Koskimies, Vekarokatu 1, as. 1, and Antti Ilmari Lehtinen, Tourula 27, both of Jyväskylä, Finland; Esko S. Rautala, Lentajantie 1, Harmala, Tampere, Finland; and Timo H. Kuusisto, Peltolamminkatu 21 60, Koivistonkylä, Finland
Filed Feb. 16, 1968, Ser. No. 706,114
Int. Cl. G01n 21/18

13 Claims

A device for measuring paper formation includes a light source projecting a luminous flux through the paper being measured, an optical objective system and an aperture stop upon the light-sensitive cathode of a photomultiplier tube. This tube produces a current which varies depending upon fluctuations in the transparency of the paper and which is amplified in a preamplifier. Another unit amplifies the alternating current component which is again amplified and rectified in a rectifying circuit. The direct current component is amplified depending on the formation of the paper. An instrument is used for checking the operation while an indicating device indicates paper formation. A slow control circuit is used for maintaining

the direct current component at constant magnitude; it includes a slow differential amplifier which is connected to the above-mentioned preamplifier and which controls



the high voltage pack. The high voltage pack is connected to the photomultiplier tube. Current is supplied to the various parts of the device by a stabilized voltage source.

3,563,668

APPARATUS FOR INSPECTING MICROFILM

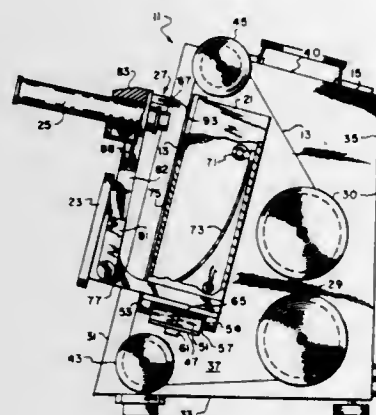
T. O. Palne, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Eugene L. Klein, Cherry Hill, N.J.

Filed May 16, 1969, Ser. No. 825,259

Int. Cl. G01n 21/22

U.S. Cl. 356—203

8 Claims



A microfilm inspection apparatus having reels for transporting microfilm over a light box and a rather large magnifying glass for viewing the film for general defects as it moves over the light box. The apparatus has a microscope adjacent the magnifying glass to obtain detail inspection of any particular frame of the film. Also, an electrical densitometer is pivotally mounted so as to swing into contact with the film and thereby obtain an accurate determination of the film density.

3,563,669

VARIABLE AREA NOZZLE

Chester E. Hockett and Earle R. Wall, Jr., Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed July 10, 1969, Ser. No. 840,625

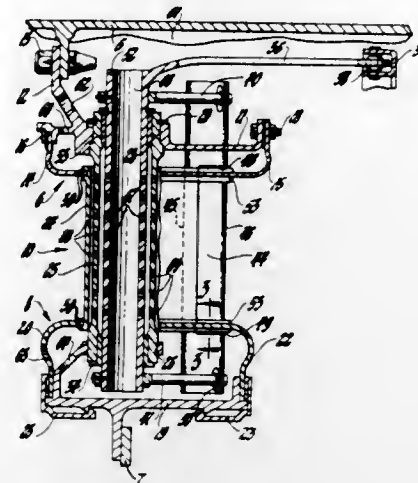
Int. Cl. F01d 5/14, 25/02

U.S. Cl. 415—115

5 Claims

A variable area turbine nozzle includes vanes having the major portion of the vane fixed to the nozzle shroud and having a trailing edge portion which may be reciprocated chordwise of each vane to vary the nozzle throat area. The trailing edge portions are moved by arms fixed on shafts which extend through the adjacent vanes,

these shafts being coupled to a device for rotating them in unison. Provisions for cooling the interior of the fixed



portion of the vane and flowing the cooling air over the surface of the movable portion are included.

3,563,670

MARINE PROPELLER AND ITS MOUNTING

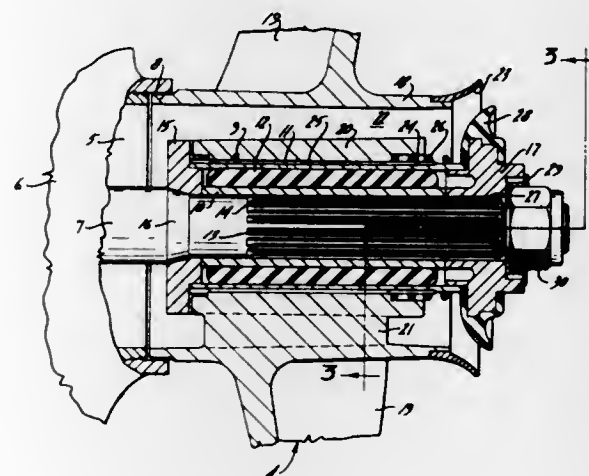
Carl Knuth, Fond du Lac, Wis., assignor to Brunswick Corporation, Chicago, Ill., a corporation of Delaware

Filed Jan. 31, 1969, Ser. No. 795,435

Int. Cl. B63h 21/26, 23/30

U.S. Cl. 416—93

21 Claims



It is disclosed for an engine driven outboard propulsion unit having passage means for conducting the exhaust gases from the engine through said unit, a propeller separable from its slip clutch assembly mounting with provision in the propeller and/or its mounting for receiving the exhaust gases from the propulsion unit passage means and conducting such gases through the propeller hub for discharge rearwardly of the propeller at least during operation of the propulsion unit in the forward direction.

3,563,671

PUMP CONTROL

Anthony V. Weber, St. Louis County, Mo., assignor to Weber Industries, Inc., St. Louis, Mo., a corporation of Missouri

Filed Oct. 1, 1969, Ser. No. 862,711

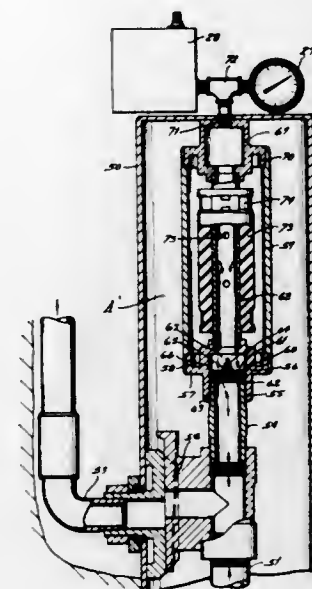
Int. Cl. F04b 49/02, 49/06, 49/08

U.S. Cl. 417—38

9 Claims

A pump control adapted for use within a pump system having an outlet pipe and with said control being

connected to said outlet pipe. Said control comprises an expansible pressure chamber in communication with said pump outlet pipe through a by-pass; there being a valve disposed across the normally direct flow path between said outlet pump and said pressure chamber and



being subjected to the pressure differential. A pressure switch as of the diaphragm type is presented for response to pressure within said pressure chamber and connected to said pump for de-energizing same upon the attainment of a predetermined pressure within said pressure chamber.

3,563,672

PUMP CONTROL SYSTEM

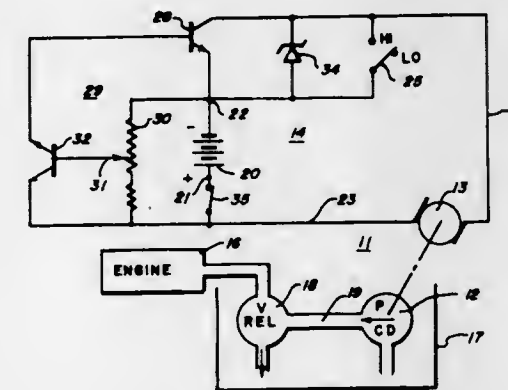
Walter T. Bergstrom, Chagrin Falls, Ohio, assignor to The Weldon Tool Company, a corporation of Ohio

Filed Jan. 14, 1969, Ser. No. 790,924

Int. Cl. F04b 49/06

U.S. Cl. 417—45

28 Claims



A fluid pump is driven by an electric motor and has an increasing fluid output with increasing motor and pump speed and the electric motor has increasing speed with increasing applied voltage. An electrical circuit is connected for driving and controlling the motor and is responsive to an increase in pressure on the outlet side of the pump to cause a decrease in motor applied voltage to thus reduce the motor speed and the fluid output of the pump. The foregoing abstract is merely a résumé of one general application, is not a complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.

3,563,673
ULTRA HIGH VACUUM DIFFUSION PUMP FLUID AND METHOD OF USING SAME

Kohel Sakuma, Chiba-ken, and Hisashi Oikawa and Syubel Tanimori, Tokyo, and Masayasu Takao, Chiba-ken, Japan, assignors to Lion Fat & Oil Co., Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Filed Dec. 12, 1968, Ser. No. 783,435

Claims priority, application Japan, Dec. 19, 1967,

42/81,309

Int. Cl. C07c 15/24

U.S. Cl. 417—152

5 Claims

An ultra high vacuum diffusion pump fluid which serves to produce a desired degree of vacuum less than 10⁻⁹ torr, consists essentially of the condensation product of an olefin having twenty to twenty-four carbon atoms with naphthalene, methylnaphthalene or ethylnaphthalene.

3,563,674

ASPIRATING DEVICE

Donald L. Moffat, North Scituate, and Gardiner M. Williams, Warwick, R.I., assignors to General Signal Corporation, a corporation of New York

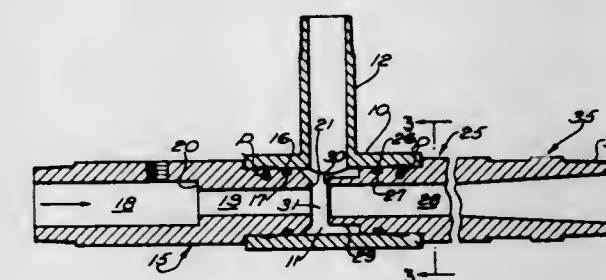
Filed July 16, 1968, Ser. No. 745,299

Int. Cl. F04f 5/00, 5/16, 5/44

U.S. Cl. 417—196

1 Claim

An aspirating device comprising a nozzle and a throat portion with a suction chamber between, the throat por-



tion being coaxial with the nozzle and of a greater diameter, the suction chamber being of a diameter greater than the throat portion wherein the relative diameters and lengths of the parts are significant.

3,563,675

HYDRAULIC PUMP

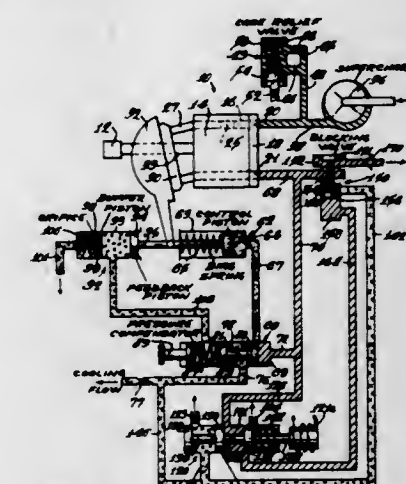
Donald A. Straznickas, Rockford, Ill., assignor to Sundstrand Corporation, a corporation of Delaware

Filed Oct. 11, 1968, Ser. No. 766,879

Int. Cl. F04b 1/26, 23/12

U.S. Cl. 417—222

10 Claims



10 INLET
11 BACKFLOW
12 CASE
13 CONTROL
14 PRESSURE
15 SYSTEM INLET

A pressure compensated variable displacement pump for maintaining a substantially constant pump discharge

pressure with a depressurization valve for selectively effecting a reduction in pump discharge pressure by pressurizing the normally low pressure side of a pressure compensator valve constructed to normally maintain a predetermined high pump discharge pressure.

3,563,676

BALLOON INFLATER APPARATUS

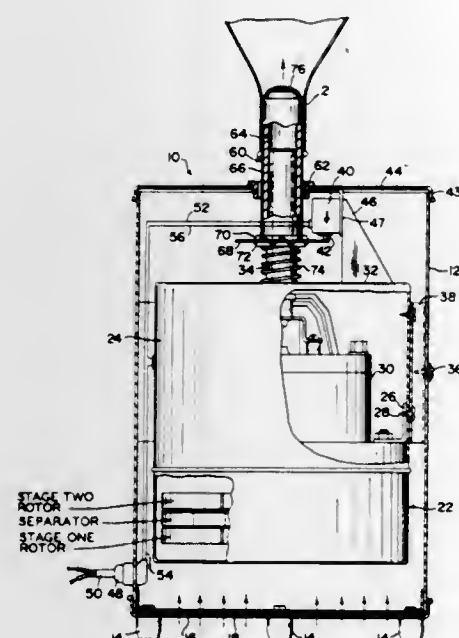
Richard H. Covert and Paul A. Seitz, Willard, Ohio, assignors to The Pioneer Rubber Company, Willard, Ohio

Filed Oct. 21, 1968, Ser. No. 769,023

Int. Cl. F04b 17/00, 35/04

U.S. Cl. 417—410

3 Claims



The balloon inflater comprises a frame positioning an electrically powered air compressor therein adapted to discharge a stream of compressed air in a vertically upward direction. A discharge tube is movably connected to the discharge means and a control switch is operatively associated with the discharge means so that movement thereof can actuate the air compressor to provide an upwardly directed blast of compressed air when a balloon is engaged with the upper end of the discharge tube and it is moved for motor actuation purposes.

3,563,677

COMPRESSOR

Fred S. Retan, Manlius, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware

Filed Apr. 1, 1969, Ser. No. 812,242

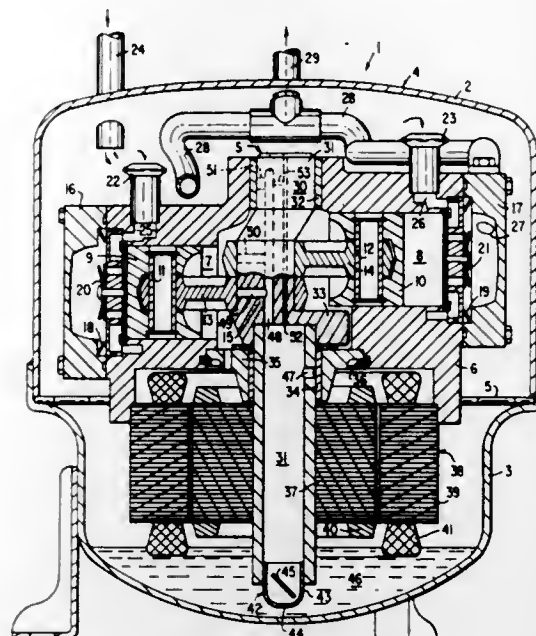
Int. Cl. F04b 35/04

U.S. Cl. 417—415

1 Claim

The present invention is directed to reciprocating compressors for use in refrigeration systems comprising a housing mounting therewithin a compressor block having a vertically extending crankshaft journaled therein which is operatively connected to one or more pistons reciprocally mounted in one or more cylinders defined by the compressor block. The crankshaft comprises an integral upper crank member formed with bearing, eccentric and counterweight portions, and a lower tubular member which interfits at its upper end with the eccentric and counterweight portions of the crank member and supports generally intermediate the upper and lower ends the rotor of the motor mechanism. A crankshaft of this

character has significant manufacturing and operational advantages since the tubular member utilizes a lesser amount of material without sacrifice in strength and



achieves improved oil pumping action, and the crank member, if produced by powder metallurgy, requires less machining and the balance properties are improved.

3,563,678

PUMPS

Peter Sadler, 3 Goodwood Court, Salford 6, Lancashire, England

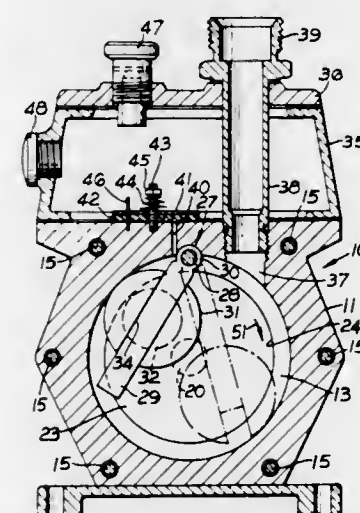
Filed Mar. 24, 1969, Ser. No. 817,234

Claims priority, application Great Britain, Mar. 29, 1968, 15,187/68

Int. Cl. F04c 1/02, 11/00

U.S. Cl. 418—6

2 Claims



A rotary piston pump, wherein a circular piston moves orbitally within a cylindrical pumping chamber within a stator with inlet and outlet ports being provided, one to each side of a pivoting vane cooperating with both the stator and the piston to form a partition in the pumping chamber, characterized in that the rotary piston is carried by a rotary end disc rotated by a main spindle and defining an end wall or part of an end wall of the pumping chamber.

3,563,679

PRESSURE-COMPENSATED GEAR-ROTOR HYDRAULIC MOTOR OR PUMP

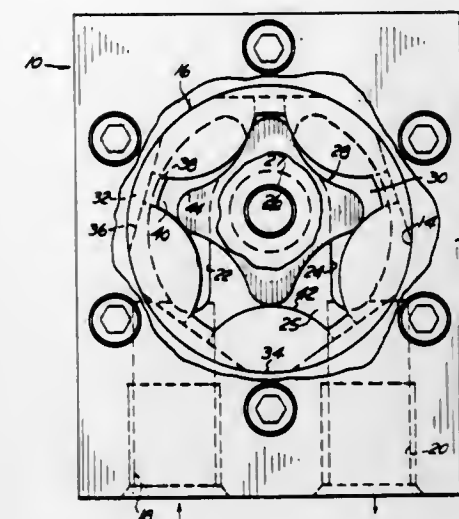
Eugene Richardson, Southfield, Mich., assignor to Lamina, Inc., Oak Park, Mich., a corporation of Michigan

Filed Jan. 9, 1969, Ser. No. 790,086

Int. Cl. F01c 1/10; F04c 1/06

U.S. Cl. 418—72

8 Claims



Rotatably mounted in a cylindrical rotor bore in a housing block containing fluid inlet and outlet ports is an annular outer internal-gear-rotor containing an approximately star-shaped opening having inwardly-projecting teeth or lobes separated from one another by truncated V-shaped recesses. Rotatably mounted within this star-shaped opening of the outer gear rotor is an inner external-gear rotor having outwardly-projecting teeth or lobes meshing snugly with the recesses between the teeth of the outer internal gear rotor. The inner rotor is mounted on a rotary shaft having its axis disposed eccentric to the axis of rotation of the outer rotor, and is provided with one less tooth or lobe than the outer rotor. Segmental circumferentially-spaced pockets are formed in the periphery of the outer rotor and are connected by fluid passageways to the recesses between the internal teeth of the outer rotor. A portion of the pressure fluid developed, during operation, between the internal and external teeth of the two rotors passes through these passageways into the peripheral pockets of the outer rotor, thereby applying a standing external pressure against the periphery of the outer rotor. This standing external pressure counterbalances the internal pressure against the annular outer rotor and consequently prevents the expansion and binding thereof against the side wall of the rotor bore, as occurs in conventional gear rotor motors or pumps operated at high speeds and pressures.

3,563,680

ROTARY PISTON APPARATUS

Wilhelm Jehle, Blumberg-Zollhaus Baden, Germany, assignor to Karlheinz Bernhard Kindermann, Blumberg, Germany

Filed Jan. 7, 1969, Ser. No. 789,563

Claims priority, application Germany, Jan. 8, 1968, P 16 01 817.0

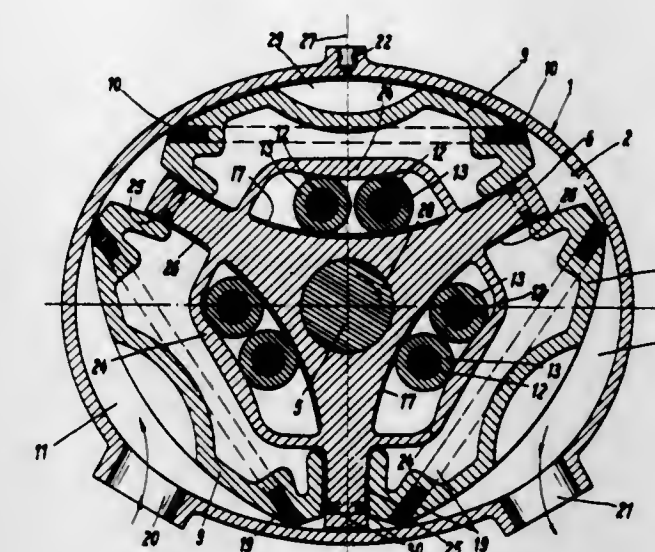
Int. Cl. F03c 3/00

U.S. Cl. 418—237

19 Claims

A rotary piston apparatus such as a motor, pump or compressor which includes a cylinder having an inner pe-

ripheral surface of oval cross section and rotary piston means centrally arranged in the cylinder and comprising a spider and a plurality of sealing members engaging the



inner surface of the cylinder and being carried by the spider and guided on arcuate guide faces of the latter for limited movement with respect thereto.

3,563,681

ELECTROTHERMAL FURNACE CONTROL

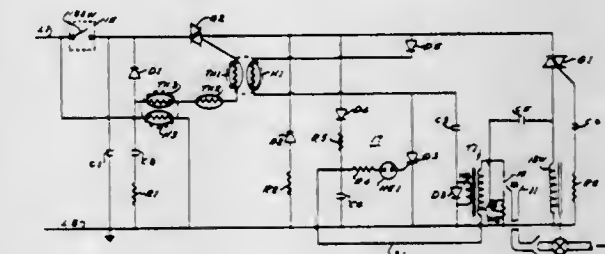
Hans G. Hirsbrunner, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed June 30, 1969, Ser. No. 837,823

Int. Cl. F23h 5/00

U.S. Cl. 431—66

21 Claims



Apparatus for controlling the operation of a furnace having an electrically energizable fuel valve which, when energized, supplies fuel to the furnace burner. An ignition circuit generates recurrent sparking, when energized, upon the demand of a thermostat, and ceases to generate sparking after ignition of the fuel. A triac is connected for energizing the fuel valve. A triggering circuit for the triac causes triggering thereof only if the ignition circuit generates sparking. A thermistor prevents triggering of the triac if heated above a predetermined threshold. Means for heating the thermistor is energized to cause heating thereof when the ignition circuit generates sparking, the thermistor requiring a predetermined heating time interval to reach its threshold temperature causing termination of triggering of the triac if the fuel is not ignited within this interval.

3,563,682

PRESSURE-ACTUATED LIGHTER

Helmut Bross, Biberittalstrasse 24, Altenberg,
near Nuremberg, Germany

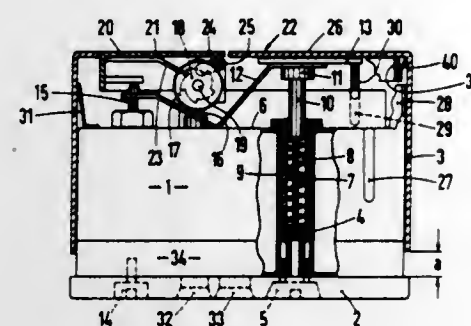
Filed Jan. 22, 1969, Ser. No. 793,067

Claims priority, application Germany, July 27, 1968,
MR 6,222, MR 6,223, MR 6,224

Int. Cl. F23q 1/04

U.S. Cl. 431-130

9 Claims



A pressure-actuated pocket lighter which comprises a housing having two parts movable toward each other to operate the lighter, and having an upper surface which is divided into at least two sections which together form a substantially smooth, continuous surface when the lighter is not actuated, and in which one of these sections forms the actuating surface of one housing part which is adapted to be depressed to operate the lighter, while the other sections forms the upper surface of an element which, when the actuating surface is depressed, either remains in a fixed position or moves in a direction substantially opposite to the depressing movement.

3,563,683

INDUSTRIAL BURNER

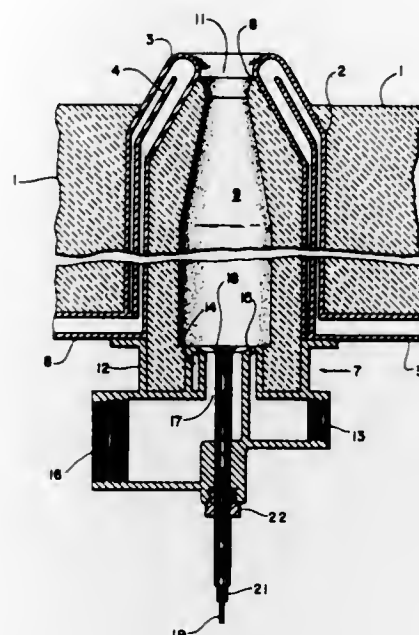
Frederic O. Hess, Skytop, Pa., assignor to Selsas Corpora-
tion of America, a corporation of Pennsylvania

Filed Apr. 3, 1969, Ser. No. 813,221

Int. Cl. F23d 11/36

U.S. Cl. 431-160

4 Claims



A submerged combustion type burner that is located in a furnace wall below the level of the material being heated. Provision is made to remove the burner without losing material through the opening from which it was removed.

CHEMICAL

3,563,684

DYEING KERATINIC FIBERS AND HUMAN HAIR WITH PARA-DIAMINES AND COUPLERS

Roger Charle, Soisy-sous-Montmorency, and Grégoire Kalopissis and Jean Gascon, Paris, France, assignors to Societe anonyme dite: L'Oreal, Paris, France

No Drawing. Filed Feb. 25, 1965, Ser. No. 435,346

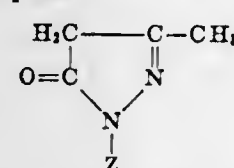
Claims priority, application France, Mar. 2, 1964,
965,802

Int. Cl. A61k 7/12

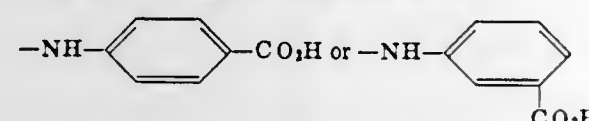
U.S. Cl. 8-11

7 Claims

The invention relates to dyeing keratinic fibers with a 1-amino-4-amino-benzene which can have halogen, alkyl or alkoxy groups on the benzene ring and a coupler selected from the group consisting of substituted phenols, $R_3CO-CH_2-COR_4$ and



in which R_3 and R_4 are both $-CH_3$, R_3 is $-CH_3$ and R_4 is $-OC_2H_5$ and R_3 is phenyl and R_4 is



and Z is a sulphophenyl or chloro-sulphophenyl.

3,563,685

DYEING POLYAMIDE FIBERS WITH A YELLOW MONAZO ACID DYE

Stanley B. Speck, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

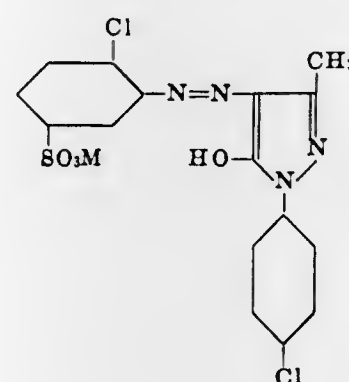
No Drawing. Filed Apr. 27, 1967, Ser. No. 634,110

Int. Cl. D06p 1/02, 1/86

U.S. Cl. 8-41

2 Claims

Dyeing polyamide fibers with a dyebath containing disodium dodecylphenylether disulfonate and the yellow acid dye of the following structure



where M is H, ammonium radical or alkali metal.

3,563,686

DYEING PREPARATIONS FOR THE MANUFACTURE OF WATER-INSOLUBLE AZO DYESTUFFS ON TEXTILE MATERIAL OF AROMATIC POLY-ESTERS OF TRIACETYL CELLULOSE

Helmut Arm and Helmut Bentler, Langen, Hasso Hertel Offenbach am Main, and Rudolf Lowenfeld, Buchschlag, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed May 10, 1968, Ser. No. 728,345

Claims priority, application Germany, May 13, 1967,
F 52,405

Int. Cl. D06p 1/18

U.S. Cl. 8-44

6 Claims

Dyeing preparations for the manufacture of water-insoluble azo dyestuffs on textile material of aromatic polyesters or triacetyl cellulose consisting of (a) an arylamide of 2,3-hydroxynaphtic acid, (b) an aminobenzene which further contains substituents other than sulfonic acid or carboxylic acid groups, (c) a water-soluble condensation product of an aromatic hydroxy compound and an aromatic ω -methane-sulfonic acid, and (d) water.

3,563,687

BLEACHING COMPOUNDS AND METHOD

John R. Moyer, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Mar. 12, 1968, Ser. No. 712,475

Int. Cl. D061 3/02

U.S. Cl. 8-111

2 Claims

In oxidizing and bleaching solutions containing organic monoperacids and/or salts thereof, the improvement which comprises providing a pH of at least about 9.0 in said bleaching solution thereby to substantially prevent the fading of color dyes in textile materials. In dry solid bleaching compositions containing at least one peroxygen compound and at least one organic acid anhydride and which when dissolved in an aqueous solution, yields an organic monoperacid and/or salt thereof as a bleaching and oxidizing agent, the improvement which comprises: including in said composition a sufficient quantity of a solid base compound to provide a pH of at least about 9.0 in said aqueous solution to assure a color-safe bleaching solution.

3,563,688

PROCESS FOR ADDING LEAD TO COTTON BY USE OF REACTION BETWEEN DEAE, CELLULOSE AND ALKALINE SOLUTION OF SODIUM PLUMBITE

Truman L. Ward and Ruth R. Benerito, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed May 27, 1969, Ser. No. 828,331

Int. Cl. D06m 1/00

U.S. Cl. 8-116

2 Claims

This invention relates to a process for adding lead to cellulosic fabric by reacting diethylaminoethyl (DEAE) cellulose with an alkaline solution of sodium plumbite.

3,563,689

PROCESS USEFUL TO PRODUCE A FABRIC THAT EXHIBITS IMPROVED FIRE RETARDANT PROPERTIES UTILIZING HALOGENATED OXIRANE AND THIIRANE REACTANTS

Truman L. Ward and Ruth R. Benerito, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed May 1, 1969, Ser. No. 821,118

Int. Cl. D06m 13/08, 13/28, 13/40

U.S. Cl. 8-116.2

4 Claims

A process for increasing the flame resistance of cellulose by adding halogens thereto which comprises treating

diethylaminoethyl cellulose with a halogenated oxirane in the presence of thiourea or with a halogenated thiirane in the presence of an alcohol.

3,563,690

PRODUCTION OF DIMENSIONALLY STABLE AND SHAPE-RETAINING GARMENTS OF CELLULOSIC FABRICS

Heinz Bille, Limburgerhof, Pfalz, and Wilhelm Ruettiger, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Nov. 22, 1966, Ser. No. 596,078

Claims priority, application Germany, Nov. 27, 1965,
B 84,745

Int. Cl. D06m 13/12, 13/34

U.S. Cl. 8-116.3

13 Claims

Dimensionally stable and shape-retaining garments from cellulosic fabrics are prepared by the steps of impregnating the fabric with two different poly-N-methylol compounds, curing one of the poly-N-methylol compounds, making the garment, and then curing the other poly-N-methylol compound.

3,563,691

PROCESS FOR PRODUCING A DEAE CELLULOSIC FABRIC WHICH INCORPORATES REVERSIBLE CROSS-LINKS

Truman L. Ward and Ruth R. Benerito, New Orleans, and Donald M. Solgniet, Metairie, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Apr. 25, 1969, Ser. No. 819,440

Int. Cl. D06m 13/08, 13/28

U.S. Cl. 8-120

4 Claims

Fabrics composed of diethylaminoethylated cellulosic fibers are reacted with halogenated epithiopropenes. The modified fabrics may be cross-linked by treatment with an oxidizing agent. The cross-linkages may be broken by treating the fabric with a reducing agent.

3,563,692

DIETHYLAMINOETHYLATED CELLULOSE WEAK BASE ANION EXCHANGER CONTAINING SULF-HYDRYL GROUPS

Truman L. Ward and Ruth R. Benerito, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Apr. 25, 1969, Ser. No. 819,468

Int. Cl. D06m 13/08, 13/28

U.S. Cl. 8-120

1 Claim

This invention relates to the production of partial cellulose ethers containing sulfhydryl groups and with weak base anion exchange properties through reaction of diethylaminoethylated cellulose with chlorinated thiirane compounds in the presence of certain alcohols.

3,563,693

DRY PROCESS FOR CLEANING GARMENTS

Herman Cohen, Forest Hills, N.Y., assignor to Softex Processing Corporation, New York, N.Y., a corporation of New York

No Drawing. Continuation of application Ser. No. 438,392, Mar. 9, 1965. This application Nov. 5, 1969, Ser. No. 871,525

Int. Cl. D061 1/00

U.S. Cl. 8-142

9 Claims

Furs are cleaned by contacting the fur with an organic dry cleaning liquid mixed with ground pith of corn stalks.

tween fluidized salt particles and a spray of sulfuric acid in a reaction zone maintained at elevated temperature.

This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,563,702

PRODUCTION OF CHLORINE DIOXIDE

Harold de Vere Partridge, Wilson, Blaine O. Schoepfle, Snyder, Arthur C. Schulz, North Tonawanda, and Herbert J. Rosen, Yonkers, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed Mar. 5, 1968, Ser. No. 710,648

Int. Cl. C01d 5/02; C01b 11/02, 7/02
U.S. Cl. 23—121 8 Claims

There is provided an improved process for the production of chlorine dioxide and chlorine wherein an alkali metal chlorate, chloride, and a strong acid are reacted in a single vessel in the presence of a relatively small amount of a catalyst selected from the group consisting of vanadium pentoxide, silver ions, manganese ions, dichromate ions, and arsenic ions.

This process, especially one of the preferred embodiments thereof wherein the acidity of the reaction mixture is maintained at below about 4 normal, is superior to and more efficient than prior art processes.

3,563,703

PROCESS FOR TREATING PHOSPHATE ROCK

Ernest C. Camp, Jr., College Park, Ga., assignor to Cities Service Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 29, 1968, Ser. No. 725,139

Int. Cl. C01b 25/22; C01f 11/38
U.S. Cl. 23—165 11 Claims

This is an improved process for producing phosphoric acid from natural phosphate rock by acidulating the rock with from about 75 to 85% by weight nitric acid, and thereafter precipitating anhydrous calcium nitrate from the acidulate. In general, the anhydrous calcium nitrate is precipitated by increasing the content of nitric acid in the acidulate. When employing this two-step process, a phosphoric acid solution is obtained which is easily separated from the anhydrous calcium nitrate, and is readily converted to a highly water soluble mixer fertilizer having a high plant food analysis.

3,563,704

REMOVAL AND RECOVERY OF SULFUR OXIDES FROM GASES

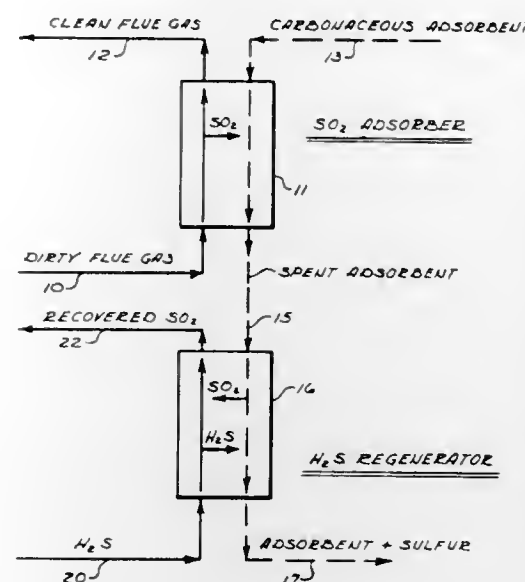
Samuel L. Torrence, Charleston, S.C., assignor to Westvaco Corporation, New York, N.Y., a corporation of Delaware

Filed Aug. 13, 1968, Ser. No. 752,298

Int. Cl. C01b 17/60, 17/16
U.S. Cl. 23—178 11 Claims

A process for removing sulfur oxides from gas streams whereby the sulfur oxides are adsorbed onto a carbonaceous adsorbent and recovering sulfur dioxide from the spent adsorbent by contacting the adsorbent with an oxide-reducing gas, i.e., hydrogen sulfide, whereby

the adsorbed sulfur oxides having been adsorbed as sulfuric acid and sulfur trioxide are reduced to sulfur dioxide and elemental sulfur, then removing the ele-



mental sulfur from the adsorbent by contacting with a sulfur-reducing gas and thereafter recycling the adsorbent.

3,563,705

METHOD OF INHIBITING PUFFING IN THE MANUFACTURE OF GRAPHITE BODIES

Lloyd I. Grindstaff, Elizabethton, Mack P. Whittaker, Johnson City, and Michael F. Baud, Elizabethton, Tenn., assignors to Great Lakes Carbon Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 17, 1969, Ser. No. 807,963

Int. Cl. C01b 31/04
U.S. Cl. 23—209.1 4 Claims

The irreversible expansion of graphitic materials at temperatures of up to 2900° C., which is due to the evolution of sulfur from the carbon aggregate used as starting material, is eliminated by incorporation of as little as 0.05 part by weight of a titanium or zirconium compound per 100 parts of carbon aggregate, e.g. TiO₂, in conjunction with the conventional "puffing" inhibitors of the art.

3,563,706

PRODUCTION OF CARBON BLACK

Thomas J. Gunnell, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Continuation-in-part of application Ser. No. 604,262, Dec. 23, 1966. This application Dec. 29, 1967, Ser. No. 694,563

Int. Cl. C09c 1/50
U.S. Cl. 23—209.4 8 Claims

Carbon black is produced in increased yield by contacting a hydrocarbon feedstock with a first stream of hot combustion gases produced by burning a combustible mixture of a hydrocarbon fuel and an oxidant which contains more than the stoichiometric amount of oxidant required for the burning of said fuel, and contacting the resulting reaction mixture with a stream of hot combustion gases produced by burning a combustible mixture of a hydrocarbon fuel and an oxidant which contains less than the stoichiometric amount of oxidant required for the burning of said fuel. Apparatus is also disclosed.

3,563,707 PROCESS FOR PURIFYING YELLOW PHOSPHORUS

Fritz Krah, Hermulheim, near Cologne, Gero Heymer, Knapsack, near Cologne, and Heinz Harnisch, Lovelich, near Cologne, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany, a corporation of Germany

No Drawing. Filed July 12, 1968, Ser. No. 744,318
Claims priority, application Germany, July 22, 1967, K 62,908

Int. Cl. C01b 25/04

U.S. Cl. 23—223 8 Claims
Process for purifying yellow phosphorus, particularly for reducing its content of arsenic and/or organic contaminants, comprising treating the phosphorus with sulfuric acid with thorough mixing at temperatures between the phosphorus fusion point and 150° C., preferably between 70 and 100° C.

3,563,708

PROCESS FOR THE ASSAY OF 3-CARBALKOXY-4-HYDROXYQUINOLINES

Loyal R. Stone and William H. Ray, Ashland, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed May 29, 1968, Ser. No. 732,882
Int. Cl. G01n 21/52, 21/02, 31/08

U.S. Cl. 23—230 10 Claims
The use of lower aliphatic alcohols containing cations of the alkaline earth metal group in the extraction of 3-carbalkoxy-4-hydroxyquinolines from animal feeds and tissues improves the extractability thereof, increases the intensity of the fluorescence when such solutions are subjected to an activating light, and increases the spread between the wavelength of the activating light and the fluorescent response thus making it possible to greatly simplify the photofluorometric assay procedure.

3,563,709

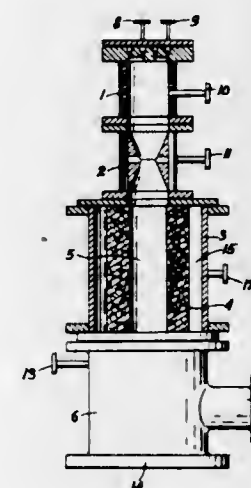
APPARATUS FOR PYROLYZING HYDROCARBONS

Miloslav Staud and Anatolij Lazarev, Brno, Czechoslovakia, assignors to Chepos, Zavody Chemického a Potravinářského Strojrenství, Oborovy Podnik, Brno, Czechoslovakia

Continuation-in-part of application Ser. No. 674,570, Oct. 11, 1967. This application Sept. 17, 1968, Ser. No. 760,240

Claims priority, application Czechoslovakia, Oct. 14, 1966, 6,535/66
Int. Cl. C10g 9/36

U.S. Cl. 23—277 4 Claims



A hydrocarbon raw material is pyrolyzed to lower unsaturated aliphatic hydrocarbons by mixing the raw material with hot combustion gases at a rate sufficient to

heat the mixture above the pyrolyzing temperature. The endothermic reaction is performed in a porous tube while oxygen is being forced into the tube through the wall to supply the thermal energy consumed and to maintain the pyrolysis temperature by oxidation of a portion of the pyrolysis product, particularly hydrogen. The reaction mixture is then quickly cooled.

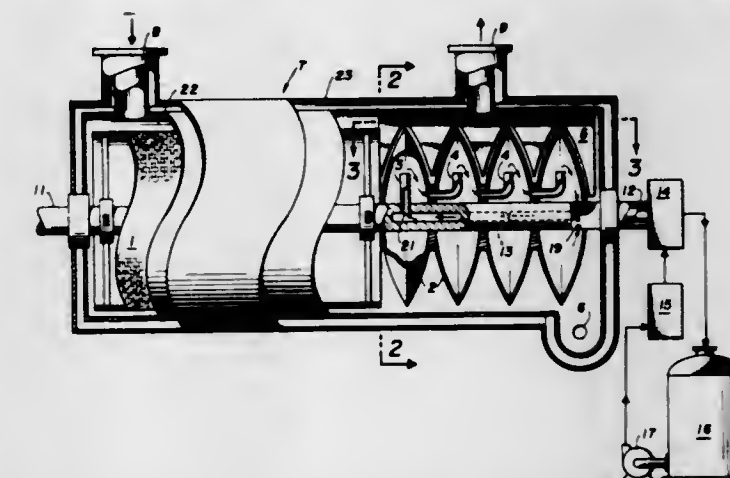
3,563,710

POLYMERIZATION APPARATUS

William F. Dew, Jr., and Allen E. Leybourne III, Decatur, Ala., and Robert E. Colwell, Chapel Hill, N.C., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed Feb. 16, 1968, Ser. No. 705,965
Int. Cl. F28d 11/08

U.S. Cl. 23—285 19 Claims



A continuous polymerization apparatus specifically constructed to provide for controlled temperature, uniform mixing, and excellent surface generation and film formation, having juxtaposed rotor and stator surfaces with a circulating heat transfer medium therein, thereby providing, in conjunction with heat transfer medium temperature control, means to mix the polymer and to provide finite temperature control of the juxtaposed surfaces as well as means to forward the polymer toward the exit end of the reaction chamber; thereby to produce extremely high viscosity high molecular weight polymers.

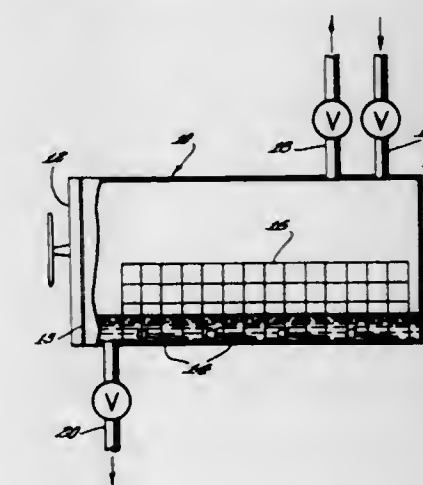
3,563,711

PROCESS FOR REMOVAL OF SILICEOUS CORES FROM CASTINGS

Charles M. Hammond, Alliance, Ronald D. Markle, Minerva, and Robert E. McCracken, Louisville, Ohio, assignors to TRW Inc., Cleveland, Ohio, a corporation of Ohio

Filed July 18, 1968, Ser. No. 745,769
Int. Cl. B01d 11/02; G01b 33/32

U.S. Cl. 23—312 9 Claims



Process for the removal of a siliceous core from a metal casting which involves placing the casting in a

closed vessel, introducing an aqueous caustic alkali solution into the vessel capable of dissolving the core, heating the alkali solution to a temperature for maximum rate of removal but not high enough to attack the casting, thereafter reducing the pressure to induce boiling of the solvent material trapped in the passages in which the core has been partially dissolved by the solution, and repressurizing the vessel, and then repeating the steps of reducing and increasing the ambient pressure until the core is completely dissolved from the casting, the induced boiling and recondensation serving to remove and replace spent leaching solution in the small cored passages.

3,563,712

LAMINATED THERMOSTATIC METAL

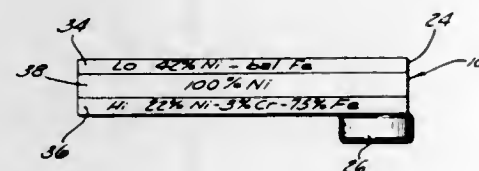
Charles F. Ziegler, 4960 Broomfield Lane,
Birmingham, Mich. 48010

Continuation of application Ser. No. 448,370, Apr. 15,
1965. This application May 2, 1968, Ser. No. 726,113

Int. Cl. B23p 3/00

U.S. Cl. 29—195.5

1 Claim



A three layer laminated metal strip for use in circuit breakers having advantageous flexibility and resistivity characteristics and formed from a high expanding metal lamination, a low expanding metal lamination and an additional lamination disposed between the low expanding and high expanding laminations.

3,563,713

EXPLOSIVE WELDING

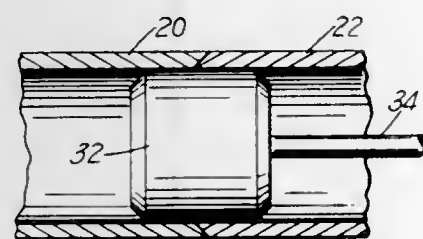
Wallace C. Rudd, Larchmont, N.Y., assignor to AMF
Incorporated, New York, N.Y., a corporation of New
Jersey

Filed Feb. 29, 1968, Ser. No. 709,464

Int. Cl. B23k 1/20, 31/02

U.S. Cl. 29—488

15 Claims



In this disclosure, workpieces which are to be joined by explosive welding are first heated to a desired temperature and then subjected to an explosive force to make the weld. Additionally, when cladding, with an explosive force, a flux is used to maintain the interface spacing.

3,563,714

METHODS AND COMPOSITIONS FOR PACKING COAL

Arthur G. Brewer, Pittsburgh, Pa., assignor to Fluid
Density, Inc., Pittsburgh, Pa., a corporation of Penn-
sylvania

No Drawing. Filed Jan. 2, 1969, Ser. No. 788,646

Int. Cl. C10I 9/00

U.S. Cl. 44—6

5 Claims

A method and composition are provided for treating coal to improve its packed bulk density by mixing light

fuel oil distillate, water and sufficient surfactant to emulsify the oil and water, treating the coal with the mixture and packing the treated coal into a desired vessel.

3,563,715
MOTOR FUELS

Wallace L. Richardson, Lafayette, William T. Stewart,
El Cerrito, and Maurice R. Barusch, Richmond, Calif.,
assignors to Chevron Research Company, a corpora-
tion of Delaware

No Drawing. Filed July 15, 1958, Ser. No. 748,624

Int. Cl. C10I 1/18

U.S. Cl. 44—66

23 Claims

1. A knock-resistant leaded gasoline composition for use in spark ignition engines, said composition comprising (1) gasoline containing paraffinic hydrocarbon content of not more than 95% by volume and a minimum Research octane number of about 90; (2) a lead alkyl antiknock additive in an amount from about 0.5 to about 6.0 cc. per gallon of said gasoline; and (3) a small amount, sufficient to extend the antiknock effect of lead in said gasoline, of a gasoline-dispersible, non-corrosive tertiary alcohol ester of a monocarboxylic acid containing only carbon, hydrogen and oxygen in its molecular structure, said ester being inert with respect to lead alkyls at temperatures up to about 40° C., being present in said leaded gasoline in a concentration from about 3 to about 60 moles per gram-atom of lead in the gasoline.

3,563,716

POTTING QUARTZ GLASS FIBER BUNDLE ENDS

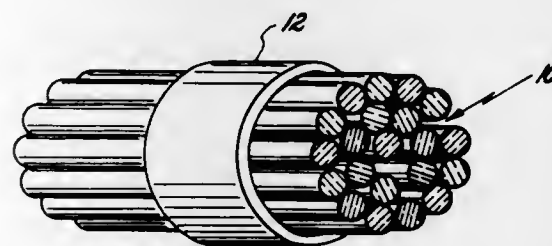
Pei Ching Li, Northbrook, Ill., assignor to the United
States of America as represented by the Secretary of
the Air Force

Filed May 17, 1968, Ser. No. 730,109

Int. Cl. C03c 11/08, 23/20

U.S. Cl. 65—4

2 Claims



The apparatus and method to accomplish fusion of the ends of a bundle of glass fibers by first enclosing the fiber bundle ends within a short length of glass tubing, and then applying the amount of heat necessary to integrate the fibers and the quartz tubing or collar into a single mass.

ERRATUM

For Class 65—30 see:
Patent No. 3,563,057

3,563,717

METHOD OF PRODUCING HOLLOW GLASS BRICKS

Heinz Bertram, Sindorf, Cologne, Germany, assignor to
Compagnie de Saint-Gobain, Neuilly-sur-Seine, France,
a company of France

Filed Jan. 8, 1968, Ser. No. 696,267

Int. Cl. C03b 23/24

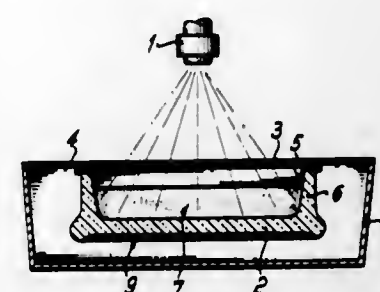
U.S. Cl. 65—58

12 Claims

A method for producing hollow glass bricks with an enamel coating. The method comprises the application of the enamel to the inner surface of half bricks while

they are maintained at room temperature, heating of the half bricks to above their upper glass transformation temperature but below their liquifying temperature while the

surface and across the full width of the sheet of glass. The gaseous fluid increases the pressure of the drawing chamber, controls the temperature of the glass sheet, and



half bricks are resting on one of their narrow sides, and then welding the two half bricks together along edges to form a colored transparent whole glass brick.

3,563,718

METHOD OF SURFACE TREATMENT OF GLASS PRODUCTS

Adomas Bolyaus Paplauskas, Strelbischensky pereulok 27,
kv. 12; Vadim Alexandrovich Ryabov, Pushkinskaya
ulitsa 7/5, kv. 37; Nikolai Ivanovich Semenov, Ulitsa
Panferova 8, kv. 141; Vladimir Vasilievich Anisimov,
Ulitsa Donskaya 28/32, kv. 120; Alexandr Kazimil-
rovich Katarzhls, Astrodamskaya ulitsa 4, vl. 16;
Vsevolod Vasilievich Polyakov, Vorontsovskaya ulitsa
27/35, kv. 62; and Antonina Ivanovna Samokhvalova,
Nizhegorskaya ulitsa 11b, kv. 50, all of Moscow,
U.S.S.R.

Filed May 7, 1969, Ser. No. 822,406

Int. Cl. C03b 27/00

U.S. Cl. 65—61

6 Claims



A method of surface treatment of glass products adapted for producing high-strength glass articles with a transparent or light-diffusing surface by the use of simple techniques and readily available cheap equipment by placing the glass articles into a chamber with a clearance between the treated surface of the article and the inside surface of the chamber and passing a water or steam-water stream through this chamber for 5 minutes past the article.

3,563,719

SHEET GLASS DRAWING METHOD AND APPARATUS

George E. Sleighter, Natrona Heights, and Roy W.
Yunker, Verona, Pa., assignors to PPG Industries, Inc.,
a corporation of Pennsylvania

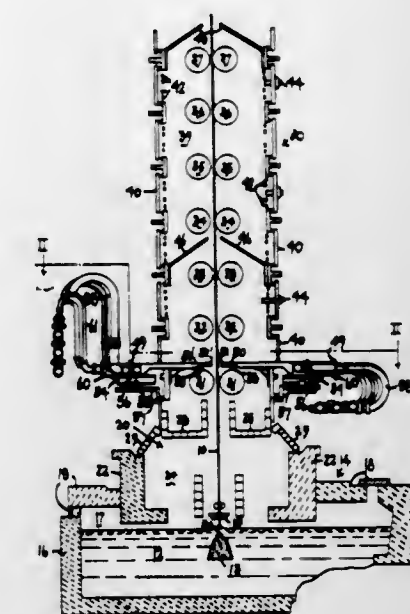
Filed Oct. 2, 1967, Ser. No. 672,378

Int. Cl. C03b 15/12

U.S. Cl. 65—95

9 Claims

Method of and apparatus for pressurizing the drawing chamber in a sheet glass drawing process and controlling the temperature of a sheet of glass being drawn from the chamber through an enclosed drawing machine. Plenum chambers are positioned above the drawing chamber to discharge a substantially continuous, uniform flow of gaseous fluid at a controlled temperature toward each



provides a gaseous barrier which substantially eliminates the natural convective flow of air currents between the drawing chamber and the enclosed drawing machine.

3,563,720

APPARATUS FOR MANUFACTURING A FLOAT GLASS RIBBON OF LESS THAN EQUILIBRIUM THICKNESS

Kunihiko Ito and Yukiya Fujimoto, Maizuru-shi, Japan,
assignors to Nippon Sheet Glass Co., Ltd.

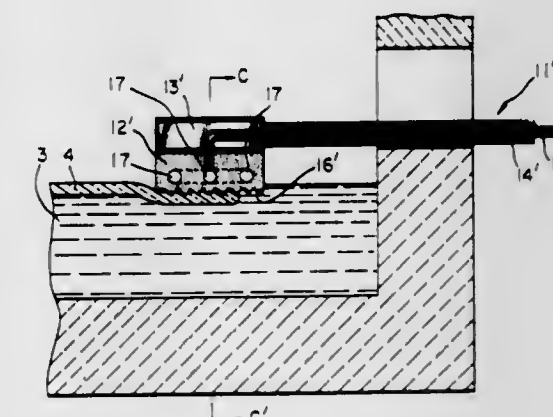
Filed Jan. 3, 1968, Ser. No. 695,399

Claims priority, application Japan, Jan. 10, 1967,
42/2,060

Int. Cl. C03b 18/00

U.S. Cl. 65—182

2 Claims



Apparatus for manufacturing glass ribbon on a molten metal bath, wherein the glass ribbon is pressed down at the both side edge portions where the ribbon tends to be reduced in its width while being pulled longitudinally with a surface of an elongated member made of a refractory material not wettable with the glass, said surface having grooves substantially extending in a direction of the glass advancement, whereby the upper surface of the pressed edge portions of the ribbon is deformed along the grooves on the surface of said refractory material and the decrease in width of the glass ribbon is controlled. The refractory material may be made gas permeably porous so that a pressurized gas may be blown through the surface to reduce the sticking tendency of the molten glass.

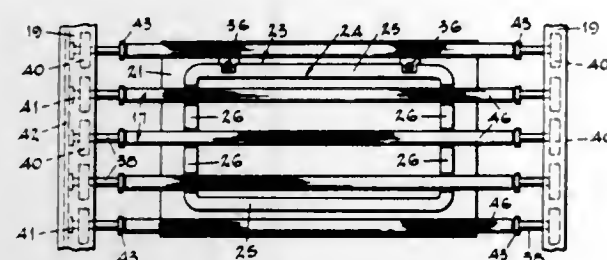
3,563,721

GLASS SHEET SUPPORTING PRESS BENDING, AND CONVEYING APPARATUS
George F. Ritter, Jr., Toledo, Ohio, assignor to Libbey-Owens-Ford Glass Company, Toledo, Ohio, a corporation of Ohio

Filed May 24, 1968, Ser. No. 731,998
Int. Cl. C03b 23/02

U.S. Cl. 65—273

5 Claims



Conveyor rolls for supporting and conveying glass sheets in a press bending apparatus. Each roll comprises a driven shaft and a sheet supporting sleeve surrounding said shaft and adapted for rotation with or relative to said shaft. The shaft has limited friction driving engagement with the sleeve which permits the roll to advance an unrestrained sheet supported thereon but allows slippage to occur between the sleeve and the shaft when movement of the sheet is restrained.

3,563,722

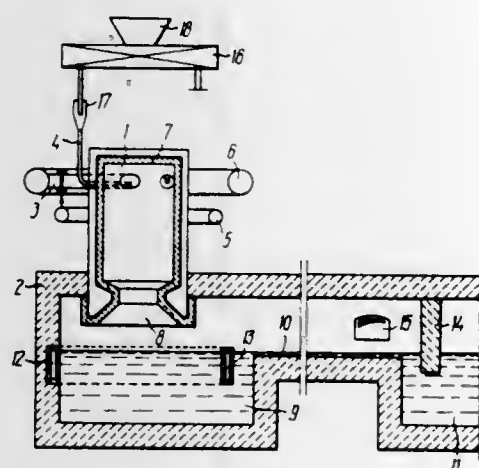
GLASS-MELTING FURNACE

Jury Vasilievich Troyankin, Gollanove, korp. 28, kv. 32; Boris Alexandrovich Sokolov, Derevnaya Khimki 1; Vera Vasilievna Poliyak, B. Semenovskaya ul. 29/2, kv. 47; Yakov Vasilievich Timoshkov, Leninsky prospekt 64, kv. 62; Vadim Alexandrovich Chubinskii, Unversitetsky prospekt 6, korp. 4, kv. 88; Ippolit Ilch Kuksin, B. Tulskaia ul. 54, korp. 2, kv. 73; and Ninel Pavlovna Merezhnikova, Ul. Ietchinka Babshikina 12, kv. 23, all of Moscow, U.S.S.R.; Jury Alexandrovich Knyazev, Bor-3, ul. Shkolnaya 1, kv. 16, Gorky, U.S.S.R.; Nikolai Pavlovich Kabanov, Nizhanaya Maslovka 6, kv. 8, Moscow, U.S.S.R.; and Mikhail Ivanovich Popov, Bor-3, ul. Shkolnaya 9, kv. 7; Dmitry Nikolaevich Shepelev, Bor-3, ul. Myakovskogo 1, kv. 3; and Vera Yakovlevna Starostina, Bor-3, ul. Myakovskogo 1, kv. 21, all of Gorky, U.S.S.R.

Filed Apr. 17, 1968, Ser. No. 722,105
Int. Cl. C03b 3/00

U.S. Cl. 65—335

10 Claims



by weight, from 17 to 22% nickel, from 14 to 19% chromium, from 0.007 to 0.015% carbon, a maximum of 0.015% nitrogen, the total of carbon and nitrogen not exceeding 0.025%, a maximum of 1.5% manganese and 0.02% cobalt, manganese and cobalt are elements which when exposed to a neutron flux are transformed at least in part to radioactive isotopes of high activity, a maximum of 0.5% silicon, other impurities not exceeding 0.5%, and the balance iron. A nuclear fuel element cladding employing said steel is also disclosed.

3,563,729

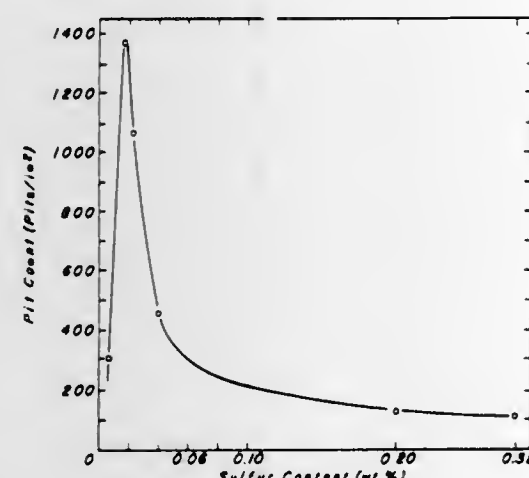
FREE-MACHINING CORROSION-RESISTANT STAINLESS STEEL

Curtis W. Kovach and Arthur Moskowitz, Pittsburgh, Pa., assignors to Crucible Inc., a corporation of Delaware
Filed Apr. 16, 1968, Ser. No. 721,647

Int. Cl. C22c 39/20

U.S. Cl. 75—128

4 Claims



This invention relates to an austenitic stainless steel having improved machinability without sacrifice in corrosion resistance, such being achieved by the addition of sulfur within a critical range of 0.04 to 0.07 percent.

3,563,730

METHOD OF PREPARING ALKALI METAL-CONTAINING ALLOYS

Richardo O. Bach and Arthur S. Gillespie, Jr., Gastonia, N.C., assignors to Lithium Corporation of America, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 5, 1968, Ser. No. 773,663
Int. Cl. C22b 27/00; C22c 1/00, 11/02

U.S. Cl. 75—135

14 Claims

Method of preparing certain alkali metal-containing alloys, particularly certain lithium-containing alloys, comprising vigorously admixing a dispersion of molten alkali metal, particularly lithium metal, in an inert liquid with one or more certain metals or metalloids in finely divided or powder form, at a temperature above the melting point of said alkali metal but below the melting point of the desired alloy, and continuing said mixing until alloying has been effectively achieved.

3,563,731

COBALT-BASE ALLOYS CONTAINING CHROMIUM, CARBON, TUNGSTEN AND NICKEL

Arthur T. Cape, Monterey, Calif., assignor to Coast Metals, Inc., Little Ferry, N.J., a corporation of Delaware

No Drawing. Filed July 28, 1969, Ser. No. 845,582

Int. Cl. C22c 19/00

U.S. Cl. 75—171

2 Claims

A cobalt-base alloy containing chromium, carbon, tungsten and nickel is produced, for use in joining high temperature alloys. The alloy has a relatively high carbon content and a relatively low nickel content, such that a

substantial increase in hardness is effected without sacrifice in toughness and ductility, and a better yield of rods is obtained when the alloy is ground into weld rods.

3,563,732

BEARING ALLOYS OF TIN BASED WHITE METAL

Nobukazu Morisaki, Nagoya, Japan, assignor to Daido Metal Company Ltd., Nagoya, Japan, a corporation of Japan

Filed July 24, 1968, Ser. No. 747,368

Claims priority, application Japan, Feb. 9, 1968, 43/7,755

Int. Cl. C22c 13/00

U.S. Cl. 75—175

1 Claim

The tin based white metal bearing alloy is improved by adding 0.1 to 1.5% of cadmium, 0.001 to 0.1% of beryllium and 0.005 to 0.2% of chromium to the tin based white metal including 78 to 92% of tin, 5.0 to 13% of antimony and 3.0 to 9.0% of copper.

3,563,733

METHODS OF PREPARING RELIEF IMAGES BY ENZYMATIC DIGESTION

Selichi Taguchi, Satoru Honjo, and Eichi Mizuki, Saitama, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan

No Drawing. Filed Jan. 23, 1968, Ser. No. 699,780

Claims priority, application Japan, Jan. 25, 1967, 42/4,898

Int. Cl. G03g 13/22

U.S. Cl. 96—1

6 Claims

A recording method which comprises forming an image corresponding to the difference in the amount of an enzyme, the image being in conformity to an image to be recorded on a material capable of reacting in the presence of an enzyme and causing the reaction of said material with said enzyme by utilizing the enzyme composing said image, whereby the image to be recorded is formed on said material.

3,563,734

ELECTROGRAPHIC PROCESS

Benjamin L. Shely, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Continuation-in-part of applications Ser. No. 403,737, Oct. 14, 1964, and Ser. No. 567,170, July 22, 1966. This application Aug. 28, 1967, Ser. No. 663,818

Int. Cl. G03g 13/08, 13/16, 13/22, 15/08

U.S. Cl. 96—1.4

16 Claims

An exposed photoconductive sheet is contacted with conductive developer powder applied from a conductive surface to which it is adhered while creating a differential electrical field between the photoconductive sheet and the conductive surface containing the adhered developer powder such that developer powder is transferred selectively to the photoconductive sheet in the nonexposed areas and separation of the photoconductive sheet from the source of supply of developer powder is made while still maintaining the influence of the electrical field and provision is made for continuing the attraction of the developer powder to the surface of the photoconductive sheet after the aforesaid separation.

3,563,735

MEROCYANINE DYE SENSITIZED PHOTO-CONDUCTIVE COMPOSITION

Salvatore Emml, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 15, 1968, Ser. No. 744,658

Int. Cl. G03g 5/08

U.S. Cl. 96—1.7

12 Claims

Novel merocyanine dyes useful as photoconductive material sensitizers and such photoconductive materials

sensitized therewith wherein such merocyanine dyes comprise trinuclear dyes of neutral charge having a terminal nucleus comprising thiobarbituric acid or a derivative thereof. A second heterocyclic nucleus of the trinuclear dyes comprises 4-oxothiazole.

3,563,736

PHOTOCONDUCTIVE COATINGS

Frank T. Koehler, Jr., Plainfield, and Albert L. Micchelli, Middletown, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Feb. 12, 1968, Ser. No. 704,569

Int. Cl. G03g 5/08

U.S. Cl. 96—1.8

8 Claims

A photoconductive coating for application to a solid substrate which is to be utilized in electrophotographic operations, said coating comprising a layer of zinc oxide pigment bonded with a copolymer of vinyl acetate and a substituted or unsubstituted mono-ester of maleic acid.

3,563,739

NOVEL PRODUCTS, PROCESSES AND COMPOSITIONS COMPRISING METAL-COMPLEXED DYE DEVELOPERS

Elbert M. Idelson, Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 487,033, Sept. 13, 1965. This application Feb. 11, 1969, Ser. No. 798,438

Int. Cl. G03c 5/54, 1/40

U.S. Cl. 96—29

30 Claims

Photographic products, processes and compositions for forming dye images employing a metal-complexed dye having bonded to the metal-complexing atom by at least one coordinating atom a substantially colorless ligand containing a silver halide developing function, which complexes may be illustrated schematically as follows:

DYE—Me—LIGAND-DEVELOPER

3,563,740

USE OF DICYANAMIDES IN AND WITH PHOTOSENSITIVE SYSTEMS

Grant M. Halst, James R. King, and Lance H. Bassage, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Sept. 28, 1967, Ser. No. 671,218

Int. Cl. G03c 5/54, 5/30, 1/76

U.S. Cl. 96—29

17 Claims

Dicyanamides are incorporated in or employed with silver photosensitive systems. Dicyanamides can be incorporated in silver halide developing compositions to provide greater covering power. They can be employed in low solvent developing compositions to enable such compositions to be used in solvent transfer processes. The silver dicyanamide complex is light sensitive and can be employed alone or in combination with silver halide in photographic emulsions.

3,563,741

PHOTOPOLYMERISATION OF ETHYLENICALLY UNSATURATED ORGANIC COMPOUNDS

Gerard Albert Delzenne, Gravenwez, and Urbain Leopold Laridon, Wilrijk, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium, a Belgian company

No Drawing. Filed Aug. 5, 1968, Ser. No. 749,950
Claims priority, application Great Britain, Sept. 8, 1967, 41,218/67

Int. Cl. G03c 1/68

U.S. Cl. 96—35.1

8 Claims

Photopolymerization of ethylenically unsaturated organic compounds using epoxy ketone initiators.

3,563,738

COPYING PROCESS AND MATERIALS

Kohji Itano, Hachioji-shi, Masashi Nakano, Nishitama-gun, Shochiro Hoshino, Narimune, and Akira Kato, Hachioji-shi, Japan, assignors to Keuffel & Esser Company, Hoboken, N.J., a corporation of New Jersey

No Drawing. Filed Oct. 16, 1967, Ser. No. 675,317

Claims priority, application Japan, Oct. 18, 1966, 41/68,252

Int. Cl. G03c 11/12

U.S. Cl. 96—28

10 Claims

A photocopying and reproduction material useful in copying various colors is provided by combining a first component which is thermally activatable to a tacky super-cooled state with a second light-sensitive component which, when exposed to actinic radiation, changes the heat-activatability and thermal properties of the first component. Actinic exposure and heating in combination with the application of contrasting dust development provides clear copies of original graphics. The materials are useful also in the production of multiple copies.

3,563,742

NOVEL PHOTOSENSITIVE ELEMENTS AND PROCESSES

Georges A. Philpot and Simone J. Kempen, Vincennes, France, assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Nov. 28, 1967, Ser. No. 686,313
Claims priority, application France, May 3, 1967, 104,991

Int. Cl. G03c 1/70, 11/12

U.S. Cl. 96—28

15 Claims

Photographic images can be prepared by exposing to actinic radiation a composition comprising a film-forming binder, a polymerizable monomer, a photodegradable inhibitor which inhibits the polymerization of the monomer and a sensitizing dye which upon photo-exposure catalyzes the photodegradation of the inhibitor and then developing an image by solvent development or thermal transfer.

3,563,743

PROCESS FOR PREPARING REFLECTION REPLICA USED IN OPTICAL PROCESSING SYSTEM

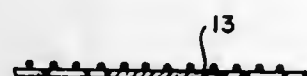
Sam P. Cook, Bellaire, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed June 28, 1967, Ser. No. 649,532

Int. Cl. G03f 5/00, 7/24; G02b 1/10

U.S. Cl. 96—38

5 Claims



A process for improving the quality of the reflection replica used in the optical data processing system described in the copending application of S. P. Cook, Serial No. 451,795, now Patent No. 3,438,693. The improved reflection replica is obtained by coating a flat reflective surface with a photosensitive plastic material and then exposing the coated surface to light that passes through both a transparent display of the information-containing pattern and a light-diffusing screen, such as a halftone screen. The photosensitive coating is then developed so that the portion of the photosensitive coating that remains is permeated by the irregularities corresponding to the pattern of the screen.

3,563,744

THERMIDIAZO COPYING PROCESS

Albert Lucien Poot, Kontich, Jean Marie Nys, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium, a Belgian company

No Drawing. Filed Jan. 9, 1969, Ser. No. 790,149

Int. Cl. G03c 1/58, 5/18

U.S. Cl. 96—49

8 Claims

A thermidiazoo copying material and process therefor wherein a hydrazone compound decomposes upon heating to form a heterocyclic methylene base compound capable of coupling with a diazonium compound to form an azo dye image.

3,563,745

SILVER HALIDE PHOTOGRAPHIC MATERIALS CONTAINING 1-ARYLMETHYL-2-PYRAZOLIN-5-ONE COLOR COUPLERS

Hector Alfons Vanden Eynde, Mortsel, Robert Joseph Pollet, Berchem, and Arthur Henri De Cat, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium, a Belgian company

No Drawing. Filed Aug. 31, 1967, Ser. No. 664,645

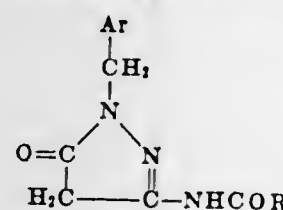
42,824/66

Int. Cl. G03c 7/00

U.S. Cl. 96—56.5

5 Claims

Colorless magenta forming color couplers of the 2-pyrazolin-5-one type having the formula:



wherein:

Ar represents an aryl group, and

R represents an alkyl radical, an aryl radical, an aralkyl radical, an alkoxy radical, an aryloxy radical, an aralkyloxy radical, an alkylamino radical, an arylamino radical or an analkylamino radical

are described. These color couplers have improved stability when stored in humid and warm atmospheres and the white image areas do not undergo discoloration.

3,563,746

USE OF BORANOCARBONATES IN A PHOTOGRAPHIC REVERSAL PROCESS

Otto Ernst and Eberhard Gunther, Leverkusen, Heinz Meckl, Cologne-Flittard, Herbert Odenbach, Bergedorf, Neukirchen, and Willibald Pelz, Opladen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Jan. 27, 1969, Ser. No. 794,397

Claims priority, application Germany, Feb. 14, 1968,

P 16 22 258.5

Int. Cl. G03c 5/50

U.S. Cl. 96—59

6 Claims

A reversal process in the production of positive photographic images, wherein a boronocarbonate is used as a fogging agent in the second development step.

3,563,747

PHOTOGRAPHIC DEVELOPING COMBINATIONS

Jozef Frans Willems, Wilrijk, Antoon Leon Vandenberghe, Hove, and George Frans van Veelen, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium, a Belgian company

No Drawing. Filed Nov. 6, 1967, Ser. No. 680,995

49,658/66

Int. Cl. G03c 5/30, 5/54

U.S. Cl. 96—66

9 Claims

A process and solution for developing exposed silver halide emulsions using a super-additive combination of an anionic silver halide developer such as hydroquinone or a derivative thereof and a bis[pyridone]azine substituted on the nitrogen atoms by an alkyl or an aralkyl group. Development is carried out under alkaline conditions.

3,563,748

PHOTOGRAPHIC MATERIAL CONTAINING A FILTER DYE

Henri Depoorter, Mortsel-Antwerp, Guy Alfred Rillaers, Kontich, Felix Jan Moelants, Wilrijk-Antwerp, and Theofiel Hubert Ghys, Kontich, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium, a Belgian company

Filed Feb. 15, 1967, Ser. No. 616,343

Claims priority, application Great Britain, Mar. 3, 1966,

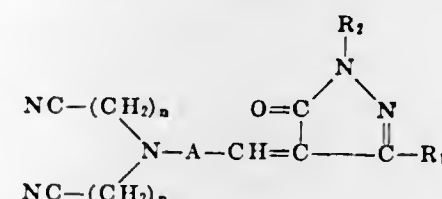
9,351/66

Int. Cl. G03c 1/84

U.S. Cl. 96—84

6 Claims

A light-sensitive photographic material including a dye corresponding to the formula:



wherein:

A is an arylene nucleus, or an arylene nucleus forming part of a fused ring system,

each of R₁ and R₂ is an aryl group, at least one of said

3,563,752

DIAZOTYPE MATERIAL AND DIAZONIUM COMPOUNDS THEREFOR

Georg Werner, Wiesbaden-Bleibach, Arno Brauningner, Wiesbaden, and Siegfried Scheler, Wiesbaden-Schlierstein, Germany, assignors, by mesne assignments, to Keuffel & Esser Company, Hoboken, N.J.

No Drawing. Filed Apr. 18, 1968, Ser. No. 722,174

Claims priority, application Germany, Apr. 22, 1967,

K 62,089

Int. Cl. G03c 1/54

U.S. Cl. 96—91

7 Claims

The use of diazonium compounds derived from unitarily diazotized p-phenylene diamine and substituted in the o-position to the diazo group with a trifluoromethyl group provides a diazotype material of high coupling rate and improved light sensitivity from which may be obtained azo dye images of particularly good light- and water-fastness.

3,563,753

PHOTOGRAPHIC DIRECT-PRINT EMULSION COMPRISING A HYDRAZINE COMPOUND AND FORMALDEHYDE

Richard W. Karlson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Oct. 2, 1967, Ser. No. 671,953

Int. Cl. G03c 1/02

U.S. Cl. 96—94

7 Claims

Photographic direct-print emulsions comprising a hydrazine compound as a halogen acceptor and at least one mole of formaldehyde per mole of said hydrazine compound.

3,563,754

PHOTOGRAPHIC PROCESS

Jean E. Jones and Judith A. Schwan, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Nov. 23, 1966, Ser. No. 596,415

Int. Cl. G03c 1/40, 5/24, 7/16

U.S. Cl. 96—101

17 Claims

Photographic emulsions desensitized with a dye, heterocyclic compound or heavy metal salt are resensitized with a tetrazole, a triazindene, a tetrazindene, a pentazindene, a pyridine or a cyclic disulfide.

3,563,755

TETRAAZAINDENE-STABILIZED PHOTOGRAPHIC EMULSIONS

George De W. Anderson, Hatfield Broad Oak, near Bishops Cleeve, and Ronald E. Watts, Bishops Cleeve, England, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Filed Dec. 5, 1967, Ser. No. 688,022

Claims priority, application Great Britain, Dec. 9, 1966,

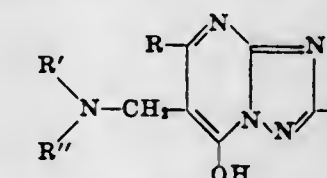
55,364/66

Int. Cl. G03c 1/34

U.S. Cl. 96—109

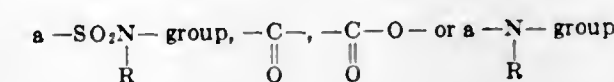
2 Claims

Tetraazindene compounds having the formula



in which R represents a hydrogen atom, an alkyl group or an alkylthio group, R' and R'' individually represent a hydrogen atom, a lower alkyl group or together form a 5 or 6 membered heterocyclic ring, Y represents a hydrogen atom or an alkyl, alkylthio, aryl or amine group; and

aryl groups being substituted directly or over —O—, —S—, —SO—, —SO₂—,



wherein R represents hydrogen or an alkyl group, with an alkyl group of 5 to 20 carbon atoms, and n represents 1, 2, or 3

is described. The photographic materials have excellent spectral absorption characteristics for filter purposes and are very resistant to diffusion.

3,563,749

LIGHT-SENSITIVE REPRODUCTION MATERIAL

Johannes Munder, Ernst-August Hackmann, and Roland Moraw, Wiesbaden-Bleibach, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Bleibach, Germany, a corporation of Germany

No Drawing. Filed Nov. 7, 1966, Ser. No. 592,286

K 57,618

Int. Cl. G03c 1/52

U.S. Cl. 96—90

5 Claims

Light-sensitive reproduction material useful in preparing negative copies and lithographic plates by means of aqueous development methods is formed by coating a suitable support with a composition which includes an N-vinyl compound, a halogenated hydrocarbon which splits off halogen when exposed to light, and a merocyanine dye. Light-exposed areas of the material are hydrophobic in nature, readily accept printing inks, and provide for good quality, long run lithographic printing.

3,563,750

HEXAARYLBIIMIDAZOLE HYDROXYPHTHALEIN COMPOSITIONS

Peter Walker, Red Bank, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed July 20, 1967, Ser. No. 654,720

Int. Cl. G03c 1/72

U.S. Cl. 96—90

18 Claims

Visible-light activated phototropic compositions of a hexaarylbiimidazole that normally requires ultraviolet light for activation and a hydroxyphthalein dye that is a visible-light absorbing energy-transfer agent, and optionally, an oxidizable leuco form of dye, preferably an aminotriarylmethane. A method for irradiating the composition with visible light in the 400–600 mμ range.

3,563,751

HEXAARYLBIIMIDAZOLE-ACRIDINE DYE COMPOSITIONS

Robert L. Cohen, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed July 20, 1967, Ser. No. 654,721

Int. Cl. G03c 1/72

U.S. Cl. 96—90

18 Claims

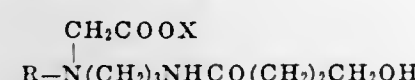
Visible-light activated phototropic compositions of a hexaarylbiimidazole that normally requires ultraviolet light for activation and a bis(alkylamino)acridine that is a visible-light absorbing energy-transfer agent, and optionally, an oxidizable leuco form of a dye, preferably an aminotriarylmethane. A method for irradiating the composition with visible light in the 370–520 mμ range.

the salts thereof. This invention also describes the preparation of the abovementioned compounds and their use in photographic emulsions.

3,563,756 COATING COMPOSITIONS CONTAINING A COATING AID

George M. Gantz, Upper Saddle River, N.J., E. Scudder Mackey, Binghamton, N.Y., and Raymond L. Mayhew, Summit, N.J., assignors to GAF Corporation, a corporation of Delaware
No Drawing. Filed June 23, 1967, Ser. No. 648,217
Int. Cl. G03c 1/38

U.S. Cl. 96—114.5 8 Claims
A coating composition and a photographic support coated therewith said coating composition comprising a water-permeable colloid and a coating aid therein comprising a small amount of at least one compound of the following structural formula:



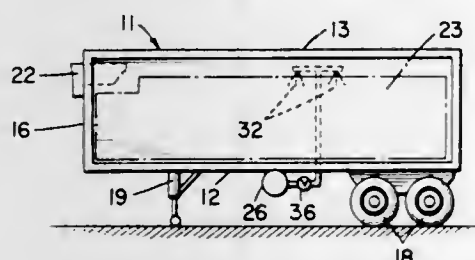
wherein R represents an aliphatic hydrocarbon chain containing from 8 to 20 carbons and X is selected from the group consisting of hydrogen and a water solubilizing cation.

3,563,757 APPARATUS FOR MINIMIZING PERISHABLE PRODUCTS

David A. Dixon, San Anselmo, Calif., assignor, by mesne assignments, to Oxytrol Corporation, a corporation of California
Division of application Ser. No. 534,922, Jan. 10, 1966, now Patent No. 3,365,307, which is a continuation-in-part of applications Ser. No. 356,624, Apr. 1, 1964, now Patent No. 3,239,360, Ser. No. 420,564, Dec. 23, 1964, now Patent No. 3,269,133, and Ser. No. 450,933, Apr. 26, 1965, now Patent No. 3,487,769. This application July 28, 1967, Ser. No. 671,516
Int. Cl. A23b 7/00

U.S. Cl. 99—271

4 Claims



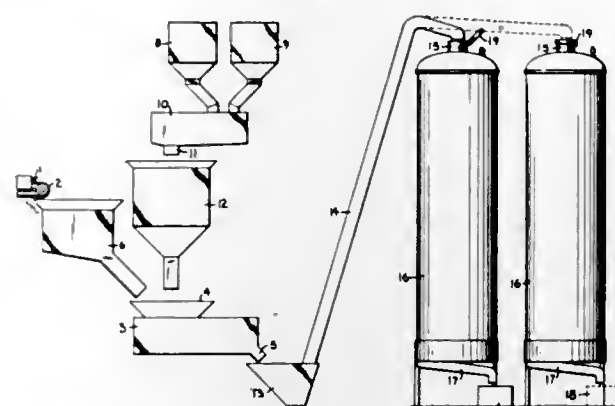
This invention relates to new and improved apparatus for controlling the oxygen concentration in a compartment by the controlled admission of inert gas thereto.

3,563,758 ANIMAL FEED OF RUMEN CONTENTS WITH MALT DIASTASE, WOOD CHARCOAL, AND PROTOPEPTONE

John A. Whiting and Willis Frank O'Daniel, Kansas City, Mo., assignors to Con-Ferm, Inc., Kansas City, Mo., a corporation of Missouri
Filed Feb. 12, 1968, Ser. No. 704,937
Int. Cl. A23k 1/10; A23j 1/02

U.S. Cl. 99—7 13 Claims
A feed for poultry and swine consisting of pathogen free rumen paunch contents and a control composition of a dry culture of rumen flora, sodium sulfate, malt diastase, protopeptone and a filler of charcoal and feed grain metal, the feed being processed by uniformly incorporating in

the paunch contents the control composition and feed grains if desired and treating said mixture by residence in



a large volume tank under pressure and atmosphere control for conversion into a high nutrient feed.

3,563,759 CONTINUOUS FERMENTING AND RIPENING OF BEER

Hans-Carl Wolter, Zossen, Peter Lietz and Peter Steffen, Berlin, Achim Beubler, Berlin-Karolinenhof, and Peter Liebs, Berlin-Wilhelmshagen, Germany, assignors to Institut für die Garungs- und Getränkeindustrie, Berlin, Germany, a concern of the German Democratic Republic of Berlin, Germany
No Drawing. Filed Sept. 1, 1967, Ser. No. 664,913
Int. Cl. C12c 11/14

U.S. Cl. 99—31 5 Claims
Beer is produced in a continuous process by dividing beer worts into two partial currents, passing one of these currents through a propagation container wherein yeast is increased and a part of the extract fermented, then mixing the fermenting worts with the second current of non-fermented worts and producing fermentation and ripening in a downwardly flowing liquid column, diacetyl and an extraction portion being decomposed in the lower portion of the column by a homogeneous continuous process.

3,563,760
PRODUCTION OF A FERMENTED MILK PRODUCT
Seiji Kuwabara, Tokyo, Japan; Jun Kuwabara, sole heir of said Seiji Kuwabara, deceased, assignor to Tokyo Yakult Seizo Co., Ltd., Tokyo, Japan
No Drawing. Filed May 16, 1968, Ser. No. 729,541
Int. Cl. A23c 9/12

U.S. Cl. 99—59 10 Claims
A process for the production of a fermented milk, to be similar to yoghurt in pleasant odor and containing active lactic acid bacteria, by fermenting whole milk or skim milk in two steps. In the first step, the yeast is cultivated in whole milk or skim milk, said yeast having no lactose fermentability and producing aromatic substances only, without causing alcoholic fermentation in the whole or skim milk. In the second step, said milk is fermented with lactic acid bacteria after sterilization of the yeast in the milk.

3,563,761 LACTALBUMIN PHOSPHATE AS PROTEIN INGREDIENT IN NON-BUTTERFAT DAIRY PRODUCTS

Rudolph H. Ellinger, New Canaan, Conn., assignor to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 605,974, Oct. 30, 1966. This application Sept. 19, 1969, Ser. No. 859,588
Int. Cl. A23c 11/00

U.S. Cl. 99—63 12 Claims
A prepared non-butterfat dairy product containing undenatured lactalbumin phosphate. Undenatured lactalbumin phosphate has been found to serve as a replace-

ment for sodium caseinate in non-butterfat dairy product compositions. This replacement has been found to serve functionally in every respect and as a nutrient having a value equal or superior to that of sodium caseinate. Particular areas of applicability include coffee whiteners, whipped toppings, mellorines, imitation sour creams, imitation cream cheese, snack dips, baby formulas and instant breakfasts.

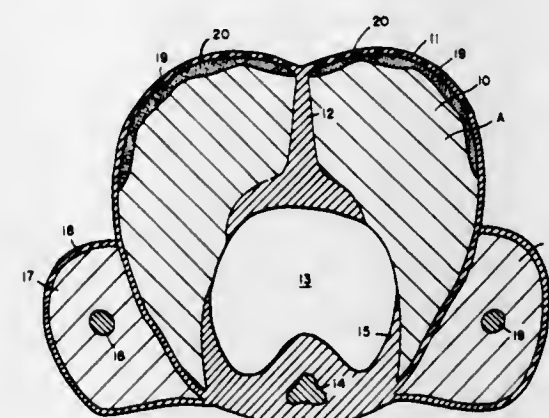
3,563,762 PROCESS FOR PREPARING A SOYBEAN BEVERAGE

Kwee-Seong Lo, Hong Kong, assignor, by mesne assignments, to the Hong Kong Soya Bean Products Co., Ltd., a corporation of Hong Kong
Filed Aug. 2, 1965, Ser. No. 479,686
Int. Cl. A23c 11/00

U.S. Cl. 99—64 14 Claims
Soybean powder, water, and a stabilizer are mixed and then homogenized at 8000 p.s.i. to form a beverage. The beverage may additionally be centrifuged and homogenized at a lower pressure.

3,563,763
SELF-BASTING POULTRY PRODUCTS
Donald V. Schwall, Glen Ellyn, Alan B. Rogers, Palos Park, and Dennis Corbin, Lombard, Ill., assignors to Armour and Company, Chicago, Ill., a corporation of Delaware
Continuation-in-part of application Ser. No. 573,305, Aug. 18, 1966, which is a continuation-in-part of application Ser. No. 492,319, Oct. 1, 1965. This application Nov. 22, 1967, Ser. No. 685,074
The portion of the term of the patent subsequent to Jan. 30, 1985, has been disclaimed
Int. Cl. A22c 21/00; A23b 1/00

U.S. Cl. 99—107 9 Claims

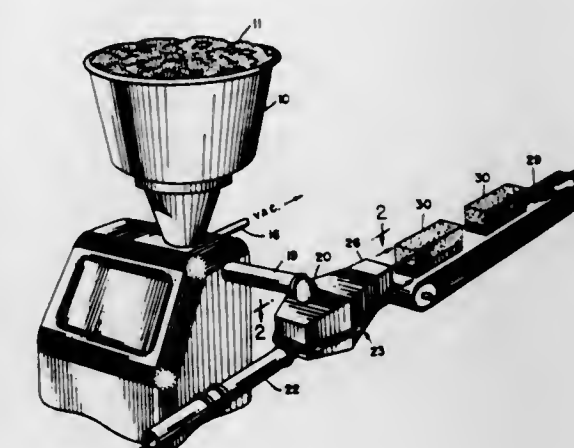


A self-basting dressed poultry carcass, which during cooking bastes the skin over the breast muscle portion of the carcass, contains within the breast enlarged reservoirs of added edible fat and flow passages lead from the reservoirs to the inner and outer surfaces of the breast skin whereby during the cooking process basting fat is supplied to the skin.

3,563,764
PREPARING POULTRY MEAT PRODUCT
Russell W. Posegate, La Grange Park, Ill., assignor to Armour and Company, Chicago, Ill., a corporation of Delaware
Continuation-in-part of application Ser. No. 699,826, Jan. 23, 1968, which is a continuation-in-part of application Ser. No. 618,729, Feb. 27, 1967. This application Apr. 23, 1969, Ser. No. 818,500
Int. Cl. A22c 21/00

U.S. Cl. 99—107 12 Claims
Raw poultry pieces, which have been treated with an edible metallic salt and agitated to extract a salt-soluble

coating or binder on the pieces, are extruded through a nozzle to unite the pieces and discharge them in the form of a shape-sustaining loaf onto an open support. The nozzle or extruding chamber may be divided, white meat being fed to one section at the side of the divider and dark meat pieces fed to the other section, and the two meat bodies being brought together in the nozzle or chamber to unite them in a single loaf or in an elongated body which may be sawed or cut to form separate loaves for enclosure in containers. In another embodiment, a



cellulosic casing closed at its outer end is drawn over an extrusion nozzle or pipe having a longitudinal divider plate therein to bring the closed end of the casing adjacent the discharge end of the pipe. The coated white and dark meat pieces are passed under pressure through the pipe, with the dark meat on one side of the divider plate and the white meat on the other side of the plate, to advance the casing and fill it with a measured amount of meat. The rear end of the casing is then gathered and closed.

3,563,765
LOW CHOLESTEROL DRIED EGG
YOLK AND PROCESS
Daniel Melnick, Teaneck, N.J., assignor to CPC International Inc., New York, N.Y., a corporation of Delaware
Filed Aug. 31, 1967, Ser. No. 664,679
Int. Cl. A23b 5/02; A23j 1/08; A23l 1/32

U.S. Cl. 99—113 11 Claims
The present invention is related to the production of a partially defatted dry egg yolk product. Conventional dry egg yolk solids are treated with a fat solvent at a temperature less than 160° F. to extract at least 50% but not more than 90% of the original fat from the egg yolk solids. Simultaneously, at least 50% of the cholesterol content of the egg yolk is extracted. Preferred solvents are non-polar solvents or mixtures of solvents containing at least a major portion of a non-polar solvent. Egg fat is obtained as a by-product as the solvent is recovered for reuse in the system.

3,563,766
FLUID SHORTENING COMPOSITION
Nobuya Matsui, Tokyo, Tsutomu Tomita, Chiba, and Tsukasa Kawada, Tokyo, Japan, assignors to Kao Soap Company, Ltd., Tokyo, Japan, a corporation of Japan
No Drawing. Filed Nov. 28, 1966, Ser. No. 597,231
Int. Cl. A23d 5/00

U.S. Cl. 99—118 5 Claims
A fluid shortening composition comprises vegetable liquid triglycerides, solid triglycerides, emulsifiers and from 0.1–2% by weight of lecithin as a fluidity increasing agent whereby the composition remains fluid at temperatures of 5° C. and lower.

3,563,779

AQUEOUS METALLIC FLAKE COMPOSITIONS
Isao Higaki, Gose-shi, Japan, assignor to Showa Aluminum Powder Co., Ltd., Gose-shi, Nara, Japan
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,990
Claims priority, application Japan, May 9, 1967, 42/28,875

Int. Cl. C09c 1/62

U.S. Cl. 106—290 22 Claims
An aqueous metallic flake composition containing an alkanol amide type non-ionic surface active agent.

3,563,780

PROCESS FOR PRESERVING FLOWERS

John C. Waszkiewicz, Jr., Middle Settlement Road, New Hartford, N.Y. 13413
No Drawing. Continuation-in-part of application Ser. No. 619,055, Feb. 27, 1967. This application Sept. 9, 1969, Ser. No. 856,500

Int. Cl. A01n 3/00, 3/02

U.S. Cl. 117—3.0 2 Claims
A process for preserving flowers in which a fresh flower is first dried by burying it in dry silica gel. The dried flower is then dipped in a solution of an ester-type acrylic resin and a solvent and air dried. No further protective coating or additional color-preservative is required.

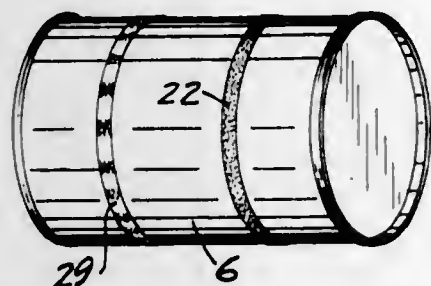
3,563,781

METHOD OF PROVIDING RETRO-REFLECTIVE STRIPES ON CYLINDRICAL SURFACES

Melvin L. Johnson, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed Dec. 11, 1967, Ser. No. 689,709

Int. Cl. B44c 1/00, 1/16

U.S. Cl. 117—18 5 Claims



A method of marking cans with a reflex-reflecting stripe to afford more reliable sorting of cans in a cannery. The method comprises the application of a thin narrow stripe of a solvent-containing adhesive composition to the can surface, drying the stripe to develop a highly tacky stripe on the can, applying a monolayer of glass spheres to the stripe to hold the spheres on the can, and permitting a further drying of the composition to a tack-free state. The softening point of the composition in the tack-free state should be at least 260° F.

3,563,782

WRITING SURFACE AND INK COMPOSITION FOR MARKING THEREON

Isalah U. Liberman, Los Angeles, Jerome A. Woolf, Beverly Hills, and Raymond D. Atchley, Los Angeles, Calif., assignors to Gamco, Inc., Big Spring, Tex., a corporation of Texas
No Drawing. Continuation of application Ser. No. 572,900, Aug. 17, 1966, which is a continuation-in-part of application Ser. No. 281,773, May 20, 1963. This application July 31, 1969, Ser. No. 849,252

Int. Cl. B43l 1/12; B44d 1/22

U.S. Cl. 117—37 16 Claims
A pigmented sheet of polyethylene plastic having a density in the range of about 0.95 to about 0.96, having a uniform, substantially smooth, non-glossy surface, and having minute indentations in the surface causing the surface to receive and retain an ink marking composed of

a plurality of essentially dry dye particles which adhere to the surface of the sheet but which may be readily removed therefrom by light mechanical abrasion.

3,563,783

NON-ELECTROLYTIC PLATING OF THE THERMO-PLASTIC RESIN ARTICLES

Toramitsu Sukuma, Osaka-fu, Japan, assignor to Sumitomo Naugatuck and Company, Ltd., Osaka, Japan, a corporation of Japan
No Drawing. Filed Feb. 1, 1968, Ser. No. 702,210

Int. Cl. B44d 1/092; C23c 3/00

U.S. Cl. 117—47 14 Claims
Mixing of an alkaline earth metal sulfide (e.g. calcium sulfide, barium sulfide) with a thermoplastic resin (e.g. ABS resin), prior to shaping and non-electrolytic plating, results in improved adhesion of the plating.

3,563,784

PRE-ACTIVATION TREATMENT IN THE ELECTROLESS PLATING OF SYNTHETIC RESIN SUBSTRATES

William P. Innes, Cheshire, Eugene D. D'Ottavio, Thomaston, and Sharon D. Brown, Waterbury, Conn., assignors to MacDermid Incorporated, Waterbury, Conn., a corporation of Connecticut
No Drawing. Filed Sept. 9, 1968, Ser. No. 758,589

Int. Cl. C23c 3/00; B44d 1/40

U.S. Cl. 117—47 4 Claims
Aqueous dilute surfactant solutions are employed in the treatment of plastic substrates to prepare them for electroless plating to ensure complete coverage of the substrate surface by the metal. The substrates are immersed in the surfactant solution as a preliminary step immediately preceding the activation of the substrate in the normal cycle of electroless plating operations, supplanting various other pre-activation steps and, unlike such prior steps, being operative for all types of synthetic resins encountered in electroless plating operations.

3,563,785

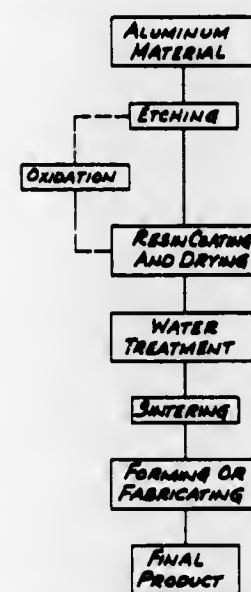
METHOD OF RESIN COATING OF THE METAL AND RESIN-COATED METAL PRODUCT THEREFOR

Toshisaburo Oga, Kobe-shi, and Ken Okazaki, Amagasaki-shi, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan, a corporation of Japan
Filed Oct. 4, 1966, Ser. No. 584,223

Claims priority, application Japan, Oct. 9, 1965, 40/61,681; Nov. 27, 1965, 40/72,577, 40/72,578, Sept. 17, 1966, 41/61,596; Sept. 22, 1966, 41/62,764

Int. Cl. B44d 1/092

U.S. Cl. 117—48 8 Claims



The method of coating an aluminum or aluminum alloy surface with a resin wherein the surface is anodically etched in a halide solution to provide minute surface ir-

3,563,789

CORROSION RESISTANT METALLIC SUBSTRATES

William Ross Moore, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Feb. 16, 1968, Ser. No. 705,950

Int. Cl. B32b 15/08

U.S. Cl. 117—75 7 Claims

An article of manufacture is described which comprises a corrosion resistant metallic substrate. The normally corrosion-prone metallic substrate is rendered corrosion resistant by the application of about 0.05 to about 25 grams of a high molecular weight olefin polysulfone per square foot of metallic substrate. The substrate can be painted before or after the application of the resin. The resin is applied to the substrate by means of a liquid dispersion containing the dispersed resin such as water containing a surfactant or an organic solvent.

3,563,790

OPEN-TOP POROUS CONTAINER HAVING SEALED EXTERIOR SURFACE

Richard J. Pratt, Flossmoor, Donald E. Safford, Park Forest, and William S. Hooch, Flossmoor, Ill., assignors to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Original application Nov. 6, 1967, Ser. No. 680,955, now Patent No. 3,511,692. Divided and this application Oct. 23, 1969, Ser. No. 871,208

Int. Cl. B05c 8/00

U.S. Cl. 117—94 7 Claims

An open-top, porous container made of light weight aggregate and a binder such as sodium silicate or portland cement is dipped in an aqueous medium containing sodium silicate and finely divided silica filler. The dipping operation is conducted to wet and coat the exterior but not the interior surfaces of the container and after heat curing of the coated container the exterior surfaces are effectively sealed while the interior surfaces remain porous. Such porous surfaces can exert a wicking action when a hydrocarbon fuel, e.g., wax, in the container is burned to supply heat, for instance, to orchards or other crops in combating frost.

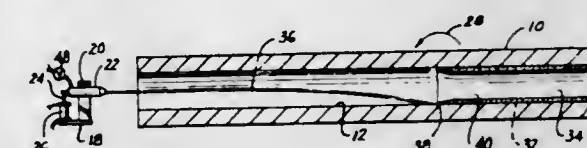
3,563,791

METHOD OF COATING THE INSIDE OF A CYLINDRICAL MEMBER

Nathan Janco, P.O. Box 947, Tulsa, Okla. 74101
Continuation-in-part of application Ser. No. 689,862, Dec. 12, 1967. This application May 9, 1969, Ser. No. 823,468

Int. Cl. B04c 13/06; B05c 7/02

U.S. Cl. 117—95 5 Claims



In preferred form the invention involves coating the inside of a permanent mold used in centrifugal casting, the coating being an insulating refractory. The mold is rotated at a speed such that the coating material supplied as liquid or slurry will be spread over the inside of the mold by centrifugal action. While the mold is rotating an unbroken stream of the coating material of suitable consistency or viscosity, which will solidify on passage of time, is directed into the mold in an axial direction from one end thereof and at such an inclination to the axis and with such force that it will impinge upon the inner surface of the mold adjacent but spaced from the opposite end whereupon its momentum will cause it to flow toward said opposite end and part of it to reach said opposite end after it impinges on the surface of the mold. This stream, after being allowed to flow for a sufficient time to coat

regularities and cavities to adequately anchor the resin to be applied. The etched surface may be oxidized to provide greater anchorage and may also be heat treated with hot water or steam either prior or subsequent to resin coating to further enhance the resin bondage and service life.

3,563,786

METHOD OF RENDERING WATER-PERVIOUS BUILDING MATERIALS HYDROPHOBIC

Sydney Arthur Tse, 15 Constable St.; Cedric Jack Tse, 531 Broadway, Strathmore Park; and Charles Athol Pierard, 20 Milne Terrace, all of Wellington, North Island, New Zealand
No Drawing. Filed Sept. 18, 1967, Ser. No. 668,707

Claims priority, application New Zealand, Sept. 22, 1966, 146,437

Int. Cl. B44d 1/44; C04b 31/44

U.S. Cl. 117—62.1 17 Claims

A method of water-proofing water pervious building material wherein the building materials are impregnated with an emulsion of unsaponified wax globules in an aqueous solution of a water soluble soap or soaps. This impregnated composition is then contacted with an aqueous solution of water soluble metal salt or salts to precipitate an insoluble metallic soap. An antioxidant is used in the mixture to prevent ultraviolet light degradation.

3,563,787

ALUMINUM PLATING PROCESS

Roger G. Schneggenburger, Freeland, and Reinhold Hellmann and Kenneth O. Groves, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Oct. 7, 1968, Ser. No. 765,636

Int. Cl. B44d 1/14

U.S. Cl. 117—71 13 Claims

A process for providing at least two distinct superimposed coatings on a substrate material, one coating comprising a film of metallic aluminum adjacent to said substrate and the other comprising a protective resin overcoat for said aluminum. The process comprises depositing an aluminum hydride decomposition metal catalyst on said substrate; depositing an aluminum hydride material on said substrate in contact with said catalyst; immersing the substrate in a heated inert liquid bath containing a dissolved resin overcoating material thereby decomposing said aluminum hydride material and providing a metallic aluminum coating on said substrate; removing said aluminum coated substrate from said bath and removing the inert liquid to provide a resin overcoat on said metallic aluminum coating.

3,563,788

WOOD STRUCTURES AND THEIR MANUFACTURE

Gordon E. Brown and Richard R. Huff, Seattle, Wash., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 311,240, Sept. 24, 1963. This application Aug. 28, 1968, Ser. No. 755,792

Int. Cl. D21j 3/00

U.S. Cl. 117—72 5 Claims

Overlays for wood products are formed from a mixture of wood fibers having a bulk density of up to about 0.16 grams/cc. and an aqueous phenol-formaldehyde resole resin solution. Preferably the resole resin is an acid catalyzable sulfonated phenol-formaldehyde resole resin. The overlay is formed by depositing a coating of a thermosetting resin onto a wood substrate, depositing a mixture of wood fibers and a phenolic resole resin onto the coated substrate, depositing a quantity of water onto the wood fiber-resin admixture, and subjecting the same to heat and pressure. The overlay exhibits exceptional functional properties, i.e. tensile strength.

the portion of the mold between its point of initial impingement and said opposite end, is directed at a gradually lowering angle or pressure or from a gradually receding portion so that it progressively impinges at points closer to said one end until the entire interior of the mold is coated. The flow of coating material is then shut off and rotation continued until the coating solidifies sufficiently that it will remain in place.

3,563,792

PROCESS FOR COATING NONABSORBENT FIBRES

Hendrik H. J. Deuzeman, Watford, Ontario, Canada, assignor to Fiberglas Canada Limited, Toronto, Ontario, Canada

No Drawing. Continuation of application Ser. No. 468,949, July 1, 1965. This application Sept. 24, 1969, Ser. No. 871,749

Int. Cl. C03c 25/00

U.S. Cl. 117—126

5 Claims

A mat of nonabsorbent fibrous material such as glass fibers is coated with an aqueous slurry of clay having from 6 to 25% solids and comprising acicular calcium silicate particles of such shape and size that at least 20% thereof will pass through the interstices of the mat in only one direction, the remaining particles being of a size such as they will all pass through the interstices in any direction, the aqueous slurry comprising a methyl cellulose type protective colloid; a wetting agent consisting of a fatty acid amide or an amine salt serving to lubricate the acicular particles for longitudinal passage through the interstices of the mat and a viscosity control agent, thus facilitating entry of the particles into the interstices of the mat. The process aspects are also claimed, as well as the resulting treated mat.

3,563,793

FIREPROOFED CELLULOSIC MATERIAL

Hans Brandeis, Limburgerhof, Pfalz, Klaus Pfeiffer, Ludwigshafen (Rhine), and Heinz Bille, Limburgerhof, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed July 3, 1968, Ser. No. 742,182

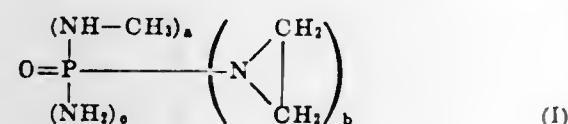
Claims priority, application Germany, July 5, 1967, P 15 94 937.8

Int. Cl. C09d 5/18; C09k 3/28

U.S. Cl. 117—136

4 Claims

Fireproofing cellulosic fibrous material with compounds having the formula:



in which a denotes a value from 0.1 to 2.6, b a value from 0.3 to 2 and c a value from 0.1 to 1.0 the total of a , b and c being 3, and cellulosic material fireproofed therewith.

3,563,794

FIBROUS MATERIALS IMPARTED HYDROPHILIC AND ANTISTATIC PROPERTIES AND THE IMPROVED METHOD FOR PRODUCING THE SAME

Hiroaki Moriga, Ibaragi-shi, Japan, assignor to Teljin Limited, Osaka, Japan, a corporation of Japan

No Drawing. Filed Feb. 15, 1968, Ser. No. 705,607

Claims priority, application Japan, Feb. 20, 1967, 42/10,827; July 11, 1967, 42/44,613

Int. Cl. B44d 1/44; B32b 27/08, 27/34

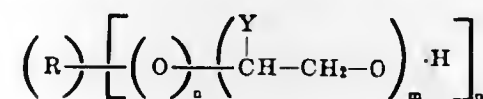
U.S. Cl. 117—138.8

6 Claims

Improved fibrous materials having a hydrophilic property and a durable antistatic property are prepared by

applying a treatment liquid consisting of at least the three components:

- (a) an N-substituted polyamide whose amount of combined formaldehyde is 3–15% by weight,
- (b) an alkoxyated derivative of an aliphatic nitrogen or oxygen containing compound having an active hydrogen atom bonded to the nitrogen or oxygen atom and containing at least two functional groups, said derivative corresponding to the formula:



wherein R is an aliphatic group derived from said nitrogen or oxygen containing compound, said nitrogen or oxygen containing compound being selected from:

- (i) aliphatic polyhydric alcohols;
- (ii) aliphatic heterocyclic polyhydric alcohols;
- (iii) fatty acid esters of aliphatic alcohols;
- (iv) polyalkylene polyamines; and
- (v) polyoxyalkylene polyamines

Y is selected from the group consisting of hydrogen and methyl;

n is selected from 0 and 1;

m is the number of moles of alkylene oxide reacted with said nitrogen or oxygen containing compound; and

p is a positive integer such that $m \times p$ is 5–100; and

- (c) a catalyst which is either an acid or an acid-forming substance,
- to a synthetic fibrous material and heat-treating the so-treated fibrous material to cause the reaction of the afore-said components (a), (b) and (c) to take place on said material.

3,563,795

TEXTILES IMPREGNATED WITH AN AMINO-PLAST RESIN AND A VINYL ESTER CARBOXYLIC ACID ESTER SOIL RELEASE AGENT

Charles R. Williams, Longmeadow, and Elmer H. Rossin, Springfield, Mass., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed July 8, 1968, Ser. No. 743,020

Int. Cl. B32b 27/30; D06m 15/00

U.S. Cl. 117—139.4

10 Claims

Disclosed herein is an improvement in a process for imparting soil release characteristics to textiles wherein the improvement comprises employing as the soil release agent a water-soluble interpolymers of a vinyl ester with a partial ester of an ethylenically unsaturated dicarboxylic acid or anhydride.

3,563,796

PROCESS FOR PREPARATION OF POLYACROLEIN FILMS

Kiyoshi Yamaki, Tokyo-to, Shigeyuki Suzuki, Sagami-hara-shi, and Satoshi Fujimoto, Tokyo-to, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

No Drawing. Filed May 27, 1966, Ser. No. 553,327

Claims priority, application Japan, May 31, 1965, 40/31,833

Int. Cl. C08f 3/40; C08g 37/02

U.S. Cl. 117—161

4 Claims

Process for the preparation of resinous films having excellent mechanical and solvent resistant properties comprising forming a film in the presence of an acid of an acetal of a poly-(alpha, beta-ethylenically unsaturated) aldehyde and heating the resulting film at a temperature of from about 70° C. to about 280° C.

3,563,797

METHOD OF MAKING AIR STABLE CATHODE FOR DISCHARGE DEVICE

Robert G. Young, Nutley, and Albert W. Wainio, Livingston, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Continuation-in-part of application Ser. No. 618,021, Feb. 23, 1967. This application June 5, 1969, Ser. No. 830,836

Int. Cl. H01j 19/04, 19/06

U.S. Cl. 117—223

11 Claims

APPLY FINELY DIVIDED MIXTURE COMPRISING ALKALINE-EARTH CARBONATE TO TUNGSTEN SUPPORT MEMBER

HEAT COATED TUNGSTEN MEMBER IN AN INERT OR REDUCING ATMOSPHERE TO DECOMPOSE ALKALINE-EARTH CARBONATE AND FORM AN AIR-STABLE, ADHERENT, EMISSIVE COATING

Method of producing gasless, electron-emissive alkaline-earth oxide coated tungsten electrode, whereby the electrode is activated and rendered chemically stable prior to incorporation into a discharge device by heating the tungsten electrode coated with alkaline-earth metal carbonate to convert the carbonate to the oxide and render the oxide air stable.

3,563,798

PREGELATINIZED STARCH PRODUCTS AND PROCESS OF MAKING SAME

Felix J. Germino, Palos Park, Francis E. Kite, Riverside, and Edwin H. Christensen, La Grange Park, Ill., assignors to CPC International Inc., New York, N.Y., a corporation of Delaware

Filed Sept. 18, 1967, Ser. No. 668,617

Int. Cl. C13l 1/08

U.S. Cl. 127—32

26 Claims

Cold-water-swelling starches which form aqueous pastes of exceptionally high viscosity are prepared by subjecting, in a confined zone, a slurry of waxy starch, a solvent for starch, and an organic liquid which is miscible with the solvent for starch, to gelatinizing conditions. The treatment conditions and proportions of ingredients are so selected to cause from 0% to about 75% of the waxy starch granules to become fragmented, and the non-fragmented granules to be non-birefringent. After treatment the slurry is combined with additional organic liquid, and the processed starch is then recovered.

3,563,799

PURIFIED LIQUID SUGAR CONCENTRATE AND METHOD OF MANUFACTURING SAME

James F. Zievers and Clay W. Riley, La Grange, and Charles J. Novotny, Hickory Hills, Ill., assignors to Industrial Filter & Pump Mfg. Co., Cicero, Ill., a corporation of Illinois

Filed Oct. 2, 1967, Ser. No. 672,298

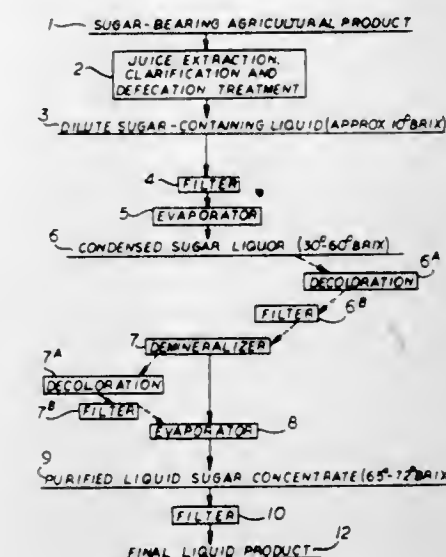
Int. Cl. C13d 3/14, 3/00; C13f 3/00

U.S. Cl. 127—46

2 Claims

A pure liquid sugar concentrate of at least 65° Brix is produced directly from a dilute sugar-containing liquid in a refining process which excludes crystallization as a

required procedure in the method of purification. The refining includes concentration, demineralization in a



mixed resin ion exchanger, further concentration and filtration.

3,563,800

RECHARGING ALKALINE/ZINC CELLS

Harry G. Oswin, Chauncey, and Keith F. Blurton, Hempstead, N.Y., assignors to Leeson Corporation, Warwick, R.I., a corporation of Massachusetts

Filed June 19, 1968, Ser. No. 738,229

Int. Cl. H01m 41/02

U.S. Cl. 136—30

11 Claims

An improved method of recharging a secondary battery utilizing a zinc anode is described comprising maintaining the current density during charging above the critical current density and pulse charging, i.e., charging with a periodic cut-off of current, with the on time being no greater than 200 milliseconds.

3,563,801

FLOCKED PLATE STRUCTURE FOR ELECTRIC BATTERIES

Irvin W. Cox, East Acton, Mass., assignor to Cambridge Thermionic Corporation, Cambridge, Mass., a corporation of Massachusetts

Filed Nov. 20, 1969, Ser. No. 878,434

Int. Cl. H01m 35/04

U.S. Cl. 136—64

19 Claims



A conductive metal strip for alkaline batteries carries an effectively ordered array of extremely thin, square nickel (or nickel plated iron) flakes stacked approximately normal to and transversely of the strip with their edges approximately parallel, and with one edge of each flake conductively joined to the strip by a sintered nickel fillet. The flakes are slightly separated by the mode of fabrication and by deviations from exactly normal and transverse position on the strip, and from exact flatness. These deviations are so small as compared to the generally normal and transverse positions and the flatness of the flakes, that they provide essentially regular interstices with optimal

surface area of active material and accessibility thereof to electrolyte, and minimal volume and conductive length of supporting material.

A suitable technique of fabricating a flocked strip by way of magnetic stacking of flakes on belts and finally on the strip, traveling at different speeds, is described.

3,563,802

FUEL CELL CONSTRUCTION

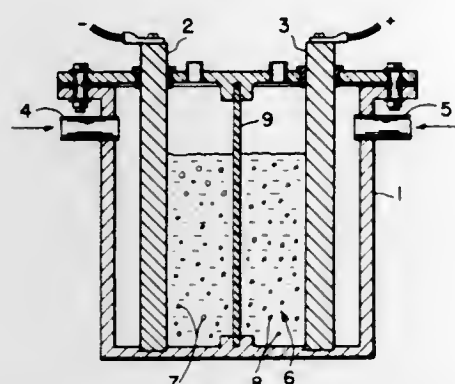
Rupert L. Ogden, Williamsville, N.Y., assignor to The Carborundum Company, Niagara Falls, N.Y., a corporation of Delaware

Filed Oct. 3, 1968, Ser. No. 764,730

Int. Cl. H01m 27/00

U.S. Cl. 136—86

5 Claims



This invention pertains to a fuel cell which comprises a case with porous positive and negative electrodes inserted therein dividing the interior of the case into three sections. Electrolyte fills the inner section or space. Means for introducing an oxidizing gas into the space behind one porous electrode and a fuel behind the other are provided. The inner section is divided by a porous membrane substantially parallel to the electrodes comprising synthetic fibers prepared from resin condensation products of phenols and aldehydes which can be fiberized and cured. This membrane permits communication of electrolyte between electrodes but prevents passage of small bubbles of oxidizing or fuel gases.

3,563,803

ALUMINUM-AIR BATTERY

Masayoshi Katoh, Yokohama-shi, Japan, assignor to Furukawa Denchi Kabushiki Kaisha, Yokohama-shi, Japan

Filed Oct. 25, 1968, Ser. No. 770,659

Claims priority, application Japan, Oct. 31, 1967, 42/70,090; June 17, 1968, 43/41,416

Int. Cl. H01m 11/00, 29/04, 39/04

U.S. Cl. 136—86

9 Claims

An aluminum-air battery having an anode of aluminum or an alloy thereof and an alkaline electrolyte containing as an additive plumbite, plumbate or stannate, the additive being present in a concentration lower than 0.2 M. The additive inhibits self-corrosion of the aluminum electrode and raises the current efficiency, while limiting the electrolyte temperature with passage of time.

3,563,804

ELECTROCHEMICAL CELL WITH TERMINALS HAVING CONDUCTIVE OR INSULATING BLOCKS INTERPOSED

Maurice Garcin and Jean Rousset, Paris, France, assignors to Societe Les Piles Wonder, Saint-Ouen, France

Filed June 18, 1968, Ser. No. 738,068

Claims priority, application France, June 22, 1967, 111,515

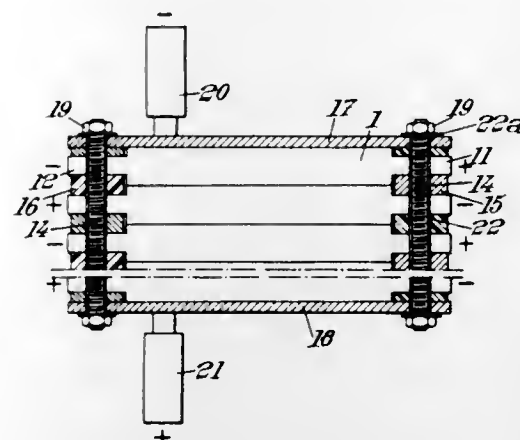
Int. Cl. H01m 17/00

U.S. Cl. 136—100

8 Claims

This electrochemical battery is primable with sea water. It comprises flat elements, each formed by a capsule of

plastic material containing several positive electrode plates connected to a common positive terminal, several negative electrode plates connected to a common negative terminal and intercalated sheets of absorbent paper. These elements



are piled on rods passing through the terminals with the interposition of blocks, appropriately conductive or insulating. These rods are fixed by screwing in the manner of tie-rods on two end plates.

3,563,805

THIN, FLAT PRIMARY CELLS AND BATTERIES

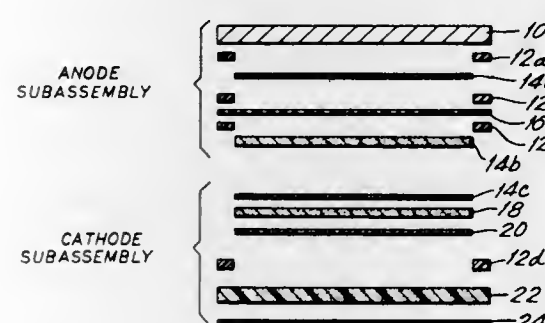
William H. Deierhoi, Jr., Westlake, Ohio, assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York

Filed Feb. 20, 1969, Ser. No. 800,986

Int. Cl. H01m 21/04

U.S. Cl. 136—111

9 Claims



A thin, flat primary cell has an internal cathode confining frame to which a sheet metal anode and a cathode collector are sealed. The frame in cooperation with a tacky, immobilized adhesive electrolyte aids in maintaining low resistance contact between cell elements and also in conjunction with the anode and cathode collector serves to rigidify the cell. A battery of such cells in series relation includes two interconnected stacks.

3,563,806

BATTERY CAPACITY AND ACTIVATION INDICATING STRUCTURE

Wayne R. Hruden, 175 Tecumseh Ave. W., Windsor, Ontario, Canada

Continuation-in-part of application Ser. No. 399,569, Sept. 28, 1964. This application Dec. 11, 1967, Ser. No. 689,470

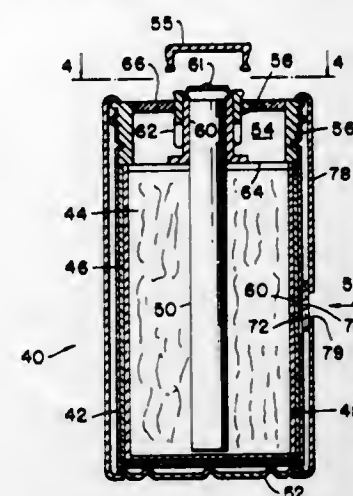
Int. Cl. H01m 31/04

U.S. Cl. 136—112

6 Claims

Battery structure including visible means for indicating the remaining capacity of the battery and for indicating activation of a deferred action battery. The structure includes a transparent battery portion and means positioned

behind the transparent battery portion for presenting a visible color change on a change in battery capacity and/or activation of the battery. A color code is provided



3,563,807

BATTERY HOLDER UNIT FOR PORTABLE ELECTRIC HAND LANTERN

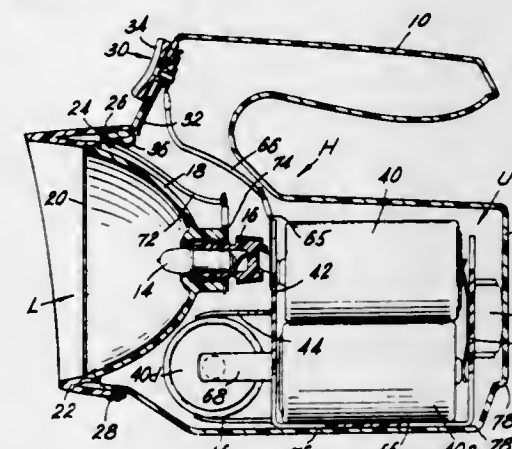
Robert E. Brindley, New York, N.Y., and William H. Doring, Old Greenwich, Conn., assignors to Union Carbide Corporation, New York, N.Y., a corporation of New York

Original application June 22, 1967, Ser. No. 648,059, now Patent No. 3,456,102, dated July 15, 1969. Divided and this application Feb. 10, 1969, Ser. No. 822,773

Int. Cl. H01m 1/04

U.S. Cl. 136—173

1 Claim



A portable hand lantern having a lamp and reflector assembly mounted on a housing generally rectangular in section with a cantilevered handle is powered by a number (e.g. five) of individual dry cells removably held in a removable battery unit in which pairs of cells are mounted with axes parallel to each other and an odd cell is mounted crosswise to the others, all cells being electrically connected in series.

3,563,808

TEMPERATURE MEASURING MEANS FOR ENAMEL DEVICES

Heinz Scharbach, Plankstadt, and Rudi Horsch, Schwetzingen, Germany, assignors to Pfaudler-Werke AG., Schwetzingen, Germany, a corporation of Germany

Filed Jan. 17, 1968, Ser. No. 698,489

Claims priority, application Germany, Aug. 11, 1967, P 42,803

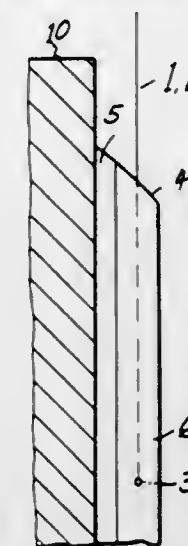
Int. Cl. H01v 1/02

U.S. Cl. 136—230

7 Claims

A thermocouple is placed on top of a pre-enamelled layer, for example forming the inside of a chemical reaction vessel, and another layer of enamel is applied thereover, fired and fused, so that the thermocouple is embedded within the enamel layer; as an alternative, the

thermocouple junction may project slightly beyond the enamel layer, if it is of a material which is non-reactive



with the substances the temperature of which is to be sensed.

3,563,809

METHOD OF MAKING SEMICONDUCTOR DEVICES WITH ION BEAMS

Robert G. Wilson, Canoga Park, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Aug. 5, 1968, Ser. No. 750,080

Int. Cl. H01l 7/54

U.S. Cl. 148—1.5

13 Claims

Method of fabricating a semiconductor device in which P-N junctions, protective coatings, and micro-machining operations are all performed in vacuum by means of ion beams, and in which metalization for electrodes and connections may also be applied.

3,563,810

METHOD FOR REDUCING THE CROSS SECTION OF SEMICONDUCTOR RODS BY MOLTEN-ZONE STRETCHING

Wolfgang Keller, Pretzfeld, and Herbert Kramer, Forchheim, Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany, a corporation of Germany

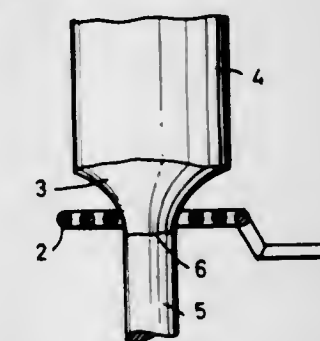
Application Aug. 28, 1968, Ser. No. 757,217, which is a continuation of application Ser. No. 381,744, July 10, 1964. Divided and this application June 12, 1969, Ser. No. 840,105

Claims priority, application Germany, July 13, 1963, S 86,157

Int. Cl. B01j 17/10

U.S. Cl. 148—1.6

2 Claims



Method of floating zone melting a vertically mounted rod and simultaneously stretching the molten zone for reducing the rod in cross section includes placing around the top of a thin crystal seed an induction heater coil having turns of a diameter larger than the thickness of the thin crystal seed, forming the lower end of a thick rod having a diameter greater than 25 mm. and greater than the diameter of a plurality of inner turns of the coil but smaller than the diameter of at least one of the outer turns of the coil approximately into the shape of the molten zone to be produced by the coil, contacting the lower

end of the thick rod with the top of the seed and heating the junction thereof with the coil so that the turns of the coil are positioned vertically beneath the thick portion, and thereafter commencing the zone melting and stretching operations.

3,563,811

COATED FERRUGINOUS METAL AND METHOD
Jon A. de Ridder, Ashtabula, and Dick M. Warburton, Painesville, Ohio, assignors to Diamond Shamrock Corporation, Cleveland, Ohio, a corporation of Delaware
No Drawing. Filed June 4, 1968, Ser. No. 734,242
Int. Cl. C23f 7/26

U.S. Cl. 148—6.2

4 Claims

Ferruginous metal substrates are protected with an adherent, corrosion-inhibiting, coating which is the residue obtained by elevated temperature curing of an applied acidic coating solution. The acidic coating solution contains a hexavalent-chromium-providing substance, an organic polybasic acid or a salt thereof, and an inorganic acid or salt thereof. Elevated temperature curing of such solutions applied to ferruginous substrates provides a surface coating of excellent corrosion resistance.

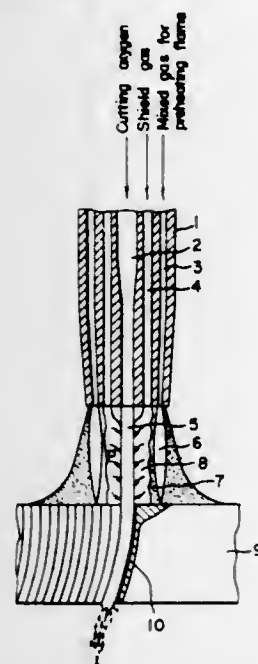
3,563,812

METHOD FOR GAS CUTTING WHILE USING SHIELD GAS

Minoru Nakanishi and Hidehiko Hayasaki, Tokyo, Japan, assignors to Kabushiki Kaisha Tanaka Seisakusho
Continuation-in-part of application Ser. No. 681,055, Oct. 24, 1967, which is a continuation-in-part of application Ser. No. 535,885, Mar. 21, 1966. This application Apr. 3, 1968, Ser. No. 725,249
Int. Cl. B23k 7/00

U.S. Cl. 148—9

6 Claims



A method for gas cutting metal utilizing a main stream of oxygen for the cutting and an oxygen curtain surrounding said main stream to maintain the purity of said main stream wherein cut quality is dependent upon the curtain oxygen momentum and the head pressure of the main stream of oxygen.

3,563,813

CONTROLLING FRACTURE TOUGHNESS OF HIGH-STRENGTH STAINLESS STEELS

Donald Webster, Mercer Island, Wash., assignor to The Boeing Company, Seattle, Wash., a corporation of Delaware
No Drawing. Filed Dec. 20, 1968, Ser. No. 785,739
Int. Cl. C21d 1/18, 7/02

U.S. Cl. 148—12.4

6 Claims

A method of controlling fracture toughness in high-strength stainless steels by heat treating procedures. The

heat treated alloy retains a controlled amount of austenite which imparts fracture toughness along with a minor increase in strength.

3,563,814

CORROSION-RESISTANT ALUMINUM-COPPER-MAGNESIUM-ZINC POWDER METALLURGY ALLOYS

John P. Lyle, Jr., New Kensington, Pa., Raymond J. Towner, Lima, Ohio, and Allan P. Haarr, Delmont, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa., a corporation of Pennsylvania
No Drawing. Filed Apr. 8, 1968, Ser. No. 719,753
Int. Cl. C22c 21/00; C22f 1/04

U.S. Cl. 148—12.7

5 Claims

Aluminum base powder metallurgy alloy article having an improved combination of high transverse yield strength and stress corrosion cracking resistance. The alloy contains the basic precipitation hardening elements zinc, magnesium and copper. It may additionally contain cobalt or manganese. The alloy is prepared by atomization of a melt of the elements, hot working, solution heat treating, quenching and two-stage artificial aging. Components of the alloy in percent by weight are, in addition to the aluminum, 5 to 13 zinc, 1.75 to 6 magnesium, 0 to 2.5 copper, and up to about 3 cobalt or manganese. Up to 0.75 by weight chromium and up to 0.25 by weight zirconium may be present when cobalt or manganese is also present.

3,563,815

PROCESS FOR THE PRODUCTION OF FINE GRAINED ALUMINUM ALLOY STRIP

Rene Meler, Kreuzlingen, and Hans-Michael Cohen, Sierre, Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland, a joint-stock company of Switzerland
No Drawing. Filed Dec. 24, 1968, Ser. No. 786,749
Claims priority, application Switzerland, Dec. 29, 1967, 18,378/67
Int. Cl. C22f 1/04

U.S. Cl. 148—12.7

14 Claims

A process for the production of a strip of a manganese-containing aluminum alloy which yields a fine grained product with mechanical properties which make the strip of outstanding value for formability, especially for deep-drawing. The process comprises homogenizing a cast billet of the alloy at a temperature over 560° C., hot-rolling, cold-rolling and annealing the cold-rolled strip in two stages, first at a temperature below the temperature of complete recrystallization at least during five hours and in the second stage above that temperature.

3,563,816

METHOD FOR THE VAPOR GROWTH OF SEMICONDUCTORS

Shinya Iida, Hino-shi, and Yoshimitsu Sugita, Kodaira-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Mar. 31, 1966, Ser. No. 539,164
Claims priority, application Japan, Apr. 2, 1965, 40/18,905
Int. Cl. H01l 7/36

U.S. Cl. 148—175

2 Claims

A layer of semiconductor material is grown on a seed crystal by utilizing a gaseous reaction, wherein a gaseous source material at an initial temperature of T_1 is heated to a higher temperature, T_2 , upstream from the seed crystal, and then transported downstream onto the seed crystal which is maintained at a temperature lower than T_2 .

3,563,817

METHOD OF PRODUCING SILICON CARBIDE ULTRAVIOLET RADIATION DETECTORS

Hung Chi Chang, Robert B. Campbell, and Marvin L. Crull, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Original application Oct. 6, 1966, Ser. No. 584,797, now Patent No. 3,504,181, dated Mar. 31, 1970. Divided and this application Oct. 4, 1968, Ser. No. 765,238
Int. Cl. H01l 7/32

U.S. Cl. 148—187

9 Claims

A method of producing a silicon carbide ultraviolet radiation detector in which silicon carbide is coated with silicon oxide, selected portions of the silicon oxide are removed, the exposed silicon carbide is chemically etched to produce several mesa structures, the remaining silicon oxide is removed, an impurity is diffused into the silicon carbide to form a region of second type semiconductor including the mesa structures and forming a p-n junction therein mesa structures are removed thereby forming a plurality of junction structures, and etching at least one junction structure's region to reduce the region to a thickness no greater than 10 microns. The preferred etchant in the first etching step is a mixture of oxygen, chlorine, and argon gases.

The ultraviolet radiation detection system comprises a body of silicon carbide semiconductor material having a top surface and a bottom surface. The silicon carbide body has at least one region of a first type semiconductor, at least one region of a second type semiconductor, and a p-n junction formed by the interface of each pair of regions of different type semiconductor. At least a portion of the p-n junction closest to the top surface of the body is no greater than 10 microns from the top surface whereby that portion is sensitive only to a predetermined wavelength within the ultraviolet radiation portion of the spectrum when the top surface of the device is exposed to a source of radiation.

3,563,818

IGNITION AID FOR SOLID PROPELLANTS

Clarence L. Miller, Sunnyvale, and Ralph Anderson, Saratoga, Calif., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Apr. 17, 1967, Ser. No. 634,030
Int. Cl. C06b 19/02

U.S. Cl. 149—3

4 Claims

The invention comprises a process of coating a solid propellant surface with tetramethylammonium hydrotriborate to enhance ignition with liquid hypergolic oxidizer. An example is a solid composite propellant comprising a mixture of polybutadiene and an inorganic oxidizer coated with p,p'-isopropylidenediphenol, epichlorohydrin and butyl glycidyl ether and tetramethylammonium hydrotriborate.

3,563,819

MECHANOCHEMICAL SHEET METAL BLANKING SYSTEM

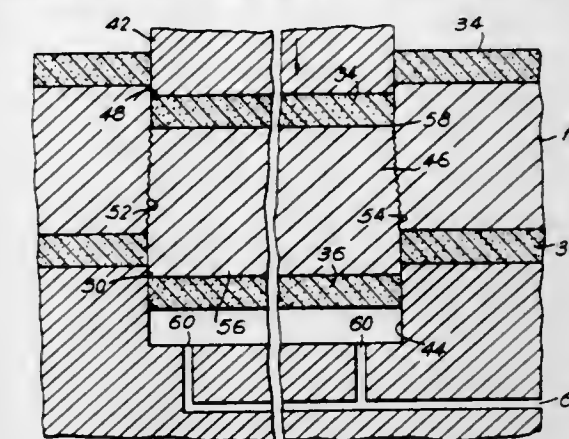
Lawrence M. Rheingold, Baldwin, and Milton Berlin, Forest Hills, N.Y., assignors to Alumet Manufacturing Corporation, Middle Village, N.Y., a corporation of New York
Filed Aug. 31, 1967, Ser. No. 664,881
Int. Cl. C23f 1/02; B23p 1/00; H05k 3/04

U.S. Cl. 156—6

13 Claims

A system of blanking sheet metal by using a punch and die to stamp a part out of sheet metal stock for only a portion of its thickness so that the part is substantially surrounded by a peripheral fracture but is still retained by the stock and projects a fraction of its thickness there-

from, protecting the broad faces of the part with a resist, then chemically etching the stock and part so that the



etch attacks the metal at the fracture and thereby loosens the part and finally removing the part from the stock.

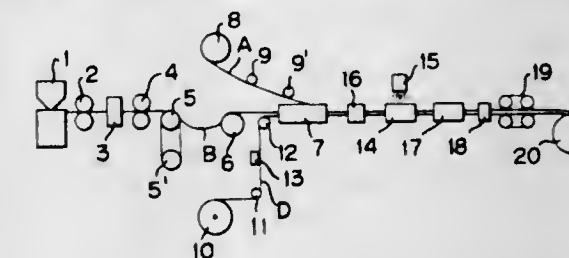
3,563,820

METHOD OF MANUFACTURING A PLASTIC INSULATED WIRE

Akira Nago, Funabashi-shi, Japan, assignor to The Tufikura Cable Works Limited, Tokyo, Japan, a corporation of Japan
Filed Aug. 20, 1968, Ser. No. 753,943
Int. Cl. H01b 13/06

U.S. Cl. 156—54

5 Claims



This invention deals with a method of manufacturing plastic insulated wires in which the insulating tape of plastic material is continuously molded to longitudinally apply it to an advancing inner conductor in the succeeding step of the process. A length of a forming tape is temporarily applied in the process to the plastic insulating tape along its length to serve as a forming member for the plastic insulating tape.

3,563,821

METHOD OF MANUFACTURING A STAINED GLASS WINDOW

Henriette M. Turtand, La Reunion: 13 Cite Ah-Soune, Saint-Denis, France
No Drawing. Filed Jan. 18, 1967, Ser. No. 610,020
Claims priority, application France, Jan. 21, 1966, 46,760
Int. Cl. B44c 3/12; B44f 1/06; C03c 27/04

U.S. Cl. 156—63

2 Claims

A stained glass window constructed as a lamination of a glass sheet and a sheet of plastic with the stained glass pieces arranged in the desired pattern on the plastic sheet prior to heating.

3,563,822

METHOD FOR WELDING THERMOPLASTIC PARTS BY SONIC ENERGY

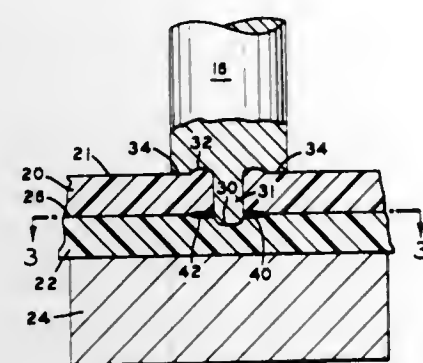
Stephen Fesh, Danbury, Conn., assignor to Branson Instruments, Incorporated, Stamford, Conn., a corporation of Delaware
Filed July 3, 1968, Ser. No. 742,312
Int. Cl. B29c 27/08

U.S. Cl. 156—73

11 Claims

Welding two superposed thermoplastic members is accomplished by providing a sonically or ultrasonically vi-

brating horn and forcing its frontal surface into one of the members toward the interface between both members. Responsive to the dissipation of sonic energy, thermo-



plastic material softens and flows at the interface, bonding both members together at the location of horn penetration.

3,563,823 METHOD FOR INTERNALLY SEALING GAS MAIN JOINTS

Gene G. Yle, Chicago, Ill., assignor, by mesne assignments, to American Gas Association, Inc., New York, N.Y., a membership corporation of New York
No Drawing. Filed June 9, 1967, Ser. No. 644,833
Int. Cl. B32b 35/00; F16I 55/18

U.S. Cl. 156—94 16 Claims

A process for sealing the leaking fibrous packings of gas main joints which involves first saturating the fibrous packing, permitting the packing to swell by action of the sealing material, and then curing the sealing material to provide a solid, tough, non-volatile, and permanent seal for the joint. The process is carried out by a sealing material comprising an epoxy resin of the type of polyglycol di- or triepoxide, and an aliphatic or aromatic amine curing agent. An additive for swelling the fibrous packing is preferably used. The sealing material is applied to the packing by pouring down an inclined gas main to a low point and permitting the sealing substance to saturate the packing; the sealant may also be applied by spraying or pressure application.

3,563,824 METHOD OF JOINING GLASSPLATE MEMBERS WITH POLYPHENYLENE OXIDES

Erich Behr, Siebengebirgsallee, Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, Bezirk Cologne, Germany, a corporation of Germany
No Drawing. Filed Jan. 26, 1967, Ser. No. 611,812
Claims priority, application Germany, Feb. 1, 1966, D 49,255

Int. Cl. B32b 17/10; C03c 27/10
U.S. Cl. 156—99 4 Claims

This specification describes the use of polyphenylene oxides, particularly poly-(2,6-dimethylphenol oxide) as glass cement.

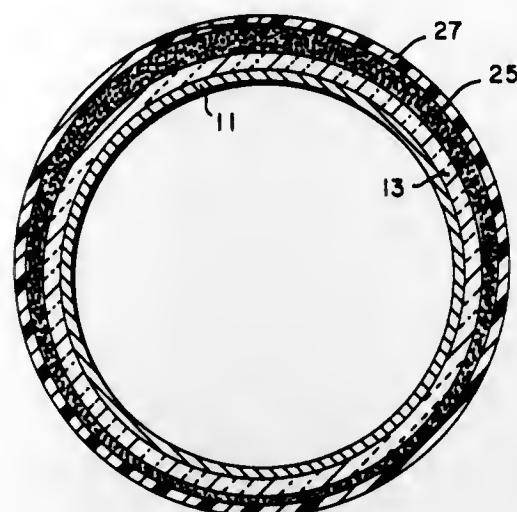
3,563,825 METHOD FOR INSULATING PIPELINES WHERE- IN MORE INSULATING MATERIAL IS ABOVE THE CENTER LINE OF THE PIPE THAN BELOW THE CENTER LINE

Marnell Albin Segura, East Baton Rouge, La., and Howard T. Oakley, Elizabeth, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed Jan. 26, 1965, Ser. No. 428,182
Int. Cl. F16I 59/02

U.S. Cl. 156—187 9 Claims
A method of applying a pourable or foamable insulation to a pipe wherein the insulation is flowed into an outer wrapper sheet underlying the pipe, and the wrapper

sheet is thereafter joined along its longitudinal edges to tightly enclose the insulation about the pipe. The method may include the preliminary step of also helically wrapping the pipe with an insulation tape. Preferably, the in-

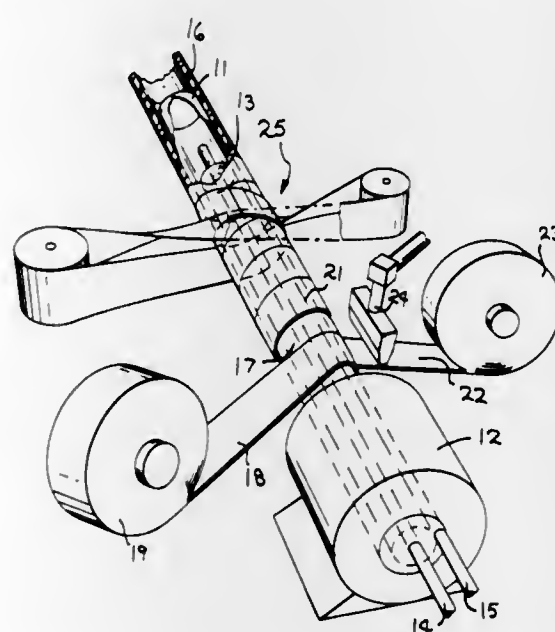


sulation is flowed into the wrapper in such a way as to place a greater proportion of the insulation on one side of the pipe than on the other to thereby obtain maximum insulation value per unit mass of insulation.

3,563,826 METHOD OF MAKING A CYLINDRICAL ARTICLE WHILE COOLING A MANDREL TO REDUCE FRICTIONAL FORCES

James C. O'Neal, Jr., Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Continuation-in-part of application Ser. No. 606,929, Jan. 3, 1967. This application Jan. 2, 1968, Ser. No. 695,155

Int. Cl. B65h 81/00 4 Claims
U.S. Cl. 156—190

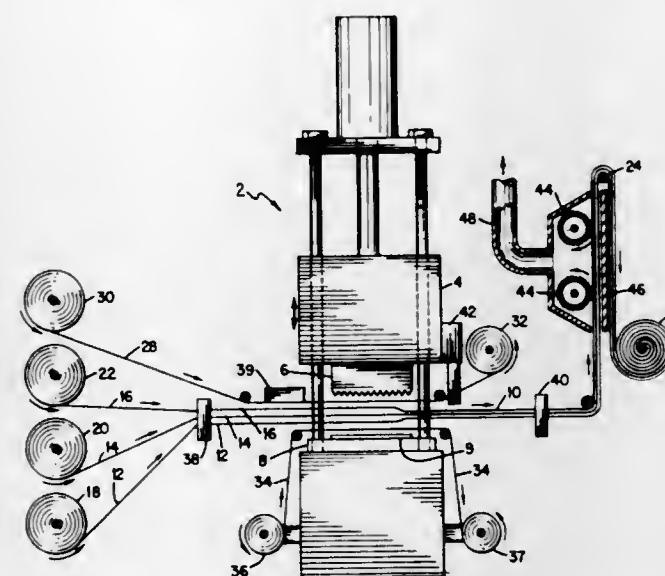


This application discloses the construction of a cylindrical article having utility in the manufacture of can-type containers said article comprising inner and outer plies of thermoplastic material bonded to one another by a suitable adhesive. The inner and outer plies of the article are formed from spirally-wound strands of thermoplastic material. The application also discloses a spiral-winding method for forming such a cylindrical article in which a cooling medium is circulated through the winding mandrel to reduce frictional forces between the article being formed and the winding mandrel.

3,563,827 METHOD OF MANUFACTURING A DECORATIVE VINYL SURFACE

Charles W. Zylinski, North Arlington, N.J., assignor to Harte & Company, Inc., New York, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 429,452, Feb. 1, 1965. This application June 8, 1966, Ser. No. 556,124

Int. Cl. B32b 3/06 6 Claims
U.S. Cl. 156—209

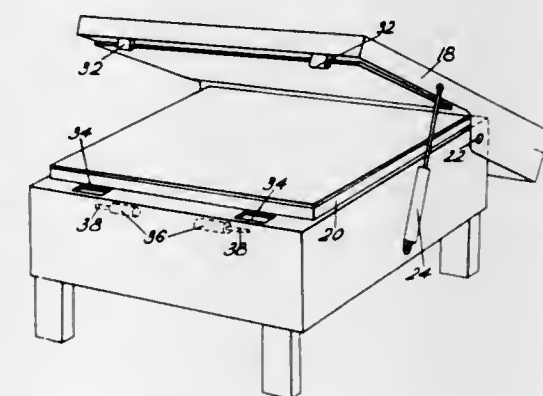


Products are produced from vinyl sheets and the like having an embossed surface and having decorative coloring deposited in the depressions. Such products are produced by simultaneously forming the depressed surface areas and depositing the decorative coloring on such areas by passing the product to be embossed and a carrier film coated with a suitable decorative ink through a heat sealing die. The heat and pressure form depressed surface areas and simultaneously transfer the ink from the carrier film to the area where heat sealing has been performed.

3,563,828 FLUID FILTERS

Dennis A. G. Marshall, Greets Cottage, Friday St., Warnham, near Horsham, Sussex, England
Filed June 14, 1968, Ser. No. 737,093
Int. Cl. B29c 25/00

U.S. Cl. 156—228 3 Claims

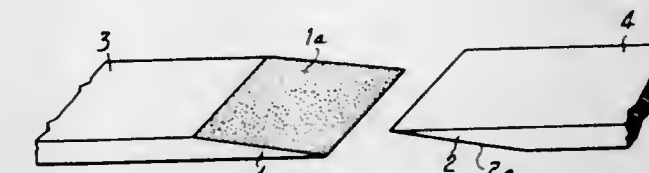


A fluid filter for removing dust and other foreign matter from air and other fluid streams having a metal frame or a metal reinforcement which is bonded to one or more layers of filtering material by a coating of thermoplastic material, the coating being obtained by heating the frame or reinforcement and bringing it into contact with thermoplastic material in powder form, whereupon the powder melts and the filtering material is pressed against the coating while it is still molten.

3,563,829 METHOD FOR PREARRANGING POLYAMIDE RESIN BELTS AND STRAPS TO SUBSEQUENT WELDING OPERATIONS

Livio Zenere, Via Margherita 9, Valdarno, Italy
Filed Dec. 1, 1967, Ser. No. 687,242
Claims priority, application Italy, Dec. 22, 1966, 14,767/66

Int. Cl. B32b 31/18 4 Claims
U.S. Cl. 156—249



A resin belt or strap for operating machinery such as used for spinning or weaving textiles, is to have its adjacent ends bonded together to provide an operating loop. The belt is of a suitable resin material such as polyamide and its ends are to be fused or welded together at the operating site to form a loop directly on the apparatus or machinery. For this purpose, end portions of the belt material or length, before shipping to the situs of use, are oppositely-beveled or slit to provide complementary, endwise-inclined faces that match each other. Each inclined face is then wetted by a bonding or gluing agent or material that is a solvent for the resin of the belt. Next, a protective enclosing sheath or sleeve of complementary shape and of a different resin material that is not affected by the bonding-solvent wetting agent, is slid over each treated end portion of the belt length to extend along an adjacent normal thickness portion thereof. A side of each end portion of the belt, such as the opposite or fully flat side, may be given a temporary or mechanical adherence with an opposing inner side of its sheath by wetting the sheath with a type of adhesive that is a non-solvent with respect to the resin of the belt and resin of the sheath, for example, water glass (sodium silicate). The sheaths are used to protect the treated ends of the belt during shipment, storage, and until the belt is installed. The sheaths also protect the belt while it is being inserted and mounted on the operating machinery; they are pulled or stripped-off the belt ends to expose the wetted surfaces to permit such surfaces to be applied in a complementary manner with each other and clamped for heat and pressure bonding. The unitary physical bond thus produced is permanent and enables the belt to be placed in use as an operating loop.

3,563,830 PROCESS FOR PREPARING SEAMING TAPE

Charles D. Burgess, Macon, Ga., assignor, by mesne assignments, to Giffen-Burgess Corporation, a corporation of Delaware
No Drawing. Application Dec. 6, 1966, Ser. No. 599,414, now Patent No. 3,400,038, dated Sept. 3, 1968, which is a continuation-in-part of application Ser. No. 535,333, Mar. 18, 1966. Divided and this application June 26, 1968, Ser. No. 770,874

Int. Cl. B32b 7/14 15 Claims
U.S. Cl. 156—291
A process is described for the face seaming of strips of carpeting, utilizing a seaming tape comprising a hot-melt adhesive conjointly with a joining web having open areas, and a barrier web which has not. It is essential that at least 0.12 oz. of the adhesive per foot of carpeting to be seamed be provided to accomplish lateral flow of the molten adhesive and to fill the interstices of the joining web and in the backside of the carpeting to be

joined. The components of the tape ready for use, can be attached to each other most conveniently by utilizing the adhesive properties of the hot adhesive layer.

3,563,831

TUBELESS SIDEWALL MOLD FOR TIRES

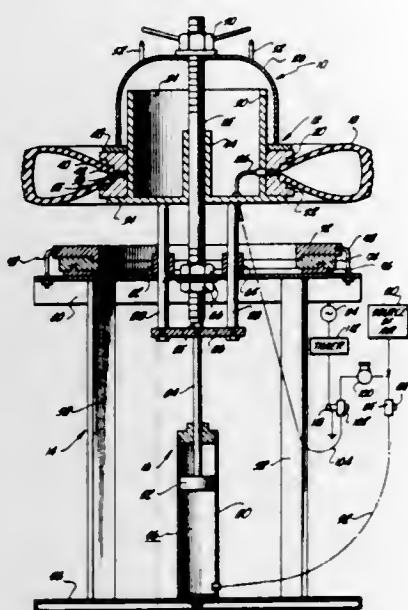
Maurice Clapp and William M. Conley, Jr., Redlands, Calif., assignors to Clapp's Equipment Div., Mentone, Calif., a corporation of California

Filed Aug. 30, 1968, Ser. No. 756,613

Int. Cl. B29h 5/24, 17/04

U.S. Cl. 156—366

17 Claims



A pressure head closes a mounting drum's interior and bears against an upper bead ring to maintain the upper bead ring fixed relative to a lower bead ring and a curing matrix. A pneumatic ejection cylinder is operative to raise the mounting drum and lower bead ring above the curing matrix to collapse the beads of a tire and seat the beads in the upper and lower bead rings. Upon inflation of the tire, air pressure within the tire's interior forces the lower bead ring and the mounting drum downward against stops into a curing position. In the curing position, the lower sidewall of the tire will abut against the curing matrix for the application of a sidewall strip. After the sidewall strip is cured, the inflation pressure is released. The lower bead ring and drum will then rise by action of the pneumatic cylinder to carry the lower sidewall of the tire above the curing matrix. The tire may then be removed from the mold.

3,563,832

TIRE RETREADING APPARATUS WITH TREAD AND SIDEWALL FORMING ROLL

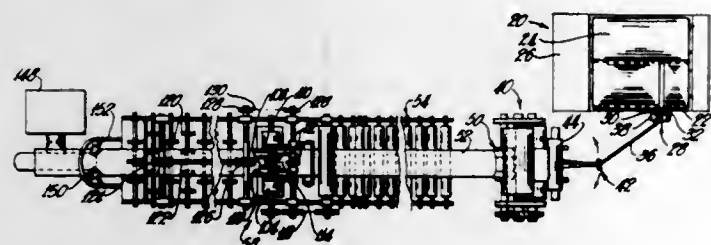
Donno W. Cooper, Muncie, Ind., assignor of one-third each to Darrell D. Cooper, Muncie, Ind., and Eugene Reed, Louisville, Ky.

Filed Dec. 4, 1967, Ser. No. 687,828

Int. Cl. B29h 17/37

U.S. Cl. 156—405

13 Claims



Retreading of tires is accomplished with tread stock produced by a forming roll. The tread stock formed by the forming roll is applied to a tire carcass by a tire

building machine, with the tread stock forming apparatus and tire building apparatus constituting one retreading unit. With this arrangement, it is no longer necessary to purchase tread stock from outside sources, which stock is relatively expensive and may be of non-uniform, lower quality. Roll-forming of the tread stock requires relatively inexpensive apparatus and the start-up time involved is relatively short. The forming roll used for the tread stock also is adjustable and can be relatively quickly adjusted for various sizes of tread stock including widths and thicknesses.

3,563,833

SPLICING APPARATUS

Harry Herman Ross, London, and William Frank Maidment, Guildford, England, assignors to Punched Card Accessories Limited, London, England, a British company

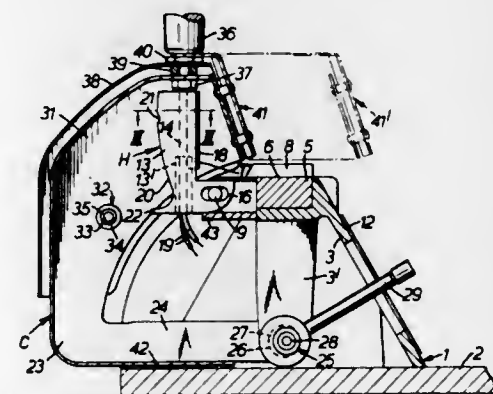
Filed Aug. 15, 1967, Ser. No. 660,678

Claims priority, application Great Britain, Aug. 22, 1966, 37,422/66; Dec. 9, 1966, 55,152/66

Int. Cl. B65h 69/06

U.S. Cl. 156—502

17 Claims



Splicing apparatus for joining together the ends of two webs, particularly of data tape, comprises means including a bed for locating the web ends, heater means movable relative to the web locating means to engage in a closed position with the located web ends, and clamp means movable relative to both the web locating means and the heater means to close the heater means and so apply heat and pressure for joining the located web ends.

3,563,834

CONSTRUCTION DEVICES FOR HOLDING FLAT PLATES OF DECORATIVE MATERIAL WITHIN A FRAMEWORK

Nachman Vidan, Tel Aviv, Israel, assignor to Lenoy Limited, Kfar Azar, Israel, a company of Israel

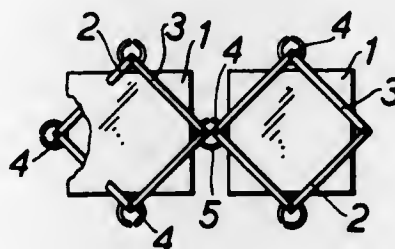
Filed June 9, 1969, Ser. No. 831,594

Claims priority, application Israel, June 24, 1968, 30,247

Int. Cl. B32b 3/10

U.S. Cl. 161—37

7 Claims



A decorative construction device for holding a plurality of flat plates of decorative material within a framework beyond which the edges of the plates extend. Connecting

links engage the framework and retain the same together so that when assembled, the device can be bent into any desired shape.

3,563,835

STAINED GLASS ASSEMBLY

John Nussbaum, 6505 79th St., Middle Village, N.Y. 11379, and Berney Harris III, 348 E. 78th St., New York, N.Y. 10021

Filed Aug. 20, 1969, Ser. No. 851,619

Int. Cl. B44f 1/08

U.S. Cl. 161—18

4 Claims



An assembly of stained glass pieces having the traditional hand-crafted appearance of individual leading about each piece, such appearance being simulated by a base delineated into shaped areas by flat strips, those strips of the cover even containing mock soldering deposits. This results in a realistic hand-crafted appearance which normally is obtainable only after tedious effort but which is actually obtained in accordance with the present invention in a facilitated, simple procedure.

3,563,836

PROJECTILE ARMOR FABRICATION

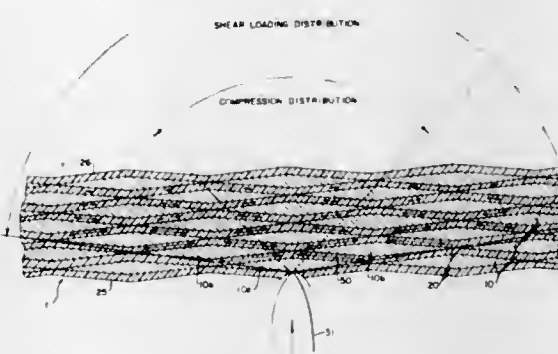
Jack D. Dunbar, Lewiston, N.Y., assignor to Bell Aerospace Corporation, Wheatfield, N.Y.

Filed May 23, 1968, Ser. No. 731,411

Int. Cl. B32b 3/14

U.S. Cl. 161—38

6 Claims



A projectile armor fabrication comprising a composite of relatively rigid, small, substantially equal sized load distributing platelets integrated within a matrix of less rigid material; the platelets being arranged within the matrix in a shingled, statistical, interdependent or geometric pattern, and being bonded thereto with or without the aid of adhesives. The composite may be formed as a relatively light weight non-rigid sheet and employed as personnel armor or as armor protection for military aircraft, vehicles, or the like against small arms fire. The platelets are distributed within the matrix in such a manner as to provide improved distribution and absorption of projectile-impact energy and to dampen the acoustical energy wave effects thereof by changing their amplitudes and frequencies as they are transmitted through the composite.

883 O.G.—42

3,563,837

SHOCK ABSORBING MAT

Howard S. Smith, Asheville, and Leland E. Williams, Waynesville, N.C., assignors to Dayco Corporation, Dayton, Ohio, a corporation of Delaware

Filed Aug. 21, 1968, Ser. No. 754,432

Int. Cl. B32b 3/00, 5/16

U.S. Cl. 161—43

6 Claims

A shock-absorbing mat in which a cover is filled with a mixture of small pieces of flexible elastomeric foam material, such as latex or urethane, and semi-rigid plastic foam material, such as expanded styrene or urethane.

3,563,838

CONTINUOUS FILAMENT NONWOVEN WEB

Clifton Vedantus Edwards, Nashville, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Continuation-in-part of application Ser. No. 651,799,

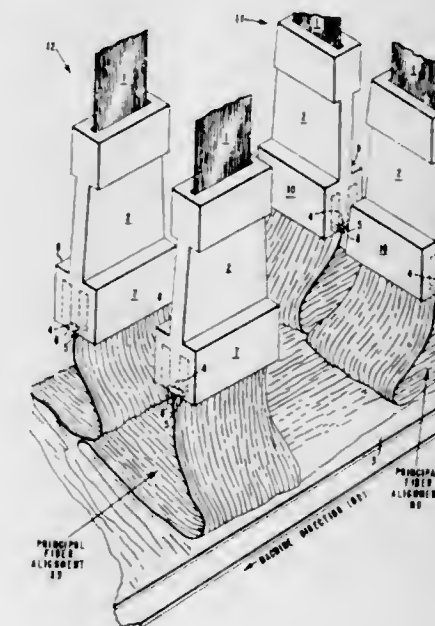
July 7, 1967. This application July 9, 1968, Ser.

No. 743,516

Int. Cl. D04h 3/02

U.S. Cl. 161—57

12 Claims



The invention relates to continuous filament nonwoven webs having a specified filament directionality. The continuous synthetic filaments are preferentially aligned in directions approximately parallel or perpendicular to the fabric length direction, and extend for a distance greater than 7 inches in that direction. Such webs are particularly useful as primary backings for tufted carpets since they offer exceptionally high resistance to width loss on stretching coupled with high tear strength.

3,563,839

METHOD OF FORMING WEAKENED TEAR LINES AND THE ARTICLE FORMED THEREBY

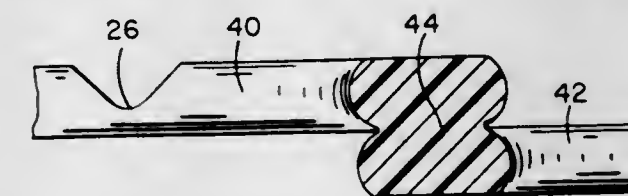
Roy R. Divis, Leominster, Mass., assignor to Foster Grant Co., Inc., Leominster, Mass., a corporation of Delaware

Filed Aug. 1, 1968, Ser. No. 749,444

Int. Cl. B32b 5/18, 31/26

U.S. Cl. 161—57

4 Claims



The method of providing weakened tear lines in heat-destructible material by thermally destroying a portion of the thickness of the material along desired paths.

3,563,840

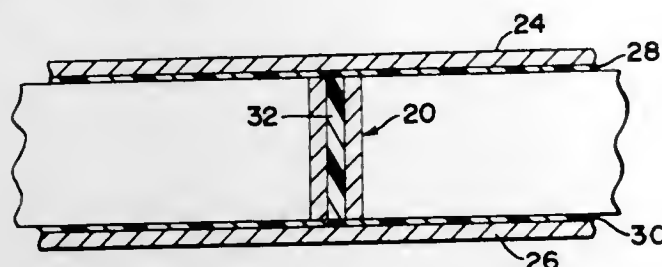
HONEYCOMB HAVING EQUAL SHEAR STRENGTH PROPERTIES

Walter E. Stine, North Olmstead, Ohio, assignor to Morgan Adhesives Company, Stow, Ohio, a corporation of Ohio

Filed June 13, 1968, Ser. No. 736,639
Int. Cl. B32b 3/12

U.S. Cl. 161—68

1 Claim



This invention modifies the conventional hexagonal honeycomb core design by changing the lengths of the sides and the angles within the hexagonal cores themselves so as to provide a honeycomb having the same shear strength characteristics in the ribbon direction as the normal direction, and with an accompanying reduction in weight of the honeycomb material.

3,563,841

CELLULOSE TRIACETATE TREATED WITH SELECTED COMPOUNDS TO INTRODUCE STRETCH PROPERTIES

William C. Sturkey, Charlotte, N.C., assignor to Celanese Corporation, a corporation of Delaware
No Drawing. Original application Oct. 15, 1965, Ser. No. 496,666, now Patent No. 3,477,806, dated Nov. 11, 1969. Divided and this application May 27, 1969, Ser. No. 847,761

Int. Cl. D03d 15/08

U.S. Cl. 161—77

4 Claims

Textile materials having improved stretch properties are produced by treating textile material comprising cellulose organic acid esters having less than 0.29 free hydroxyl groups per anhydroglucose unit with a compound selected from the group consisting of beta-butoxyethyl acetate, acetyl triethyl citrate and benzyl alcohol.

3,563,842

TWO LAYERED WATER-REPELLANT FABRIC
Manuel A. Thomas, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C., a corporation of South Carolina
Continuation-in-part of application Ser. No. 361,816, Apr. 22, 1964. This application May 20, 1969, Ser. No. 830,915

Int. Cl. A41d 3/04; D06n 3/12

U.S. Cl. 161—92

13 Claims

A fabric comprising a plied system having at least two separate contiguous layers of fabric, both the inner and outer fabric layers being penetrable by rain and being resistant to standing water with the inner layer being of equal or tighter construction than the outer layer.

3,563,843

DOUBLE-FACED CORRUGATED PAPERBOARD WITH SEALED EDGES

William O. Wagers, Smithville, and Robert H. Frappier, Wooster, Ohio, William S. McDonald, Georgetown, S.C., and Charles L. Boggs, Statesville, N.C., assignors to International Paper Company, New York, N.Y., a corporation of New York

Filed Apr. 16, 1968, Ser. No. 721,739

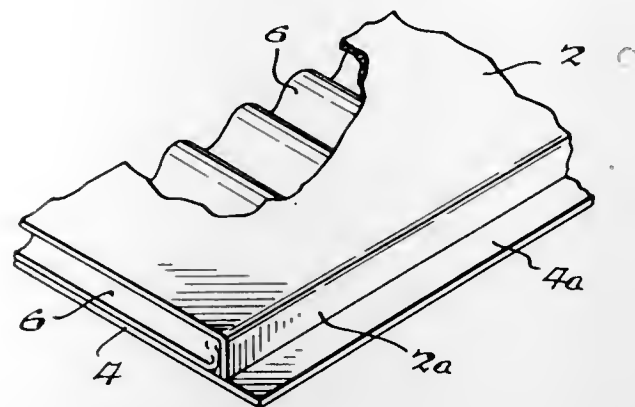
Int. Cl. B32b 3/04, 3/28

U.S. Cl. 161—133

6 Claims

A closed edge corrugated core paperboard in which the corrugated core of the board is closed by slitting and

compressing the corrugated core edge and by folding the edges of the facing sheets, left projecting after the core is crushed, one folded extending edge folded over the other folded extending edge, and adhesively securing the



folded edges together; the method for producing such board including the steps of slitting and crushing the end of the core, folding the edges of the facing sheets, one over the other, and adhesively securing the folded edges of the facing sheets to each other.

3,563,844

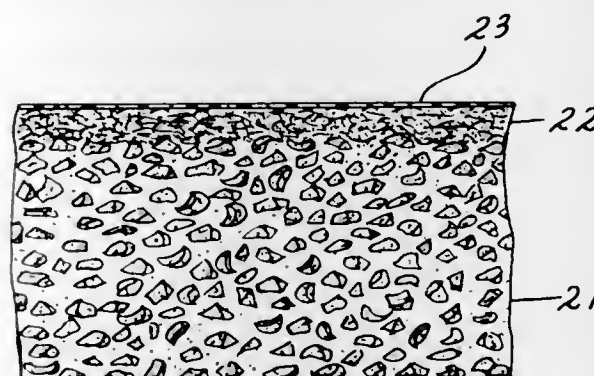
WOOD OVERLAY PRODUCTS AND THEIR MANUFACTURE

Gordon E. Brown, Seattle, Wash., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Continuation-in-part of application Ser. No. 390,183, Aug. 17, 1964. This application Dec. 2, 1968, Ser. No. 780,312

Int. Cl. B32b 5/28, 27/12, 27/14, 27/42

U.S. Cl. 161—158

5 Claims



Composite low density wood-resin overlays prepared by compressing a composite layered structure which includes a mat of resin coated comminuted wood chips, an interlayer of a wood fiber and phenolic resin and a face coating of a certain phenolic resin. The overlays are useful as synthetic facing veneers in plywood manufacture.

3,563,845

THERMAL INSULATING COMPOSITE STRUCTURE

James K. Stevens, Brimfield, Mass., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Apr. 22, 1969, Ser. No. 818,459

Int. Cl. B32b 5/18, 27/40

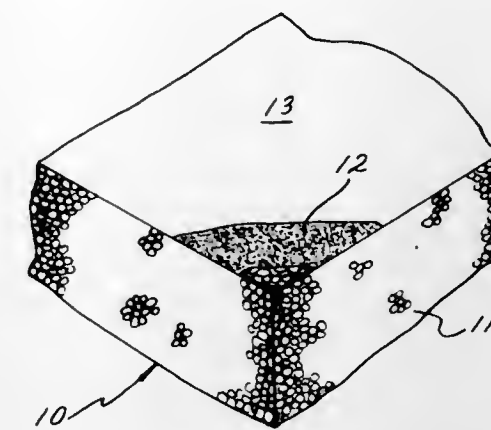
U.S. Cl. 161—160

5 Claims

Improved integral, three-layered plastic, thermally insulating composites each having an impact resistant solid facing layer of a monovinyl aromatic compound/alpha-electronegatively substituted ethene compound interpoly-

mer system, a layer of cellular polyurethane, and an elastomeric interlayer positioned between these two layers.

with a polycarbonate added to the polyester prior to fiber formation.



The resulting composites have improved impact resistance as respects the solid facing layer.

3,563,846

SELF-SEALING FUEL TANK

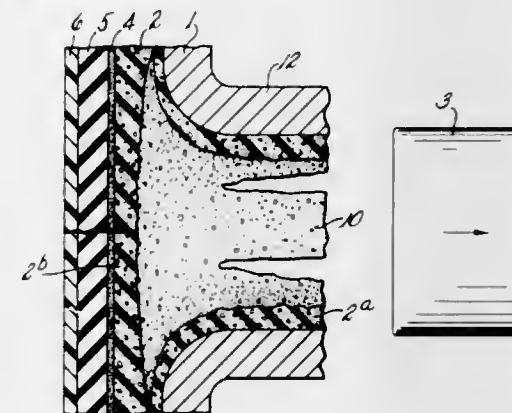
George B. Harr, Pasadena, Calif., assignor to The Firestone Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Filed Aug. 25, 1966, Ser. No. 574,978

Int. Cl. B32b 7/06; B65d 25/34

U.S. Cl. 161—161

9 Claims



This invention relates to the protection of a fuel tank by an exterior composite laminate which comprises a layer of fuel-resistant sponge 0.020 to 0.125 inch thick adherently interposed between the fuel tank and a sealing layer. When the protected fuel tank of this invention is punctured by a projectile, the sponge layer is splittable so that the sealing layer separates from the tank wall around the puncture as the puncture is formed and the sealing layer swells when contacted by the fuel.

3,563,847

POLYCARBONATE MODIFIED POLYESTER REINFORCING ELEMENTS AND RUBBER STRUCTURES MADE THEREFROM

Grover W. Rye, Cuyahoga Falls, and Thomas E. Evans, Massillon, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
No Drawing. Filed June 14, 1968, Ser. No. 736,964

Int. Cl. C08d 11/04; C08f 45/62; C08g 39/10;

D02g 3/48

U.S. Cl. 161—176

5 Claims

Relates to an improved rubber structure reinforced with an improved polyester reinforcing fiber modified

3,563,848

METAL COMPLEX MODIFIED POLYESTER REINFORCING ELEMENTS AND RUBBER STRUCTURES MADE THEREFROM

Roop S. Bhakuni and Joseph L. Cormany, Jr., Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Filed June 14, 1968, Ser. No. 736,973

Int. Cl. C08d 11/04; C08f 45/62; C08g 39/10;

D02g 3/48

U.S. Cl. 161—176

21 Claims

Relates to an improved rubber structure reinforced with an improved polyester reinforcing fiber modified with either a metal complex alone or in combination with a polycarbonate alone or in combination with an isocyanate, the modifier being present in the polyester prior to fiber formation.

3,563,849

ISOCYANATE MODIFIED POLYESTER REINFORCING ELEMENTS AND RUBBER STRUCTURES MADE THEREFROM

Grover W. Rye, Cuyahoga Falls, and Roop S. Bhakuni and Joseph L. Cormany, Jr., Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Filed June 14, 1968, Ser. No. 736,975

Int. Cl. C08d 11/04; C08f 45/62; C08g 39/10; D02g 3/48

U.S. Cl. 161—176

9 Claims

Relates to an improved rubber structure reinforced with an improved polyester reinforcing fiber modified with either an isocyanate or in combination with a polycarbonate present in the polyester prior to fiber formation.

3,563,850

ELECTRICAL INSULATION CONTAINING EPOXY RESIN, BIS(2,3-EPOXY-CYCLOPENTYL) ETHER AND RESORCINOL FORMALDEHYDE RESIN

Donald F. Stackhouse and Mark Markovitz, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

Continuation-in-part of application Ser. No. 603,247,

Dec. 20, 1966. This application June 11, 1969, Ser. No. 834,224

Int. Cl. C08g 45/08

U.S. Cl. 161—184

10 Claims

Electrical insulation treated with solventless resin compositions comprising (a) relatively slower curing bis(2,3-epoxycyclopentyl) ether, (b) other relatively faster curing 1,2 epoxy resin, and (c) resorcinol formaldehyde hardener is characterized by ready application and good electrical and physical properties.

3,563,851

WATER RESISTANT VINYL ACETATE COPOLYMER ADHESIVE COMPOSITIONS

Walter B. Armour, Plainfield, N.J., Albert I. Goldberg, Englefield Green, Surrey, England, and Victor Jasinski, South Plainfield, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 451,022, Apr. 26, 1965. This application Mar. 27, 1968, Ser. No. 716,368

Int. Cl. C08f 45/24; B22b 27/30

U.S. Cl. 161—251

3 Claims

Adhesive compositions characterized by their outstanding water resistance, said compositions comprising a mixture of: (a) an aqueous emulsion of a vinyl acetate copolymer; (b) polyvinyl alcohol; and (c) an acidic metal salt curing agent.

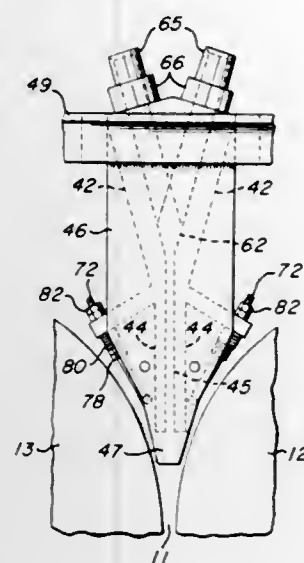
3,563,852
HEADBOX FOR TWIN WIRE PAPER MAKING APPARATUS
 Walter E. Rojecki, Watertown, N.Y., assignor to The Black Clawson Company, Hamilton, Ohio, a corporation of Ohio

Filed Aug. 11, 1967, Ser. No. 660,083

Int. Cl. D21f 1/02

U.S. Cl. 162—301

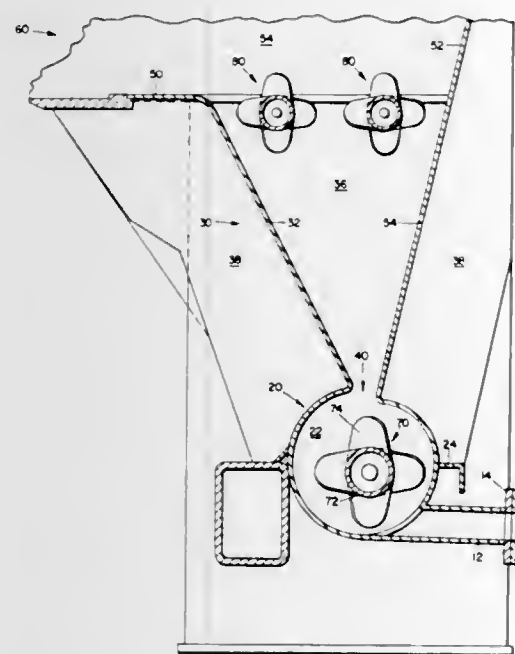
9 Claims



A headbox for use with a twin wire vertical paper making machine comprises a main body having therein two rows of downwardly extending stock inlet passages which converge in an alternating manner into a high pressure blending chamber extending parallel to the nip, and spaced lip members defining a discharge slot leading from the blending chamber for directing a controlled stream of paper making stock downwardly into the forming zone at a velocity substantially equal to the speed of the wires.

3,563,853
STOCK DISTRIBUTOR
 Albert Edward Harold Fair, 101 Monmouth St., Brookline, Mass. 02146
 Filed Aug. 30, 1968, Ser. No. 756,576
 Int. Cl. D21f 1/06
 U.S. Cl. 162—342

1 Claim



A flow control device disposed beneath and communicating directly with the headbox of a papermaking machine and including an inlet extending transversely of

the entirety of the headbox width for receiving the flow of stock from a supply point, the inlet communicating with the bottom-most sector of an explosion chamber of generally circular cross section extending transversely of the entirety of the headbox width, with the top-most sector of the explosion chamber having an opening defining a constricted passageway leading into the bottom of a vertically-extending gradually-enlarging throat also extending transversely of the entirety of the headbox width and with the top of the throat communicating with an opening in the floor of the pond of the headbox, the explosion chamber containing a single rotatable homogenizer roll and the top-most portion of the throat containing a plurality of rotatable homogenizer rolls in a spaced side-by-side relationship.

3,563,854
SEALING ARRANGEMENT FOR A BREAST BOX OF A PAPERMAKING MACHINE
 Henrik Nisser and Werner Schon, Heidenheim, Germany, assignors to J. M. Volth, G.m.b.H., Heidenheim (Brenz), Germany

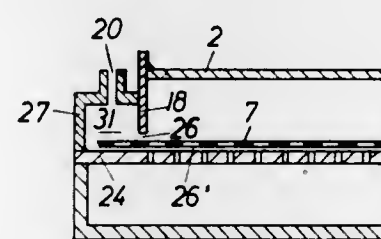
Filed July 24, 1967, Ser. No. 655,597

Claims priority, application Germany, Aug. 6, 1966, P 15 11 247.7

Int. Cl. D21f 1/58

U.S. Cl. 162—353

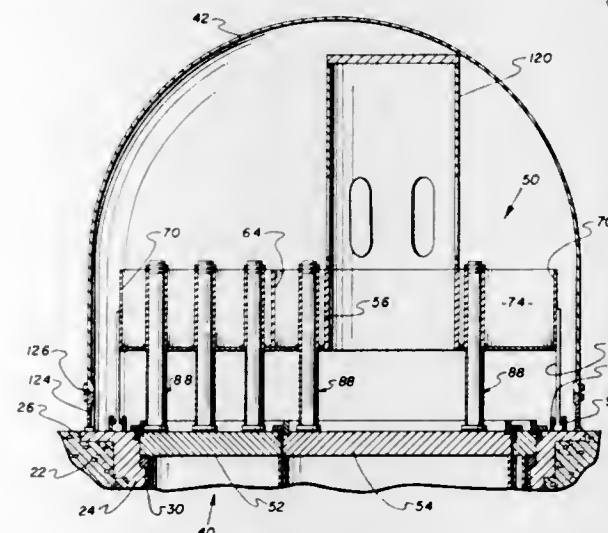
5 Claims



Sealing arrangement for sealing between the bottom edges of the walls of the breast box of a papermaking machine and the porous member moving therebeneath, in which the walls of the breast box terminate short of the porous member and chambers are formed along the walls to which a fluid medium is supplied under pressure to prevent suspension from flowing from the breast box out through the openings.

3,563,855
ENERGY ABSORBER STRUCTURE FOR A NUCLEAR POWER PLANT CONTAINMENT SYSTEM
 Myroslaw Marko, Canoga Park, Calif., assignor to North American Rockwell Corporation
 Filed Nov. 12, 1968, Ser. No. 774,755
 Int. Cl. G21c 9/00
 U.S. Cl. 176—38

11 Claims



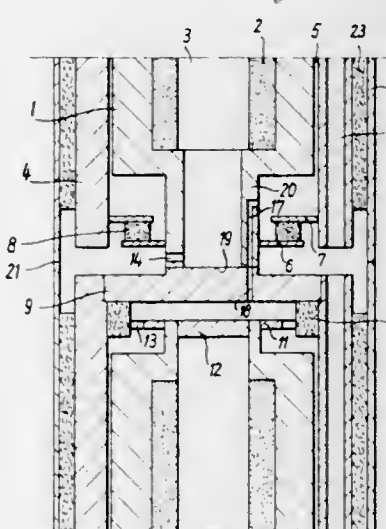
The mechanical integrity of a nuclear power plant containment system is maintained by limiting the motion of

the top shield assembly of a nuclear reactor by an energy absorber structure that absorbs the energy imparted to the top shield assembly by a maximum accident in the reactor core which has an equivalent energy release of hundreds of pounds of TNT, and transmits the resulting force load directly to the reactor building structure.

3,563,856
THERMIONIC FUEL ROD WITH NUCLEAR FUEL
 Franz Gross, Neckargemund, Alfred Jester, Speyer, Rudolf Krapf, Leimen, and Hubert Holick, Lampertheim, Germany, assignors to Brown, Boveri & Cie A.G., Mannheim-Kaferthal, Germany, a German corporation
 Filed Aug. 2, 1967, Ser. No. 657,820
 Claims priority, application Germany, Aug. 5, 1966, B 88,345
 Int. Cl. G21c 3/02

U.S. Cl. 176—68

7 Claims



This invention relates to thermionic fuel elements, provided with nuclear fuel, for direct conversion into electrical energy of heat produced by nuclear fission. The thermionic elements comprise tubular, concentrically positioned emitters (1) and collectors (4). The fuel elements are electrically connected in series and are provided with respective discharge chambers (5) which are separated from each other by novel vacuum-tight seals, the seals providing a mechanical and electrical separation of the respective thermionic elements. The discharge chamber, provided at one end of each thermionic element, is filled with cesium vapor. The novel seal comprises a disc-shaped rigid metal-ceramic component (6, 7) at one end, and a pliable or yieldable metal-ceramic portion acting as a guide ring (10, 11) at the other end, acting in combination with a vacuum-tight plate (9).

3,563,857
PROCESS FOR PRODUCING L-GLUTAMIC ACID BY FERMENTATION
 Toshikazu Oki, Fujisawa-shi, Yukio Nishimura, Yoshiroshi, Yoshio Sayama and Hisao Takemi, Yokohama-shi, Atsuo Kital, Kamakura-shi, and Asachiro Ozaki, Tokyo, Japan, assignors to Sanraku Ocean Co., Ltd., and Ajinomoto Co., Inc., both of Tokyo, Japan
 No Drawing. Filed Mar. 15, 1968, Ser. No. 713,323
 Claims priority, application Japan, Mar. 20, 1967, 42/17,002; Dec. 29, 1967, 43/84,433, 43/84,434; Jan. 18, 1968, 43/2,334
 Int. Cl. C12b 3/00

U.S. Cl. 195—49

10 Claims

Many yeasts and bacteria are capable of growth on otherwise conventional culture media which contain ethanol as the principal source of carbon, and produce L-glutamic acid which may be recovered in commercially

useful amounts. The medium should contain no more than 10% ethanol for good yields, and the ethanol content may be replenished by mixing the ethanol with the aeration gas.

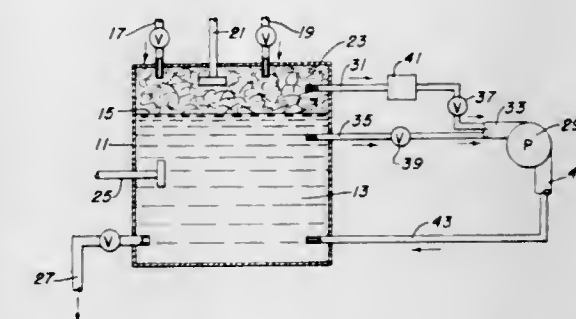
3,563,858
AERATION AND FOAM CONTROL IN SPARGED FERMENTATION
 George R. L. Worthington, Berkeley, Hyman Wolochow, Castro Valley, and Mark A. Chatigny, San Lorenzo, Calif., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Sept. 27, 1967, Ser. No. 671,160

Int. Cl. B01d 19/02; C12b 1/18

U.S. Cl. 195—107

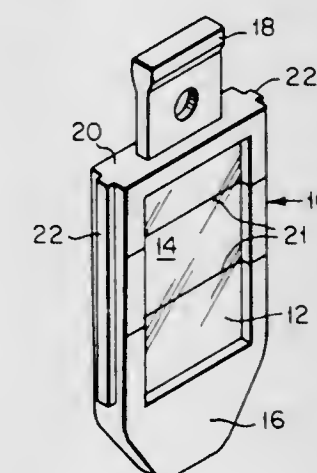
7 Claims



The method of controlling foam generated by the biological reaction of a fluid culture medium in a container wherein the inlet of a pump is connected to withdraw foam from the head space above the culture medium and to withdraw culture medium from the container. The pump compresses the withdrawn foam and intimately mixes the withdrawn foam, including the air and microbial mass contained therein, and the withdrawn medium. This compressed mixture of withdrawn foam and withdrawn culture medium is then reintroduced into the culture medium in the container thereby resulting in the intimate dispersion of the air, the microbial mass and the culture medium within the container.

3,563,859
DISPOSABLE CULTURE DEVICE
 Aaron J. Fink, 614 Springer Terrace, Los Altos, Calif. 94022
 Filed Oct. 16, 1967, Ser. No. 675,470
 Int. Cl. C12b 1/00; C12k 1/04, 1/10
 U.S. Cl. 195—140

7 Claims



A disposable culture device for testing for the presence and number of bacteria utilizes a media support contained in an independent enclosure for incubation and bacteria colony growth.

3,563,860

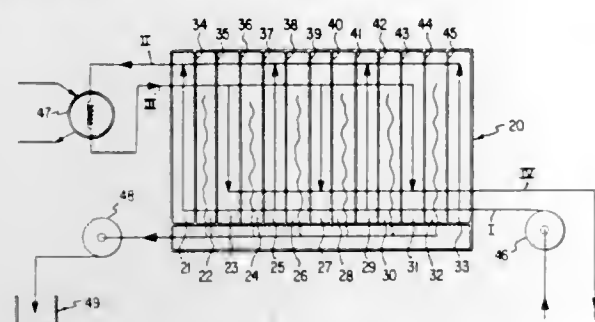
EVAPORATION-CONDENSATION RECOVERY OF A SOLUTION COMPONENT USING VAPOR-PERMEABLE WALL SPACED FROM A COLD WALL
Yves Henderyckx, 35 Rue du Baillois, Bourgeois, Belgium
Filed Mar. 14, 1968, Ser. No. 713,073

Claims priority, application Belgium, Mar. 16, 1967, 41,134

Int. Cl. B01d 1/22; C02 1/06

U.S. Cl. 202—172

6 Claims



A process and apparatus for separating a component from a solution by circulating hot liquid to be distilled and, in countercurrent thereto, cooling liquid at respectively opposite sides of a gaseous region situated between a membrane which is permeable to the vapor of the component to be separated and a cold wall on which that vapor is to condense.

3,563,861

PLURAL STAGE DISTILLATION PROCESS WITH FOAM CONTROL

Calvert H. Fletcher, Bowling Green, Ky., assignor to Detrex Chemical Industries, Inc., Detroit, Mich., a corporation of Michigan

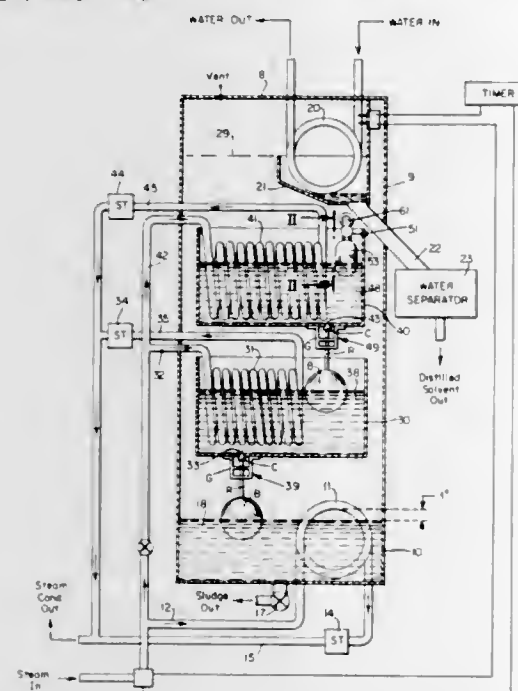
Continuation-in-part of application Ser. No. 623,409, Mar. 15, 1967, now Patent No. 3,417,001, Dec. 17, 1968. This application Aug. 19, 1968, Ser. No. 753,412

The portion of the term of the patent subsequent to Dec. 17, 1985, has been disclaimed

Int. Cl. B01b 1/02; B01d 19/02

U.S. Cl. 203—20

1 Claim



A distillation system or still is disclosed having a multi-level evaporation system with continuously self-adjusting liquid level control and control of foaming. The system has particular application to reclaim of solvent in dry cleaning system. At least one, and preferably two auxiliary evaporation pans are mounted one above the other within the vapor zone above the main boil chamber. The contaminated solvent liquid is fed to the upper auxiliary pan for at least partial evaporation of moisture, and

the liquid is discharged from the bottom of the upper auxiliary pan to the lower auxiliary pan (where used) for further partial evaporation of moisture. Liquid is discharged through the bottom of the lower auxiliary pan to the main boil chamber. The auxiliary evaporation pans and the main boil chamber each contain steam coils. Float control valves are provided to control the liquid level in each vessel. The liquid levels in the auxiliary pans and in the main boil chamber are so controlled that each of the steam coils is only partially submerged in the liquid, with the exposed portions of the coils projecting above the liquid level to a limited extent such that the exposed portions are bathed in liquid by the agitation of boiling. This has been found to provide controlled bubbling out of moisture and foam agents.

3,563,862

HIGH PRECISION ANODIZING OF THIN FILMS
Jean Joly and Georges Dubois, Paris, France, assignors to Societe Lignes Telegraphiques et Telephoniques, Paris, France, a joint-stock company of France

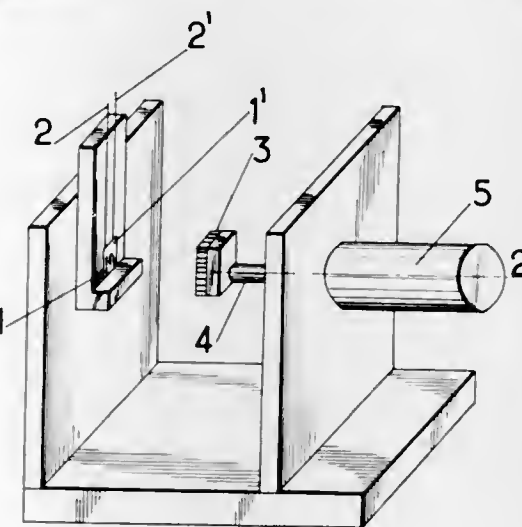
Filed Nov. 4, 1968, Ser. No. 773,185

Claims priority, application France, Nov. 10, 1967, 127,648

Int. Cl. B23p 1/02; C23b 5/48

U.S. Cl. 204—15

4 Claims



To obtain high precision control of the anodization of thin metal films by measurement of the resistance of the said layer in the course of the operation, the measurement is performed on an electrolyte free surface.

Anodization is carried through a movable arm carrying a pad filled with electrolyte the movement of which is synchronized with the A-C oxidizing current. The film surface is dried when the pad is removed.

3,563,863

METHOD OF ANODIZING SINTERED TANTALUM POWDER ANODES

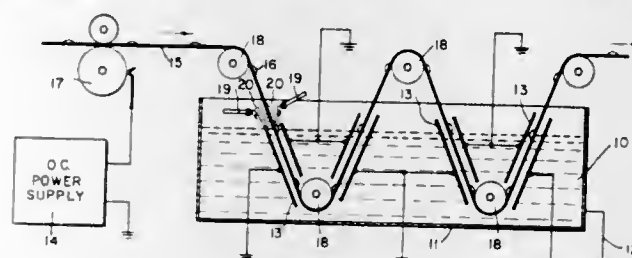
William F. Vierow, Carmel, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware

Filed May 16, 1967, Ser. No. 638,921

Int. Cl. C23b 5/58, 9/00

U.S. Cl. 204—28

4 Claims



A process for continuously anodizing tantalum foil and sintered powdered pellets formed on the foil wherein the

foil passes through cathode plates immersed in an electrolyte bath and the full formation voltage is applied to the bath.

3,563,864

CHROMIUM-NICKEL PLATING

Arthur H. Du Rose, Euclid, Karl S. Willson, Cleveland, and Gustavo C. Tejada, Euclid, Ohio, assignors, by mesne assignments, to Kewanee Oil Company, Bryn Mawr, Pa., a corporation of Delaware

No Drawing. Filed Apr. 26, 1965, Ser. No. 451,028

Int. Cl. C23b 5/50, 5/52

U.S. Cl. 204—37

15 Claims

This invention comprises a composite or laminated metallic coating, and a process for making such coating, comprising a first layer of nickel and an overlying layer of chromium, the laminate being cracked in a craze pattern in the range of 300 to 3000 cracks per lineal inch prepared by electrodeposition on a metal substrate a stressed layer of nickel and thereafter electrodeposition on this stressed layer of nickel a stressed layer of chromium adherent to the stressed layer of nickel and heating the resultant laminate. The stressing in the respective layers may be effected by means of an additive in the electroplating solution from which it is produced. The resultant crazing gives an improved protection against corrosion.

3,563,865

PRINTING OF ANODIZED ALUMINUM

Carl B. Blake, Bronx, and Adolph Fuerst, Brooklyn, N.Y., assignors to Martin Marietta Corporation, New York, N.Y., a corporation of Maryland

No Drawing. Filed Mar. 8, 1968, Ser. No. 711,505

Int. Cl. C23b 5/50

U.S. Cl. 204—35

6 Claims

A process for decorating anodized aluminum including printing dry porous anodized surface by lithographic or gravure means with an ink containing a vaporizable colorant, heating for at least 30 seconds to intensify the print and sealing in a hot or boiling aqueous solution of a neutral salt.

3,563,866

ELECTRODEPOSITION OF NICKEL

Richard J. Clauss, Allen Park, Norman C. Adamowicz, Inkster, and Robert A. Tremmel, Utica, Mich., assignors to The Udyllite Corporation, Warren, Mich., a corporation of Michigan

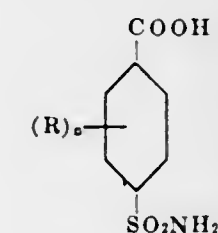
No Drawing. Filed Dec. 26, 1968, Ser. No. 787,271

Int. Cl. C23b 5/08, 5/46

U.S. Cl. 204—49

12 Claims

A method of electrodeposition satin-like finish nickel plates. The baths comprise otherwise standard nickel plating solutions but contain the combination of a polyalkylene glycol and a sulfonamide of the formula



wherein R is ---CH_3 , $\text{---C}_2\text{H}_5$, or OH and n is an integer from 0 to 3 inclusive.

3,563,867

ANODISING OF ALUMINIUM AND ITS ALLOYS
James M. Kape, West Molsey, and William Berwyn Hannaby, Wembley, England, assignors to Acorn Anodising Company Limited, London, England, a company of Great Britain

No Drawing. Filed Dec. 5, 1966, Ser. No. 598,966
Claims priority, application Great Britain, Dec. 9, 1965, 52,348/65

Int. Cl. C23b 9/02

U.S. Cl. 204—58

1 Claim

A method of anodising aluminium and its alloys in an electrolyte comprising 3% to 30% by volume of an aqueous solution of sulphuric acid comprising adding between 0.1% and 2% by volume of nitric acid to the electrolyte before or during the carrying out of the anodising operation maintaining the electrolyte at a temperature between 0° C. and 25° C. and carrying out the anodising operation at an applied voltage between 10 and 60 and at a current density between 60 and 120 amperes per square foot.

3,563,868

PROCESS FOR EXTRACTING AND RECOVERING MANGANESE FROM ORES

Jan Leja, Vancouver, British Columbia, Canada, and Mahmud A. Qazi, Aminabad, Gujrat, West Pakistan, Pakistan, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada, a corporation of Canada

Filed Feb. 15, 1968, Ser. No. 705,741

Int. Cl. C22d 1/00

U.S. Cl. 204—105

10 Claims

A process for extracting and recovering manganese from a low grade iron-manganese ore in which the ore is dissolved by acid leaching, the leach solution is subjected to solvent extraction with di(2-ethylhexyl) phosphoric acid dissolved in kerosene, the manganese extracted into the organic phase is stripped into a mixture of formamide and dimethyl formamide by hydrochloric acid and the formamide mixture containing MnCl_2 is subjected to electrolysis in a diaphragm cell to plate out metallic manganese.

3,563,869

IRRADIATED POLYETHYLENE

William C. Rainer, Baltimore, Md., Joseph J. Hitov, East Orange, N.J., Edward M. Redding, Baltimore, Md., and Arthur W. Sloan and William D. Stewart, Alexandria, Va., assignors, by mesne assignments, to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut

Continuation-in-part of application Ser. No. 517,943,

June 24, 1955, now Patent No. 3,097,150. This application Nov. 5, 1957, Ser. No. 694,662

Int. Cl. C08f 1/10; C08d 3/04

U.S. Cl. 204—159.2

21 Claims

1. A process comprising cross-linking polyethylene by the use of both high energy ionizing irradiation at a dosage of at least about 2×10^6 r.e.p. and a free radical polymerization catalyst selected from the group consisting of peroxy compounds, azo compounds and polynitrosodimethyl terephthalate.

3,563,870

MELT STRENGTH AND MELT EXTENSIBILITY OF IRRADIATED LINEAR POLYETHYLENE

Lu Ho Tung, Harold J. Donald, and Robert J. Calola, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Jan. 23, 1969, Ser. No. 793,541

Int. Cl. C08d 1/00, 3/04; C08f 1/16

U.S. Cl. 204—159.2

5 Claims

Melt strength and melt extensibility of linear polyethylene are improved by exposing said polyethylene to a small dose of high energy radiation.

3,563,871

PROCESS FOR REDUCING THE SURFACE FRICTION OF AN ELASTOMER USING RADIATION AND AN OXYGEN FREE ATMOSPHERE

Seymour Newman, Southfield, Robert A. Pett, Westland, and Robert W. Sanderson, Birmingham, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

No Drawing. Filed Nov. 14, 1969, Ser. No. 877,044

Int. Cl. C08d 1/00; C08f 1/18

U.S. Cl. 204—159.14

5 Claims

Polychloroprene rubber is formed into a desired shape and then treated with radiation having a wavelength between 2000 and 3500 angstroms. The resulting article has an extremely low coefficient of friction at the treated surface but retains its normal flexibility and hardness properties. Including small amounts of surfactant in compounding the rubber produces a still lower friction coefficient after radiation.

3,563,872

VOLTAGE GRADIENT CONTROL SYSTEM FOR ELECTROPHORESIS APPARATUS

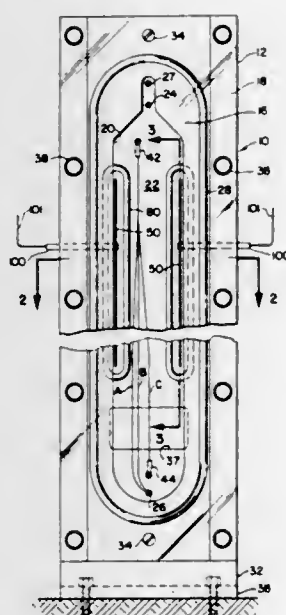
Victor R. Huebner, Fullerton, Calif., assignor to Beckman Instruments, Inc., a corporation of California

Filed Aug. 28, 1968, Ser. No. 756,059

Int. Cl. B01k 5/00

U.S. Cl. 204—180

14 Claims



A system for regulating the magnitude of the electric potential gradient applied across the active electrophoresis area of an electrophoresis apparatus including an electrode disposed on either side of the active area for monitoring the electric potential gradient being applied across the active area, a differential amplifier for comparing the amplitude of a first signal derived by way of the electrodes with a reference signal to provide a second output signal having an amplitude which is a function of the difference between the amplitudes of the first output signal and the reference signal and means responsive to the second output signal for varying the magnitude of the electric potential gradient being applied across the active electrophoresis area.

3,563,873

METHOD OF PRODUCING THIN TUNGSTEN-SILICON RESISTOR FILMS

Donald S. Beyer, Scottsdale, Ariz., assignor to Dickson Electronics Corporation, a corporation of Arizona

Filed June 28, 1968, Ser. No. 741,076

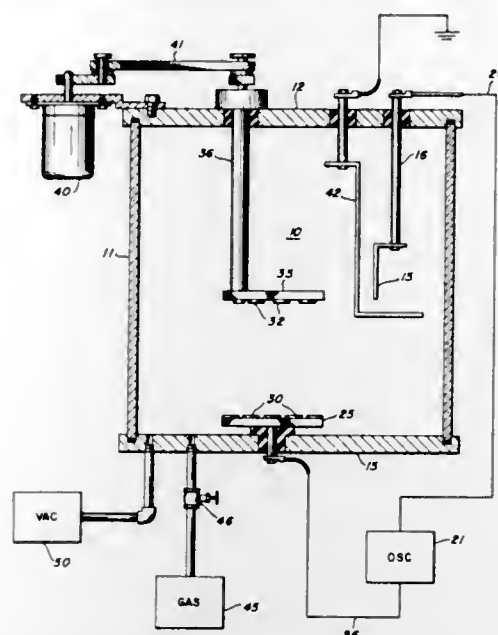
Int. Cl. C23c 15/00

U.S. Cl. 204—192

6 Claims

The production of thin films on a substrate is effected by sputtering the film on the substrate; sputtering is

achieved by subjecting a tungsten-silicon target to ionic bombardment. The ionizing bombardment is achieved in



an argon atmosphere by impressing a RF potential between the target and an aluminum electrode; a grounded aluminum shield shrouds the aluminum electrode.

3,563,874

HALIDE-SENSITIVE ELECTROCHEMICAL ELECTRODES AND METHOD OF MAKING SAME

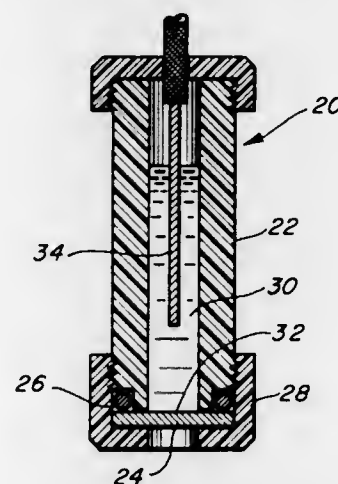
James W. Ross and Martin S. Frant, Newton, and John H. Riseman, Cambridge, Mass., assignors to Orion Research Incorporated, Cambridge, Mass., a corporation of Massachusetts

Filed Oct. 2, 1967, Ser. No. 672,152

Int. Cl. G01n 27/54

U.S. Cl. 204—195

16 Claims



An electrode sensitive to chloride ions in solution, the ion-sensitive portion being an imporous membrane of silver sulfide and silver chloride. The electrode is prepared by coprecipitating the silver salts, and after washing and drying, compressing the coprecipitate, under vacuum conditions, into a dense, imporous pellet. Bromide and iodide sensitive electrodes are prepared in substantially the same manner from silver sulfide and the corresponding silver halide.

3,563,875

APPARATUS FOR COULOMETRIC TITRATION

Dale M. Coulson, 884 Colorado Ave., Palo Alto, Calif. 94303

Filed Apr. 2, 1968, Ser. No. 718,100

Int. Cl. G01n 27/44

U.S. Cl. 204—195

3 Claims

Apparatus and method for semi-automatic coulometric titration by continuously monitoring a potential of a

3,563,877

ELECTRO-PLATING BARRELS

Alan Carmichael, Brookwood, England, assignor to Electro-Chemical Engineering Company Ltd., Sheerwater, Woking, Surrey, England, a British company

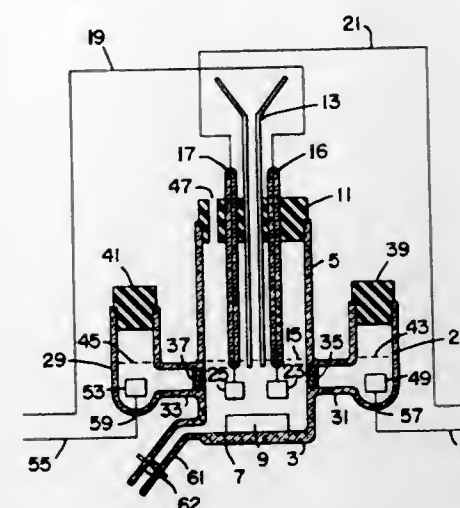
Filed Sept. 11, 1967, Ser. No. 666,820

Claims priority, application Great Britain, Sept. 14, 1966, 41,036/66

Int. Cl. C23b 5/78

U.S. Cl. 204—213

7 Claims



preventing incomplete addition of titrant by superimposing at regular intervals a negative wave pulse onto the potential being monitored.

3,563,876

ELECTROCHEMICAL MACHINING APPARATUS HAVING RAM MEANS

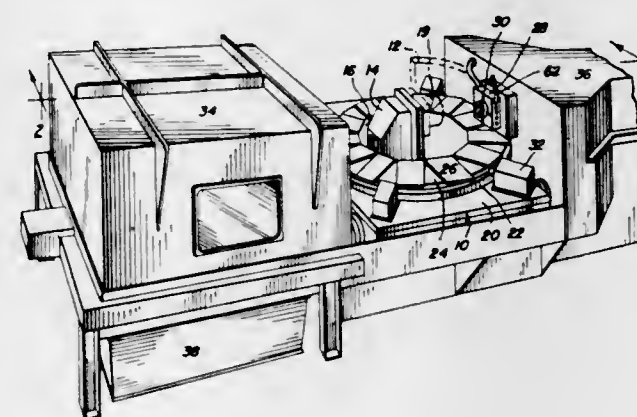
Leonard R. Malkowski, La Grange, and Sigmund H. Bielak, Downers Grove, Ill., assignors to Anocut Engineering Company, a corporation of Illinois

Filed Aug. 27, 1968, Ser. No. 755,561

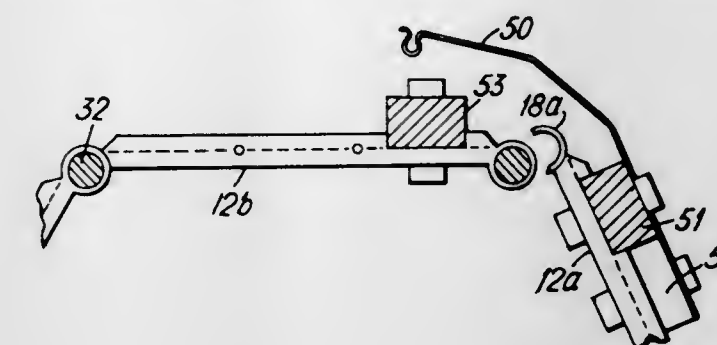
Int. Cl. C23b 5/68, 1/00; B01k 3/00

U.S. Cl. 204—212

12 Claims



An apparatus used in electrochemical machining which comprises a rotatable table for carrying a workpiece, the table being also movable in a horizontal direction. A first electrically conductive member is mounted in a position adjacent the workpiece, the latter being carried on the table. A horizontal ram is provided to carry a second electrically conductive member, which can be moved by the ram into adjacent relation with the first electrically conductive member. The apparatus is typically used by securing a cylindrical or other hollow workpiece to the table with the first electrically conductive member being held in the interior of the hollow workpiece. One of the electrically conductive members is brought into contact with the workpiece. A stream of pressurized liquid is passed between the other conductive member and the workpiece, the conductive members being urged toward each other by the ram, while direct electric current is passed between the members and through the workpiece and stream of electrolyte in a sense to make the workpiece anodic relative to the conductive member separated from it by the stream of electrolyte.



The invention provides an electro-plating barrel, and elements therefor, the perforated plastic elements having hinge lugs on opposite parallel sides, which interfit hinge lugs on the other sides of adjacent identical elements in a polygonal array, the elements being assembled by rods passing through the lugs.

3,563,878

ELECTROLYTIC CELL STRUCTURE

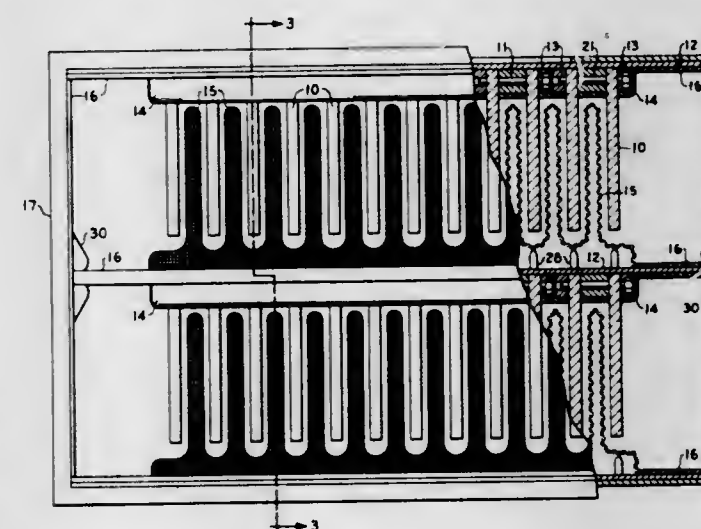
Morris P. Grotheer, Lewiston, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

Filed July 5, 1968, Ser. No. 742,892

Int. Cl. C22d 1/02

U.S. Cl. 204—256

9 Claims



The anodes of diaphragm type electrolytic cells of either monopolar or bipolar design are secured to spacer bars, which are attached to a base plate, with bolts running parallel to the base plate through pressure bars on both sides of the anodes. One pressure bar is threaded to receive the threads of the bolt, while the other pressure bar is drilled and countersunk to receive the head of the bolt. The bolted anode assembly provides a low resistance joint which permits operation of an electrolytic cell at higher current densities without encountering excessive voltages. Furthermore, the anodes may be shorter in the bolted assembly because less stub loss is involved than in the conventional cast lead base covered with mastic.

3,563,879

ELECTROLYTIC CHLORINE GENERATOR

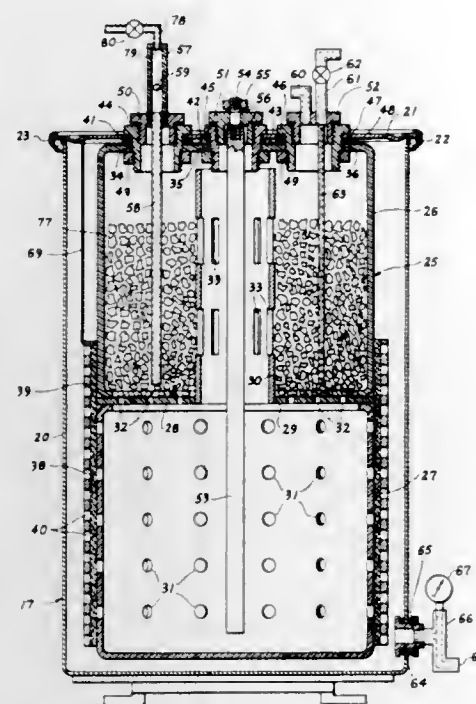
Joseph M. Richards, 2819 E. 49th St., Tulsa, Okla. 74105, and William R. Rabson, 7 Asbury Place, Houston, Tex. 77007

Filed Mar. 8, 1967, Ser. No. 621,545

Int. Cl. B01k 3/00

U.S. Cl. 204—272

3 Claims



An electrolytic chlorine generator operating on the well known principle of electrolysis of a solution of a metallic chloride salt, builds up its own internal pressure and discharges chlorine into a flowing stream.

3,563,880

GEL ELECTROPHORESIS UNIT

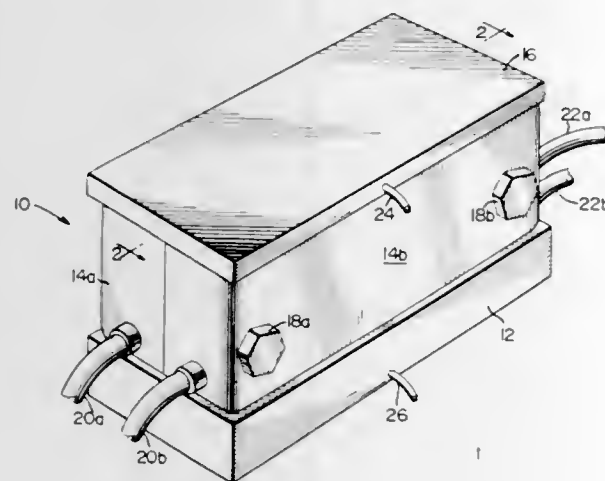
Arthur W. Anderson, Dept. of Microbiology, Oregon State University, Corvallis, Ore. 97331

Filed Aug. 28, 1968, Ser. No. 755,884

Int. Cl. B01d 13/02

U.S. Cl. 204—299

8 Claims



A gel electrophoresis cell having upper and lower buffer solution chambers containing oppositely charged electrodes. A gel containing slot extends between the chambers and coolant chambers are disposed on either side of

the slot to control the temperature of the gel. The structure surrounding the slot is composed of mirror image members which mate on the plane of the slot in such a manner that, upon disassembly, the gel contained in the slot is presented for ready accessibility and removal of the gel.

3,563,881

PROCESS FOR OPERATING HEATING DEVICES FOR LIQUID MIXTURES HAVING COMPONENTS WHICH REACT DURING EVAPORATION WITH THE FORMATION OF UNDESIED PRODUCTS

Herbert Baldus, Hans Manhard, and Walter Kreuter, Munich, Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Germany

Filed July 23, 1968, Ser. No. 746,935

Claims priority, application Germany, July 27, 1967,

P 16 19 717.4

Int. Cl. B01d 1/00; C10g 7/00, 9/16

U.S. Cl. 208—48

10 Claims

A process for heating liquid mixtures having components which react to form undesired products during heating. The mixture is heated by application of heat through heating surfaces in contact with the liquid mixture. The temperature of the heating surfaces is maintained at a predetermined differential relative to the boiling point of the mixture, to limit the production of undesired products to a minimum during heating.

3,563,882

SYSTEM AND METHOD FOR LAYING ELECTRIC CABLES BETWEEN A NUMBER OF ELECTRIC EQUIPMENTS

Ryoichi Kimura, Yokohama, Kiyomi Omatsuzawa, Kamakura-shi, Yasuyuki Tanaka and Hiroshi Yoshikawa, Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan

Filed Mar. 18, 1968, Ser. No. 713,851

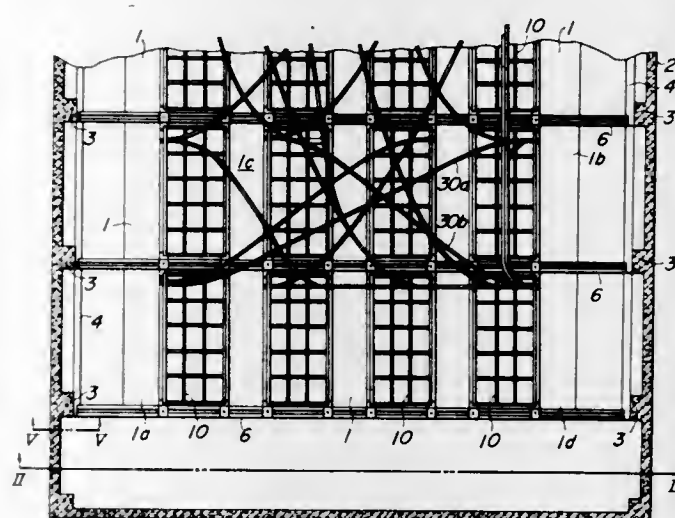
Claims priority, application Japan, Mar. 20, 1967,

42/17,096

Int. Cl. F16l 3/00

U.S. Cl. 248—49

1 Claim



A system for laying electric cables between a number of pieces of electric equipment constituting a large electrical installation, which utilizes a number of cable racks having a unit area secured to beams which are provided over said pieces of electric equipment to support said equipment, advantages of said system being that said cable racks can be pre-fabricated in workshops and that said cables can be laid by approximately straight route, thereby bringing about considerable savings in time, labor and material; and a method for laying cables using such a system.

3,563,883

CATALYTIC REFORMING

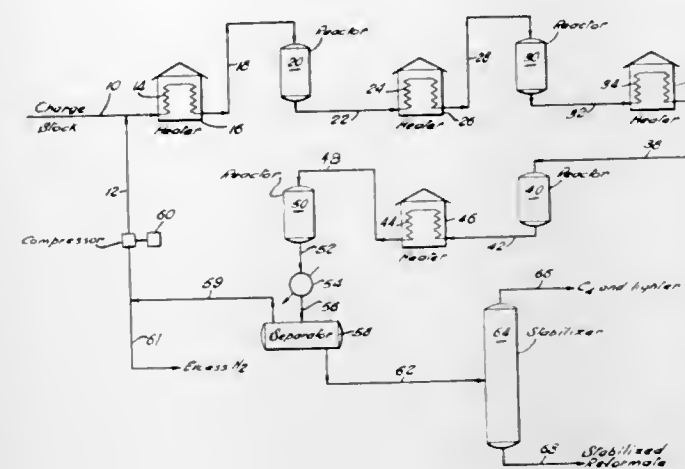
Albert J. Westby, Port Arthur, Luther F. Champion, Houston, and William D. White and Leland A. Chvatal, Port Arthur, Tex., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

Filed Dec. 30, 1968, Ser. No. 806,766

Int. Cl. C10g 35/04, 39/00

U.S. Cl. 208—63

4 Claims



Improvements in catalytic reforming of hydrocarbons boiling in the gasoline range are achieved by operating a multireactor reforming process with the reactor inlet temperature profile having a "V-shaped" configuration. The temperature of the reaction mixture at the inlet to the second reactor is lower than at the inlet to the first reactor and in a three reactor unit, the inlet temperature to the third reactor is higher than that of the second reactor. Where a fourth reactor is utilized, the inlet temperature to the third reactor may be higher, lower or equal to that to the second reactor and the inlet temperature to the fourth reactor is higher than that to the third reactor.

3,563,884

DELAYED COKING OF COAL TAR PITCHES

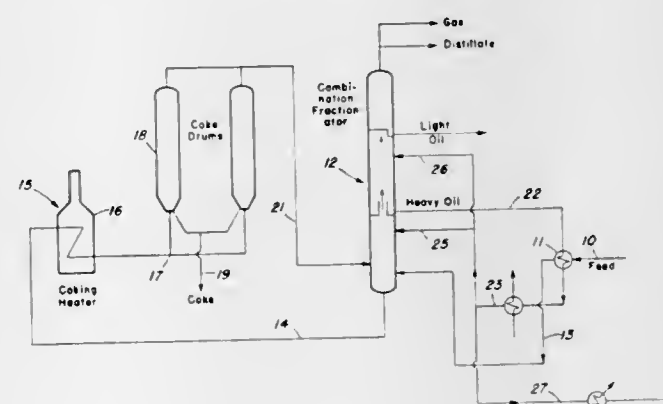
Ward J. Bloomer, Westfield, N.J., and William P. Brison, deceased, late of Glen Rock, N.J., by Ethel N. Brison, executrix, Glen Rock, N.J., assignors to The Lummus Company, Bloomfield, N.J., a corporation of Delaware

Filed July 15, 1968, Ser. No. 746,706

Int. Cl. C10g 9/14

U.S. Cl. 208—81

4 Claims



Process for the delayed coking of a liquid feed or a fraction thereof having a high content of condensed ring aromatic compounds and an initial boiling point of not less than 600° F., wherein the unit is operated at a coking

heater temperature of 900°–960° F., a coke drum overhead temperature of 840° F.–900° F., and pressure of 15–90 p.s.i.g. and the coker combination fractionator is operated at a temperature and pressure to recover a heavy oil having an initial boiling point of 600° F.–750° F. The recycle of a portion of the overhead from the coking drums introduced into the fractionator is at a volumetric rate of 0.3–0.6:1, based on equivalent feed introduced into the coking heater. Operation of the delayed coking unit under the above conditions prevents the runaway reactions heretofore encountered when attempting to delay coke such feeds.

3,563,885

REMOVAL OF DISPERSED SOLIDS FROM A LIQUID

Alfred F. Talbot, Wallingford, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed Aug. 13, 1969, Ser. No. 849,877

Int. Cl. C10m 11/00

U.S. Cl. 208—180

7 Claims

Dispersed solids can be efficiently removed from an organic liquid by adding a small quantity of ultra high molecular weight polyethylene to the liquid containing the dispersed solids. This polyethylene has a weight average molecular weight in the range of 500,000 to 6,000,000. The resulting mixture of liquid, dispersed solids and the polyethylene is agitated at an elevated temperature until the polyethylene goes into solution. Afterwards the mixture is allowed to cool and coagulation occurs. The coagulated material comprising dispersed solids and the polyethylene can be simply removed by known techniques.

3,563,886

ASPHALTENE HYDRODESULFURIZATION WITH SMALL CATALYST PARTICLES IN A PARALLEL REACTOR SYSTEM

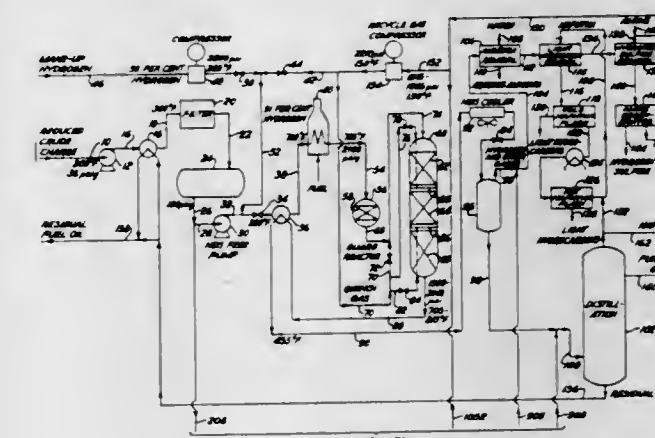
Edgar Carlson, Allison Park, Alfred M. Henke, Springdale, William R. Lebrun, Verona, Joel D. McKinney, Pittsburgh, and Kirk J. Metzger, Verona, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

Filed Oct. 25, 1968, Ser. No. 770,725

Int. Cl. C10g 23/02

U.S. Cl. 208—216

17 Claims



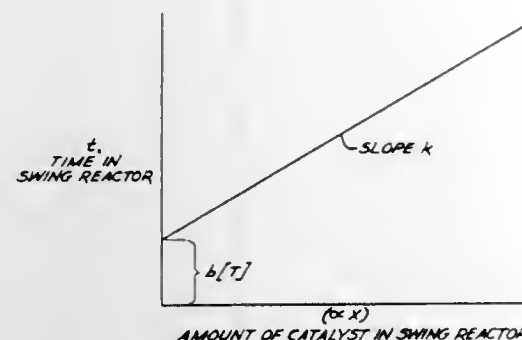
The hydrodesulfurization of a crude oil or a reduced crude containing the asphaltene fraction proceeds at unexpectedly low temperatures by utilizing a Group VI and Group VIII metal containing catalyst on alumina when the catalyst particles are very small and have a diameter between about 1/20 and 1/40 inch and are disposed in a parallel catalyst bed system.

3,563,887

ASPHALTENE HYDRODESULFURIZATION WITH SMALL CATALYST PARTICLES DISPOSED IN A GUARD CHAMBER-MAIN REACTOR SYSTEM
 Malcolm D. Fraser and Allen E. Somers, Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
 Filed Oct. 25, 1968, Ser. No. 770,726
 Int. Cl. C10g 23/02

U.S. Cl. 208—216

13 Claims



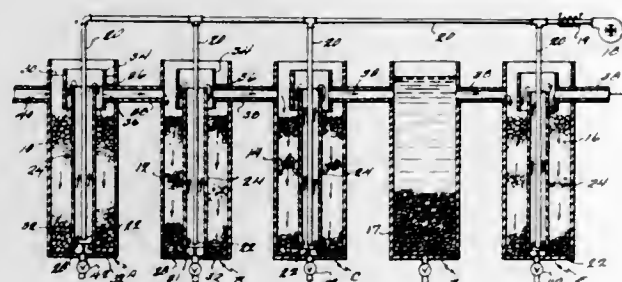
The hydrodesulfurization of a crude oil or a reduced crude containing the asphaltene fraction proceeds at unexpectedly low temperatures by utilizing a supported Group VI and Group VIII metal-containing hydrodesulfurization catalyst when the catalyst particles are very small and have a diameter between about $\frac{1}{20}$ and $\frac{1}{40}$ inch and when the catalyst is disposed in a guard chamber-main reactor system. The apportioning of the total catalyst between the guard chamber and the main reactor and the frequency of renewal of the guard chamber are established according to the disclosed equations to minimize the pressure drop across the catalyst by maintaining on stream at a given time a minimum proportion of the total catalyst. The equations have particular applicability to the hydrodesulfurization process but they can also be applied to other processes.

3,563,888

METHOD AND APPARATUS FOR TREATING WASTE-CONTAINING LIQUOR
 John W. Klock, Tempe, Ariz., assignor to Research Corporation, New York, N.Y., a nonprofit New York corporation
 Filed Aug. 21, 1968, Ser. No. 754,341
 Int. Cl. C02c 1/04

U.S. Cl. 210—14

16 Claims



Waste-containing liquor is biochemically treated by continuously recirculating it through a sand-gravel filter media which is submerged in the liquor while continuously withdrawing a small portion of said liquor. A pressurized column of oxygen-containing fluid entrains and lifts the liquid waste through an unobstructed tube and recirculates it downwardly through the filter media. During the lifting process oxygen from the fluid permeates

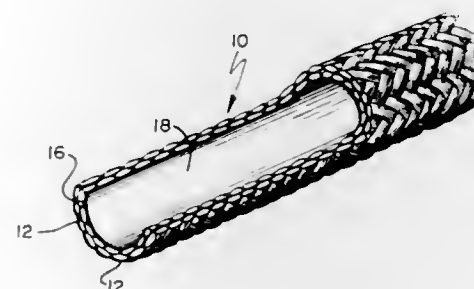
the waste in order to ensure active aerobic metabolism. The treated effluent is directed to a storage area, or preferably it is conveyed to another tank for further treatment.

3,563,889

INTEGRAL SEMIPERMEABLE MEMBRANE AND BRAIDED SUPPORT TUBE
 William W. Cooper IV, Sudbury, and Russell W. Pierce, Hanover, Mass., assignors to Abcor, Inc., Cambridge, Mass., a corporation of Massachusetts
 Continuation-in-part of application Ser. No. 658,168, Aug. 2, 1967. This application Jan. 3, 1969, Ser. No. 816,133
 (Filed under Rule 47(a) and 35 U.S.C. 116)
 Int. Cl. B01d 13/00

U.S. Cl. 210—23

11 Claims



An integrally supported semipermeable membrane is composed of a tubular braided fabric impregnated with a polymeric film forming composition, and carries on at least one surface a layer of the polymer with the surface of the polymer carrying an active layer which provides the separation characteristics of the membrane.

3,563,890

PROCESS AND MATERIAL FOR EXTRACTING DISSOLVED RADIOACTIVE IONS FROM LIQUIDS
 Horst Willi Perl, Walter Fritz Rittner, and Oskar Max Glemser, Goettingen, Germany, assignors to Sartorius-Membranfilter G.m.b.H., Goettingen, Germany
 No Drawing. Filed July 10, 1967, Ser. No. 651,977
 Claims priority, application Germany, July 11, 1966, S 104,735
 Int. Cl. B01d 15/04

U.S. Cl. 210—38

6 Claims

Microcrystalline, difficultly soluble salts, which are isotopic with radioactive ions, are formed by precipitation on the surface of a support in an agitated liquid suspension of the support. A liquid in which said radioactive ions are dissolved is passed through a column and contacted in said column with said salts bonded to the surface of the support. This results in an isotopic exchange between said salts and ions.

3,563,891

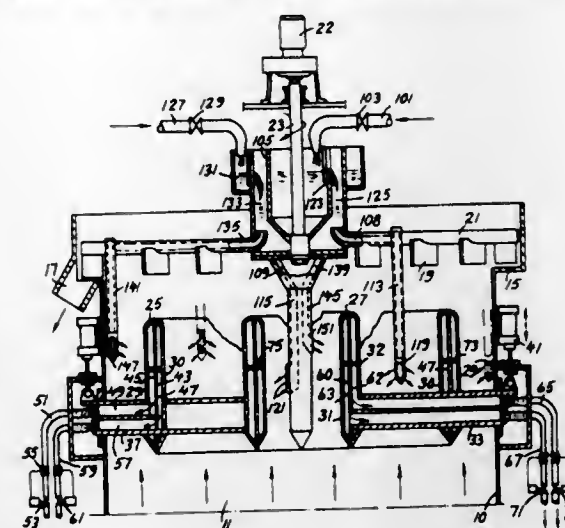
LIQUID SEPARATION DEVICE IN A CELLULOSIC MATERIAL PROCESS VESSEL
 Johan C. F. C. Richter, St. Jean Cap Ferrat, France, assignor to Aktiebolaget Kamyr, Karlstad, Sweden, a company of Sweden
 Filed Jan. 17, 1969, Ser. No. 792,108
 Claims priority, application Sweden, Jan. 19, 1968, 705/68
 Int. Cl. B01d 29/42

U.S. Cl. 210—315

8 Claims

Apparatus for removing liquid from cellulosic pulp suspensions comprising a cylindrical container through which the suspension is axially moved and liquid withdrawal means comprising a set of hollow screen bodies arranged concentrically in the container and having cylindrical screen faces through which the liquid is with-

drawn for discharge. Discharge of liquid from the various screen faces is separately controlled, a number of dis-



charge conduits and exterior control valves being provided.

3,563,892

TEXTILE-TREATING COMPOSITION AND PROCESS
 No Drawing. Filed June 12, 1967, Ser. No. 645,507
 Leigh William Cooley, Greenville, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
 Int. Cl. D06m 5/00

U.S. Cl. 252—8.7

3 Claims

A novel composition of a major portion of coconut oil and minor portions of (a) the sodium salt of sulfated glyceryl trioleate, (b) a condensate of 1 mol of nonylphenol with 5.5 mols of ethylene oxide, and (c) a mixture of mono- and diglycerides of oleic acid is formulated and used as an excellent lubricant for polyester filaments during the drawing operation. This composition is also utilized on the filaments with an additional overlay finish composition.

3,563,893

CHEMICAL COMPOSITION
 George L. Doelling, St. Louis, Mo., and James E. Peskar, Cahokia, and Joseph A. Siefker, Quincy, Ill., assignors to Wager Electric Corporation, Newark, N.J., a corporation of Delaware
 No Drawing. Filed Jan. 8, 1968, Ser. No. 696,120
 Int. Cl. C09k 3/00

U.S. Cl. 252—73

9 Claims

Acetals are prepared by reacting methoxyacetaldehyde with tetrahydrofurfuryl alcohol or with mono lower alkyl ethers of mono, di or tri ethylene or propylene glycols. These acetals have value as essential ingredients in hydraulic brake fluids of the non-mineral oil type, since they enable such fluids to better meet mandatory specifications covering the performance and use thereof.

3,563,894

GREASE COMPOSITION
 John B. Christian, Yellow Springs, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force
 No Drawing. Continuation-in-part of application Ser. No. 420,842, Dec. 23, 1964. This application Feb. 16, 1968, Ser. No. 705,944
 Int. Cl. C10m 7/50

U.S. Cl. 252—25

2 Claims

A grease formulation capable of maintaining its dimensional stability under heavy load and high temperature conditions consisting of (1) a major proportion of trifluoropropylmethylsiloxane having a viscosity of 300 centistokes and consisting essentially of



units and endblocking units of the formula $(\text{CH}_3)_2\text{SiO}_2$; (2) a minor proportion by weight of a composition consisting of (a) 50–55% by weight of bitolylene diisocyanate, (b) 20–30% by weight of p-chloraniline, and (c) 20–25% by weight of p-toluidine; and (3) 10% by weight of molybdenum disulfide.

3,563,895

LUBRICANT-COOLANT
 Vladimir Janatka, Woodbury, and Eugene P. Kirwan, Wolcott, Conn., assignors to Valgene Industrial Research Corporation, Wolcott, Conn., a corporation of Connecticut
 No Drawing. Filed Oct. 25, 1968, Ser. No. 770,862
 Int. Cl. C10m 1/28

U.S. Cl. 252—34.7

6 Claims

Water soluble polyacrylamide polymers neutralized with an ethylene-maleic anhydride copolymer have been found extremely effective as a combined lubricant-coolant when used in aqueous solutions in metal working operations.

3,563,896

PROCESS FOR ALKYLATING VINYL AROMATIC HYDROCARBON POLYMERS AND MAKING LUBRICATING OIL VISCOSITY IMPROVERS
 Robert H. Allen, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
 No Drawing. Filed Jan. 15, 1968, Ser. No. 697,590
 Int. Cl. C10m 1/18

U.S. Cl. 252—59

5 Claims

The invention concerns a process for alkylating vinyl aromatic polymers to form oil soluble products suitable for use as viscosity index improver for lubricating oils.

3,563,897

FERROMAGNETIC GARNET WITH STRESS INSENSITIVE B-H LOOP AND METHOD OF MAKING SAME
 Russell G. West, Alexandria, Va. (% Trans-Tech, Inc., 12 Meem Ave., Gaithersburg, Md. 20760)
 Filed Apr. 3, 1968, Ser. No. 718,536
 Int. Cl. C04b 35/40

U.S. Cl. 252—62.57

11 Claims

Yttrium iron garnet ferrites, wherein the introduction of cerium oxide into the garnet reduces the mechanical pressure stress dependence of remanent magnetization and coercive force, are disclosed.

3,563,898

Mg-Mn-Al FERRITE BODY FOR MICROWAVE APPLICATION
 Yutaka Neichi, Hirakata-shi, Minoru Sugimura, Neyagawa-shi, and Eiichi Hirota, Sakai-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
 Filed Aug. 22, 1967, Ser. No. 662,520
 Int. Cl. C04b 35/26

U.S. Cl. 252—62.58

2 Claims

A ferrite body useful in making e.g. microwave circuit elements and having narrow ΔH characteristics, relatively high Curie temperature, low saturation magnetization, small coercive force and good squareness ratio is constituted by a Mg-Mn-Al ferrite composition with a porosity less than 2% and an average grain size of 0.5 to 20 μ or 100 to 500 μ . Optimal compositions comprise MgO 45 to 50 mol percent, Fe₂O₃ 35 to 45 mol percent, Al₂O₃ 5 to 15 mol percent and MnO 0.1 to 7.0 mol percent. Improved ΔH is achieved by the additional presence of 0.1 to 5 wt. percent of Y₂O₃, ZrO₂ or Bi₂O₃ or 0.1 to 5 wt. percent of additional MgO. A "site ratio" of Mg ions from 0.5 to 0.2 is desirable.

3,563,899

PERMANENT MAGNET MATERIAL HAVING STRONTIUM FERRITE BASE

Roger Frank Coe, Rednal, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
No Drawing. Filed May 29, 1968, Ser. No. 732,880
Claims priority, application Great Britain, June 2, 1967, 25,592/67

Int. Cl. C04b 35/26; H01f 1/10

U.S. Cl. 252—62.63

3 Claims

Up to 3% by weight of strontium phosphate is added to permanent magnet material of known form having a strontium ferrite base. The addition of the strontium phosphate is found to give considerably improved magnetic properties.

3,563,900

PAINT STRIPPING COMPOSITION AND METHOD

Donald P. Murphy, Roseville, Mich., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
No Drawing. Filed Oct. 27, 1967, Ser. No. 678,524
Int. Cl. C11d 7/12, 7/14, 7/16

U.S. Cl. 252—135

12 Claims

A composition useful in removing paint and similar protective coating from a substrate which comprises an aqueous dispersion of beta-naphthol, said dispersion containing both dissolved and undissolved beta-naphthol. The aqueous dispersion may be either, acid, neutral or mildly alkaline and in the latter instance may contain mildly alkaline materials such as sodium tetraborate, sodium metasilicate, disodium phosphate, and the like. The composition is particularly useful in removing alkyd and acrylic type paints from aluminum, as it effects rapid removal of these coatings without attack on the aluminum.

3,563,901

RINSE AID COMPOSITIONS

Homer E. Crotty, Cincinnati, Ohio, assignor to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut
No Drawing. Continuation of application Ser. No. 571,989, Aug. 12, 1966. This application Feb. 26, 1970, Ser. No. 18,016

Int. Cl. C11d 3/04

U.S. Cl. 252—136

8 Claims

The invention disclosed is directed to a rinse aid for use in mechanical dishwashing machines and includes prescribed amounts of an alkali metal or ammonium salt of an alcohol sulfate of the formula ROSO_3H where R is an alkyl group having about 5 to 9 carbon atoms, and prescribed amounts of a defined nonionic surfactant. The rinse aid may further include materials such as defoaming agents, solvents, ingredients to precipitate hard water salts, and the like.

3,563,902

DETERGENTS AND CLEANSERS

Edmund Schmadel, Dusseldorf-Benrath, and Walter Kling, Dusseldorf-Eller, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf, Germany, a corporation of Germany
No Drawing. Filed Nov. 17, 1967, Ser. No. 683,769
Claims priority, application Germany, Nov. 19, 1966, P 16 17 121.4

Int. Cl. C11d 3/32

U.S. Cl. 252—152

3 Claims

Novel detergent and cleansing agents are disclosed characterized by their ability to inhibit the graying of textile articles which takes place in laundering. In particular, the novel detergent and cleaning agents are effective to prevent the graying of textile articles prepared at least in part with synthetic fibers.

The detergent and cleaning agents of the invention are characterized by a content of 0.1 to 20 wt.-percent re-

ferred to the total composition of at least one water soluble salt of a free carboxyl group containing polyamide, the acid and amide radicals of which respectively are derived from tricarboxylic and/or tetracarboxylic acids and diamines. In addition to the aforesaid polyamide salts, the detergent and cleaning agents contain the conventional surface active materials and the usual additives such as optical brighteners, bleaching agents, sudsers, anti-foamers, etc.

3,563,903

DETERGENTS AND CLEANSERS

Edmund Schmadel, Dusseldorf-Benrath, and Walter Kling, Dusseldorf-Eller, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf, Germany, a corporation of Germany
No Drawing. Filed Nov. 17, 1967, Ser. No. 683,778
Claims priority, application Germany, Nov. 19, 1966, P 16 17 122.5

Int. Cl. C11d 3/26

U.S. Cl. 252—152

3 Claims

Novel detergent and cleansing agents are disclosed characterized by their ability to inhibit the graying of textile articles which takes place in laundering. In particular the novel detergent and cleansing agents are effective to prevent the graying of textile articles prepared at least in part with synthetic fibers.

The detergent and cleansing agents of the invention are characterized by a content of 0.1 to 20 wt. percent referred to the total composition of at least one water soluble salt of a free carboxyl group containing polyester, the acid and alcohol radicals of which respectively are derived from tricarboxylic and/or tetracarboxylic acids and bivalent alcohols. In addition to the aforesaid polyester salts the detergent and cleaning agents contain the conventional surface active materials and the usual additives such as optical brighteners, bleaching agents, sudsers, anti-foamers, etc.

3,563,904

DETERGENTS AND CLEANSERS

Edmund Schmadel, Dusseldorf-Benrath, and Walter Kling, Dusseldorf-Eller, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf, Germany, a corporation of Germany
No Drawing. Filed Nov. 17, 1967, Ser. No. 683,779
Claims priority, application Germany, Dec. 14, 1966, H 61,276

Int. Cl. C11d 3/24, 3/26

U.S. Cl. 252—152

3 Claims

Novel detergent and cleansing agents are disclosed characterized by their ability to inhibit the graying of textile articles which takes place in laundering. In particular the novel detergent and cleaning agents are effective to prevent the graying of textile articles prepared at least in part with synthetic fibers.

3,563,905

DETERGENTS AND CLEANSERS

Edmund Schmadel, Dusseldorf-Benrath, and Walter Kling, Dusseldorf-Eller, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf-Holthausen, Germany, a corporation of Germany
No Drawing. Filed Nov. 17, 1967, Ser. No. 683,834
Claims priority, application Germany, Nov. 18, 1966, P 16 17 120.3

Int. Cl. C11d 3/24, 3/26

U.S. Cl. 252—152

3 Claims

Novel detergent and cleansing agents are disclosed characterized by their ability to inhibit the graying of textile articles which takes place in laundering. In particular the novel detergent and cleaning agents are effective to prevent the graying of textile articles prepared at least in part with synthetic fibers.

The detergent and cleaning agents of the invention are characterized by a content of 0.1 to 20 wt. percent re-

ferred to the total composition of at least one water soluble salt of a polyester, the acid radicals of which are derived from a dicarboxylic acid and the alcohol component of which is derived from a dialkanolamine or an N-substituted derivative thereof and which has been made water-soluble by the introduction of sulfonic acid or alkyl-sulfonic acid groups into the molecule. In addition to the aforesaid polyester salts the detergent and cleaning agents contain the conventional surface active materials and the usual additives such as optical brighteners, bleaching agents, sudsers, anti-foamers, etc.

3,563,906

POLYAMINE CURING AGENTS FOR USE IN PREPARING POLYURETHANE ELASTOMERS AND FOAMS

Guenther Kurt Hoeschele, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 668,961, Sept. 19, 1967, which is a continuation-in-part of application Ser. No. 631,868, Apr. 19, 1967, which in turn is a continuation-in-part of application Ser. No. 552,704, May 25, 1966, which are all now abandoned. This application Dec. 4, 1968, Ser. No. 781,276

Int. Cl. C09k 3/00; C08g 22/00, 22/44

U.S. Cl. 252—182

10 Claims

Amine curing agents for liquid isocyanato-terminated polyurethanes obtained by condensing a monoamine composition with formaldehyde in the presence of a mineral acid. The monoamine can be 2-chloroaniline or mixtures of 2-chloroaniline with aniline and/or o-toluidine. The proportions of reactants are selected to produce curing agents which have moderate reactivities and exhibit a limited tendency to crystallize under normal operation conditions. The amine compositions are particularly useful as curing agents in the preparation of polyurethane foams. The new compounds, 3-chloro-4,4'-diaminodiphenylmethane and 3-chloro-3'-methyl-4,4'-diaminodiphenylmethane can be obtained from appropriate reaction products.

3,563,907

STORAGE STABLE LIQUID COMPOSITIONS USEFUL AS CURATIVES

Herbert G. Nadeau, North Haven, and Paul H. Waszcielak, Guilford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
No Drawing. Filed Nov. 17, 1967, Ser. No. 684,484

Int. Cl. C09k 3/00; C08g 33/14

U.S. Cl. 252—182

5 Claims

Novel storage stable liquid compositions are prepared by admixing two normally solid primary polyamines; namely, methylene polyphenyl polyamines and hexamethylene diamine. The mixture of polyamines remains liquid at temperatures above 5° C. The novel mixtures of polyamines can be used as epoxy resin curatives, polyurethane extenders and for all purposes for which the individual components are conventionally employed.

3,563,908

VISCOSITY-STABILIZED FOAM PRECURSORS AND PROCESS

Fred W. Koenig, Highland, and Stanley T. Kus, Griffith, Ind., and Sheldon Howard Marcus, Skokie, Ill., assignors to Standard Oil Company, Chicago, Ill.
No Drawing. Continuation-in-part of application Ser. No. 420,801, Dec. 23, 1964. This application Dec. 22, 1967, Ser. No. 692,719

Int. Cl. C08g 22/44; C09k 3/00

U.S. Cl. 252—182

5 Claims

Stabilized liquid non-polymeric foam precursors are produced when fluorine substituted alkanes boiling above 60° F. are added to a liquid non-polymeric foam precursor prepared by mixing a polyfunctional aromatic

carboxylic acid derivative with a liquid polyarylpolyisocyanate. These foam precursors are reacted with a polyol having a molecular weight below 2,000 and containing at least three hydroxyl groups. The resulting foams produced are useful for insulation of walls, for fireproofing buildings and the like.

3,563,909

METHOD OF PREPARING A LANTHANIDE ACTIVATED YTTRIUM, GADOLINIUM OR LANTHANUM OXYSULFIDE LUMINESCENT MATERIAL

Roelof Egbert Schull, Johannes Aloysius Maria Dikhoff, and Dirk Barneveld, Emmasingel, Eindhoven, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 29, 1968, Ser. No. 717,259
Claims priority, application Netherlands, July 1, 1967, 6709191

Int. Cl. C09k 1/14

U.S. Cl. 252—301.4

6 Claims

A yttrium, gadolinium or lanthanum oxysulfide phosphor activated with a lanthanide element is produced by the heating of a mixture of the oxides of the metals and sodium or potassium rhodanide.

3,563,910

CHEMICAL EMULSION COMPOSITIONS

Adolph E. Fishman, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed Nov. 20, 1967, Ser. No. 684,498
Int. Cl. B01j 13/00

U.S. Cl. 252—312

9 Claims

Disclosure is made of emulsifier compositions based on polyalkoxy alcohol mixtures which are suitable for general emulsification of materials having a wide range of characteristics. In particular, emulsifier compositions are disclosed based on or derived from mixtures of normal and branched alcohols which provide highly stable aqueous emulsions with such diverse materials as aromatic hydrocarbons including benzene, xylene, and toluene; halo hydrocarbons including perchloroethylene; and open chain hydrocarbons including mineral oil, wax and kerosene.

3,563,911

STAGED FLUIDIZED CATALYST REGENERATION PROCESS

Robert W. Pfeiffer, Bronxville, N.Y., and Luther W. Garrett, Jr., Allison Park, Pa., assignors to Pullman Incorporated, Chicago, Ill., a corporation of Delaware
Continuation-in-part of application Ser. No. 528,594, Feb. 18, 1966, now Patent No. 3,421,884, which is a division of application Ser. No. 416,571, Dec. 7, 1964, now Patent No. 3,276,858, Oct. 4, 1966. This application Dec. 26, 1968, Ser. No. 787,148

Int. Cl. B01j 11/04, 11/68

U.S. Cl. 252—417

5 Claims

A multi-staged method of removing carbonaceous deposits from particulate, fluidized material is disclosed. Said method is particularly applicable to the regeneration of cracking catalysts to low levels of carbon.

3,563,912

CATALYST COMPOSITION AND SULFIDING METHOD

Billy J. Young, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California
No Drawing. Filed Mar. 14, 1968, Ser. No. 712,905

Int. Cl. B01j 11/74

U.S. Cl. 252—430

16 Claims

The invention relates to catalyst compositions comprising a finely divided active metallic component coated and/or impregnated with an air-imperious, substantially

inert organic sealant such as petroleum wax, and also including sulfur either chemically combined as sulfide with the metallic component, or suspended or dissolved in said sealant. The resulting catalyst compositions can be safely shipped in commerce, loaded into catalytic reactors, purged with hot hydrogen to vaporize and/or hydrocrack the sealant while simultaneously producing a desirably active sulfided form of the catalyst. The basic objectives are to eliminate time consuming conventional presulfiding techniques in the reactor, and to provide means for safely shipping in commerce normally pyrophoric sulfide-containing catalysts.

3,563,913

SILVER CATALYST PRODUCTION

Gerrit de Krijger and Freddy Wattimena, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Oct. 24, 1968, Ser. No. 770,432
Claims priority, application Great Britain, Oct. 30, 1967, 49,261/67

Int. Cl. B01j 11/06

U.S. Cl. 252-463

5 Claims

Improved supported silver catalysts are prepared by impregnating a support with a solution of a reducible silver compound and passing the impregnated support, in the presence of a reducing agent, through a fluidized bed of inert particulate solids at an elevated temperature.

3,563,914

SILVER CATALYST

Freddy Wattimena, Amsterdam, Netherlands, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Nov. 28, 1967, Ser. No. 686,034

Claims priority, application Great Britain, Mar. 22, 1967, 13,486/67

Int. Cl. B01j 11/06

U.S. Cl. 252-463

3 Claims

An improved silver catalyst obtained by impregnating a support with a solution of a reducible silver compound and rapidly removing absorbed liquid at an elevated temperature in the presence of a reducing agent.

3,563,915

PROCESS FOR LOWERING THE PYROPHORISM OF A NICKEL-ALUMINUM OR COBALT-ALUMINUM CATALYST

Roy J. Eisenhauer and John H. Lester, Jr., Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 701,110, Jan. 29, 1968. This application Sept. 3, 1969, Ser. No. 855,029

Int. Cl. B01j 11/08, 11/22

U.S. Cl. 252-466

6 Claims

The pyrophorism of a nickel-aluminum or cobalt-aluminum catalyst can be substantially lowered by contacting the catalyst with an aqueous solution containing an effective passivating amount of dichromate or permanganate ion.

3,563,916

CARBON BLACK-SYNTHETIC RESINS ELECTRO-CONDUCTIVE COMPOSITION

Naomitsu Takashina, Fujiwara-shi, Wakio Nagashima, Hiratsuka-shi, and Michiaki Furuno, Yokohama, Japan, assignors to Japan Gas-Chemical Company, Inc., Tokyo, Japan

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,761

Claims priority, application Japan, Aug. 23, 1967, 42/54,066

Int. Cl. C09c 1/44; H01b 1/06

U.S. Cl. 252-511

3 Claims

A carbon black-synthetic resins electroconductive composition which, when formed into, a heating element

exhibits markedly little time variation of electrical resistivity and high durability to continuous use at high temperature, and the characteristics of the composition residing in that the composition is consisted of: a carbon black-polymer of α , β -ethylenically unsaturated monomer composition of special type and a thermosetting aromatic polyamide resin.

3,563,917

QUINOXALINE POLYMERS

Carl S. Marvel, Tucson, Ariz., assignor to Research Corporation, New York, N.Y., a nonprofit corporation of New York

No Drawing. Filed Jan. 24, 1966, Ser. No. 522,378

Int. Cl. C08g 33/02

U.S. Cl. 260-2

3 Claims

Thermosettable single and double strand quinoxaline polymers are prepared by the condensation of aromatic amines with hydroxy-, halo- or phenoxy-substituted aromatic compounds.

3,563,918

METAL CONTAINING POLYMERS FROM CYCLIC TETRAMERIC PHENYLPHOSPHONITRILAMIDES

Robert M. Murch, Ashton, and Thomas Bieniek, Glen Burnie, Md., assignors, by mesne assignments, to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Mar. 18, 1968, Ser. No. 713,616

Int. Cl. C08g 33/16; C07d 105/02

U.S. Cl. 260-2

17 Claims

New polymers have been prepared which contain both cyclic tetrameric tetraphenylphosphonitrilic units and transition metal salts containing metallic cations chosen from the group consisting of copper (II), cobalt (II), nickel (II), and iron (II). These polymers are unique in phosphonitrilic chemistry in that they are soluble in common organic solvents and are thermally stable above 500° C.

3,563,919

COPOLYMERS OF ADAMANTANE AND BENZENE

Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

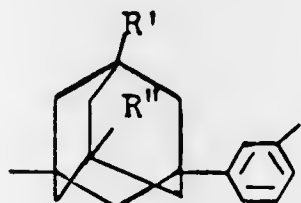
No Drawing. Filed Mar. 25, 1969, Ser. No. 810,340

Int. Cl. C08g 33/00

U.S. Cl. 260-2

15 Claims

Novel film forming hydrocarbon copolymers having the repeating unit



where R' and R'' are hydrocarbon radicals having 1-20 carbons, for example, methyl, are prepared by reacting 1,3-dimethyladamantane with a di (tertiary hydrocarbyl) benzene such as para-di-(t-butyl) benzene in the presence of AlCl₃ catalyst at around 0 to 25° C.

3,563,920

BI-2-OXAZOLINE AND OXAZINE ETHERS AND THIOETHERS

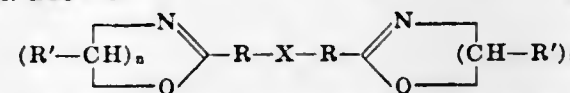
Donald A. Tomalia and Janet N. Paige, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed June 16, 1969, Ser. No. 834,611

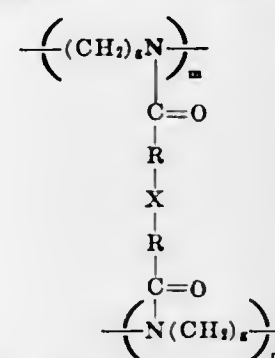
Int. Cl. C07d 85/36; C08g 33/02, 45/00

U.S. Cl. 260-2

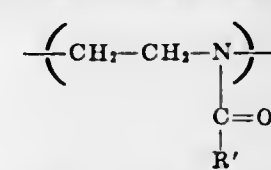
4 Claims



Wherein R is alkylene, phenylene, vinylene, or phenylenealkylene, wherein, "alkylene" alone or in a combined name, designates an alkylene moiety that is of from 1 to 10 carbon atoms, and X is —S— or —O—; n is zero or 1; optionally also with an oxazoline as comonomer, are cationically polymerized to polymers containing recurring units of the formula



and, optionally, also units of the formula



wherein g is an integer 2 or 3, m represents the degree of polymerization, and R' is hydrogen or a specified radical.

3,563,921

ION-EXCHANGE MEMBRANES

Guy Bourat, Bourg-la-Reine, France, assignor to Rhone-Poulenc S.A., Paris, France, a French body corporate

No Drawing. Filed Sept. 24, 1968, Ser. No. 762,136

Claims priority, application France, Sept. 25, 1967, 122,152

Int. Cl. C08g 29/24

U.S. Cl. 260-2.1

10 Claims

Ion-exchange membranes of good mechanical properties are made from films of a vinyl chloride polymer or copolymer, either grafted with an aromatic vinyl monomer containing a tertiary nitrogen atom or mixed with a polymer of such a monomer, quaternised with an alkyl or aralkyl dihalide.

3,563,922

METHOD OF REGENERATING VULCANIZED RUBBER, RESULTING PRODUCTS, AND COMPOSITIONS CONTAINING THE REGENERATED PRODUCTS

Jean-Marie Massoubre, Clermont-Ferrand, France, assignor to Michelin & Cie, Clermont-Ferrand, France, a French company

No Drawing. Filed Jan. 8, 1963, Ser. No. 249,994

Claims priority, application France, Jan. 9, 1962, 884,228

Int. Cl. C08d 13/38; C08f 47/24

U.S. Cl. 260-2.3

5 Claims

A process for regenerating natural or synthetic rubber comprising the steps of swelling the rubber, preferably in finely divided form, with a solvent, adding a devulcanization agent to devulcanize the rubber and dissolve the rubber in the solvent. The solvent is substantially nonvolatile in a temperature range of 180-230° C. The liquid or semi-liquid regenerated product may

subsequently be incorporated as a plasticizer into other rubbers.

3,563,923

OPTICALLY ACTIVE ADSORBENTS

David R. Buss, Kalamazoo, Mich., and Theodore Vermeulen, Berkeley, Calif., assignors to The Regents of the University of California

No Drawing. Filed July 26, 1967, Ser. No. 656,077

Int. Cl. C08f 27/00

U.S. Cl. 260-2.5

19 Claims

Adsorbents formed through the reaction of compounds containing an amino group and an asymmetric carbon, with a polymer having formyl groups spaced within an insoluble, swellable, cross-linked polymer matrix. These adsorbents are especially useful for the resolution of optical isomers.

3,563,924

SURFACTANT-CATALYST MIXTURES FOR FLEXIBLE POLYESTER URETHANE FOAMS

Eric G. Schwarz, Somers, N.Y., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 396,378, Sept. 14, 1964. This application Apr. 4, 1968, Ser. No. 718,920

Int. Cl. C08g 22/44

U.S. Cl. 260-2.5

11 Claims

This invention relates to two types of surfactant catalyst mixtures for the use in producing flexible polyester urethane foams. The surfactants are siloxane-oxyalkylene copolymers which are characterized by certain molecular weights, siloxane contents and oxyethylene contents. The catalysts include both conventional amine catalysts and certain highly active catalysts (certain amine and tin catalysts) which have not been used previously to produce flexible polyester urethane foams. Compared to conventional organic emulsifiers, the novel surfactant-catalyst mixtures produce low density foam having finer, more uniform cell structure and high density foams with less shrinkage.

3,563,925

COMPOSITION CONTAINING INTERLOCKED FOAMS OF PARTLY TANNED COLLAGEN AND CROSS-LINKED GLYCOL METHACRYLATE POLYMER

Karel Kliment, Miroslav Stal, and Milos Chvapil, Prague, Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia

No Drawing. Filed Dec. 20, 1967, Ser. No. 691,947

Int. Cl. C08f 47/08; C08h 7/00

U.S. Cl. 260-8

3 Claims

A continuous solid material consisting of interlocked three-dimensional networks of hydrated, partly tanned collagen and sparingly cross-linked, hydrated polymers of glycol methacrylate, when made into blood vessels, urinary bladders, and other body parts, is impervious to liquid when freshly implanted, yet readily penetrated by tissue growth, and well tolerated when the pores in the polymer are between 150 and 450 microns in diameter, and the collagen amounts to 10%-50% of the total dry weight of polymer and collagen.

3,563,926

PROCESS FOR PRODUCING WATER-SOLUBLE SYNTHETIC RESINS

Heinrich W. Lackner, Graz, Austria, assignor to Vianova-Kunstharz, A.G., Graz, Austria, an Austrian company

No Drawing. Continuation-in-part of application Ser. No. 698,108, Jan. 16, 1968. This application May 24, 1968, Ser. No. 731,696

Claims priority, application Austria, June 21, 1967, A 5,760/67

Int. Cl. C08g 5/18, 9/36

U.S. Cl. 260-19

16 Claims

An improved process for preparing water-soluble resins comprising the reaction product of (I) the pre-condensate

of (a) a resinous epoxide, and (b) a heat-reactive composition which contains free or blocked methylol groups; and (II) polycarboxylic acids or their anhydrides is described. According to the process, one component of the heat-reactive composition is initially reacted with the resinous epoxide with the pre-condensate being thereafter formed by the addition of an aldehyde, and/or a reactive aldehyde condensate. Water solubility is imparted to the resins obtained by the addition of a nitrogen base.

3,563,927 AMINOAMIDES AND CURING OF EPOXY RESINS

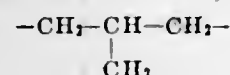
Rainer Janssen, Kamen, Manfred Drawert, Werne an der Lippe, and Eugen Griebisch, Unna, Germany, assignors to General Mills, Inc., a corporation of Delaware
No Drawing. Filed Jan. 30, 1968, Ser. No. 701,542
Claims priority, application Germany, Feb. 15, 1967, Sch 40,235

Int. Cl. C08g 20/26, 30/14

U.S. Cl. 260—18 5 Claims
There is disclosed the preparation of aminoamides of polymeric fat acids and an excess of certain ether diamines and the curing of epoxy resins therewith the ether diamine is of the formula:



where R is $-CH_2-CH_2-$, $-CH_2-CH_2-CH_2-$, or



and n is 3, 4, 5, or 6.

The aminoamides, particularly in combination with epoxy resins, find utility as coating compositions, sealing compounds, troweling compounds, adhesives and laminates.

3,563,928 PROMOTER FOR BUILDING TACK IN A HYDROCARBON ELASTOMER

Kenneth Francis King, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed July 1, 1969, Ser. No. 838,358
Int. Cl. C08f 29/12

U.S. Cl. 260—19 11 Claims
In an EPDM elastomer tackified by (a) adding a polar organic cyclic resin, (b) aging the resulting mixture and (c) exposing the surface to an activating agent, tack formation is promoted by compounding the elastomer with an oil-soluble, organic salt of a transition metal. Alternatively, tack can be developed on the surface of an EPDM elastomer by (a) coating the surface with a cement made by mixing an EPDM elastomer, a polar organic cyclic resin and an oil-soluble organic salt of a transition metal, in a solvent, (b) drying the cement and (c) exposing the coated surface to an activating agent.

3,563,929 METHOD FOR PRODUCING WATER-DILUTABLE EPOXY ESTER RESINS CONTAINING COPOLYMERS OF VINYL AND/OR VINYLIDENE COMPOUNDS

Rolf Guldenpfennig, Dossenheim, Germany, assignor to Reichhold-Albert-Chemie Aktiengesellschaft, Hamburg, Germany
No Drawing. Filed Oct. 9, 1967, Ser. No. 673,997
Claims priority, application Germany, Nov. 2, 1966, R 44,502

Int. Cl. C08g 45/00

U.S. Cl. 260—23 20 Claims
The invention relates to a process for the production of improved water-dilutable epoxy resin esters which are prepared as follows:

(a) partial esters with hydroxyl groups and epoxy groups are first formed by partial esterification of

compounds containing epoxy or hydroxyl groups with mixtures of monocarboxylic acids consisting mainly of unsaturated aliphatic straight chain monocarboxylic acids;

(b) the resulting partial esters are then reacted with polybasic carboxylic acids in such a manner that the epoxy resin esters with free carboxyl and free hydroxyl groups are rendered water-dilutable by neutralization with aqueous ammonia or strong organic nitrogen bases;

(c) epoxy resin esters are then reacted with aqueous ammonia and/or strong organic nitrogen bases in the presence of water, until they are converted into sufficiently water-dilutable synthetic resins, the improvement comprising:

- (1) the epoxy resin esters in step (a) and/or
- (2) in step (b), and/or
- (3) the unsaturated aliphatic monocarboxylic acids added in step (a), and/or
- (4) adducts of α,β -unsaturated dicarboxylic acids on unsaturated monocarboxylic acids, preferably added in step (b), and/or
- (5) the monocarboxylic acids that are used for the production of these adducts, are copolymerized with at least one polymerizable vinyl and/or vinylidene compound by heating in the presence of polymerization catalysts.

3,563,930 CEMENT COMPOSITION

Michael A. Stram, Chicago, Jerry A. Dieter, Park Forrest, Richard J. Pratt, Flossmoor, and David W. Young, Homewood, Ill., assignors, by mesne assignments, to Atlantic Richfield Company, New York, N.Y., a corporation of Pennsylvania
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,962
Int. Cl. C04b 7/02; C08g 51/04; C08k 1/02

U.S. Cl. 260—40 14 Claims
Air entrainment in portland cements is increased by the addition to the cement prior to curing of minor amounts of water-soluble salts of styrene-maleic anhydride copolymers or the water-soluble half-esters or the water-soluble salts of half-esters of styrene-maleic anhydride copolymers and alkoxy polyalkylene glycols or other alcohols. Increased air entrainment in the cement provides superior durability and resistance.

3,563,931 METHOD OF MAKING CHROMOGEN-BONDED-POLYMER AND PRODUCTS THEREOF

Shojiro Horiguchi, 965 Shimohoya, Hojiamachi, Kitatama-gun, Tokyo, Japan, and Michiel Nakamura, 156 5-chome, Motobuto-cho, Urawa-shi, Saitama-ken, Japan
No Drawing. Filed Aug. 6, 1965, Ser. No. 477,932
Int. Cl. C08f 1/84, 45/66; C08g 51/66

U.S. Cl. 260—41 13 Claims
A method of making a chromogen-bonded-polymer which comprises the steps of diazotizing a chromogen-containing amino compound in aqueous medium containing hydrochloric acid in a quantity which exceeds its theoretically required molar quantity of hydrochloric acid by at least 10 mols per one amino radical to produce the diazotized product of the chromogen; stabilizing the diazotized product with a stabilizer to produce the stabilized diazonium or diazo product of the chromogen; mixing the resulting stabilized product with an addition polymerizable monomer; and polymerizing the monomer using the stabilized diazonium or diazo product as an initiator for the polymerization of the monomer to form the chromogen-bonded-polymer.

3,563,932 METHOD OF CONVERTING ELASTOMERIC MATERIALS INTO POWDERS

Ervin J. Varnagy, Tallmadge, and David C. Mowrer, Akron, Ohio, assignors to The General Tire & Rubber Company, a corporation of Ohio
No Drawing. Filed Oct. 11, 1968, Ser. No. 766,946
Int. Cl. C08k 45/06, 45/08, 47/07

U.S. Cl. 260—41 4 Claims
This invention concerns a method of converting elastomeric materials, from either their bulk form or latex form, into powders for incorporation and dispersion into plastic laminates, comprising, admixing a filler to a liquid elastomeric material system, evaporating the liquid therefrom, forming thin flakes of substantially dry elastomeric material and filler, drying and crushing said flakes to form a powder.

3,563,933 MOLDING COMPOSITION

David A. Stivers, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
No Drawing. Continuation of application Ser. No. 267,312, Mar. 22, 1963. This application Mar. 3, 1969, Ser. No. 803,936

Int. Cl. C08f 45/04; C08k 1/08

U.S. Cl. 260—41 7 Claims
The incorporation with vulcanizable highly fluorinated elastomers of inorganic fillers in the form of flakes and in quantity to reduce shrinkage during vulcanization or molding without materially detracting from the other physical properties of the vulcanite.

3,563,934 STABILIZED, PLASTICIZED POLYPHENYLENE OXIDE COMPOSITIONS

Robert E. Burnett, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Apr. 22, 1969, Ser. No. 818,425
Int. Cl. C08g 51/26, 51/60

U.S. Cl. 260—30.4 10 Claims
Incorporation of an alkanolamine or a morpholine in a polyphenylene oxide improves the flow and stability of the polymer during molding. These properties permit lighter colored objects to be more easily molded from the polymers.

3,563,935 MOLDING COMPOUNDS ON A BASIS OF PLASTICIZED POLYVINYL CHLORIDE OR VINYL CHLORIDE COPOLYMERS

Rolf Beckmann, Siegburg, Gerhard Bier and Heinz Diesel, Troisdorf, and Hans-Ewald Konermann, Oberlar, Germany, assignors to Dynamit Nobel Aktiengesellschaft, a corporation of Germany
No Drawing. Filed June 13, 1967, Ser. No. 645,632
Claims priority, application Germany, June 18, 1966, D 50,341

Int. Cl. C08f 29/24, 45/40
U.S. Cl. 260—31.8 8 Claims

Molding compounds on a basis of plasticized polyvinyl chloride or vinyl chloride copolymers are disclosed which comprise from 40 to 75 weight percent of tactic polyvinyl chloride or tactic vinyl chloride copolymers having a comonomer percentage of 0.5 to 20% by weight and with 55 to 80% of their chlorine atoms in a syndiotactic arrangement, from 20 to 50 weight percent and preferably 25 to 40 weight percent of diisotridecyl phthalate as plasticizer, and from 5 to 50 weight percent and preferably 15 to 30 weight percent of a chlorine compound whose chlorine content exceeds that of the polyvinyl chloride or of the vinyl chloride copolymer, and preferably having a chlorine content of 57 to 73 weight percent.

3,563,936 PLASTISOL COMPOSITION

Edward W. Merrill, Cambridge, and Jacob M. Plkarsky, Arlington, Mass., assignors to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut
Filed May 16, 1968, Ser. No. 729,651
Int. Cl. C08f 29/20, 45/36

U.S. Cl. 260—31.8 14 Claims
A plastisol composition containing as the resin component 10 to 50 parts by weight of dispersion grade vinyl chloride polymer and 50 to 90 parts by weight of mass-polymerized vinyl chloride polymer. The amount of plasticizer employed in the composition can range from 50 to 110 parts by weight per hundred parts by weight of the resin component.

3,563,937 MONOVINYLIDENE AROMATIC HYDROCARBONS-HALF ESTERS OF UNSATURATED DICARBOXYLIC ACIDS OR ANHYDRIDES AS RESINOUS BINDERS FOR PRINTING INKS

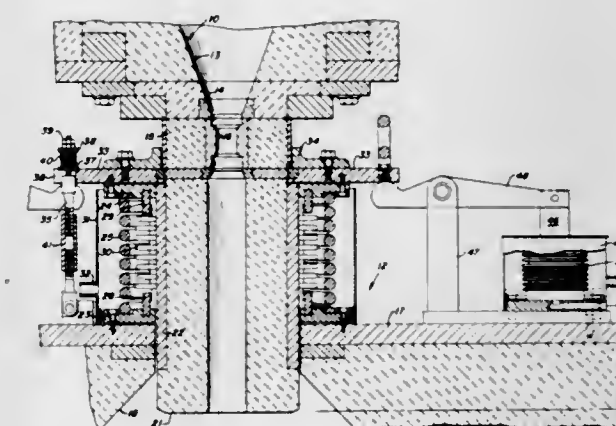
Ralph F. Nickerson, West Springfield, Mass., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Mar. 20, 1968, Ser. No. 714,458
Int. Cl. C08f 19/10, 41/06, 45/34

U.S. Cl. 260—33.4 7 Claims
An ink for a steam-set printing process comprising an organic solvent such as diethylene glycol, triethylene glycol and mixtures thereof, a pigment, and a resinous binder comprising half-esters of styrene-maleic anhydride copolymers which are soluble in the solvent but insoluble in water. The ink is used in a steam-set printing process whereby the binder and pigment are caused to precipitate on a porous surface by the action of water or water vapor.

3,563,938 INLET CONSTRUCTION FOR VACUUM VESSELS

Francis Gallucci, North Huntingdon Township, Westmoreland County, Pa., assignor to United States Steel Corporation, a corporation of Delaware
Filed May 16, 1969, Ser. No. 825,255
Int. Cl. C21c 7/10

U.S. Cl. 266—34 3 Claims



The invention is an improvement over an inlet construction shown in an earlier application. The earlier construction includes a vertically movable tube mounted in the inlet opening of a vacuum vessel, a spring urging the tube upwardly into contact with a teeming vessel, and a bellows surrounding the tube to retain the vacuum. The improvement is an arrangement to balance the downward pull of the vacuum on the tube, whereby the full force of the spring urges the tube upwardly.

3,563,939

ALUMINO-ORGANIC BINDER COMPOSITIONS

John J. Stevens, Jr., Highland Park, and Charles T. Patrick, Jr., and John Wynstra, Somerville, N.J., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed June 4, 1968, Ser. No. 734,239

Int. Cl. C08g 51/04

U.S. Cl. 260—37 22 Claims
Hydrated alumina having a low alkali metal content as a filler for organic compositions.

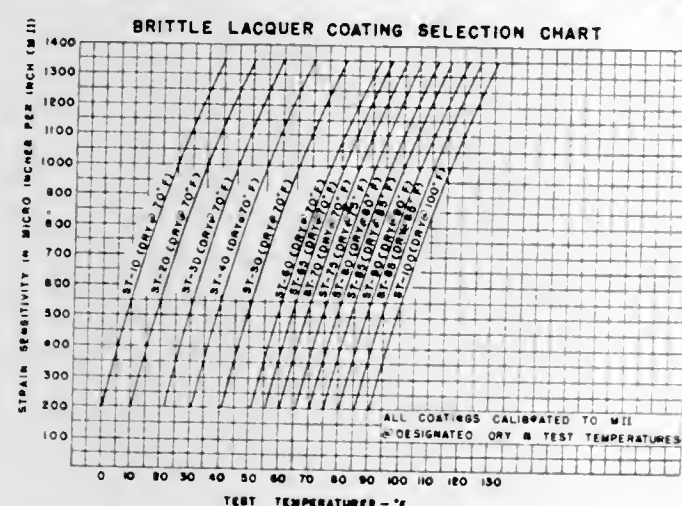
3,563,940

RESINOUS COMPOSITION FOR DETERMINING SURFACE STRAIN CONCENTRATIONS IN RIGID ARTICLES

James S. Borucki, Chicago, Ill., assignor to Magnaflex Corporation, Chicago, Ill., a corporation of Delaware
Continuation-in-part of application Ser. No. 602,703, Dec. 19, 1966. This application July 1, 1968, Ser. No. 741,629

Int. Cl. C08f 31/02; C09d 5/20

U.S. Cl. 260—23.3 3 Claims



A liquid resinous composition comprising a water-resistant resin of suitable melting point and a plasticizer dissolved in a volatile solvent, capable of forming, when dried on the surface of a rigid article, a thin brittle film that is relatively insensitive to humidity and that, within a temperature range of 0° to 130° F., is highly sensitive to strains of 100 MII and above, and therefore useful for the determination of strain concentrations. The composition can be applied to the surface as a liquid spray or as an aerosol to build up a brittle film of between 0.004 and 0.009 inch in thickness with a myriad of minute bubbles therein that facilitate the accurate determination of surface strains.

3,563,941

SILICONE MODIFIED CARNAUBA WAX

Edwin P. Plueddemann, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 443,658, Mar. 29, 1965. This application Nov. 14, 1969, Ser. No. 871,526

Int. Cl. C07f 7/18; C08h 9/06; C08k 1/64

U.S. Cl. 260—28 19 Claims

A silicone-carnauba wax copolymer is disclosed. The silicone-carnauba wax is a copolymer of an organosilicon compound and carnauba wax bonded together by predominantly ether linkages. The silicone-carnauba wax copolymers are waxes useful as lipsticks, floor wax, furniture wax and the like.

3,563,942

AQUEOUS DISPERSION OF COPOLYESTERS MODIFIED WITH A SULFONATED AROMATIC COMPOUND

Phillip Heiberger, Broomall, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Nov. 29, 1967, Ser. No. 686,712

Int. Cl. C08g 51/24; C08j 1/46; C09d 5/02

U.S. Cl. 260—29.2 11 Claims

New solvent-soluble linear copolyester compositions which can be dispersed in aqueous mediums. Water dispersibility is gained by the addition to the copolyesters of about 1–2% (molar) of the metal salt of a sulfonated aromatic compound such as sodium dimethyl-5-sulfoisophthalate. These copolyesters have improved adhesion and are useful as coating compositions particularly where it is desirable to avoid the toxic, pollutant, and corrosive effects which are present with most organic solvent-borne polyesters.

3,563,943

NONIONIC URETHANE LATICES HAVING IMPROVED LOW TEMPERATURE STABILITY

Pauls Davis, Gibraltar, and Oscar M. Grace, Madison Heights, Mich., assignors to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan

No Drawing. Filed Feb. 5, 1968, Ser. No. 702,810

Int. Cl. C08g 53/18; C08j 1/48

U.S. Cl. 260—29.2 5 Claims

Nonionic urethane latices having improved low temperature stability are obtained by the use of certain oxyethylene-containing compounds as emulsifiers therefor. The oxyethylene-containing emulsifiers are prepared by the reaction of aromatic diepoxides with polyethylene glycol.

3,563,944

COLLOID FREE EMULSIONS OF VINYL ACETATE COPOLYMERS

Ralph H. Bauer, Huntington Beach, and Peter Stanley Backlund, Anaheim, Calif., assignors to Union Oil Company of California, Los Angeles, Calif., a corporation of California

No Drawing. Filed Nov. 24, 1967, Ser. No. 685,300

Int. Cl. C08f 1/13, 45/24

U.S. Cl. 260—29.6 7 Claims

Copolymerization of vinyl acetate with acrylates, maleates and fumarates in a colloid free aqueous media using a three-component emulsion. The last component is added following completion of the polymerization.

3,563,945

ENZYME STABILIZED POLYVINYLIDENE CHLORIDE LATEX

Donald L. Johnson, Thomas F. Protzman, and Jerrel L. Zimmerman, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill., a corporation of Delaware

No Drawing. Filed Apr. 10, 1968, Ser. No. 720,382

Int. Cl. C08f 45/24; C09d 5/02

U.S. Cl. 260—29.6 11 Claims

A non-corrosive, stable polyvinylidene chloride latex is produced by adding corrosion inhibiting amounts of a peroxide destroying enzyme such as a peroxidase or catalase to a polyvinylidene chloride latex containing residual peroxides. The stabilized composition has particular utility as a coating for cellulosic substrates.

3,563,946

PROCESS FOR LATEX MANUFACTURE

Frederick A. Miller, Midland, Robert J. Pueschner, St. Louis, Carl L. Dibert, Hemlock, and Dennis A. Kee, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 470,904, July 9, 1965. This application Jan. 8, 1968, Ser. No. 696,121

Int. Cl. C08d 1/09, 3/02

U.S. Cl. 260—29.7 9 Claims

A process for preparing synthetic latexes by emulsion polymerization of monomer compositions containing at least 30 percent by weight of a conjugated diethylenically unsaturated monomer such as 1,3-butadiene by (a) substantially concurrently and substantially continuously feeding at least one aqueous stream and at least one oily stream containing at least a portion of the monomer composition, each stream being at a temperature between its freezing point and 50° C., into a closed polymerization zone maintained at a temperature of at least about 90° C.; also feeding, optionally continuously, a free-radical producing compound into the polymerization zone either in a separate stream or as a portion of one of the continuous streams and (b) agitating the resulting mixture until polymerization is substantially complete.

3,563,947

CHLOROPRENE POLYMERS CONTAINING NORBORNENE DERIVATIVES AS ANTIOZONANTS

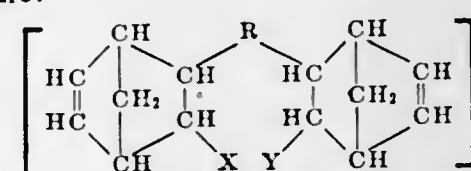
Wilhelm F. Gruber, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed June 9, 1969, Ser. No. 831,771

Int. Cl. C08d 11/04

U.S. Cl. 260—45.85 9 Claims

Elastomeric chloroprene polymers, for use under severe flexing and stretching conditions and where color development and substrate-staining must be avoided, are given enhanced stability against deterioration by ozone by incorporating therein about from 0.3 to 10 parts, per 100 parts of polymer, of a dinorbornene compound having the structure:



wherein X and Y are, independently, hydrogen, alkyl, aryl, aralkyl or alkaryl; R is a divalent organic radical containing at least two carbon atoms; and n is a number in the range of 1 to 3.

3,563,948

METAL DERIVATIVES OF ALKYLHYDROXY-PHENYLALKYLPHOSPHINIC ACIDS AND COMPOSITIONS CONTAINING THESE DERIVATIVES

John D. Spivack, Spring Valley, N.Y., assignor to Gelgy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Original application Jan. 30, 1967, Ser. No. 612,336, now Patent No. 3,488,368, dated Jan. 6, 1970. Divided and this application May 21, 1969, Ser. No. 856,510

Int. Cl. C08f 45/62; C08g 51/62

U.S. Cl. 260—45.75 5 Claims

The preparation of metal and metal complex salts of alkylhydroxyphenylalkylphosphinic acids and the use thereof in the preparation of polymeric compositions of increased stability and increased susceptibility to dye. A typical embodiment is nickel bis[(3,5-di-*t*-butyl-4-hydroxybenzyl)benzenephosphinate].

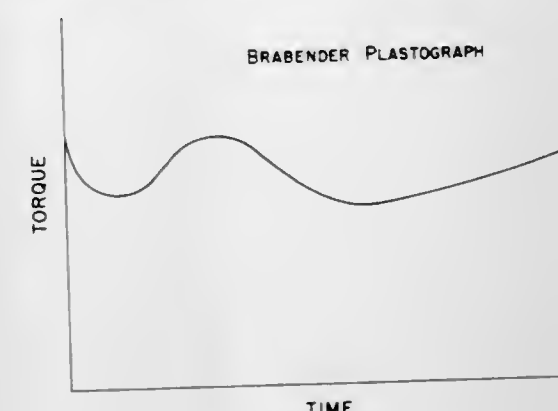
3,563,949

STABILIZATION OF POLYMERS

Bruce W. Habeck, Cuyahoga Falls, and Donald E. Miller, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
Filed Oct. 19, 1967, Ser. No. 676,428

Int. Cl. C08f 45/58

U.S. Cl. 260—45.95 6 Claims



Polymers containing divinyl benzene and stabilized with phenolic stabilizers such as 2,5-ditert-butyl hydroquinone and 4,4'-methylene bis(2,6-ditert-butyl phenol).

3,563,950

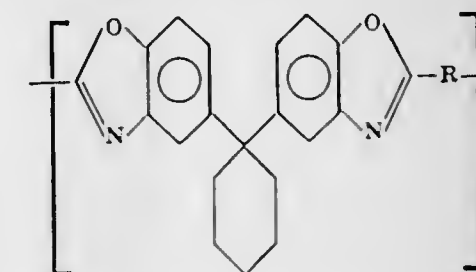
LINEAR POLYBENZOXAZOLES

Henry W. Steinmann, Sparta, and Edward T. Pollard, Middlesex, N.J., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed July 9, 1969, Ser. No. 840,464

Int. Cl. C08g 33/04

U.S. Cl. 260—47 12 Claims

Aromatic and nonaromatic diacyl halides are reacted with 1,1-bis(3-amino-4-hydroxyphenyl) cyclohexane to produce linear polyamides which are transformed by thermal treatment into linear polybenzoxazoles comprising recurring units of the following formula:



wherein R is a covalent bond, an alkylene substituent containing between about 1 and about 2.0 carbon atoms, or an arylene substituent containing between 6 and about 20 carbon atoms.

3,563,951

POLYIMIDES OF HIGH MOLECULAR WEIGHT AROMATIC POLYETHER DIAMINES

Eduard Radlmann, Dormagen, Rudolf Braden, Odenthal-Scheuren, and Günther Nischk, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Continuation of application Ser. No. 707,988, Feb. 26, 1968. This application Oct. 16, 1969, Ser. No. 867,434

Claims priority, application Germany, Mar. 6, 1967, F 51,728

Int. Cl. C08g 20/32

U.S. Cl. 260—47 2 Claims
The invention relates to polyimides which are soluble in organic solvents and to a process for their production

by condensing aromatic tetracarboxylic acids or their derivatives with high molecular weight aromatic polyether diamines.

3,563,952

NOVOLAK MOLDING COMPOUNDS CONTAINING HEXAMETHYLENETETRAMINE MONOMETABORATE

Kurt Schmoll, Hangelar-Niederberg, Germany
No Drawing. Continuation of application Ser. No. 627,248, Mar. 23, 1969. This application Sept. 26, 1969, Ser. No. 861,515
Claims priority, application Germany, Mar. 24, 1966, D 49,680

Int. Cl. C08g 5/06, 51/18

U.S. Cl. 260—59

4 Claims

Manufacture of rapidly hardening phenol formaldehyde resin molding compositions having improved thermal stability and good flow characteristics by incorporating into the molding compositions hexamethylenetetramine in the form of a metaboric acid addition product. The resulting molding composition is then rolled and ground to produce the molding composition of improved properties.

3,563,953

CURABLE COPOLYMER OF AN ALKYL ACRYLATE, A GLYCIDYL ACRYLATE OR METHACRYLATE AND DIKETENE

Gotthold Wilhelm Horst Lehmann and Heinrich August Julius Curts, Hamburg, Germany, assignors to Beiersdorf Aktiengesellschaft, Hamburg, Germany
No Drawing. Continuation-in-part of application Ser. No. 549,468, May 12, 1966. This application Feb. 2, 1970, Ser. No. 8,033

Claims priority, application Germany, May 19, 1965, B 82,010

Int. Cl. C08g 15/00

U.S. Cl. 260—63

1 Claim

Novel pressure-sensitive adhesives from curable copolymers formed by polymerization of a mixture of (a) one or more primary alkyl acrylates and (b) a minor amount of monomers containing reactive epoxide groups. The monomer-mixture for the production of said copolymers may also contain minor amounts of monomers with acid anhydride groups of monomers with carboxyl groups or diketene. When heated for a short time at temperatures in the range of 50° to 150° C., preferably between 60° and 100° C., in the presence of a catalyst the said copolymers become cross-linked whereby solvent-, heat- and weather-resistant pressure-sensitive adhesive compositions are obtained. The low temperature curing property is particularly useful in the production of pressure-sensitive adhesive-coated films and foils.

3,563,954

PROCESS FOR PREPARING PURIFIED GLYCERINE

Bernard Michael Birmingham, Jr., Aurora, Ill., assignor to Armour and Company, Chicago, Ill., a corporation of Delaware
No Drawing. Filed Oct. 19, 1967, Ser. No. 676,605

Int. Cl. C07c 29/24

U.S. Cl. 260—637

5 Claims

In the process for preparing purified glycerine from sweetwater and like crude glycerine solutions in which the sweetwater is treated with lime and soda ash, evaporated and distilled, and color bleached with activated carbon; the step which comprises treating said sweetwater, after distillation and prior to color bleaching, with an ion exchange resin.

3,563,955

PROCESS FOR CROSS-LINKING POLYACETAL COPOLYMERS WITH HYDROZINE OR DICARBOXYLIC ACID HYDRAZIDES AND PRODUCT PRODUCED THEREBY

Karl-Heinz Hafner, Bad Orb, and Edgar Fischer, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

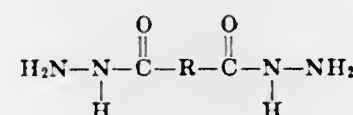
No Drawing. Continuation-in-part of applications Ser. No. 558,245, June 17, 1966, now Patent No. 3,454,528, dated July 8, 1969, and Ser. No. 581,760, Sept. 26, 1966. This application Jan. 7, 1969, Ser. No. 789,604

Int. Cl. C08g 9/04, 9/06

U.S. Cl. 260—72.5

7 Claims

A process for cross-linking polyoxyalkylene copolymers having pendant free aldehyde groups spaced along the polymer chain thereof with hydrazine or a dicarboxylic acid hydrazide of the formula



wherein R stands for an alkylene radical of 1 to 20 carbon atoms, a phenylene or naphthylene radical which is substituted by (A)_x and/or (B)_y, A being an alkyl group of 1 to 6 carbon atoms, x being 0 to 4, y being 0 to 4 and x+y being smaller than 5, or in which R stands for a phenylene and/or naphthylene radical which is or are interrupted by a saturated and/or unsaturated hydrocarbon radical with 1 to 10 carbon atoms, or in which R is a cycloaliphatic radical of 4 to 7 carbon atoms which is substituted by (D)_a and/or (E)_b and/or (F)_c, D being an alkyl group of 1 to 6 carbon atoms, E being an alkoxy group of 1 to 6 carbon atoms and F being a phenyl radical, and a being 0 to 5, b being 0 to 5 and c being 0 to 2, or in which R is a polyacrylic acid radical. Representative dicarboxylic acid dihydrazides are adipic acid bishydrazide, sebacic acid bishydrazide, polyacrylic acid hydrazide and terephthalic acid bishydrazide. The cross-linking agent may be used to the extent of 0.01 to 50% by weight, based on the weight of the uncross-linked polymer. By using such cross-linking agents, good control of molecular weight and consequently of the flow properties of the cross-linked copolymer are obtained. The cross-linked polymers are also claimed.

3,563,956

PROCESS FOR THE MANUFACTURE OF POLYALKYLENE TEREPHTHALATES USING ZINC AMINO-TRIETHANOLATE AS TRANSESTERIFICATION CATALYST

Paul Hilaire, Lyon, France, assignor to Societe Rhodiaceta, Paris, France, a corporation of France

No Drawing. Filed Oct. 29, 1968, Ser. No. 771,624

Claims priority, application France, Oct. 30, 1967, 126,388

Int. Cl. C07c 67/02; C08g 17/013, 17/015

U.S. Cl. 260—75

5 Claims

In the production of filament- or film-forming polyalkylene terephthalates by transesterification followed by polycondensation, zinc aminotriethanolate is used as the transesterification catalyst, preferably in combination with the use of bismuth aminotriethanolamine as the polycondensation catalyst. Much smaller amounts of these catalysts can be used than of prior art catalysts, and the product has a high degree of thermal stability.

3,563,957

ETHYLENEUREA-TERMINATED POLYURETHANE PREPOLYMERS AND CURED PRODUCTS THEREOF

George W. Beebe, Roseville, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Filed Oct. 3, 1968, Ser. No. 764,943

Int. Cl. C08g 22/04

U.S. Cl. 260—77.5

24 Claims

Isocyanate-terminated polyurethane prepolymers, such as those based on poly(oxypropylene) triols, are reacted with certain active hydrogen-containing ethylene urea derivatives, such as N-hydroxyalkyl or N-aminoalkyl derivatives, to produce corresponding ethyleneurea-terminated prepolymers, which can be crosslinked, for example, with latent crosslinking agents, such as bis (alkoxyalkyl)ethyleneurea, and an acid catalyst to provide cured or crosslinked polyurethane-like materials useful as coatings and adhesives.

3,563,958

ESTERIFICATION OF ARYLMETHYLENE SULFONIUM RESINS WITH N-PROTECTED AMINO ACIDS FOR USE IN SOLID-PHASE PEPTIDE SYNTHESIS

Linneaus C. Dorman, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

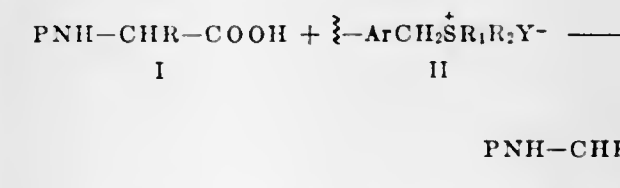
No Drawing. Filed Apr. 2, 1968, Ser. No. 718,241

Int. Cl. C07c 103/52; C08g 20/08

U.S. Cl. 260—78

10 Claims

The Merrifield solid-phase peptide synthesis is improved by bonding the amino acid to the supporting resin through reaction of an N-protected amino acid (I) with an arylmethyle sulfonium resin (II) to form an amino acid resin benzyl ester (IV):



Advantages of this process include broader scope, mild conditions, higher resin ester capacities and improved yields. Highest yields are obtained when a basic salt of the sulfonium resin is used.

3,563,959

PROCESS FOR THE PRODUCTION OF TRANS-PARENT POLYAMIDES WHICH ARE RESISTANT TO BOILING

Gerhard Schade, Witten-Bommern, Hermann Richtzenhain, Cologne-Sulz, Helmut A. de Fuenten, Mondorf, and Franz Blaschke, Witten (Ruhr), Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

No Drawing. Continuation-in-part of application Ser. No. 685,720, June 26, 1967. This application Jan. 31, 1969, Ser. No. 795,727

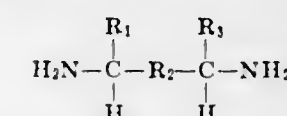
Claims priority, application Germany, June 25, 1966, D 50,392

Int. Cl. C08g 20/00

U.S. Cl. 260—78

6 Claims

Transparent polyamides resistant to boiling are produced by reacting an aromatic dicarboxylic acid (or an amide-forming derivative thereof) with a diamine having the general formula:



wherein R₁ is hydrogen or an alkyl group of 1 to 4 carbon atoms, R₂ is an alkylene group having 1 to 10 carbon

atoms in the chain or a phenylene group, and R₃ is an alkyl group of 1 to 4 carbon atoms. About 1 to 25% by weight of the reactants can be replaced by caprolactam. The products are especially useful for making transparent thin films.

3,563,960

ASHLESS LUBRICATING OIL DETERGENTS

Joseph A. Verdol, Dolton, Ill., and Donald J. Carrow, Louisville, Ky., assignors to Atlantic Richfield Company, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Application June 4, 1968, Ser. No. 734,210, now Patent No. 3,476,686, dated Nov. 4, 1969, which is a continuation-in-part of application Ser. No. 487,624, Sept. 15, 1965. Divided and this application Mar. 17, 1969, Ser. No. 831,800

Int. Cl. C08f 27/08; C08g 20/20

U.S. Cl. 260—78.5

4 Claims

Ashless lubricating oil detergents are provided by the reaction product of:

- a carboxylic acid or acid anhydride containing addition copolymer having at least two acid or anhydride groups, optionally composed in part of monomeric carboxylic acid or anhydride,
- an amine, and
- an aminophenol.

3,563,961

REACTIVE ALPHA OLEFIN POLYSULFONES

William S. Pickle, New Orleans, La., and Nicholas B. Lorette, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Aug. 4, 1969, Ser. No. 847,425

Int. Cl. C08f 13/06

U.S. Cl. 260—78.5

5 Claims

Olefin polysulfones which are the reaction product of sulfur dioxide, at least one alpha olefin of from 4 to 40 carbon atoms and a monomer chosen from monoolefinically unsaturated carboxylic acid chlorides or monoolefinically unsaturated dicarboxylic anhydrides are useful to coat and protect various substrates. They are particularly useful to render natural fabrics shrink resistant and water repellent.

3,563,962

RUBBER VULCANIZATION AGENTS AND METHODS FOR THEIR PREPARATION

Stanley B. Mirvis, Stamford, Conn., assignor to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 13, 1967, Ser. No. 690,062

Int. Cl. C08f 27/06

U.S. Cl. 260—79

7 Claims

Superior vulcanization agents for rubber are prepared by heating conjugated diolefins with sulfur in the presence of catalytic amounts of phosphorus sulfides.

3,563,963

PROCESS FOR THE PREPARATION OF MIXED POLYMERIZATES OF OLEFINIC COMPOUNDS

Gerhard Beier and Eduard Bermeister, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Germany, a corporation of Germany

No Drawing. Filed Dec. 3, 1968, Ser. No. 780,879

Int. Cl. C08f 15/00

U.S. Cl. 260—79.3

5 Claims

This invention relates to an improvement in the process of copolymerizing alkenes having from 2 to 6 carbon atoms and free-radical-polymerizable monomers utilizing a catalyst system of (1) an inorganic or organic per-compound, (2) hydrogen and compounds splitting off hydrogen and (3) a colloiddally dispersed noble metal,

said improvement consisting of utilizing from 0.000001% to 0.01% by weight, based on the monomers utilized, of said colloidal dispersed noble metal in combination with metallic ions selected from the group consisting of iron, copper, nickel, cobalt, chromium, molybdenum, vanadium, cerium and mixtures thereof, wherein the amount of said metallic ions is from 0.01 to 10 gm./atom per gm./atom of said noble metal and does not exceed 0.001% by weight, based on the monomers utilized, and conducting said polymerization at a temperature between -50° C. and +50° C.

3,563,964

HIGH MOLECULAR WEIGHT ETHYLENE COPOLYMERS PRODUCED BY COORDINATION CATALYSTS CONTAINING ANHYDROUS HYDROGEN HALIDE

Joseph Wagensommer, Westfield, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

Filed Dec. 23, 1965, Ser. No. 526,648
Int. Cl. C08f 15/40

U.S. Cl. 260—80.78 11 Claims
Elastomers having novel microstructures are prepared from ethylene and C₃-C₁₀ alpha-olefins polymerized in the presence of a Ziegler-type catalyst and anhydrous hydrogen halide.

3,563,965

PROCESS FOR THE PREPARATION OF A CYANATED VINYL MONOMER-CONTAINING COPOLYMER HAVING RESISTANCE TO COLORATION

Akihiko Kishimoto, Takehiko Okamoto, Tosiyo Kawai, and Masakazu Inoue, Nagoya, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan

No Drawing. Filed Jan. 22, 1968, Ser. No. 699,317
Claims priority, application Japan, Jan. 23, 1967, 42/4,194

Int. Cl. C08f 15/04, 15/22

U.S. Cl. 260—80.81 6 Claims
In the preparation of a copolymer containing less than 40% by weight of a cyanated vinyl monomer by aqueous suspension polymerization, resistance to coloration is imparted to the copolymer by adding a saturated higher aliphatic alcohol having 12 to 18 carbon atoms to the polymerization system.

3,563,966

EPOXIDE-CURED ACRYLO-BUTADIENE COPOLYMERS

Robert Dean Lowrey, Hopkins, Minn., and William Edward Hunter, Huntsville, Ala., assignors to Thiokol Chemical Corporation, Trenton, N.J., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 644,954, Mar. 8, 1957. This application Jan. 6, 1958, Ser. No. 707,444

Int. Cl. C08f 15/00, 15/40

U.S. Cl. 260—82.1 14 Claims
1. As a new composition of matter, the elastomeric reaction product of a polyepoxide and an acrylo-butadiene copolymer having free carboxyl groups.

2. The elastomeric reaction product of a polyepoxide and a copolymer of butadiene and acrylic acid.

6. The method of making an elastomer which comprises copolymerizing a diene selected from the group consisting of butadiene and lower alkyl substituted butadienes with an acrylic compound selected from the group consisting of acrylic acid, lower alkyl substituted acrylic acids and the esters of said acids to form a liquid copolymer with a liquid polyepoxide, and heating the mixture to cause said polyepoxide to react with said copolymer to form a rubber-like solid.

3,563,967

PROCESS FOR POLYMERIZING A MIXTURE OF BI-SECONDARY ALIPHATIC MONO-OLEFINS AND PRIMARY-SECONDARY MONO-OLEFINS

Yves Chauvin, Orsay, and Gilles Lefebvre, La Celle-St.-Cloud, France, assignors to Institut Français du Pétrole des Carburants et Lubrifiants, Ruell-Malmaison, France

No Drawing. Filed Sept. 13, 1967, Ser. No. 667,343
Claims priority, application France, Sept. 14, 1966, 76,410; Sept. 15, 1966, 76,556

Int. Cl. C08f 1/56, 3/02

U.S. Cl. 260—88.2 5 Claims
A process for polymerizing a mixture of bi-secondary and primary secondary olefins. The mixture is first reacted in the presence of a catalytic mixture comprising one metal compound from groups IVa and Va and a group Ia, II, IIIb, and IVb metal, hydride, or organometallic compound. Then adding a metal compound from group VI or VIII to the mixture and continuing the polymerization.

3,563,968

PROCESS FOR THE PREPARATION OF FUNCTIONAL POLYMERS FROM N-VINYL PYRROLIDONE

Ashot Merijan, Wayne, Eugene S. Barabas, Watchung, and Marvin M. Fein, Westfield, N.J., assignors to GAF Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 672,449, Oct. 3, 1967. This application Feb. 9, 1970, Ser. No. 10,024

Int. Cl. C08f 7/12

U.S. Cl. 260—88.3 2 Claims
Functional homopolymers of heterocyclic N-vinyl monomers are obtained by the simultaneous polymerization and aminoalkylation or hydroxyalkylation of N-vinyl pyrrolidone.

3,563,969

PROCESS FOR PREPARATION OF VINYL BENZYL HALIDE POLYMERS AND THEIR QUATERNARY AMMONIUM SALTS

Bonnie F. Hartenstein, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Dec. 3, 1968, Ser. No. 780,881
Int. Cl. C08f 7/04, 27/02, 27/08

U.S. Cl. 260—93.5 12 Claims
An improvement in a process for preparing and purifying vinyl benzyl halide polymers and the quaternary ammonium salts thereof, such as vinyl benzyl trimethylammonium chloride polymers, wherein the reaction product containing the vinyl benzyl halide polymer or the quaternary ammonium salt thereof is in the form of an emulsion having an organic liquid phase and an aqueous phase, said improvement comprising the steps of (1) dispersing in the emulsion up to about 100 p.p.m. based on the volume of the emulsion of a polysiloxane compound and (2) withdrawing the organic liquid layer from the aqueous layer.

3,563,970

OLEFIN POLYMERS HAVING A CONTROLLED GRANULOMETRY AND PROCESS FOR THEIR PREPARATION

Giorgio Leicht and Giancarlo Bizzarri, Terni, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Dec. 30, 1966, Ser. No. 605,966
Claims priority, application Italy, Jan. 4, 1966, 40/66

Int. Cl. C08f 3/08

U.S. Cl. 260—93.7 3 Claims
Process for controlling particle size distribution of isotactic polyolefins to eliminate "fines." Polymer is separated from non-isotactic fraction, dispersed in aqueous

solution of surface-active agent, and subjected to temperature of from about 100 to 160° C. at pressure of from about 2 to 50 atmospheres for from about 8 minutes to 3 hours.

3,563,971

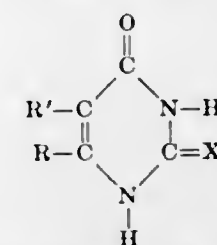
NUCLEATION OF POLYPROPYLENE

Harold V. Wood and Terry D. Brown, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Sept. 26, 1968, Ser. No. 762,970
Int. Cl. C08f 3/08, 3/10

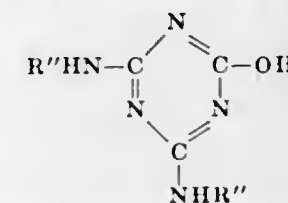
U.S. Cl. 260—93.7 9 Claims
The crystal structure of propylene polymers is altered by the addition of a small concentration of a compound selected from those compounds of the formulas

(A)



wherein X is O or S, and R or R' is a hydrogen atom or a methyl, ethyl, propyl, isopropyl or a carboxyl group; or

(B)



wherein R'' is a hydrogen atom or an alkyl, aryl or cycloalkyl radical having from 1 to 12 carbon atoms therein.

3,563,972

LOW MELT ELASTICITY COMPOSITION OF POLYPROPYLENE

Ronald C. Kowalski, Baytown, Tex., assignor to Esso Research and Engineering Company

No Drawing. Continuation of application Ser. No. 579,501, Sept. 15, 1966. This application Oct. 15, 1969, Ser. No. 866,769

Int. Cl. C08f 3/08

U.S. Cl. 260—93.7 2 Claims
A method for producing a polypropylene composition having a melt elasticity (swell) value between 1.5 and 3.0 comprises contacting the polypropylene with oxygen, heating the polypropylene in the feed-end of an extruder-reactor at temperatures between 600° and 1,000° F. and then cooling the polypropylene to a melt temperature not in excess of 600° F. A polypropylene composition having a melt elasticity (swell) of less than 3.0 has a molecular weight distribution which is very narrow as compared to commercial polypropylene compositions.

3,563,973

ARTICLES WITH POLYMERIC MEMORY AND METHOD OF CONSTRUCTING SAME

Sol J. Arditti, Plainview, N.Y., Souren Z. Avedikian, Short Hills, N.J., and Bruce S. Bernstein, Forest Hills, N.Y., assignors to Radiation Applications Incorporated, Long Island City, N.Y., a corporation of New York

No Drawing. Filed Mar. 4, 1965, Ser. No. 437,280

Int. Cl. C08f 3/04

U.S. Cl. 260—94.9 16 Claims
This disclosure relates to a novel process for forming polymeric structures, for example, for making toy figures. In the process of this invention a polymeric structure comprising polymers or copolymers of ethylene or propylene are molded to a first desired shape; the structures are then irradiated to cross-link the polymer; said

3,563,974

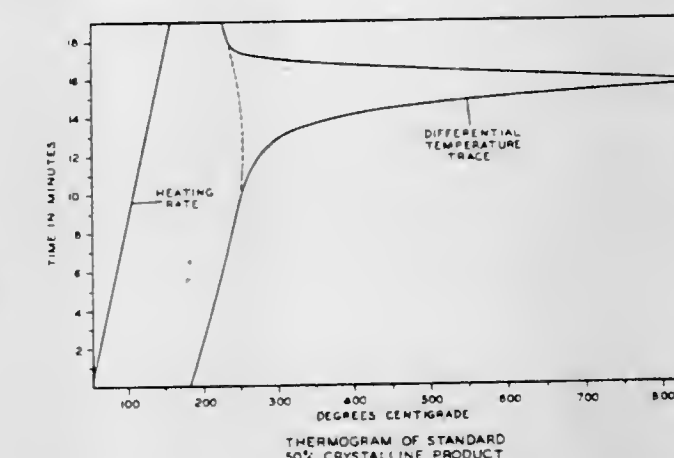
LINEAR POLYETHYLENE CHLORINATION

Carl R. Eckardt, Morris Plains, and William M. Bungo, Parsippany, N.J., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Continuation-in-part of application Ser. No. 354,345, Mar. 24, 1964. This application May 16, 1968, Ser. No. 742,107

Int. Cl. C08d 5/04

U.S. Cl. 260—94.9 4 Claims



A process for aqueous slurry chlorination of linear polyethylene of molecular weight below 500,000 whereby chlorinated polymer having 30%–50% by weight chlorine content is obtained. By following a specific schedule of reaction temperature vs. chlorine content of the polymer, good production rates are obtained and the resulting chlorinated polymer is fully soluble at room temperatures in aromatic hydrocarbon solvents and is highly flexible at low temperatures.

3,563,975

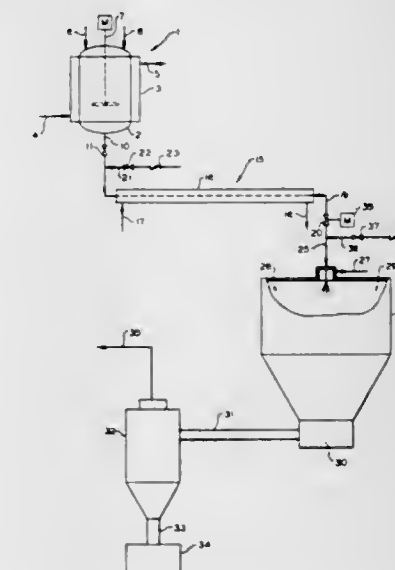
RECOVERY OF POLYMER POWDERS FROM PRESSURIZED SOLUTIONS OF POLYMER

Fredrick J. Zavasnik, % Phillips Petroleum Co., Bartlesville, Okla. 74003

Continuation-in-part of application Ser. No. 482,555, Aug. 25, 1965. This application June 12, 1969, Ser. No. 836,206

Int. Cl. C08f 1/88

U.S. Cl. 260—94.9 8 Claims



polymer solution to an elongated cooling means thereby indirectly cooling the solution to precipitate the polymer while maintaining the solution under sufficient pressure to prevent substantial vaporization of the solvent. The resulting slurry is intermittently removed from the elongated cooling means and introduced into a zone maintained at a pressure sufficiently lower than the pressure of the solution to cause vaporization of the solvent.

3,563,976

METHOD OF SEPARATING NON-ADDUCTED IMPURITIES FROM UREA AND THIOUREA ADDUCTS

King L. Mills, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed May 9, 1966, Ser. No. 548,469
Int. Cl. C07b 21/00

U.S. Cl. 260—96.5

7 Claims

Impurities are separated from urea and thiourea adducts by subjecting to an elevated temperature above 150° F. but below the adduct decomposition temperature with or without stripping with an inert gas.

3,563,977

GRANULAR NITROCELLULOSE MANUFACTURE

Joseph John Cucinotta, Gibbstown, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Feb. 28, 1968, Ser. No. 708,779
Int. Cl. C08b 5/00, 5/04, 19/00

U.S. Cl. 260—223

14 Claims

In the process for the production of granular nitrocellulose by treating fibrous nitrocellulose in a bath of water and an active solvent, the improvement comprising adding dispersant to the bath.

3,563,978

POLYVALENT METAL COMPLEXES OF NATURAL POLYMERS

Irving L. Ochs, 28 Franklin St., Annapolis, Md. 21401

No Drawing. Filed May 15, 1968, Ser. No. 735,489
Int. Cl. C08b 11/20

U.S. Cl. 260—232

16 Claims

In the present invention a polymer containing functional groups is reacted with a polyvalent metal cation in solution to form a salt of the polymer. Preferably, the polymer salt is separated from the solution by freeze-drying which particularly enhances the activity of the salt. The polymer salt is useful for therapeutic purposes since when contacted with bile acid conjugates, it binds the conjugate and prevents reabsorption of bile acid by the small intestine. Preferably the salt of the polymer contains an enteric coating.

3,563,979

1,2,3,4,5,6-HEXAHYDROAZEPINO[4,3-b]INDOLES AND 1,2,3,4,5,6-HEXAHYDROAZEPINO[3,2-b]INDOLES

Jackson B. Hester, Jr., Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
No Drawing. Filed Oct. 21, 1966, Ser. No. 588,315
Int. Cl. C07d 41/08

U.S. Cl. 260—239.3

11 Claims

1, 2, 3, 4, 5, 6-hexahydroazepino[4,3-b]indoles, 1, 2, 3, 4, 5, 6-hexahydroazepino[3,2-b]indoles and the corresponding acid addition salts thereof are disclosed. These com-

pounds are useful for reducing anxiety and fighting behavior in animals and also for normalizing hyperactive and depressed mental states.

3,563,980

PROCESS OF PREPARING A MIXTURE OF A LACTAM AND AN ALKALI COMPOUND OF THIS LACTAM

Johannes van Mourik, Geleen, Johannes van Beveren, Sittard, and Johannes J. de Dilva, Heerlen, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands
Filed Apr. 5, 1968, Ser. No. 719,043
Claims priority, application Netherlands, Apr. 5, 1967, 6704865
Int. Cl. C07d 41/08

U.S. Cl. 260—239.3

3 Claims

Process and apparatus for preparing a catalyst for the anionic polymerization of lactams, in which a lactam and an alkali metal hydroxide are continuously fed into a first reaction vessel, the liquid level in said vessel being kept constant by feeding a portion of the reaction mixture into a second vessel and the liquid level in said second vessel being kept constant by discharging a continuous stream of the reaction mixture from said vessel. The water formed in the reaction vessels is evaporated by heating in vacuo and the vapour thus formed is passed through a condenser in which the lactam is condensed and returned to the reaction vessels.

3,563,981

ALKYLIDENE AROMATIC-AMINOMETHYLENE-MALONATES AND THEIR PREPARATION

George Y. Leshner, Schodack, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 640,359, May 22, 1967, which is a continuation-in-part of application Ser. No. 464,850, June 17, 1965. This application June 10, 1968, Ser. No. 735,567
Int. Cl. C07d 33/20

U.S. Cl. 260—240.3

34 Claims

Alkylidene Ar-aminomethylenemalonates, where Ar is an aromatic radical having one or two aromatic rings which can be benzenoid or five- or six-membered hetero-aromatic, are prepared by reacting the appropriate aromatic-amine with a mixture of a trialkyl orthoformate or trialkyl orthoacetate and an alkylidene malonate. The alkylidene Ar-aminomethylenemalonates are then cyclized by heating to provide an improved process for preparing various heterocyclic compounds, e.g., a 4-hydroxyquinoline from an alkylidene anilinomethylenemalonate, a 4H-pyrido[1,2-a]pyrimidin-4-one from an alkylidene 2-pyridylaminomethylenemalonate, a 4H-pyrimido[1,2-a]pyrimidine-4-one from an alkylidene 2-pyrimidylaminomethylenemalonate. The cyclized products are useful as intermediates for the preparation of antimalarials and anti-inflammatory agents.

3,563,982

INSECT CONTROL PROCESS WITH SYNTHETIC HORMONES

William S. Bowers, Bowie, Md., assignor to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Jan. 2, 1969, Ser. No. 788,651
Int. Cl. C07d 17/00, 21/00

U.S. Cl. 260—240

32 Claims

Methylenedioxybenzoyloxy and methylenedioxyphenoxy ethers of straight chain terpenoid compounds and their epoxides were synthesized and found to mimic the juvenile hormones of insects and be extremely effective as insect control agents.

3,563,983

3-(BENZENE-FUSED HETEROCYCLIC THIOL) SUBSTITUTED SYNDNONECEPHALOSPORIN COMPOUNDS AND PROCESS FOR PREPARATION THEREOF

Sueo Atarashi, Kyoto, Susumu Horibe, Osaka, Masashi Mera, Amagasaki, and Ritsuko Nakagawa, Akashi, Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan
No Drawing. Filed Oct. 31, 1967, Ser. No. 679,519
Int. Cl. C07d 99/24

U.S. Cl. 260—243

6 Claims

The compounds of this invention are 3-(benzene-fused heterocyclic thiol) substituted 7-syndnonecephalosporin compounds. These compounds manifest significant activity against a wide variety of microorganisms including both gram-positive and gram-negative bacteria, and also are excreted in bile at a higher concentration.

3,563,984

OXAZOLO[2,3-b]PYRIMIDO[4,5-d][1,3]OXAZINONES

Dong H. Kim, Wayne, and Arthur A. Cantilli, Haverstown, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 20, 1968, Ser. No. 785,768
Int. Cl. C07d 85/48

U.S. Cl. 260—244

7 Claims

4-(substituted)-pyrimidine carboxylic acid esters are produced by reaction of a 5-carboxy-4-chloropyrimidine with alkanolamine or derivatives thereof. After hydrolysis to the corresponding acids, the compounds are treated with an acid anhydride forming oxazolo[2,3-b]pyrimido[4,5-d][1,3]oxazine-5-ones. The latter compounds are central nervous system depressants.

3,563,985

PROCESS FOR PREPARING CERTAIN ACYLAMINOISOTHIAZOLES

Gert P. Volpp, Princeton, and William A. Hills, Trenton, N.J., assignors to FMC Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 15, 1967, Ser. No. 690,796
Int. Cl. C07d 91/12

U.S. Cl. 260—247.1

5 Claims

Ureas, carbamates and thiocarbamates having a 3-or-5-isothiazolyl ring attached to one of the nitrogen atoms thereof are prepared by reacting a 3-or-5-isothiazolyl isocyanurate formed by pyrolysis of the 3-or-5-isothiazolyl azide with the corresponding amine, alcohol or thiol and isolating the resulting product.

3,563,986

4-PHTHALIMIDO-N-HETEROCYCLIC AMINO METHYL OR PIPERIDINO HYDRAZINO PIPERIDINE DIONES 2,6

Ernst Frankus, Dorfstrasse 14, Schleckheim, near Aachen, Germany; Heinrich Mueckter, Eupener Str. 291, Aachen, Germany; and Siegfried Herrling, Auf der Lister 8; Franz Otto, Galmelstrasse 57; and Horst Boehlke, Trockener Weiher 33, all of Stolberg, Rhineland, Germany
No Drawing. Filed May 9, 1966, Ser. No. 548,426
Claims priority, application Germany, Oct. 12, 1965, P 15 45 706.4; Oct. 13, 1965, P 15 45 707.5; Austria, Oct. 15, 1965, A 9,341/65
Int. Cl. C07d 87/46

U.S. Cl. 260—247.1

8 Claims

Dicarboxylic acid imides which carry in 4-position of their ring structure an acylated amino or imino group and are substituted at the imido group by basically substituted methyl have valuable pharmacological properties, such as anti-tumor, immuno-suppressive, and sedative properties. Examples of such compounds are 4-phthalimido piperidinediones-2,6 substituted in 1-position by a

morpholino, piperidino, or pyrrolidino methyl group or by an N-methyl-N-morpholino or N-methyl-N-piperidino amino methyl group; 4-(3',5'-dithia-3',4',5',6'-tetrahydrophthalimido) piperidinedione-2,6 substituted in 1-position by a morpholino, piperidino, or pyrrolidino methyl group, and others.

3,563,987

PREPARATION OF CYANURIC ACID

Sidney Berkowitz, Highland Park, N.J., assignor to FMC Corporation, a corporation of Delaware
No Drawing. Filed Apr. 1, 1969, Ser. No. 812,334
Int. Cl. C07d 55/36

U.S. Cl. 260—248

6 Claims

A highly-pure cyanuric acid is produced by heating urea or biuret in an inert solvent therefor, at temperatures of at least about 180° C., and preferably about 200–250° C., under subatmospheric pressures of from 0 to about 250 mm. of Hg; the cyanuric acid is recovered as a solid precipitate from the urea or biuret solvent substantially free of amides of cyanuric acid.

3,563,988

AMINOALKYLAMINO-S-TRIAZINES

Hans Feichtinger, Dinslaken, and Werner Raudenbusch, Oberhausen-Sterkrade, Germany, assignors to Ruhrchemie Aktiengesellschaft, Oberhausen-Holten, Germany, a corporation of Germany
No Drawing. Original application Nov. 29, 1966, Ser. No. 597,571, now Patent No. 3,413,268, dated May 3, 1968. Divided and this application Apr. 1, 1968, Ser. No. 753,317

Claims priority, application Germany, Dec. 3, 1965, R 42,127; Dec. 30, 1965, R 42,340
Int. Cl. C07d 87/40

U.S. Cl. 260—247.5

13 Claims

The invention is concerned with novel aminoalkyl-amino-s-triazines prepared from mono-s-triazines and aldehydes, especially isobutyraldehyde, and the preparation of the hereinbefore mentioned starting materials in a single reaction stage. The new compounds are useful as hardening agents for epoxy resins.

3,563,989

PROCESS FOR THE PRODUCTION OF TETRACHLOROPYRIMIDINE

Hans Holtschmidt, Leverkusen, Herbert Schwarz, Opladen, and Fritz Döring, Odenthal-Globus, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Dec. 4, 1968, Ser. No. 781,278
Claims priority, application Germany, Dec. 14, 1967, P 16 70 961.8

U.S. Cl. 260—251

4 Claims

2,4,5,6-tetrachloropyrimidine is prepared by heating a mono-, di-, or trichloropyrimidine or mixtures thereof with an excess of chlorine, in the gaseous phase and in the presence of a catalyst, such as nickel, cupric chloride, ferric chloride or activated charcoal.

3,563,990

1-SUBSTITUTED-4-ARYL-2(1H)-QUINAZOLINONES

Goetz E. Hardtmann, Florham Park, N.J., assignor to Sandoz-Wander, Inc., a corporation of Delaware
No Drawing. Filed Mar. 18, 1969, Ser. No. 808,338
Int. Cl. C07d 51/48

U.S. Cl. 260—251

7 Claims

The invention discloses preparation of 1-substituted-4-aryl-2(1H)-quinazolinones from their corresponding 1-substituted-4-aryl-5,6,7,8-tetrahydro-2(1H)-quinazolinones.

3,563,991

1-OXO-1,2,3,4-TETRAHYDROPHENAZINE-5,10-DIOXIDES

James David Johnston, Allendale, N.J., assignor to Chas. Pfizer & Co. Inc., New York, N.Y., a corporation of Delaware

No Drawing. Application Dec. 18, 1968, Ser. No. 798,546, now Patent No. 3,507,870, which is a division of application Ser. No. 587,420, Oct. 18, 1966, now Patent No. 3,480,713, which in turn is a continuation-in-part of application Ser. No. 502,602, Oct. 22, 1965. Divided and this application July 10, 1969, Ser. No. 840,817

Int. Cl. C07d 51/80

U.S. Cl. 260—267

9 Claims

A series of 1-oxo-1,2,3,4-tetrahydrophenazine-5,10-dioxides and the non-toxic salts thereof useful in controlling chronic respiratory disease in poultry and in promoting growth and improving feed efficiency of animals in general.

3,563,992

1,4-DIAZA-BICYCLO[4,3,0]NONANE-2,5,9-TRIONES

Michael R. Harnden, Waukegan, Ill., assignor to Abbott Laboratories, North Chicago, Ill., a corporation of Illinois

No Drawing. Continuation-in-part of application Ser. No. 593,691, Nov. 14, 1966. This application Oct. 31, 1967, Ser. No. 679,524

Int. Cl. C07d 51/72

U.S. Cl. 260—268

9 Claims

Novel 1,4-diaza-bicyclo [4,3,0] nonane-2,5,9-triones are obtained by two synthetic routes. The first involves cyclization of α -aminoalkanoil-glutamic acids to 3,6-dioxo-2-piperazine-propionic acids which undergo a second cyclization upon refluxing with acid anhydride. In the second route, compounds of the novel bicyclic system were obtained by direct cyclization of N-acetyl- α -aminoalkanoil-glutamic acid. These compounds have been found effective as central nervous system stimulants and depressants.

3,563,993

10-(1-PIPERAZINO)-10,11-DIHYDRO-DIBENZO[b,f]THIEPINS

Walter Schindler, Riehen, near Basel, Erich Schmid, Basel, and Armin Züst, Birsfelden, near Basel, Switzerland, assignors to Gelgy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Filed Feb. 17, 1969, Ser. No. 799,955
Claims priority, application Switzerland, Dec. 4, 1968, 18,085/68

Int. Cl. C07d 51/70

U.S. Cl. 260—268

3 Claims

8-methoxy- and 8-methylthio-10-(1-piperazinyl)-10,11-dihydro-dibenz[b,f]thiepin and the pharmaceutically acceptable acid addition salts thereof, have a depressant effect on the central nervous system; pharmaceutical compositions comprising these compounds and methods of producing a depressant effect in warm-blooded animals are provided.

3,563,994

ORTHO-SUBSTITUTED 2-PHENYL-IMINO-1-AZACYCLOALKANES

Hartmund Wollweber and Rudolf Hiltmann, Wuppertal-Elberfeld, and Kurt Stoepel, Wuppertal-Vohwinkel, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 11, 1968, Ser. No. 720,475
Claims priority, application Germany, Apr. 24, 1967, F 52,224

Int. Cl. C07d 29/28

U.S. Cl. 260—293

41 Claims

There are provided 2-phenyl-imino-1-azacycloalkanes having an o-substituent on the phenyl nucleus comprising

alkyl, alkoxy, halogen, trifluoromethyl, alkanoyl and mercaptoalkyl, wherein alkyl, alkoxy and alkanoyl have 1-4 carbon atoms. The compounds are useful for their blood pressure depressant activity and their CNS damping effect. They can be prepared by reacting substituted anilines with selected lactams. A representative compound is 2-(2',6'-dimethylphenyl)-imino-1-aza-cyclopentane and its HCl acid addition salt.

3,563,995

ALKYL ESTERS OF 1-AZABICYCLO[2.2.2]OCT-2-ENE-3-(4-CHLORO-3-SULFAMOYLANILINO)-2-CARBOXYLIC ACID

Ian Wellings, 1713 Shadybrook Road,

Wilmington, Del. 19803

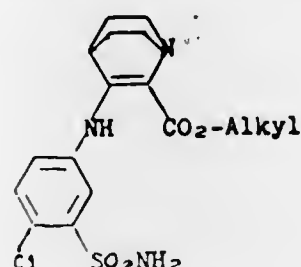
No Drawing. Filed Apr. 17, 1969, Ser. No. 817,182

Int. Cl. C07d 39/06

U.S. Cl. 260—293.4

5 Claims

Compounds useful as plant growth regulants of the formula:



Typical is 1-azabicyclo[2.2.2]oct-2-ene-3-(4-chloro-3-sulfamoylanilino)-2-carboxylic acid, ethyl ester.

3,563,996

PIPERIDINE DERIVATIVES

Andrea Pedrazzoli and Gianmario Cipelletti, Milan, Italy, assignors to Societe d'Etudes de Recherches et d'Applications Scientifiques et Medicales E.R.A.S.M.E., Paris, France, a French society

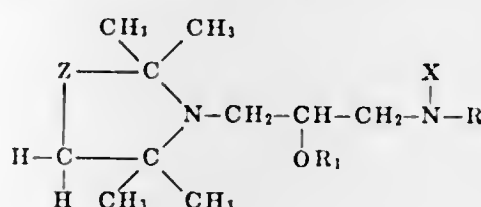
No Drawing. Filed Aug. 21, 1967, Ser. No. 661,811
Claims priority, application Great Britain, Aug. 23, 1966, 37,826/66

Int. Cl. C07d 29/28

U.S. Cl. 260—294.3

6 Claims

The disclosure is of heterocyclic compounds derived from arylamino-propane-2-ol and a method of preparing them, the compounds having the general formula:



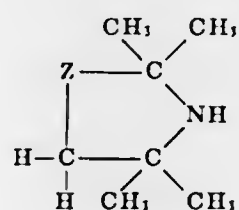
wherein:

Z is the group $-\text{CH}_2-\text{CH}_2-$ or the group $-\text{CH}=\text{CH}-$

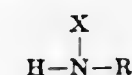
R is a substituted or unsubstituted phenyl, benzyl or phenylethyl radical,

R₁ is either a hydrogen atom, in which case X is a hydrogen atom or a CH₃ radical, or

R₁ is a COR₂ group, COR₂ being a substituted or unsubstituted phenoxyacetic or aromatic acid residue or a phenylthioacetic acid residue which may or may not be substituted in the ring, in which case X is a CH₃ radical. The method comprises reacting a compound of the formula:



with epichlorhydrin, reacting the product obtained with an amine of the formula:



X and R being the substituents defined above, and then reacting the product obtained with an acid chloride of the formula:



The products of the invention are stable to light and to heat, they have a low toxicity and a remarkable pharmacological activity, being antihistaminic, myolitic, analgesic, anti-inflammatory, antipyretic, and psychotropically tranquilizing and, particularly, local anesthetic.

3,563,997

CERTAIN THIENO(2,3-c)PYRIDINES

Michio Nakanishi and Tetsuya Tahara, Nakatsu, Oita, Hiroshi Imamura, Ichikawa, Chiba, and Yutaka Maruyama, Tokyo, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Higashiku, Osaka, Japan

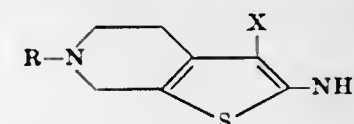
No Drawing. Filed Nov. 29, 1968, Ser. No. 780,218
Claims priority, application Japan, Dec. 4, 1967, 42/78,078

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8

14 Claims

Thienopyridine derivatives of the formula



wherein R is H, acetyl, allyl, 2-propynyl, 3-chloro-2-hydroxypropyl, carboxymethyl, alkyl of 1 to 8 carbon atoms, alkoxycarbonyl wherein the alkoxy moiety contains from 1 to 4 carbon atoms, hydroxyalkyl wherein the alkyl moiety contains from 1 to 4 carbon atoms, alkoxycarbonylalkyl wherein the alkoxy and alkyl moieties each independently contains from 1 to 4 carbon atoms, phenethyl, benzyl, mono-, di- or tri-substituted benzyl or benzoyl in which the substituents are Cl, methyl or methoxy, and X is cyano, carbamoyl or alkoxycarbonyl wherein the alkoxy moiety contains from 1 to 4 carbon atoms, are analgesic and anti-inflammatory agents.

3,563,998

2-[4-(2',6'-DIPHENYL-4-PYRIDYL)PHENOXY]-AND 2-[4-(4',6'-DIPHENYL-2-PYRIDYL)PHENOXY] LOWER ALIPHATIC MONOCARBOXYLIC ACIDS AND ESTERS

Rudolf G. Griot, Florham Park, N.J., assignor to Sandoz-Wander, Inc., a corporation of Delaware

No Drawing. Filed July 8, 1968, Ser. No. 743,041

Int. Cl. C07d 31/34

U.S. Cl. 260—295

7 Claims

Aliphatic acid derivatives, e.g., 2-[4-(2',6'-diphenyl-4-pyridyl)phenoxy]-, and 2-[4-(4',6'-diphenyl-2-pyridyl)phenoxy] lower aliphatic monocarboxylic acids. These compounds are useful as hypolipidemic agents.

3,563,999

CERTAIN PERFLUOROALKYLENE OXY-ALKYLENE ESTERS OF PYRIDINIUM CARBOXYLATES

Louis G. Anello, Basking Ridge, and Richard F. Sweeney, Dover, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Nov. 1, 1968, Ser. No. 772,848

Int. Cl. C07d 31/34

U.S. Cl. 260—295

7 Claims

Quaternized haloalkyl esters of fluorocarbon alcohols having a polyfluoroisalkoxyalkyl tail wherein an ether

oxygen atom links a fluorinated carbon atom connected to two fluoroalkyl groups and at least one $-\text{CF}_2-$ group. These compounds impart oil and water resistance to textiles.

3,564,000

PROCESS FOR PREPARING 3-CHLORO-4-HYDROXY-1,2,5-THIADIAZOLE DERIVATIVES

Leonard M. Weinstock, Rocky Hill, N.J., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Original application Oct. 15, 1965, Ser. No. 496,699, now Patent No. 3,419,573, dated Dec. 31, 1968. Divided and this application Jan. 17, 1968, Ser. No. 723,635

Int. Cl. C07d 91/68

U.S. Cl. 260—302

4 Claims

3-chloro-1,2,5-thiadiazoles substituted at the 4-position with a hydroxy or hydrocarboxy function are synthesized directly from open chain cyanoformamide or an alkyl cyanoformimide by treating the latter with sulfur mono- or dichloride. These compounds are employed as intermediates in the synthesis of sulfathiadiazoles having antiparasitic and antibacterial activity.

3,564,001

METHOD FOR PRODUCTION OF BENZOTRIAZOLE

John W. Long III, Sylvania, Ohio, assignor to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio

No Drawing. Filed Feb. 19, 1968, Ser. No. 706,641

Int. Cl. C07d 55/04

U.S. Cl. 260—308

12 Claims

A method for the preparation of benzotriazole which involves acid treatment of benzotriazole reaction mixtures combined with subsequent purifying steps including a distillation to yield a product of high quality useful in the photographic industry, yet which is relatively inexpensive to make when compared to prior art processes.

3,564,002

CERTAIN 2-HALOALKANOYLAMINO-5-HALO-ALKYL-1,3,4-THIADIAZOLES

William Alan Remers, Suffern, and Gabriel Joseph Gibb, Pearl River, N.Y., and Martin Joseph Weiss, Oradell, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Oct. 11, 1968, Ser. No. 766,986

Int. Cl. C07d 91/34

U.S. Cl. 260—306.8

4 Claims

The preparation of 2-amino or substituted amino-5-substituted thiadiazoles are described. They are useful in the treatment of ascariasis and as intermediates for the preparation of, for example, 2-(2-amino-5-1,3,4-thiadiazolyl)-1-methyl-5-nitroimidazole which has antiprotozoal and antibacterial properties.

3,564,003

2,2'-BIS(HEPTAFLUOROPROPYL)-5,5'-BIBENZOXAZOLE

Charles D. Burton and Norman L. Madison, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Feb. 5, 1968, Ser. No. 702,777

Int. Cl. C07d 85/48

U.S. Cl. 260—307

4 Claims

A novel compound 2,2'-bis(heptafluoropropyl)-5,5'-bibenzoxazole and the manner of its preparation. The compound is prepared by reacting 3,3'-diaminobiphenol in a solvent or carrier liquid with methylperfluorobutyrimide in the presence of an aliphatic carboxylic acid as reaction promoter. Alternatively, the compound can be

prepared by heating 3,3'-bis(heptafluorobutyramido)-4,4'-dihydroxybiphenyl in the presence of a dehydrating agent to effect cyclization. The present novel compound is suitable for use as an antiplasticizer.

3,564,004

PROCESS FOR THE PREPARATION OF 2-(1'-H-HALOGENOALKYL)-Δ²-OXAZOLINES

Otto Scherer, Bad Soden, Tannus, Helmut Hahn and Robert Hartwimmer, Burghausen, Salzach, Siegfried Rebsdat, Altötting, and Erich Schulerer, Burghausen, Salzach, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed June 30, 1969, Ser. No. 837,919

Claims priority, application Germany, July 4, 1968,

P 17 70 789.0

Int. Cl. C07d 85/36

U.S. Cl. 260—307

6 Claims

2-(1'-H-halogenoalkyl)-Δ²-oxazolines are obtained by reacting 1,1-difluoroethylenes with ethanolamine. The products are useful as monomers or comonomers for the preparation of poly-N-vinyl carboxylic acid amides, capable of rendering fibrous materials water- and oil-repellent.

3,564,005

METHOD FOR PREPARING SUBSTITUTED TETRAZOLE

Hermann S. Haiss, Indian Head, Md., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Feb. 8, 1968, Ser. No. 707,371

Int. Cl. C07d 55/56

U.S. Cl. 260—308

7 Claims

A method for converting the 1-isomer of methyl-5-vinyl tetrazole into the useful energetic plasticizer, 5-(β-hydroxyethyl)-1-methyl tetrazole whereby the 1-isomer is reacted with a solution of a strong base.

3,564,006

PHthalocyanine DYEStUFFS CONTAINING N,N-BIS(DIMETHYL-SULPHONIOETHYL)AMINOSULPHONYL GROUPS

Djavad Razavi, Paris, France, assignor, by mesne assignments, to Ugine Kuhlmann, Paris, France, a corporation of France

No Drawing. Filed Oct. 25, 1966, Ser. No. 589,239

Claims priority, application France, Oct. 29, 1965,

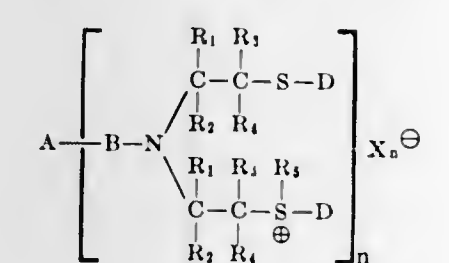
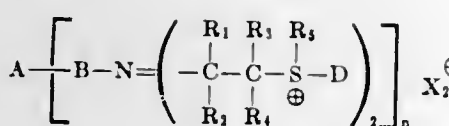
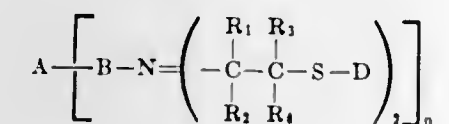
36,715

Int. Cl. C09b 47/04; D06p 1/14

U.S. Cl. 260—314.5

1 Claim

Dyestuffs which have one of the following formula:



in which A represents the residue of a dyestuff molecule, B represents a bridging linkage, D represents a substituted or unsubstituted alkyl, aralkyl or aryl group, R₁, R₂, R₃ and R₄ each represent hydrogen atoms or substituted or unsubstituted alkyl groups, R₅ represents an alkyl or aralkyl group, X represents a monovalent anion and n is an integer. These dyestuffs are particularly useful for the coloration of textile fibres such as wool silk, polyamides and natural or regenerated cellulose in shades fast to wet tests.

3,564,007

PRODUCTION OF UNSATURATED NITROGEN-CONTAINING COMPOUNDS

Eric W. Stern, Mountalnside, and Marshall L. Spector, Livingston, N.J., assignors, by mesne assignments, to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut

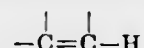
No Drawing. Continuation-in-part of application Ser. No. 78,111, Dec. 23, 1960. This application May 19, 1964, Ser. No. 368,681

Int. Cl. C07c 87/24, 103/30; C07d 27/68

U.S. Cl. 260—315

30 Claims

Process for preparing N-substituted alpha,beta-ethylenically unsaturated compounds which comprises reacting an ethylenically unsaturated compound having at least one



group with an organic amine or amide compound having at least one N-bonded hydrogen atom; in the presence of a salt of a Group VIII metal having an atomic number of at least 44.

3,564,008

PROCESS FOR PREPARING 1-ACYL-2-PHENYL-3-INDOLYLALIPHATIC ACID DERIVATIVES

Hisao Yamamoto, Nishinomiya-shi, Yasushi Nakamura, Hirakata-shi, Masaru Nakao, Osaka, Toshio Atsumi, Takarazuka-shi, and Tsuyoshi Kobayashi, Minoo-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Higashi-ku, Osaka, Japan, a corporation of Japan

No Drawing. Filed Jan. 3, 1968, Ser. No. 695,332

Claims priority, application Japan, Jan. 14, 1967,

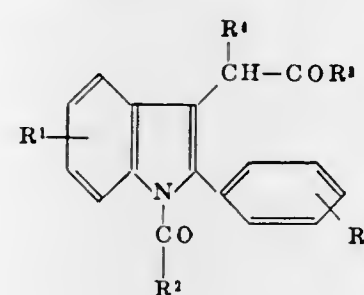
42/2,841

Int. Cl. C07d 27/56

U.S. Cl. 260—326.13

9 Claims

A 1-acyl-2-phenyl-3-indolylaliphatic acid derivative represented by the formula,



wherein R¹ is a hydrogen atom, a lower alkoxy group, etc.; R² is a halogen- or lower alkyl-substituted phenyl group, etc.; R³ is a hydrogen atom or a lower alkyl group, etc.; R⁴ is a hydrogen atom or a lower alkyl; and R⁵ is a hydroxy group, etc., is obtained by reacting a corresponding N¹-acyl phenylhydrazine derivative or a mineral acid salt thereof with a corresponding phenyl ketone compound.

The typical examples thereof are 1-(p-chlorobenzoyl)-2-phenyl 5-methoxy - 3 - indolylacetic acid and 1-(p-methylbenzoyl)-2-phenyl - 5 - methoxy - 3 - indolylacetic acid.

The compounds thus obtained have remarkable anti-inflammatory, analgesic and antipyretic actions.

3,564,009

PROCESS FOR PRODUCING 1-ACYLINDOLE DERIVATIVES

Hisao Yamamoto, Nishinomiya-shi, Masaru Nakao, Osaka, and Toshio Atsumi, Takarazuka-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan, a corporation of Japan

No Drawing. Filed Dec. 28, 1966, Ser. No. 605,171

Claims priority, application Japan, Jan. 13, 1966,

41/1,916; Mar. 15, 1966, 41/16,237; Apr. 5,

1966, 41/21,646; Apr. 7, 1966, 41/22,178; July

14, 1966, 41/46,335

Int. Cl. C07d 27/56

U.S. Cl. 260—326.16

8 Claims

A process for the preparation of certain N-acylindoles by the reaction of an N¹-acylhydrazine with a ketone compound.

3,564,010

GUANIDINO UREIDO AND THIOUREIDO-Δ¹-PYRROLINES

Hermann Bretschneider, Rudolf Franzmaier, Wilhelm Klotzer, and Bela Schmidt, Innsbruck, Austria, assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Feb. 23, 1968, Ser. No. 707,484

Claims priority, application Switzerland, Feb. 27, 1967,

2,905/67

Int. Cl. C07d 27/14

U.S. Cl. 260—326.3

21 Claims

Guanidino or ureido or thioureido pyrrolines (A) prepared from 2-amino-Δ¹-pyrrolines (B). Both (A) and (B) lower the blood sugar content in warm blooded animals; hence, are useful as hypoglycemic agents.

3,564,011

METHOD FOR PREPARING 1-ACYL-3-INDOLYL ALIPHATIC ACID DERIVATIVES

Hisao Yamamoto, Nishinomiya-shi, and Masaru Nakao, Osaka, Japan, assignors to Sumitomo Chemical Company, Ltd., Higashi-ku, Osaka, Japan, a corporation of Japan

No Drawing. Filed Dec. 28, 1966, Ser. No. 605,154

Claims priority, application Japan, Jan. 12, 1966,

41/1,999; Apr. 28, 1966, 41/27,300, 41/27,301;

May 2, 1966, 41/28,125; May 4, 1966, 41/28,400;

June 21, 1966, 41/40,591; July 8, 1966, 41/44,723,

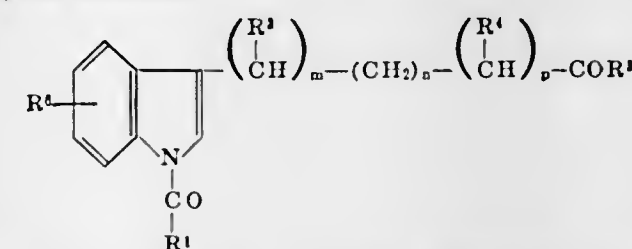
41/44,724; Aug. 19, 1966, 41/54,674, 41/54,675

Int. Cl. C07d 27/56

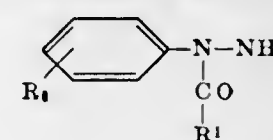
U.S. Cl. 260—326.13

13 Claims

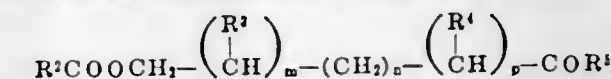
Novel 1-acyl-3-indolyl aliphatic acid derivatives having excellent anti-inflammatory activity with low toxicity and having the formula:



wherein R¹ is an alkyl, chlorine substituted alkyl or alkenyl group and has up to 10 carbon atoms, R² and R³ are, respectively, a hydrogen atom or a lower alkyl group, R⁴ is a hydrogen atom, a carboxy group or an alkoxy-carbonyl group, R⁵ is a hydroxy group, R⁶ is an alkyl (C₁-C₃) group, an alkoxy (C₁-C₃) group, an alkyl (C₁-C₃) thio group, a chlorine atom or a hydrogen atom, m and p are, respectively, 0 or 1, and n is 0 or an integer of from 1 to 3, are produced by reacting an acylated phenylhydrazine compound of the formula:



wherein R¹ and R⁶ have the same meanings as defined above, with an aliphatic acid compound of the formula:



wherein R², R³, R⁴, R⁵, m, n and p have the same meanings as defined above.

3,564,012

5,7-DIMETHOXY-TRYPTAMINES

James M. McManus, Old Lyme, Conn., assignor to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 29, 1968, Ser. No. 717,409

Int. Cl. C07d 27/56

U.S. Cl. 260—326.15

8 Claims

Certain novel 5,7-dimethoxytryptamine compounds have been prepared and found to be useful as oral hypoglycemic agents. Typical member compounds include 3-(2-aminoethyl)-5,7-dimethoxyindole, 3-(2-aminopropyl)-5,7-dimethoxyindole and 3-(2-aminobutyl)-5,7-dimethoxyindole, and their pharmaceutically acceptable acid addition salts. Alternate routes of preparation for these compounds are presented and some of these routes are described in detail.

3,564,013

PHOSPHONATED CYCLIC MERCAPTAL

Edward Nelson Walsh, Chicago Heights, Ill., assignor to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 9, 1964, Ser. No. 381,509

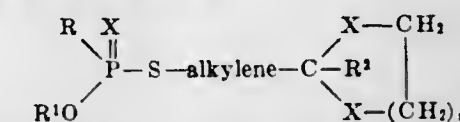
The portion of the term of the patent subsequent to Feb. 16, 1986, has been disclaimed and dedicated to the Public

Int. Cl. C07d 89/06

U.S. Cl. 260—327

1 Claim

Phosphonated cyclic mercaptals and mercaptoles corresponding to the formula



in which alkylene is a divalent saturated aliphatic radical having from 1 to 3 carbon atoms; R and R¹ are lower alkyl and phenyl; the groups represented by X are independently sulfur or oxygen; R² is an alkyl from 1 to 3 carbons or hydrogen and n is an integer from 1 to 2, inclusive. The above compounds are effective insecticides and miticides. Representative compounds are 2-methyl-2-(O-ethyl ethylphosphorodithiomethylene)-1,3-oxathiolane, 2-methyl-2-(O-ethyl ethylphosphorodithiomethylene)-1,3-dithiolane, 2-methyl-2-(O-ethyl methylphosphorodithiomethylene)-1,3-dithiolane, and 2-methyl-2-(O-ethylphenylphosphonodithiomethylene)-1,3-dithiolane.

3,564,014

DITHIOLE COMPOUNDS AND PREPARATION

Erwin Klingsberg, Geneva, Switzerland, assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

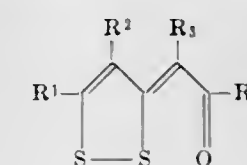
No Drawing. Filed Mar. 12, 1968, Ser. No. 712,383

Int. Cl. C09b 23/00; C07d 71/00; C09d 49/00

U.S. Cl. 260—327

11 Claims

3-chloro-1,2-dithiolium salts such as 3-chloro-1,2-benzodithiolium chloride condense with aliphatic, cycloaliphatic or aromatic ketones having a free alpha position to give 3-(2-oxoethylidene)-3H-1,2-dithiole compounds of the formula



where R¹ and R² typically form a benzo or naphtho ring, R³ is alkyl or benzoyl; R⁴ is alkyl or phenyl; and where R³ and R⁴ typically also may together form a cyclopentyl or cyclohexyl ring. The products are dyestuffs and intermediates for the preparation of thiothiophenes, another class of dyes.

3,564,015

DERIVATIVES OF DIBENZOCYCLOHEPTENES
Marcia E. Christy, Perkaskie, Pa., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Filed Aug. 20, 1968, Ser. No. 753,867
Int. Cl. C07d 7/20, 7/100

U.S. Cl. 260—327 32 Claims
Novel 10,11-dihydro-5,10-epoxy - 5H - dibenzo[a,d]-cycloheptenes, wherein the moiety substituted at the 5-position is a primary, secondary or tertiary-aminomethyl group, possessing anti-arrhythmic activity are disclosed, as well as intermediates and processes for their preparation and use.

3,564,016

METHOD OF DECARBONYLATION
Karl Schoen, Kew Gardens, and Michael Finizio, Brooklyn, N.Y., assignors to Endo Laboratories Inc., Garden City, N.Y., a corporation of New York
No Drawing. Continuation-in-part of application Ser. No. 468,633, June 30, 1965. This application Mar. 7, 1968, Ser. No. 711,195

Int. Cl. C07d 27/22
U.S. Cl. 260—313.1 14 Claims
Di- and tri-substituted pyrroles may be prepared by decarbonylating of the corresponding mono- and di-carboxylic acid esters and mono- and di-ketones by warming the esters of ketones with phosphoric acid.

3,564,017

BICYCLIC FURODIOXOLES
Alfred G. Robinson, Alden E. Blood, and Hugh J. Hagemeyer, Jr., Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Feb. 12, 1969, Ser. No. 798,803
Int. Cl. C07d 13/08

U.S. Cl. 260—340.9 10 Claims
Dialkyl-substituted derivatives of acetaldehyde react exothermically with glyoxal in the presence of an aqueous base to form bicyclic furodioxole ring compounds. For example, isobutyraldehyde and glyoxal in the presence of aqueous sodium carbonate react to form tetrahydro-2-isopropyl-6,6-dimethylfuro[2,3-d]-1,3-dioxol-5-ol. The bicyclic furodioxoles are valuable intermediates in the synthesis of polyols, which are themselves useful, for example, as intermediates in the preparation of alkyd resins, plasticizers for polyvinyl chloride compositions and as humectants.

3,564,018

PRODUCTION OF LACTONES HAVING FROM SIX TO THIRTEEN RING MEMBERS AND ISOBUTYRIC ACID
Toni Dockner, Meckenheim, and Rolf Platz, Mannheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Jan. 14, 1969, Ser. No. 791,151
Claims priority, application Germany, Jan. 30, 1968, P 16 43 750.6

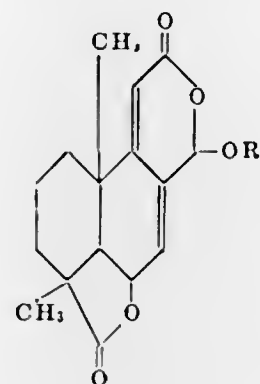
Int. Cl. C07d 7/06, 9/00; C07c 51/24
U.S. Cl. 260—343 11 Claims
An improved process for the production of lactones having six to thirteen ring members and isobutyric acid by reaction of a cyclic ketone having from five to twelve ring members and isobutyric acid by reaction of a cyclic ketone having from five to twelve ring members and isobutyraldehyde with molecular oxygen or a gas containing

the same, the improvement consisting in carrying out the reaction without using a catalyst. Lactones are used in the production of polyester.

3,564,019

TETRACYCLIC LACTONE ANTIFUNGAL AGENTS
Chester Eric Holmlund, Silver Spring, Md., Ralph Henry Evans, Jr., Rivervale, N.J., and George Alfred Ellestad, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed May 22, 1969, Ser. No. 827,062
Int. Cl. C07d 21/00

U.S. Cl. 260—343.3 4 Claims
The new compounds of Formula I:



wherein R is hydrogen, acetyl or methyl. All the compounds of this invention have antifungal activity. Compounds represented by Formula I wherein R is hydrogen or methyl are prepared by the cultivation under controlled aerobic conditions of *Acrostalagus* species Z1271. The compound of Formula I wherein R is acetyl is prepared by acetylation of the compound of Formula I wherein R is hydrogen.

3,564,020

PREPARATION OF ANGELICA LACTONE
Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California
Filed July 17, 1968, Ser. No. 745,351
Int. Cl. C07d 5/06

U.S. Cl. 260—343.6 6 Claims
Conjugated diolefins bearing a halogen on an unsaturated carbon are reacted with carbon monoxide and water in the presence of a Group VIII noble metal catalyst to prepare unsaturated lactones. A specific embodiment comprises the preparation of angelica lactone from 2-halo butadiene.

3,564,021

PREPARATION OF CYCLIC OR ACYCLIC ETHERS
Paul R. Stapp, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Continuation-in-part of abandoned application Ser. No. 682,970, Nov. 14, 1967, which is a continuation-in-part of abandoned application Ser. No. 602,553, Dec. 19, 1966. This application May 1, 1969, Ser. No. 821,071

Int. Cl. C07c 43/12; C07d 7/14
U.S. Cl. 260—345.1 23 Claims
A process of preparing cyclic or acyclic ethers by reacting certain 1-olefins with formaldehyde and a halogenating agent selected from hydrogen halides, thionyl halides, and carbonyl halides. When the reaction is conducted at a temperature of -40° C. or lower and at a pressure of at least 100 pounds per square inch, novel 1-methylalkoxy-3-haloalkoxymethanes are formed in addition to the cyclic or acyclic ether. 4-chloro-3-heptyltetrahydro-

pyran, a cyclic ether produced by the process of this invention, can be used as a plasticizer in poly(vinyl chloride).

3,564,022

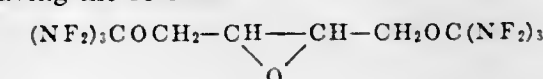
COLOR STABILIZED MALEIC ANHYDRIDE AND PROCESSES THEREFOR
Gus P. Manoff, St. Louis, Mo., and Albert R. Hall, Caseyville, Ill., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Mar. 18, 1968, Ser. No. 714,025
Int. Cl. C07c 57/14

U.S. Cl. 260—346.8 12 Claims
A process for stabilizing maleic anhydride by heating crude maleic anhydride in the presence of a heat stable acidic compound, followed by distillation and the subsequent addition of a hydrocarbon sulfide.

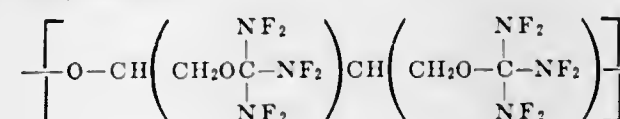
3,564,023

1,4-BIS-(TRIS(NF₂)METHOXY)-2-BUTENE OXIDE AND POLYMER THEREOF
Eugene L. Stogryn, Fords, Joel G. Berger, Elizabeth, and Lawrence J. Engel, Dunellen, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed July 29, 1964, Ser. No. 386,088
Int. Cl. C07c 93/10; C07d 1/18

U.S. Cl. 260—348 10 Claims
1. The compound 1,4-bis-[tris(NF₂)methoxy]-2-butene oxide having the formula:



4. The liquid polymers of polymeric 1,4-bis-[tris(NF₂)methoxy]-2-butene oxide having the recurring monomeric unit composition:



3,564,024

2-METHOXY-5-METHYL-6-MULTIPRENYL-1,4-BENZOQUINONES
Karl Folkers and Glenn Doyle Daves, Jr., Menlo Park, Calif., assignors, by mesne assignments, to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Filed June 28, 1966, Ser. No. 561,017
Int. Cl. C07c 49/64

U.S. Cl. 260—396 6 Claims
2-methoxy-5-methyl-6-multiprenyl-1,4-benzoquinones are prepared by the acid-catalyzed condensation of 2-methoxy-5-methylbenzoquinone with an isoprenoid alcohol. The products are useful as intermediates in the microbiological synthesis of coenzyme Q compounds.

3,564,025

2-METHOXY-6-MULTIPRENYL-1,4-BENZOQUINONES AND A PROCESS OF MAKING
Karl Folkers and Glenn Doyle Daves, Jr., Menlo Park, Calif., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Filed June 28, 1966, Ser. No. 561,024
Int. Cl. C07c 49/64

U.S. Cl. 260—396 7 Claims
2-methoxy-6-multiprenyl-1,4-benzoquinones are prepared by reacting a 2-methoxy-6-multiprenylphenol with potassium nitrodisulfonate. The products are useful as intermediates in the microbiological synthesis of coenzyme Q compounds.

3,564,026

N-(4-NITROPHENYLSULFONYL)-N'-(CHLORO SUBSTITUTED ACETYL) UREAS
Lowell R. Smith, Chesterfield, and Angelo John Speziale, Creve Coeur, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Original application June 17, 1968, Ser. No. 737,325. Divided and this application June 12, 1969, Ser. No. 844,237

Int. Cl. A01n 9/16; C07c 143/78
U.S. Cl. 260—397.7 4 Claims
Compounds of the class N-(4-nitrophenylsulfonyl)-N'-(chloro substituted acetyl) ureas which compounds are phytocidally active.

3,564,027

NOVEL 1-METHYL-OESTRENE COMPOUNDS
Carel Christoff Bolt, Oss, Netherlands, assignor to Organon Inc., West Orange, N.J., a corporation of New Jersey
No Drawing. Filed Oct. 12, 1967, Ser. No. 674,731
Claims priority, application Netherlands, Oct. 22, 1966, 6615005

Int. Cl. C07c 169/08
U.S. Cl. 260—397.5 1 Claim
The present invention relates to novel Δ⁴-1α-methyl-17β-hydroxy-17α-saturated or unsaturated alkyl-oestrene compounds.

These compounds exert strong anabolic, androgenic, oestrogenic, progestational and ovulation inhibiting activities.

3,564,028

PROCESS FOR THE PREPARATION OF MINERAL OXY-ACID ESTERS OF 9α-FLUORO-16-METHYLPREDNISOLONE
Joao Villax, Travessa do Ferrelro, a Lapa 1, Lisbon 3, Portugal

No Drawing. Continuation of application Ser. No. 761,020, Aug. 6, 1968, which is a continuation-in-part of application Ser. No. 630,787, Apr. 11, 1967, which in turn is a continuation-in-part of application Ser. No. 178,545, Mar. 9, 1962. This application Oct. 6, 1969, Ser. No. 871,736
Int. Cl. C07c 169/32

U.S. Cl. 260—397.45 1 Claim
Mineral oxy-acid esters of corticosteroids are prepared by reacting a lower alkyl chlorocarbonate with either sulfuric acid, or orthophosphoric acid, or their alkali or alkaline earth metal salts, in presence of a tertiary amine, and then reacting the resulting lower alkyl carbonic acid ester with the corticosteroid, such as prednisolone or its fluoro derivatives. New steroids produced by this reaction include the 21-sulfuric acid ester, and 21-phosphoric acid ester of 9α-fluoro-16β-methyl-prednisolone and their sodium salts, which are useful for the remission of pain, bleeding tendency, and fever, in a variety of pathological conditions, being also powerful anti-inflammatory agents. The 21-sulfuric acid ester of 9α-fluoro-16β-methyl-prednisolone exhibits a prolonged anti-inflammatory action, more than twice the duration of the corresponding 21-phosphate, and is especially useful for formulating long-acting corticosteroid preparations.

3,564,029

HYDROXYMETHYLATED, FLUOROACYLATED AMINOHYDROXY AROMATIC COMPOUNDS
Domenick Donald Gagliardi, East Greenwich, R.I., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 7, 1967, Ser. No. 681,084
Int. Cl. C09f 7/00

U.S. Cl. 260—404 8 Claims
Perfluoroacylaminoxy aromatic compounds are provided which are outstanding for producing oil and water repellent effects on textiles as well as increasing the resistance to soiling by oily particulate soil. The aromatic

nucleus which may contain 1, 2 or 3 rings may contain 1 or 2 amino groups, 1 or 2 hydroxy groups and up to 2 hydroxy methyl groups. One or 2 of the amino groups are acylated with a perfluoro acyl group containing from 3 to 21 carbon atoms in which at least 70% of the hydrogens have been replaced with fluorine. The compounds may also contain alkyl substituents of from 1 to 5 carbon atoms.

3,564,030

PROCESS FOR MONO-ALKYLATION OF AROMATIC COMPOUNDS

Eugene J. Miller, Jr., Wheaton, Ill., Ago Mais, Trenton, N.J., and Edgar S. Hammerberg, Chicago, Ill., assignors, by mesne assignments, to Armour Industrial Chemical Company, a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 451,021, Apr. 26, 1965. This application Oct. 30, 1967, Ser. No. 679,251

Int. Cl. C11c 1/00

U.S. Cl. 260—413

12 Claims

A process for mono-alkylation of aromatic compounds with unsaturated higher aliphatic compounds such as acids, amines, nitriles, esters, amides, and alcohols, in the presence of hydrofluoric acid to produce a high yield of products having mono-alkylation of the aromatic nucleus. The mono-alkylated products of this invention are useful as plasticizers, emulsifiers, and chemical intermediates.

3,564,031

PROCESS FOR CONTINUOUS PRODUCTION OF MONO-ALKYLATED AROMATIC COMPOUNDS

Ralph H. Potts, La Grange, and Norman D. Gordon and Sydney H. Shapiro, Chicago, Ill., assignors to Armour Industrial Chemical Company, Chicago, Ill., a corporation of Delaware
No Drawing. Filed May 6, 1968, Ser. No. 727,058

Int. Cl. C08h 17/36

U.S. Cl. 260—413

6 Claims

A continuous process for mono-alkylation of aromatic compounds with unsaturated higher aliphatic compounds such as acids, amines, nitriles, esters, amides and alcohols in a hydrogen fluoride media to produce a high yield of mono-alkylated aromatic products. The mono-alkylated aromatic compounds of this invention are useful as plasticizers, emulsifiers and chemical intermediates.

3,564,032

PROCESS FOR THE OXIDATIVE BLEACHING OF CRUDE MONTAN WAX

Friedrich Zinnert and Hans-Georg Kolm, Gersthofen, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed July 29, 1968, Ser. No. 748,229

Claims priority, application Germany, Aug. 12, 1967, F 53,214

Int. Cl. C11b 3/08

U.S. Cl. 260—423

6 Claims

Crude montan wax, partially deresinified crude montan wax and saponification products of the said waxes are oxidatively bleached in powdered form at a temperature in the range of from 10 to 90° C. with gases containing oxygen and catalytic amounts of dinitrogen trioxide or nitrogen dioxide.

3,564,033

TRICYCLOHEXYLTIN HALIDE PROCESS

Gerald H. Reifenberg, Hightstown, and William J. Considine, Somerset, N.J., assignors to M & T Chemicals Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 4, 1968, Ser. No. 773,331

Int. Cl. C07f 7/22

U.S. Cl. 260—429.7

3 Claims

The process of this invention for preparing tricyclohexyltin halide (C₆H₁₁)₃SnX wherein X is selected from

the group consisting of chloride and bromide, comprises a first step of forming phenyltin trihalide by reacting as reactants tetraphenyltin and tin tetrahalide thereby forming phenyl trihalide, a second step of preparing tricyclohexylphenyltin by reacting as reactants said phenyltin trihalide prepared in said first step with cyclohexyl magnesium halide in an amount of at least three moles of cyclohexyl magnesium halide per mole of phenyltin trihalide to form said tricyclohexylphenyltin and a third step of reacting as reactants said tricyclohexylphenyltin prepared in said second step and tin tetrahalide to produce said tricyclohexyltin halide.

3,564,034

PROCESS FOR THE PREPARATION OF 1,3-DIFERROCENYL-1-BUTENE

Charles S. Combs, Jr., and William D. Stephens, Huntsville, Ala., assignors to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
No Drawing. Filed Aug. 16, 1968, Ser. No. 753,078

Int. Cl. C07f 15/02; C10d 9/10

U.S. Cl. 260—439

6 Claims

A process for the preparation of a combustion modifier 1,3-diferrocenyl-1-butene by the reaction of 1-ferrocenyl-ethanol with acid anhydrides, such as for example acetic anhydride.

3,564,035

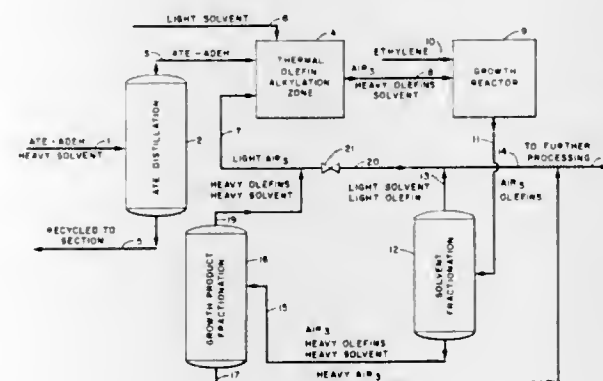
CONTROL OF POISSON DISTRIBUTION IN ALUMINUM ALKYL GROWTH PRODUCT

Clyde Q. Sheely, Jr., Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Aug. 8, 1968, Ser. No. 751,203

Int. Cl. C07f 5/06

U.S. Cl. 260—448

5 Claims



In the preparation of aluminum alkyls by growth of low molecular weight aluminum trialkyls or aluminum dialkyl hydrides, the Poisson distribution is modified by a particular sequence of processing steps. Heavier by-product olefins formed in the growth reactor are separated with the lighter aluminum alkyls and are subjected to alkylation and growth to add onto the lower molecular weight aluminum alkyls.

3,564,036

PREPARATION OF DI-LITHIO (PERFLUORO-ALKYLETHYLSILYL) NEOCARBORANES

Cecil L. Frye, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Filed May 1, 1969, Ser. No. 821,146

Int. Cl. C07d 107/02; C07f 5/02, 7/08

U.S. Cl. 260—448.2

4 Claims

This invention relates to a process for the preparation of di-lithio (perfluoroalkylethylsilyl)neocarboranes by reacting dilithioneocarborane with a cyclic trisiloxane.

3,564,037

NOVEL POLYSILOXANE-POLYALKYLENE COPOLYMERS

Jean Claude Auguste Delaval and Paul Alfred Eugene Guinet, Lyon, Jean Marius Ernest Morel, Rhone, and Robert Raphael Puthet, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France, a French body corporate
No Drawing. Filed Dec. 18, 1967, Ser. No. 691,210

Claims priority, application France, Dec. 29, 1966, 89,368

Int. Cl. C07f 7/18

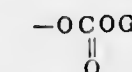
U.S. Cl. 260—448.8

12 Claims

The invention relates to copolymers of general formula



wherein R is an alkyl, cycloalkyl, phenyl, alkylphenyl or phenylalkyl group, n is between 2 and 700, q is 0 to 3, and R¹O— is a group of general formula A(C_xH_{2x}O)_y, wherein x is 2 to 4, y is at least one, and A is hydroxy, formyloxy, —OG, —OCOG,



—NHG, —OCONHG or —NHCOG, wherein G is a hydrocarbon radical. The copolymers are useful as surface active agents in the preparation of polyurethane foams.

3,564,038

ALKYL KETO-ALKYL SULFITES

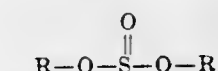
Rupert A. Covey, Wolcott, and Bogislav von Schmeling and Charles E. Crittendon, Hamden, Conn., assignors to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey
No Drawing. Filed Dec. 22, 1967, Ser. No. 692,714

Int. Cl. A01n 9/14; C07c 137/00

U.S. Cl. 260—456

5 Claims

Novel sulfite esters having the formula



wherein R is on alkyl or a mono-haloalkyl radical having up to 10 carbon atoms and R' is a ketoalkyl group having 3 to 5 carbon atoms or a mono-halosubstituted derivative thereof, useful as herbicides, insecticides, and nematocides.

3,564,039

DIIMINOSUCCINONITRILE AND ITS PREPARATION FROM CYANOGEN AND HYDROGEN CYANIDE

Owen Wright Webster, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 670,763, Sept. 26, 1967. This application Feb. 23, 1968, Ser. No. 707,459

Int. Cl. C06b 1/00; C07c 121/42

U.S. Cl. 260—465.5

11 Claims

Described and claimed are the novel compound diiminosuccinonitrile and its preparation from cyanogen and hydrogen cyanide at a temperature of —80° C. to 10° C., and in the presence of a basic catalyst. The compound is useful as an intermediate in the preparation of diamino-maleonitrile and as a solid propellant.

3,564,040

REMOVAL OF TRANS-2-PENTENITRILE FROM 3- AND 4-PENTENITRILE

Roland Granville Downing, Chatham, Del., and Roger Allen Fouty, Vienna, W. Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed June 14, 1968, Ser. No. 737,069

Int. Cl. C07c 121/26

U.S. Cl. 260—465.8

9 Claims

Removal of trans-2-pentenitrile from a mixture of cis- and trans-3-pentenitrile and 4-pentenitrile by the catalytic isomerization of the trans-2-pentenitrile to cis-2-pentenitrile followed by fractional distillation of the solution of isomers to remove the cis-2-pentenitrile. The catalysts used have the structure Ni[M(Z)]₃ where M is P, As or Sb and Z is R or OR wherein R is an alkyl group or an aryl group of up to 18 carbon atoms.

3,564,041

1,2,3-TRIHYDROCARBYLGUANIDINE-1-CARBOXYLATES

William J. Farrissey, North Branford, Conn., and Raymond J. Ricciardi, Snyder, N.Y., assignors to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
No Drawing. Filed Apr. 26, 1967, Ser. No. 633,685

Int. Cl. C07c 133/10

U.S. Cl. 260—471

6 Claims

A novel process for the preparation of 1,2,3-trihydrocarbyl guanidine-1-carboxylic acid esters and amides by reaction of the corresponding 1,3-dihydrocarbyl-4-hydrocarbylimino-uretidine-2-one with an amine or hydroxyl group containing compound in the presence of a catalyst. Catalysts are saturated aliphatic acids and alkali metal salts thereof, alkali metal phenoxides and alkali metal alkoxides. The guanidine derivatives so obtained are novel compounds useful as stabilizing agents for polyolefins, and as intermediates for polyurethanes.

3,564,042

DERIVATIVES OF ACETIC ACID

Rudolf G. Griot, Florham Park, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware
No Drawing. Filed Mar. 17, 1967, Ser. No. 623,798

Int. Cl. C07c 65/00, 69/76

U.S. Cl. 260—473

2 Claims

The compounds are of the class of α,α-bis(p-chlorophenoxy)-α-substituted acetic acids and esters thereof which are useful as hypocholesteremic/hypolipemic agents.

3,564,043

HALOGENATED CARBAMATE ANTISTATIC AGENTS

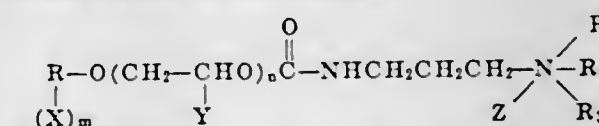
Fred S. Eiseman, Jr., Maplewood, and Leslie M. Schenck, Mountainside, N.J., assignors to GAF Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed June 17, 1968, Ser. No. 737,312

Int. Cl. C07c 125/06

U.S. Cl. 260—482

7 Claims

Antistatic agents of the formula:



wherein R represents alkyl, aryl or alkaryl radicals containing from 2 to about 18 carbon atoms, X represents halogen substituents such as chloro, bromo, fluoro, m represents an integer of from 1 to 37, Y represents hydrogen, methyl or ethyl, n represents an average value

of from 1 to 10, R_1 and R_2 are members of the group consisting of alkyl and hydroxyalkyl radicals having from 1 to 3 carbon atoms and R_3 is a hydroxyalkyl radical of from 1 to 4 carbon atoms and Z is an anion, said anti-static agent being prepared by the condensation of halogen substituted alkyl, aryl and alkaryl polyethyleneoxy chlorocarbonate with a substituted alkyl diamine with subsequent acidification and alkoxylation so as to produce the desired antistatic agent.

3,564,044

LIQUID ESTERS OF NEOALKYLPOLYOLS AND MIXTURES OF GEM AND STRAIGHT CHAIN OR ALKANOIC NEO ACIDS

Tai S. Chao, Homewood, and William D. Hoffman, Park Forest, Ill., and Manley Kjonas, Hammond, Ind., assignors to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 557,898, June 16, 1966. This application Oct. 5, 1967, Ser. No. 673,020

Int. Cl. C07c 69/32

U.S. Cl. 260—488

10 Claims

Neoalkylpolyol esters of mixtures of gem acids and straight or branched chain neo fatty acids are prepared. These esters possess improved oxidation resistance and good low temperature properties and are suitable for use as base fluids or blending stock for high temperature lubricants.

3,564,045

METHOD FOR MAKING PROPYLENE GLYCOL EMULSIFIER

Ben W. Minshew, Decatur, Ill., assignor, by mesne assignments, to Continental Illinois National Bank and Trust Company of Chicago, Chicago, Ill.

No Drawing. Continuation of application Ser. No. 404,936, Oct. 19, 1964. This application Nov. 14, 1968, Ser. No. 775,903

Int. Cl. A23d 5/00; C11c 3/04

U.S. Cl. 260—410.6

7 Claims

A process for preparing propylene glycol mixed esters. An ester interchange reaction is promoted between propylene glycol and triglycerides in the presence of an alkali methyl alcoholate catalyst by heating at a temperature range of slightly above the melting point of the triglycerides to about 250° F. and then recovering the propylene glycol mixed esters.

3,564,046

QUATERNARY AMMONIUM DERIVATIVES OF LIMONENE

William F. Newhall, Winter Haven, Fla., assignor to Amchem Products, Inc., Ambler, Pa., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 604,622, Dec. 27, 1968. This application May 16, 1969, Ser. No. 825,437

Int. Cl. C07c 87/46

U.S. Cl. 260—501.15

10 Claims

Chemical compositions of the quaternary ammonium type as derived from limonene, possess plant growth regulant, nematocidal and fungicidal properties. They are suitable for use at concentrations varying from as little as several parts per million parts of carrier, to as much as several thousand parts per million parts of carrier. Compositions useful in the present invention are exemplified by benzyl dimethyl (1-hydroxy-p-menth-8-en-2-yl) ammonium chloride, but many other compounds of somewhat different character are contemplated.

3,564,047

CRYSTALLINE ANHYDROUS AMINO TRI(METHYLENE)PHOSPHONIC ACID

Riyad R. Irani, St. Louis, Mo. (9106 Ambleside Drive, Mentor, Ohio 44060), and Kurt Moedritzer, 408 Bellevue Ave., Webster Groves, Mo. 63119

No Drawing. Continuation-in-part of application Ser. No. 152,048, Nov. 13, 1961. This application Dec. 23, 1964, Ser. No. 420,795

Int. Cl. C02b 5/06; C07f 9/38; C11d 3/36

U.S. Cl. 210—502.5

1 Claim

Crystalline anhydrous amino tri(methylenephosphonic acid) useful as a sequestering agent, a deflocculating agent and a detergent builder.

3,564,048

HYDRAZINO ALICYCLIC ACIDS

Horace Fletcher III, Pottstown, and Harvey E. Alburn, West Chester, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 25, 1968, Ser. No. 739,611

Int. Cl. C07c 109/00

U.S. Cl. 260—514

3 Claims

Alicyclic acids having a hydrazine substituent are prepared by reacting acetyl hydrazine with an alicyclic compound, the cycloalkylidene compound formed being then reacted to add a cyano group and the cyano alicyclic hydrazide formed is then hydrolyzed to produce the desired compound. The compounds have biochemical activity.

3,564,049

ADAMANTANE-(1)-CARBOXYLIC ACID DERIVATIVES

Wagn Ole Godtfredsen, Vaerlose, Denmark, assignor to Lovens Kemiske Fabrik Produktionsaktieselskab, Ballerup, Denmark, a firm

No Drawing. Original application Sept. 27, 1965, Ser. No. 490,630. Divided and this application Apr. 29, 1969, Ser. No. 820,278

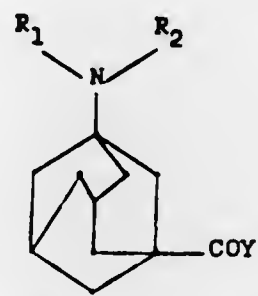
Claims priority, application Great Britain, Sept. 28, 1964, 39,459/64; Feb. 1, 1965, 4,325/65

Int. Cl. C07c 101/14

U.S. Cl. 260—514

5 Claims

This invention relates to functionally reactive derivatives of adamantane-(1)-carboxylic acid having the formula



II

in which each of R_1 and R_2 is a hydrogen atom or a lower alkyl radical containing from 1-4 carbon atoms, and COY stands for a radical capable of reacting with the amino group of 6-aminopenicillanic acid to result in the formation of 3-substituted adamantyl-(1) penicillins.

3,564,050

HYDROXY BENZOIC ACID DERIVATIVES

Charles Hoffmann, Enghien-les-Bains, France, assignor to AG. für Chemische und Medizinische Forschung, Lucerne, Switzerland, a corporation of Switzerland

No Drawing. Filed Mar. 3, 1967, Ser. No. 620,222. Claims priority, application Great Britain, Apr. 1, 1966, 14,577/66

Int. Cl. C07c 65/04

U.S. Cl. 260—521

2 Claims

Certain derivatives of 4-hydroxy benzoic acid are disclosed having a choleric action. The most significant

compound is 3-(hydroxypentyl)-4-hydroxy benzoic acid and those related compounds in which the carboxylic acid group can be $-\text{COOH}$ or an alkyl, alkali metal or alkaline earth metal derivative thereof.

3,564,051

PRODUCTION OF ADIPIC ACID

Erich Haarer and Gotthilf Wenner, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed July 19, 1967, Ser. No. 654,642

Claims priority, application Germany, July 22, 1966, P 15 68 146.6

Int. Cl. C07c 51/20, 51/28

U.S. Cl. 260—531

9 Claims

Production of adipic acid by oxidation of cyclohexanol, cyclohexanone, ω -hydroxycaproic acid or mixtures containing such compounds with nitric acid in the presence of vanadium and optionally copper catalysts wherein the excess nitric acid is distilled off, the residue is fractionated under subatmospheric pressure without previous separation of the catalyst and the catalyst-containing bottoms product is fed into the next charge.

3,564,052

PREPARATION OF CALCIUM PANTOTHENATE AND ITS DOUBLE SALTS

Myer Freed, Chicago, Ill., assignor to Daw's Laboratories, Inc., Chicago, Ill., a corporation of Illinois

No Drawing. Filed Nov. 13, 1962, Ser. No. 237,339

Int. Cl. C07c 99/04, 101/30

U.S. Cl. 260—534

4 Claims

This invention relates to the preparation of calcium pantothenate and to the double salts of pantothenate as represented by the compound calcium pantothenate chloride.

3,564,053

PRODUCTION OF β -CHLOROALKYL OF β -BROMOALKYL SULFOCHLORIDES OR SULFOBROMIDES

Harry Distler, Ludwigshafen (Rhine), Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Sept. 12, 1967, Ser. No. 667,096

Claims priority, application Germany, Sept. 20, 1966, P 12 51 748.5

Int. Cl. C07c 143/70

U.S. Cl. 260—543

6 Claims

Production of β -chloroethyl, β -bromoethyl, β -chloropropyl or β -bromopropyl sulfochlorides or sulFOBROMIDES by the reaction of β -hydroxyethylmercaptan or β -hydroxypropylmercaptan at temperatures of -15°C . to $+50^\circ\text{C}$. ratio of 1:3 to 1:6 in the presence of 1 to 1.1 moles of water per mole of β -hydroxyethylmercaptan or β -hydroxypropylmercaptan at temperatures of -15°C . to $+50^\circ\text{C}$. It is possible to use inert solvents in the reaction. The products are suitable for the production of polyvinylsulfonic acid which can be used as catalyst in hydrolytic reactions.

3,564,054

ALIPHATIC COMPOUNDS CONTAINING DIFLUORAMINO GROUPS

Charles M. Orlando, Union, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed June 2, 1964, Ser. No. 372,126

Int. Cl. C07c 83/02, 83/06, 83/08

U.S. Cl. 260—563

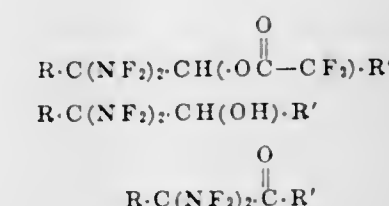
11 Claims

1. Process for the synthesis of an energetic organic compound having 2NF_2 groups attached to a single carbon atom with an oxygen-containing function attached to a vicinal carbon atom which comprises reacting HNF_2

with a trifluoroacetoxy ketone having the trifluoroacetoxy group attached to a carbon atom vicinal to the carbon atom in the carbonyl group of the ketone to replace the oxygen of the carbonyl group by 2NF_2 groups and recovering a resulting reaction product which has the trifluoroacetoxy group attached to a carbon atom vicinal to the carbon atom having a gem NF_2 structure,



7. An aliphatic compound having two difluoramino groups attached to a carbon atom that is linked to a vicinal carbon atom attached to oxygen in a function selected from the group consisting of ester, hydroxyl, and ketonic carbonyl, said compound having a formula selected from the group consisting of



wherein R and R' represent hydrocarbon moieties selected from alkyl groups and methylene groups bonded in a cyclic structure, said hydrocarbon moieties having a total of 2 to 4 carbon atoms.

3,564,055

ETHERS CONTAINING DIFLUORAMINO GROUPS
Abraham Zimmerman, New York, N.Y., assignor to Esso Research and Engineering Company, a corporation of Delaware

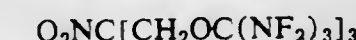
No Drawing. Filed Oct. 16, 1963, Ser. No. 317,108

Int. Cl. C07c 93/02

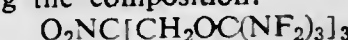
U.S. Cl. 260—584

2 Claims

1. The compound tris[tris(NF_2)methoxymethyl]-nitromethane having the composition:



2. The method of making tris[tris(NF_2)methoxymethyl]-nitromethane which comprises reacting tris(hydroxymethyl)-nitromethane with perfluoroguanidine in acetonitrile with urea as catalyst, fluorinating the resulting crude product with fluorine, and recovering a solid crystalline product having the composition:



3,564,056

ETHERS CONTAINING DIFLUORAMINO GROUPS
Lawrence J. Engel, Dunellen, and Michael H. Gianni, Roselle, N.J., and Abraham A. Zimmerman, New York, N.Y., assignors to Esso Research and Engineering Company, a corporation of Delaware

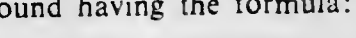
No Drawing. Filed June 5, 1964, Ser. No. 373,143

Int. Cl. C07c 93/02

U.S. Cl. 260—584

7 Claims

1. A compound having the formula:



wherein R is an alkane nucleus having an NF_2 substituent linked to carbon in the alkane nucleus and an $\text{OC}(\text{NF}_2)_3$ substituent linked to a carbon atom in said nucleus, n being 1 to 4 and m being 1 to 2.

7. The method of producing a compound having a substituted alkane nucleus with $-\text{NF}_2$ and $-\text{OC}(\text{NF}_2)_3$ groups linked to carbon in said nucleus, which comprises reacting an NF_2 -substituted alcohol of the group consisting of lower difluoroaminoalcohols and lower difluoroaminoalkanediols with perfluoroguanidine to replace the

OH groups by $-\text{OC}(\text{NF}_2)\text{NFH}$ functions, then reacting the resulting product with fluorine under low temperature conditions to replace the $-\text{OC}(\text{NF}_2)\text{NFH}$ functions by $-\text{OC}(\text{NF}_2)_3$ functions with the NF_2 groups remaining attached to carbon in the alkane nucleus.

3,564,057

PRODUCTION OF ALKANOLAMINES

John B. Tindall, Terre Haute, Ind., assignor to Commercial Solvents Corporation, New York County, N.Y., a corporation of Maryland
No Drawing. Filed Oct. 7, 1968, Ser. No. 765,653
Int. Cl. C07c 85/10

U.S. Cl. 260—584

7 Claims

An improved process for the production of primary alkanolamines by the reduction of nitroalkanol whereby the content of N-alkylated alkanolamines is substantially reduced, by effecting the reduction step in the presence of ammonia or a soluble primary or secondary aliphatic amine.

3,564,058

PROCESS FOR THE MANUFACTURE OF CYCLO- HEXANOL AND CYCLOHEXANONE

Roland Lang, Anspach, Taunus, and Horst Corsepius, Frankfurt am Main, Germany, assignors to Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen, Frankfurt am Main, Germany
Filed Dec. 7, 1967, Ser. No. 688,774
Claims priority, application Germany, Dec. 7, 1966, V 32,498

Int. Cl. C07c 35/08, 45/08, 49/30

U.S. Cl. 260—586

5 Claims

This invention relates to the process for the manufacture of cyclohexanol and cyclohexanone by the oxidation of cyclohexane which comprises contacting an oxygen-containing gas with cyclohexane in a first reaction vessel to obtain oxygen-saturated cyclohexane and transferring the oxygen-saturated cyclohexane to a second reaction vessel maintained at a higher temperature for the oxidation reaction.

3,564,059

PERFLUORINATED ETHERS AND POLYETHERS

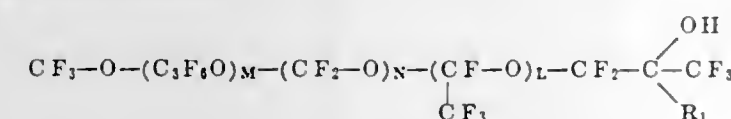
Dario Sianesi, Milan, Renzo Fontanelli, Rome, and Gerardo Caporiccio, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
No Drawing. Filed July 24, 1967, Ser. No. 655,665
Claims priority, application Italy, July 26, 1966, 17,332/66; Dec. 16, 1966, 792,673/66

Int. Cl. C07c 43/12, 49/04, 91/40

U.S. Cl. 260—594

4 Claims

Fluorinated compounds and mixtures thereof of the general formula

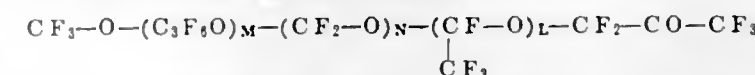


wherein M, N and L may be the same or different numbers and are zero or a whole number from 1 to 100, the sum of $M+N+L$ is zero or a number between 1 and 100, the ratio of

$$\frac{N+L}{M+1}$$

is a number between zero and 2, C_3F_6 represents the unit derived from the opening of the double bond of a molecule of hexafluoropropylene, the different perfluoroalkylene units having a random distribution along the polymer chain, and R_1 is selected from the group consisting of $-\text{OH}$, $-\text{OR}_2$, $-\text{CN}$, and $-\text{NR}_2\text{R}_4$, wherein R_2 is a radical containing from 1 to 12 carbon atoms, and is alkyl, alkylaryl, aryl, cycloalkyl or is the corresponding

halogen-substituted radical, and R_3 and R_4 may be hydrogen or the same or different radicals containing from 1 to 12 carbon atoms and are selected from the group consisting of alkyl, alkylaryl, aryl, halogen-substituted aryl, cycloalkyl, and the derivatives thereof having one or more molecules of water of hydration are prepared by reacting corresponding perfluorinated ketones and mixtures thereof of the general formula



with a reactant selected from the group consisting of water, primary, secondary or tertiary alcohols, HCN, NaCN ammonia, primary and secondary aliphatic amines, aniline, diphenylamine, anilines halo- and alkyl-substituted in the nucleus and diphenylamines halo- and alkyl-substituted in the nucleus, at a temperature of from about -40° to $+150^\circ$ C. and under a pressure of from about 0.1 to 50 atmospheres. These products are useful as plasticizers and solvents for halogenated polymers.

3,564,060

PHARMACEUTICALLY ACTIVE DERIVATIVES OF 4-PHENYL-BICYCLO[2.2.2]OCTANE AND OCT- 2-ENE-1-CARBINOLS AND CARBOXALDEHYDES

Paul E. Aldrich, Wilmington, and Edward C. Hermann, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Dec. 8, 1967, Ser. No. 688,989
Int. Cl. C07c 39/02, 43/20

U.S. Cl. 260—613

3 Claims

This disclosure teaches that a new class of compounds the 4-phenylbicyclo[2.2.2]octane and oct-2-ene-1-carbinols and carboxaldehydes are pharmaceutically useful as antifertility agents.

Compounds within the scope of this invention can be formulated into injectible, oral or rectal dosage forms and when administered by the appropriate route are surprisingly effective to prevent pregnancy in animals.

3,564,061

STABILIZATION OF HALOGENATED SOLVENTS

Yves Correia, Peyruis, and Georges Clerc, Saint Auban, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France
No Drawing. Filed Aug. 15, 1966, Ser. No. 572,187
Claims priority, application France, Aug. 17, 1965, 28,550

Int. Cl. C07c 17/40, 17/42

U.S. Cl. 260—652.5

5 Claims

Chlorinated or brominated alkenes containing 2-4 carbon atoms stabilized with trimethyl orthoformate and a compound selected from the group consisting of C_1-C_4 alkanols, C_1-C_4 alkyl cyanides, 1,4-dioxane, trioxane and C_1-C_4 nitroalkanes.

3,564,062

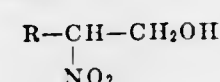
PRODUCTION OF NITROALKANOLS

John B. Tindall, Terre Haute, Ind., assignor to Commercial Solvents Corporation, New York, N.Y., a corporation of Maryland
No Drawing. Filed Mar. 15, 1968, Ser. No. 713,289
Int. Cl. C07c 79/18, 89/00

U.S. Cl. 260—635

7 Claims

A process for the production of nitroalkanol corresponding to the formula



where R is methyl, ethyl or hydroxymethyl, by adding a mixture of a primary nitroalkane and formaldehyde, to a suspension of a calcium or barium base, adding the re-

sulting mixture to an aqueous solution containing an excess of carbon dioxide, separating the precipitated calcium or barium carbonate thereby producing the nitroalkanol.

3,564,063

STABILIZED METHYLCHLOROFORM COMPOSITIONS

Charles L. Cormany, Wadsworth, William R. Dial, Akron, and Blaine O. Pray, Wadsworth, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Original application Feb. 3, 1958, Ser. No. 712,693. Divided and this application May 7, 1969, Ser. No. 82,707

The portion of the term of the patent subsequent to June 2, 1987, has been disclaimed
Int. Cl. C07c 17/40, 17/42

U.S. Cl. 260—652.5

1 Claim

Stabilized methylchloroform compositions are provided by the incorporation therein a minor concentration of one or more various additives. Nitriles such as acetonitrile are noted.

3,564,064

PROCESS FOR MANUFACTURING TRIFLUOROETHYLENE

Shinichi Nakagawa, Settsu-shi, Japan, assignor to Dalkin Kogyo Kabushiki Kaisha, Asaka-shi, Japan
No Drawing. Filed Dec. 15, 1967, Ser. No. 690,797
Claims priority, application Japan, Dec. 16, 1966, 41/82,564

Int. Cl. C07c 17/00, 21/18

U.S. Cl. 260—653.5

5 Claims

A process for manufacturing trifluoroethylene from trifluorochloroethylene, which comprises introducing a gas-phase mixture of hydrogen and trifluorochloroethylene in a mole ratio of H_2 to $\text{CClF}=\text{CF}_2$ between 0.8:1 and 1.2:1 into a reaction zone to bring the mixture into contact with a palladium or platinum catalyst maintained at 200 to 320° C. for 0.1 to 4.0 seconds, and recovering $\text{CHF}=\text{CF}_2$ from the resulting reaction products.

3,564,065

FLUID BED CATALYTIC METHOD FOR PRODUCING TRICHLOROPROPANES

Albert Antonini and Emile Trebillon, Paris, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Filed July 17, 1967, Ser. No. 653,606
Claims priority, application France, July 21, 1966, 70,264

Int. Cl. C07c 17/06

U.S. Cl. 260—659

2 Claims

The process for producing trichloropropanes by reacting propene, hydrochloric acid and oxygen in a molar ratio of propene/oxygen/hydrochloride of 1/0.65 to 1.5/2.0 to 6.5 in which the reaction is carried out at a temperature within the range of 200° to 350° C. in the presence of a fluid catalyst containing a copper compound as the principal active agent on a catalyst support having a specific surface of 0.5 to $300 \text{ m}^2/\text{g}$.

3,564,066

FIXED BED CATALYTIC PROCESS FOR THE PREPARATION OF TRICHLOROPROPANES

Emile Trebillon, Paris, and Georges Wettruff, Val d'Oise, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Filed July 17, 1967, Ser. No. 653,655
Claims priority, application France, July 21, 1966, 70,265

Int. Cl. C07c 17/06

U.S. Cl. 260—659

5 Claims

A process for the production of trichloropropanes by reaction of propene, hydrogen chloride and oxygen in a

molar ratio of propene/ O_2 / HCl of 1/0.65 to 1.40/2.0 to 6.5 at a temperature within the range of 170° to 370° C. in the presence of a fixed bed catalytic mass having a compound of copper as the principal active agent deposited on a catalyst support having a specific surface within the range of 1 to $300 \text{ m}^2/\text{g}$. and in which the maximum temperature reached in the interior of the catalytic mass is 30° to 200° above the wall temperature of the reactor and in which the materials are reacted at a flow rate of 1 to 100 moles of propene per liter of catalytic per hour.

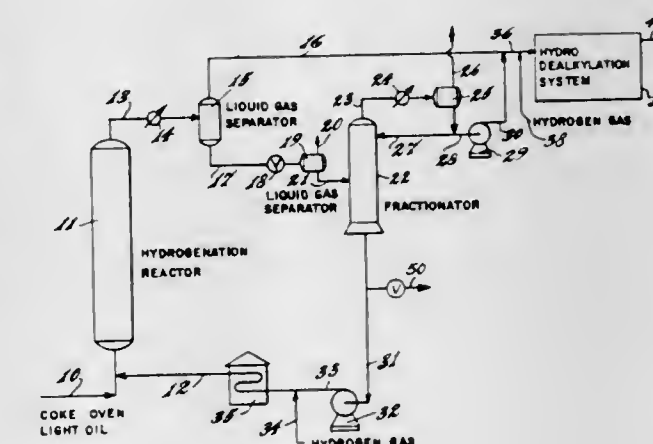
3,564,067

PROCESS FOR TREATMENT OF COKE OVEN LIGHT OIL

Walter Brenner, Wayne, and Louis C. Doelp, Jr., Glen Mills, Pa., assignors to Air Products and Chemicals, Inc., Philadelphia, Pa., a corporation of Delaware
Filed May 6, 1968, Ser. No. 726,883
Int. Cl. C10g 9/16, 7/00; C07c 3/58

U.S. Cl. 260—672

10 Claims



A catalytic process is provided for effecting selective hydrogenation and hydrocracking of coke oven light oil containing 10 to 50% primary oil. Heating the light oil with hot recycle and the hydrogen, and immediate introduction into contact with hydrogenation catalyst at up-flow liquid phase conditions substantially reduces the coke-forming tendencies of nonaromatic unsaturated components in the light oil. Subsequent catalytic hydrodealkylation produces improved yields of high purity aromatics. In one embodiment provision is made for the recovery of naphthalene.

3,564,068

DEMETHYLATION WITH BIMETALLIC COMPLEX CATALYSTS

Wolfram R. Kroll, Somerville, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 718,007, Apr. 1, 1968. This application Sept. 29, 1969, Ser. No. 862,082

Int. Cl. C07c 3/58; C10g 13/02

U.S. Cl. 260—672

14 Claims

Hydrocarbon compounds can be demethylated in the presence of hydrogen and a novel solid, reduced bimetallic catalyst prepared by reacting dimethyl or trimethyl aluminum derivatives with compounds of iron, cobalt, or nickel. The reaction may be utilized to remove one or more methyl or methylene groups from aliphatic, alkyl aromatic or alicyclic compounds, thereby reducing the carbon number of such compounds. In a preferred embodiment the reaction takes place at a reduced temperature.

3,564,069

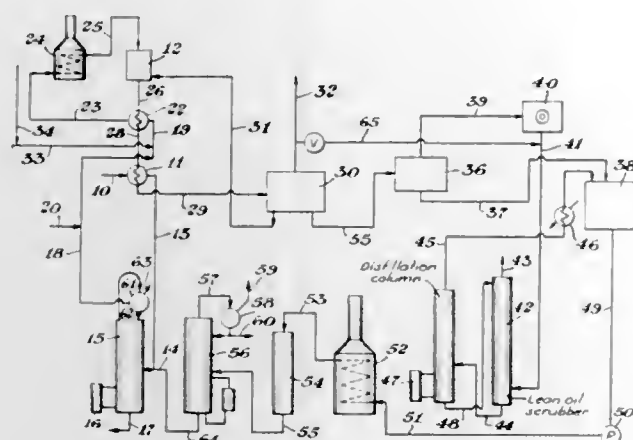
PURIFICATION OF BENZENE

George R. Jungerman, Donald A. Rikard, and Bobby A. Weaver, Lake Jackson, Tex., and Edwin H. Ivey, Jr., Whittier, Calif., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Continuation-in-part of application Ser. No. 648,707, June 26, 1967. This application Oct. 22, 1969, Ser. No. 868,558

Int. Cl. C07c 3/00, 3/58

U.S. Cl. 260—672

8 Claims



High purity benzene can be produced from by-product aromatic streams rich in benzene by thermal treatment of the crude benzene-rich by-product aromatic material in admixture with alkyl aromatic such as toluene, under hydrodealkylation conditions in the absence of any catalytic material. The process permits the purification of the crude benzene simultaneously with the hydrodealkylation of the alkyl aromatic component to benzene.

3,564,070

PRODUCTION OF 2-METHYL-2-PENTENE

Ernest H. Drew, Corpus Christi, Tex., and Arthur H. Neal, Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Apr. 18, 1967, Ser. No. 631,607

Int. Cl. C07c 3/10

U.S. Cl. 260—683.15

6 Claims

A process in which propylene is dimerized with high selectivity to produce, in one step, reaction product mixtures rich in 2-methyl-2-pentene, a precursor for isoprene. Propylene is dimerized at relatively low pressure and temperatures in the presence of a catalytic mixture of transition metal acetyl acetonate and an alkyl aluminum halide. The transition metal acetyl acetonate, the metal of which is selected from nickel, cobalt and iron, and the alkyl aluminum halide react with an olefin promoter to generate the active catalyst. Selectivity to favor increased yields of 2-methyl-2-pentene, in the presence of the catalyst complex, increases with increased aluminum:transition metal ratios and also with increasing solvent polarity.

3,564,071

PROCESS FOR DIMERIZATION OF α -OLEFINS

Shoichi Izawa, Shizuo Yamada, and Yaichiro Ono, Yamaguchi-ken, Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Yamaguchi-ken, Japan

No Drawing. Filed Oct. 11, 1968, Ser. No. 766,969
Claims priority, application Japan, Oct. 19, 1967, 42/67,333

Int. Cl. C07c 3/10

U.S. Cl. 260—683.15

12 Claims

Process of catalytic dimerization or co-dimerization of α -olefins comprising ethylene and/or propylene in the presence of the complex catalyst consisting of organo-aluminum compounds and at least one of titanates selected

from the group consisting of tri-alkyltitanates and tetra-aryltitanates (e.g. tetra-phenyltitanates and/or tetra-tolyltitanate et al.).

3,564,072

ETHYLENE DIMERIZATION

Walter A. Butte, Jr., West Chester, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed May 6, 1969, Ser. No. 822,312

Int. Cl. C07c 3/18

U.S. Cl. 260—683.15

5 Claims

Ethylene is dimerized by contact at a temperature in the range of -40° to 100° C., preferably -10° to 50° C., with novel catalyst systems formed by combining (1) certain types of nickel (II) phosphine coordination complexes; (2) inorganic Lewis acids such as $AlCl_3$, BF_3 , $AlBr_3$, etc.; and (3) an excess of a phosphine. The proportions of the catalyst components are such that the atomic ratio of Al:Ni is in excess of 2:1, the molar ratio of Lewis acid:phosphine is in the range of 2.5:1 to 3.5:1, and the catalysts are used in solution in a suitable liquid medium, e.g., chlorobenzene.

3,564,073

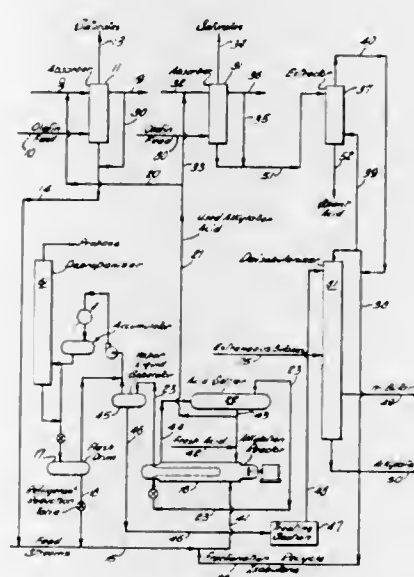
MULTIPLE ABSORPTION ZONES FOR ACID RECOVERY IN ALKYLATION

Arthur R. Goldsby, Chappaqua, N.Y., assignor to Texaco Development Corporation, a corporation of Delaware
Continuation-in-part of applications Ser. No. 510,904, Dec. 1, 1965, and Ser. No. 516,448, Dec. 27, 1965, both which are continuations-in-part of application Ser. No. 386,486, July 28, 1964, now Patent No. 3,234,301, which is a continuation-in-part of application Ser. No. 50,161, Aug. 17, 1960. This application June 1, 1967, Ser. No. 642,739

Int. Cl. C07c 3/54

U.S. Cl. 260—683.62

5 Claims



This invention and this disclosure relate to a process using a sulfuric acid catalyst for the alkylation of isobutane with an olefin to give a low catalyst consumption and a reduced amount of conventional fractionation. Olefin is removed from an olefin feed containing inerts by absorption in used sulfuric alkylation acid. The inerts are discharged from the system prior to alkylation and the acid containing absorbed olefins is charged to alkylation. Olefin is reacted with another portion of used alkylation acid containing alkylation contaminants to form alkyl sulfates. The alkyl sulfates are extracted from the alkylation contaminants with isobutane and charged to alkylation.

3,564,074

THERMOSETTING VINYL RESINS REACTED WITH DICARBOXYLIC ACID ANHYDRIDES

David H. Swisher and David C. Garms, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Nov. 28, 1966, Ser. No. 597,233

Int. Cl. C08f 45/04

U.S. Cl. 260—837

13 Claims

The present invention relates to new thermosetting resin compositions prepared by reacting a polyepoxide with an ethylenically unsaturated monocarboxylic acid and then reacting a dicarboxylic acid anhydride with the secondary hydroxyl groups formed by the epoxide-carboxylic acid interaction. The resin may be blended with a polymerizable monomer.

3,564,075

POLYAMIDES WITH IMPROVED TRANSPARENCY CONTAINING POLYVINYL PYRROLIDONE

Karl Heinz Hermann and Kurt Schneider, Krefeld-Bockum, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Continuation-in-part of application Ser. No. 624,223, Mar. 20, 1967. This application Mar. 7, 1969, Ser. No. 805,374

Int. Cl. C08g 41/04

U.S. Cl. 260—857

4 Claims

Polyamides having improved transparency containing 0.001 to 10% by weight of a polyvinyl pyrrolidone having a molecular weight of about 800,000 or higher.

3,564,076

POLYMERS STABILIZED WITH POLYESTERS OF THIODIPROPIONIC ACID

Otto S. Kauder, Queens, N.Y., assignor to Argus Chemical Corporation, Brooklyn, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 446,422, Apr. 7, 1965, now Patent No. 3,255,136, which is a continuation-in-part of applications Ser. No. 32,087, May 27, 1960, now Patent No. 3,244,650; Ser. No. 36,118, June 15, 1960; and Ser. No. 182,634, Mar. 26, 1962, now Patent No. 3,297,629. This application June 7, 1966, Ser. No. 555,714

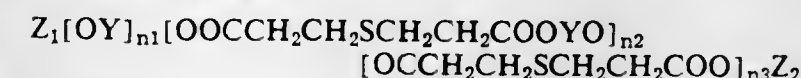
Int. Cl. C08f 45/58; C08g 51/58

U.S. Cl. 260—870

14 Claims

Polymeric compositions are provided which have increased stability against deterioration in physical properties over long periods of time due to the presence of polymeric esters of thiodipropionic acid and polyols. The polymeric materials containing the polyesters of thiodipropionic acid and polyols, as well as a process for stabilizing polymeric materials by incorporating such polyesters therein are claimed.

The polyesters of thiodipropionic acid and a polyol have the formula:



in which:

Z_1 and Z_2 are selected from the group consisting of hydrogen; a polyvalent metal M of Group II of the Periodic Table; a group R selected from the group consisting of hydrocarbon radicals, oxyhydrocarbon radicals, and thiohydrocarbon radicals having from one to twenty carbon atoms; a group R_3CO , where R_3 is a hydrocarbon or epoxyhydrocarbon group having from one to twenty carbon atoms; and YOH ;

Y is selected from the group consisting of bivalent hydrocarbon, oxyhydrocarbon, and thiohydrocarbon groups having from two to twenty carbon atoms. The Y bivalent radical can be for example alkylene, alkenylene,

cycloalkylene, alkylene-oxyalkylene, mixed alkylene-cycloalkylene; oxyalkylene; and thioalkylene.

n_2 is a number within the range from one to about twenty; n_1 and n_3 are zero or one, and n_2+n_3 is at least two.

3,564,077

THERMOPLASTIC POLYESTER MOLDING COMPOSITIONS

Ludwig Brinkmann and Walter Herwig, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed July 11, 1968, Ser. No. 743,945

Claims priority, application Germany, July 20, 1967, F 53,033

Int. Cl. C08g 39/10

U.S. Cl. 260—873

7 Claims

Molding compositions which can be processed thermoplastically and which have a high impact strength are prepared from linear saturated polyesters and copolymers of styrene and conjugated aliphatic dienes.

3,564,078

ALPHA-CYANOACRYLATE ADHESIVE COMPOSITIONS

Thomas H. Wicker, Jr., and John M. McIntire, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed May 17, 1968, Ser. No. 729,905

Int. Cl. C08f 15/16

U.S. Cl. 260—881

2 Claims

Alpha-cyanoacrylate adhesive compositions for surgical and other uses containing poly(ethyl 2-cyanoacrylate) as a viscosity modifier and an acidic component or a free radical scavenger as a polymerization inhibitor.

3,564,079

METHOD OF IMPROVING THE TACK OF ETHYLENE-PROPYLENE POLYMERS

Anthony C. Soldatos, Kendall Park, N.J., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Jan. 30, 1968, Ser. No. 701,574

The portion of the term of the patent subsequent to Jan. 20, 1987, has been disclaimed

Int. Cl. C08d 9/08

U.S. Cl. 260—889

8 Claims

This invention relates to a method of improving the tack of ethylene-propylene polymers by adding thereto a polymer of isoprene and subjecting the resultant compositions to a heating cycle under controlled conditions of temperature and humidity.

3,564,080

VULCANIZABLE COMPOSITIONS COMPRISING A MAJOR PORTION OF EPR OR EPDM AND A MINOR PORTION OF AMORPHOUS POLYPROPYLENE

Giovanni Pedretti, Ferrara, Gino Panciroli, Bologna, and Augusto Portolani, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy, a corporation of Italy
No Drawing. Continuation-in-part of application Ser. No. 438,373, Mar. 9, 1965. This application July 9, 1968, Ser. No. 743,329

Claims priority, application Italy, Mar. 10, 1964, 5,262/64; June 25, 1964, 13,972/64

Int. Cl. C08f 37/18

U.S. Cl. 260—897

11 Claims

Vulcanizable high molecular weight elastomer compositions comprising (1) a high molecular weight vulcanizable elastomer selected from (a) saturated copolymers of ethylene and propylene or butene-1, and (b) low-unsaturation terpolymers of ethylene, propylene and a non-conjugated

polyene, (2) an extender comprising from about 1 to 90 parts of substantially amorphous polypropylene per 100 parts of said vulcanizable elastomer; and (3) a curing agent.

3,564,081

PROCESS FOR PREPARATION OF CERAMICS OF FISSIONABLE MATERIALS

Bernard François, Grenoble, and Roger Gremeret, Saint-Egreve, France, assignors to Commissariat à l'Energie Atomique, Paris, France, a French organization
Filed Mar. 7, 1968, Ser. No. 716,258

Claims priority, application France, Mar. 9, 1967, 98,181

Int. Cl. G21c 21/00, 21/02, 21/04

U.S. Cl. 264—5

11 Claims

Starting from a powder, especially a powder of uranium oxide, a first compression at a pressure P is carried out so as to obtain granules of desired size. Then, after crushing these granules and sifting, a second compression at a pressure p lower than P is carried out. Finally, sintering is carried out, for example between 1300° C. and 1700° C. This leads to porous ceramics having open porosity, which porosity appears to be higher as the difference $P-p$ is greater.

3,564,082

PROCESS FOR PRODUCING POWDERED LIGHT METALS, PARTICULARLY ALUMINUM

Werner Kartenbeck, Hamburg, Germany, assignor to Norddeutsche Affinerie, Hamburg, Germany, a corporation

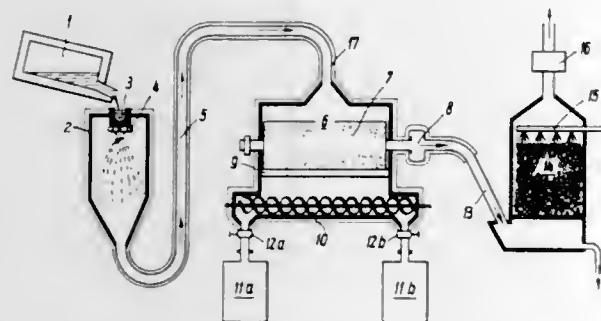
Filed July 17, 1968, Ser. No. 745,637

Claims priority, application Germany, July 18, 1967, N 30,922

Int. Cl. B01j 2/02

U.S. Cl. 264—12

8 Claims



Improvement in the known process for producing powdered metal by atomizing a melt thereof with steam followed by separating the powder from the steam which includes utilizing substantially dry super-heated steam for atomization and providing all surfaces into which the steam comes in contact at a temperature such that substantially no condensation of the steam occurs.

3,564,083

FORMATION OF FIBROUS GRANULES

Jean Fournet, Saint-Romain-en-Gal, and Guy J. Jacquelin, Grenoble, France, assignors to Societe d'Exploitation des Brevets Granofibre-Sebreg, Paris, France, a company of France

Filed Mar. 27, 1969, Ser. No. 810,960

Claims priority, application France, Mar. 27, 1968, 145,632

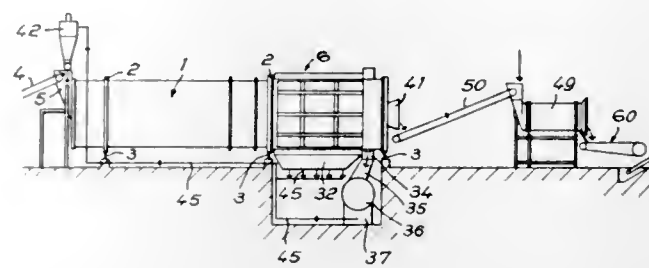
Int. Cl. B01j 2/12

U.S. Cl. 264—37

12 Claims

A method of forming granules of a fibrous texture and according to the invention, fibres having a certain moisture content are collected together and agitated in a dry state in order to form roughly organised fibre

masses which are then placed in suspension in a liquid, this suspension then being subjected to turbulence pro-



duced by a rotational movement which, if desired, may be combined with a pulsing movement.

3,564,084

RECOVERING POZZOLANIC MATERIAL, A CARBON CONCENTRATE, AN IRON CONCENTRATE AND SINTERED AGGREGATE FROM FLY ASH

John T. Pennachetti, 190 Woodside Drive, St. Catharines, Ontario, Canada, and Joseph F. Boux, 838 Eagle Drive, Burlington, Ontario, Canada

No Drawing. Original application Dec. 4, 1967, Ser. No. 687,465. Divided and this application Nov. 27, 1968, Ser. No. 786,801

Int. Cl. C04b 31/02, 31/10

U.S. Cl. 264—44

7 Claims

Fly ash is subjected to a magnetic separation to remove an iron concentrate product. The remainder is then subjected to air classification to remove a fine pozzolanic material with at least 85% of the particles being minus 325 mesh. The remaining heavy ends are dry screened over a 100 to 150 mesh screen to remove a coarse product containing at least 25% carbon. The precise dry screen size is selected from the range of 100–150 mesh to maintain the carbon content in the —100 to —150 mesh sinter fraction within the range of 5 to 8%. The sinter fraction, if necessary, is blended with sufficient amounts of pozzolanic material to reduce the iron content to below 10%, pelletized and sintered at 1900° F. to 2800° F.

3,564,085

METHOD FOR MAKING HEAT SEALABLE FOAMS

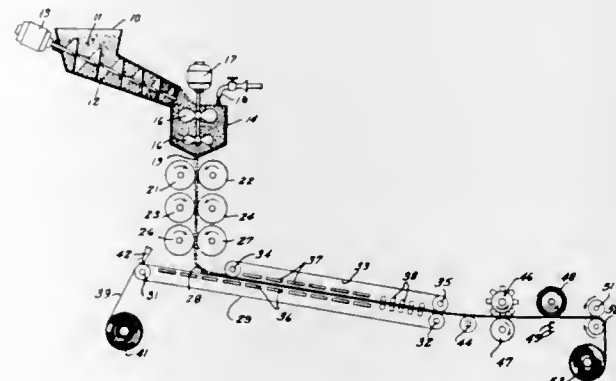
Erich Schickedanz, Illereichen-Altenstadt, Germany, assignor to The Schoff Mfg. Co., Inc., Chicago, Ill., a corporation of New York

Filed Nov. 17, 1966, Ser. No. 595,236

Int. Cl. B29h 8/00

U.S. Cl. 264—47

3 Claims



A method of forming a heat and high frequency sealable foam composition by mixing discrete particles of a on-heat-sealable polyurethane foam and a heat gellable plastisol of polyvinyl chloride thermoplastic resin. The

mixture is pressed into a sheet and heated to the gelling temperature of the plastisol to form the heat sealable and high frequency sheet.

3,564,086

METHOD OF MAKING A THERMAL SHOCK RESISTANT BERYLLIUM OXIDE COMPOSITE

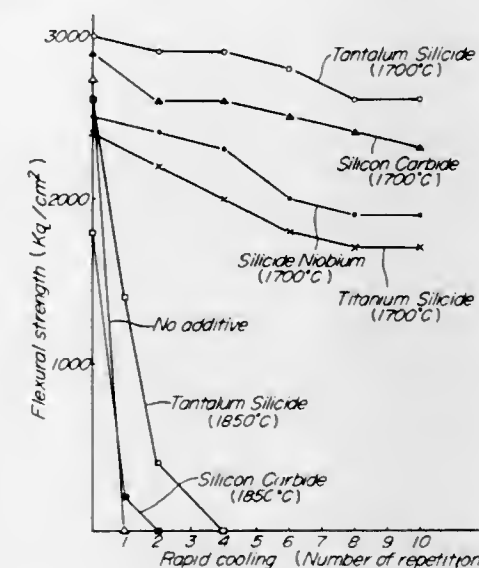
Susumu Nishigaki and Kazuo Kobayashi, Nagoya, Hiroshige Mizuno, Aichi-ken, and Takehiro Kajihara, Nagoya, Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan, a corporation of Japan

Filed May 18, 1967, Ser. No. 639,578

Int. Cl. C04b 35/08, 35/56, 35/58

U.S. Cl. 264—60

1 Claim



A method of making a beryllium oxide composite having a multi-phase structure of an oxide polycrystalline phase and a non-oxide crystal phase with a gap or cracks being formed between the two phases and between each oxide polycrystalline phase. This is accomplished by shaping a mixture of 0.5–15% by weight of at least one high melting carbide, boride, or silicide selected from the group consisting of titanium, zirconium, niobium, tantalum, chromium, molybdenum, tungsten and vanadium, and silicon carbide the remainder being beryllium oxide, and firing the shaped mixture to 1700° C.

3,564,087

EXTRUSION OF PLASTIC TUBING WITH CONTROLLED VARIABLE DIAMETER

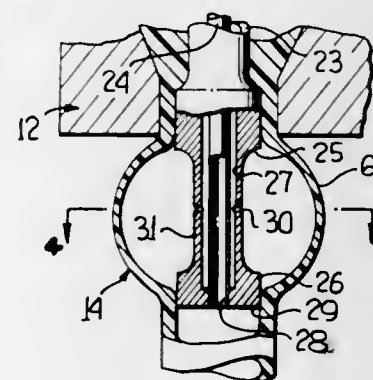
Herbert S. Rueckberg, Highland Park, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed June 7, 1968, Ser. No. 735,417

Int. Cl. B29c 17/07, 23/00

U.S. Cl. 264—89

24 Claims



This disclosure relates to the extrusion of plastic tubing having localized variations in diameter, due to the introduction of variable fluid pressure inside the tubing, and

the subsequent blow-molding of the localized variable diameter extrusion to form a bottle having integral hollow handles which are free of flash exteriorly of a mold handle parting line.

3,564,088

PROCESS FOR FLASH SPINNING AN INTEGRAL WEB OF POLYPROPYLENE PLEXIFILAMENTS

Rudolph Woodell, Richmond, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Continuation-in-part of application Ser. No. 768,617,

Oct. 15, 1968, now Patent No. 3,467,744, which is

a continuation-in-part of abandoned application

Ser. No. 506,304, Nov. 14, 1965. This application

Sept. 3, 1969, Ser. No. 854,920

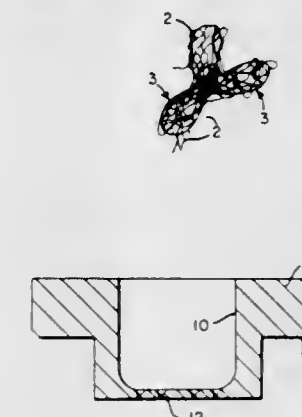
The portion of the term of the patent subsequent to

Sept. 16, 1986, has been disclaimed

Int. Cl. D01f 7/02

U.S. Cl. 264—205

7 Claims



A web of entangled plexifilaments of isotactic polypropylene is obtained by flash spinning a solution of the polymer through two or more closely-spaced spinneret orifices. Depending upon arrangement of the orifices, the web may be a yarn or tow of shaped cross-section, or it may be a ribbon or sheet product. The solvent may be 1,1,2-trichloro - 1,2,2 - trifluoroethane, trichlorofluoromethane or a mixture thereof.

3,564,089

DIAGNOSTIC REAGENT FOR SYPHILIS

Sandra Jean Kiddy, 1245 Doremus Road,

Pasadena, Calif. 91105

No Drawing. Filed Sept. 29, 1966, Ser. No. 583,065

Int. Cl. G01n 31/00, 31/02, 33/16

U.S. Cl. 424—13

1 Claim

A reagent and method for the serological diagnosis of syphilis by determining the agglutination of antigen-coated latex particles with a patient's serum in which the reagent used in the diagnosis consists of polystyrene latex having a particle size of from about 0.1 to about 0.35 micron coated with a combination of from about 0.007 mg. to about 0.187 mg. of cardiolipin and from about 0.0005 mg. to about 0.03 mg. of Reiter protein antigen per mg. of latex solids.

3,564,090

ANTIBIOTIC MACARBOMYCIN AND PROCESS OF MAKING AND USING SAME

Hamao Umezawa, Kenji Maeda, Kazuo Nitta, Masanori Okanishi, and Sakiko Takahashi, Tokyo, Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai, Tokyo, Japan, a corporation of Japan

Filed Dec. 12, 1968, Ser. No. 783,325

Claims priority, application Japan, Dec. 18, 1967,

42/81,437

Int. Cl. A61k 21/00

U.S. Cl. 424—118

7 Claims

Macarbomycin inhibits the growth of various microorganisms e.g., *Staphylococcus aureus* including bacteria

resistant against various drugs and exhibits growth promoting activity for animals. The antibiotic macarbomycin is produced by fermentation of species of *Streptomyces* which has been classified *Streptomyces phaeochromogenes*.

3,564,091

PROCESS FOR KILLING BACTERIA AND FUNGI WITH ARALKANOL ESTERS OF BORIC ACID AND GLYCOL BORATES

Richard J. Degray, South Euclid, and William O. Fitzgibbons, Hudson, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio
No Drawing. Filed May 13, 1966, Ser. No. 549,798
Int. Cl. A01n 9/00; A61l 13/00, 23/00

U.S. Cl. 424—185

6 Claims

Boric acid esters of aralkanols containing 2 to 3 carbon atoms, and esters of said aralkanols with 1-2 or 1-3 glycol monoborates which are easily formed and incorporated into water, hydrocarbon, animal or vegetable oil media, are effective in killing substantially all bacteria and fungi in about half an hour even when present in very low concentrations.

3,564,092

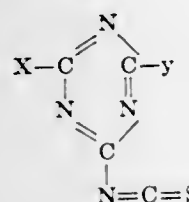
METHOD OF STERILIZING INSECTS WITH ISOTHIOCYANO-s-TRIAZINES

Philip C. Hamm, Glendale, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Sept. 27, 1966, Ser. No. 582,248
Int. Cl. A01n 9/22

U.S. Cl. 424—249

4 Claims

Method of sterilizing insects with an isothiocyano triazine of the formula



3,564,093

USE OF PENTAMETHYLENE QUINOXALINE DIOXIDES AS ANTIBACTERIAL AGENTS AND ANIMAL GROWTH PROMOTANTS

James David Johnston, Old Saybrook, Conn., assignor to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware

No Drawing. Application Oct. 18, 1966, Ser. No. 587,422, now Patent No. 3,471,492, dated Oct. 7, 1969, which is a continuation-in-part of abandoned application Ser. No. 463,932, June 14, 1965. Divided and this application Jan. 6, 1969, Ser. No. 803,514
Int. Cl. A61k 27/00

U.S. Cl. 424—250

6 Claims

A series of 7,8,9,10-tetrahydro-6H-cyclohepta[b]quinoxaline-5,11-dioxides and non-toxic salts thereof useful as antibacterial agents and as animal growth promotants.

3,564,094

METHOD OF TREATING VENOUS DISEASES

Karl Dietmann, Mannheim-Waldhof, Gunter Steinorth, Mannheim-Feudenheim, and Wolfgang Schaumann, Mannheim-Waldhof, Germany, assignors to Boehringer Mannheim Gesellschaft mit beschränkter Haftung
Filed Jan. 26, 1968, Ser. No. 700,875

Claims priority, application Great Britain, Feb. 10, 1967, 6,396/67
Int. Cl. A61k 27/00

U.S. Cl. 424—262

8 Claims

Novel therapeutic compositions containing raubasine and a method of using the same in the treatment of venous diseases, including thrombosis, varicosis, non-cardiac edema, ulcer cruris varicosum and peripheral circulatory disturbances.

3,564,095 ANTI-INFLAMMATORY HYDROXY CYCLIC SULFONES

Lewis H. Sarett, Princeton, Tsung-Ying Shen, Westfield, and Conrad P. Dorn, Jr., Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 476,695, Aug. 2, 1965. This application June 21, 1968, Ser. No. 738,800

Int. Cl. A01n 9/12

U.S. Cl. 424—275

2 Claims

This invention relates to certain cyclic hydroxy alkylene sulfones and their method of preparation. These compounds have been found to exhibit pharmaceutical activity as anti-inflammatory agents.

3,564,096

MICROBIOCIDAL USE OF 2,2,4,5-TETRACHLORO-Δ⁴-1,3-DITHIOLENE-1,1-DIOXIDE

Don R. Baker, 3136 Estates Ave., Pinole, Calif. 94564; George E. Lukes, 828 Ashbury Ave., El Cerrito, Calif. 94530; and Malcolm B. McClellan, 1112 Arlington Lane, San Jose, Calif. 95129

No Drawing. Original application July 29, 1964, Ser. No. 386,067, now Patent No. 3,376,314, dated Apr. 2, 1968. Divided and this application Oct. 11, 1967, Ser. No. 729,827

Int. Cl. A01n 9/12

U.S. Cl. 424—277

1 Claim

The use of 2,2,4,5-tetrachloro-Δ⁴-1,3-dithiolene-1,1-dioxide as a bactericide and fungicide.

3,564,097

STABLE MULTIVITAMIN TABLETS CONTAINING TRICALCIUM PHOSPHATE

Louis Magid, 199 Haddenfield Road, Clifton, N.J. 07013

No Drawing. Filed Apr. 5, 1968, Ser. No. 719,235

Int. Cl. A61k 15/10

U.S. Cl. 424—284

2 Claims

Sugar coated multivitamin tablets containing a high potency of vitamin E are stabilized against cracking and oil bleeding by the inclusion of tricalcium phosphate in the formulation in lieu of conventional excipients.

3,564,098

ANIMAL FEED COMPOSITIONS AND METHODS

Eugene S. Erwin, Phoenix, Ariz., and Gino J. Marco, Webster Groves, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed June 26, 1967, Ser. No. 648,993

Int. Cl. A61k 27/00

U.S. Cl. 424—317

5 Claims

Animal feed composition containing at least one compound of the formula



wherein R is alkyl of at least 4 and not more than 11 carbon atoms.

3,564,099

ANIMAL FEED COMPOSITIONS AND METHODS

Gino J. Marco, Webster Groves, and Ernest G. Jaworski, Olivette, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed May 29, 1967, Ser. No. 642,139

Int. Cl. A61k 27/00

U.S. Cl. 424—320

17 Claims

Animal feed compositions containing α-haloacetamides elicit substantially greater weight gain and feed efficiency response in animals than said diets used alone due to the growth promoting properties of the said α-haloacetamides.

3,564,100

BASICALLY SUBSTITUTED CYCLOALKENE COMPOUNDS AS ANTITUSSIVE AGENTS

Ernst Frankus, Schleckheim, and Kurt Flick, Bochum-Stiepel, Germany, assignors to Chemie Grunenthal G.m.b.H., Stolberg, Germany

No Drawing. Original application July 6, 1966, Ser. No. 563,044, now Patent No. 3,470,249, dated Sept. 30, 1969. Divided and this application Sept. 26, 1969, Ser. No. 870,804

Int. Cl. A61k 27/00

U.S. Cl. 424—330

2 Claims

The antitussive composition which comprises specific cycloalkene compounds and a pharmaceutical excipient.

3,564,101

1,1-DICHLORO-2,3,3-TRIFLUOROPROPENE AS AN ANESTHETIC AGENT

Bernard M. Regan, Chicago, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill., a corporation of Delaware

No Drawing. Original application Jan. 18, 1968, Ser. No. 698,703, now Patent No. 3,499,048, dated Mar. 3, 1970. Divided and this application Oct. 1, 1969, Ser. No. 870,976

Int. Cl. A61k 13/00

U.S. Cl. 424—351

1 Claim

1,1-dichloro-2,3,3-trifluoropropene, useful as a general anesthetic.

ELECTRICAL

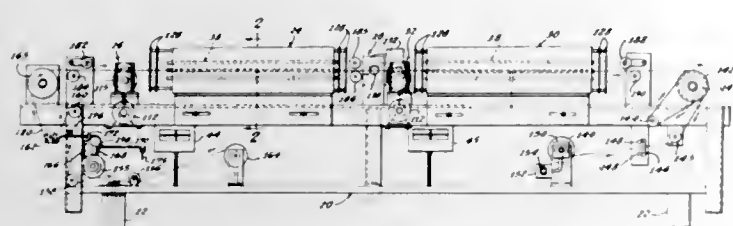
3,564,102

WIRE HEATING APPARATUS

Sheridan S. Cannaday, Pasadena, Calif., assignor to Physical Sciences Corporation
Original application Apr. 19, 1963, Ser. No. 277,975, now Patent No. 3,403,659, which is a division of application Ser. No. 46,576, Aug. 1, 1960, now Patent No. 3,257,245. Divided and this application Aug. 31, 1967, Ser. No. 683,037
Int. Cl. H05b 3/62

U.S. Cl. 13-20

6 Claims



A furnace for processing a traveling wire to avoid tensioning to any significant degree and to maintain a substantially constant temperature. A refractory mass is formed with a tubular opening for providing a passageway for the wire. A pulling device is located at the other end for pushing the wire therethrough. A number of heating elements are enclosed in the mass surrounding the opening and are energized by a pair of transformers to maintain a predetermined temperature range.

3,564,103

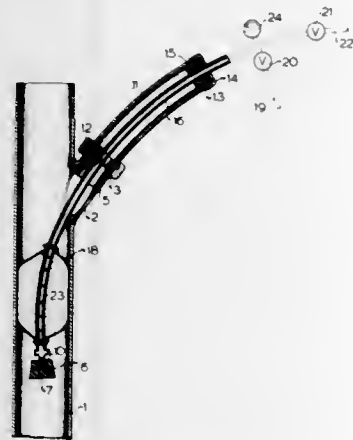
SHUTOFF DEVICE FOR HOLLOW ELECTRODES

Albert Brachschob, Hurth near Cologne, and Heinrich Weiler, Hermulheim near Cologne, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack bei, Cologne, Germany
Filed Aug. 26, 1969, Ser. No. 853,098
Claims priority, application Germany, Sept. 28, 1968,
P 17 83 075.0

Int. Cl. F27b 1/20; H05b 3/60

U.S. Cl. 13-33

10 Claims



Shutoff device for hollow electrodes supplying particulate feed material to and/or removing furnace gas from electrothermal reduction furnaces, are melting furnaces, e.g., calcium carbide or similar furnaces. The inner shell of the hollow electrode has an inclined pipe socket secured to it, preferably welded thereto, which in turn has detachably secured to it a sleeve with an inflatable bag therein. The bag is displaceable by means of a thrust rod from inside the sleeve to a position inside the hollow electrode, and inflated therein using gas under pressure to effect shutoff of the hollow electrode.

3,564,104

MOVABLE CONTACT CONTROL OF ELECTRONIC MUSIC MODULES

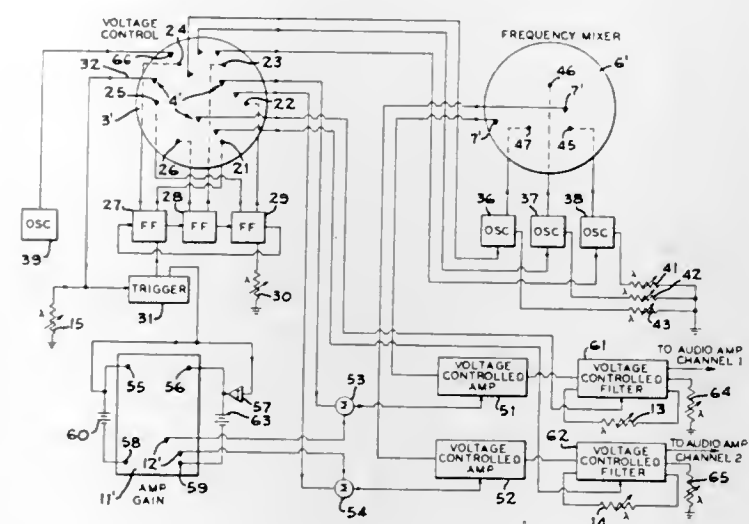
Thomas B. Reynolds, 2339 Columbia St., Palo Alto, Calif. 94306

Filed Apr. 2, 1969, Ser. No. 812,611

Int. Cl. G10h 1/00

U.S. Cl. 84-1.01

15 Claims



An electronic musical instrument including a first resistive surface to which a number of control signals are applied in physically spaced relation and from which variable oscillator control signals are picked up by movable contacts on the first resistive surface. Preferably, the oscillator signals are delivered to a second resistive surface so that additional movable contacts thereon can be shifted to vary the mixed oscillator signals.

3,564,105

ELECTRONIC MUSICAL INSTRUMENT KEY ASSEMBLY WITH PRESSURE SENSITIVE RESISTOR

Hiroshi Amano, and Seiji Nakada, Hamamatsu-shi, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

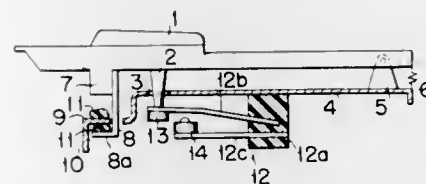
Filed June 25, 1969, Ser. No. 836,559

Claims priority, application Japan, July 1, 1968, 43/45402; 43/45403

Int. Cl. G10c 3/12; G10h 1/00

U.S. Cl. 84-1.01

3 Claims



A key assembly involves a plurality of keying switches, each of which is provided with a stationary contact element and a movable contact element cooperable at their contact point. Said movable contact element has a weight block disposed at the free end thereof and is elastically bendable by an actuating member mounted on the bottom side of a key member. At the contact point of the stationary contact element is positioned a sensor whose electric resistance makes varying responses in accordance with the magnitude of pressure applied thereto.

FEBRUARY 16, 1971

ELECTRICAL

1181

3,564,106

ELECTRONIC ORGAN EMPLOYING A REVERBERATION UNIT WITH VARIABLE DECAY TIME

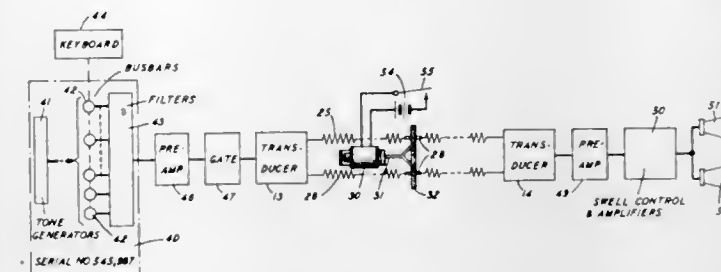
Leonard W. Pavia, 460 Columbia Turnpike, Florham Park, N.J. 07932

Filed May 7, 1969, Ser. No. 822,468

Int. Cl. G10h 1/02

U.S. Cl. 84-1.24

12 Claims



An electronic organ in which all of the tones generated are applied through an artificial reverberation unit to the output speakers. The reverberation unit includes a pair of coiled springs with a coupling section between two portions of each spring. The reverberation or decay time is varied by an adhesively coated wire which is controllably brought just to rest on the coupling section so as to adhesively grasp the section. Since all of the signal is passed through the springs, the tone generators may be designed to compensate for both the poor frequency and the poor tonal characteristics of the springs, whereby exceedingly low frequency tones can be transmitted through the reverberation unit and have their reverberation time controlled and the metallic sound usually associated with reverberation units obviated.

3,564,107

KEYING DRIVE CIRCUITS PARTICULARLY FOR ELECTRONIC MUSICAL INSTRUMENTS

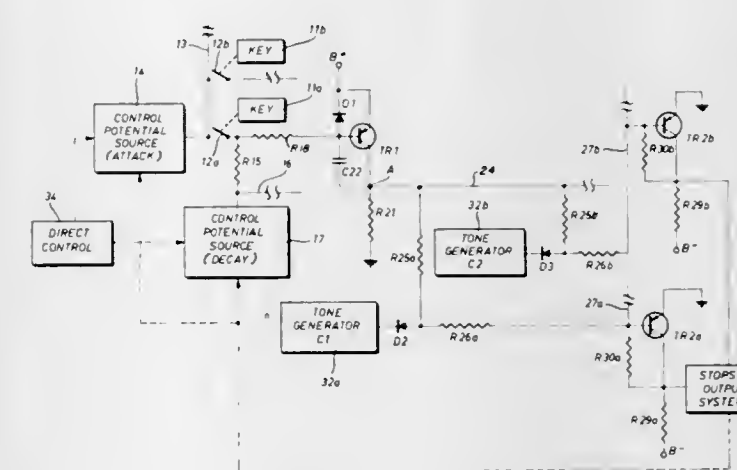
Alfred B. Freeman, Skokie, Ill., assignor to Chicago Musical Instrument Co., Chicago, Ill.

Continuation of application Ser. No. 599,935, Dec. 7, 1966, now abandoned. This application Feb. 16, 1970, Ser. No. 010,087

Int. Cl. G10h 1/02

U.S. Cl. 84-1.26

29 Claims



An apparatus is provided for producing a variable signal which utilizes a transistor, a capacitor connected between the base and the collector electrodes of the transistor, a first resistor connected in series with a switching means which are jointly connected between a first source of control potential and the base electrode, a second source of control potential connected via a second resistor to the base electrode, and means for developing an output signal at the collector electrode. By this circuit, when the switch means is closed, the rate of onset or attack of the output signal is linear, and when the switching means is opened, the rate of decay of the output signal is exponential.

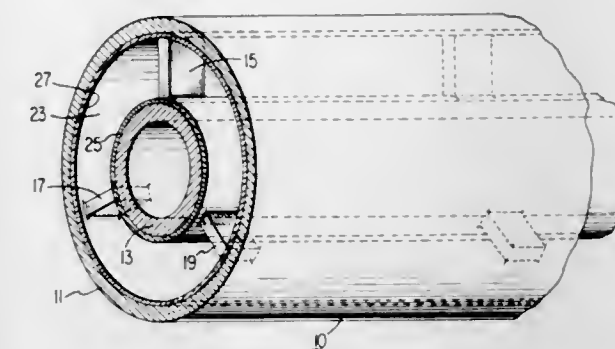
3,564,108

COAXIAL TRANSMISSION LINE

Anthony Nicholas Schmitz, Moorestown, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Aug. 14, 1969, Ser. No. 850,081
Int. Cl. H01b 7/34

U.S. Cl. 174-16

5 Claims



A coaxial transmission line having an increased average power rating compared to known lines is provided. This increased power rating is achieved by improving radiant heat transfer from the inner conductor to the outer conductor.

3,564,109

SEMICONDUCTOR DEVICE WITH HOUSING

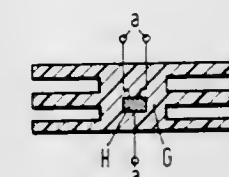
Hugo Ruchardt, Gauting, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Aug. 20, 1968, Ser. No. 754,085

Claims priority, application Germany, Aug. 24, 1967, 111,507

Int. Cl. H01l 1/12

U.S. Cl. 174-15

2 Claims



The present invention relates to a semiconductor device with housing and with a cooling device particularly cooling ribs provided at the housing wall. The invention is characterized by the fact that the cooling device and the adjacent housing portion are comprised of a single piece of heat-conducting synthetic material. The technical progress derived from the invention is realized to a particularly full extent if the cooling device and the adjacent housing portion are produced in a single work process by injection molding.

3,564,110

ELECTRICAL CABLES

Merle C. Bischoff, Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Continuation of application Ser. No. 599,599, Dec. 6, 1966.

This application Jan. 31, 1969, Ser. No. 798,253

Int. Cl. H01b 7/18; H02g 15/24

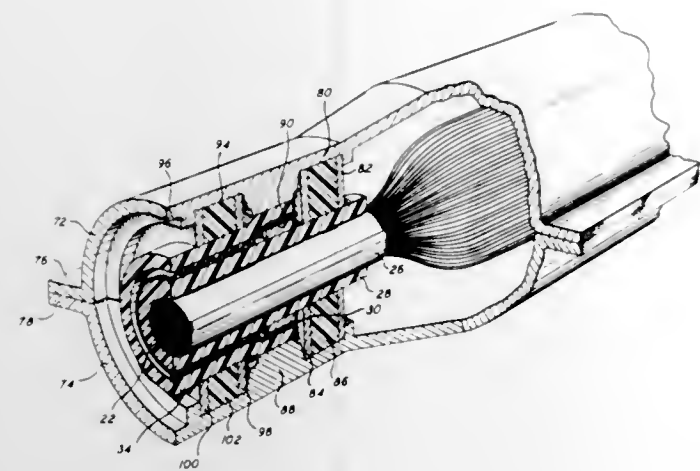
U.S. Cl. 174-22

2 Claims

Entry of water and water vapor into the core and splice case of a cable is avoided, despite the puncturing effect of lightning, by surrounding the core with an overlapped-seam plastic-coated aluminum vapor barrier which is bonded to a surrounding polyethylene tube thick enough to withstand the inner radial force of a sealing gland in a splice case without

distorting and leaking. Surrounding this tube and vapor barrier, to protect them from the effects of lightning, is a light-

of sidewalls manufactured as separate elements by precision casting and of a bottom, each of which parts is sealed by a



ning-absorbing aluminum shield and an outer polyethylene jacket.

3,564,111

HIGH FREQUENCY TRANSMISSION LINE

Otto Breitenbach, Nurnberg, Germany, assignor to Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany

Filed Oct. 22, 1969, Ser. No. 868,496

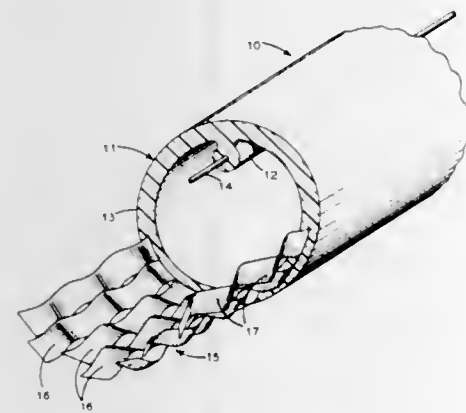
Claims priority, application Germany, Oct. 23, 1968, P

P 1,804,679

Int. Cl. H01b 11/06

U.S. Cl. 174-36

7 Claims



A line for transmitting high frequency electrical signals, including video signals; the line being used to simultaneously transfer and radiate energy and including shielding means for reducing losses.

3,564,112

BOX FOR ENCLOSURE OF ELECTRICAL EQUIPMENT
Seven Erki Algotsson and Sune Hugo Ivan Lorentzon, Gavle, Sweden, assignors to A B Elektroverken i Gavle, Gavle, Sweden

Filed Mar. 4, 1969, Ser. No. 804,228

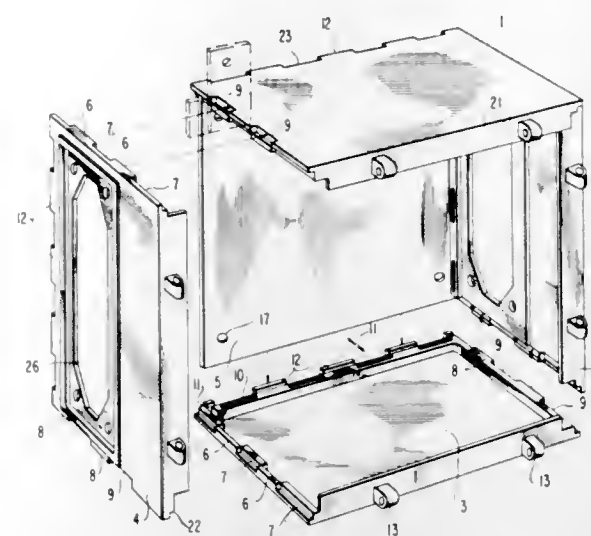
Claims priority, application Sweden, Mar. 6, 1968, 2952/68

Int. Cl. H05k 5/00

U.S. Cl. 174-52

8 Claims

Box for enclosure of electrical equipment which is formed



bonding agent with the adjoining sidewalls through engaging devices in the edges of the sidewalls.

3,564,113

PASSAGE MEANS FOR PASSING PIPES, CABLES AND THE LIKE THROUGH WALLS

Georg Kindler, Bremen-Vegesack, Germany assignor to Vereinigte Flugtechnische Werke Gesellschaft mit beschränkter Haftung früher "Weser" Flugzeugbau/Focke-Wolf Heinkel-Flugzeugbau, Bremen, Germany

Filed Apr. 1, 1969, Ser. No. 811,888

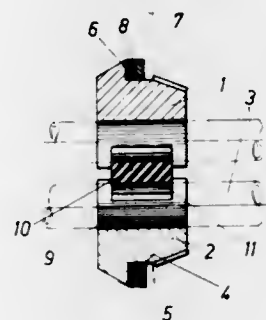
Claims priority, application Germany, Apr. 10, 1968,

P 17 50 240.8

Int. Cl. F16l 5/00; H02g 3/22

U.S. Cl. 174-65

7 Claims



A holding structure for holding and passing conduit means and conductors, especially pipes and electric cables, through a passage in a wall, which includes at least two holding sections having circumferential groove means for fitting a wall provided with passage means through which the conduit means and conductors are to be passed, said holding sections being adapted to receive the conduit means and conductors to be passed through the wall, while compressible elastic means are provided between said holding sections for firmly engaging and holding the conduit means and conductors in said holding sections.

3,564,114

UNIVERSAL MULTILAYER PRINTED CIRCUIT BOARD
Marvin Blinder, Union, N.J., and Allen B. Chertoff, New York, N.Y.; said Blinder assignor to Loral Corporation, Scarsdale, N.Y.

Filed Sept. 28, 1967, Ser. No. 684,882

Int. Cl. H05k 1/04

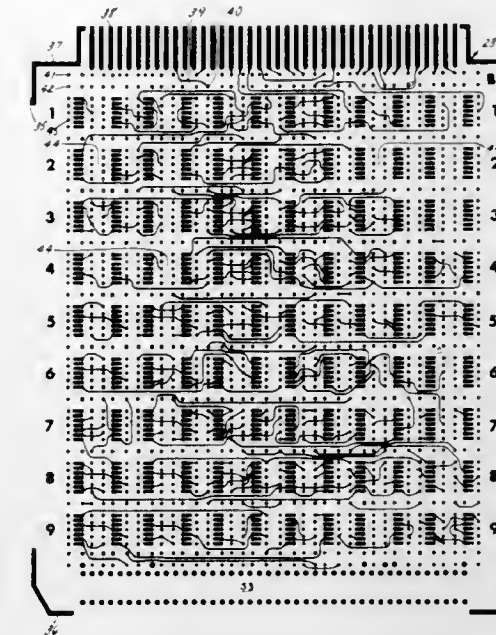
U.S. Cl. 174-68.5

2 Claims

A prefabricated printed circuit board including a plurality of laminated planar-printed circuit-carrying members, each

of the printed circuits having points of connection which are placed in congruent relation upon lamination, and having exposed planar surfaces which are covered over the entire area thereof with an etchable electrically conductive material such as copper. When employed to connect a specific group

connected together by an electrically conductive strip placed between overlapping ends of the shielding tapes and with tangs projecting from both sides of the strip for piercing the corrosion-preventing coating on the tapes and establishing



of components, the bonded layer is etched to a desired pattern, including points of electrical connection, following which the electrical components are mounted upon areas of the etched surface to be placed in electrical communication therewith.

3,564,115

ELECTRICAL INTERCONNECTION GRIDS

Maurice Woolmer Gribble, Stockport, and Glyn Charles Evans, Wilmslow, England, assignors to Ferranti, Limited, Hollinwood, Lancashire, England

Filed Dec. 6, 1968, Ser. No. 781,930

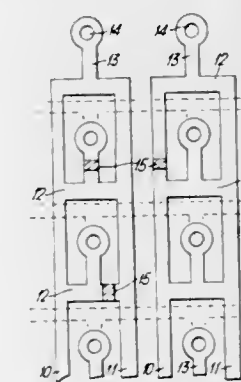
Claims priority, application Great Britain, Dec. 8, 1967,

55818/67

Int. Cl. H05k 1/04

U.S. Cl. 174-68.5

5 Claims



An electrical interconnection grid consists of two sets of parallel conductors on opposite sides of an insulating board. At least one set of conductors consists of pairs of conductors interconnected at intervals by a conductive strip which is connected to a conductor of the other set by a plated-through hole.

3,564,116

SPLICE FOR LAMINATED TAPES

Joseph B. Masterson, Carteret, N.J., and John D. Lawler, Bayonne, N.J., assignors to General Cable Corporation, New York, N.Y., a corporation of New Jersey

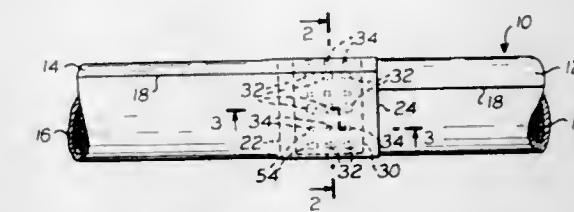
Filed May 7, 1969, Ser. No. 822,370

Int. Cl. H01r 9/06; H02g 15/08

U.S. Cl. 174-88

14 Claims

Shielding tapes around the cores of electrical cables are



metal-to-metal contact with the overlapping ends of the tapes to provide the tapes with electrical continuity and to mechanically lock the tapes from axial movement relative to one another.

3,564,117

CABLE SPLICE CONSTRUCTION

Ernst Scheffler, Langenhagen, and Jurgen W. Luhring, Hannover, Germany, assignors to Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany

Filed Feb. 17, 1969, Ser. No. 799,636

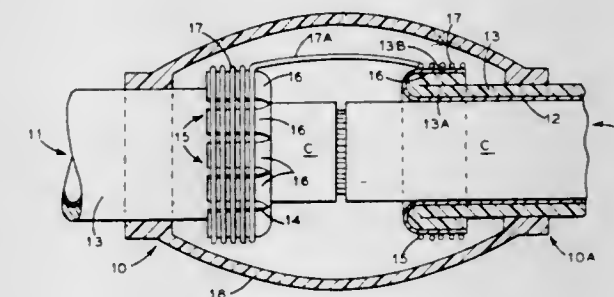
Claims priority, application Germany, Feb. 20, 1968,

K60326/21C

Int. Cl. H02g 15/08

U.S. Cl. 174-89

5 Claims



A splice construction for electrical cables, particularly communication cables having a thin metallic sheathing carrying an outer layer of synthetic plastic, wherein the terminal portions of the metallic sheathing of a pair of cables to be spliced, is treated in a manner to facilitate their electrical interconnection yet leaving the cable cores unimpaired.

3,564,118

CABLE CONNECTOR FOR UNDERGROUND APPLICATIONS

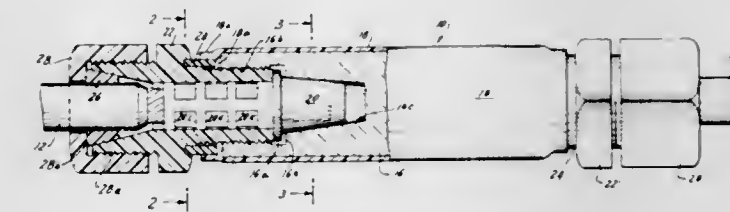
Stephen P. Becker, Poughkeepsie, N.Y., assignor to Fargo Mfg. Company, Inc., Poughkeepsie, N.Y., a corporation of New York

Filed June 23, 1969, Ser. No. 835,432

Int. Cl. H01r 7/06; H02g 15/08

U.S. Cl. 174-93

4 Claims



A rugged and compact cable connector for direct burial applications providing a permanent, watertight, insulated junction, including an electrically conducting member for providing direct metal to metal electrical contact between the cable and the body of the connector.

reference and the photo cathode to assist in providing more resolution to the input information.

3,564,127

SYSTEM OF BAND COMPRESSION FOR VIDEO SIGNALS

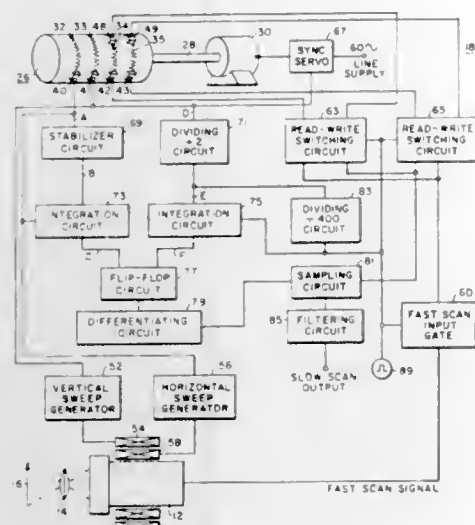
George C. Sziklai, Los Altos Hills, Calif., and George F. Newell, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 8, 1968, Ser. No. 711,690

Int. Cl. H04n 1/36, 7/12

U.S. Cl. 178-6.6

5 Claims



This invention relates to a method and system for band-compressing video signals including a continuous storage medium such as a magnetic disc or drum and a sampling circuit for variously reading or writing selected samples to and from the continuous storage medium. In converting a typical horizontally swept, fast-scan video signal to a slow-scan signal, the fast-scan video signal corresponding to an image is recorded upon the storage medium and is repeatedly played back while the sampling circuit samples elements of the signal corresponding to one element from each of the horizontal lines so that the resulting slow-scan, distributed signal appears as if the image were vertically scanned. In order to convert the slow-scan signal into a fast-scan signal, the distributed, slow-scan signals are selected by a sampling circuit and recorded onto a continuous storage medium during many revolutions of the storage medium until the entire fast-scan signal has been built-up in a manner that the recorded signal may be played back rapidly to provide a normal horizontal, fast-scan video signal.

3,564,128

MULTIPLE SCAN OPTICAL RECORDING APPARATUS

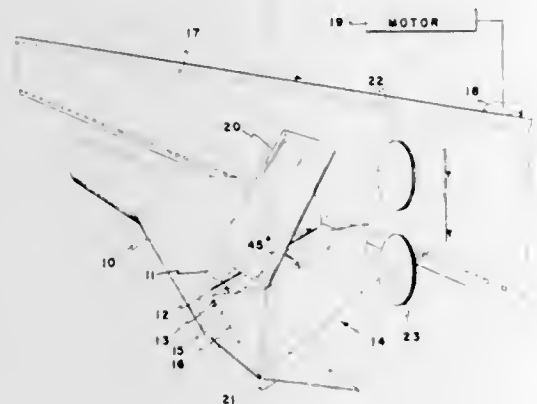
Harry L. Hosterman, Akron, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio

Filed Aug. 3, 1965, Ser. No. 476,819

Int. Cl. H04n 3/00

U.S. Cl. 178-6.7

6 Claims



A multiple scan optical recording apparatus combined with a procedure for operation of a cathode ray tube whereby a

single sweep has a first pass across the full face of the tube, and then jumps down and returns with a second pass across the full face in substantially parallel opposite relation to the first pass, which includes an optical system to translate such passes in a lined front to end relationship onto a light-sensitive film moved at a controlled speed relative to the optical system. In essence, the optical system incorporates a substantially right angular flat medium having the ability to change the direction of light rays positioned with the apex thereof aligned between the parallel passes with the angle of each side of the medium at about 45° angular relation to the face plate, with associated reflective surfaces to align the rays emitted from the medium in successive front to end relation and project such aligned relation onto the light-sensitive film.

3,564,129

NOISE LIMITING CIRCUIT USING SWITCHED FILTER

Peter William Blaxton, Watton at Stone, England, assignor to The Rank Organisation Limited, London, England

Filed Dec. 8, 1967, Ser. No. 689,115

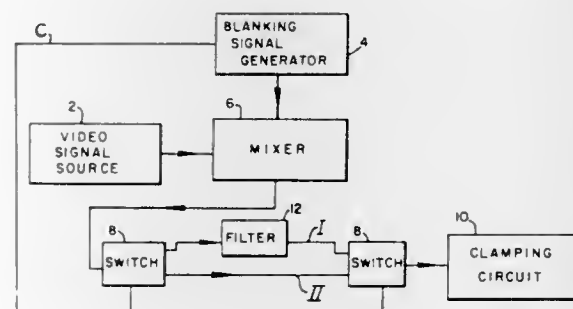
Claims priority, application Great Britain, Dec. 8, 1966,

55120/1966

Int. Cl. H03g 5/18; H04n 5/08, 5/21

U.S. Cl. 178-6

11 Claims



An electrical noise limiting circuit for use in an apparatus producing a composite signal including an information carrying signal of a selected bandwidth including a train of recurrent pulses. The circuit includes a switch responsive to the pulses in the composite signal, and a filter selectively connected to the apparatus by the switch. The filter reduces the level of the noise component in the composite signal at least during the periods of one or more of the pulses.

3,564,130

ELECTRONIC PHOTOCOPY SYSTEM

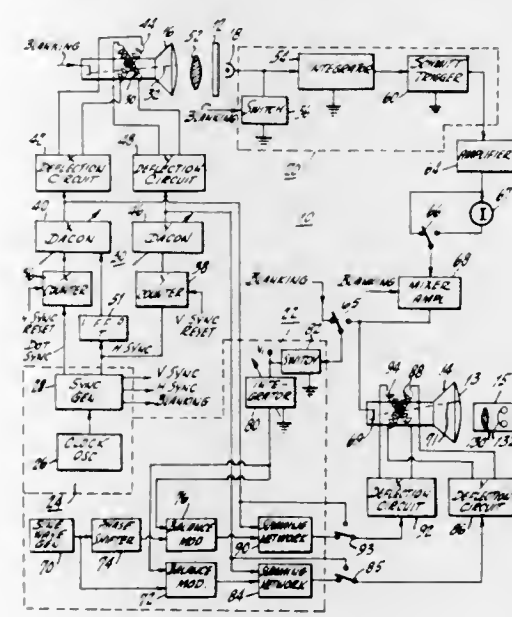
Horatio N. Crooks, and Raymond L. Hallows, Jr., Princeton, N.J., assignors to RCA Corporation, a corporation of Delaware

Filed Mar. 21, 1966, Ser. No. 535,883

Int. Cl. H04n 5/84

U.S. Cl. 178-6.7

12 Claims



A photocopy system provides a halftone image of a picture composed of continuous tones by producing a plurality of

hollow halftone dots corresponding to the continuous tones. Each of the halftone dots comprises an annulus that has a size that corresponds to the density of a tone on the original picture.

3,564,131

SPATIALLY MODULATED HALFTONE DOT IMAGE GENERATION SYSTEM

Edward W. Herold and Kenneth H. Fischbeck, Princeton, N.J., assignors to RCA Corporation

Filed Dec. 22, 1967, Ser. No. 692,944

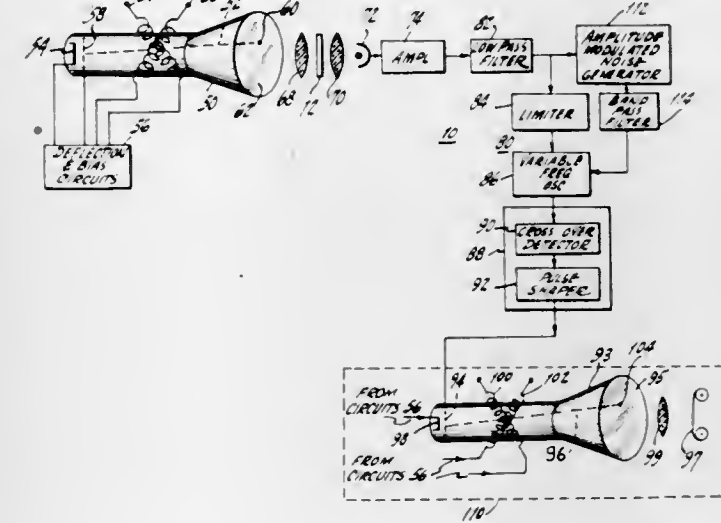
Claims priority, application Great Britain, Feb. 20, 1967,

8007/67

Int. Cl. H04n 5/84

U.S. Cl. 178-6.7

3 Claims



A halftone image generation system produces a replica of an original continuous tone pattern by utilizing halftone dots of substantially the same size. The continuous tones in the original pattern are duplicated in the halftone image thereof by varying the spacing between the halftone dots. The spaces between the halftone dots are, for example, small when a dense tone is duplicated, whereas the spacing is made larger when a less dense tone is duplicated.

The halftone dot generator in the system may, for example, comprise an electronic imaging device that generates the halftone dots in the form of light radiation for focusing onto photographic film; or an optical device, such as a laser, that forms the halftone dots as indentations or cavities on a printing plate, or similar devices.

3,564,132

APPARATUS FOR CONTROLLING THE PASSAGE OF PERSONS AND OBJECTS BETWEEN TWO AREAS UTILIZING CLOSED CIRCUIT TELEVISION

Richard H. Baker, and Richard C. Hix, Los Altos, Calif., assignors to Mardix, Mountain View, Calif.

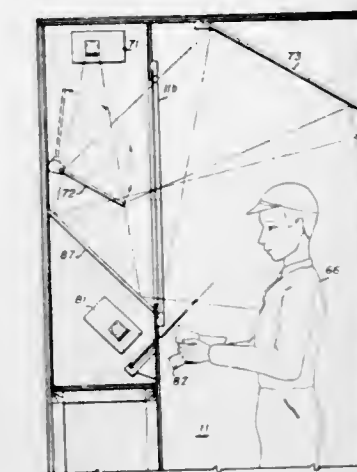
Filed Jan. 17, 1966, Ser. No. 523,499

Int. Cl. H04n 7/18

U.S. Cl. 178-6.8

2 Claims

A security system and method for controlling the passage of persons and objects between two areas employs scanning means for monitoring the contents of a control space having controlled access. Prior to admitting a person to this space, the contents are examined by the scanning means to determine the presence of any objects or persons therein. After a person is admitted to the space, access thereto is secured, such as by locking all doors thereto, and the scanning of the space continues to determine whether the admitted person has brought any unauthorized objects into the space with him. An identification procedure is then carried out for the admitted person, and if his identity is satisfactorily established, another one of the access doors is unlocked to allow the person to proceed. After departure of this person and prior to admitting another person to the space, the contents of the space are again monitored to insure that the per-



admit another person to the space while he was obtaining ingress or egress.

3,564,133

TRANSFORMATION AND REGISTRATION OF PHOTOGRAPHIC IMAGES

Gilbert L. Hobrough, Woburn, Mass., assignor to Itek Corporation, Lexington, Mass.

Continuation-in-part of application Ser. No. 394502, Sept. 4,

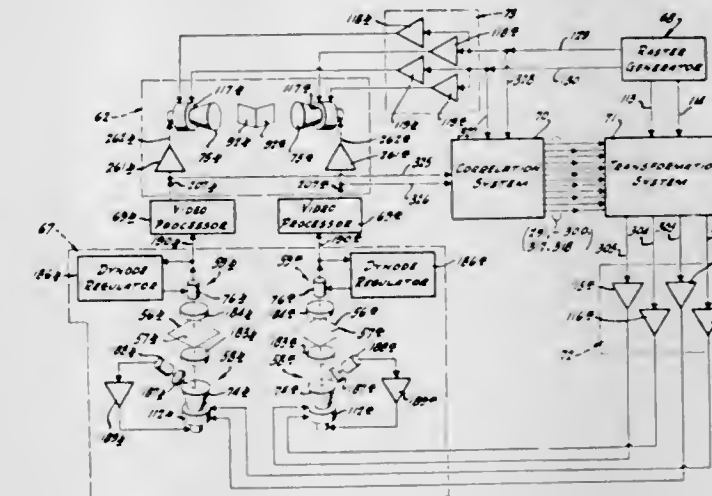
1964, now Patent No. 3,422,674. This application Jan. 16,

1967, Ser. No. 609,662

Int. Cl. H04n 7/18

U.S. Cl. 178-6.8

13 Claims



A method of and apparatus for developing from a stereographic pair of photographic images difficult of registration one with the other for optical inspection of homologous areas because of relative distortions therebetween, area-by-area reproductions of such photographic images suitably registered for optical inspection as a result of relative distortions being corrected. Involved in the system are scanning the photographic images area-by-area with a pair of flying spot scanners, collecting the image-modulated light produced by such scanning with a pair of photoelectric detectors, comparing the output signals from the photoelectric detectors in an electronic correlator and developing parallax error signals representative of relative distortions between the homologous areas being scanned, and providing at a binocular viewer optical reproductions of such areas correctedly altered by an electronic transformation unit to relieve relative distortions and thereby provide optical images in registration for inspection. The relative distortions between photographic images are classifiable into zero-, first-, second-, and higher-orders of distortion, and of primary concern herein is the correction of second- and higher-order distortions by means of reverberatory integration techniques.

3,564,134

TWO-CAMERA REMOTE DRONE CONTROL

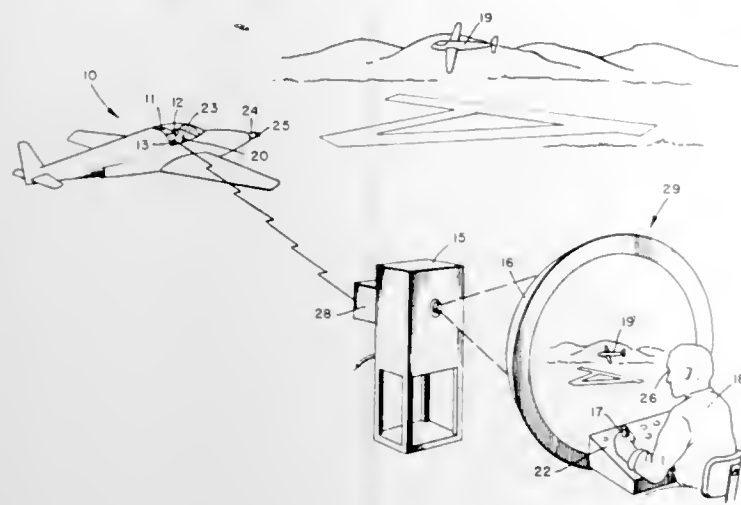
Richard O. Rue and Vance L. Hansen, China Lake, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed July 3, 1968, Ser. No. 742,389

Int. Cl. H04n 5/22, 5/74

U.S. Cl. 178-6.8

7 Claims



A system for flying a drone aircraft by remote control wherein a first television camera, with an ultrawide angle lens mounted thereon, is placed in the cockpit of the drone aircraft where the head of the pilot is normally located; a second television camera, with a zoom lens mounted thereon, is placed in the nose of the drone aircraft; means are provided to send the pictures from either camera back to the ground where they are projected, using rear projection means, onto a hemispherical viewing screen; and a remote ground control is provided for flying the drone in response to the pictures received from the cockpit or nose television cameras or both.

3,564,135

INTEGRATED DISPLAY PANEL UTILIZING FIELD-EFFECT TRANSISTORS

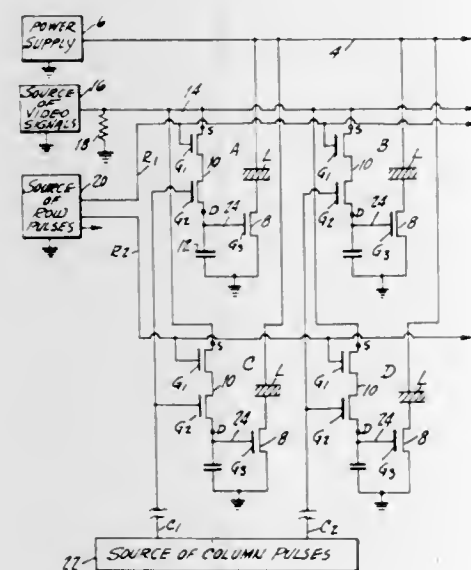
Paul K. Weimer, Princeton, N.J., assignor to RCA Corporation

Filed Oct. 12, 1967, Ser. No. 674,859

Int. Cl. H04n 3/14

U.S. Cl. 178-7.3

2 Claims



Elemental units are arranged in rows and columns. Each elemental unit has a light cell which is controlled by voltage developed across an associated storage capacitance that is connected to a source of video signals by a dual gate field effect transistor. Scanning is achieved by application of pulses of line and elemental duration to the gate electrodes of the

transistors. The invention herein described was made in the course of or under a contract with the Department of the Air Force.

3,564,136

ELECTROLUMINESCENT TELEVISION DISPLAY PANEL

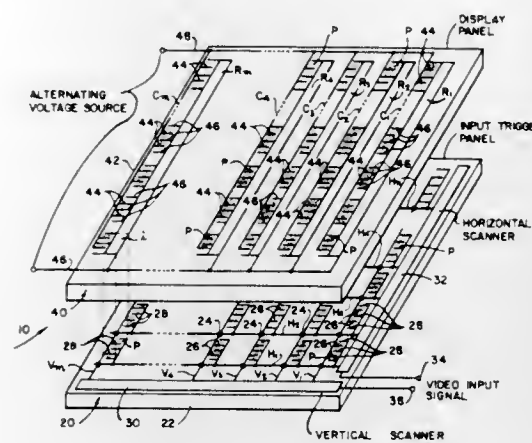
Alexander S. Gilmour, Jr., Williamsville, and Thomas L. Robinson, Sr., East Aurora, N.Y., assignors to Cornell Aeronautical Laboratory, Inc., Buffalo, N.Y.

Filed June 10, 1968, Ser. No. 735,856

Int. Cl. H04n 5/44, 5/70

U.S. Cl. 178-7.3

9 Claims



A electroluminescent display panel having trigger cells optically aligned with photoconductors that are connected in series with display electroluminescent cells. A scanner controls the application of a video signal to the trigger cells, which in turn actuate the display cells. Feedback can be provided to increase the decay time of the photoconductors.

3,564,137

AUTOMATIC BRIGHTNESS COMPENSATION CIRCUIT

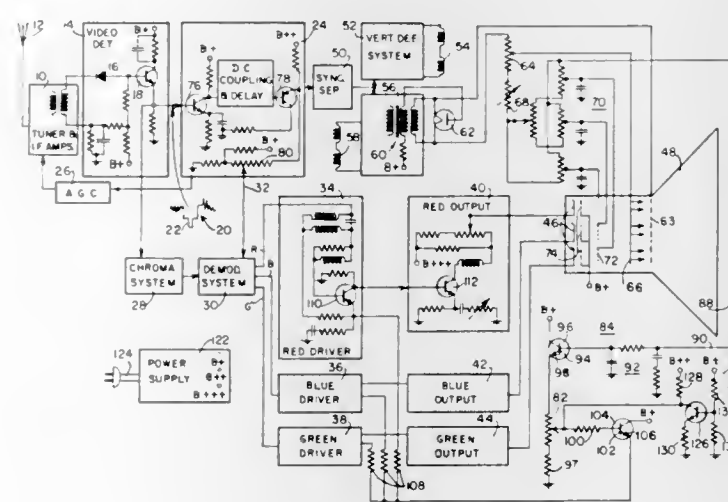
Ernest C. MacIntyre, Jr., Villa Park, Ill., and William H. Slavik, Oak Lawn, Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Jan. 26, 1968, Ser. No. 700,912

Int. Cl. H04n 5/16

U.S. Cl. 178-7.5

4 Claims



A video signal amplifier is direct current coupled to a cathode ray tube, and an amplifier device, which is sensitive to variations in supply voltage and environmental temperature, is coupled to the video amplifier to compensate conduction changes therein and maintain the brightness level of the image despite these variations. The compensation circuit may be part of a system limiting maximum brightness level of the image.

3,564,138

LIGHT SHIELD

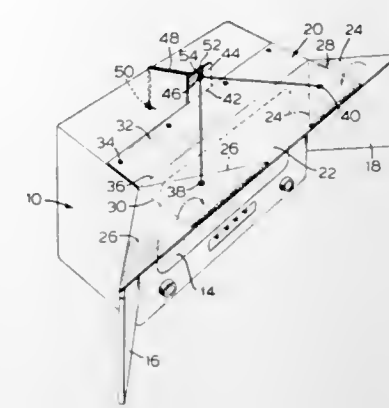
William M. Harrold, Kitchener, Ontario, Canada, assignor to Electrohome Limited, Kitchener, Ontario, Canada

Filed Nov. 6, 1967, Ser. No. 680,839

Int. Cl. H01j 29/06

U.S. Cl. 178-7.9

8 Claims



An image exhibiting member having a screen at which images appear, preferably a television receiver, is provided in combination with first and second panels positioned one at either side of the screen and projecting forwardly therefrom and a third panel hingedly mounted above the screen for movement in a first plane into cooperating relationship with the first and second panels to provide a light shield for the screen. The third panel has first, second and third segments, the second segment being positioned intermediate the first and third segments. The first and third segments are hingedly connected to the second segment for movement in planes different from the plane of movement of the second segment.

3,564,139

CIRCUIT ARRANGEMENT FOR PUSHBUTTON-CONTROLLED ELECTRONIC PARALLEL DELIVERY OF TELEGRAPHIC IMPULSES

Camillo Bodenstein and Herbert Strassner, Muenchen, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

Filed Jan. 31, 1969, Ser. No. 795,669

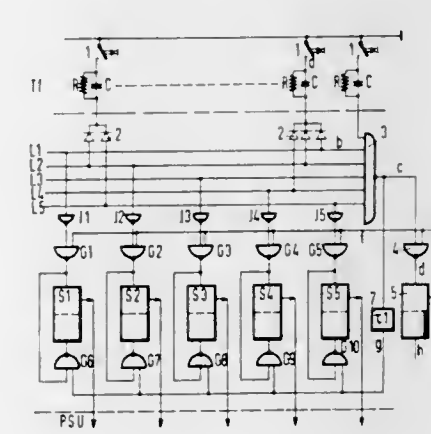
Claims priority, application Switzerland, Feb. 2, 1968,

1.639/68

Int. Cl. H04l 13/08, 15/04

U.S. Cl. 178-17.5

5 Claims



A circuit arrangement for the parallel transmission of key-selectable telegraph impulses in which, in response to the actuation of a key, at least one impulse having a duration greater than 2 microseconds is produced and supplied to a parallel storer having at least as many storage places as the possible number of impulses in the telegraph code field, in which control means, including an impulse shortening circuit, is operative to terminate and transfer the impulses to be stored into the storer after a period of less than 2 microseconds.

3,564,140

PHASE DETECTION AND SYNCHRONIZING SYSTEM FOR FACSIMILE AND THE LIKE

Kunio Tanaka, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan

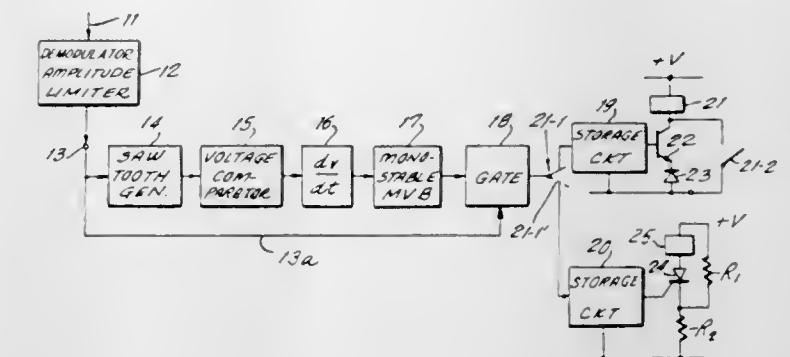
Filed Oct. 2, 1967, Ser. No. 672,186

Claims priority, application Japan, Oct. 3, 1966, 41/54737

Int. Cl. H04n 1/36

U.S. Cl. 178-69.5

15 Claims



An automatic phase detection and synchronizing means for phototelegraphy, or facsimile systems and the like, in which phase signals are conventionally transmitted as amplitude modulated carrier signals in advance of facsimile signals. In order to determine whether phase signals are being transmitted, the instant invention provides a device for determining the presence of phase signals by developing signals representative of the phase signals and comparing them with incoming phase signals which have not undergone detection, for the purpose of automatically synchronizing the operation of the revolving drum employed in facsimile systems with the rotational rate dictated by the receipt of a group of noise free phase signals received from a remote transmitter.

3,564,141

SYNC REGENERATOR

Robert N. Hurst, Haddonfield, N.J., assignor to RCA Corporation

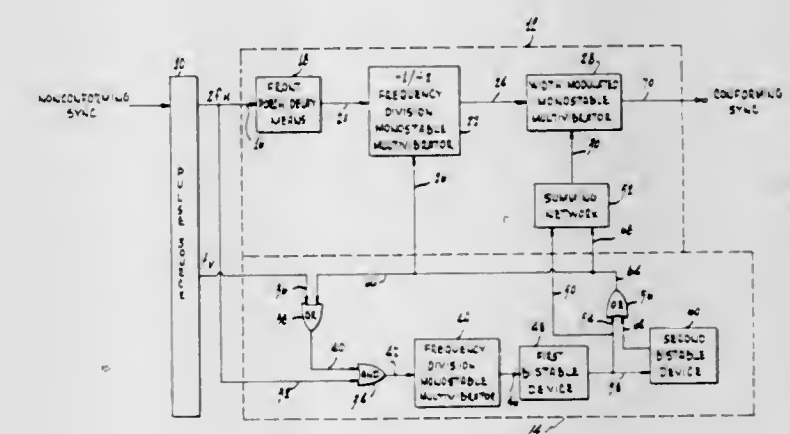
Continuation of application Ser. No. 686,426, Nov. 29, 1967.

This application Dec. 23, 1969, Ser. No. 884,773

Int. Cl. H04n 5/04, 5/78

U.S. Cl. 178-69.5

12 Claims



A sync regenerator for totally reproducing the television sync signal for a broadcast that has been recorded on video tape, where the reproduced sync signal is generated by the application of a single chain of pulses to a series of monostable multivibrators which are responsive to pulses generated by a logic circuit. This sync regenerator may also be arranged so that any selected one of the sync signals of the various international television standards may be reproduced by simply changing a few switch settings.

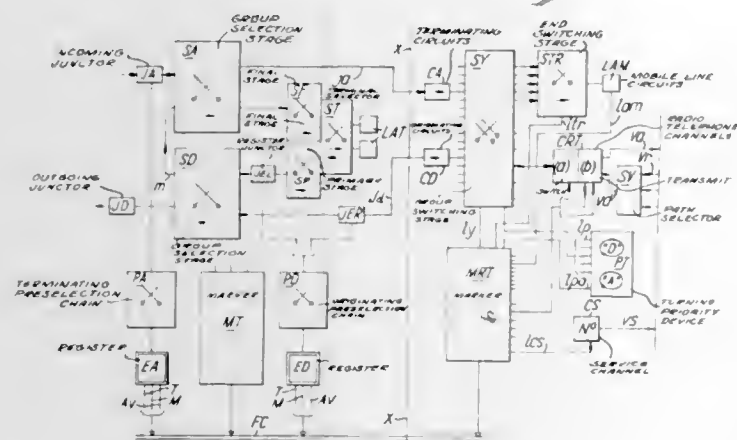
functions including route translation. The electronic data processor cooperates with other units of control equipment, e.g., markers, to translate digital information received over incoming trunks into directive information which is used in processing calls. The processor can pretest certain outgoing trunk routes before distributing directive information to the markers that select and establish connections to idle outgoing trunks. The processor keeps an inventory of what information was distributed for each call and monitors marker disposition of the call.

3,564,150

MOBILE RADIO TELEPHONE AND PAGING SYSTEM
Jean Jacques Muller, Garches, France, assignor to International Standard Electric Corp., New York, N.Y.
Filed June 18, 1968, Ser. No. 737,963
Int. Cl. H04b 3/60

U.S. Cl. 179-41

10 Claims



A public mobile radio communication system is provided for a plurality of mobile radio stations in which each mobile station includes either paging devices, or a telephone, or both. The system employs a service radio channel for sending selective calls from a fixed station to terminate at all the mobile stations. A second radio channel is marked by the fixed station for signaling from the mobile stations having telephones and the capacity to originate calls. Communication between the fixed station and a mobile telephone will employ either the second marked channel or another differently marked free channel.

3,564,151

CIRCUIT PROGRAMMING SYSTEM-BELT TYPE SWITCH WITH DEFLECTABLE SPRING CONTACT MEANS

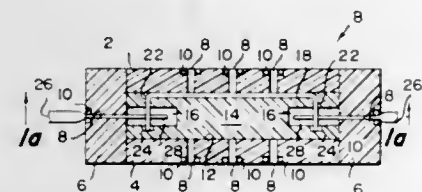
Bernard Edward Shlesinger, Jr., 3906 Bruce Lane, Annandale, Va. 22003

Filed June 30, 1969, Ser. No. 837,466

Int. Cl. H01h 15/00, 43/08

U.S. Cl. 200-46

36 Claims



A circuit programming system and actuator therefor including a connector block having at least one passageway extending through said block; a longitudinally extending movable actuator mounted for axial movement in the passageway and having a recess therein extending in the direction of travel of the actuator; a plurality of contacts mounted in the actuator each having a portion extending into the recess; the portions of the actuator contacts which extend into the recess lying entirely below the lips of the recess; contacts

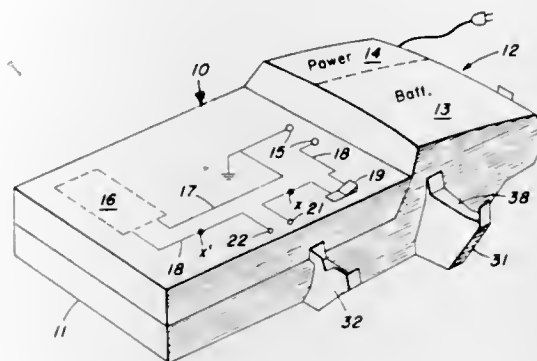
mounted in the block and projecting into the passageway and into the recess for engagement with the portions of the actuator contacts; and the contacts including spring deflecting means for permitting the actuator contacts and the block contacts to pass each other; whereby when the actuator is moved in the passageway, the actuator contacts engage the block contacts thereby to operate a circuit in a programmed period as determined by the length and spacing of the contacts and the rate of travel of the actuator.

3,564,152

DICTATING MACHINE WITH MICROPHONE OPERATED CRADLE SWITCH

Karl F. Kurz, Portland, Oreg., assignor to GAF Corporation
Filed Jan. 29, 1968, Ser. No. 701,180
Int. Cl. G11b 15/18, 19/20; H04r 33/06
U.S. Cl. 179-100.1

2 Claims



The invention relates to a combined dictation machine and detachable microphone cradle. The bottom of the dictation machine has a pair of sockets, one being electrically connected to the power circuit and the other being closed by a leaf switch element completing the circuit. The microphone cradle includes a pair of projecting pins connected to a microphone-operated normally closed switch. Upon insertion of the pins of the microphone cradle into the sockets of the dictation machine the leaf switch breaks the power circuit within the dictation machine and completes the circuit through the normally closed switch in the cradle so that control over the power circuit of the dictation machine is transferred to the microphone-operated cradle switch.

3,564,153

MAGNETIC TRANSDUCER WITH OPPOSITELY ORIENTED HEADS AND TWO CORE HOLDERS

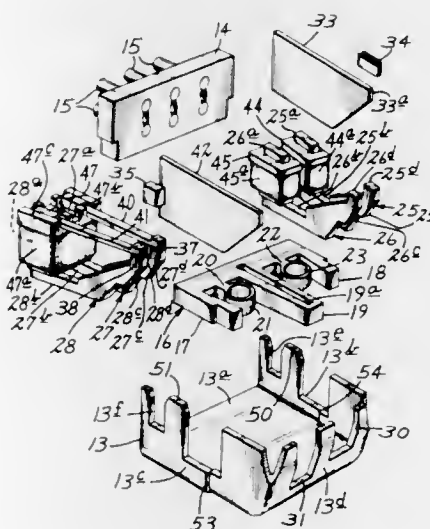
Leonard E. Kronfeld, 5200 Circle Downs, Minneapolis, Minn. 55416

Filed Oct. 9, 1968, Ser. No. 766,148

Int. Cl. G11b 5/26, 5/28, 21/16

U.S. Cl. 179-100.2

15 Claims



A magnetic transducer having two oppositely oriented, spaced stereo heads, each head having a pair of magnetic cir-

cuits capable of alternatively erasing and recording or playing back signals on a magnetic tape. Each circuit includes a pair of oppositely disposed generally U-shaped core pieces and a common center leg core piece. Erase and recording gaps are provided for each circuit between the core tips of the U-shaped core pieces and the top portion of the center leg core piece. The four recording gaps for the transducer all lie in a single plane extending transversely through both heads. The center leg core piece for one stereo head thus lie on one side of the plane while the center leg core pieces for the other stereo head lie on the other side of the plane. The transducer is split along the plane with all structure on one side thereof mounted in a first core holder and all structure on the other side thereof mounted in a second core holder. The two core holders and the structures carried by each are thus identical.

3,564,154

CATHODE RAY TUBE MAGNETIC REPRODUCER FOR VIDEO

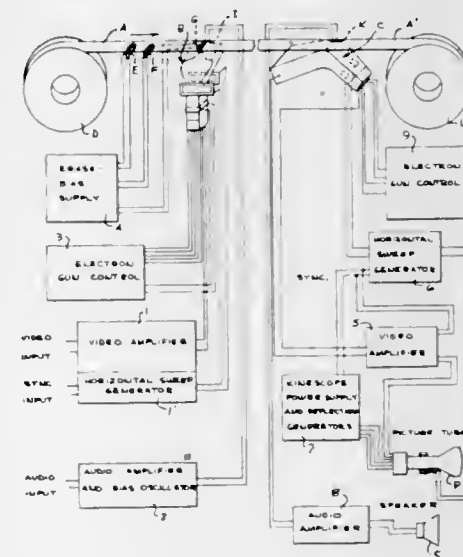
Marvin Camras, Glencoe, Ill., assignor to IIT Research Institute, Chicago, Ill.

Original application Aug. 10, 1959, Ser. No. 832,848, now Patent No. 3,133,150, dated May 12, 1964, which is a division of Ser. No. 281,939, dated Apr. 11, 1952, now Patent No. 2,900,443, dated Aug. 18, 1959. Divided and this application Mar. 9, 1964, Ser. No. 350,514

Int. Cl. G11b 5/32; H04n 1/24; H01j 31/04

U.S. Cl. 179-100.2

23 Claims



An electron beam head for reproducing magnetically recorded video signals wherein magnetic fields from the record medium are channeled to the interior of the envelope to deflect the primary electrons transversely to the scanning direction of the beam. In one embodiment, the sensing electrodes are at opposite sides of the magnetic field region at an end wall of the envelope, while in another embodiment the primary electron beam passes through the openings in a grid of magnetic wires so as to interact with the magnetic fields therebetween, electrostatic deflecting means serving to deflect the electron beam through a substantial angle as it leaves the grid so as to impinge on sensing electrodes remote from the grid. In a third embodiment, secondary electrons are conducted into a branch tube extending from the main envelope and a single electrode senses the degree of deflection of the secondary electrons by the magnetic fields permeating the secondary emission region.

3,564,155

PNEUMATICALLY OPERATED WRITE LOCKOUT MEANS FOR MAGNETIC RECORDER

Robert A. Pendleton, Dedham, Mass., assignor to Honeywell Inc.

Original application Mar. 10, 1960, Ser. No. 14,091, now Patent No. 3,145,944, dated Aug. 25, 1964. Divided and this application Mar. 9, 1964, Ser. No. 354,814

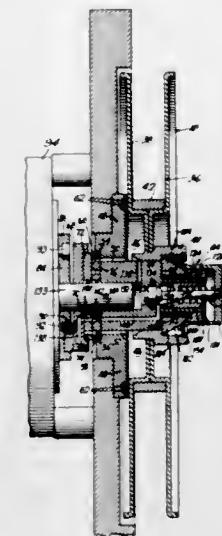
Int. Cl. G11b 15/04

U.S. Cl. 179-100.2

10 Claims

Write lockout protection for a magnetic record is provided

by having a lockout device removably carried with the record so as to engage, when the record is operatively installed on the recording transport, an actuating element that operates a



pneumatic valve to activate pneumatically the write disabling circuit. The pneumatic valve serves a dual function of controlling pneumatic clamping of the record to the transport.

3,564,156

PROCESS FOR THE PRODUCTION OF MAGNETIC TAPES WHICH CANNOT BE ERASED

Joachim Greiner, Wolfgang Eichler, Wilhelm Abeck, Leverkusen, and Erich Muller, Bergisch-Neukirchen, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

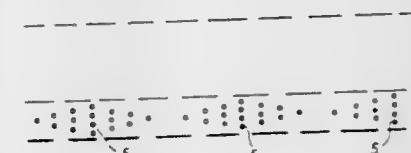
Filed July 20, 1967, Ser. No. 654,877

Claims priority, application Germany, July 29, 1966, A53128

Int. Cl. G11b 5/86

U.S. Cl. 179-100.2

6 Claims



Nonerasable copy of a magnetic recording is made by applying to the recording movable magnetizable particles to cause them to be attracted by and arranged in accordance with the stray fields of the recording, then fixing the particles in position with respect to each other, securing the fixed particles to a separate backing and removing the backing with the particles therein from the recording. When the particles are applied a magnetic field can also be impressed to render the magnetizing of the magnetizable particles more ideal, or the particles can be magnetized by cooling down from their Curie point. The application of a unidirectional magnetic field whose lines of force are perpendicular to the surface of the recording will also prevent frequency doubling.

3,564,157

PLAYBACK CHANGE APPARATUS FOR MULTITRACK TAPE RECORDER

Yoshiro Kato and Shigeo Kato, Yokohama, Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Aug. 31, 1967, Ser. No. 664,713

Claims priority, application Japan, Sept. 1, 1966, 41/81972

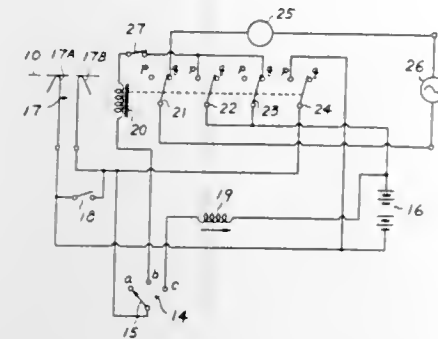
Int. Cl. G11b 15/06, 15/10, 71/08

U.S. Cl. 179-100.2

3 Claims

An operation changing apparatus for a tape recorder using multitrack endless tape comprising a circuit for stopping the run of an endless magnetic tape by opening automatically an electric power circuit of a motor for driving said magnetic tape, a circuit for changing and performing each channel of the magnetic tape in order by shifting a magnetic head, and a

circuit for driving said motor successively by opening said automatic stopping circuit and said automatic channel changing



circuit, wherein any operating state of the tape recorder can be obtained by changing selectively and suitably each said circuit.

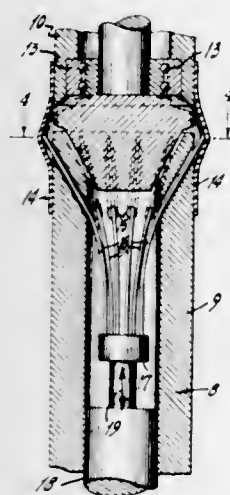
3,564,158 TAPE LIFTER

Charles R. Horton, Beverly, N.J., assignor to RCA Corporation

Filed June 24, 1968, Ser. No. 739,371
Int. Cl. G11b 5/00

U.S. Cl. 179-100.2

8 Claims



A technique is disclosed for separating a web from its supporting member without movement of the supporting member. A number of web-engaging rods are disposed within the supporting member close to the supporting surface traversed by the web. When actuated, the rods protrude from the supporting surface and are interposed between the web and its supporting surface. This causes the web to be lifted or separated from the supporting surface. The amount of separation and its extent along the supporting surface may be determined by the orientation and amount of movement of the web-engaging rods.

3,564,159 MAGNETIC HEAD FOR USE WITH GROOVE-TYPE RECORDING CARRIERS

Berthold Kussner, Berlin, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.h., Ulm, Danube, Germany

Filed Sept. 3, 1968, Ser. No. 756,968
Claims priority, application Germany, Sept. 2, 1967,
P 15 72 527.6

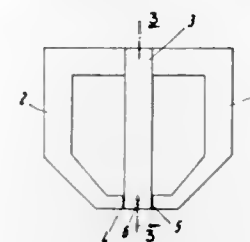
Int. Cl. G11b 5/26, 21/06

U.S. Cl. 179-100.2

7 Claims

A magnetic head for use with a recording device of the type employing a grooved recording carrier and arranged to experience reduced wear by being provided, at its lower end which contacts the recording carrier groove, with a contact element made of a hard material and disposed in a blind hole

formed in the lower end of the head, the lower end of the head being formed so as to be flush with the exposed end of



the contact element and so as to have a width which is approximately equal to the diameter of the contact element.

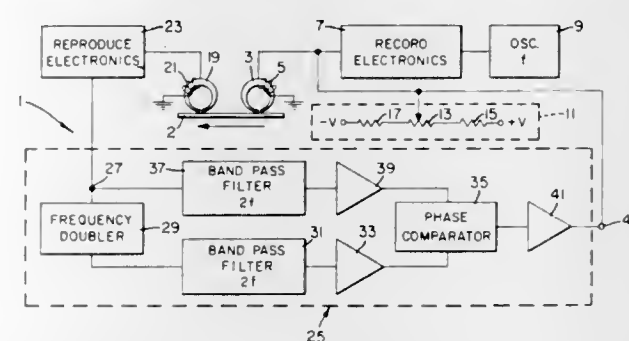
3,564,160 DC BIAS SERVOMETHOD AND APPARATUS FOR MAGNETIC RECORDING HEADS

Gabor C. Temes, Los Altos, and Peter Bajka, Redwood City, Calif., assignors to Ampex Corporation, Redwood City, Calif.

Filed Oct. 11, 1968, Ser. No. 766,749
Int. Cl. G11b 5/02, 5/44

U.S. Cl. 179-100.2

10 Claims



Method and apparatus for servoing the DC bias on magnetic heads of magnetic tape recorders. A signal of selected frequency is recorded and immediately reproduced. The reproduce signal is processed to develop an error signal representative of the distortion of the reproduce signal. A signal representative of the error signal is fed to the record head to control the DC bias.

3,564,161 CUE SIGNAL RECORDING AND REPRODUCING SYSTEM FOR MAGNETIC RECORDING AND REPRODUCING APPARATUS

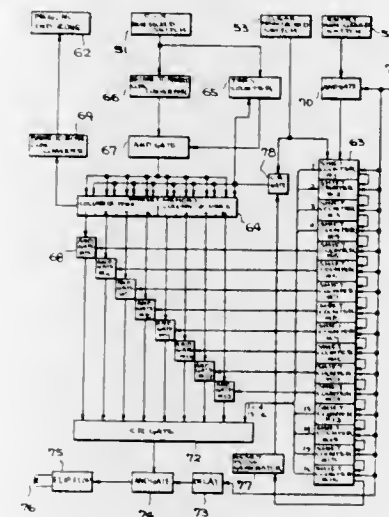
Hidehori Takishima, Sagami, Japan, assignor to Victor Company of Japan Limited, Yokohama, Japan

Filed Dec. 11, 1968, Ser. No. 782,806

Claims priority, application Japan, Dec. 14, 1967, 42/79763
Int. Cl. H04n 5/78; G11b 15/20

U.S. Cl. 179-100.2

6 Claims



This is a cue signal system for a video magnetic recording and reproducing apparatus. The cue signals are in the form

of digital codes or pulses synchronized with control signal pulses used for servo control. These pulses are coded to indicate the contents of the cue signals. The cue signals reproduced from the tape are compared with control signal pulses to detect the accurate contents of the reproduced cue signals irrespective of the rate of travel of the magnetic medium.

3,564,162 STEREOPHONIC RECORDING SYSTEMS WITH QUADRATURE PHASE RELATION

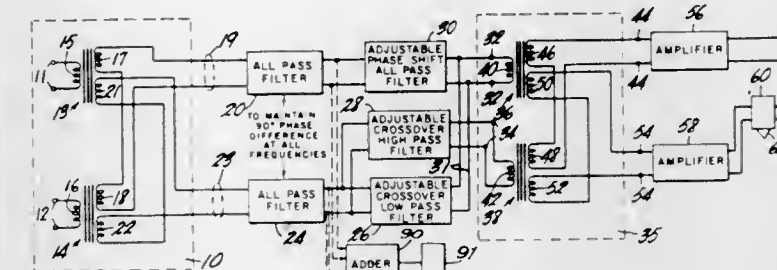
Benjamin B. Bauer, Stamford, Conn., assignor to Columbia Broadcasting System, Inc., New York, N.Y.

Filed Feb. 2, 1968, Ser. No. 702,723

Int. Cl. G11b 3/00; H03f 13/00

U.S. Cl. 179-100.4

14 Claims



Stereophonic disc records are made by recording as vertical record groove modulation a stereophonic difference signal from which low frequency components have been extracted, and as lateral groove modulation a stereophonic sum signal to which the low frequency components extracted from the difference signal have been added, the latter components being maintained in substantially quadrature relation to the corresponding frequency components of the sum signal so as to avoid cancellation.

3,564,163 RIBBON LOUDSPEAKER

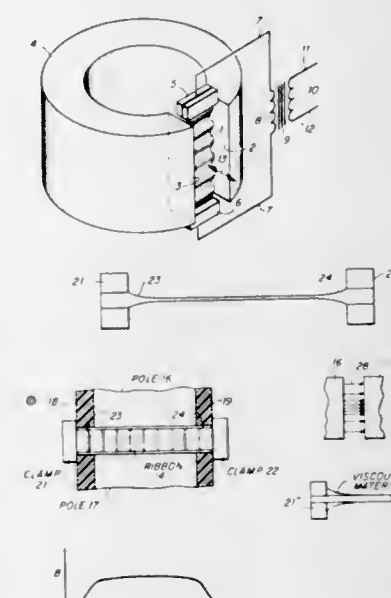
Gilbert L. Hobrough, Woburn, Mass., assignor to Robert L. Wathams, a fractional part interest

Filed Apr. 20, 1967, Ser. No. 632,422

Int. Cl. H04r 9/00

U.S. Cl. 179-115

16 Claims



This disclosure describes a ribbon-type loudspeaker having a ribbon carrying voice currents and being positioned between magnetic poles.

Various means to attenuate or eliminate standing waves on the ribbon are shown.

3,564,164 METHOD FOR CONSTRUCTING TELEPHONE STATIONS USING FLOWABLE, ADHESIVE HARDENING MATERIAL; AND INSTRUMENTS SO BUILT

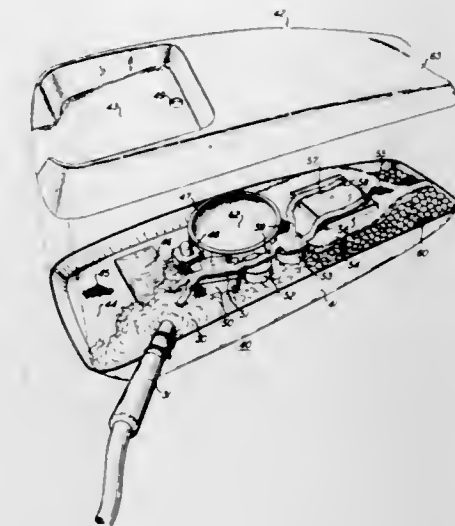
Robert E. Prescott, Rumson, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 25, 1968, Ser. No. 700,521

Int. Cl. H04m 1/02

U.S. Cl. 179-178

3 Claims



The packaging of a telephone handset or base is simplified and assembly costs reduced by using a flowable adhesive hardening substance as an interior fill. The substance, such as polyurethane foam, retains all components in desired position, firmly bonds the mating shells together so that no other fastening is needed, and with the plastic shells forms a composite structure providing the required strength, rigidity, and protection against tampering and mechanical shock.

3,564,165 TROLLEY ENTRY PAN

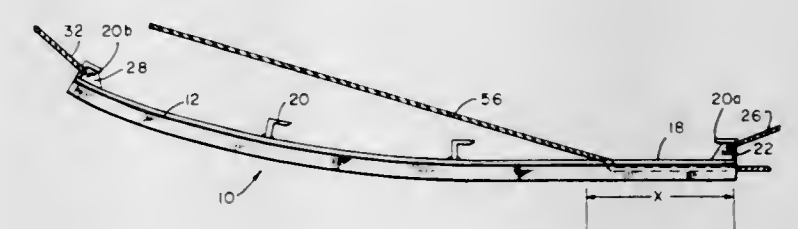
Henry C. Doennecke, Tulsa, Okla., assignor to Unit Rig & Equipment Company, Tulsa, Okla.

Filed Apr. 15, 1968, Ser. No. 721,498

Int. Cl. B60m 1/12

U.S. Cl. 191-35

2 Claims



A trolley entry pan for automatically guiding the trolley poles of an electric powered vehicle, and particularly an electric powered rubber tired off-highway vehicle, into proper alignment with the trolley wires from which the vehicle receives electric power. The entry pan comprises a pair of substantially funnel-shaped channel members disposed in side-by-side relation for receiving a trolley pole in the open larger end of each channel and guiding the respective pole directly onto or into engagement with the respective trolley wire. The trolley poles are brought into engagement with the entry pan device as the vehicle moves in a direction toward the trolley wires. Thus, the pan automatically positions the trolley poles on the respective trolley wire in a manner eliminating manual handling of the poles at the initial stage of the engagement with the trolley wire.

3,564,166

ELECTRICAL LEVER ACTUATED KEY SWITCH WITH IMPROVED CAM POSITIONING MEANS

John Anthony Cartwright, Northampton, England, assignor to Painton & Co. Ltd., Northampton, England

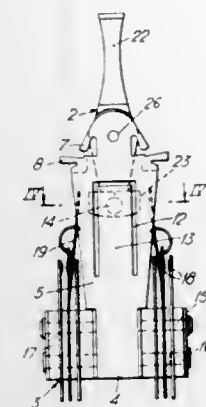
Filed Apr. 22, 1969, Ser. No. 818,351

Claims priority, application Great Britain, Apr. 24, 1968, 19502/68

Int. Cl. H01h 9/00

U.S. Cl. 200-1

14 Claims



A versatile electrical key switch and components for forming the same, comprising a switch body supporting pivotally a switch lever, the lever carrying cam means of any desired shape which are engaged by a resilient member carried by the body and which biases the lever to at least one stable position, this position being dependent upon the cam configuration of the cam means.

3,564,167

SEQUENCE CONTROLLING APPARATUS

Frederick W. Armytage, Foundry Lane, Knottingley, Yorkshire, England

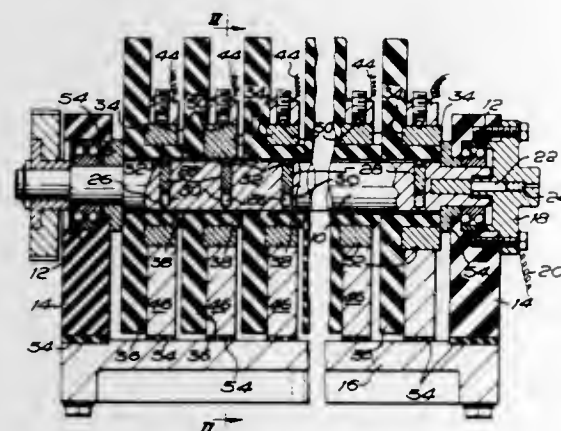
Filed Mar. 27, 1969, Ser. No. 811,034

Claims priority, application Great Britain, Nov. 9, 1968, 53,183/68

Int. Cl. H01h 19/56, 21/76

U.S. Cl. 200-8

7 Claims



In a sequence controller supplying electrical signals in a sequence which can be adjusted, a mechanism comprising: a rotatable electrical conductor shaft connected to an electrical power source; a plurality of individually rotatable handwheels in side-by-side relation on said shaft; a conductor element secured to each handwheel from which a signal is supplied; an electrical signal distributor, associated with and contacting each conductor element, which is carried by said shaft to make contact with the associated conductor element one time for each revolution or partial revolution of the shaft; and friction holding means associated with the handwheels for holding one or more of them in a predetermined angular position.

3,564,168

ROTARY ELECTRICAL CONTACT ASSEMBLY WITH IMPROVED CONTACT COLLECTOR RETAINING MEANS

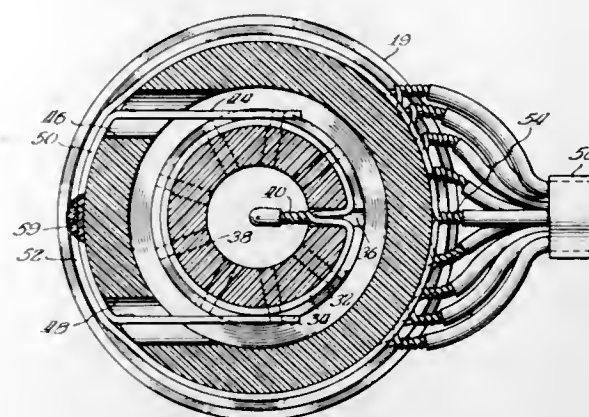
Kenly C. Bigg, Fort Wayne, Ind., assignor to Kendrick Manufacturing Company, Fort Wayne, Ind.

Filed June 2, 1969, Ser. No. 829,526

Int. Cl. H01r 39/20

U.S. Cl. 208-8

8 Claims



A rotary electrical contact assembly which includes a cylindrical core member and a housing of electrically insulating material disposed in concentric, rotatable relation to each other, an elongated electrical conductor terminating in a lead wire, which conductor is supported by at least a segment of said core member, and a brush member supported by and extending through an opening in the housing, the conductor and brush member being disposed in coplanar, annular recesses in their respective supporting members, with the brush member being held in place therein by an overlying second conductor which also terminates in a lead wire.

ERRATUM

For Class 200-46 see: Patent No. 3,564,151

3,564,169

STATIC PUNCH CARD READER

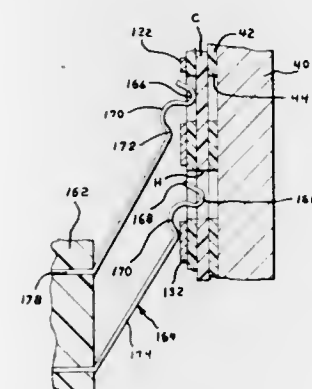
Gilbert Carl Sitz, Harrisburg, Pa., and Bruce Richard McFadden, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed July 17, 1967, Ser. No. 653,892

Int. Cl. G06k 7/04

U.S. Cl. 200-46

13 Claims



A static punchcard reader assembly is disclosed having an array of contact spring members, one for each possible bit position and hole in a data card. An interposed plate is provided to receive the ends of the spring members and to prevent fouling thereof on a card. The assembly includes a mechanism for effecting relative movement between contact spring members and conductive pads disposed in planar array on the interposed plate or, alternatively, on a sheet engaged by portions of the contact members made to project through

card holes. Embodiments are disclosed featuring an assembly effecting contact closure with constant spring deflection in a manner insensitive to card dimensions and particularly card thickness, and an adjustment is provided in one embodiment for causing the contact members to engage fresh surfaces on conductive pads to extend the life of the assembly relative to contact wear. An embodiment is disclosed which features a wiping action under low force loads also to increase wipe.

3,564,170

MULTIPLE SHEET REMOVAL DETECTOR EMPLOYING ELECTRICALLY CONTACTING ROLLERS

Karl Rehm, and Hermann Schwarz, Constance, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt Main, Germany, 0

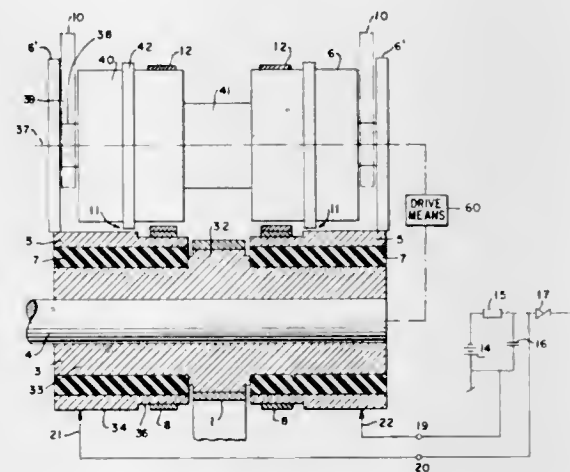
Filed Apr. 24, 1969, Ser. No. 819,036

Claims priority, application Germany, Mar. 22, 1969, P1,914,823

Int. Cl. H01h 3/16

U.S. Cl. 200-61.41

5 Claims



Apparatus for testing sheets to determine if a given thickness has been exceeded includes a fixed roller having a generally cylindrical surface including a sheet-carrying portion and an electrical contact portion, and a movable roller having a similar sheet-carrying portion and an electrical contact portion. The diameters of the electrical contact portions and the sheet-carrying portions are such that in normal operation the electrical contact portions of the two rollers are in contact with each other while the two sheet-carrying portions are spaced by a distance which permits passage of a sheet between them without displacement of the movable roller. In the event that this thickness is exceeded, as for example, would occur if more than one sheet were delivered between the rollers at one time, the movable roller would be moved so that the electrical contact would be broken to trigger an appropriate signal circuit.

3,564,171

REED SWITCH DEVICES

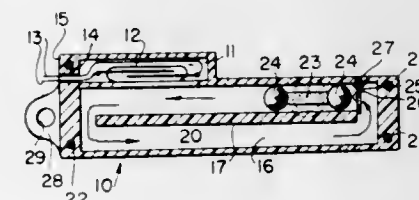
John S. Hammond, 34 Lincoln Ave., Greenwich, Conn. 06830

Filed Oct. 3, 1968, Ser. No. 764,673

Int. Cl. H01h 35/02, 36/00, 36/02

U.S. Cl. 200-61.52

10 Claims



The invention relates to a reed switch device wherein a bar magnet is mounted in such a way that the on-off switch differential is minimized. The device may be used to respond to changes in speed, pressure, temperature, or inclination.

3,564,172

ROCKER ARM SWITCH

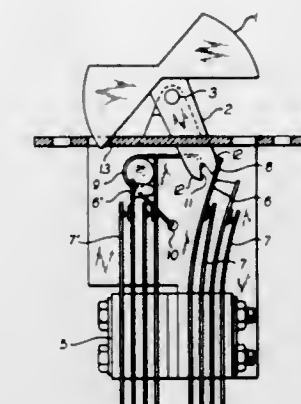
Alfred Laakso, Bayside Hills, N.Y., assignor to Executone Inc.

Filed Dec. 30, 1968, Ser. No. 787,446

Int. Cl. H01h 13/26

U.S. Cl. 200-67

1 Claim



An improved pileup switch assembly wherein a hairpin spring maintains a pileup position for each switch position.

3,564,173

SWITCHING APPARATUS

Marcel Duzea, 125 Rue Garibaldi, 69 Lyon, Geme, France

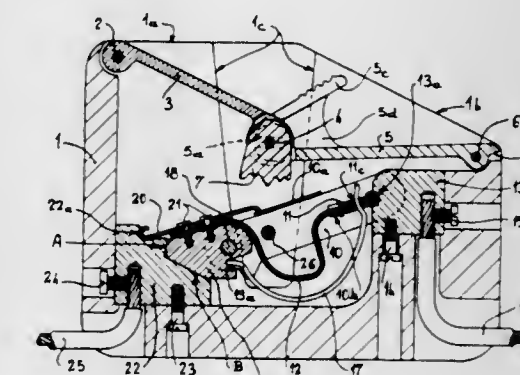
Filed July 23, 1969, Ser. No. 843,960

Claims priority, application France, Aug. 5, 1968, 50,275

Int. Cl. H01h 21/44

U.S. Cl. 200-73

9 Claims



In a switch each pole comprises a movable contact pivoted at the outer end of an arm the inner end of which is pivoted on a fixed block about a fixed pivoting axis, while being longitudinally slidable thereon. A spring urges the movable contact both angularly in the same direction as the direction of the opening angular movement of the arm about its pivoting axis, and radially and outwardly with respect to said axis, angular rotation of the movable contact with respect to the arm under the action of the spring being limited by an abutment. During the closing movement of the arm, cam surfaces act on the arm actuating member to push the said arm inwardly with respect to its pivoting axis against the spring. At the end of this movement the cam surfaces liberate the arm actuating member and the movable contact is thus suddenly applied by the spring against a fixed contact. During the subsequent opening movement of the arm, the cam surfaces are rendered ineffective and the movable contact is momentarily retained by the fixed contact owing to the conformation of the contacting surfaces. It is thus compelled to rotate against the action of the spring until it is fully disengaged from the fixed contact. The movable contact may be equipped with an auxiliary arc rupturing contact which forms a fulcrum for the rotation of the movable contact.

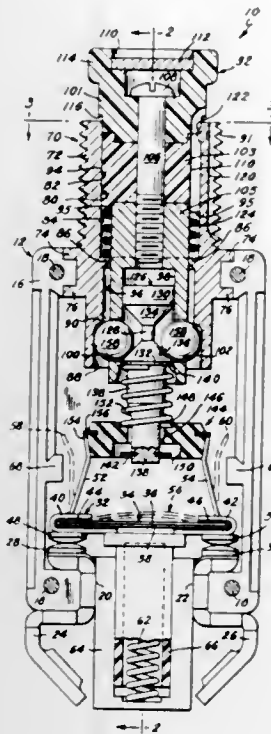
3,564,174 CIRCUIT BREAKER

David E. Clarke, Bristol, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 6, 1969, Ser. No. 847,854
Int. Cl. H01h 15/18

U.S. Cl. 200—77

4 Claims



A circuit breaker comprises a casing, a pair of contacts mounted on the casing, and a member movable between a position bridging said contacts for closing a circuit and a position opening said circuit. The bridging member is adapted to flex to a selected extent in response to a selected current in the circuit and a pair of upstanding arms on the bridging member are adapted to move apart to a selected extent in response to such flexing of the member. First biasing means mounted in the casing bias the bridging member to its open circuit position. A bushing having a central bore is then mounted on the casing, the bore having first and second diameter portions connected by a shoulder within the bore which faces the bridging member. An operating member is slidable in this bore between open and closed circuit positions thereof, the operating member having a recess at one end facing the bridging member and having at least one peripheral aperture opening into the recess. Second biasing means engage the operating member and the bushing for biasing the operating member to its open circuit position. A first latching member has a cam portion slidable in the operating member recess and has a shank portion extending from the recess. A second latching member is slidably mounted on this shank portion of the first latching member; a latching ball is disposed within the aperture opening into the operating member recess and engages the cam portion of the first latching member therein; and a third biasing means engaging the first and second latching members biases the cam portion of the first latching member away from the second latching member. The second latching member normally engages the arms of the bridging member for holding the bridging member in its closed circuit position and for biasing the cam portion of the first latching member to cam the latching ball through the operating member aperture into engagement with the shoulder in the bushing bore to releasably hold the operating member in its closed circuit position. However, the second latching member is adapted to be released from its engagement with the bridging member arms in response to said movement of the arms, thereby to release the cammed engagement of the latching ball with the shoulder within the bushing bore and to permit the operating member and the bridging member to move their open circuit positions in response to said biasing means. Manual force moving the operating member toward its open circuit position also serves to apply a force to the latching ball engaged by the bushing shoulder for camming the cam portion of the

first latching member toward the second latching member against the bias of the third biasing means, thereby to permit the latching ball to disengage the bushing shoulder and to permit the operating member and the bridging member to move to their open circuit positions in response to the first and second biasing means.

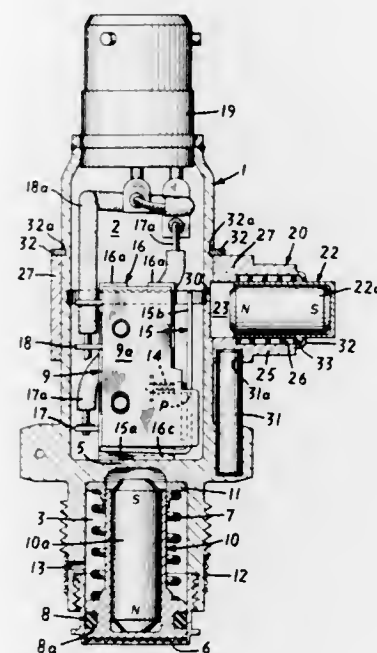
3,564,175 MAGNETIC DIFFERENTIAL PRESSURE-RESPONSIVE MEANS

Roydon B. Cooper, Locust Valley, N.Y., assignor to Pall Corporation, Glen Cove, N.Y.

Filed Apr. 1, 1969, Ser. No. 812,166
Int. Cl. H01h 35/38

U.S. Cl. 200—82

25 Claims



A magnetic pressure-responsive switch is provided, having a magnetic piston that is movable toward and away from a partition in a housing in response to a predetermined pressure differential between two passages. An electrical switch positioned on the other side of a partition from the piston has a pivoted generally L-shaped magnetic lever arm. When the magnetic piston moves into actuating position the lever arm is correspondingly moved into a second position to operate the switch.

3,564,176 MAGNETIC ELECTRIC ARCING EXTINCTION DEVICE

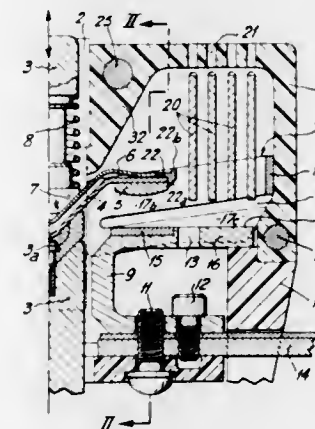
Louis J. M. Fechant, Chatou, Yvelines, France, assignor to La Telemecanique Electrique, Haute de Seine, France

Filed Aug. 23, 1968, Ser. No. 754,818

U.S. Cl. 200—144

Int. Cl. H01h 9/34

10 Claims



An arc extinction device has a U-shaped magnetic member formed of flat strip folded about lines parallel to the width of

the strip, and each limb is slotted along its length to provide the inner chamber with the outer chamber and allowing the second limb portions reversely directed towards the base of insulating or extinguishing gas to rush past the contacts and the U without meeting the latter.

3,564,177 DUAL GAS-BLAST CIRCUIT INTERRUPTER IN WHICH ONE OF TWO EXHAUST VALVES OPERATES AUTOMATICALLY

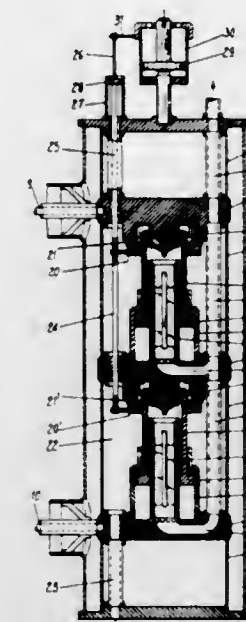
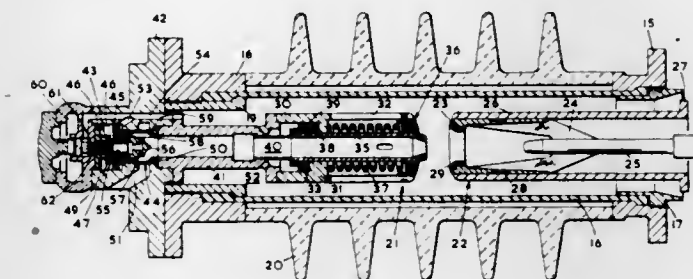
John Robert Brit and Rudolph Valentini, Stafford, England, assignors to The English Electric Company Limited, London, England

Filed July 23, 1968, Ser. No. 746,901
Claims priority, application Great Britain, Aug. 18, 1967, 38289/67

U.S. Cl. 200—148

Int. Cl. H01h 33/80

6 Claims



axially through at least one of them for extinguishing the arc produced by opening of the contacts.

A gas-blast interrupter unit has a hollow fixed contact and a hollow movable contact which, when engaged with the fixed contact provides a continuous passage. An exhaust valve is associated with the movable contact. A further exhaust valve is associated with the fixed contact and arranged to be opened automatically as a result of a reduction of pressure which occurs in the continuous passage when the other exhaust valve is opened. Thus, when the contacts begin to open, pressurized gas blasts through both the fixed and movable contacts and through their respective exhaust valves. A delay chamber is operable to restore the further exhaust valve to its closed position automatically after a predetermined time interval sufficient for arc extinction to take place.

3,564,178 CIRCUIT-BREAKER WITH PRESSURE BALANCED RELATIVELY MOVABLE CONTACTS

Rintje Boersma, Harmelen, and Gijsbert W. Irik, Bilthoven, Netherlands, assignors to N.V. COQ, Utrecht

Filed Apr. 8, 1968, Ser. No. 719,339
Claims priority, application Netherlands, Apr. 13, 1967, 6705204

U.S. Cl. 200—148

Int. Cl. H01h 33/80

9 Claims

A circuit-breaker is provided with relatively movable contacts and an actuating rod is attached to one of the contacts to effect separation of the contacts and opening of the circuit-breaker. The contact assembly is housed within an outer chamber which is subjected to insulating gas under high pressure and the contact assembly forms an inner chamber which, when the contacts are closed, is isolated from the outer chamber and which is vented to a pressure lower than the pressure in the outer chamber. A small net force acts on the movable contact to which the actuating rod is attached to maintain the contacts in closed condition. When the contacts are closed, the pressure differential existing between the outer and inner chambers is used in substantially balancing fashion and additional means is provided for cooperating with this differential pressure effect to establish the small net force serving to maintain the contacts in closed condition. When the contacts are open the pressure differential disappears and full pressure balance is effected so that both upon initial opening and continued opening movement as effected by the actuating rod, the actuating rod is subjected to very little mechanical stress. The opening of the contacts opens a valve formed between separable contacts and communicating

Metal clad gas blast circuit breaker which is exclusively adapted to interrupt a circuit, the switching element thereof being accommodated in a metal casing containing high-pressure and low-pressure compartments filled with insulating gas under overpressure, said circuit breaker comprising a safety valve and means to control said valve in such a manner, that the overpressures in said compartment can never fall below predetermined values.

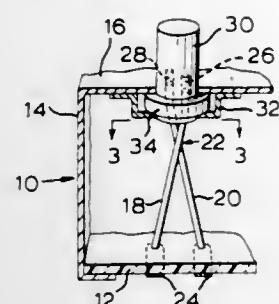
3,564,180

**RESILIENT CONTACTS FOR ROTARY SWITCH
HAVING AN INTERMEDIATE POSITION OF UNSTABLE
EQUILIBRIUM**

Frits L. Lyvang, Wallenstein, Ontario, Canada, assignor to
Electrohome Limited, Kitchener, Ontario, Canada
Filed Sept. 3, 1968, Ser. No. 756,793
Int. Cl. H01h 19/28, 19/14, 19/32

U.S. Cl. 200—155

9 Claims



A switch includes a base member with first and second switch contact elements secured thereto and projecting therefrom. At least one of the elements is movable from a first position in which the elements are disengaged to a second position in which they are engaged. In both positions the elements cross each other when viewed from one angle but are on opposite sides of each other in the two different positions. At least the movable contact element is resilient and passes through a position of unstable equilibrium when moved between the two positions. When attempting to return to the first position after having been moved therefrom through the intermediate position, the movable contact element engages the other contact element.

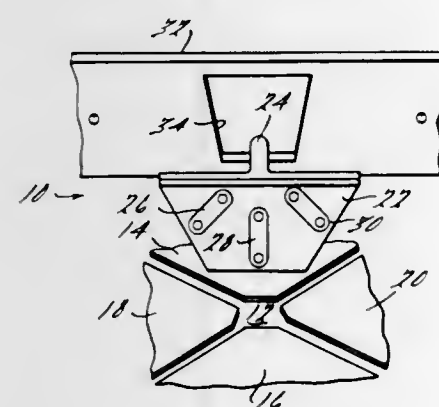
3,564,181

**SINGLE PLANE ELECTRIC REVERSING SWITCH FOR
MOTOR OPERATION CONTROL**

William W. Chirota, Dearborn; Carl G. Rigge, Dearborn Heights, and Thomas Shewchuck, Dearborn, Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Apr. 15, 1969, Ser. No. 816,253
Int. Cl. H01h 1/36

U.S. Cl. 200—164

2 Claims



An electric switch having a substantially planar configuration and adapted to interconnect a current source and a reversible electric motor for multidirectional motor operation and to electrically connect the motor for dynamic braking upon the cessation of current flow to the motor. Flat conductors connected to the current source and motor converge upon and are uniquely arranged about a point on a circuit board. Plural conductive bridging elements mounted on a manually movable switch actuator are movable to plural switch positions in intimate contact with the conductors to effect desired electrical interconnection of the conductors.

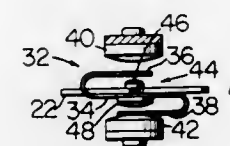
3,564,182

**SNAP SWITCH HAVING S-SHAPED SPRING LEAF ON
THE MOVABLE SWITCH BLADE THEREOF**

John W. Habecker, Grove City, Ohio, assignor to Robertshaw Controls Company, Richmond, Va.
Filed Apr. 10, 1968, Ser. No. 720,039
Int. Cl. H01h 1/12

U.S. Cl. 200—166

2 Claims



This application discloses a switch mechanism and method in which an S-shaped spring leaf is secured to the movable blade end of a snap blade of a switch construction. The spring leaf is originally straight and is secured to the blade end in straight condition and then is bent into an S shape. The S-shaped spring has reversely bent ends on opposite sides of a central leaf portion that is attached to the blade end by means of movable contact heads. The reversely bent leaf ends engage stationary contacts on opposite sides of said reversely bent ends and on opposite sides of the movable blade end. The leaf ends maintain contact with the respective stationary contact and the respective movable contact head during vibration or chatter until the snap over of the blade occurs. Contact bounce after snap over is also dampened by the other reversely bent leaf spring end, when it engages the other stationary contact. The blade may be a snap blade, with a C-shaped spring, and may be actuated by a plunger. The entire switch construction may be contained within a switch casing.

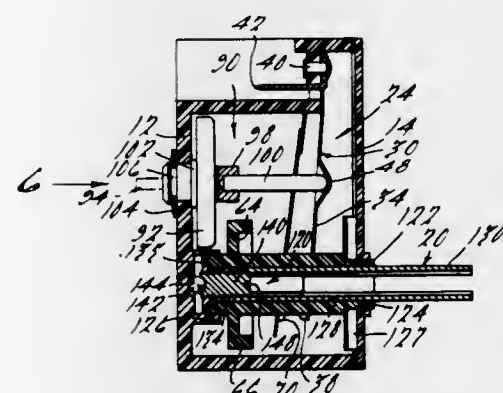
3,564,183

THERMOSTAT ADJUSTING MEANS

Robert W. Eshelman, Ann Arbor, Mich., assignor to King-Seeley Thermos Co., Ann Arbor, Mich.
Filed Nov. 21, 1968, Ser. No. 777,831
Int. Cl. H01h 1/34

U.S. Cl. 200—166

8 Claims



A switch assembly having a pair of mateable contacts for controlling a heater in response to a sensed temperature condition wherein the relationship of the contacts is preset by means of a cam member to select the operating temperature at which the contacts will open or close. The calibration of the switch is effected by means of a calibrating screw threadedly received in a bore formed in the cam member.

3,564,184

ELECTRIC CIRCUIT BREAKER

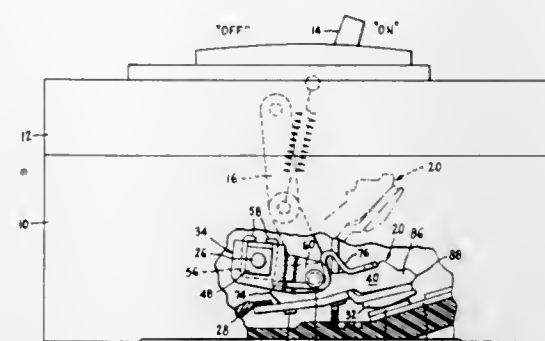
George E. Gauthier, Plainville, and Keith W. Klein, Simsbury, Conn., assignors to General Electric Company
Filed Jan. 27, 1969, Ser. No. 794,289
Int. Cl. H01h 1/02

U.S. Cl. 200—166

10 Claims

A movable contact-supporting arm comprising a relatively high conductivity low strength flat plate portion disposed

with its major planar surface generally at right angles to the direction of movement of the contact arm and a relatively low conductivity high strength backing plate having its major planar surface disposed generally parallel to the direction of



movement of said contact arm to form a generally T-shaped cross-sectional configuration, and a contact member mounted on the front surface of the high conductivity plate portion by suitable means, such as by welding.

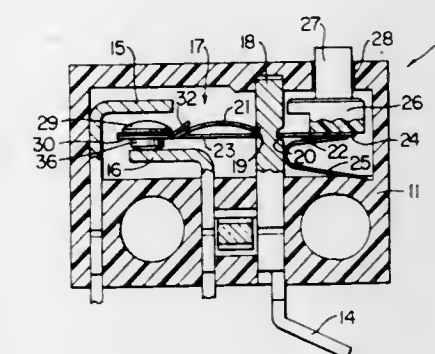
3,564,185

ELECTRICAL SWITCH CONSTRUCTION WITH SHIELD

Werner R. Bauer, Radnor, Pa., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Feb. 24, 1969, Ser. No. 801,488
Int. Cl. H01h 9/30

U.S. Cl. 200—166

10 Claims U.S. Cl. 219—10.55



An electrical switch construction having a movable switch blade carrying an electrical contact means to be moved into and out of electrical contact with another contact means of the switch construction so as to be adapted to make and break an electrical circuit, a shield being carried by the movable blade to prevent an electrical arc from impinging against a flexure point of the blade as the blade moves the contact means thereof out of contact with the other contact means to break the electrical circuit.

3,564,186

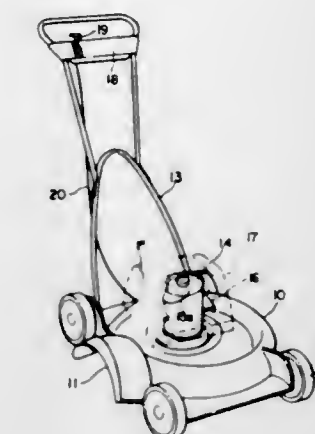
SWITCH CONTROL MECHANISM

Robert A. Mittelstadt, Burnsville, and Heinrich F. Tetzlaff, St. Paul, Minn., assignors to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Sept. 4, 1968, Ser. No. 757,388
Int. Cl. H01h 3/02

U.S. Cl. 200—172

15 Claims

A remote control lever for operating the "On-Off" switch of the motor of an electric mower. The lever is mounted on the handle and manipulated by the operator while standing behind the handle. The lever travels in parallel offset tracks



forcibly moved from one slot to the other in order to reach the "On" position.

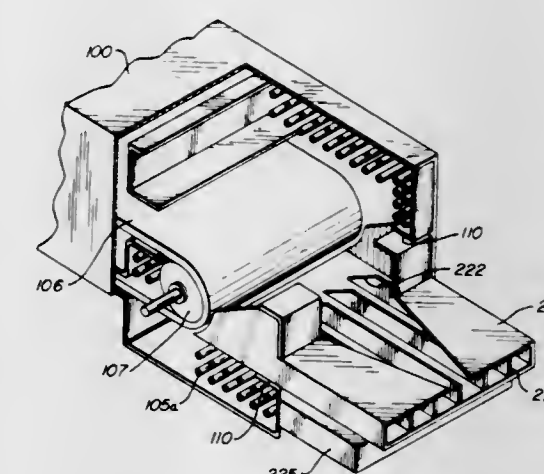
3,564,187

MICROWAVE OVEN

Franklin J. Smith, Diablo, Calif., assignor to Cryodry Corporation, San Ramon, Calif., a corporation of California
Filed Jan. 15, 1969, Ser. No. 791,445
Int. Cl. H05b 9/06, 5/00

U.S. Cl. 219—10.55

7 Claims



A continuous process microwave oven especially adapted for heating bulky low-density materials in which relatively high-speed input and output vibratory conveyors are provided.

3,564,188

**ELECTRIC DISCHARGE METHOD OF CUTTING
SUSPENDED METAL WORK PIECES**

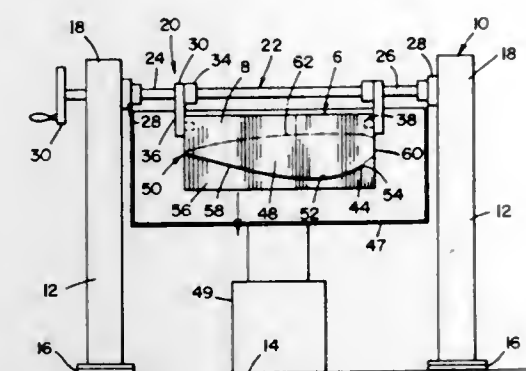
Robert P. Dathe, Lafayette, Calif., assignor to Hexcel Corporation, Dublin, Calif.
Filed May 7, 1969, Ser. No. 822,582
Int. Cl. B23b 1/08; B23d 23/02

U.S. Cl. 219—69

8 Claims

A method for cutting workpieces with electric discharges between the workpiece and a cutting wire being passed

therethrough. The workpiece is suspended from above so operative cutting surface of the tool follows an identical trajectory to progressively engage points on the operative surface of the tool with the workpiece. The relative forming movement is continued until the workpiece is formed to provide the desired complex surface. An electrolyte can be in-



that severed portions of the workpiece are gravitationally biased away from the suspended portion of the workpiece.

3,564,189

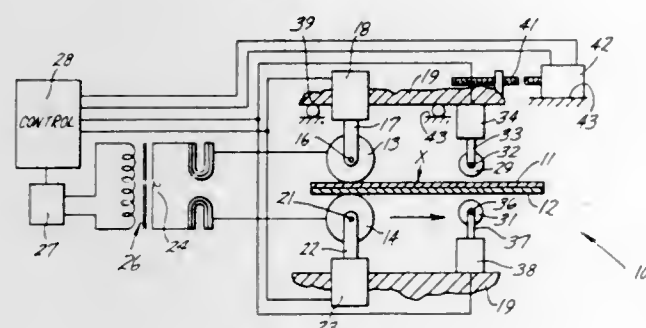
STRESS RELIEVING FEATURE ON STRIP WELDERS
Ellsworth E. Rhodes, Bangor Township, Bay County, Mich.,
assignor to Newcor, Inc., Bay City, Mich.

Filed Oct. 4, 1968, Ser. No. 765,154

Int. Cl. B23k 11/06, 31/06

U.S. Cl. 219-83

11 Claims



A method of seam welding wherein, first, portions of work parts are contacted by roller-welding electrodes which make a first pass to form a welded joint and, subsequently, roller electrodes, normally the welding electrodes, make a second pass over the welded joint at a controlled rate and at a reduced heat in order to heat the welded joint to within a predetermined temperature range below fusion temperature to stress relieve the welded joint prior to, or after, planishing thereof.

3,564,190

METHOD OF MACHINING COMPLICATED SURFACES
Sergo Gevorkovich Kandajan, Konstantin Agasievich Mndzhojan, Eduard Petrosovich Gevorkjan, Erevan, Anatoly Izrailevich Aronov, Arkady Timofeevich Kravets, Alexandr Shmilovich Opolinsky, and Petr Eymenovich Korochkin, Moscow, U.S.S.R., assignors to Experimentalny Nauchno-Issledovatel'skiy Institut Metallorazhishchikh Stankov, Moscow, U.S.S.R.

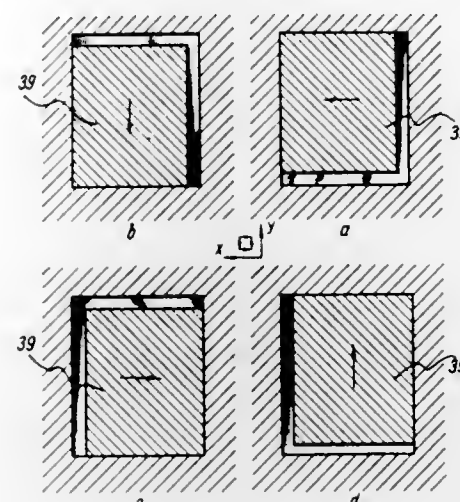
Filed Sept. 25, 1963, Ser. No. 311,383

Int. Cl. B23p 1/04, 1/08, 1/12

U.S. Cl. 219-69

10 Claims

The formation of a complex surface on a workpiece in which a workpiece and a tool having a contour providing an operative cutting surface substantially complementary to the desired surface to be formed are supported in overlapping relationship and the tool and workpiece are subjected to a relative translational forming movement along a closed trajectory line in a plane perpendicular to the direction of feeding movement so that any point on the operative cutting surface of the tool follows an identical trajectory to progressively engage points on the operative movement along a closed trajectory line in a plane perpendicular to the direction of feeding movement so that any point on the



3,564,191

DEVICE FOR RESISTANCE PERCUSSIVE WELDING COMPRISING MEANS FOR SEPARATING TWO WORKPIECES AND THEN CONTACTING THEM AGAIN
Anne Evert Elzer, and Johan N. Dommering, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 31, 1966, Ser. No. 590,620

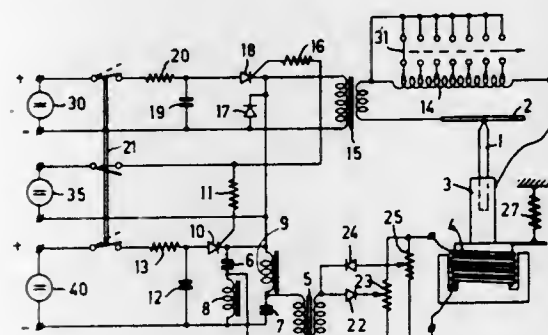
Claims priority, application Netherlands, Nov. 10, 1965,

6514652

Int. Cl. B23k 9/22

U.S. Cl. 219-95

10 Claims



A resistance percussive welding device utilizes an electromagnet for separating the workpieces and subsequently bringing them back into contact. The electromagnet is supplied with a current that first flows in one direction and then in the opposite direction during the welding period.

3,564,192

SOLID-STATE SWITCHING-CIRCUIT FOR CAPACITOR DISCHARGE STUD WELDING

Charles C. Pease, Pennsauken, and Lawrence P. English, Haddon Heights, N.J., assignors to Omark Industries, Inc., Portland, Oreg.

Continuation-in-part of application Ser. No. 279,986, May 13, 1966, now abandoned. This application Apr. 30, 1968, Ser. No. 725,324

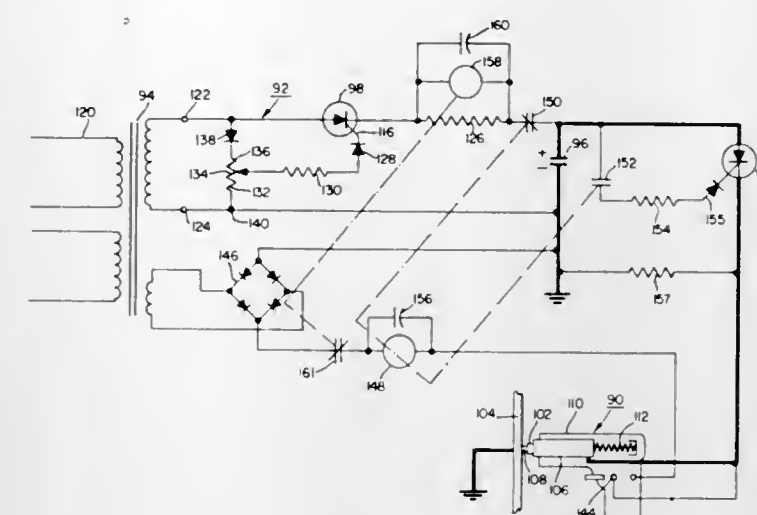
Int. Cl. B23k 9/20

U.S. Cl. 219-098

5 Claims

Welding apparatus including a welding gun for holding a stud to be welded to a workpiece and a source of welding

energy including a capacitor together with current control means for discharging the capacitor across the stud and workpiece to effect the weld where the current control means includes a gating rectifier between the capacitive



power supply and the stud and workpiece and a bleed resistor across the capacitive power supply and a cathode of the gating rectifier and parallel to the stud and workpiece to control dV/dt between the anode and cathode of the gating rectifier.

3,564,193

DIRECT CURRENT WELDING SYSTEM HAVING MINIMUM INDUCTANCE

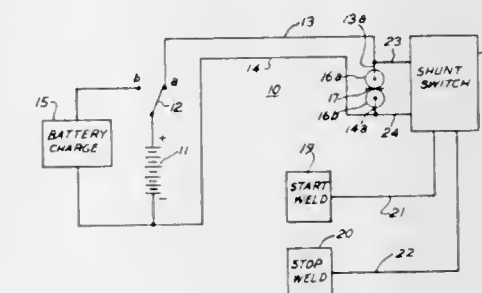
Paul M. Erlandson, Palos Park, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Mar. 28, 1968, Ser. No. 716,855

Int. Cl. B23k 11/26

U.S. Cl. 219-108

7 Claims



3,564,194

TEMPERATURE-COMPENSATING STUD-WELDING POWER SUPPLY

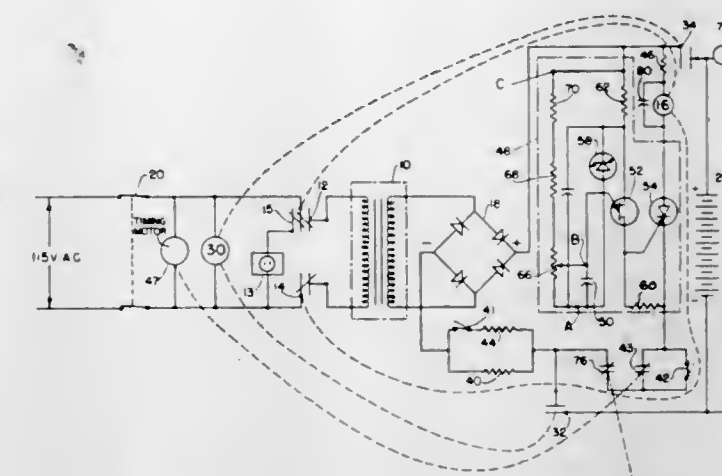
Charles C. Pease, Pennsauken, N.J., assignor to Omark Industries, Inc., Portland, Oreg.
Continuation of application Ser. No. 427,206, Jan. 8, 1965, now abandoned. This application June 26, 1968, Ser. No. 751,333

Int. Cl. B23k 11/26

U.S. Cl. 219-108

4 Claims

A temperature-compensating circuit which employs a voltage divider across a battery to be charged which has a thermistor in one leg thereof and a capacitor across the opposite leg thereof. The capacitor, on reaching a predetermined charge, supplies a gating pulse through a unijunction transistor to a silicon controlled rectifier which operates a



for recharging of the battery following partial discharge thereof. A capacitor in parallel with the relay maintains the relay energized a predetermined time to prevent recharging of the battery until the welding cycle is completed.

3,564,195

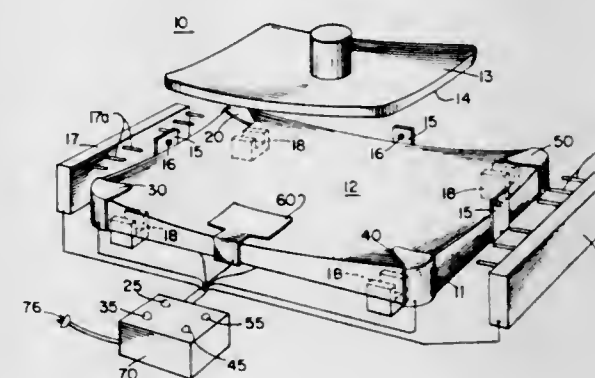
MASK-TO-FRAME WELDING INDICATOR
Robert Ploog, Park Ridge, Ill., assignor to Admiral Corporation, Chicago, Ill.

Filed Nov. 5, 1968, Ser. No. 773,434

Int. Cl. B23k 9/10

U.S. Cl. 219-109

10 Claims



A mask-to-frame assembly apparatus for use in the manufacture of color television picture tubes, includes a curvilinear surface, having a plurality of electrical contacts disposed thereabout. A corresponding plurality of lamps coupled, respectively, between the shadow mask and the electrical contacts, are illuminated when the mask is properly engaged with the surface. The assembly apparatus further includes an electrical interlock, coupled to the lamps which permits energization of the mask-to-frame welding apparatus when the shadow mask is properly engaged.

3,564,196

MAGNETIC AMPLIFIER WELDING POWER SOURCES
James C. Needham, Saffron Walden, and Albert W. Carter, Stapleford, Cambridge, England, assignors to National Research Development Corporation, London, England, a British corporation

Filed Dec. 17, 1968, Ser. No. 784,377

Claims priority, application Great Britain, Dec. 20, 1967,

57921/67

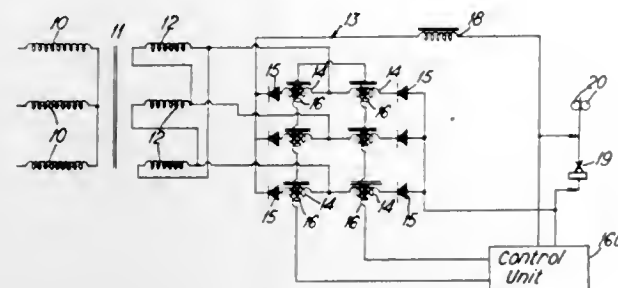
Int. Cl. B23k 9/10

U.S. Cl. 219-135

9 Claims

A power source for arc welding includes a magnetic amplifier, the control winding of which is connected in a control circuit which compares the arc voltage with a standard

reference signal. The amplifier is supplied with an alternating current having a frequency between 200 and 2,000 c.p.s. and



the control winding is overdriven which results in a drooping characteristic power source having a transient response typical of a flat characteristic power source.

3,564,197

WELDING OF REACTIVE METALS

Christoph Bohlen, Untere Hangstr. 14, 5841 Lichtendorf, Germany

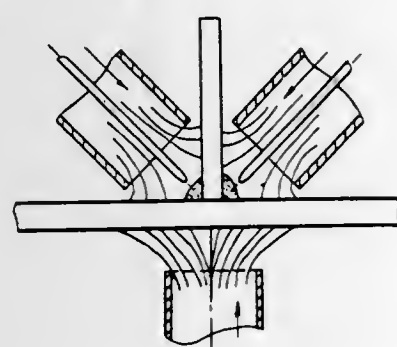
Filed Mar. 21, 1969, Ser. No. 809,147

Claims priority, application Germany, Mar. 21, 1968, 1,765,015

Int. Cl. B23k 9/00

U.S. Cl. 219-137

1 Claim



A method of forming welded seams between two plates or work pieces of titanium by which the weld is made at the juncture of the two plates by a shielded arc welding burner. The heat generated during the welding operation in the quasi-stationary temperature weld is removed by means of fluid forcefully applied against an area of the titanium plates or work pieces on the side opposite to that where the welding is taking place so as not to reach the welding area and thereby to effect cooling to a temperature below the critical range.

3,564,198

HEATING ELEMENT

John Tiverton Watson, Deptford, England, assignor to Molins Machine Company Limited, London, England

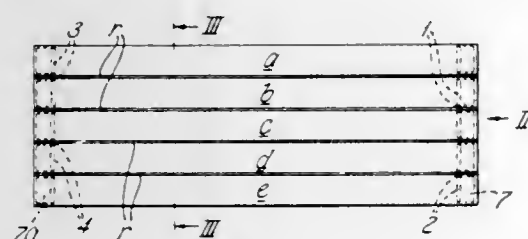
Filed Nov. 15, 1968, Ser. No. 776,104

Claims priority, application Great Britain, Nov. 17, 1967, 52516/67

Int. Cl. H05b 1/00

U.S. Cl. 219-243

9 Claims



A heating element comprises a member of low specific heat material, providing a heating surface flanked by two parallel side flanges and having electric connections at its ends; several such elements may be assembled in parallel

positions to present a continuous heating surface, the electrical connection preferably being a series connection.

3,564,199

SELF-REGULATING ELECTRIC FLUID-SUMP HEATER

Robert F. Blaha, Dedham, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 30, 1968, Ser. No. 787,443

Int. Cl. H05b 1/02

U.S. Cl. 219-311

3 Claims



A self-regulating temperature-controlling semiconductive element having a so-called anomalous positive temperature coefficient (PTC) of resistivity is sandwiched between electrical contacts attached thereto and encapsulated within electrically insulating but thermally conductive material to form an assembly to be placed in heat-exchange relationship with a fluid the temperature of which is to be controlled. In particular, the assembly is immersed in oil within an oil sump of a compressor, internal-combustion engine or the like; or attached to the outside of the casing of such a sump. The anomalous PTC characteristic of the heating element results in maintaining a desired stable and safe fluid temperature. Thus oil may be safely maintained at a temperature to prevent piston clogging mixtures of cold oil and refrigerant such as "Freon" in the case of a compressor, or to thin cold engine oil for easier starting.

3,564,200

ELECTRIC RADIANT HEATING PANEL

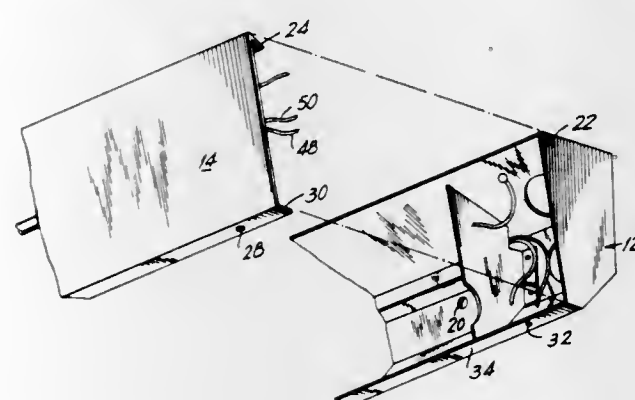
Anthony J. Governale, Manhasset, and Rolf Zurwelle, Port Washington, N.Y., assignors to Elektra Systems, Inc., Farmingdale, N.Y.

Filed Jan. 9, 1969, Ser. No. 790,063

Int. Cl. H05b 3/20; F24d 13/00

U.S. Cl. 219-345

1 Claim



A heating system employing electromagnetic wave energy propagation to produce heat at the point of absorption of the electromagnetic waves. The system includes a radiator having a vitreous coating within which is positioned a heat source. A reflector is positioned rearwardly of the antenna in

proximity of said heat source. The heat source is operable to cause primary electromagnetic wave energy emission from the vitreous coated radiator and the reflector is operable to cause the electromagnetic wave energy emitted by the rearward surface of the antenna to be reflected back upon the antenna to cause enhanced emission therefrom. The emitted electromagnetic waves are absorbed by remotely disposed objects and humans and converted to heat energy.

3,564,201

COMPACT SAUNA UNIT

Robert Haldon Jones and Lennard Edward Nylin, San Jose, Calif., and Tor H. Olssen, Stockholm, Sweden, assignors to Viking Sauna Company, San Jose, Calif.

Original application June 14, 1967, Ser. No. 645,965, now Patent No. 3,452,369. Divided and this application Feb. 4, 1969, Ser. No. 816,442

Int. Cl. F24c 7/00; H05b 1/00

U.S. Cl. 219-367

4 Claims



A compact sauna unit, capable of use by one person alone is provided as a self-contained room having its own floor, ceiling, walls, and door, assembled reasonably snugly while enabling a small amount of leakage of air from outside into the room at the joints between parts and around the door. In the room is a seat to hold a person with his feet spaced well above the floor. A heater unit is contained in the door and comprises a housing defining a plurality of generally vertically extending ducts with air inlets at the lower end and air outlets at the upper end. One duct is an inner duct adjacent the inner surface of the door for keeping the inner surface of the housing cool; an outer duct lies adjacent the outer surface of the door for keeping that outer surface cool; and a central duct is sandwiched between the inner and outer ducts and separated from them by thin metal walls. Electrical rod heating means in said central duct supplies heat; in fact, the sole source of heating for the sauna unit, also serving to provide heat to the inner and outer ducts through the thin metal duct walls, for causing upward movement of cooling air therethrough. There is an air exhaust conduit through the door, vertically above the heater unit, for exhausting a controlled amount of air from the room. Typically, the door has a window spaced above the heater unit, and the exhaust conduit is provided along the upper edge of the window, comprising a horizontal conduit between a vertical inlet passage leading down from an inlet above the horizontal conduit and a vertical outlet passage leading up to an outlet above the horizontal conduit. The vertical inlet and outlet passages are located high, above eye level of tall persons when standing inside or outside the room, and are shielded from view by vertical fascias so as to be not readily observable except from above them.

3,564,202

SPECTACLE FRAME HEATING APPARATUS

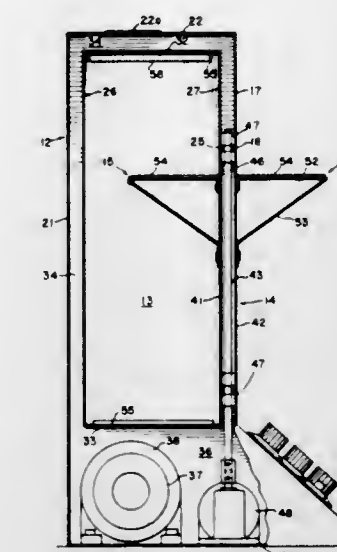
Gerd M. Oppenheim, P.O. Box 6091, San Francisco, Calif.

Filed Apr. 7, 1969, Ser. No. 814,028

Int. Cl. F27d 11/02

U.S. Cl. 219-400

10 Claims



An apparatus for heating plastic spectacle frames to permit the insertion of lenses into the openings provided therefor. The apparatus includes a thermally insulated heating compartment, with a frame supporting element movable to selectively place the frame in the compartment and remove it therefrom. Controls are provided for controlling the heat and exposure period, such controls providing for selective manual or automatic cycling of sequential frames into and out of the heating compartment.

3,564,203

AUTOMATIC TEMPERATURE CONTROL DEVICE FOR ELECTRIC BLANKET

Akisada Naoi, Tokyo, and Masaaki Kubo, Funabashi-shi, Japan, assignors to Hitachi Heating Appliance Co., Ltd., Tokyo, Japan, a corporation of Japan

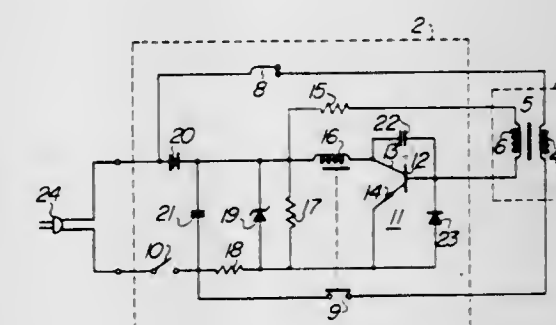
Filed June 4, 1969, Ser. No. 830,380

Claims priority, application Japan, June 5, 1968, 43/38022

Int. Cl. H05b 1/02

U.S. Cl. 219-491

3 Claims



Improvements of the automatic temperature control device in an electric blanket for ordinary household use, removing troubles and high cost caused by employing a delicate relay, premature deterioration of a heat-sensitive layer, inconvenience in reheating after breaking of a switch due to abnormal overheating of a heating wire, etc. by means of an improved automatic control device.

3,564,204

APPARATUS FOR CONTROLLING THE HEATING CURRENT FOR WELDING THERMOPLASTIC SYNTHETICS

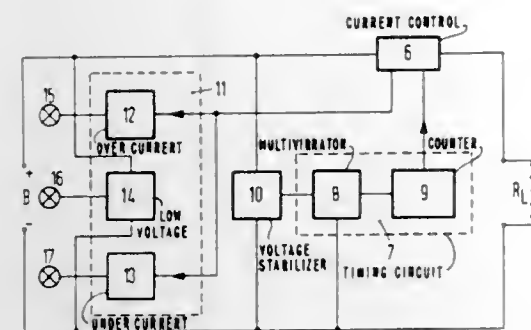
Heinz Mense, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed June 6, 1967, Ser. No. 644,016

Claims priority, application Germany, June 6, 1966, S104204 Int. Cl. H05b 1/02

U.S. Cl. 219-497

14 Claims



An electrical apparatus for controlling the current used for welding parts of thermoplastic synthetics with the aid of heating wire which is placed between the parts to be joined and is heated by the welding current while sufficient joining pressure is applied. The apparatus regulates heating current at a desired value independently of the energizing voltage and independently of the resistance of the interposed heating wire. For this purpose a voltage is taken from a voltage-drop resistor connected in series with the heating wire and employed for lighting a lamp which illuminates a photoresistor. The resulting variation in voltage at the photoresistor is amplified and used for regulating the welding current. This permits giving the voltage-drop resistor in the circuit of the heating wire an extremely small size thus reducing the power losses. The current regulation is preferably effected in accordance with a predetermined heating program which is automatically monitored in dependence upon the ambient temperature sensed by a thermistor.

3,564,205

TEMPERATURE CONTROL CIRCUITS

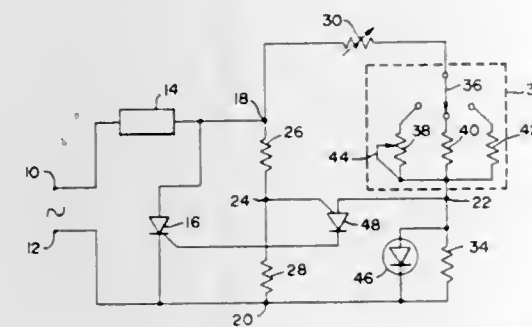
Hugh J. Tyler, Santa Ana, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Nov. 20, 1969, Ser. No. 878,336

Int. Cl. H05b 1/02

U.S. Cl. 219-499

16 Claims



Temperature control circuits including a bridge network having an output controlling a programmable unijunction transistor, a load controlling the heat supplied to an area, an SCR in series with the load and controlled by the programmable unijunction transistor in accordance with temperature sensed by a thermistor in the bridge network, and a unidirectionally conductive limiter diode connected with the bridge network to permit control operation on only the initial portion of positive half cycles of a supply voltage. Modifications of the temperature control circuits include means for increasing temperature differentials to require discrete temperature changes to energize and deenergize the load.

3,564,206

FAIL-SAFE SENSOR/OVERRIDE FOR CIRCUIT

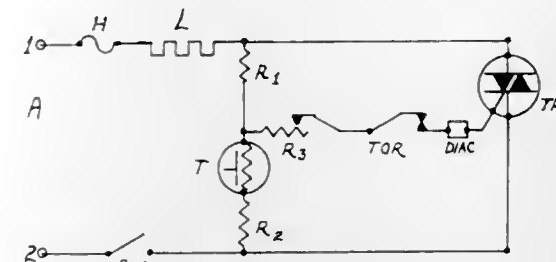
Peter Lauck III, Princeton, N.J., assignor to J. P. Stevens & Co., Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 810,156, Mar. 25, 1969. This application Oct. 14, 1969, Ser. No. 866,355

Int. Cl. H05b 1/02

U.S. Cl. 219-501

5 Claims



A temperature override sensor for a control circuit for a heating device including an electric switch and temperature control means to control and regulate the amount of heat developed by a heating device. The temperature override sensor is so connected in the circuit as to be operable to permit normal temperature control operation of activators for the heating element in a desirable ambient temperature condition, and operable under abnormal blanket and ambient temperature conditions to override the normal operating components and circuitry to shut off completely functioning of the heating element or device. This is accomplished by physically mounting the temperature override sensor on a control or operating actuator for the heating element or device, so that a critical sensing of the temperature of the actuating device is compared with the, for example, voltage divider in receptacle and with the temperature range in which the heating device is utilized, the disparity between the two temperature ranges in the voltage divider means, one critical, one wide, permits the use of the safety override device that will cut off any control, and which further does not interfere with the normal operation of the heating control itself unless an untoward or unsafe condition of room temperature or connection plug temperature exists.

3,564,207

ELECTRIC INFRARED HEATER

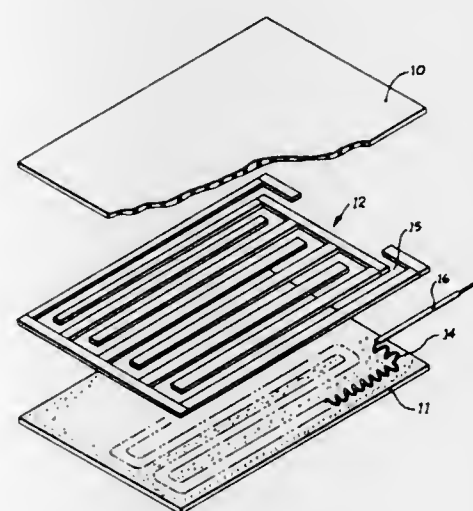
Stanley V. Joeckel, Wayne, N.J., assignor to Infra-Red Systems, Inc., Riverdale, N.J.

Original application Dec. 12, 1966, Ser. No. 600,840. Divided and this application July 24, 1969, Ser. No. 870,867

Int. Cl. H05b 3/28

U.S. Cl. 219-544

1 Claim



An electric heater for emitting infrared radiations having a plurality of insulating elements adhesively sandwiched between a pair of superimposed sheets to form a maze therein with a zigzag passageway, and a continuous infrared radiating element disposed in the passageway with terminals

at both ends thereof. The sheets are composed of fibrous aluminum oxide and silicon dioxide and interstices in the sheets are filled with silicon dioxide particles to provide a good emitter of infrared radiation having an emissivity factor of about 90 percent.

3,564,208

APPARATUS FOR PREVENTING PRINTING AND INDICATING THE SAME IN CALCULATING MACHINES IN CASE THE CAPACITY OF THE CALCULATING MACHINE IS EXCEEDED

Wilhelm Machmer, Moorenbrunn, and Andreas Metschnahl, Nuremberg, Germany, assignors to Diehl, Nuremberg, Germany

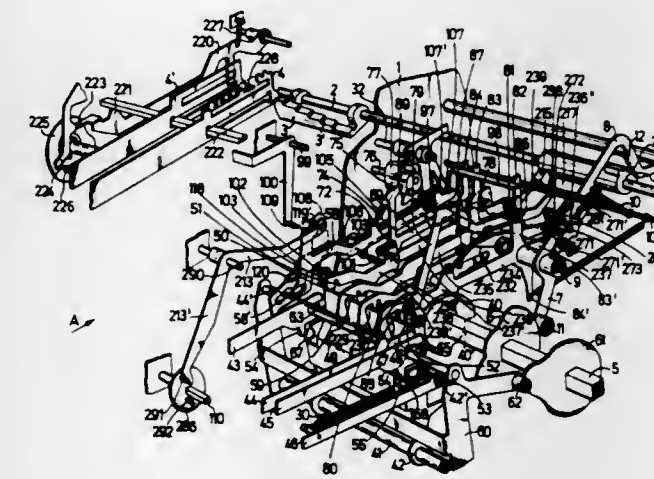
Filed Nov. 24, 1969, Ser. No. 879,458

Claims priority, application Germany, Nov. 22, 1968, Apr. 11, 1969, 1,810,255; 1,918,369

Int. Cl. G06k 15/00; G06c 19/00

U.S. Cl. 235-60.25

21 Claims



The specification discloses an apparatus in a calculating machine for preventing the taking of a result from the machine if the capacity thereof is exceeded. Rotatable digit counting means is felt by feeler member which tilt when a condition of overcapacity of the machine exists. A control member which, when actuated, prevents a result from being taken from the machine is arranged to be actuated by the tilting of any one of the feeler members.

3,564,209

DATA STORAGE AND QUICK RETRIEVAL UNIT

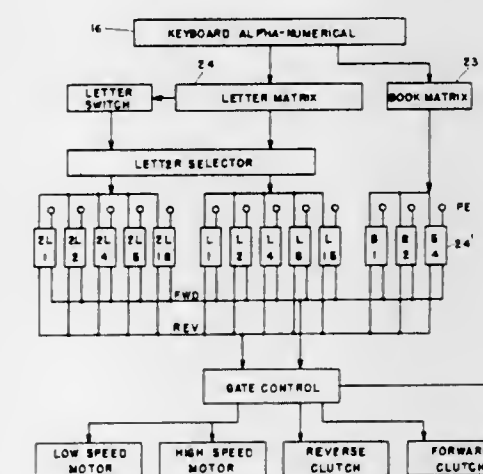
Henry Loughnane, Little Falls, N.J., assignor to Tech Laboratories, Inc.

Filed Dec. 27, 1967, Ser. No. 697,555

Int. Cl. G03b 23/12, 27/52; G06k 17/00

U.S. Cl. 235-61.7

9 Claims



A microfilm retrieval apparatus for information arranged on microfilm in rows of pictures separated by transverse binary coded arrays of light and dark bit areas forming a plurality of code words corresponding to a "book" number and

alphabetical letters. The apparatus has a keyboard with 26 "letter" key switches and a group of numbered "book" key switches. Data is punched into the apparatus in several steps, first by actuating a "book" key and then by sequentially actuating first and second "letter" keys. The first and second input steps encode respective first and second binary words in memory modules, there being one module for each bit. At this point, the film is moved by drive means in the proper direction, as sensed by photocells receiving light through the coded arrays on the film strip, and the film stops when the photocells sense film bits corresponding with those encoded in the corresponding memory modules by a third key actuation step, to move the strip to a final position, as determined by photocells responding to a corresponding transverse coded bit array on the strip.

3,564,210

APPARATUS COMBINING A VARIABLE AMOUNT IMPRINTER WITH CREDIT VERIFICATION CIRCUITRY

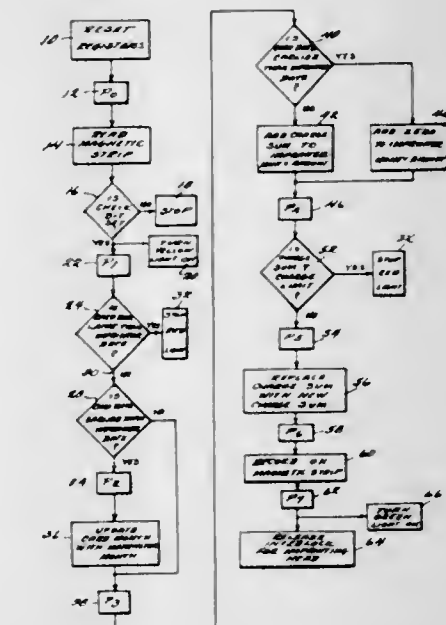
Anthony J. Presti, Warren, N.J., assignor to Farrington Manufacturing Company, New York, N.Y.

Filed Nov. 29, 1968, Ser. No. 779,716

Int. Cl. G06k 5/00; H04g 3/00

U.S. Cl. 235-61.7

24 Claims



Disclosed is a credit verification imprinter for use with a credit card embossed or etched with data typically corresponding to the customer's name, address, and numerical identification. Also provided on the card is magnetically BCD encoded data relating to (1) the charge limit the card may be used for in a predetermined period of time, preferably a month; (2) the time interval in which the card was last used; and (3) the accumulated money total of charge purchases made with the card during the time interval indicated in (2). The sales clerk registers into a variable money amount imprinter the money amount of the current transaction together with the current date, this information to be imprinted together with the information of the charge onto a sales slip or the like if the current credit transaction is approved.

Before the imprinting operation can take place, the magnetically encoded data is read by movable read/write head disposed beneath the print bed. A credit verification test is then conducted by appropriate circuitry to determine whether the card has been used for credit transactions exceeding the limit listed in (1) above during the interval of time indicated by the month setting on the variable date wheels of the imprinter. Other checks are also made to establish the authenticity of the information magnetically encoded on the card to insure that no tampering or data transmission errors have occurred. Different colored lights are provided on the imprinter chassis to indicate the occurrence of different conditions detected by the data verification circuitry. Upon completion of the data verification check, a stop is removed from the path of travel of the imprinting head thereby permitting the imprinting operation to take

place. After the imprinting head has been returned to its start position a switch is caused to close and thereby reset all credit verification registers preparatory to the next credit operation.

3,564,211

FEEDING MECHANISMS FOR CARD READERS

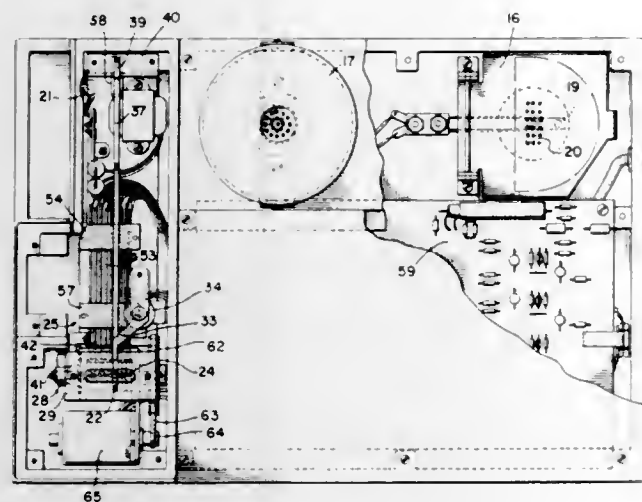
David R. Angus, R.D. 1-463 Three Old Reaville Road, Flemington, N.J.

Filed Oct. 12, 1967, Ser. No. 674,899

Inc. Cl. G06k 7/04; H04m 1/26; B65k 5/04

U.S. Cl. 235-61.11

6 Claims



A reader and encoder for information carried on cards such as credit cards and the like provides a plurality of tones as an output in response to a perforated-record-carrying card which is inserted into the reader. A four-motion feeding mechanism including a feed dog traverses a substantially rectangular path normal to the material support, through which support the feed dog extends during the process of card feeding. Projecting from the feed dog towards and extending into a confronting column of feed perforations in the card, are feed pins aligned to feed the card along a straight path predetermined by the column of feed perforations formed in the card. Edge guides and a solenoid-operated card stop are provided to hold the card in the correct position prior to commencement of operation of the feeding mechanism so that feeding will be accurate, at a continuous speed, and all the information represented by the perforations will be sensed by a plurality of vertically reciprocated, spring-biased feeler pins or probes connected to actuate switches in response to extension of the probes through code-bearing perforations representing coded information punched into the card. Each of the switches controlled by the probes is adapted to actuate an oscillator generating a predetermined audio tone which is supplied to a speaker. A shaft positioner is provided for arresting the motor shaft near a predetermined position.

3,564,212

APPARATUS FOR SELECTING, ANALYZING AND RECORDING DATA

Albert Leslie North, 19 Holland Walk, Stanmore, Middlesex, England

Continuation-in-part of application Ser. No. 226,043, Sept. 25, 1962, now abandoned, and a continuation-in-part of 581,140, Sept. 19, 1966, now abandoned. This application June 12, 1968, Ser. No. 736,406

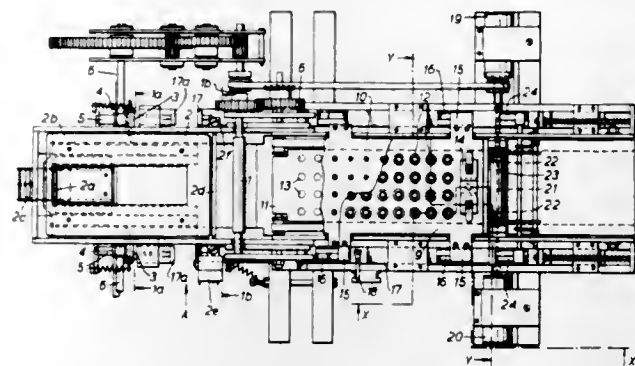
Int. Cl. G06k 7/04

U.S. Cl. 235-61.11

17 Claims

Data processing apparatus for detecting, counting and otherwise analyzing data stored on cards in punched or like form wherein the complete pattern of data on the card is sensed and detected simultaneously in one passage of the card through the analyzer (as distinguished from column-by-column or field-by-field detection); any desired pattern representing classes, subclasses and combinations of both data may be detected in a single passage of the card through

the apparatus by selector switch circuits which couple the sensing elements in the selected combination to trigger count-



ters or the like when the corresponding pattern appears in the card.

3,564,213

ARRANGEMENT FOR REDUCING ERRORS IN COUNTING LINE SEGMENTS OF A ZIGZAG LINE DIAGRAM

Siegfried Spauszus, Villingen, and Josef Krickl, Bad Duerrheim, Germany, assignors to Kienzle Apparate G.m.b.H., Villingen, Black Forest, Germany

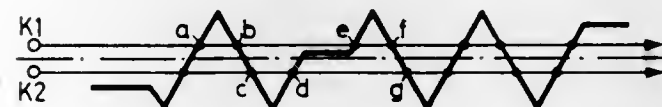
Filed Sept. 6, 1968, Ser. No. 757,921

Claims priority, application Germany, Sept. 14, 1967, 1,549,794

Int. Cl. G06k 7/10, 9/08

U.S. Cl. 235-61.11

6 Claims



To reduce errors due to surface imperfections of a zigzag line diagram, the line diagram is scanned along two parallel paths parallel to the center line of the diagram and on opposite sides thereof. The scanning means therefore alternately generate pulse pairs. Logic circuits select the second one of each pair as a counting signal. The selection takes place only if a pulse generated by the other scanning means and a pulse by the scanning means from which the counting pulse is to be selected precede the counting pulse. The so-selected counting pulses are counted and the results stored.

3,564,214

CONTROL ARTICLE HAVING CONDUCTIVE INSERTS FOR USE IN A CONTROL SYSTEM

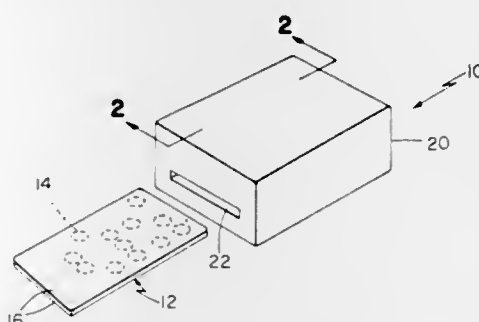
Irving B. Cooper, Jr., Marblehead, Mass., assignor to Industrial Instrumentations, Inc., Marblehead, Mass.

Continuation-in-part of application Ser. No. 481,684, Aug. 23, 1965. This application Nov. 18, 1968, Ser. No. 776,746

Int. Cl. G05b 1/00; G06k 7/08, 21/00

U.S. Cl. 235-61.11

9 Claims



A security system includes a card having several copper discs in the order of 5 mils in thickness encased within opaque material and a card reader that has a sensing area in

which the card is inserted. On one side of the sensing area are a group of primary windings disposed on pole pieces and on the opposite side of the sensing area are corresponding secondary windings, also disposed on pole pieces. On insertion of a card into the reader a switch is closed which applies a pulse to the primary windings to generate magnetic fields. In response to those magnetic fields that are not absorbed by copper discs, the corresponding secondary windings generate output signals indicative of the coded information on the card. Coding arrangements are also disclosed which make the card difficult to counterfeit.

3,564,215

IDENTIFICATION DEVICE

Walter P. Peeples, Jr.; Olan F. Horn, and John E. Greaney, Houston, Tex., assignors to General Nuclear Inc., Houston, Tex.

Filed May 15, 1969, Ser. No. 824,942

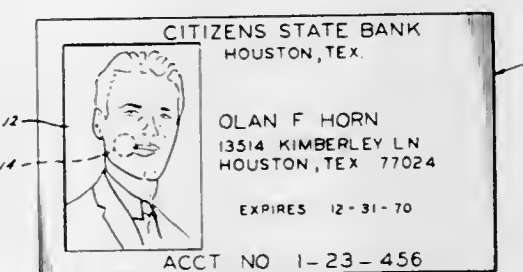
Int. Cl. G06k 19/08, 7/10

U.S. Cl. 235-61.12

8 Claims

U.S. Cl. 235-92

7 Claims



A set of identification cards, each of which may have a photograph of a person thereon, the cards being useful for identification for cashing checks and the like; the color of the card may indicate the maximum size check which may be cashed, and the amount of radioactive material on the photograph on each card may indicate the maximum size check which may be cashed.

3,564,216

DATA CORRELATION SYSTEM

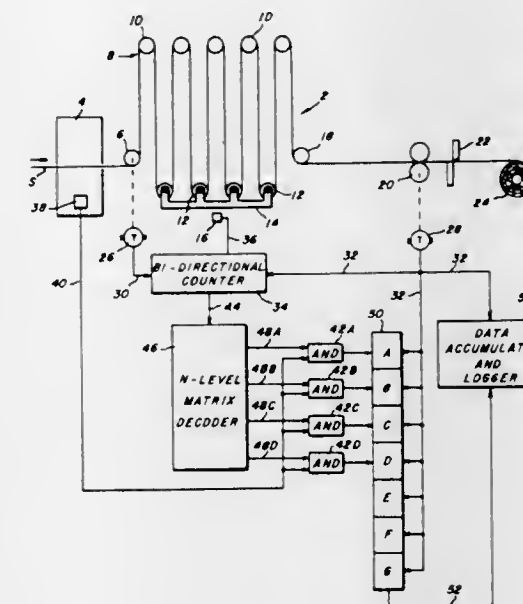
John F. Laycak, West Mifflin, Pa., assignor to United States Steel Corporation

Filed Mar. 27, 1968, Ser. No. 716,641

Int. Cl. G06m 7/00, 3/14

U.S. Cl. 235-92

4 Claims



A data correlation system used in a process line for elongated product includes a pulse generating tachometer driven at a speed proportional to product speed before entering a product accumulator, and a second tachometer driven at a speed proportional to product speed after the accumulator. A bidirectional counter which is operated by the pulses is connected to an N-level matrix decoder to provide an output

corresponding to the variable product length in the accumulator. One of a series of logic AND gates is enabled by the decoder to insert into a corresponding shift register element a data signal from a sensor appropriate for the type of data desired. The shift register, operated by pulses from the second tachometer is connected to a data accumulator and logger which receives the data signal from the shift register as the product region associated with the data signal passes a reference point in the process line.

3,564,217

COMBINED COUNT INDICATING AND PRESETTING SYSTEMS

Norman F. Bounsall, Los Altos, Calif., assignor to Ampex Corporation, Redwood City, Calif.

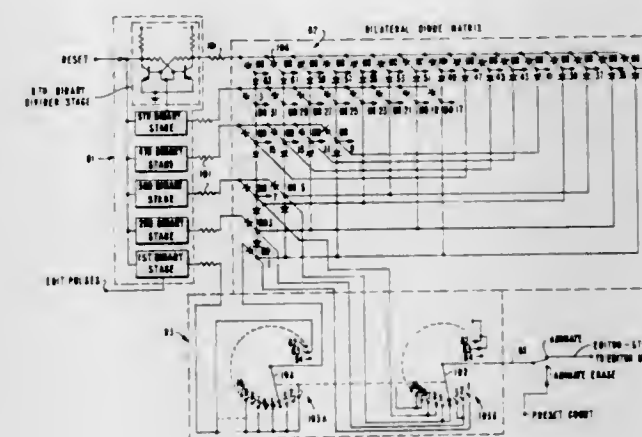
Original application Oct. 2, 1961, Ser. No. 329,033, now

Patent No. 3,342,932, dated Sept. 19, 1967. Divided and this application Mar. 16, 1967, Ser. No. 624,673

Int. Cl. H03k 21/36

U.S. Cl. 235-92

7 Claims



A combined count indicating and presetting system having elements coupled in a gating matrix which is connected to particular bistable elements of a binary counter. The gating matrix has particular terminals coupled to a selector, which produces selective signal levels representative of the count pattern presented at the counter, and which therefore may provide output indications from the system. The same gating matrix is also used in bilateral fashion however, so that upon application of an appropriate presetting signal, the bistable elements may be set into a desired count relationship for further control sequences.

3,564,218

BIDIRECTIONAL COUNTING SYSTEM

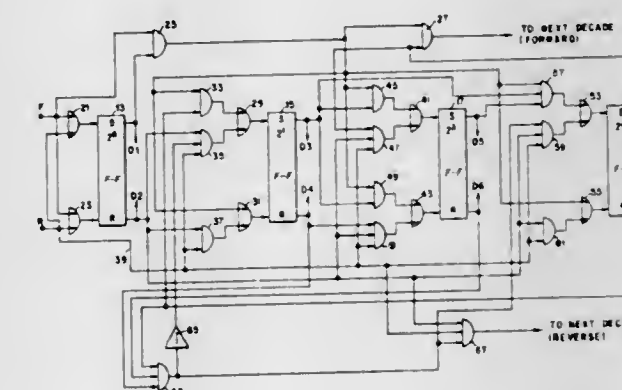
Clark M. Lay, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 17, 1968, Ser. No. 722,046

Int. Cl. G06m 3/14

U.S. Cl. 235-92

1 Claim



A bidirectional counting system is provided for use in a position indicating device wherein the displacement of a movable component is sensed by an interferometer. A feedback generator of the interferometer senses increments of

movement in a forward or reverse direction and generates a pair of phase-displaced signals one leading the other, depending upon the direction of movement. The leading signal is detected by a phase detector which generates an appropriate output signal at either a forward or reverse output. These outputs are applied to a bidirectional counter which registers pulses applied at a forward input as a counting increment and registers counts applied at a reverse input as a counting decrement. The counter is comprised of counting stages gated together so that the existing states of the counter stages enable the counter to register either a forward or reverse count without a separate direction command input. A display is provided to display the instantaneous net count of the forward or reverse pulses received.

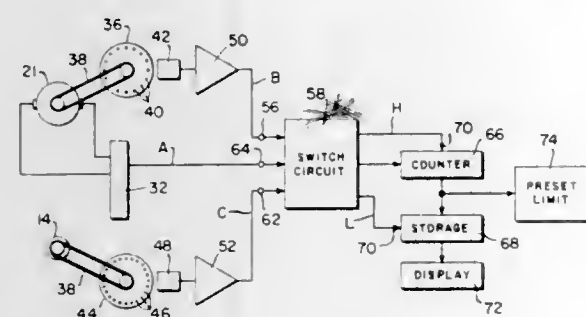
3,564,219

INDICATING DEVICE

John S. Mutziger, East Moline, Ill., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed June 7, 1968, Ser. No. 735,277
Int. Cl. G06m 1/272

U.S. Cl. 235-92

4 Claims



The indicator of this invention measures the amount of a web material wound upon a spool by utilizing the principle that the rate at which the spool rotates, as the web is wound or unwound therefrom, varies in proportion to the amount of the web material thereon. A pulse generator is provided for generating pulses which indicate the rotational velocity of the spool and a second pulse generator is provided for generating pulses which indicate the linear velocity of the web material. A counter counts the number of pulses generated by the linear web motion during each pulse generated by the rotating spool. The accumulated count is then stored and displayed for indicating the amount of the web material upon the spool.

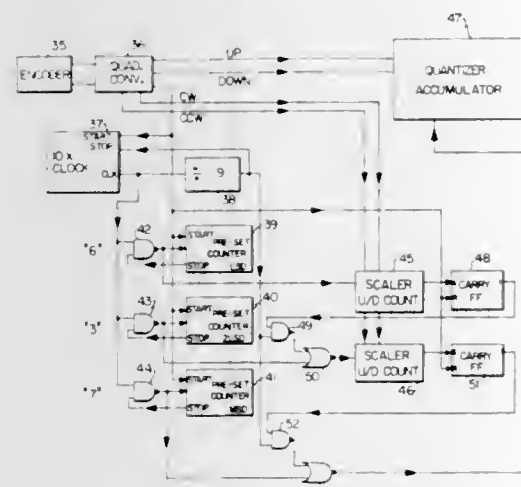
3,564,220

DIGITAL SCALE CHANGING

John G. Peddie and Carl F. Reuter, San Antonio, Tex., assignors to H. Dell Foster Co., San Antonio, Tex.
Filed Oct. 8, 1968, Ser. No. 765,942
Int. Cl. H03k 21/00

U.S. Cl. 235-92

6 Claims



A digital scale factor changing apparatus includes a number of individually preset counter mechanisms for insert-

ing a desired scale factor alteration in a digital clock signal wherein the overflow or carry signals from the individual preset counters are accumulated as the desired scale factor output.

3,564,221

OPTIMIZATION WITH RANDOM AND HISTORICAL VECTORS

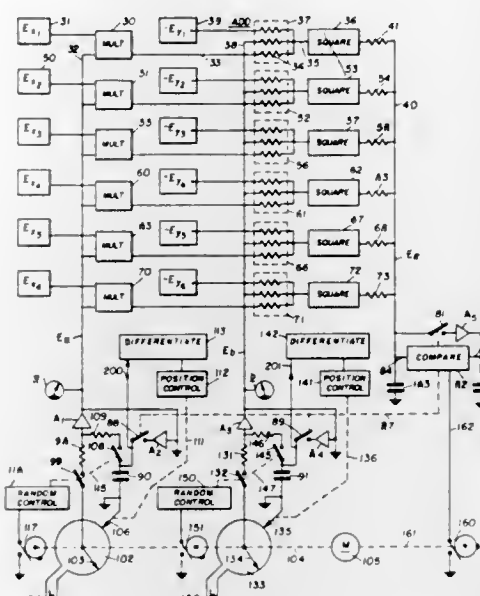
Robert F. Wheeling, Mullica Hill, N.J., assignor to Mobil Oil Corporation

Filed Sept. 7, 1960, Ser. No. 054,503

Int. Cl. G05b 13/00

U.S. Cl. 235-150.1

8 Claims



The invention relates to the production of an optimum value of a system output function which is dependent upon a plurality of variables where the effect of changes in the variables upon the function may be determined. An optimum is reached quickly and efficiently by changing each variable repetitively in a random manner initially and thereafter the tendency of the changes to be purely random is modified so that past history in the search for the optimum value tends to weight the randomness in favor of the most desirable direction toward optimum.

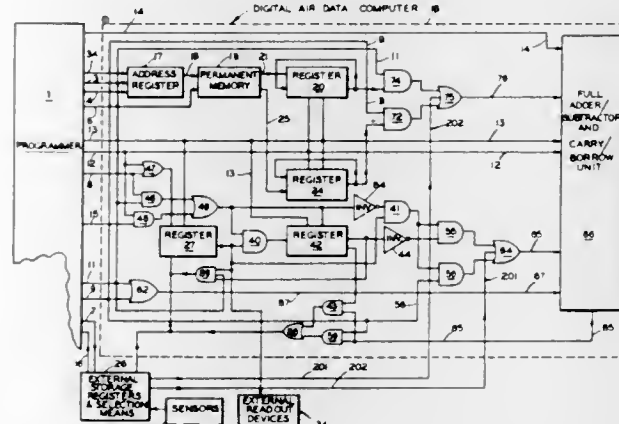
3,564,222

DIGITAL FUNCTION GENERATOR SOLVING THE EQUATION $F(x) = mx + b$

Salvatore J. DiPaolo, Hackensack, and Casimir S. Smialowicz, Livingston, N.J., assignors to The Bendix Corporation
Filed July 1, 1968, Ser. No. 741,620
Int. Cl. G06f 7/38, 15/34

U.S. Cl. 235-152

9 Claims



The novel air data computer constructed according to the present invention has digital means which utilizes linear ap-

proximation techniques for computing air data parameters from air data curves. For each parameter the computer retrieves a slope m and an intercept b corresponding to a selected linear segment of an air data curve from a permanent memory and repetitively adds the retrieved slope m under control of an independent variable x corresponding to a sensed condition until the sum of the slopes equals the product mx of the slope and independent variable. The computer further adds the intercept b to the product mx in accordance with the following equation to provide a sum which is the dependent variable y corresponding to a point on an air data curve:

$$y = mx + b \quad (1)$$

The computer also solves equation (1) when b is negative.

3,564,223

DIGITAL DIFFERENTIAL ANALYZER

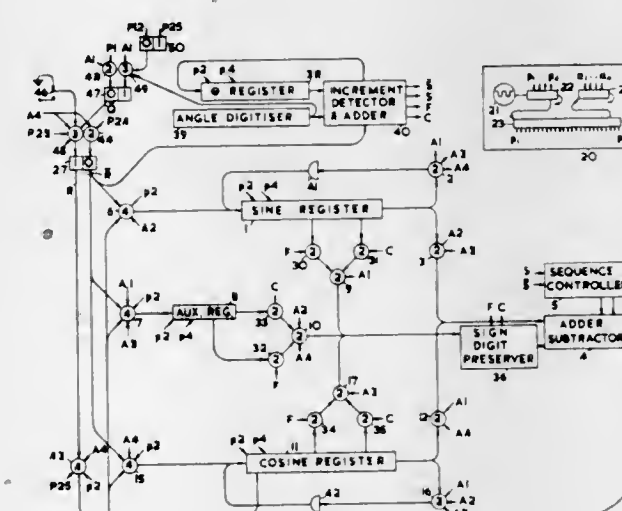
Robert Herbert Harris, Farnborough, and Phillip Lance Owen, Church Crookham, England, assignors to National Research Development Corporation, London, England
Filed June 4, 1968, Ser. No. 734,298

Claims priority, application Great Britain, June 6, 1967, 26,155/67

Int. Cl. G06f 15/34

U.S. Cl. 235-150.31

15 Claims



A digital differential analyzer is arranged to compute the sum of the first n terms of a Taylor series representing a function of an independent variable where n is an odd integer greater than unity. It includes means for detecting changes in the independent variable and comparing them with two or more standard increment sizes and calculating the effect of an increment of the nearest standard increment size on the value of the function. A specific example for calculating $\sin \theta$ and $\cos \theta$ is described.

3,564,224

APPARATUS FOR DETERMINING PERCENT OF WET-END MOISTURE REMOVED

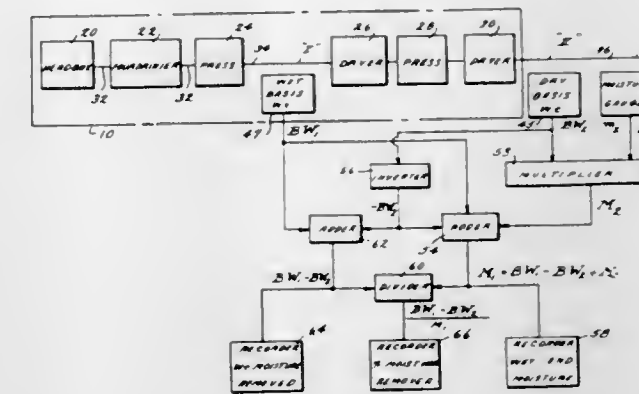
Henry R. Chope, Columbus, Ohio, assignor to Industrial Nucleonics Corporation, a corporation of Ohio
Filed Aug. 13, 1968, Ser. No. 752,394
Int. Cl. G01n 23/16, 33/34

U.S. Cl. 235-151.35

12 Claims

To determine the percentage of moisture removed from a traveling material between first and second points along its direction of travel, the difference in basis weight at those two points is divided by the wet-end moisture weight per unit area. The wet-end moisture weight per unit area is obtained by multiplying the dry-end basis weight by the dry-end percent moisture with the product being then added to the difference of the basis weights. In another embodiment, the wet-end moisture weight is obtained by use of two operational amplifiers, one of which operates as a multiplier providing an output proportional to the difference in the dry-

end moisture weight and the dry-end basis weight. This output is then added to the wet-end basis weight to obtain the



wet-end moisture weight, which is then divided into the difference of the basis weights as above.

3,564,225

SERIAL BINARY CODED DECIMAL CONVERTER

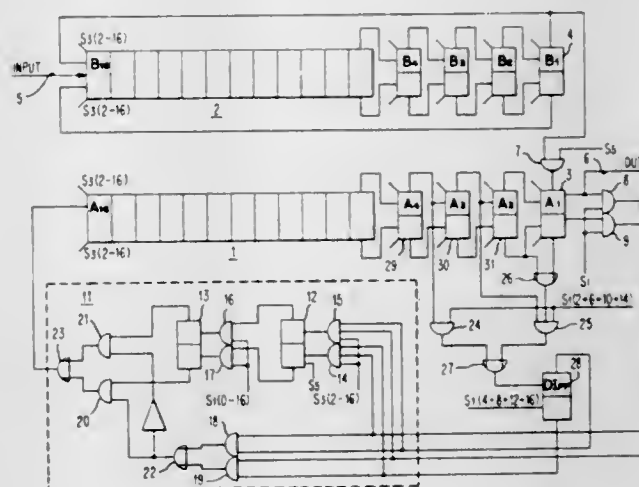
Charles W. Watson, Jr., Norristown, Pa., assignor to Leeds & Northrup Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Nov. 9, 1967, Ser. No. 681,731

Int. Cl. 1103 13/258

U.S. Cl. 235-155

5 Claims



The disclosure describes a converter in which the number to be converted is inserted into a shift register. The number is recirculated through the shift register in the direction of decreasing significance of the number. During each recirculation cycle partially converted binary coded decimal numbers are produced having a plurality of decades. A binary three is serially added to a decade of the partially converted numbers when that decade has a value which exceeds four.

3,564,226

PARALLEL BINARY PROCESSING SYSTEM HAVING MINIMAL OPERATIONAL DELAY

Lawrence Seligman, Belmont, Mass., assignor to Digital Equipment, Maynard, Mass.

Filed Dec. 27, 1966, Ser. No. 604,956

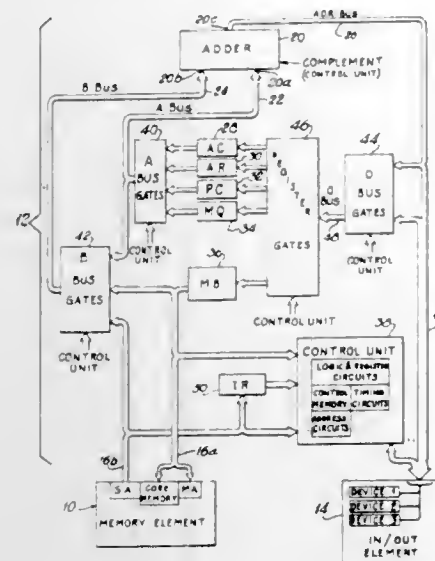
Int. Cl. G06f 7/50, 7/52

U.S. Cl. 235-164

14 Claims

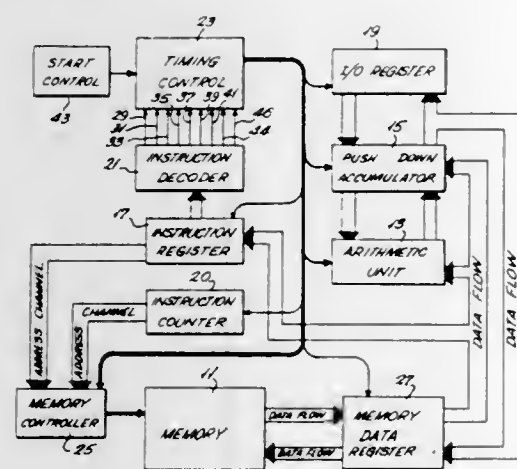
A new electronic digital processor element has two groups of zero-delay registers, a single zero-delay adder, and zero-delay gates arranged to transfer information in the registers to the adder input terminals and to transfer information out-

put from the adder to the registers. All information transfers higher numbered accumulator stages are each shifted to the between the registers are by way of the adder and are con- next lower numbered accumulator stage.



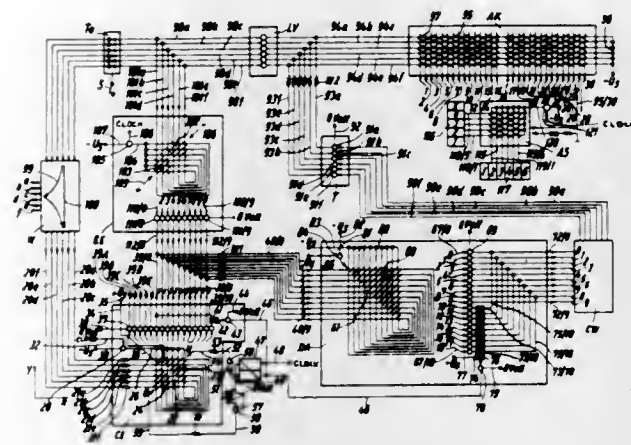
trolled by sets of simultaneous level-type signals selectively applied to the gates.

3,564,227
COMPUTER AND ACCUMULATOR THEREFOR
INCORPORATING PUSH DOWN REGISTER
 Dan M. Bowers, Deer Park, N.Y., assignor to Potter Instrument Company, Inc., Plainview, N.Y.
 Filed Dec. 14, 1967, Ser. No. 690,452
 Int. Cl. G06f 7/385
 U.S. Cl. 235-176 16 Claims



This specification discloses a stored program digital computer, including an accumulator which also functions as a push down storage register. The first stage of the accumulator functions as a conventional accumulator adding or subtracting the binary numbers represented by applied signals from the numbers stored therein leaving the results of the addition or subtraction in the first stage. Also, the results of multiplication operations are stored in the first stage of the accumulator. When a number is transferred to the accumulator from the memory of the computer, it is stored in the first stage of the accumulator and the number that is stored in the first stage is shifted to the second stage of the accumulator. The binary numbers, if any, stored in the second and higher numbered accumulator stages are shifted to the next higher numbered accumulator stage. The binary numbers may be transferred from the first stage of the accumulator to the memory and when such a transfer is made, the numbers stored in the second and higher numbered accumulator stages are shifted to the next lower numbered accumulator stage. In addition, the accumulator can be controlled to add or subtract the contents of the second accumulator stage from the first accumulator stage. When such addition or subtraction takes place, the numbers stored in the third and

3,564,228
SERIAL DECIMAL ADDER UTILIZING MAGNETIC CORE MATRICES
 Horst Herger, Bielefeld, Germany, assignor to Anker-Werke Aktiengesellschaft, Bielefeld, Germany
 Filed Mar. 1, 1967, Ser. No. 624,645
 Claims priority, application Germany, Apr. 28, 1966, A52292
 Int. Cl. G06f 7/50, 5/02
 U.S. Cl. 235-176 16 Claims

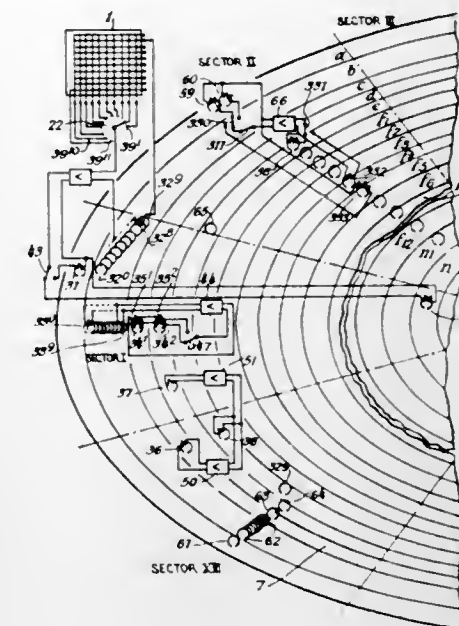


An electronic computer for the series-parallel processing of decimal numbers with the aid of decoder matrixes of ring cores coating with an adder matrix of ring cores. Each of the matrixes is subdivided into two submatrixes of which at least one is inhibitable independently of the other. The half-select current wires of each matrix are linked with respective cores of both submatrixes. Each core in the decoder matrixes is linked with a different pair of such wires. The adder matrix has each core of only one of its submatrixes linked with a different pair of half-select current wires. The cores of the other adder submatrix are twice linked with a single one of the respective wires.

3,564,229
ARRANGEMENT FOR PERFORMING ARITHMETIC OPERATION USING A STATIC AND A DYNAMIC STORAGE
 Gerhard Dirks, Los Altos Hills, Calif., assignor to Dirks Electronics Corporation, Los Altos Hills, Calif.
 Continuation of application Ser. No. 357,013, Mar. 30, 1964, now abandoned, Continuation of application Ser. No. 728,838, Apr. 16, 1958, Continuation-in-part of application Ser. No. 432,093, May 25, 1954, Continuation-in-part of application Ser. No. 101,032, June 24, 1949, now abandoned.
 This application Jan. 23, 1969, Ser. No. 796,297
 Int. Cl. G06f 7/50 4 Claims

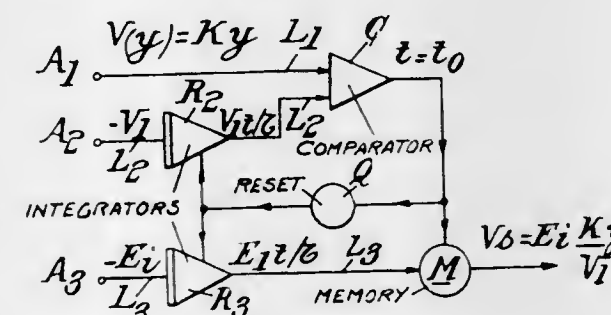
A keyboard has keys arranged in denominations and digits within a denomination, each key connecting a digit and denomination selection line, thus storing a digit. A disc has groups of storage locations corresponding to denominations and dynamic storage positions in each group corresponding to the digits, the disc moving relative to reading and writing heads, associated respectively with input and output storage positions on the disc. Each digit selection line is connected to a writing head. A distributor applies signals from the reading heads in a predetermined sequence to the denomination lines in synchronism with the movement of the disc past the read and write head. Signals are thus transferred from the input storage positions on the disc to the output storage positions,

the positioning in the output storage positions depending rays onto the fiber bundled end; a heat reflecting and light both upon the numbers stored in the input storage positions transmitting disc between the bulb and bundled end to



on the disc and the numbers stored in the keyboard, as well as an arithmetic operation connecting the two numbers.

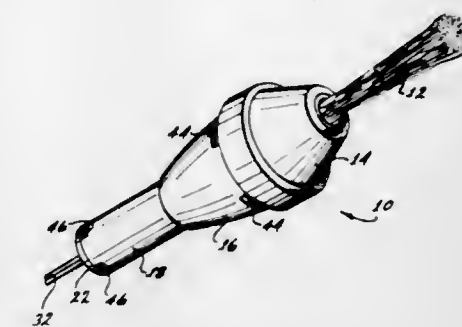
3,564,230
FUNCTION GENERATOR FOR LINEAR INTERPOLATION
 Jean-Claude Carossi, Manosque, France, assignor to Commissariat a l'Energie Atomique, Paris, France
 Filed Oct. 10, 1968, Ser. No. 766,448
 Claims priority, application France, Oct. 12, 1967, 124,284
 U.S. Cl. 235-197 3 Claims



The linear interpolation is realizable in a device having three channels with two integrators disposed respectively in the second and third channels, and a comparator. A memory stores the output of the third channel and a reset unit resets the second and third channels to zero when the comparator detects the equality of the outputs of the first and second channels.

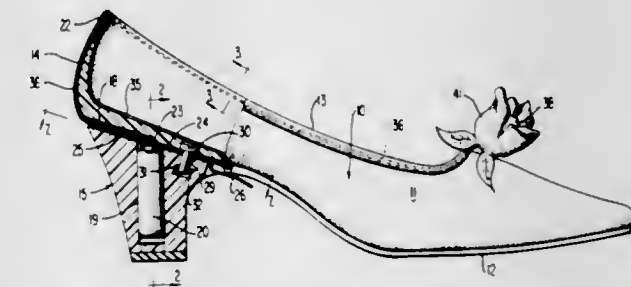
3,564,231
ILLUMINATION DEVICE
 Joe P. Bruce, Santa Ana, and Robert S. Rosenast, Newport Beach, Calif., assignors to Poly-Optics, Inc.
 Filed Sept. 26, 1968, Ser. No. 762,832
 Int. Cl. F21v 29/00 8 Claims

A device for holding and illuminating the bundled end of a plurality of optical fibers wherein a hollow body is provided with: a plurality of ribs at one end for securing the bundled optical fibre ends; a light bulb at the other end; a reflective inner surface surrounding the light bulb and concentrating its



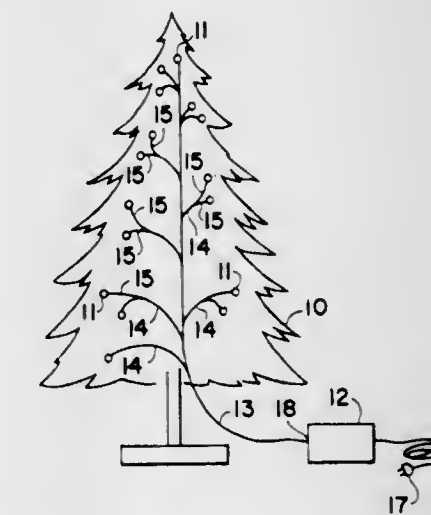
deflect heat but transmit the concentrated light rays; and vent openings in the body.

3,564,232
SHOE HAVING DECORATIVE LIGHTING
 Theresa J. Ellerbe, 41 Smith St., Charleston, S.C., and Frank P. Kanapaux III, 1461 Kinglet St., Mount Pleasant, S.C.
 Filed Oct. 9, 1968, Ser. No. 766,143
 Int. Cl. F21v 33/00 7 Claims



An illuminated shoe having a detachable heel containing a concealed battery. A fastener for the heel on the body of the shoe serves to limit the movement of an on and off switch arm. The concealed battery powers the illuminating member on the shoe body.

3,564,233
FIBER OPTICS ILLUMINATION SYSTEM
 Mason C. Cox, Southbridge; Thomas H. McNamara, Waltham; George E. Prifogle, Newton, and Wilfred P. Bazinet, Jr., Webster, Mass., assignors to Image Optics, Inc., Natick, Mass., a corporation of Massachusetts
 Filed Apr. 29, 1968, Ser. No. 724,962
 Int. Cl. A47g 33/16; F21p 1/02
 U.S. Cl. 240-10 8 Claims



An ornamental illumination system for a Christmas tree employs a light source located at the base of the tree, which

is coupled to a fiber optics harness. The harness distributes light from the source to a plurality of translucent ornamental shapes distributed decoratively about the tree. A color wheel at the light source controls the apparent colors illuminating the ornamental shapes, which shapes themselves may be made of different colors of translucent materials. The resulting displays of colors may be complex.

3,564,234

INTERNAL WORK LIGHT

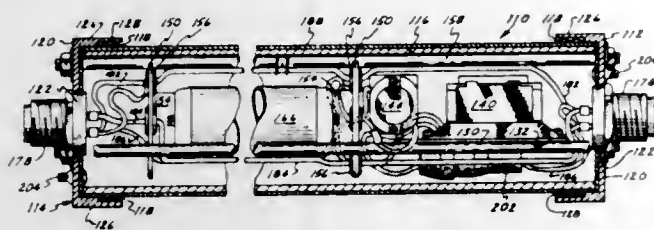
Graydon A. Phlieger, Jr., 325 McLeod Ave., Cocoa, Fla. 32922

Filed Aug. 5, 1968, Ser. No. 752,729

Int. Cl. H05h 33/04

U.S. Cl. 240-51.11

3 Claims



A sealed fluorescent tube light that can be connected to other similar units to form a string of work lights. The tube light locates and seals the ballast and starter inside of its interior so as to provide compactness and safety during use. A radio frequency interference shield is provided around the tube light to prevent the radiation of electrical interference from the electrical components.

3,564,235

ELECTRIC LIGHT FIXTURE CHANDELIER

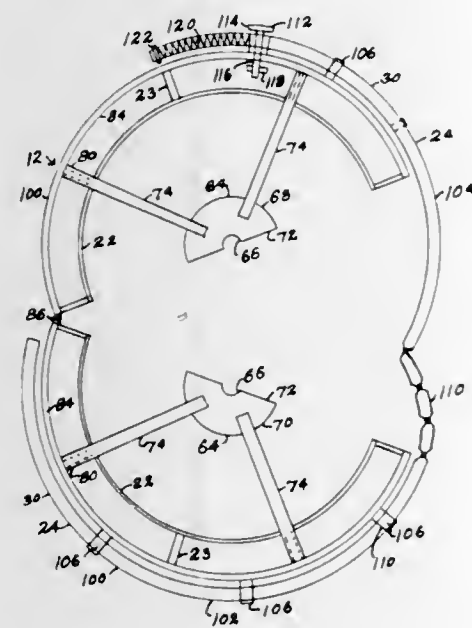
Solomon I. Nicokiris, 1420 Grand Concourse, Bronx, N.Y.

Filed Aug. 30, 1968, Ser. No.

Int. Cl. F21v 17/06

U.S. Cl. 240-108

5 Claims



A lighting fixture, chandelier and the like, with a major core portion engageable with a ceiling for suspension of the fixture, and an annular crown body portion carried by the core portion on framework radiating from the core portion. An array of crystals depends from cords or wires secured to the crown body portion, and converge inwardly to engage with a bottom plate smaller in diameter than the crown portion. One or more light bulbs carried by the lower portion of the core portion illuminate the decorative crystals attractively. The crown body portion is so constructed as to be readily disengaged from the major core portion by opening it out in halves, the two halves being hinged together, and there being an annular groove formed in the core portion for releasable engagement with a matching portion of the crown body portion. By thus detaching the crown portion and its crystals

from the core portion, the crown and crystals are easily immersed in a bath of washing solution for thorough cleansing.

3,564,236

SWITCH, ESPECIALLY DOUBLE CROSS SWITCH FOR ELECTRIC TOY AND MODEL RAILROAD INSTALLATIONS

Max Ernst, Lohengrinstr. 14, Nuremberg, Germany

Filed Aug. 12, 1968, Ser. No. 751,795

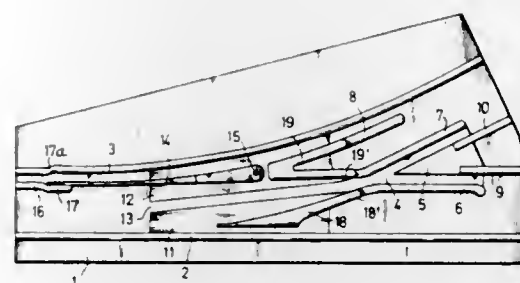
Claims priority, application Germany, Aug. 12, 1967,

E34589

Int. Cl. E01b 7/00; A63h 19/32

U.S. Cl. 246-415

29 Claims



A switch, especially narrow gauge double cross switch, for electric toy and model railroads, with current supply through both rails, in which in the vicinity of the central portion of the switch, the outer rails of the switch which are connected to the insulated switch bed, are provided with conductive plates which extend closely to the central portion of the switch and which within the switch form electric current conductive surfaces for contact with the wheel rims of rail vehicles passing over the switch and with guiding rails for the wheel rims as well as for the bearings of the switch tongues.

3,564,237

INFRARED AUTOMATIC ANALYZING METHOD FOR BLAST FURNACE GAS

Fusanori Takeuchi, Kawasaki-shi; Ryoichi Ikematsu, Yokohama-shi; Tomohisa Yamamoto, Tokyo; Syozi Honma, Yokohama-shi, and Koji Fukukita, Fukuyama-shi, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

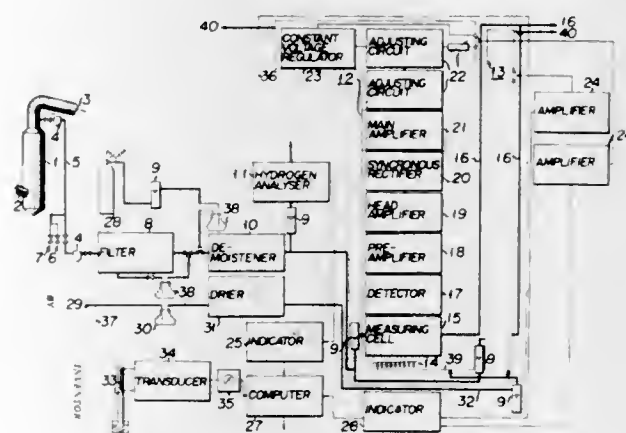
Filed Mar. 23, 1967, Ser. No. 625,384

Claims priority, application Japan, Mar. 31, 1966, 41/19745

Int. Cl. G01n 21/26

U.S. Cl. 250-43.5

1 Claim



An automatic controlling method for the operation of blast furnace which comprises maintaining the moisture content of sampled blast furnace gas at an exceedingly low and constant level, keeping the infrared gas analyzers for CO and CO₂ in the sample gas at constant temperature, purging, carrying out infrared analysis of the sample gas automatically and continuously under a known atmospheric pressure, correcting automatically the values of the analysis to those at the standard atmospheric pressure, and sending the signals obtained from the corrected values of the analysis to a computer.

3,564,238

IRRADIATION APPARATUS IN COMBINATION WEB HANDLING MEANS

William J. Martin and Charles R. Ruppe, Spartanburg, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.

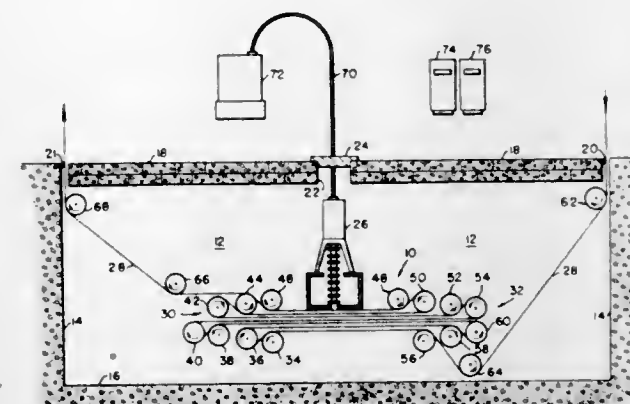
Filed May 8, 1967, Ser. No. 636,708

Int. Cl. G21f 7/00

U.S. Cl. 250-49.5

10 Claims U.S. Cl. 250-51.5

11 Claims



A system for continuously irradiating chemically treated material which employs an improved arrangement for permitting multiple passes of the treated material through the irradiation field while the distance between the layers of treated material passing through the field is maintained to improve the efficiency of the irradiation process. Ionizing irradiation apparatus is also included.

3,564,239

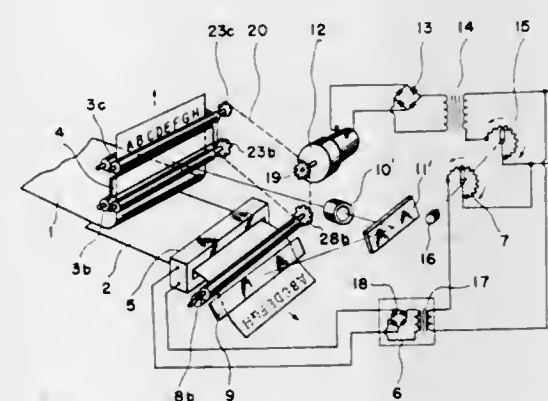
FLOW-TYPE PHOTOELECTRIC DUPLICATING MACHINE HAVING MEANS FOR CHANGING THE CORONA VOLTAGE IN ACCORDANCE WITH THE PAPER SPEED, Teizo Kushima, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Aug. 30, 1968, Ser. No. 756,536

Int. Cl. G03g 13/00

U.S. Cl. 250-49.5

1 Claim



In a flow-type photoelectric duplicating machine in which the original to be duplicated and the photosensitive paper are positioned in such a way as to be optically interrelated and connected by the optically connecting optical system, for which purpose the original that is illuminated by the illuminating device is gradually sent from one end to the other across the light path of the said optical system, while synchronously the photosensitive paper is sent, after having been gradually sent from one end to the other through the electrostatic charging device, across the light path of the said optical system, so that the image of the original is gradually duplicated from one end to the other on the photosensitive paper; in such a flow-type photoelectric duplicating machine, an electric and/or mechanical connection is established between the passage speed of the photosensitive paper and the terminal voltage of the electrostatic charging device so that the one increases when the other increases and the one decreases when the other decreases.

3,564,240

GONIOMETER HEAD FOR X-RAY DIFFRACTION APPARATUS WITH IMPROVED Z-MOTION MECHANISM

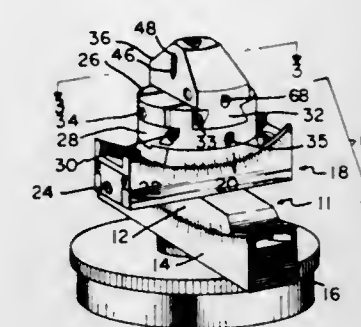
Roy Leander Thomas, Jr., Medway, Mass., assignor to Charles Supper Co., Inc., Natick, Mass.

Filed July 22, 1969, Ser. No. 843,541

Int. Cl. G01n 23/20

U.S. Cl. 250-51.5

11 Claims



This disclosure depicts a goniometer head for securing and positioning a crystal specimen in X-ray diffraction apparatus. The disclosure stresses a lockable variable friction drive Z-axis translation mechanism for the head.

3,564,241

IRRADIATION APPARATUS

Alfred Ludwig, Winterthur, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland

Filed Apr. 9, 1968, Ser. No. 719,863

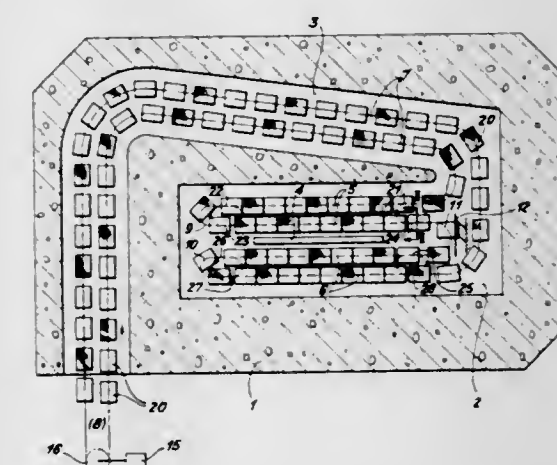
Claims priority, application Switzerland, May 3, 1967,

6310/67

Int. Cl. G01t 7/08

U.S. Cl. 250-52

8 Claims



The continuous track has individual parallel track sections which are connected together by loops to form a single path for the loads. The conveyors move the loads by means of catches along the track. The loads are transferred at various points from one conveyor to another to change the speed of the loads so as to effect a slow movement of the loads in closely spaced relation past the radiation source.

3,564,242

METHOD OF ACCENTUATING SMALL DIFFERENCES IN OPTICAL DENSITY FOR OBTAINING ISODENSITY SHAPES WHICH WILL PROVIDE QUANTITATIVE COMPARISONS

Charles Lescrenier, West Allis, Wis. (2209 E. Kenilworth Place, Milwaukee, Wis. 53202)

Filed Sept. 30, 1966, Ser. No. 583,267

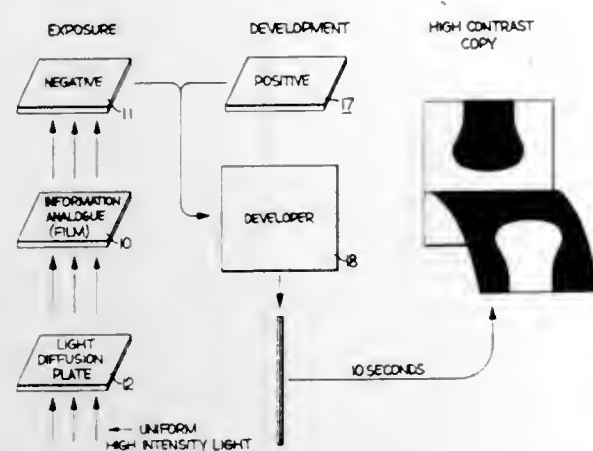
U.S. Cl. 250-65

10 Claims

A method for obtaining isodensity lines from a continuous tone film which makes small differences in optical density discernible comprises exposing a negative photocopy emulsion to high intensity diffuse light of at least 800 foot candles through the film for a predetermined time, placing a positive

emulsion in contact with the exposed negative, inserting them in a developing solution, removing them and separating them after a predetermined time, whereby all optical densi-

minescent element when heated including a body of material transparent to light which, except for a wall portion for the



ties below a selected density, determined by the light exposure time, are erased from the positive and the image thereon is an isodensity outline of the image on the film in which lines of slightly varying density can be easily distinguished.

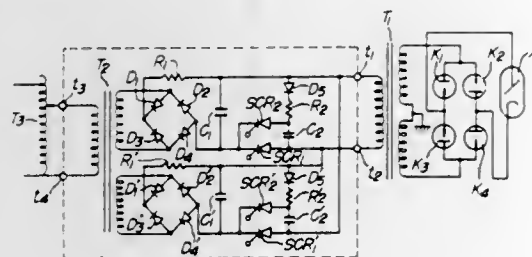
3,564,243

POWER SUPPLY CIRCUIT FOR USE WITH X-RAY GENERATING DEVICE FOR CINE-RADIOGRAPHY
Yoshito Takao, Nagasaki-shi; Haruyuki Kusagaya, Koganei-shi; Shigenobu Yanaka, Tokyo, and Kouichi Koike, Fubashi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 4, 1968, Ser. No. 710,227

Int. Cl. H05g 1/14, 1/60

U.S. Cl. 250-65

8 Claims



Cineradiography wherein an AC sinusoidal input is converted by an inverter using controlled rectifiers into rectangular pulses in synchronism with shutter opening signals provided by a cinecamera, and the rectangular pulses in turn are boosted to high voltage pulses which are applied to the anode of an X-ray tube so as to produce pulselike X-rays of optional time-width required for photographing only during the period when the shutter is opened, thereby minimizing the dosage to which a patient is exposed. Thus, the device described herein is advantageous over the conventional devices in which pulse-like X-rays are generated under the control of the grid of an X-ray tube, in that the former can be constructed at lower cost, and that high-speed cinephotography can be carried out since the number of frames per second can be selected irrespective of the frequency of the power source.

3,564,244

MEASURING DEVICE FOR THERMOLUMINESCENT DOSIMETRY INCLUDING A DIFFUSELY REFLECTING BODY

Raymond Schayes, Brussel; Lucien Kersten, Dilbeek, and Claude Brooke, Ussel, Belgium, assignors to Manufacture Belge De Lampes et De Material Electronique en Abrege M.B.L.E., Brussel, Belgium
Filed Sept. 13, 1966, Ser. No. 579,129

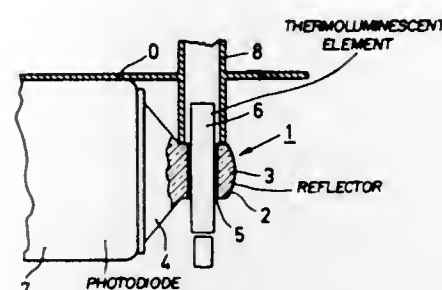
Claims priority, application Belgium, Sept. 16, 1965, 17,982

Int. Cl. G01t 1/11

U.S. Cl. 250-71

2 Claims

A device for measuring the light emitted by a thermolu-



observation of emitted light when the thermoluminescent element is heated, has an exterior light-reflecting surface.

3,564,245

INTEGRATED CIRCUIT MULTICELL P-N JUNCTION RADIATION DETECTORS WITH DIODES TO REDUCE CAPACITANCE OF NETWORKS

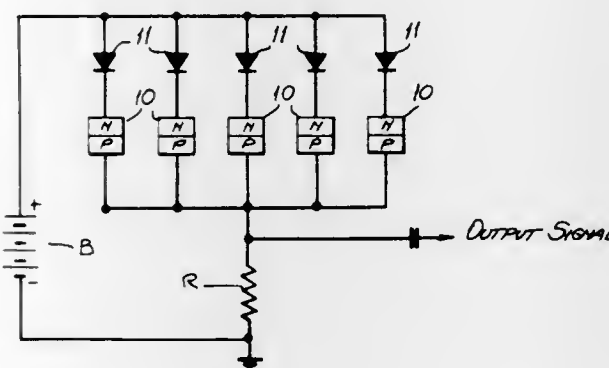
Dale R. Koehler, River Vale, N.J., assignor to Bulova Watch Company, Inc., New York, N.Y.

Filed Jan. 24, 1968, Ser. No. 700,102

Int. Cl. H01p 15/06

U.S. Cl. 250-83

12 Claims



A multicellular, solid-state radiation detector assembly adapted to produce exceptionally large signals in response to incident radiation, the detector being constituted by an array of individual surface-barrier or diffused-junction, radiation-sensitive, semiconductive cells, each of which has a small area and a low internal capacitance. The cells in the array are unidirectionally connected in parallel relation with respect to current flow, but are otherwise electrically isolated from each other, whereby the overall capacitance of the array is low while the detection efficiency thereof is substantially equal to a unitary radiation detector whose surface area is equivalent to the aggregate area of the cells, the signal output from the multicellular detector being far greater than that yielded by the unitary detector.

3,564,246

GAMMA COMPENSATED FISSION THERMOCOUPLE
Roderick Gordon Morrison, Los Alamos, N. Mex., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 5, 1965, Ser. No. 477,627

Int. Cl. G01t 3/04

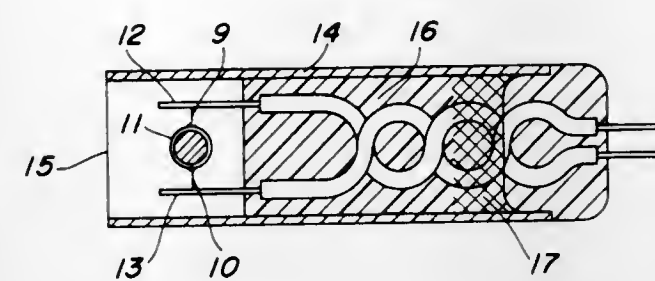
U.S. Cl. 250-83.1

3 Claims

A neutron flux measuring apparatus being the combination of a first and a second thermocouple connected in series in polarity opposition and each comprising an identical pair of dissimilar leads and a middle metallic spherical body having a diameter equal substantially to the mean free path of a thermal neutron in the uranium isotope, the neutron flux of

which is being measured, one of the middle metallic bodies being of fissionable material and the other middle metallic

detector circuits, thus providing means for comparison of the sensitivities of the two detection circuits. An adjustable observation gate in the surface electronics, in conjunction with



body being of nonfissionable material but being equally gamma responsive.

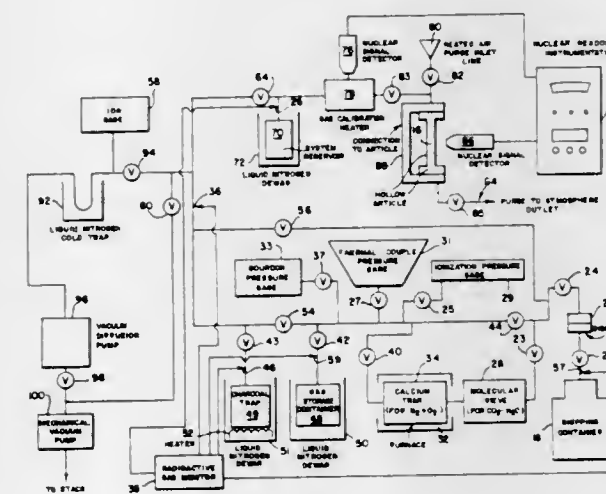
3,564,247

METHOD FOR MEASURING WALL THICKNESS OF ARTICLES USING GASEOUS RADIOACTIVE MATERIAL
Louis L. Packer, Hazardville, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed June 16, 1966, Ser. No. 558,065

U.S. Cl. 250-83.3

6 Claims



A method is provided for measuring the wall thickness of hollow turbine blades and turbine vanes by transferring a radioactive gas into the hollow blades or vanes to fill the interior cavity of these articles with the radioactive gas, and then measuring the intensity of the radiation transmitted through the wall of the hollow blade or vane, the intensity of this radiation providing an indication of the thickness of the wall.

3,564,248

METHOD AND APPARATUS FOR CALIBRATING PULSED NEUTRON WELL LOGGING INSTRUMENT
Eric C. Hopkinson and Arthur H. Youmans, Harris County, Tex., assignors to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware

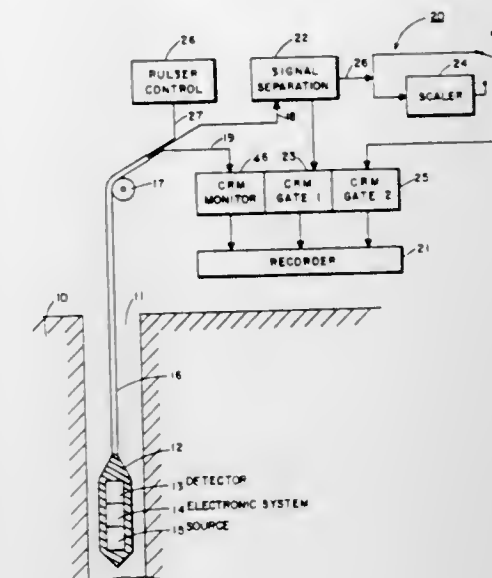
Filed Nov. 29, 1967, Ser. No. 686,397

Int. Cl. G01v 5/00

U.S. Cl. 250-83.3

8 Claims

A well logging instrument having a pair of radiation detector circuits and a pulsed neutron source are coupled through a cable to the surface electronics and calibration controls. A first switch is provided at the surface for causing the neutron source to operate continuously and a second switch is provided to effect a change in the gain of one of the radiation



a digital time interval counter, is used to measure the time elapsed between sync pulses and the beginning and ending of each of the two detection gates.

3,564,249

REVERSE PENETRANT METHOD AND MEANS
Orlando G. Molina, Westminster, Calif., assignor to North American Rockwell Corporation
No Drawing. Filed Feb. 24, 1969, Ser. No. 801,844

Int. Cl. G01n 21/16

U.S. Cl. 250-71

4 Claims

In a liquid dye penetrant system, conventional daylight visible bleeding dye penetrant is initially applied to a test surface, and cleaned therefrom leaving residual dye penetrant within cracks and defects. A fluorescing developer coating is applied to the test surface and viewed under ultraviolet light, the solid fluorescing background revealing a nonfluorescing pattern of defects which appears as a black trace wherever residual dye penetrant contacts the developer coating.

3,564,250

METHOD OF MEASURING FAST NEUTRONS BY OBSERVING MULTIPRONGED TRACKS OF CHARGED PARTICLES FORMED IN CELLULOSE NITRATE
Paul B. Price and Robert M. Walker, St. Louis, Mo., and Robert L. Fleischer, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

No Drawings. Filed Jan. 3, 1967, Ser. No. 606,547

Int. Cl. G01t 5/10

U.S. Cl. 250-83.1

5 Claims

This specification discloses the concept of detecting fast neutrons by chemically drilling or etching out multipronged tracks of charged particles formed in cellulose nitrate test bodies by collisions of fast neutrons with nuclei including those of carbon, nitrogen, oxygen and boron.

3,564,251

CASING INSPECTION METHOD AND APPARATUS
Arthur H. Youmans, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Mar. 4, 1968, Ser. No. 710,303

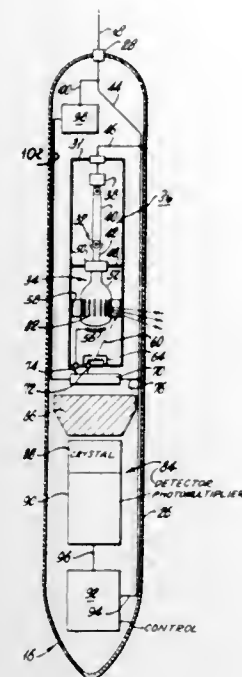
Int. Cl. G01t 1/16, 1/20

U.S. Cl. 250-83.3

12 Claims

Methods and apparatus for the inspection of casing, pipe lines, tanks, or the like are disclosed. The internal surface thereof is scanned with an X-ray beam. The intensity of the

resulting scattered X-rays is measured, displayed and recorded in correlation with the scan as a measure of the condition of the surface or the thickness of the scanned material.



3,564,252

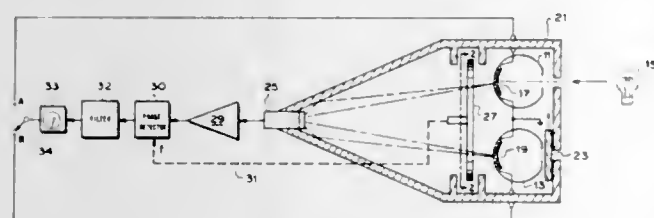
RADIOMETER FOR MEASURING POWER ON AN ABSOLUTE BASIS

Paul E. Stoff, Menlo Park, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Feb. 26, 1969, Ser. No. 802,338

Int. Cl. G01j 5/10

U.S. Cl. 250-83.3

6 Claims



There are provided two integrating spheres having the same configuration. One of the integrating spheres is heated by incident radiation collected from an outside energy source of unknown power. The second sphere is heated resistively to the same temperature attained by the first sphere. The electrical heating of the second sphere is controlled by a servo loop activated from a single detector which alternately senses thermal radiation from the two spheres. Electrical power delivered to the heating element in the second sphere is measured by a power meter and directly equals the radiative power incident in the first sphere.

3,564,253

SYSTEM AND METHOD FOR IRRADIATION OF PLANET SURFACE AREAS

Arthur G. Buckingham, Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 31, 1967, Ser. No. 612,905

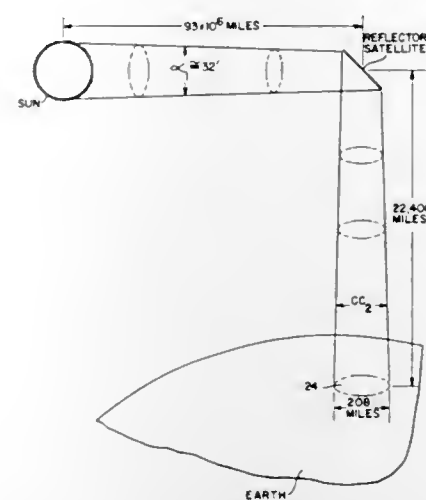
Int. Cl. H01j 35/00

U.S. Cl. 250-85

1 Claim

A system and method for generalized irradiation of relatively large surface areas of a planet, such as the earth, the moon, etc. for illumination, heating, weather control, etc.,

employing one or more planet-orbiting self-erecting planar-reflector satellites controlled in attitude and orbit position to



reflect energy from the sun to a desired area on the planet's surface.

3,564,254

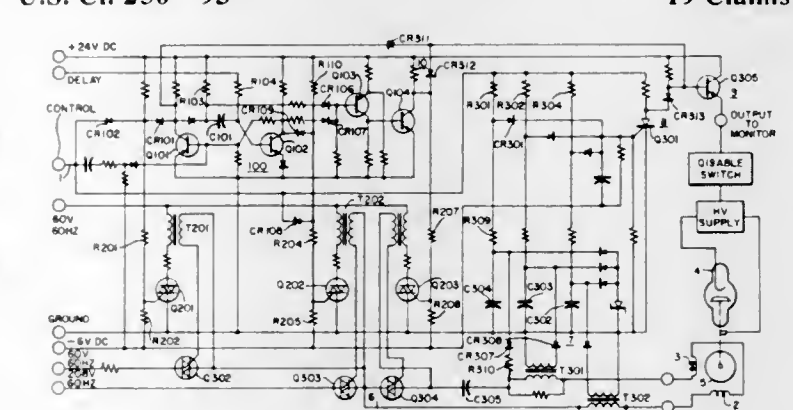
SPIN MOTOR CONTROLLER FOR A ROTATING ANODE MOTOR OF AN X-RAY GENERATOR TUBE

Melvin P. Siedband and Jack L. James, Baltimore, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 17, 1968, Ser. No. 745,534

Int. Cl. H05g 1/00

U.S. Cl. 250-93

19 Claims



A solid state spin motor controller responsive to monostable multivibrator circuitry for starting the motor, sensing that the motor has come up to speed properly, and preventing the application of excitation to the anode of the X-ray generator tube in the event the motor has not properly come up to speed or fails to operate continuously.

3,564,255

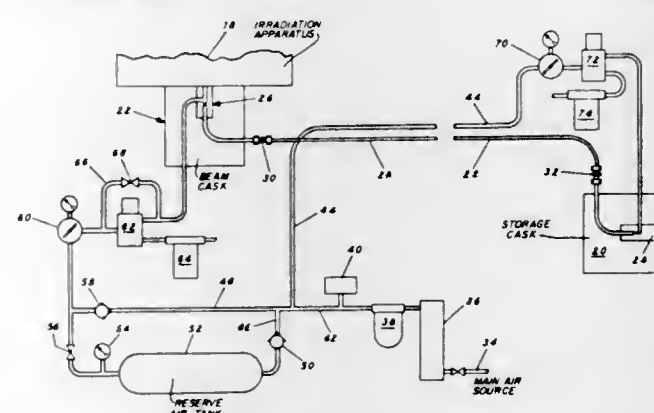
RADIOACTIVE SOURCE CAPSULE-HANDLING SYSTEM

George Robert Massey, Long Beach, Calif., assignor to Chevron Research Company, San Francisco, Calif.
Filed May 25, 1967, Ser. No. 641,320

Int. Cl. G21f 5/00

U.S. Cl. 250-106

1 Claim



The invention is particularly directed to a capture and sensing system useful in pneumatic transportation of capsules.

3,564,256 RADIOISOTOPE GENERATOR OF THE MOTHER-DAUGHTER TYPE HAVING QUICK-DETACHABLE MEMBERS

Jan Jacob Arlman and Dirk Nonhebel, Amsterdam, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

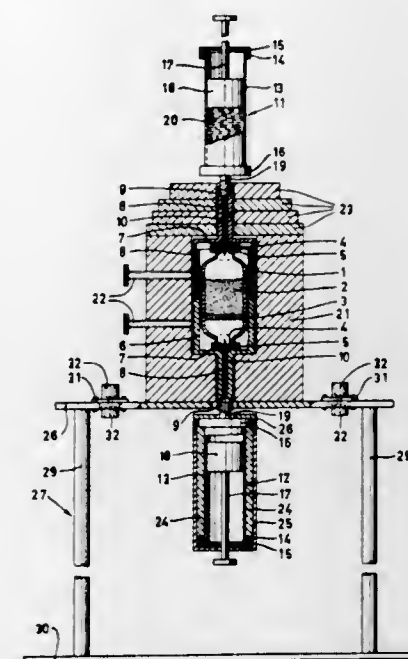
Filed June 1, 1967, Ser. No. 642,968

Claims priority, application Netherlands, Mar. 6, 1966, 6607699

Int. Cl. G21h 5/00

U.S. Cl. 250-106

3 Claims



A device is disclosed for obtaining fluids containing radioactive constituents particularly suitable for medical purposes. The device includes a holder for a substance having radioactive constituents and which is providing at the upper and lower ends with a portion of a quick-coupling member. In operation a vessel for a flushing liquid is connected with the upper coupling portion and the vessel for the fluid to be collected is connected with the lower coupling member portion to facilitate washing of the holder and collection of the fluid from the holder while avoiding contamination of the fluid in the holder.

3,564,257

RADIATION DETECTING APPARATUS

Peter John Berry, Itchingwood Common, Limpsfield, Surrey, and Bernard John Thompson, Walton-on-Thames, Surrey, England, assignors to Electric & Musical Industries Limited, Hayes, England
Filed Jan. 31, 1962, Ser. No. 170,280

Claims priority, application Great Britain, Feb. 3, 1961, 4,254/61

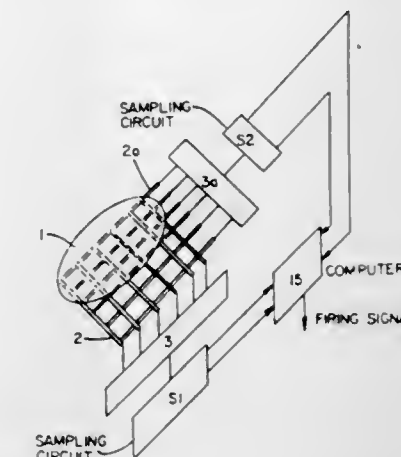
Int. Cl. F41g 7/00

U.S. Cl. 250-203

10 Claims

Apparatus for indicating the position of a radiating body moving relative to said apparatus, comprising a first lattice of elongated parallel radiation-sensitive elements, a second lattice of elongated parallel radiation-sensitive elements, means for focusing radiation on said two lattices from substantially the same point of view, the elements of the first lattice being at right angles to the elements of the second lattice from the point of view of the focusing means, first sampling means for sampling the elements of the first lattice in predetermined manner to determine which, if any, of the respective elements receives radiation, second sampling means for sampling the elements of the second lattice independently of the first sampling means in predetermined manner to determine which, if any, of the respective elements receives radiation, and output means responsive to the respective sampling means for producing output signals respectively representing the location of elements of the respective lattices receiving the radiation, wherein either or both of said sampling means

comprises sequentially operable means for initially sampling the respective elements in a predetermined sequence, means for discontinuing the sequential operation of said sequentially operable means in response to a radiation signal from one of the respective elements, relocating means responsive to a



decline of said radiation signal for sampling one or more of the elements in said sequence adjacent said one element until a radiation sensitive signal is obtained from one of said adjacent elements.

3,564,258

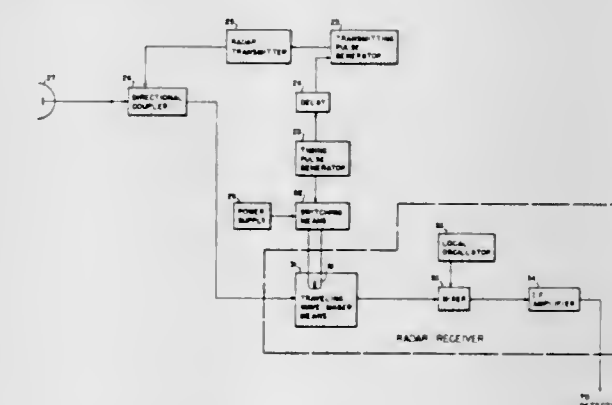
MAGNETIC MASER SATURATION PROTECTION SWITCH

Bernard R. Feingold, Pennsauken, N.J., assignor to the United States of America as represented by the Secretary of the Navy
Filed July 8, 1968, Ser. No. 743,192

Int. Cl. H04b 9/00

U.S. Cl. 250-199

7 Claims



The present invention utilizes a switching coil in conjunction with a traveling wave maser means to enable the use of a maser crystal in a radar system. The switching coil is placed within the confines of the wall of the waveguide within which the maser is located and is connected with a power supply that produces a current flow that produces an additional magnetic field. The additional magnetic field detunes the maser for a time period equal to the radio frequency pulse transmitted by the radar system.

3,564,259

PHOTOELECTRIC EXPOSURE METER WITH OFF-ZERO BALANCING MARK ON METER SCALE

Walter Hennig, Lothar Brust, and Erich Geissler, Dresden, Germany, assignors to VEB Pentacon Dresden Kamera- und Kinowerke, Dresden, Germany
Filed May 27, 1968, Ser. No. 732,391

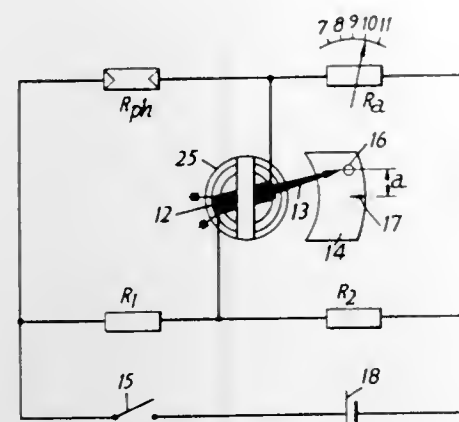
Int. Cl. H01j 39/12

U.S. Cl. 250-210

5 Claims

A photoelectric exposure-measuring device having a photoconductive cell arranged in a compensation circuit and an optical or electric balancing resistance and a galvanome-

ter indicating the state of balance, the return spring of which seeks to rotate the moving coil into the currentless zero position, wherein an off zero indication mark is provided on the



3,564,260

SOLID-STATE ENERGY-RESPONSIVE LUMINESCENT DEVICE

Kazunobu Tanaka, Kawasaki-shi, and Tadao Kohashi, Yokohama, Japan, assignors to Matsukita Electric Industrial Co., Ltd., Osaka, Japan

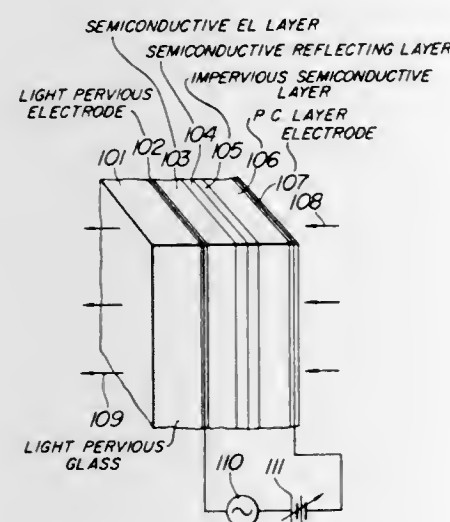
Filed Feb. 23, 1968, Ser. No. 707,713

Claims priority, application Japan, Feb. 24, 1967, 42/12200

Int. Cl. H01j 31/50

U.S. Cl. 250-213

7 Claims



A solid-state energy-responsive luminescent device comprising an electro-luminescent element which is excited by AC voltage and has been endowed with resistivity and a photoconductive element whose photoconductive sensitivity is controlled by superimposing a DC voltage on the AC operating voltage; an AC voltage and a DC voltage superimposed on said AC voltage being applied across said two elements; said device being constituted so that DC voltage distributed to the photoconductive element decreases corresponding to decrease in the resistance of the photoconductive element relating to excitation by incident energy and that the AC photoconductive sensitivity of the photoconductive element is controlled through the DC voltage in response to the intensity of the incident energy.

ELECTROLYTIC LIGHT SCATTERING SHUTTER SYSTEM

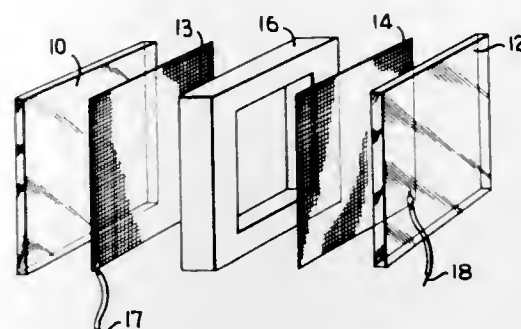
Albert F. Hadermann, Ijamsville, Md., and Stephen C. Ban, Fairfax, Va., assignors to Melpar, Inc., Falls Church, Va.

Filed Apr. 1, 1969, Ser. No. 812,181

Int. Cl. G02f 1/30

U.S. Cl. 250-217

18 Claims



An optical shutter in the form of an electrochemical cell responds to an intense light flash to switch from a light transmitting condition to a light scattering condition. The cell includes a pair of electrodes separated by an electrolyte, and normally provides an optical path therethrough. A fast response photoelectric detector is positioned adjacent the cell to sense any intense flash of light falling on the cell, and thereupon to trigger a capacitive discharge through the electrodes and electrolyte of the cell via a high speed switching circuit. The electrolyte decomposes in response to the passage of electric current therethrough to evolve large quantities of gaseous products which form a film of fine bubbles at the electrodes. The bubbles constitute an irregular reflecting surface effective to scatter incident light. Transparency is resumed upon clearing of the bubbles, which may be accomplished by applying supersonic vibrations to the solution, or by elapse of time.

3,564,262

TURBIDIMETER USING A PRESSURIZED FLUID CONTAINER

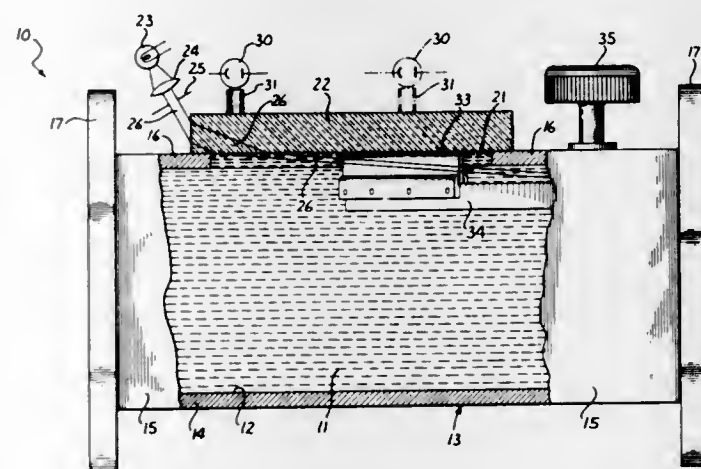
Clifford C. Hach, Ames, Iowa, assignor to Hach Chemical Company

Filed Feb. 7, 1968, Ser. No. 703,613

Int. Cl. G01n 21/00, 21/46, 1/00

U.S. Cl. 250-218

1 Claim



A turbidimeter for fluid under pressure consisting of a pipe section having a thick optical glass window through which light is refracted into the liquid at a very shallow angle. A photocell is positioned to sense light reflected by turbidity particles in the fluid.

3,564,263

OPTICAL PARTICLE SENSOR HAVING A LIGHT COLLECTOR MOUNTED ON THE PHOTOSENSOR

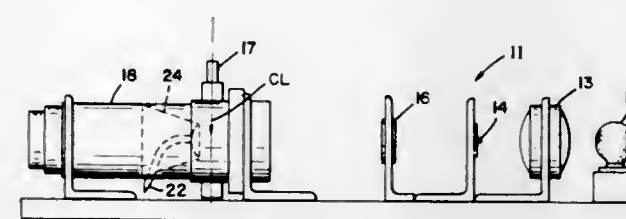
Clyde C. Shaw, Los Altos Hills, Calif., assignor to Coulter Electronics, Inc., Hialeah, Fla.

Filed Sept. 30, 1968, Ser. No. 763,757

Int. Cl. G01n 21/00, 21/26

U.S. Cl. 250-218

9 Claims



A black specular surfaced tube has an open end aligned with the illuminating beam of an optical particle sensor. The manner in which the black specular surfaced tube is associated with the other elements of the particle sensor permits the tube to act essentially as a black hole for conducting the unscattered light from the illuminating beam out of the particle sensor.

3,564,264

DEVICE FOR COUNTING PARTICLES IN A FLOWING FLUID

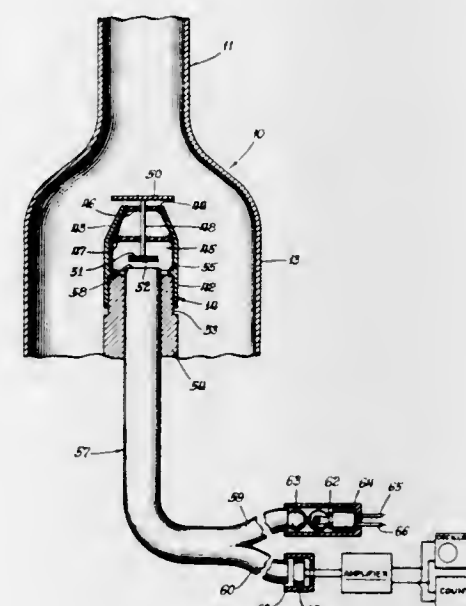
Richard F. Karuhn, Chicago, and Anatoli Brushenko, Elmhurst, Ill., assignors to Erco Engineering Corporation

Filed Dec. 19, 1968, Ser. No. 785,158

Int. Cl. G01n 21/26; G01b 15/00

U.S. Cl. 250-218

15 Claims



A fluid having the particles to be detected suspended therein is introduced into a tube. The tube has a capillary section through which the flow is laminar in the absence of a particle and which changes to a turbulent flow as a particle traverses the section. Immediately downstream of the section is a flow characteristic detector to indicate whether the flow is laminar or turbulent. In one embodiment the detector is a vane which is pushed sideways by the laminar flow exiting from the section to open an electrical switch and which returns to switch closed position in the presence of turbulent flow. In a second embodiment the detector is a vane which is moved away from the capillary section by laminar flow but which returns toward the section in the presence of turbulent flow. The position of the latter vane is determined by reflecting light angularly therefrom toward a light receiving position with the light present at the receiving position being mea-

sured with the measurement being a function of the vane position.

3,564,265

APPARATUS FOR DETECTING AND LOCATING STREAKS ON MOVING WEBS IN THE PRODUCTION OF PHOTOGRAPHIC PAPERS AND FILMS

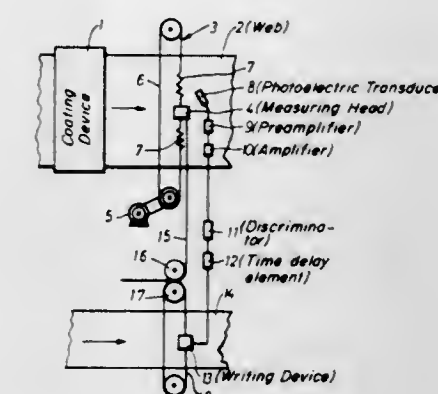
Konrad Bunge, Cologne-Stammheim; Otto Koch; Bernhard Vinzelberg; Guenther Koepke, Leverkusen, and Georg Braeuniger, Cologne-Flittard, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Dec. 18, 1967, Ser. No. 691,469

Int. Cl. G01n 21/32

U.S. Cl. 250-219

7 Claims



In the production of supported films wherein a liquid medium is deposited on a light reflecting support, the steps of inspecting to determine irregularities in the supported film which comprise directing a light beam to the deposited liquid medium including light of a wave length absorbed by the deposited liquid medium, for reflection by the light reflecting support, and sensing variation in absorption of said light beam by the liquid medium.

3,564,266

PHOTOELECTRIC FINGERPRINT RIDGE COUNTER

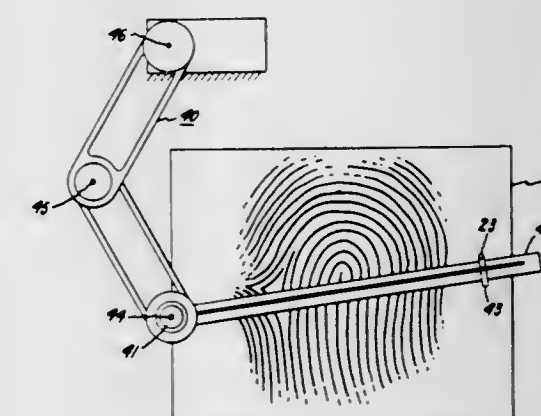
Theodore H. Klotz, Jr., Scotia, N.Y., assignor to General Electric Company, a corporation of New York

Filed Apr. 8, 1968, Ser. No. 719,528

Int. Cl. G01n 21/30

U.S. Cl. 250-219

10 Claims



Counting of ridges between the central core and the delta of a fingerprint as an identification aid is accomplished by moving a photodetector between a pair of selected points across a rear-projected image of the print. The photodetector output signal drives a counter for each crossing of the photodetector light intensity reference level in a given direction, so as to indicate the number of ridges. Photodetector-positioning apparatus is provided to reduce operator fatigue and insure accuracy.

3,564,267

ARRANGEMENT FOR OPTICAL-ELECTRONIC IDENTIFICATION OF A MOVING BODY

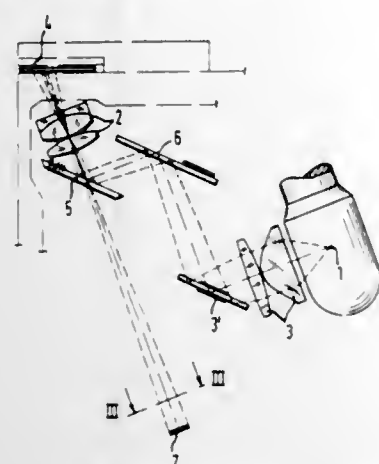
Arthur Walter, Denzlingen, Germany, assignor to Erwin Sick, Waldkirch, Breisgau, Germany

Filed Apr. 23, 1969, Ser. No. 818,619

Claims priority, application Germany, Apr. 26, 1968, P 17 74 180

Int. Cl. G08c 9/06

U.S. Cl. 250-219



An arrangement for the optical-electronic identification of a moving body provided with identification marks, said marks consisting of a plurality of code marks arranged in parallel relationship and being perpendicular to the direction of movement of said body, said code marks being constituted as broad and narrow code marks, the width of the broad code marks being three times that of the narrow code marks and the space on both sides of a narrow code mark being at least twice the width of a narrow code mark. An optical system is provided for producing a scanning spot of light of at least four times the width of a narrow code mark, the optical system projecting the images of the respective illuminated areas of the field of the identification marks onto four adjacent photodetectors controlling two gates via three differential amplifiers responsive to the difference of the scanning signal of the fourth, outer detector with respect to the scanning signals of the remaining three detectors, one of the gates being responsive to a broad mark while the other of the gates is responsive to a narrow mark.

3,564,268

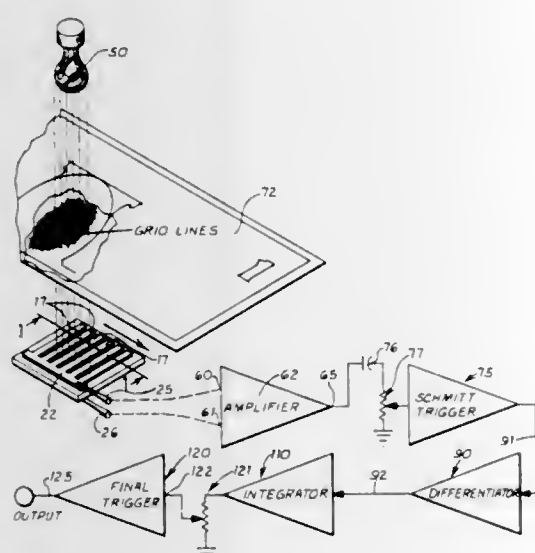
DOCUMENT VERIFIER USING PHOTOVOLTAIC CELL WITH LIGHT SENSITIVE BARS

Robert T. Bayne, and James S. Nawa, Santa Barbara, Calif., assignors to Standard Change-Makers, Inc., Indianapolis, Ind.

Filed June 27, 1969, Ser. No. 837,060

Int. Cl. G01n 21/32

U.S. Cl. 250-219



A dollar bill verifier including a photovoltaic cell having light sensitive bars approximately the same width as the black

grid lines on the bill. An amplifier receives the output of the cell and couples it through a potentiometer to a Schmitt trigger. The Schmitt trigger is coupled through a differentiator, integrator and potentiometer to a switch.

3,564,269

METHOD AND APPARATUS FOR PHOTSENSITIVELY TESTING WHEELS

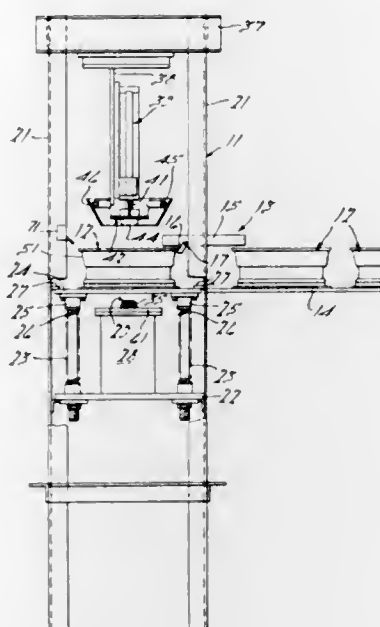
Alvah J. Lynch, Wayne, Mich., assignor to Kelsey-Hayes Company

Filed Nov. 14, 1967, Ser. No. 682,935

Int. Cl. G06m 7/00; G01n 21/16; B07c 5/342

U.S. Cl. 250-223

12 Claims



An apparatus for detecting cracks in the spider of a vehicular wheel. The detecting apparatus employs a plurality of light-sensitive elements that are positioned on one side of the wheel spider and within a light seal. A light source is disposed on the other side of the wheel spider whereby any light impinging upon the light-sensitive device through cracks in the wheel spider will indicate a defective wheel.

3,564,270

LOGIC CIRCUIT FOR BUFFING MACHINE

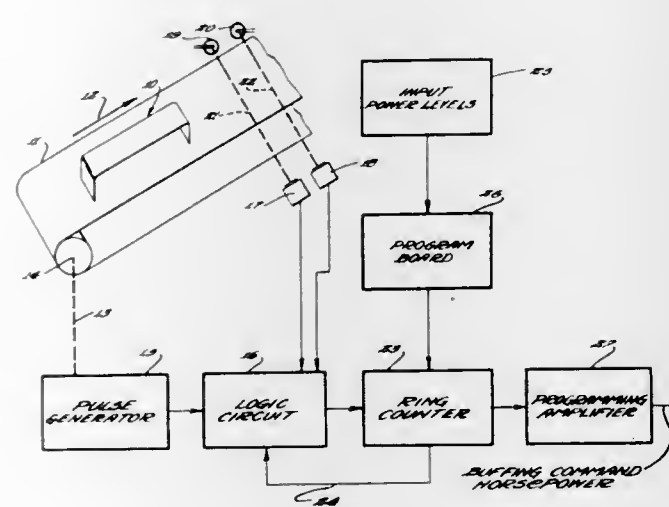
Glenn Eggert, Milwaukee, Wis., assignor to Houdaille Industries, Inc., Buffalo, N.Y.

Filed Apr. 16, 1969, Ser. No. 816,717

Int. Cl. B60s 3/00; C06m 3/02

U.S. Cl. 250-223

17 Claims



An automatic system for buffing a moving object which includes means for developing a series of pulses in response to the rate of movement of the object to be buffed and for utilizing the pulses so developed to sequentially apply a predetermined buffing force to the moving object. A solid-

state logic circuit is employed to control the operation of a solid-state counter. The counter in turn utilizes each count for coupling a power level to the buffing machine so that a given power level is related to each pulse through the counter. Hence, a given power level is related to each increment of movement of the object being buffed. A series of gate circuits sense the presence of the object to be buffed and sets a ring counter. When the object to be buffed is sensed by the logic circuit, the ring counter is opened to a pulse generator which is sequenced to the rate of movement of the object being buffed. Effectively, then, the ring counter is counting increments of movement of the object being buffed and utilizing the sequential change of state of individual flip-flops of the ring counter to couple the various power levels to the buffing machine. Essentially, the ring counter biases on respective numbers of transistors with each count, and the power level coupled to each transistor is then applied directly to the buffing machine for generating the instantaneous force required to buff the moving object.

3,564,271

CONVEYOR CODING APPARATUS

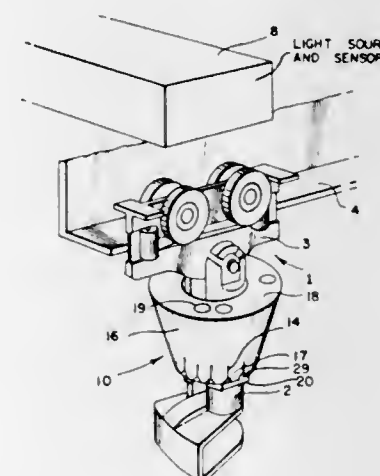
Richard E. Nearman, Mount Airy, Md., assignor to Automated Handling Systems Inc., Washington, D.C.

Filed May 13, 1968, Ser. No. 728,514

Int. Cl. G06m 7/00

U.S. Cl. 250-223

8 Claims



Described herein are light coding apparatus having moveable cones and plates with upward reflective spots and horizontal visual indicia for use with conventional focused light sources and photoelectric cells, which have particular application to the conveyor art where accurate designations of instructions for operations depend on accurate carrier identification as carriers pass stations.

3,564,272

OPTICAL DEVICE FOR EXAMINATION OF SMOKE OR DUST LADEN GAS

Edmund James Payton, Tadworth, and Colin Wilson, New Malden, England, assignors to Central Electricity Generating Board, London, England

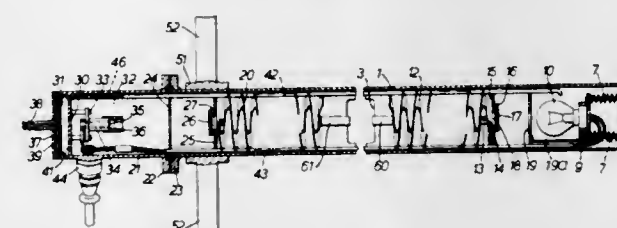
Filed July 9, 1968, Ser. No. 743,522

Claims priority, application Great Britain, July 11, 1967, 31,798/67

Int. Cl. G01n 21/12

U.S. Cl. 250-218

13 Claims



An optical device for examination of smoke- or dust-laden gases such as flue gas from a furnace. The device comprises a

tube with a lamp at one end and a photocell at the other end and diametrically opposite slots in the tube to allow the gas to be examined to pass between the lamp and the photocell. Means are provided to ensure that there is a flow of air away from each end of the tube towards the slots to prevent dust from the gas reaching the lamp and photocell.

3,564,273

PULSE WIDTH MODULATED CONTROL SYSTEM WITH EXTERNAL FEEDBACK AND MECHANICAL MEMORY

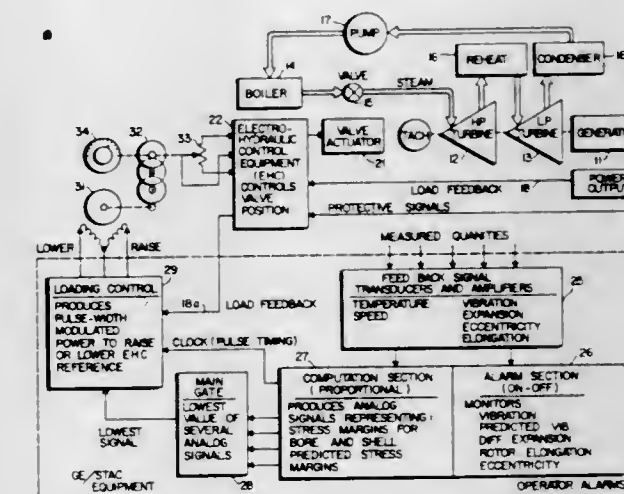
William D. Cockrell, Waynesboro, Va., assignor to General Electric Company, a corporation of New York

Filed Nov. 9, 1967, Ser. No. 681,819

Int. Cl. F01d 17/00

U.S. Cl. 290-40

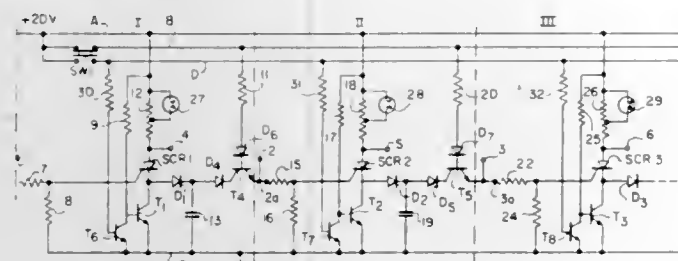
22 Claims



This invention comprises a control system for electrically controlled, mechanically actuated mechanisms of large power rating. Such mechanisms normally include mechanical actuating devices such as control valves for controlling the output operating condition of the mechanism. The control system of the invention includes electric power modulation circuit means having its input coupled to a source of electric control signals for controlling the operation of the mechanism and for producing output modulated controlled power signals are applied to an electromechanical positioning device such as a servomotor which has its output mechanically coupled to and controlling the position of the mechanical actuating means (valve) of the mechanism. The input of the servomotor is coupled to and controlled by the output from the electric power modulation circuit. The electric power modulation circuit preferably comprises a pulse width modulation circuit having a source of constant period pulsed clock signals supplied thereto and two output terminals. The input control signal selectively controls the width at the clock rate of the output signal pulses produced at the output of the modulation circuit as well as selects the output terminal to which the pulse width modulated pulses are supplied. As a result, the pulse width modulated output signals from one output terminal will serve to adjust the servomotor in one direction while the signals from the remaining output terminal serve to adjust the servomotor in the other direction. By reason of this arrangement, the last adjusted position of the mechanical actuating means by the servomotor serves as a memory for the overall control system until the next adjustment of the operating condition by the control system. The control system of the invention is particularly intended for use with turbine-generator sets and for controlling the startup and initial loading of the turbine-generator set until such time that it has attained its optimum operating condition.

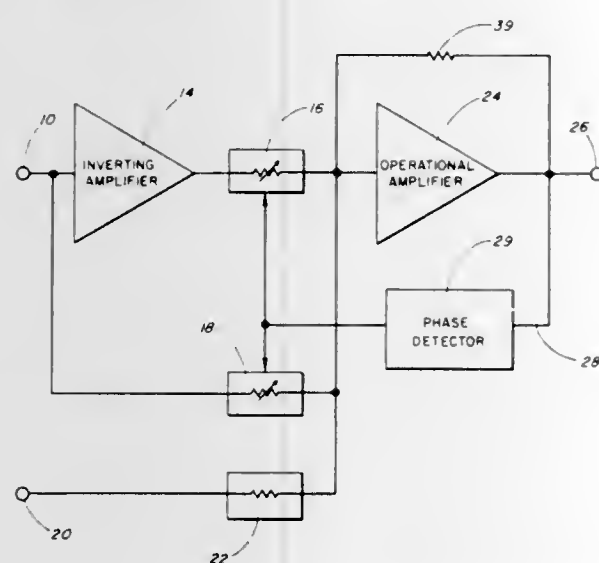
transistor or two transistors whose bases and emitters are connected in parallel with each other. In the inverter, the two collectors of the multicollector transistor or of the two transistors in the input circuit are connected to the base and the emitter, which is the output terminal, of the emitter follower transistor, respectively. A plurality of such inverters are combined in such a manner that the bases and the output terminals of the emitter follower transistors are connected in multiple to provide a logic circuit.

3,564,282
SILICON-CONTROLLED RECTIFIER SHIFT REGISTER AND RING COUNTER
Walter H. Vogelsberg, Radnor, Pa., assignor to General Mold and Machinery Corporation, Millville, N.J.
Filed Apr. 1, 1969, Ser. No. 812,253
Int. Cl. H03k 21/00; H01h 47/32
U.S. Cl. 307-221 45 Claims



A silicon-controlled shift register or ring counter using a single silicon-controlled rectifier per stage; the register can be operated as a serial register with a single input and a single output, or it can be operated as a ring counter or a plurality of inputs and outputs can be provided; also the output from any stage can be canceled; the shifting from one stage to the next is a positive shift; a special output stage to be used with the register is also disclosed; the register is particularly adaptable to machine control and to the control of industrial processes.

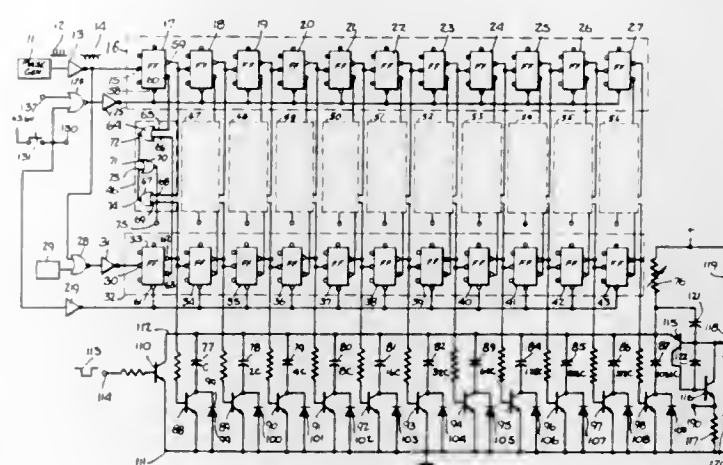
3,564,283
ANALOG FEEDBACK CIRCUIT
Thomas H. Bladen, Adelphi, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Sept. 25, 1968, Ser. No. 762,664
Int. Cl. G06g 7/14
U.S. Cl. 307-229 8 Claims



An analog feedback circuit for producing a null or zero output for two either in-phase or 180° out-of-phase input signals applied to the circuit. The first input signal is applied to a first field-effect-transistor variable summing impedance circuit and an inversion thereof is simultaneously applied to a second and complimentary field-effect-transistor variable

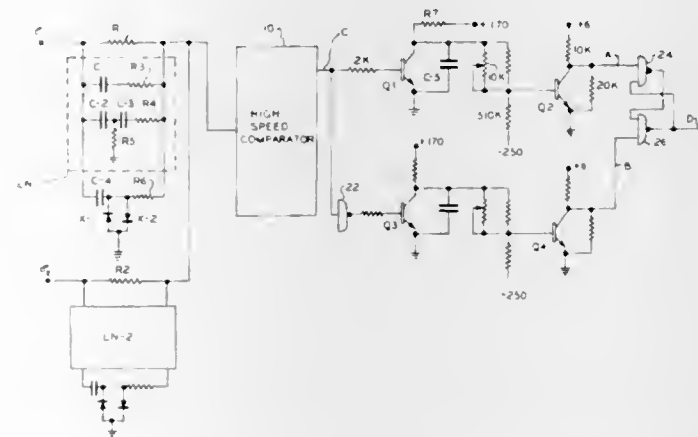
summing impedance circuit. The second input signal is applied to a third field-effect-transistor constant summing impedance circuit. The outputs of the first and second variable summing impedance circuits are controlled by a DC signal so that when combined with the output of the constant third summing impedance circuit in an operational summing amplifier a null or zero output is obtained.

3,564,284
TIME INTERVAL COMPARISON SYSTEM
Bruce H. Kamens, 56 Hotchkiss Ave., Thomaston, Conn. 06778
Filed Feb. 14, 1969, Ser. No. 799,368
Int. Cl. H03k 5/20
U.S. Cl. 307-232 11 Claims



Apparatus for comparing a recorded, standard interval of time with subsequent intervals of time and determining whether such subsequent intervals are equal to the standard interval to within a predetermined degree of accuracy measured as a fraction of the standard interval. The invention includes means to record a standard interval of time as an electrical condition, means to record a subsequent interval of time as a second electrical condition, and time-controlled means to compare the two conditions to determine which is the longer and by how much. One embodiment of the invention includes a timing circuit with a digitally controlled time constant to indicate the discrepancy between a subsequent interval and the standard interval for different standard intervals. Another embodiment uses an additional time recorder to make a direct comparison between the record of the standard interval and a record of the discrepancy interval.

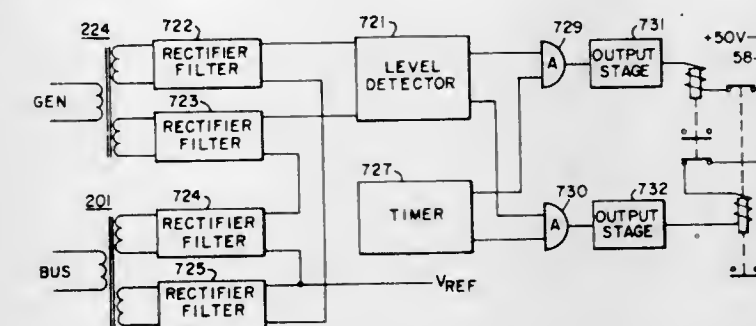
3,564,285
ELECTRONIC COMPARATOR CIRCUIT
Edward O. Gilbert, Ann Arbor, Mich., assignor to Reliance Electric Company, Cleveland, Ohio
Filed May 6, 1968, Ser. No. 726,962
Int. Cl. H03k 5/20
U.S. Cl. 307-234 6 Claims



A noise-rejecting analogue computer comparison circuit in which logic output signals of a high-speed comparator which

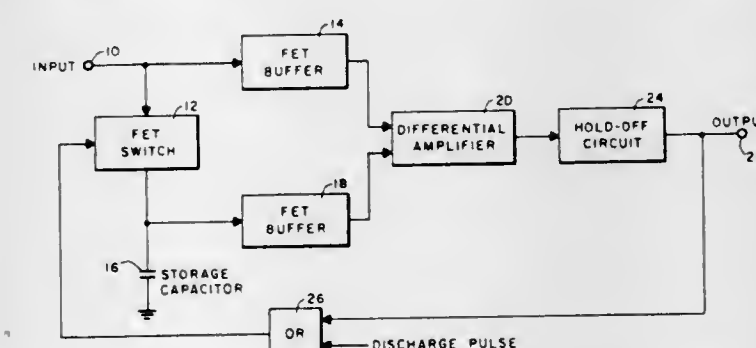
responds to narrow noise spikes is applied directly and in inverted form to a pair of unidirectionally-acting delay circuits, each of which respond only to pulses of a predetermined time-width or greater, but which reset substantially instantaneously, with the outputs of the delay circuits applied to a set-clear flip-flop to provide a logic output signal. Lead networks inserted in the comparator input circuits compensate for the delay provided by the delay circuits, to provide a noise-rejecting comparator which has very little delay for smoothly-varying input signals.

3,564,286
SOLID STATE VOLTAGE MATCHER AND VOLTAGE DIFFERENCE DETECTOR FOR USE THEREIN
Tibor Rubner, Pittsburgh, and John H. Bednarek, Murrysville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 2, 1968, Ser. No. 695,026
Int. Cl. H03k 5/20 7 Claims



Two direct current difference voltages, of opposite polarity, are obtained, one by subtracting a voltage corresponding to the bus from a voltage corresponding to the generator, and the other by subtracting a voltage corresponding to the generator from a voltage corresponding to the bus, and are applied to the bases of separate transistors both of which, together with a third transistor, comprise a two-input-level detector. If the bus voltage is greater than the generator voltage by an amount which is greater than an adjustable threshold level established by varying the setting of a potentiometer arm connected to the base of the third transistor, an output is applied to a first AND circuit. If the generator voltage is greater than the bus voltage by an amount which is greater than the threshold level, an output is applied to a second AND circuit. A timer connected to both AND circuits supplies a pulse of adjustable width and predetermined repetition rate to both AND circuits simultaneously; the AND circuit which has an additional input thereto in accordance with the relative magnitudes of the bus and generator voltages supplies a pulse signal to an output transistor which energizes a relay winding. The two output transistors supplied from the two AND circuits respectively energize relay windings to supply "raise volts" and "lower volts" pulses to a motor-driven voltage-adjusting rheostat operatively connected to the generator.

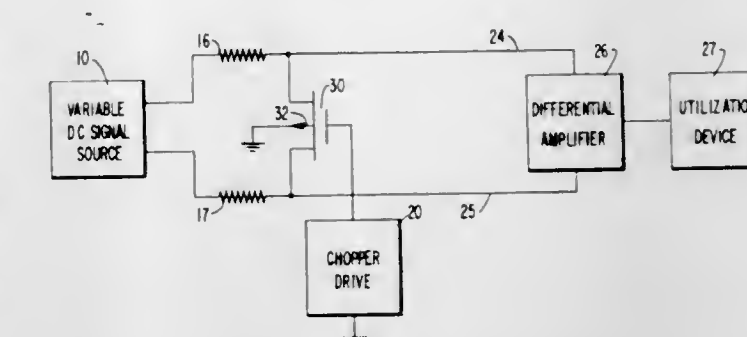
3,564,287
MAXIMUM SEEKING ZERO ORDER HOLD CIRCUIT
Barry S. Todd, Corona, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed July 25, 1968, Ser. No. 747,604
Int. Cl. H03k 5/20 2 Claims



A circuit for finding the maximum value of an input signal and providing an output signal at the time the maximum oc-

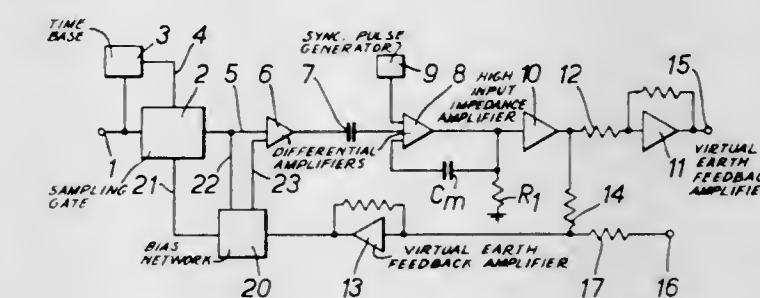
curred. The input signal is connected to a memory capacitor each time a differential amplifier determines that the input signal exceeds the stored value.

3,564,288
INHERENTLY BALANCED CHOPPER CIRCUIT
Douglas M. Bauer, Danvers, Mass., assignor to General Electric Company, a corporation of New York
Filed June 21, 1968, Ser. No. 739,070
Int. Cl. H03k 17/56 9 Claims



An inherently balanced, thermally stable signal chopper circuit. A field effect transistor connected across a variable signal source is driven by a chopper drive circuit. The chopped signal is applied to a differential amplifier. Grounding the substrate balances and minimizes interelectrode capacitances to minimize chopper drive signals at the differential amplifier output.

3,564,289
ELECTRICAL SAMPLING ARRANGEMENT
Robin T. Smith-Saville, Cambridge, England, assignor to Cambridge Consultants Limited, Cambridge, England
Filed Apr. 8, 1968, Ser. No. 719,396
Claims priority, application Great Britain, Apr. 17, 1967, 17546/67
Int. Cl. H03k 5/00, 17/00; H03f 3/68
U.S. Cl. 307-246 10 Claims



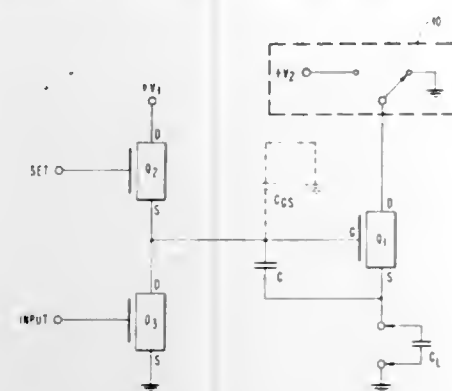
A circuit for sampling a continuous repetitive waveform which includes an input gate, a memory device to store a signal related to the gated input signal, and a feedback path from the memory device to the gate in order to ensure that only variations in the sampled signal are transmitted to the memory device, the intervals between the instants of sampling being so arranged that a signal may be obtained from the memory device representative of a cycle of the waveform.

3,564,290
REGENERATIVE FET SOURCE FOLLOWER
George Sonoda, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 13, 1969, Ser. No. 807,782
Int. Cl. H03k 17/60 11 Claims

This specification describes a logic circuit having a capacitor coupled between the gate and source of an FET to cause the potential at the gate to follow the potential at source. The charge of this capacitor is controlled to render the FET conductive or nonconductive so that pulses applied to the drain of the FET can be selectively gated or not gated through the

FET to a load connected to the source of the FET. By operating the FET in this way small supply voltages may be

used. These voltages can be in the order of the size of the signals transmitted to the load.



3,564,291

ELECTRONIC RELAY ARRANGEMENT

Einar Andreas Agaard, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 20, 1967, Ser. No. 684,240

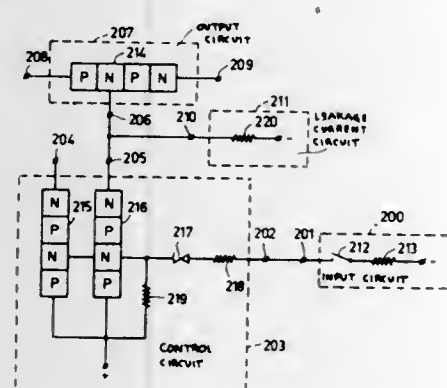
Claims priority, application Netherlands, Nov. 30, 1966,

6616834

Int. Cl. H03k 5/20

U.S. Cl. 307-252

13 Claims



An electronic relay comprises a first PNP device in series with a line to be controlled, and a second PNP device having one end electrode connected to a point of constant potential. The other end electrode of the second device is connected to the inner layer of similar conductivity of the first device. A control circuit is connected to an inner layer of the second device.

3,564,292

ELECTRICAL INTERSTAGE CONTROL

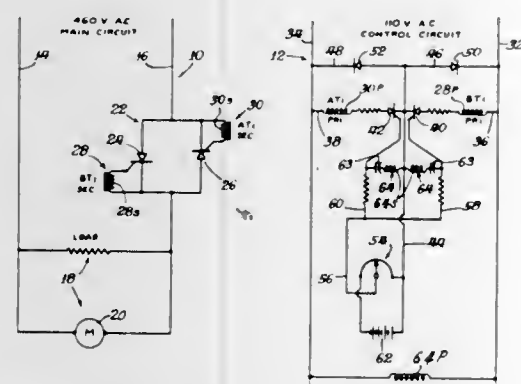
Arthur K. Littwin, Lincolnwood, Ill., assignor to Arthur K. Littwin; Robert L. Littwin; Donald F. Littwin and Horace A. Young, Chicago, Ill., as trustees under trust dated 1/2/51 known as Littwin Family Trust No. 1

Filed Jan. 12, 1967, Ser. No. 608,865

Int. Cl. H03k 17/00

U.S. Cl. 307-252

6 Claims



Auxiliary SCR's of low current carrying capacity utilized for controlling main SCR's of high current carrying capacity,

3,564,293 TEMPERATURE-COMPENSATING THYRISTOR CONTROL

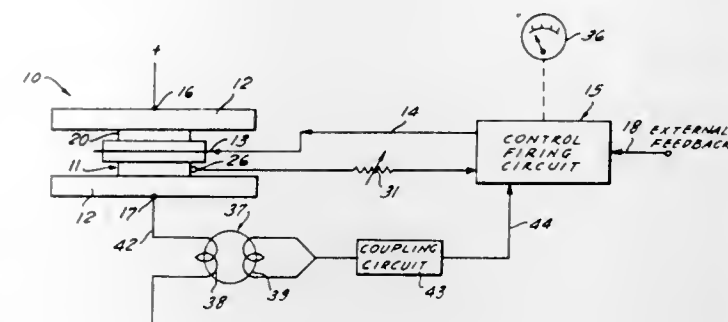
John E. Mungenast, Skaneateles, N.Y., assignor to Power Semiconductors, Inc., Devon, Conn.

Filed Apr. 16, 1968, Ser. No. 721,698

Int. Cl. H03k 17/00

U.S. Cl. 307-252

13 Claims



A temperature-sensing element is mounted in good heat transfer relation with a thyristor, and is connected to a control winding of the thyristor firing control circuit. When the temperature of the thyristor rises too high for existing operating conditions the sensing element is effective to reduce the current flow in the thyristor, without stopping it altogether. A signal derived from the current flow through the thyristor may be combined with a signal from the temperature-sensing means to provide a control more accurately representative of the junction temperature in the thyristor. The control is continuous over a predetermined temperature range.

3,564,294

PULSE WELDING CIRCUITS

Nigel C. Balchin, Cambridge, England, assignor to The Welding Institute, Cambridge, England

Filed June 7, 1968, Ser. No. 735,266

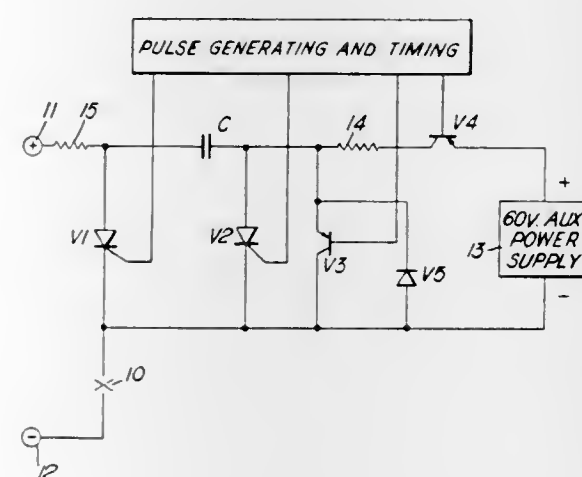
Claims priority, application Great Britain, June 9, 1967,

26,779/67

Int. Cl. H03k 17/00

U.S. Cl. 307-252

4 Claims



In a pulses current power supply utilizing a thyristor to supply current to a load and a commutating thyristor and capacitor for switching off the load-current thyristor, a transistor is pulsed in timed relation to triggering pulses applied to the two thyristors and is so connected in the commutating thyristor circuit that if the commutating thyristor is on when the transistor conducts the transistor switches the commutating thyristor off. This overcomes the problem of miscommutation, when an arc load is first applied, for example, which would otherwise leave both thyristors conducting.

3,564,295

FREQUENCY DOUBLING CIRCUIT

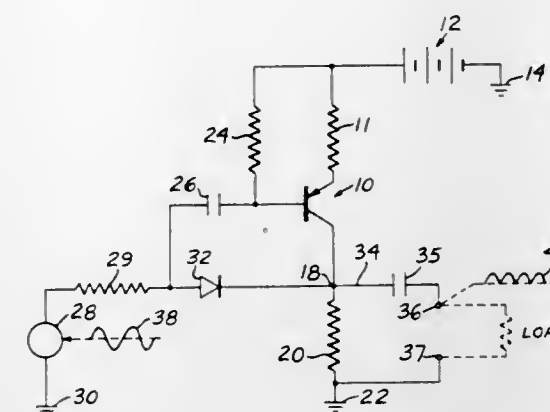
Mathew A. Slaats, Jasper, Ind., assignor to Kimball Piano & Organ Co., Jasper, Ind.

Filed July 19, 1967, Ser. No. 654,613

Int. Cl. H03k 5/00

U.S. Cl. 307-261

8 Claims



The specification discloses a frequency doubling circuit in which the input side of the circuit receives alternating current and one half wave thereof is supplied to the output side of the circuit via a diode while the other half wave biases a transistor to conduction to supply a half wave to the output side of the circuit of the same polarity as the half wave supplied via the diode. A capacitor between the output side of the circuit and a load stage blocks direct current so the supply to the load stage is in the form of alternating current at double the frequency of the current supply to the input side of the circuit.

3,564,297

CIRCUIT ARRANGEMENT FOR PRODUCING CURRENT IMPULSES WITH VERY STEEP FLANKS

Peter Elsner, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed May 16, 1967, Ser. No. 638,830

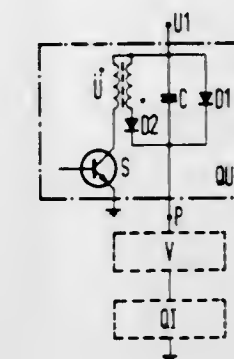
Claims priority, application Germany, May 25, 1966,

S103977

Int. Cl. H03k 5/12

U.S. Cl. 307-263

1 Claim



A circuit arrangement for the production of current impulses with very steep flanks, utilizing current impulses of an impressed current source, in which the current impulse source is connected to a voltage supply thereof with a time dependent voltage source, with the impulse current source being supplied at its load, during the initiation of an impulse, with the full operating voltage and thereafter for the remainder of the impulse with an operating voltage which covers only the circuit losses.

3,564,298

DYNAMIC AMPLIFIER LEVEL CONVERTER

Ronald P. Colino, Commack, N.Y., assignor to General Instrument Corporation, Newark, N.J.

Filed Dec. 5, 1968, Ser. No. 781,509

Int. Cl. H03k 5/08; H03f 3/18

U.S. Cl. 307-268

24 Claims

3,564,296

WAVEFORM SHAPING CIRCUIT COMPRISING A UNIJUNCTION TRANSISTOR AND ZENER DIODE

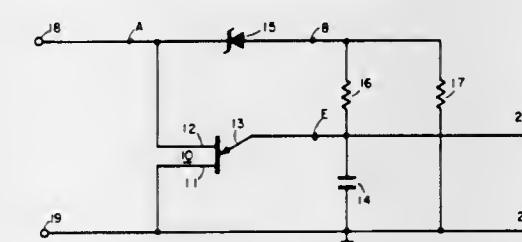
Jackson Lum, Bayside, N.Y., assignor to Sylvania Electric Products, Inc.

Filed July 19, 1968, Ser. No. 746,228

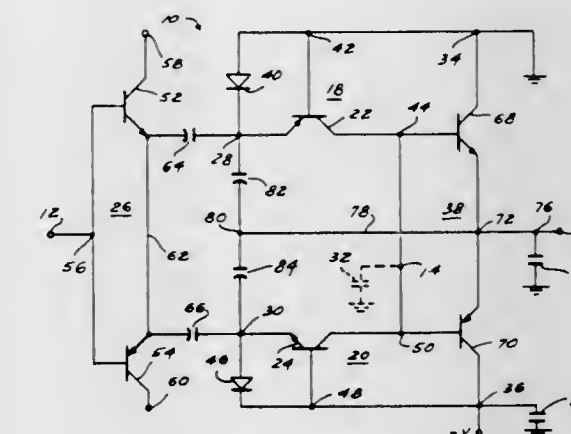
Int. Cl. H03k 5/00

U.S. Cl. 307-261

8 Claims



A circuit for converting an input voltage waveform having a magnitude which varies slowly with time to a substantially rectangular voltage pulse having a steep leading edge. The output pulse is initiated when the input voltage falls below a first predetermined magnitude and is terminated when the input voltage increases above a second predetermined magnitude. In one embodiment, the input voltage is applied between the two base terminals of a unijunction transistor and the output pulse obtained across a capacitor connected between the emitter terminal and one of the base terminals of the transistor. A Zener diode is coupled between the emitter and the other base terminal of the transistor.



A pulse amplifier circuit comprises a pair of switching stages operatively connected between an input node and a signal node. Each switching stage is respectively actuated by signals derived from the leading and trailing edges of the input pulse, the signal node being charged between its two levels as a result of the alternate conduction of the switching stages. Neither switching stage is conductive in the period between the charging cycles of the signal node, the signal level at that node remaining substantially quiescent during that period.

3,564,299

CLOCK GENERATOR

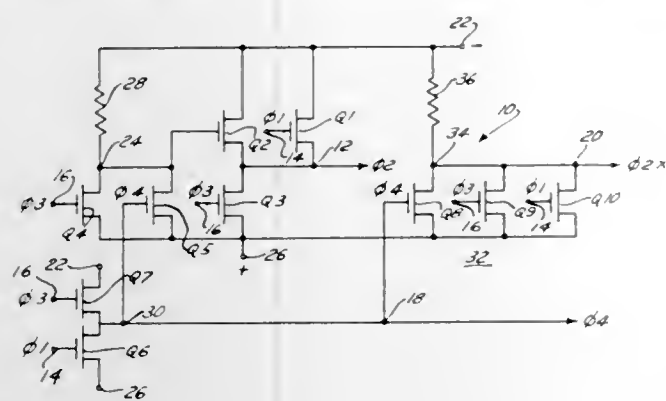
Andrew G. Varadi, Briarwood, and Richard B. Rubinstein, New York, N.Y., assignors to General Instrument Corporation, Newark, N.J.

Filed Jan. 16, 1969, Ser. No. 791,588

Int. Cl. H03k 17/26

U.S. Cl. 307—269

14 Claims



A clock generator develops an output timing signal from two input signals having a time interval therebetween. A clamping device controlled by the input signals is effective to maintain said output signal at its desired level during the interval between the input signals, and means are provided to maintain the voltage level at the input node at an appropriate level during that interval.

3,564,300

PULSE POWER DATA STORAGE CELL

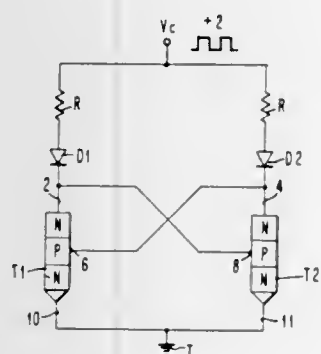
Robert A. Henle, Hyde Park, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 6, 1968, Ser. No. 710,947

Int. Cl. H03k 3/26

U.S. Cl. 307—291

11 Claims



A semiconductor storage cell for use in monolithic memories that perform storage and/or logic and storage functions. These cells each comprise a pair of semiconductor devices which are coupled together to form a bistable circuit. The bistable circuit is intermittently connected to a power supply in such a manner that the internal storage charge characteristics of the monolithic cell present a high-impedance discharge path when the power supply is in an off state. When the power supply is turned on the remaining voltage on the storage charge circuit is sufficient to insure that the monolithic memory cell attains its previous bistable state which existed prior to the power supply being turned off.

3,564,301

DARK CURRENT COMPENSATING CIRCUIT

John D. McGhee, Plymouth Meeting, Pa., and Raymond W. Tabela, Wilmington, Del., assignors to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Filed Feb. 9, 1968, Ser. No. 704,443

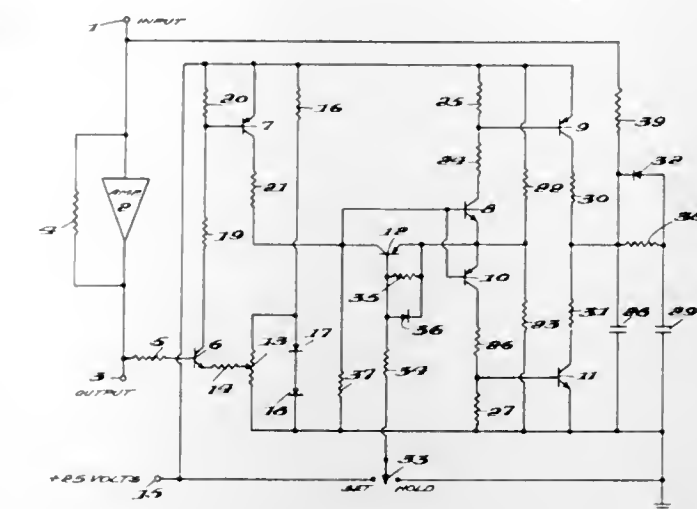
Int. Cl. H03k 3/42

U.S. Cl. 307—311

14 Claims

The disclosure relates to an electrical circuit and method for suppressing the effect of undesirable electrical signal,

such as, the dark current of a photomultiplier tube. The circuit comprises, preferably, a current-to-volts amplifier with a feedback that includes a noninverting amplifier and a memory. The method for suppressing the effect of dark cur-



rent consists of biasing the memory under no light conditions until the output potential of the current-to-volts amplifier is zeroed to the input level and holding the bias while monitoring the output of the current-to-volts amplifier under light conditions.

3,564,302

NUCLEAR-THERMIONIC LUNAR BASE POWER SUPPLY

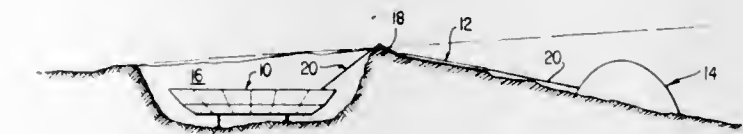
William J. Levedahl; Frederick A. Schumann; Edward A. Scicchitano, Baltimore, and Gareth L. Reed, Bethesda, Md., assignors to Teledyne, Inc., Los Angeles, Calif.

Filed Nov. 5, 1964, Ser. No. 409,142

Int. Cl. H02n 3/00

U.S. Cl. 310—4

19 Claims



A nuclear powered direct energy converter system employing a cylindrical radiator spaced from the converter and particularly well suited for lunar applications. One embodiment is adapted to be positioned in a lunar crater which constitutes radiation shielding, while another is adapted to receive radiation shielding in the form of lunar material. Reflectors positioned at an angle with respect to the cylindrical radiator reflect thermal radiation received therefrom in an axial direction.

3,564,303

ENCAPSULATED TRANSDUCER ASSEMBLY

Frederick G. Geil, Pittsburgh, and William K. Dunsworth, Export, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 7, 1968, Ser. No. 765,463

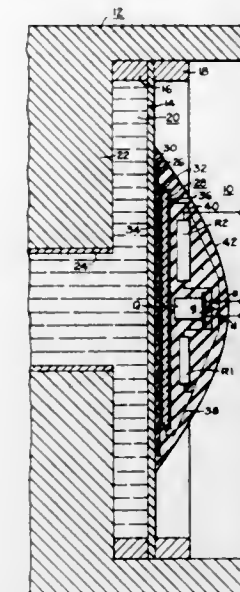
Int. Cl. H04r 17/00

U.S. Cl. 310—8.1

4 Claims

An electromechanical transducer assembly is disclosed wherein a transducer member, for example a piezoelectric crystal, is utilized to convert a mechanical input thereto to an electrical output. An amplifier circuit including an active element, such as a field effect transistor of the metal oxide silicon type, is disposed on the member to receive the electrical output and to increase its power gain. An elastomer is disposed over the entire circuit and the member to encapsu-

late the entire circuit and prevent low-impedance paths from developing in and about the circuit. The elastomer is selected



to have such an elasticity to permit the member to be highly sensitive to the mechanical input thereto.

3,564,304

ELECTRODE CONFIGURATION FOR TUBULAR PIEZOELECTRIC HIGH-STRAIN DRIVER

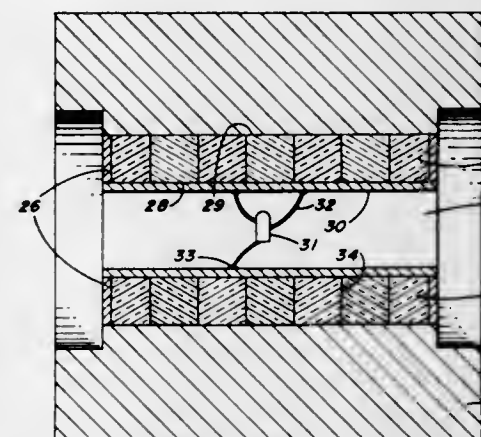
William E. Thorn, Pittsburgh, and Robert H. Whittaker, Export, Pa.

Filed Sept. 22, 1969, Ser. No. 859,654

Int. Cl. H01v 7/00

U.S. Cl. 310—8.2

5 Claims



A cylindrical piezoelectric high-strain ultrasonic driver made up of a plurality of ceramic rings is imbedded in the interior of a steel roller which is used in a rolling mill. Long service life is obtained from the ultrasonic piezoelectric transducer because of a close-fitting, thin-walled, brass tube epoxied into position inside the ceramic rings that make up the ultrasonic transducer. A spider facilitates connection between the brass tube and the power source.

3,564,305

METHOD AND APPARATUS FOR CREATING PULSED MAGNETIC FIELD IN A LARGE VOLUME

David B. Cummings, Alamo, Calif., assignor to Aerojet General Corp., El Monte, Calif.

Continuation-in-part of application Ser. No. 390,408, Aug. 18, 1964, now abandoned. This application Apr. 5, 1965, Ser. No. 445,495

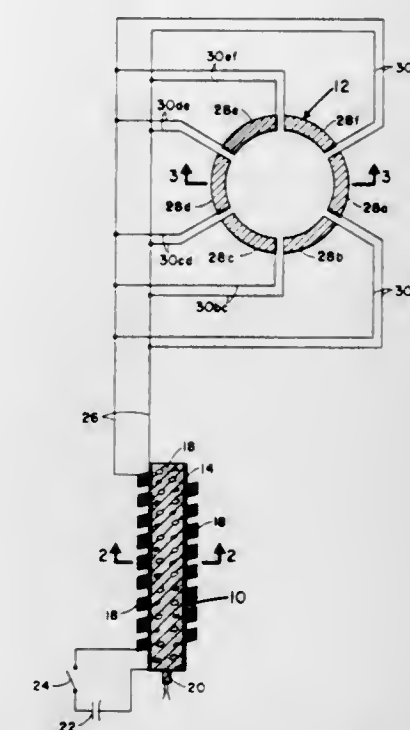
Int. Cl. H02k

U.S. Cl. 310—10

6 Claims

This disclosure concerns a method and apparatus for creating a pulsed magnetic field in a large volume wherein the pulsed magnetic field may simulate the electromagnetic pulse effects produced by a nuclear detonation. The apparatus comprises an explosive generator disposed in an electrical circuit which includes a segmental inductive loop having a plurality of individual loop segments. The individual loop segments are respectively connected in series in the electrical

circuit with the explosive generator and in parallel with respect to each other. The explosive generator includes an explosive charge mounted in a cylindrical armature which is surrounded by helical inductor coil. Upon discharging a pulse of electrical current through the inductor coil and detonating the explosive charge at one end of the armature, the armature is expanded so as to progressively contact the surrounding inductor coil along the length thereof. Thus, the electrical



3,564,306

DRIVE DEVICE FOR BATTERY ENERGIZED SOUND RECORDING APPARATUS

Hanns Ott, Harsdorferstr. 44, Nuremberg, and Jurgen Wenk, Ebrardstr. 62, Erlangen, Germany

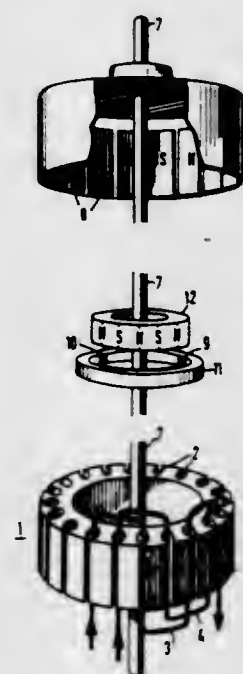
Filed Nov. 20, 1968, Ser. No. 777,444

Claims priority, application Germany, Nov. 30, 1967, 1,572,502

Int. Cl. H02k 19/00

U.S. Cl. 310—10

4 Claims



A drive device for driving the sound record medium of battery energized sound recording apparatus comprises a battery

supply and a direct current brushless motor energized from the battery supply and having a shaft driving the sound record medium. The shaft is thus a tone shaft. The motor comprises a stator having an axial bore formed therethrough and a rotor coaxially positioned around the stator. The stator has a plurality of half open slots formed therein and a multipole stator winding in the slots comprising a pair of separated phase windings mounted in the slots in a manner whereby they are electrically displaced by 90° each of the phase windings comprises two wires.

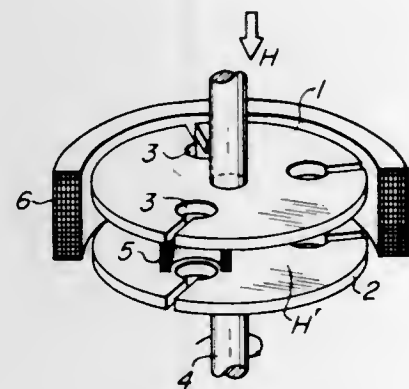
3,564,307
ROTARY ELECTRIC AC GENERATOR UTILIZING THE MAGNETIC SHIELDING AND TRAPPING BY SUPERCONDUCTING PLATES

Ushio Kawabe; Toshio Doi; Mitsuhiro Kudo; Hiroshi Kimura, and Nobuhiro Hara, Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed July 22, 1969, Ser. No. 843,555
Claims priority, application Japan, July 24, 1968, Nov. 4, 1968, June 18, 1969, 42/5185; 42/79967; 43/47595
Int. Cl. H02k; H01v 11/00

U.S. Cl. 310-10

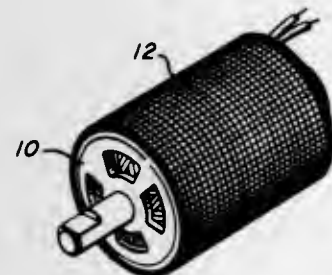
7 Claims



An AC generator having a plurality of parallel spaced discs of inhomogeneous hard superconducting material rotatable about a common axis. The rotating discs are provided with a suitable number of registered slots, and armature coils are disposed between the discs so that the magnetic shielding and trapping property of the superconducting material is utilized for generating an alternating voltage.

3,564,308
BURN PREVENTING FORAMINATE MATERIAL ARRANGEMENT ON ELECTRIC MOTORS
James C. Ryan, Springfield, Ohio, assignor to Robbins & Myers, Inc., Springfield, Ohio
Filed July 30, 1968, Ser. No. 748,853
Int. Cl. H02k 5/02, 15/14
U.S. Cl. 310-43

4 Claims



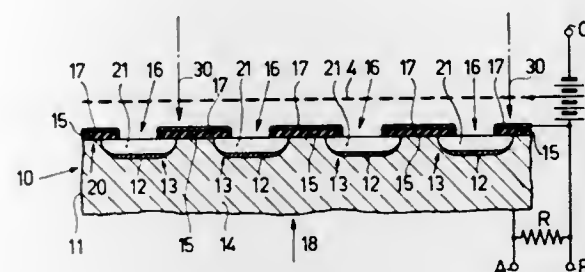
Protective material for covering a heated element, such as an electric motor, or machine, or device, or the like, for protecting personnel against burns which might be encountered from engagement with the heated element. The protective material comprises a sheet of material which has relatively low thermal conductivity and which has a multiplicity of apertures therethrough and, which, for example, may be a screen or screenlike material which is positioned in covering engagement with the machine. Because the protective

material has a multiplicity of apertures therethrough, the protective material does not significantly affect the dissipation of heat from the machine or device. However, if the protective material is engaged by a person's hand, only a very small quantity of heat is transferred from the protective material to the person who comes into contact therewith.

3,564,309
CAMERA TUBE HAVING A SEMICONDUCTOR TARGET WITH PN MOSAIC REGIONS COVERED BY A CONTINUOUS PERFORATED CONDUCTIVE LAYER
Arthur Marie Eugene Hoebrechts; Dirk De Nobel, and Paul Anton Herman Hart, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 10, 1969, Ser. No. 875,232
Claims priority, application Netherlands, Nov. 19, 1968, 6816451

Int. Cl. H01j 31/26; H01l 15/00
U.S. Cl. 313-66

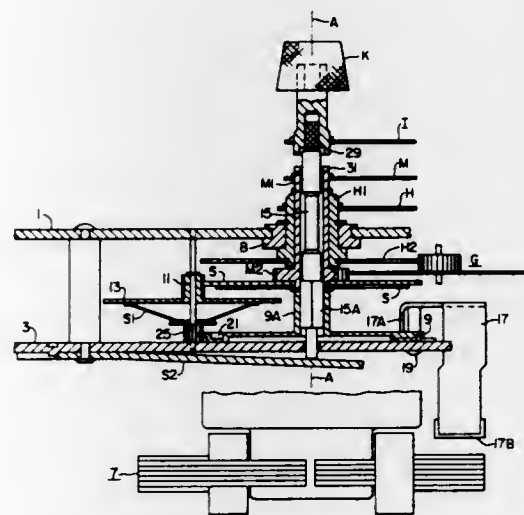
10 Claims



The invention relates to a camera tube having a photosensitive target plate to be scanned by an electron beam and formed by a semiconductor plate which on the side to be scanned is provided with a mosaic of regions which form a rectifying junction with or in the semiconductor plate, and in which on the said side, an apertured insulating layer is provided at the area of the regions and is covered by a conductive layer. In order to permit the target plate to be manufactured simply and cheaply, cavities are provided in the semiconductor plate at the area of the regions. Furthermore, a further insulating layer may be provided on the conductive layer and a further conductive layer may be provided on the further insulating layer so as to improve the effect of the camera tube.

3,564,310
MOTOR DRIVEN INTERVAL TIMING MECHANISM
Thomas G. Willis, Raleigh, N.C., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 12, 1968, Ser. No. 774,940
Int. Cl. H02h 7/06
U.S. Cl. 310-83

6 Claims



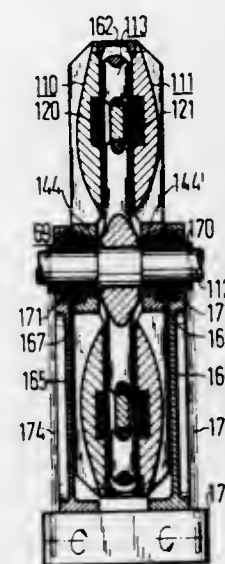
An electric motor driven mutilated timing gear is manually set in either direction away from an "off" position. A signal

device is held in "nonsignal" condition by a face of the gear. The gear is rotated towards the off position by a timing mechanism. When the gear reaches a signal position it releases the signal device and is decoupled from the timing mechanism.

3,564,311
ELECTROMAGNETICAL DISC-LIKE CONSTRUCTED EDDY CURRENT BRAKE
Hartwig Beyersdorf, Bremen-Arbergen, Germany (Sehm-sdorfer Strasse 10 2060 Bad Oldesloe Germany)
Filed Nov. 14, 1968, Ser. No. 778,378
Int. Cl. H02k 49/04

U.S. Cl. 310-93

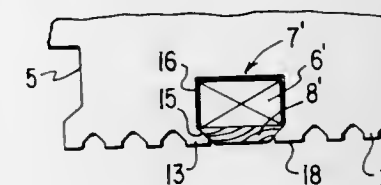
2 Claims U.S. Cl. 310-168



A flat rotor to be braked is formed with aligned inner and outer spokes spaced by a coaxial nonmagnetic ring which rotor is located between two stationary conductive discs in which are seated coaxial coils opposite said ring. Direct current is supplied to the coils to induce eddy currents in the conductive discs for braking.

3,564,312
MEDIUM FREQUENCY INDUCTOR GENERATORS
Victor Bunea, Bucharest, Romania, assignor to Wzina De Masini Electrice Bucuresti, Bucharest, Romania
Filed Oct. 18, 1968, Ser. No. 804,330
Claims priority, application Romania, Oct. 18, 1967, 54,899
Int. Cl. H02k 19/24
U.S. Cl. 310-168

6 Claims



The operating characteristics of a medium-frequency generator of the inductor-alternator type are improved without requiring the use of a series condenser for load compensation by constructing a generator so that it includes at least the first two and preferably all of the following structural features:

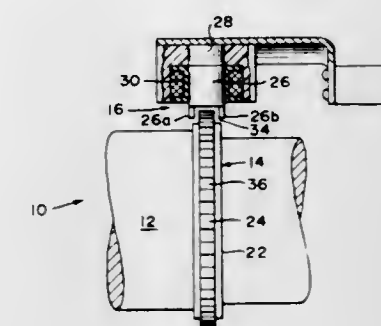
1. the number of armature coils in the armature winding of the generator is such that when the generator is operating under open circuit conditions, the maximum output voltage is at most equal to the nominal or rated output voltage;
2. the width of the permeance teeth on both the stator and the rotor is equal to from 0.25t to 0.4t, where t is the pitch of the slots separating the teeth, i.e. the peripheral spacing of a point on one tooth from the corresponding point on the adjacent tooth;
3. the permeance teeth are given a profile whereby the width thereof is constant for a height which is less than the

width and then rapidly increases for the remainder of the total height; and

4. the armature winding conductors, which are mounted in slots distributed about the periphery of the stator are positioned as close to the air gap as possible in order to reduce the leakage reactance of the armature winding.

3,564,313
SELF-COMPENSATING TACHOMETER GENERATOR
Dan Goor, Lexington, Mass., assignor to Trans-Sonics, Inc., Lexington, Mass.
Filed Aug. 8, 1969, Ser. No. 848,465
Int. Cl. H02k 19/24

2 Claims

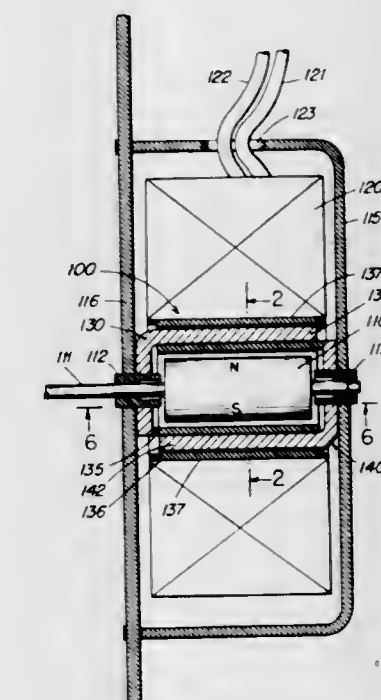


A tachometer generator has rotor and stator pole pieces which interfit as they move relative to one another so as to provide at least a pair of relatively low reluctance stator-rotor flux paths parallel to the axis of rotation of the rotor.

3,564,314
ROTOR-STATOR CAPSULE CONSTRUCTION
Arthur W. Haydon, Breakneck, Conn., assignor to Tri-Tech, Incorporated, Waterbury, Conn.
Continuation-in-part of application Ser. No. 687,843, Dec. 4, 1967, now Patent No. 3,495,111, dated Feb. 10, 1970. This application July 11, 1969, Ser. No. 840,911
Int. Cl. H02k 17/10

U.S. Cl. 310-172

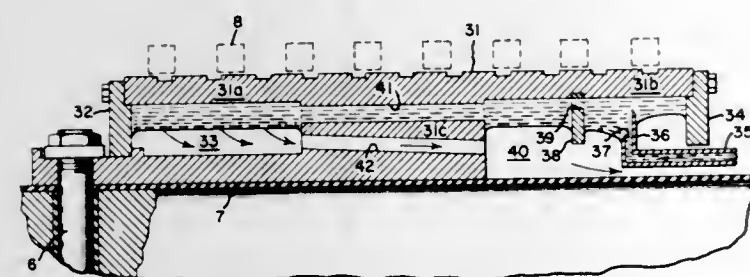
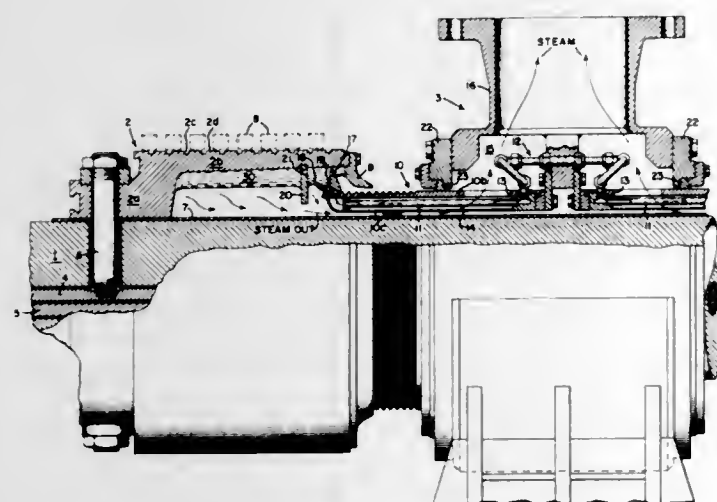
16 Claims



A rotor-stator capsule for use with a field-winding to form an electric motor. The rotor of the capsule comprises a

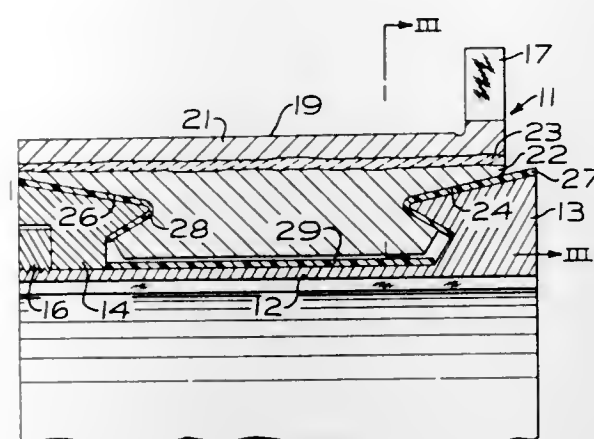
slender cylinder of permanently magnetized ferrite material, while the stator structure includes a pair of stator pole pieces at opposite ends of the rotor, each pole piece has a flat portion and two salient stator poles extending perpendicularly from the periphery of the flat portion in radially spaced relationship with the rotor. A tubular dust cover surrounding the rotor serves as a part of the shading assembly used to make the motor unidirectionally self-starting and this dust cover lies in the airgap between the rotor and the stator poles and extends axially along these poles for the length of the rotor. The shading assembly also is provided with a shading member which is interwoven with the stator poles and cooperates with the dust cover to complete the magnetic circuit.

3,564,315
EVAPORATIVE COOLED COLLECTOR RINGS FOR DYNAMOELECTRIC MACHINE
 Sterling C. Barton, and Joseph A. Victor, Scotia, N.Y., assignors to General Electric Company
 Filed Nov. 14, 1969, Ser. No. 876,866
 Int. Cl. H02k 9/28
 U.S. Cl. 310-227 5 Claims



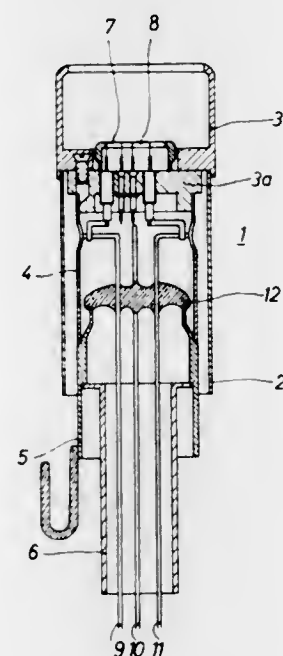
In a dynamoelectric machine of the type having brushes transmitting current to a shaft-mounted collector ring, the ring is cooled by vaporization of water fed to its underside by a sleeve enclosing the shaft. The sleeve and shaft form an annular passage which conducts steam away from the collector. The sleeve has a radial ring providing a liquid seal and internal passages to feed the liquid into the vaporization chamber.

3,564,316
COMPOSITE COMMUTATOR BAR
 Marion J. Witzenburg, Peoria, and Kenton C. Opperman, Morton, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
 Filed Apr. 9, 1969, Ser. No. 814,664
 Int. Cl. H02k 13/04
 U.S. Cl. 310-236 1 Claim



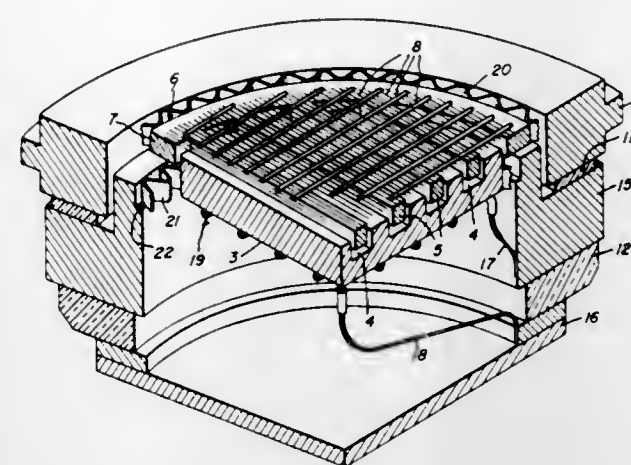
A commutator bar compositely formed to have a conductive section including a riser and a brush contact forming indentations which permit clamping rings to secure the bar upon assembly.

3,564,317
CATHODE FOR AN X-RAY TUBE COOLED BY HEAT-CONDUCTIVE COAXIAL CYLINDERS
 Werner Berends and Walter Hartl, Hamburg, and Heinz Jurgen Jacob, Hamburg-Glashutte, Germany, assignors to U.S. Philips Corporation, New York, N.Y.
 Filed May 7, 1968, Ser. No. 727,252
 Claims priority, application Germany, May 13, 1967, M73983
 Int. Cl. H01j 61/52, 7/24
 U.S. Cl. 313-37 5 Claims



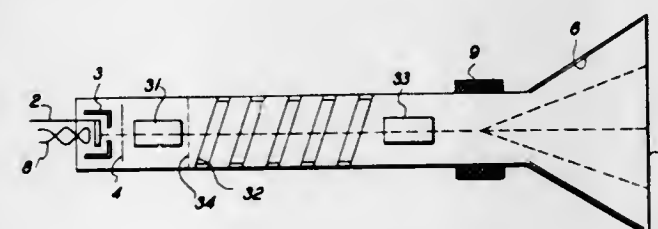
A cathode for an X-ray tube which is mechanically rugged and cooled through coaxially arranged hollow cylinders at least one of which is joined to the cathode with good thermal conductivity and the other projects from the glass envelope of the X-ray tube, both cylinders being joined to one another.

3,564,318
ELECTRODE SUPPORT STRUCTURE UTILIZING A CORRUGATED METAL RIBBON FOR ACCOMMODATING THERMAL EXPANSION
 James E. Beggs, Schenectady, N.Y., assignor to General Electric Company
 Filed Mar. 27, 1969, Ser. No. 810,951
 Int. Cl. H01j 61/52; H01k 1/58
 U.S. Cl. 313-37 14 Claims



A corrugated metal ribbon is attached between the outer circumference of a planar grid or cathode electrode and the interior opening of a contact member, the corrugated member accommodating thermal expansion differentials without distortion of the electrodes or contact members so that the electrodes that can be mounted and maintained in precise spaced relationship.

3,564,319
CATHODE RAY TUBE WITH MATRIX FORMING ELEMENTAL ELECTRON BEAMS AND MEANS FOR SELECTIVELY FORMING THEM INTO CHARACTERS AT THE FACE PLATE OF THE TUBE
 Arthur T. Starr, New Barnet, and Peter F. T. C. Stillwell, Crookham Village, England, assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
 Filed Jan. 4, 1968, Ser. No. 695,626
 Int. Cl. H01j 29/74; H01i 29/46
 U.S. Cl. 313-77 6 Claims

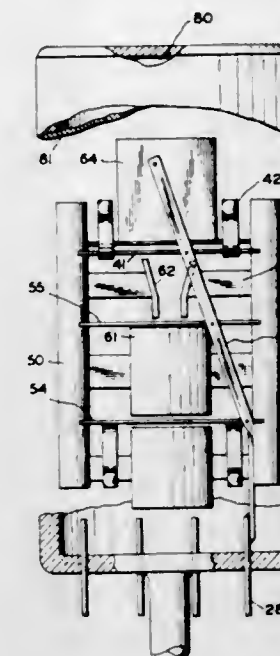


A character generator electric discharge tube for selectively switching elemental portions of an electron beam. With the use of accelerating cylinders and spirals between the electron gun and the electromagnetic focus coil, a considerable reduction in the length of the tube is effected.

3,564,320
ELECTRODE MOUNTING STRUCTURE FOR CATHODE RAY TUBES
 Horst H. Blumenberg, Owensboro, Ky., assignor to Kentucky Electronics, Inc., Owensboro, Ky.
 Continuation-in-part of application Ser. No. 843,296, July 22, 1969. This application Sept. 29, 1969, Ser. No. 861,600
 Int. Cl. H01j 29/02, 29/46
 U.S. Cl. 313-82 3 Claims

A character display system has a plurality of small cylindrical side-by-side cathode-ray tubes about .8 inch in diameter and less than 4 inches long, aligned to form a line of individual characters. The tubes have structure for precisely

aligning the characters uniformly including an electron gun fashioned to center the electron beam by means of electrostatic deflection electrode pairs held in two glass beads oriented with a seven pin miniature glass stem to produce two normal deflection axes. Similar electrode structure is em-



ployed for a plurality of electrodes in the gun formed of a rectangular shaped blank held at opposite ends in the two beads, and a set of snubber springs is affixed to one such electrode oriented toward the stem to and in centering the gun within the tube cylindrical walls.

ERRATUM
 For Class 313-66 see:
 Patent No. 3,564,309

3,564,321
MESH-REINFORCED SECONDARY ELECTRON CONDUCTION TARGET FOR CAMERA TUBES
 Ideal T. Saldi, Manilus, N.Y., assignor to General Electric Company
 Filed May 1, 1969, Ser. No. 820,782
 Int. Cl. H01j 31/26, 31/30, 29/45
 U.S. Cl. 313-89 2 Claims



A target structure is disclosed having superior electrical properties and mechanical strength. The target comprises a layer of KCl supported by a dielectric material which in turn is deposited on a fine nickel metal mesh which provides mechanical support for the target. This structure is particularly useful in the construction of secondary electron conduction (SEC) targets.

3,564,322

CATHODE-RAY TUBE FOR FLYING-SPOT SCANNING
George Blasse and Alfred Bril, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 23, 1968, Ser. No. 723,551

Claims priority, application Netherlands, Apr. 29, 1967, 6706095

Int. Cl. H01j 1/63; C09k 1/68

U.S. Cl. 313-92

4 Claims

A cathode-ray tube for flying-spot scanning devices in which the cathode-ray screen contains as a phosphor a yttrium aluminate activated with trivalent cerium.

3,564,323

SECONDARY-ELECTRON MULTIPLIER HAVING TILTED ELLIPTICAL PIPES THE ENDS OF WHICH ARE OBLIQUELY CUT

Haruo Maeda, Tokyo, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

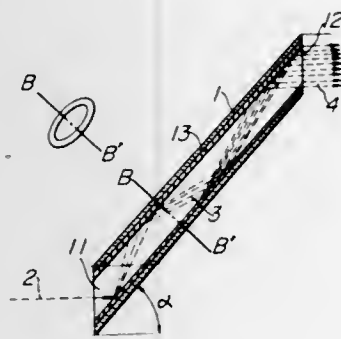
Filed Nov. 8, 1968, Ser. No. 774,413

Claims priority, application Japan, Nov. 14, 1967, 42/73824

Int. Cl. H01j 43/00, 43/22

U.S. Cl. 313-105

2 Claims



A secondary-electron multiplier of the channel type having a plurality of channel pipes combined in the form of a bundle. In the multiplier, the channel pipes are arranged to make an angle with respect to the advancing direction of primary electrons and have an oval cross-sectional shape, while the opposite ends of the channel pipes are cut to have a substantially circular section.

3,564,324

GAS DISCHARGE TUBE COMPRISING A NUMBER OF ELECTRODES UNITED TO FORM A GROUP AND HAVING THE FORM OF CHARACTERS

Adrianus Anthonius Maria Hendriks, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

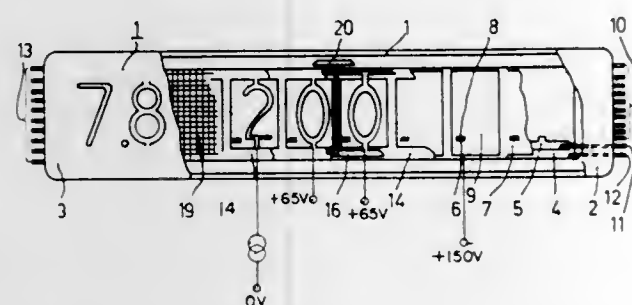
Filed Nov. 18, 1968, Ser. No. 776,471

Claims priority, application Netherlands, Dec. 6, 1967, 6716506

Int. Cl. H01j 61/66; H01k 7/04

U.S. Cl. 313-109.5

4 Claims



The digit-electrodes of a number of character-shaped electrodes of electrode groups placed side by side in a common envelope are shaped as punched strips, stacked one on the other.

3,564,325

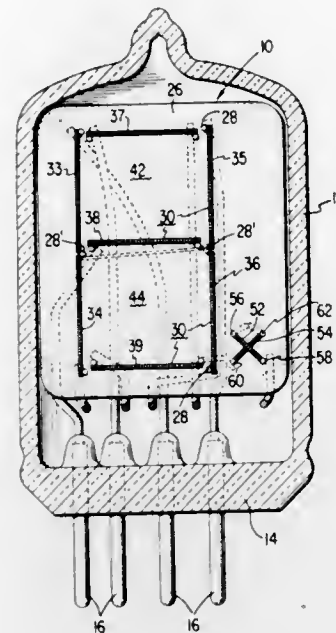
DISPLAY DEVICE INCLUDING A POINT IMAGE
Richard Arthur Bonnette, New Providence, and Norman Lee Lindburg, Berkeley Heights, N.J., assignors to RCA Corporation, a corporation of Delaware

Filed Apr. 29, 1969, Ser. No. 820,216

Int. Cl. H01j 61/66; H01k 7/04

U.S. Cl. 313-109.5

6 Claims



A display device of the type comprising a plurality of light sources so arranged that when various combinations of the sources are selectively energized, various luminous first symbols are produced. A luminous "point" second symbol is also provided comprising a pair of intersecting filaments forming a letter X and having a size substantially smaller than the first symbols.

3,564,326

IMAGE PICKUP TUBE

Yorikatsu Irisaka, Yokohama-shi, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

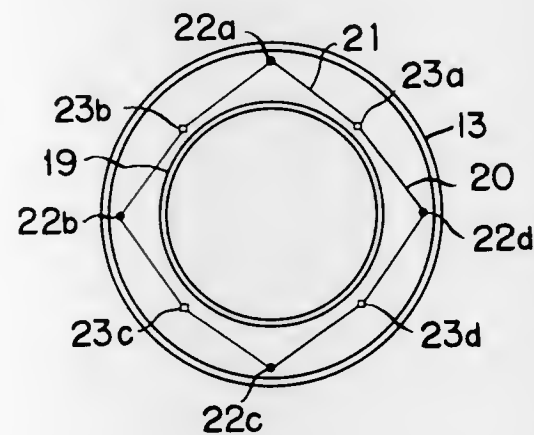
Filed June 12, 1968, Ser. No. 736,498

Claims priority, application Japan, June 15, 1967, 42/37842

Int. Cl. H01v 19/68

U.S. Cl. 313-180

7 Claims



An evaporator for an image pickup tube comprises base metal sources attached to symmetrically disposed bent portions of otherwise straight heater lines wherein the radius of a circle connecting these sources is greater than in conventional arrangements of this type.

3,564,327

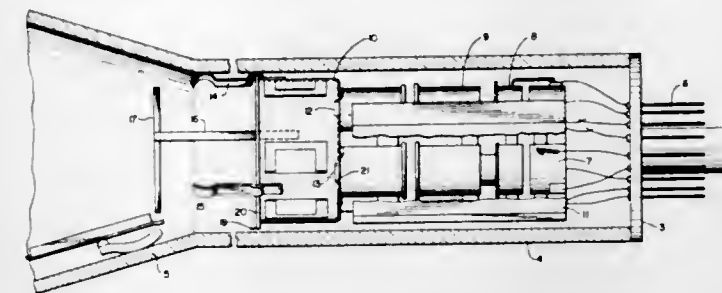
GETTER ARRANGEMENT IN COLOR PICTURE TUBE
Jay H. Johnson, Owensboro, Ky., assignor to Kentucky Electronics, Inc., Owensboro, Ky., a corporation of Delaware

Filed Feb. 12, 1969, Ser. No. 798,739

Int. Cl. H01j 19/70

U.S. Cl. 313-181

2 Claims



A getter structure arrangement for a three-gun color picture cathode-ray tube is disclosed, wherein the convergence electrode structure is formed to block the neck of the tube and prevent any getter particles from migrating to the vicinity of the electron emitting cathode. The convergence electrode has an outwardly flanged rim to reduce the spacing from the inner envelope surface and has inwardly flanged beam apertures forming ridges for reducing chances of getter particles entering the convergence cup from reaching the cathode.

3,564,328

CERAMIC ARTICLES AND METHOD OF FABRICATION
Rodney D. Bagley, Corning, and Edwin J. Force, Big Flats, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Continuation-in-part of Ser. No. 730010, May 17, 1968,

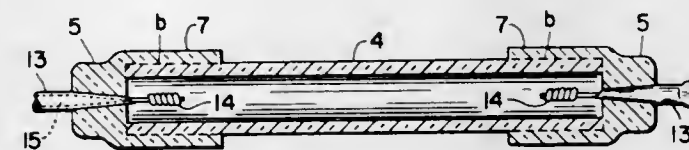
now abandoned. This application July 29, 1968, Ser. No.

748,516

Int. Cl. C03b 23/20; H01i 61/30

U.S. Cl. 313-220

19 Claims



Method of forming gas tight seals between polycrystalline ceramic bodies without a sealant material. Method, which is useful for joining sections of ceramic tubing in gastight relationship and for providing gastight seals for tubular bodies, depends on differing degrees of firing shrinkage of the components being joined, their ability to sinter together, and on the fact that the components, when fired, have substantially the same coefficient of thermal expansion. Various means of providing for differential firing shrinkages, such as a polycrystalline ceramic tube fired to near theoretical density is inserted in closely fitted relationship into a green tubular body of the same composition and the assembly is fired until both components are of maximum density. Sintering and shrinkage of the outer tubular body onto the inner body produces a monolithic structure with a completely continuous crystal structure across and replacing the former physical contact boundary. Ceramic articles, such as gas discharge lamp structures, embodying tubular ceramic bodies having end closures made by described method.

3,564,329

SHIELDING APPARATUS OF METAL PLATES STRAP-MOUNTED ON CATHODE RAY TUBE FOR SHIELDING AGAINST EXTERNAL MAGNETIC FIELDS

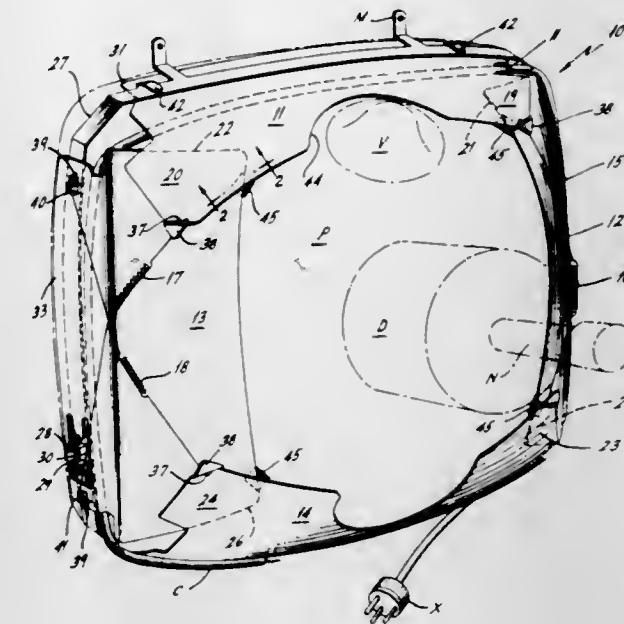
John P. Uetz, Philadelphia, Pa., assignor to Philco-Ford Corporation, Philadelphia, Pa., a corporation of Delaware

Filed Oct. 28, 1968, Ser. No. 771,214

Int. Cl. H01j 29/06

U.S. Cl. 315-8

2 Claims



Apparatus for shielding cathode ray tubes, particularly color picture tubes, from the effect of the earth's and other external magnetic fields. The shielding apparatus comprises a series of overlapping steel sheets, pressed together and against the tube structure by resilient fasteners. These sheets and fasteners are secured to a strap which is tightened around the circumference of the cathode ray tube, near the front thereof, and shaped and disposed for securement to the inside of a cabinet enclosing the tube.

3,564,330

DEVICE FOR PROVIDING EXPOSURE CONTROL FOR A CAMERA

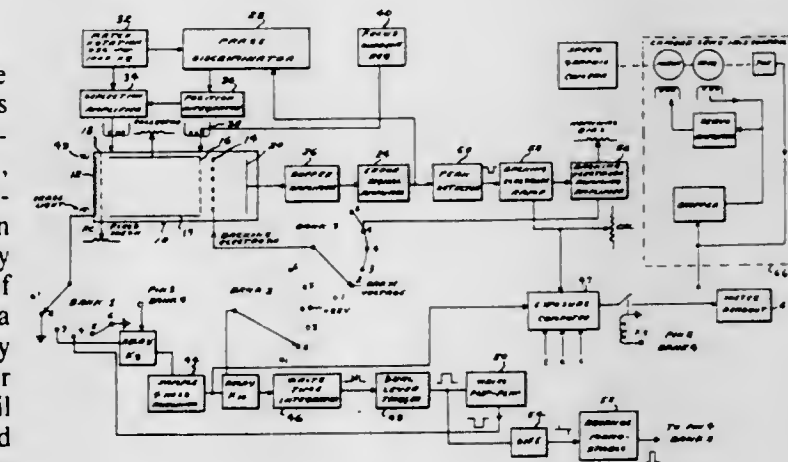
Harry O. Pfeiffer, North Canton, Ohio, assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Air Force

Filed Mar. 28, 1969, Ser. No. 812,580

Int. Cl. H01j 31/26

U.S. Cl. 315-10

9 Claims



A device to provide an exposure control signal which may be used directly to control camera exposure or may be used

to provide a meter indication which may be used to control the iris setting or exposure time of the camera makes use of an electron image correlator, which is normally used to obtain correlation between two electron images, to provide a first signal proportional to photocathode current, which is related to integrated scene brightness. The first signal is used to control the write time of the correlation tube storage element. The first signal is modified by a second signal which is a function of scene detail of the lower brightness portion of the scene which is obtained by adjusting the storage element, backing electrode potential to maximize the correlation function. The second signal is subtracted from the first signal to obtain the exposure control signal.

3,564,331

MESHLESS STORAGE TUBE

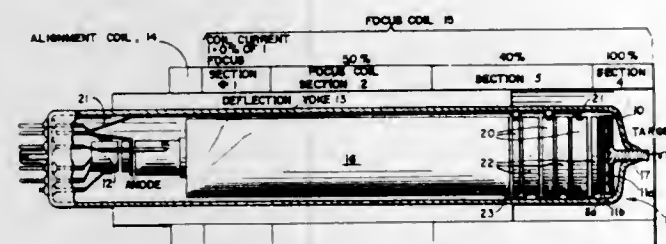
Thomas H. Moore, Santa Ana, Calif., assignor to North American Rockwell Corporation

Filed Nov. 29, 1968, Ser. No. 779,912

Int. Cl. H01j 29/41

U.S. Cl. 315-12

23 Claims



A single gun, meshless storage tube of an immersed optics system type, and having an axial electric field generator and a doubly tapered focus deflection field generator. Avoidance of the meshes improves image resolution and structural ruggedness. The tapered axial focus field provides a planar focal surface, as to avoid the necessity for dynamic focusing and the immersed optics provides better resolution. Thus, a given degree of resolution and data density may be obtained with a smaller, rugged tube. Because the storage tube dielectric is mounted on a mechanically rigid substrate, greater mismatch of thermal coefficients of expansion between the dielectric and substrate (of the storage element) are tolerable.

ERRATUM

For Class 315-39.61 see:
Patent No. 3,564,340

3,564,332

PHOTOELECTRICALLY CONTROLLED CONTINUOUSLY VARIABLE COLOR ILLUMINATOR

Kenneth L. Blakeslee, 330 Glencourtney Drive NW., Atlanta, Ga. 30328

Filed June 24, 1968, Ser. No. 739,357

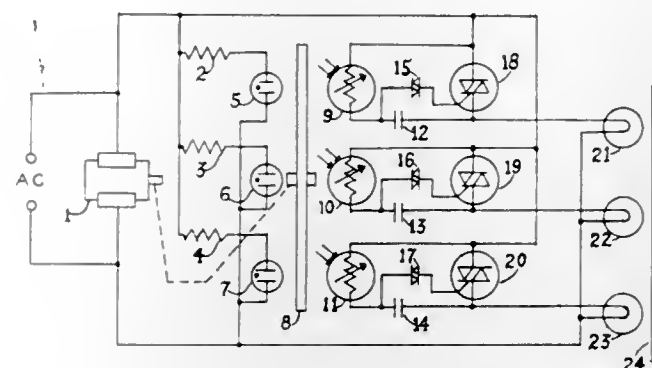
Int. Cl. H05b 37/02; F21p 5/04

U.S. Cl. 315-154

7 Claims

A variable color illuminator is a solid state electronic control apparatus designed to operate on alternating current having two or more separate electrical circuits wherein the rate of power dissipation in each circuit is separately controlled and continuously changed. The controlled power dissipation in all circuits is accomplished with a single light attenuation recording which has variations of attenuation from point to point. The recording is continuously moving and is located between light sensitive elements and fixed intensity light sources. The light sensitive elements are an integral part

of combined phase shift and pulse networks which activate the power control switches located in each electric circuit. Light variations on the light sensitive elements caused by the light attenuation variations in the moving recording are



reproduced as power variations in the control circuits. When colored lights are attached to the power circuits and grouped in clusters, lighting effects are produced for advertising and architecture.

3,564,333

ELECTRIC WELDER THAT USES MAGNETIC AMPLIFIER TO SUPPLY FIRING SIGNALS FOR CONTROLLED RECTIFIER

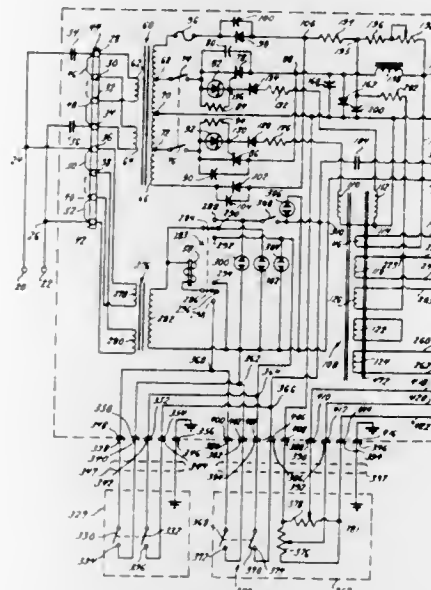
Donald W. Cramer, Eugene W. Becker, Richard E. Meyer, and Owen E. Reinert, St. Louis, Mo., assignors to National Standard Company

Filed Feb. 21, 1968, Ser. No. 707,254

Int. Cl. H05b 37/00

U.S. Cl. 315-171

27 Claims



The high frequency voltages, that are customarily used to help initiate the arcs of electric welders, tend to cause premature and erratic initiation of those arcs where those electric welders use silicon controlled rectifiers to control the amounts of power supplied to those arcs and use transistor-type firing circuits to control the firing angles of those silicon controlled rectifiers; because transistor-type firing circuits are sensitive to high frequency voltages. The present invention provides an electric welder which utilizes silicon controlled rectifiers to control the amounts of power supplied to arcs and yet avoids premature and erratic initiation of those arcs by using a magnetic amplifier to control the firing angles of those silicon controlled rectifiers. Also, the present invention keeps that electric welder from supplying undesirably high amounts of power to those arcs, during the initiation of those arcs, by biasing the magnetic core of that magnetic amplifier downwardly at the conclusion of each welding opera-

tion. In addition, the electric welder of the present invention has a one-turn winding, on the magnetic core of the magnetic amplifier thereof, through which all of the welding current flows; and that one-turn winding is part of a feedback circuit for that magnetic amplifier which enables that electric welder to vary the amounts of power supplied to an arc over the full range of firing angles of the silicon controlled rectifiers thereof by merely adjusting a single control of that magnetic amplifier.

3,564,334

CONTROL FOR SLIDE PROJECTORS

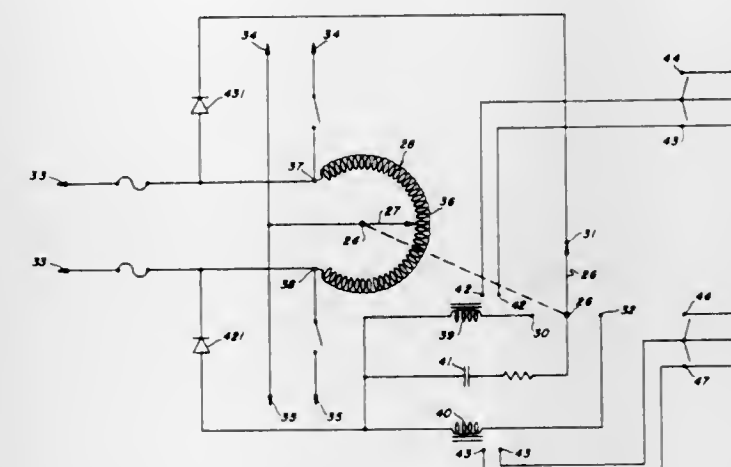
George W. Wright, 4016 W. Palmar Drive, Phoenix, Ariz.

Filed Mar. 20, 1968, Ser. No. 714,626

Int. Cl. G05f 1/00; H05b 37/02

U.S. Cl. 315-296

4 Claims



A control unit for a pair of cooperating slide projectors. The control unit includes circuit means including a variable transformer for apportioning light power to the slide projectors to provide relatively constant projected screen illumination at all times. The unit also includes switching means for changing slides in a predetermined manner at appropriate times.

3,564,335

ELECTRICALLY CONDUCTIVE SHOE COVER

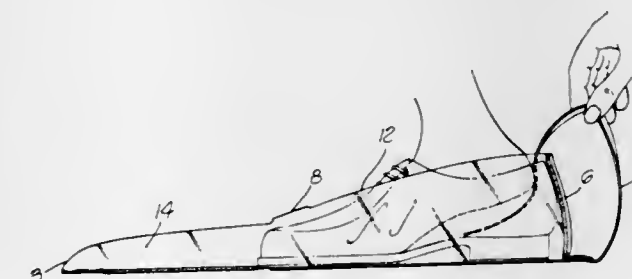
Phillip M. Siegel, Los Angeles, Calif., assignor to American Hospital Supply Corporation, Evanston, Ill.

Filed Jan. 30, 1969, Ser. No. 795,233

Int. Cl. H05f 3/00

U.S. Cl. 317-2

11 Claims



A plastic overshoe adapted to be worn by physicians and nurses during surgery to electrically ground their bodies to a floor on which they stand, so static electricity cannot build up and cause a spark near explosive gases sometimes used in surgery. The overshoe fits various shoe sizes and has two superimposed plastic panels joined along their rear and bottom edges with a connecting web across midportions of their top edges holding the panels together. An electrically conductive plastic strip is sealed along a bottom edge of one panel, which strip has an extending portion for tucking into the wearer's shoe or stocking to make electrical contact with his body. A series of these overshoes connected end to end are

made by die-cutting and heat-sealing portions of layflat tubular plastic material.

3,564,336

SEQUENTIAL SWITCHING SYSTEM WITH CURRENT LIMITING SHUNT PATH

Paul Buerger, Wil-Turgi, and Rolf Schaumann, Neuenhof, Switzerland, assignors to Aktiengesellschaft Brown Boveri & Cie, Baden, Switzerland, a joint stock company

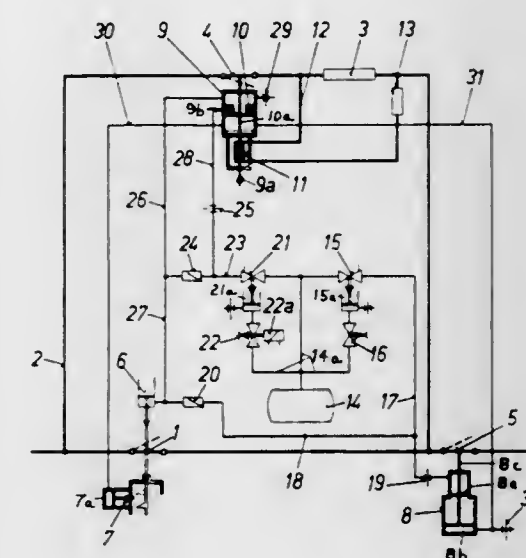
Filed Sept. 9, 1969, Ser. No. 856,379

Claims priority, application Switzerland, Oct. 15, 1968, 15392

Int. Cl. H02h 3/00

U.S. Cl. 317-11

3 Claims



An electrical switching system of the type which includes a main power switching point, an auxiliary switching point connected in parallel with the main switching point through a secondary circuit which includes a series resistance, and a voltage-isolating switching point connected in series with the main switching point. Upon application of a switching-on order, current is caused to flow only through the secondary path containing the series-connected auxiliary switching point and resistance, and also the voltage-isolating switching point which is now closed in order to test the condition of the circuit. If the current flow is abnormally high, the auxiliary switching point is opened and the voltage-isolating switching point is reopened. Thus, there is no current flow through the main power switching point during the test period and this main switching point closes to complete the switching-on order only in the event that the current flow in the circuit is normal.

3,564,337

MOTOR OVERLOAD CONTROL CIRCUIT FOR MATERIAL TESTING MACHINE

William D. MacGeorge, Doylestown, Pa., assignor to Thwing-Albert Instrument Company, Philadelphia, Pa.

Filed Dec. 16, 1968, Ser. No. 783,913

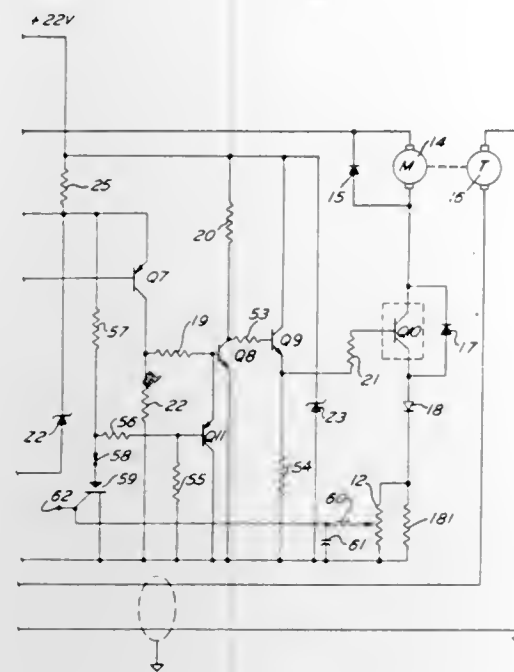
Int. Cl. H02h 7/06; H02p 5/06

U.S. Cl. 317-13

8 Claims

There is provided a system which is used to control the operation of a material testing machine. The system includes

a circuit which controls the speed of the motor that operates the testing machine and a control circuit which produces a



control signal in response to an abnormal load condition whereby the motor can be turned off.

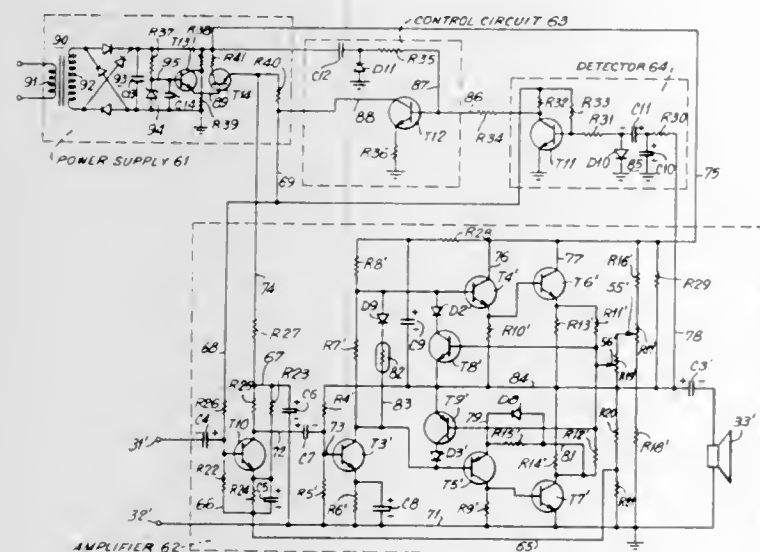
3,564,338

OVERVOLTAGE AND OVERCURRENT PROTECTIVE CIRCUIT FOR A TRANSISTOR AMPLIFIER

Toshihiko Teshirogi, Yokohama-shi, Japan, and Tsutomu Funamizu, Kawasaki-shi, Japan, assignors to Fujitsu Limited, Kawasaki, Japan, a corporation of Japan
Filed July 31, 1968, Ser. No. 749,179
Claims priority, application Japan, Aug. 3, 1967, 42/49951
Int. Cl. H02h 3/26

U.S. Cl. 317-31

7 Claims



A protective transistor connected in the input of a transistor amplifier is switched to its conductive condition when the difference between a voltage proportionate to the current flowing through the transistor amplifier and a voltage proportionate to the voltage applied to the transistor amplifier reaches a predetermined magnitude. When the protective transistor is switched to its conductive condition, it switches the transistor amplifier to its nonconductive condition.

3,564,339 CIRCUIT FOR RAPID SHUTOFF OF ELECTROCHEMICAL MACHINING APPARATUS

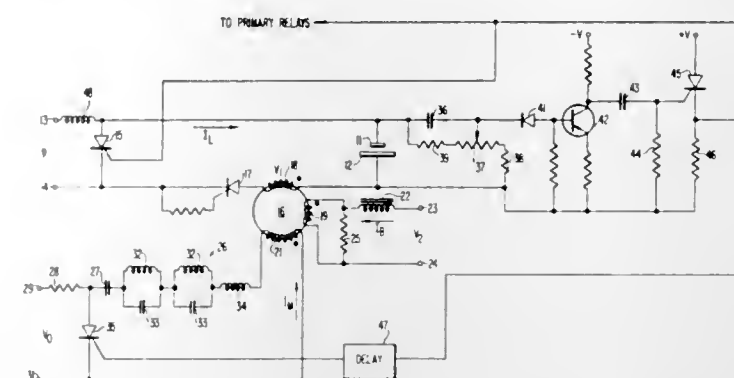
Harold W. Katz and Murray H. Miller, Ann Arbor, Mich., assignors to KMS Industries, Inc., Ann Arbor, Mich., a corporation of Delaware

Filed Oct. 31, 1969, Ser. No. 872,879

Int. Cl. H02h 3/00

U.S. Cl. 317-33

11 Claims



A circuit for the rapid turnoff of the load current in an electrochemical machining apparatus is disclosed. The approach employed is to shunt the load current through an SCR after a short circuit has been detected. The circuit operates to induce an additional voltage in the load circuit to reduce the load current to zero for a sufficient length of time to permit the SCR's in series with the load to recover their blocking capability.

3,564,340

MANUALLY TUNED CROSSED-FIELD TUBE EMPLOYING A FRICTIONALLY LOADED BALL SCREW TUNING ACTUATOR

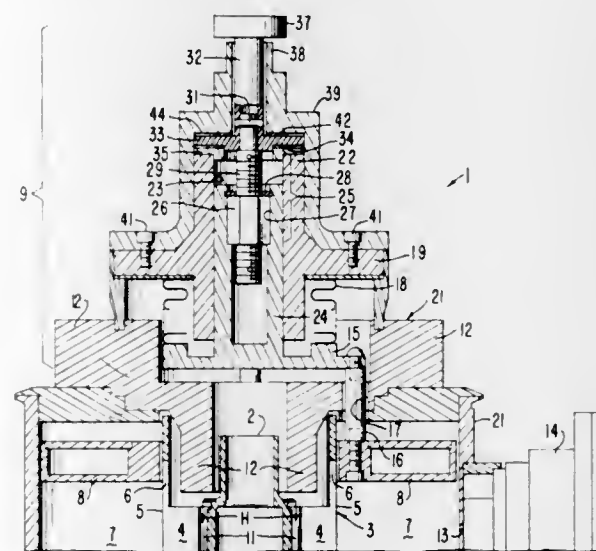
Peter F. Bahr, Union City, N.J., assignor to Varian Associates, Palo Alto, Calif.

Filed Apr. 3, 1969, Ser. No. 813,000

Int. Cl. H01j 25/50

U.S. Cl. 315-39.61

7 Claims



A crossed-field microwave tube is disclosed. The tube is of the magnetron type, having a circular electric mode resonator coaxially disposed of a microwave anode circuit with the fields of the anode circuit being coupled to the fields of the resonator. A tuning structure is disposed in the coaxial resonator for tuning the operating frequency of the tube. The tuning actuating structure includes a metallic bellows, sealing a movable tuning structure to the remaining portion of the vacuum envelope of the tube. A ball screw structure is disposed externally of the envelope and is coupled to the tuning structure for moving the tuning structure through the bellows. A thrust bearing is disposed between a rotatable portion of the ball screw structure and a fixed position of the

envelope, such bearing member being pressed into engagement by atmospheric pressure exerted on the bellows and which pressure is transmitted as a loading force on the thrust bearing member. The thrust bearing member is selected of a material, such as Teflon, to provide a certain predetermined friction torque loading on the ball screw to prevent inadvertent rotation of the ball screw, while permitting the tuner to be actuated with less than 50 inch ounces of torque manually applied to the rotatable member of the ball screw. A second friction loading thrust bearing member, as of Teflon, is provided to frictionally load the ball screw by vibration forces to prevent inadvertent rotation by vibration of the tube.

3,564,341 PIEZO-ELECTRIC IGNITION DEVICE FOR GAS APPLIANCES AND THE LIKE

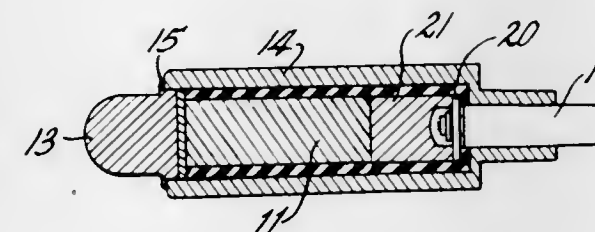
Masami Nishiura, 25, 12-banchi, Honmachi, Kadoma-shi, Osaka, Japan

Filed Feb. 17, 1969, Ser. No. 799,705

Int. Cl. F23g 3/00, 5/00

U.S. Cl. 317-81

3 Claims



A device for causing piezoelectric spark ignition of gas in gas stoves, appliances, and the like. The device is easily assembled and holds the piezoelectric element and lead wires securely in place.

3,564,342

MOTOR CONTROL SYSTEM

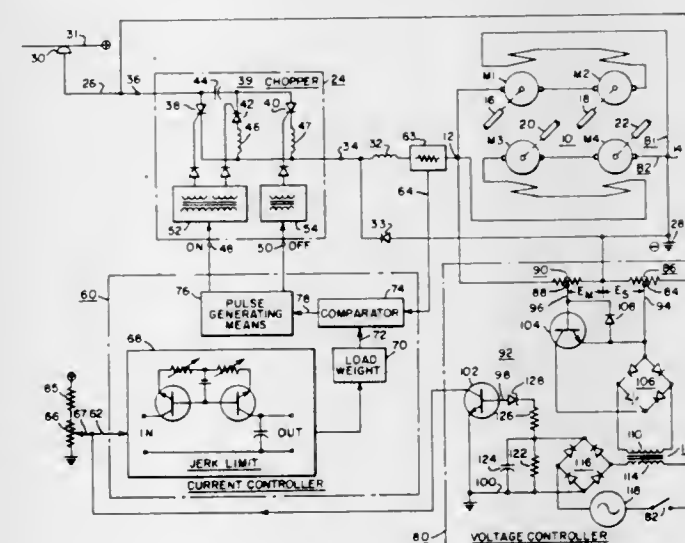
Terry D. Sanders, and Lalan G. Miller, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed May 22, 1969, Ser. No. 826,978

Int. Cl. H02p 1/16

U.S. Cl. 318-93

9 Claims



Disclosed is a system for operating a chopper-controlled series-parallel plural motor network, for instance the four traction motors of a vehicle (such as a rapid transit railway car) at a fraction of the line voltage per motor during a starting phase, by controlling the chopper in response to a comparison of the motor voltage and the line voltage thereby to regulate the motor voltage to a desired fraction of the line voltage, for example 25 percent of the line voltage per motor in the four motor case.

3,564,343 COMPUTER PROGRAMMING APPARATUS

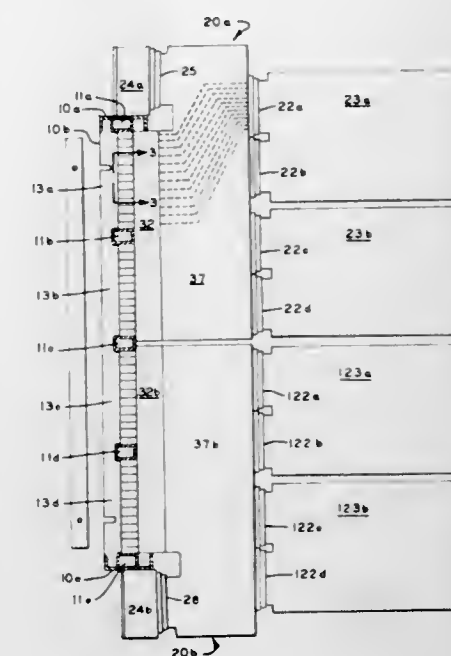
Alan J. Guest, Jay B. King, and Edward O. Gilbert, Ann Arbor, Mich., assignors to Reliance Electric Company

Filed Sept. 24, 1968, Ser. No. 767,580

Int. Cl. H02b 1/02; H01y 13/42

U.S. Cl. 317-101

16 Claims



A computer patchbay formed by the front edges of a plurality of etched circuit boards spaced apart from each other in a plurality of planes parallel to each other, with resilient spring contacts adapted to snap on the front edges of the circuit boards and extend forwardly therefrom. Each resilient spring contact includes a cylindrical bar with a plurality of slots which facilitate accurate alignment and uniform alignment of the contacts. Improved techniques for shielding conductors connected to the spring contacts from each other are disclosed.

3,564,344

METAL CLAD SWITCH PLANTS FOR HIGH VOLTAGES

Rintje Boersma, Harmelen, Netherlands, assignor to N. V. COQ, Utrecht, Netherlands, a company of Netherlands

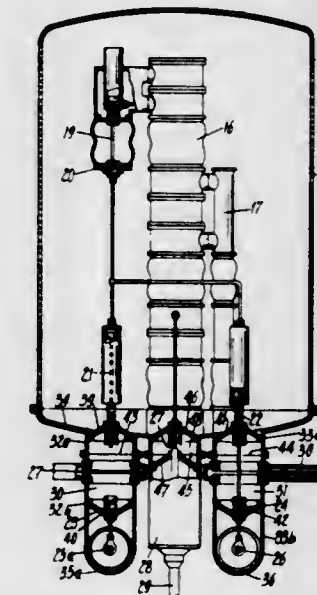
Filed June 5, 1968, Ser. No. 734,782

Claims priority, application Netherlands, June 9, 1967, 6708018

Int. Cl. H02b 1/04; H01h 33/82

U.S. Cl. 317-103

4 Claims



A high voltage system includes at least two horizontal parallel bus bar systems enclosed in metal tubes and switching units connected thereto. The switching units each

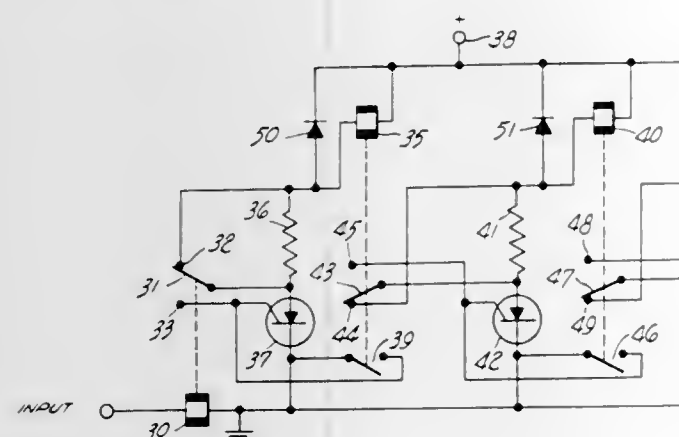
contain at least a circuit breaker and two bus bar isolating switches connected in series therewith and each isolating switch is connected to a bar of the bus bar system. The circuit breaker and the isolating switches are accommodated in a common metal casing which is joined to the metal tubes enclosing the bus bars through the medium of tubular extensions or collars which are joined to tubular parts extending perpendicularly upwardly from the metal tubes, the fixed contact of each isolating switch being permanently connected to the relevant bus bar and being contained in a respective one of the tubular parts.

3,564,345 BISTABLE CIRCUIT

Joseph S. Baynard, Jr., Burlington, N.C., assignor to Western Electric Company Incorporated, New York, N.Y.
Filed Feb. 1, 1968, Ser. No. 702,229
Int. Cl. H01h 47/32

U.S. Cl. 317-140

6 Claims



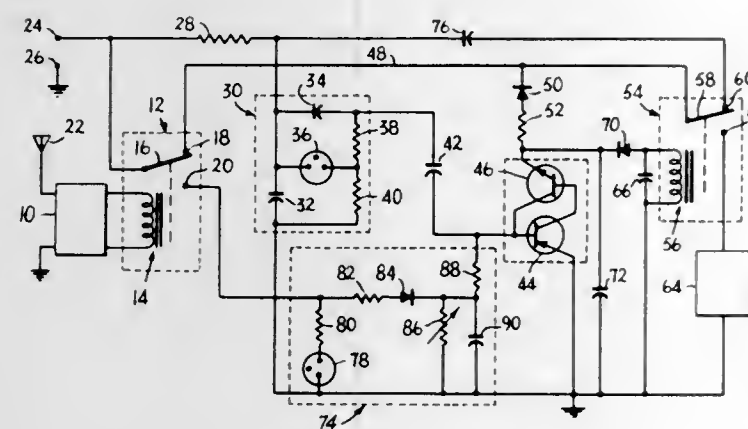
A bistable circuit in which a normally unactuated silicon controlled rectifier is serially connected with a fixed resistor and the coil of a relay. Depression of a control switch forward biases the gate of the rectifier to initiate conduction and the subsequent release of the control switch shorts out the series resistor to actuate the relay. Actuation of the relay connects the control switch across the rectifier and a subsequent depression of the switch stops conduction through the rectifier. Release of the control switch then deactuates the relay.

3,564,346 CONTROL CIRCUIT

Carl E. Atkins, Montclair, N.J., assignor to Wager Electric Corporation, a corporation of Delaware
Filed July 8, 1968, Ser. No. 743,066
Int. Cl. H01h 47/22, 47/32

U.S. Cl. 317-142

17 Claims



A first switch (solid-state or electromagnetic) controls energization and deenergization of a timing circuit which

controls the state of a second switch (solid-state) connected in a current path shunting the winding of a load controlling relay. When a predetermined input is provided to the first switch, a capacitor is charged and upon removal of said predetermined input from the first switch, the capacitor discharges and renders the second switch nonconductive, thereby causing the load controlling relay to become energized for a predetermined, variable period of time. A greater part of the discharging period is usable because the firing signal to the second switch is reduced during discharging of the capacitor. In one embodiment, the first switch is maintained conductive during energization of the load by a signal derived from the high side of the load. In another embodiment, the second switch is energized during charging of the capacitor, but a current-limiting resistor is connected in series with the load until the capacitor begins discharging.

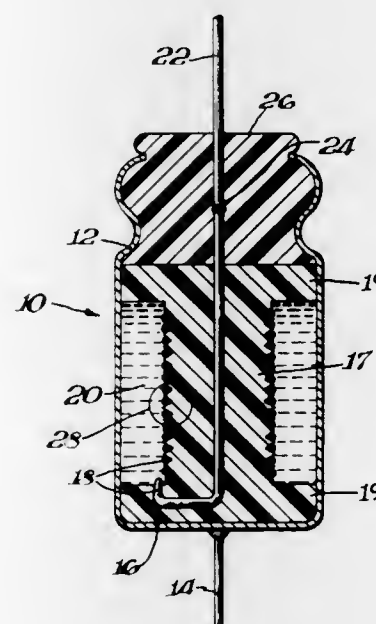
3,564,347 ELECTROCHEMICAL TIMER

David B. Peck and Walter W. Schroeder, Williamstown, Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed Jan. 21, 1969, Ser. No. 792,648
Int. Cl. H01g 9/06

U.S. Cl. 317-230

11 Claims



An electrochemical timer has a metal cathode electrode in the form of a container housing an electrolyte, an anode electrode and an elongated nonconducting anode support means having extremities larger than the region between the extremities. The intermediate region of the support means carries the anode of the device and the extremities of the support means serve to space the anode from the cathode.

3,564,348 TITANIUM-ANTIMONY ALLOY ELECTRODE ELECTRICAL CAPACITOR

David M. Cheseldine, Bennington, Vt., assignor to Sprague Electric Company, North Adams, Mass.

Filed Apr. 7, 1969, Ser. No. 814,089
Int. Cl. H01g 9/05

U.S. Cl. 317-230

3 Claims

An electrical capacitor is provided having at least one electrode comprising an alloy of titanium and antimony. An an-

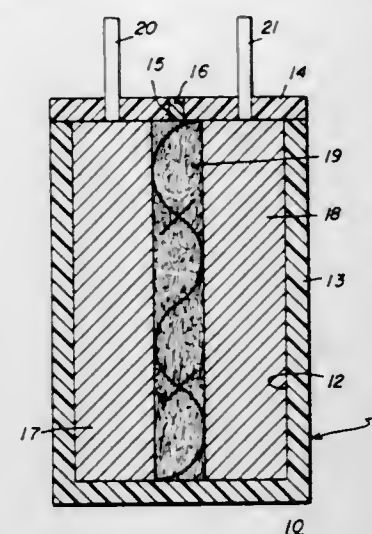
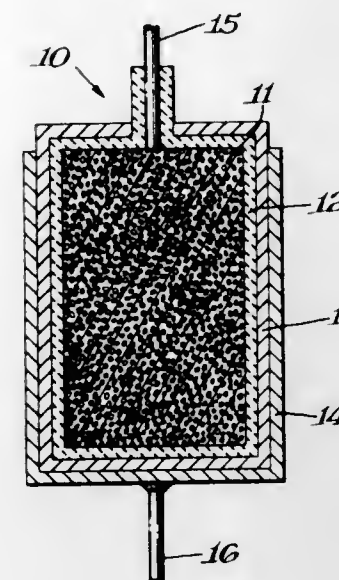
timony concentration of 10 to 30 percent by weight provides an electrode material on which a stable anodic film is grown,

3,564,350 COULOMETER WITH ELECTRODE CONTAINING EXCESS OF AT LEAST 200 PERCENT MERCURIC OXIDE

Randall N. King, Johnstown, and William N. Carson, Jr., Schenectady, N.Y., assignors to General Electric Company
Filed May 2, 1969, Ser. No. 821,445
Int. Cl. H01g 9/00

U.S. Cl. 317-230

2 Claims



such film being characterized by good thermal and electrical stability.

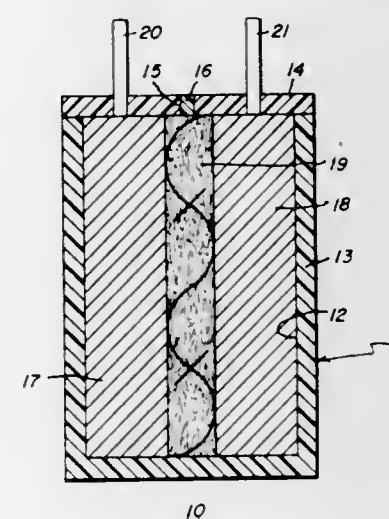
3,564,349 COULOMETER WITH ELECTRODE CONTAINING EXCESS OF AT LEAST 200 PERCENT CADMIUM HYDROXIDE

Randall N. King, Johnstown, N.Y., assignor to General Electric Company

Filed May 2, 1969, Ser. No. 821,362
Int. Cl. H01g 9/00

U.S. Cl. 317-230

2 Claims



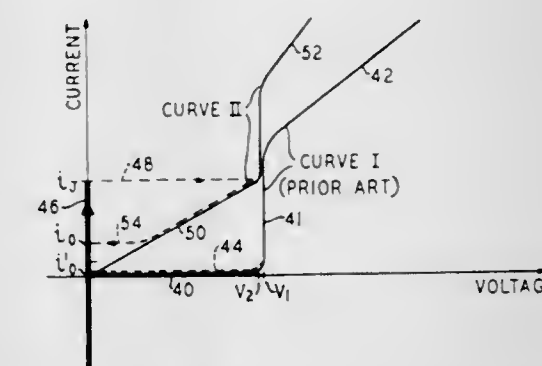
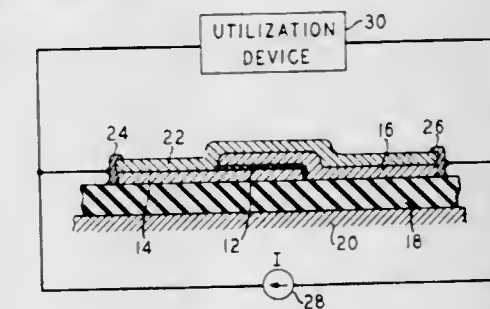
3,564,351 SUPERCURRENT DEVICES

Dean E. McCumber, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 7, 1968, Ser. No. 727,287
Int. Cl. H01l 3/00, 5/02, 5/06

U.S. Cl. 317-234

19 Claims



A coulometer has a closed container including an alkaline electrolyte and a pair of spaced apart, reversible electrodes in contact with the electrolyte. Each of the electrodes consists of an inert support, active material on the support, and an electrically conductive lead. One of the electrodes has active material of metallic cadmium in an amount equivalent to the predetermined coulometric capacity of the coulometer, and active material of cadmium hydroxide in an amount of at least 200 percent of the metallic cadmium. The other electrode has active material of mercuric oxide in an amount equivalent to the amount of the metallic cadmium and cadmium hydroxide of the first electrode.

A supercurrent device includes a shunt conductance across an interfacial region having a finite zero voltage current characteristic of, but not limited to, Josephson tunnel junctions. The effect of the conductance is to raise the switchback current to convenient and controllable values and simultaneously to decrease the capacitive time constant associated with the device.

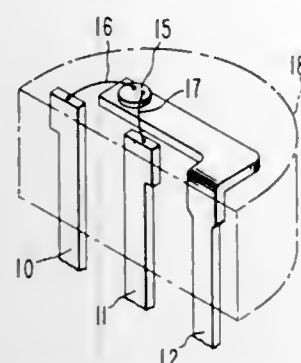
3,564,352

STRIP DESIGN FOR A LOW COST PLASTIC TRANSISTOR

William L. Lehner, Los Altos Hills, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, N.Y., a corporation of Delaware
Filed Dec. 30, 1968, Ser. No. 787,945
Int. Cl. H011 1/14

U.S. Cl. 317—234

6 Claims



The amount of moisture which can reach a plastic encapsulated transistor is decreased, while the heat capacity of the package is increased, by bending the lead on which the transistor die is mounted through two consecutive 90° bends thereby to double the length and mass of this lead within the package and thus to increase the distance moisture must travel along the lead to reach the transistor.

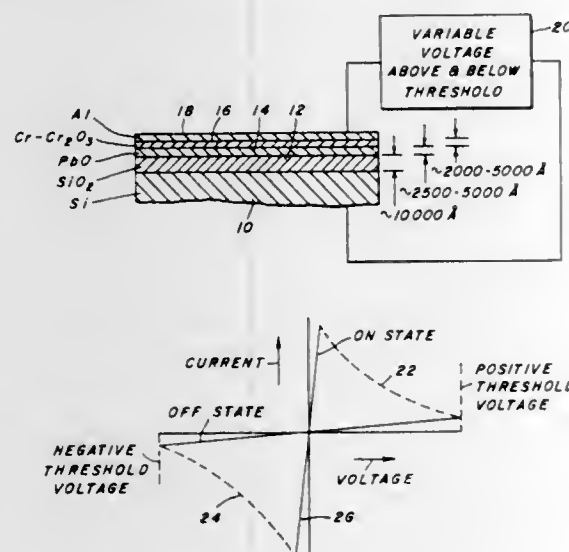
3,564,353

BULK SEMICONDUCTOR SWITCHING DEVICE FORMED FROM AMORPHOUS GLASS TYPE SUBSTANCE AND HAVING SYMMETRICAL SWITCHING CHARACTERISTICS

William S. Corak, Arnold, and David S. Herman, Columbia, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Apr. 16, 1969, Ser. No. 816,491
Int. Cl. H011 9/00, 7/00, 3/00

U.S. Cl. 317—234

14 Claims



Described are bulk semiconductor switching devices having symmetrical switching characteristics with an associated current controlled negative resistance, and formed from amorphous glass-type substances. The devices of the invention can be readily fabricated on small, integrated circuits and are formed by depositing on a semi-conductive substrate successive layers which are subsequently heat treated to form an amorphous semiconductive glass, these layers comprising silicon dioxide, lead oxide and a material selected from the group consisting of chromium-chromium oxide, vanadium-vanadium oxide and molybdenum-molybdenum oxide. Also described is a method for manufacturing such semiconducting glasses.

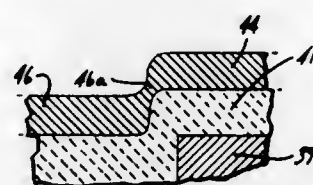
3,564,354

SEMICONDUCTOR STRUCTURE WITH FUSIBLE LINK AND METHOD

Edward Masami Aoki, Cupertino, and David R. Peterson, Palo Alto, Calif., assignors to Signetics Corporation, Sunnyvale, Calif., a corporation of California
Filed Dec. 11, 1968, Ser. No. 783,093
Int. Cl. H011 1/14, 5/02, 19/00

U.S. Cl. 317—235

13 Claims



Semiconductor structure having a fusible link formed by a portion in a lead structure carried by a semiconductor body in which the portion is characterized in that it can be fused with a relatively precise current level, and a method for forming the semiconductor structure with such a fusible link.

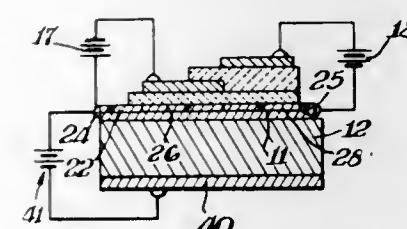
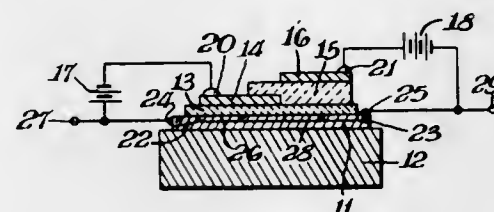
3,564,355

SEMICONDUCTOR DEVICE EMPLOYING A P-N JUNCTION BETWEEN INDUCED P- AND N-REGIONS

Kurt Lehovc, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Continuation-in-part of application Ser. No. 703,958, Feb. 8, 1968. This application Aug. 2, 1968, Ser. No. 749,651
Int. Cl. H011 1/14

U.S. Cl. 317—235

13 Claims



Semiconductor devices are formed by the induction of p- and n-regions into a high resistivity or semi-insulating-semiconducting film by means of electric fields applied perpendicular to the semiconductor film. By changing the field magnitude and/or polarity, the location and conductivity of the p- and n-regions can be varied thereby varying the characteristics of the device.

3,564,356

HIGH VOLTAGE INTEGRATED CIRCUIT TRANSISTOR

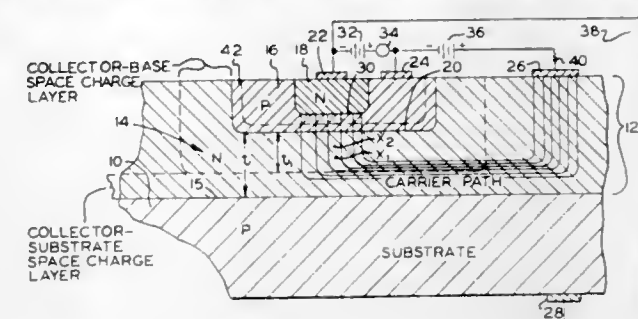
George R. Wilson, Beaverton, Ore., assignor to Tektronix, Inc., Beaverton, Ore., a corporation of Oregon
Filed Oct. 24, 1968, Ser. No. 770,303
Int. Cl. H011 5/00

U.S. Cl. 317—235

7 Claims

An integrated circuit transistor includes a substrate and an epitaxially grown semiconductor material thereon providing a three-layer transistor comprising a collector layer, an emitter layer, and a base layer therebetween. The collector layer is characterized by virtually complete depletion of majority carriers at a collector-emitter voltage less than the voltage at which collector-emitter

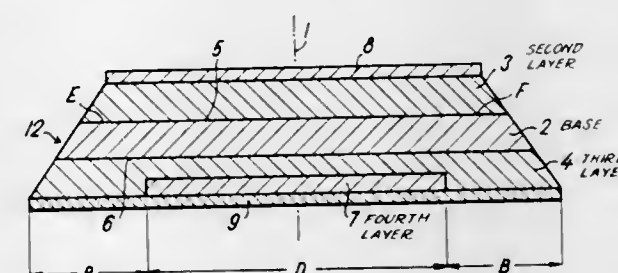
breakdown would otherwise occur. As a result, the collector-emitter voltage may be increased without encountering normal collector-emitter breakdown, because the field intensity in the collector-base charge layer is limited.

**MULTILAYER SEMICONDUCTOR DEVICE WITH REDUCED SURFACE CURRENT**

Oto Valcik, Prague, Czechoslovakia, assignor to CKD Praha oborovy podnik, Prague, Czechoslovakia
Filed Mar. 26, 1969, Ser. No. 810,763
Int. Cl. H011 5/02

U.S. Cl. 317—235

8 Claims



In a monocrystalline semiconductor body a layer of one conductivity type is sandwiched between a pair of adjacent layers of opposite conductivity type. A fourth layer of the one conductivity type having a smaller diameter than any of the other layers is formed in one of the adjacent layers and determines the functional cross section of the device, each of the other layers extending beyond the functional cross section in a peripheral border area.

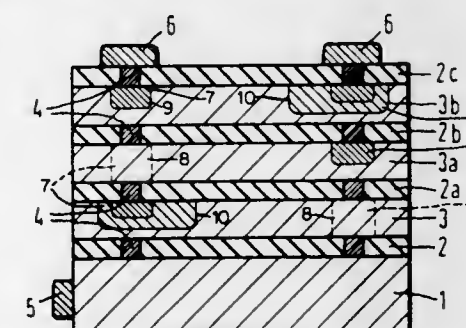
3,564,358

INTEGRATED CIRCUIT STRUCTURE CONTAINING MULTIPLE SANDWICH LAYERS OF MONO-CRYSTALLINE SEMICONDUCTOR AND INSULATOR MATERIAL

Alfons Hähnlein, Nieder-Ramstadt, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany, a corporation of Germany
Filed Nov. 13, 1968, Ser. No. 775,395
Claims priority, application Germany, Nov. 15, 1967, P 15 89 705.9

Int. Cl. H011 19/00
U.S. Cl. 317—235

4 Claims



This is an integrated circuit structure having several silicon layers electrically isolated and capacitively decoupled from each succeeding layer by means of intermediate insulating layers of aluminium silicates, said layers being successively deposited on a silicon substrate.

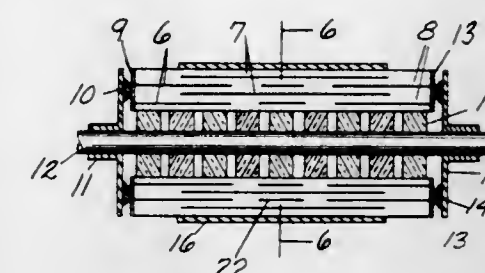
3,564,359

TUBULAR CAPACITOR

Nello Coda, Erie, and Lawrence J. Ruffner, College, Pa., assignors to Erie Technological Products, Inc., Erie, Pa., a corporation of Pennsylvania
Filed Aug. 10, 1967, Ser. No. 659,675
Int. Cl. H01g 1/06

U.S. Cl. 317—260

3 Claims



A tubular capacitor with a ground electrode spaced inward from the ends of the tube and with two other electrodes spaced from each other at the center of the tube and extending respectively toward opposite ends of the tube. The ground electrode is applied to a layer of green ceramic and the other two electrodes are applied to another layer of green ceramic and the layers of ceramic are arranged one on top of the other and spirally wrapped a plurality of turns about the axis of the tube. The spiralled turns of the ground electrode are shorted by conductive material in one or more holes through the ceramic between the two other electrodes.

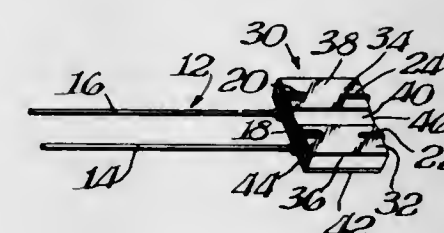
3,564,360

STACKED CAPACITOR

Roger W. Zimmerman, West Bend, Wis., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed June 4, 1969, Ser. No. 830,333
Int. Cl. H01g 1/14

U.S. Cl. 317—261

6 Claims



An integral wireform disposed in clamping engagement with a stacked capacitor has a pleat-like portion bent around a first edge of the stack with one end extended from the stack as a radial leadwire. A connective portion of the wireform extends across a major surface of the stack from the pleat-like portion to another end portion which is bent into clamping engagement around the opposing edge of the stack.

3,564,361

STACKED CAPACITOR

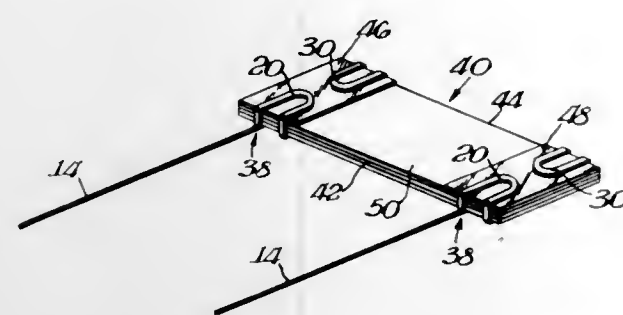
Jack Greenberg, Whitefish Bay, Wis., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed June 30, 1969, Ser. No. 837,552
Int. Cl. H01g 1/14

U.S. Cl. 317—261

6 Claims

An integral wireform provides a folded portion in clamping engagement with a stacked capacitor and an

end portion which extends from the component as a radial leadwire, and said folded portion is arranged such that



radial pull on the leadwire has substantially no unfolding action on the clamping portion.

3,564,362

ELECTRIC DRIVE UNIT UTILIZING AN M-G SET AS ANOTHER DRIVE UNIT WHEN A CERTAIN SPEED IS ATTAINED

William Frank Hill, Stafford, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England, a British company

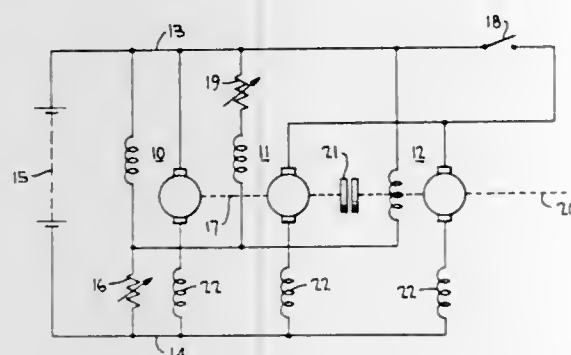
Filed Aug. 6, 1968, Ser. No. 750,534

Claims priority, application Great Britain, Aug. 29, 1967, 39,426/67

Int. Cl. H02p 7/68

U.S. Cl. 318—45

4 Claims



An electric drive unit comprising a motor connectible to a source of D.C. supply, the motor driving a generator which in turn supplies electric current to a motor from which the output of the system is obtained, means being provided to control the excitation of the generator and clutch means being provided to effect connection between the shafts of the motors and the generator and switch means being provided to connect the generator and motors across the source of D.C. supply.

3,564,363

ELECTRIC STEPPING MOTOR CONTROL CIRCUIT

William R. Scholtz, Scotia, N.Y., assignor to Salient Electronics, Inc., Rexford, N.Y., a corporation of New York

Filed Sept. 9, 1968, Ser. No. 758,501

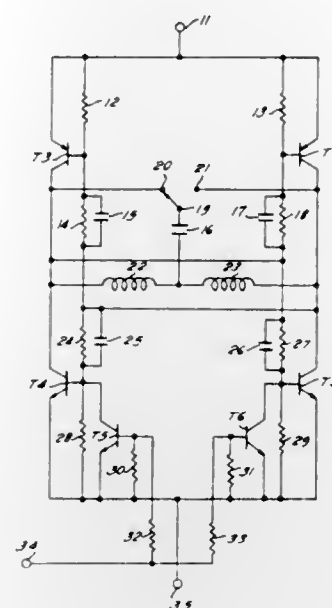
Int. Cl. H02k 37/00

U.S. Cl. 318—138

5 Claims

A bistable circuit for controlling one or more permanent magnet A.C. motors at a synchronous stepping rate includes two pairs of transistors electrically connected to the motor windings which, when energized, produce one of two stable states wherein one pair of transistors is conducting and the second pair is non-conducting. Also included in the circuit are resistors connected between base and emitter of the transistors for controlling voltage input, a phase shifting capacitor connected to the motor

windings, switching means for determining the stepping direction of the motors, and a pair of transistors adapted to receive an external electrical impulse so that, when



3,564,364

MULTIPHASE INDUCTION MOTOR

Alfred Neff, Remscheid, Germany, assignor to Gebrüder Honsberg, Remscheid-Hasten, Germany

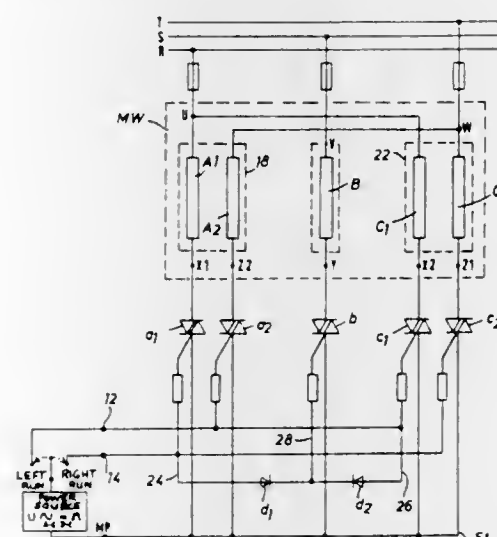
Filed Sept. 16, 1968, Ser. No. 759,868

Claims priority, application Germany, Sept. 15, 1967, P 16 13 936.9

Int. Cl. H02k 17/02

U.S. Cl. 318—207

4 Claims



A polyphase electric motor and a polyphase electric power supply line having a wire connected to each phase of the motor and contact free switch means for controlling the energy supply to the coils and consisting of normally non-conductive semiconductors in series with each motor coil. Each semiconductor has a control terminal sensitive to direct current voltage to make it conductive and a supply of direct current for connection to the terminals. By various combinations of coils the motor can be made to run at high speed or low speed and in either forward or reverse direction.

3,564,365

STATIC REGENERATIVE CONTROL OF DIRECT CURRENT MOTORS FROM AN A.C. SOURCE

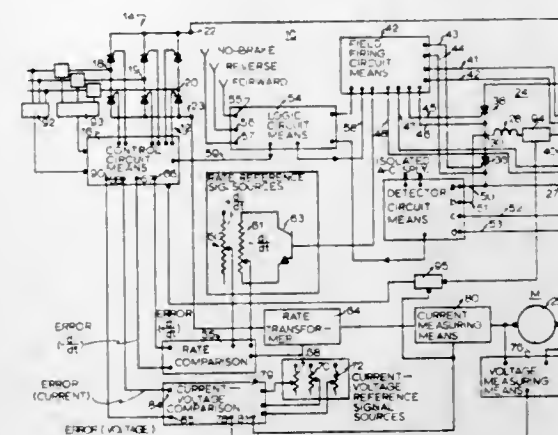
William B. Zelina, Edinboro, Pa., assignor to General Systems, Inc., Erie, Pa., a corporation of Pennsylvania

Filed June 30, 1969, Ser. No. 837,756

Int. Cl. H02p 3/14

U.S. Cl. 318—251

25 Claims



A static full reversing, regenerative control system for controlling the operation of series direct current motors in both motoring and regenerative braking conditions wherein a single controlled rectifier bridge rectifier is employed and controlled to operate as an inverter during regeneration so that the torque of the motor may be continuously controlled from a maximum positive value to a maximum negative value. Smooth, controllable transition is provided between motoring and regenerative braking operating conditions by a static reversible field switching means and maintenance of the direction of current in the motor armature circuit with provision for limiting the motor current, motor voltage and both positive and negative rate-of-change of motor current.

3,564,366

MOTOR CONTROL SYSTEM FOR A DIRECT CURRENT TRACTION MOTOR

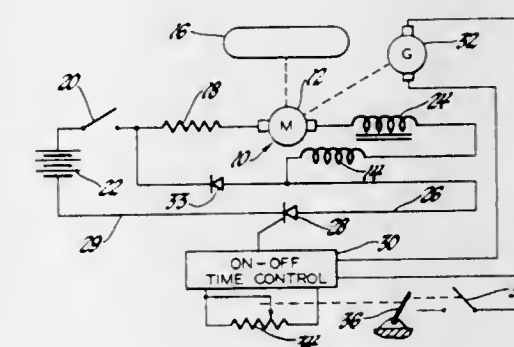
William D. Worrell, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed July 2, 1969, Ser. No. 838,508

Int. Cl. H02p 7/28

U.S. Cl. 318—257

11 Claims



A motor power supply system for a direct current traction motor which is utilized to propel a motor vehicle. The traction motor and a source of direct current are connected by a switching device which takes the form of a silicon controlled rectifier. The "on" and "off" times of the controlled rectifier are programmed such that the "on" time is controlled as a function of motor speed and increases as motor speed increases. The "off" time for the controlled rectifier is controlled as a function of the setting of an accelerator pedal for controlling

the vehicle and as the accelerator pedal is depressed the "off" time of the controlled rectifier decreases. The system, in addition to the control circuit that has been described, includes a torque limit circuit, a speed limit circuit, a fault sensing circuit and an arrangement for preventing the vehicle from being shifted from a forward condition of movement to a reverse condition of movement or vice versa whenever the propulsion motor has a speed which is higher than a predetermined value.

3,564,367

METHOD OF AND APPARATUS FOR STOPPING MACHINES

Rudolf H. Wanner, Aystetten, and Berthold Mader, Augsburg, Germany, assignors to Fa. Böhler & Weber KG, Maschinenfabrik, Augsburg, Germany, a corporation of Germany

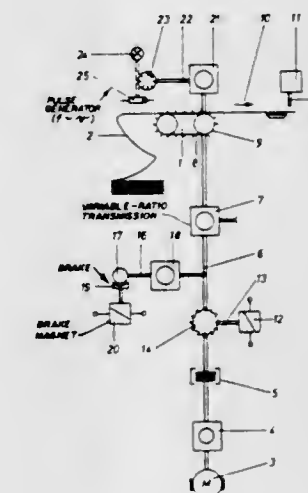
Filed Sept. 13, 1968, Ser. No. 759,551

Claims priority, application Germany, Sept. 15, 1967, P 15 88 074.7

Int. Cl. H02p 3/16

U.S. Cl. 318—275

4 Claims



A system for braking a moving machine part in which a pulse train is generated at a frequency proportional to the velocity of the moving part, the pulse train frequency being converted into an analogous voltage proportional to such velocity. In addition, the pulse train is used to provide an output signal proportional to the distance between the instantaneous position and the desired stopping point by pulse counting, the latter signal being converted to a signal proportional to the square root of the remaining distance. A comparator is responsive to the analog signal proportional to pulse frequency and velocity and to the root signal proportional to the square root of the residual distance to provide a difference signal in accordance with which the braking of the machine part is regulated.

3,564,368

SPINDLE SPEED CONTROL MONITOR

Leroy U. C. Kelling, Waynesboro, Va., assignor to General Electric Company, a corporation of New York

Filed Jan. 10, 1968, Ser. No. 696,795

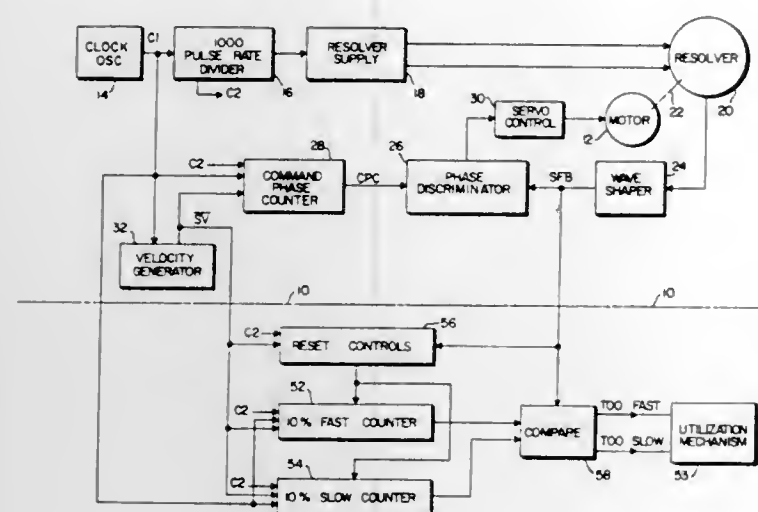
Int. Cl. H02p 5/06

U.S. Cl. 318—314

11 Claims

The feedback waveform in a closed loop position controlling system for controlling the speed of a spindle is used to generate an envelope waveform which sets the limits of the system response. In the closed loop position controlling system, the speed of the spindle motor is controlled by a train of velocity pulses. The velocity pulses are accumulated by a command phase counter whose output phase is compared with the phase of a feedback waveform whose phase is related to the spindle motor rotational position. The phase difference drives the motor

in a direction to reduce the phase difference to zero. At the start of each spindle speed monitoring cycle, a fast and slow phase counter are cleared, preset and started counting by one of the feedback pulses. The presetting operation causes the initial phase preset of these counters to straddle the phase of the feedback pulse. The fast counter provides an output waveform which has its phase advancing slightly faster than the phase of the output



signal of the command phase counter. The slow counter provides an output waveform which has its phase advancing slightly slower than the phase of the output signal of the command phase counter. The termination of each feedback pulse is compared in phase with the outputs from the fast and slow counters, and an indication is provided if the feedback waveform falls outside of the limits set by the fast and slow counter waveforms.

3,564,369

MOTOR CONTROL SYSTEM FOR A DIRECT CURRENT TRACTION MOTOR

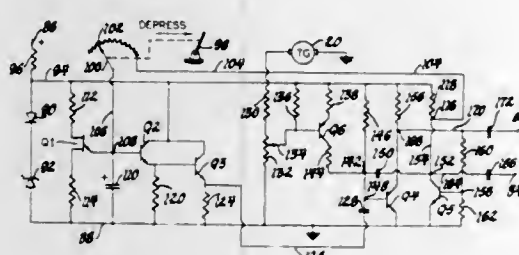
Gerald O. Huntzinger and Donald O. Ruff, Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed July 2, 1969, Ser. No. 838,509

Int. Cl. H02p 7/28

U.S. Cl. 318—327

7 Claims



A motor power supply system for a direct current traction motor which is coupled to the wheel of a motor vehicle to provide motive power for the vehicle. The traction motor is connected with a source of direct current through a switching device which takes the form of a silicon controlled rectifier. The controlled rectifier is switched alternately on and off and the time duration of the on and off periods of the controlled rectifier is controlled such that the on time is increased as motor speed increases. The time duration of the nonconducting periods, or off times of the controlled rectifier, is controlled as a function of the setting of an accelerator pedal for controlling the speed of the vehicle and as the accelerator pedal is depressed the off time is decreased.

3,564,370 APPARATUS FOR REGULATING THE SPEED OF LOW SPEED ELECTRIC COMMUTATOR MOTORS THROUGH THE USE OF SYNCHRONIZED BOOSTING SIGNALS

Jean-Michel Catherin, Savigny-sur-Orge, France, assignor to Compagnie Generale d'Electricite, Paris, France, a French corporation

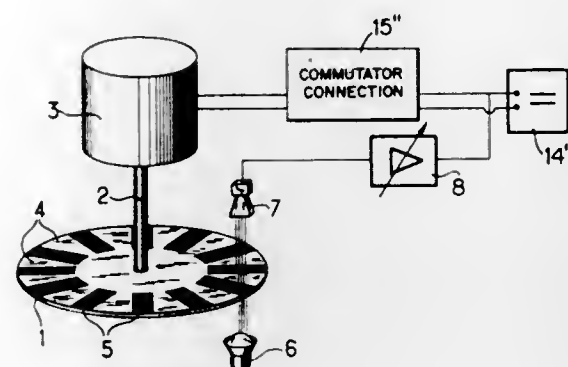
Filed May 20, 1968, Ser. No. 730,531

Claims priority, application France, May 19, 1967, 107,050; June 16, 1967, 110,796

Int. Cl. H02p 5/06

U.S. Cl. 318—343

6 Claims



A device for eliminating the speed fluctuation of low speed electric motor due to the simultaneous passage of plural commutator segments under the motor's brushes, which causes the motor's impedance to be periodically lowered which, in turn, causes a fluctuation in input voltage to the motor and a corresponding fluctuation in motor speed. The device is coupled to the motor shaft and acts on the supply current to the motor to produce a voltage fluctuation which is of the same frequency and amplitude as that due to lowered motor impedance, and in phase opposition thereto.

3,564,371

DUAL CONVERTER HAVING SHARED GATE PULSE GENERATOR

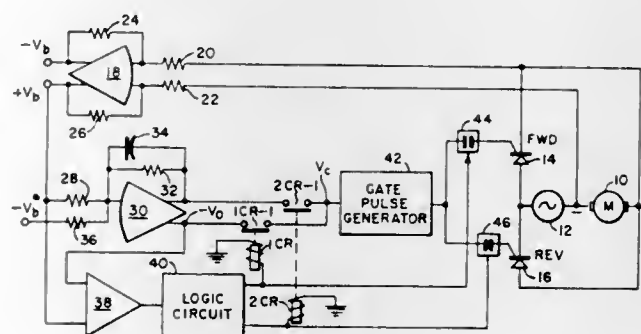
Emil T. Schonholzer, 119 Lee St., Depew, N.Y. 14043

Filed Nov. 13, 1968, Ser. No. 775,358

Int. Cl. H02p 5/16

U.S. Cl. 318—345

6 Claims



An electrical motor drive which may be operated in the forward or reverse direction and which is supplied from a power unit having a first set of thyristors for supplying current in the forward direction and a second set of thyristors for supplying current in the reverse direction, and wherein a common gate pulse generator is selectively connected by a switching relay to the forward or reverse set of thyristors depending upon the direction of rotation desired. The switching relay, in turn, is controlled by a comparison of the bus voltage from the motor with the output voltage of a voltage controller for the motor. In this manner, the deadband between the forward and reverse conduction modes is minimized.

3,564,372

ELECTRICAL POWER CONTROL MEANS

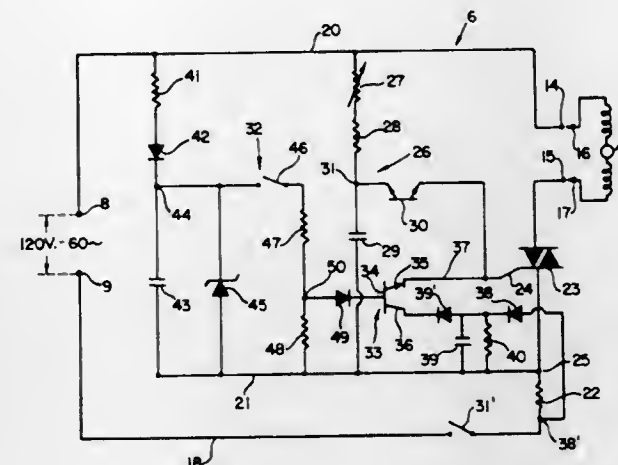
Walter H. Vogelsberg, Radnor, Pa., and Alexander C. R. Wilson, Towson, Md., assignors to The Black and Decker Manufacturing Company, Towson, Md., a corporation of Maryland

Filed Nov. 29, 1968, Ser. No. 779,991

Int. Cl. H02p 7/28

U.S. Cl. 318—345

15 Claims



An electrical power control circuit for a load which provides for selective application of power in excess of the normal power to the load. In the preferred embodiment, the load is a motor and the application of additional power is manually controlled and provides greater power output of the motor so a tool powered by the motor will continue to operate even though the load on the tool would normally stall the motor. The additional power is automatically cut back by the control circuit before damage to the motor can occur. In the preferred embodiment, the motor drives a portable power tool and power to the motor is controlled by varying the firing angle of a triac in series with the motor.

3,564,373

PULSE CONTROL WIPER

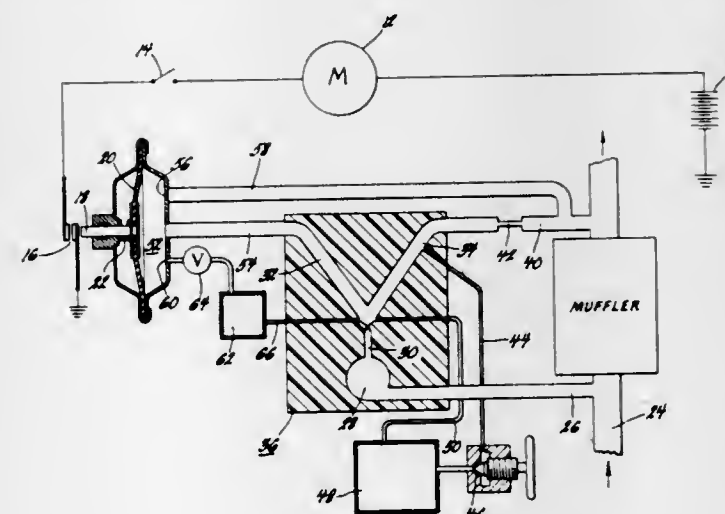
Keith H. Carpenter, Kettering, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Dec. 23, 1965, Ser. No. 515,855

Int. Cl. H02p 1/04

U.S. Cl. 318—443

3 Claims



In a preferred form, this disclosure relates to a pulse type windshield wiping system for wiping the windshield of a vehicle. The system includes a drive motor which is

adapted to be intermittently energized for moving windshield wipers across the windshield through one cycle of operation each time it is energized. The system further includes a switch means in an electric circuit with the motor for controlling energization and de-energization thereof, a pressure responsive means operable to effect movement of a switch element of the switch means to closed and open positions in response to pressurized exhaust gases from the engine being supplied and not supplied thereto, respectively, and a fluid amplifier means for directing the exhaust gases to the pressure responsive means at periodic intervals whereby the drive motor is caused to be intermittently energized.

3,564,374

INTERMITTENT CONTROL DEVICE

Robert W. Kearns, Detroit, Mich., assignor, by mesne assignments, to Tann Company, Detroit, Mich., a partnership of Michigan

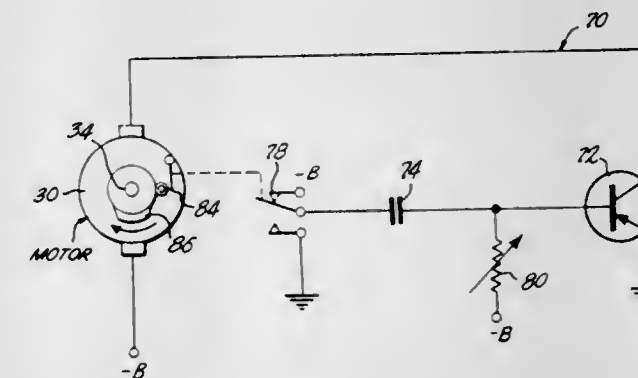
Original application Dec. 1, 1964, Ser. No. 414,973, now Patent No. 3,351,836, dated Nov. 17, 1967. Divided and this application Sept. 21, 1967, Ser. No. 669,616

The portion of the term of the patent subsequent to Nov. 7, 1984, has been disclaimed

Int. Cl. H02p 7/06

U.S. Cl. 318—443

18 Claims



A windshield wiper control which operates the wiper blades continuously or intermittently with a dwell period between each wiping cycle. In the intermittent operation the wiper blades are responsive to the condition of the windshield. Transistors are provided for controlling the intermittent operation and also for controlling the continuous mode of operation. In the intermittent mode of operation, the time interval of the dwell periods can be varied between zero and a predetermined maximum time interval so that when the dwell periods are set at zero the wiper blades operate continuously. The length of time of the dwell periods is determined by a capacitive timing control in which the capacitor is charged by the battery of the automotive vehicle and thereafter is connected in an RC circuit in a manner to apply to the resistance of the RC circuit a potential greater than the battery voltage.

3,564,375

CONTROL SYSTEM FOR ELECTRIC WINDSHIELD WIPERS HAVING DYNAMIC BRAKING DEFINED BY SHORT CIRCUIT

Eugenio Allaria, Milan, Italy, assignor to Fabbrica Italiana Magneti Marelli S.p.A., Milan, Italy, a corporation of Italy

Filed Oct. 24, 1967, Ser. No. 677,694

Claims priority, application Italy, Oct. 26, 1966, 29,294/66

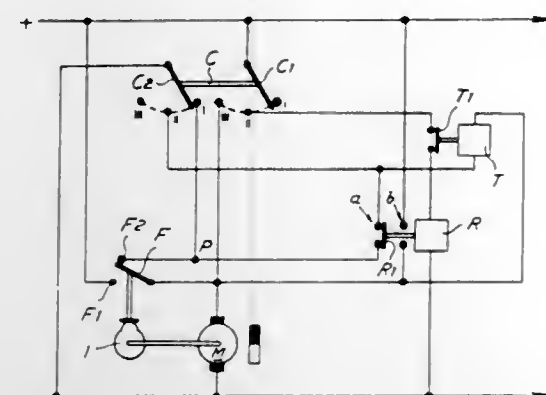
Int. Cl. B60s 1/08

U.S. Cl. 318—443

6 Claims

A windshield wiper control system of motor vehicles comprises members provided for the electric braking of the operating motor including switches, controlled by a

manual change-over switch which controls the operation of an electric motor. In the case of motors of the perma-



nent magnet excitation-type the electric braking is obtained by short circuiting the rotor of the motor.

3,564,376

TIME DELAY ARMCHAFT POSITIONING CONTROL SYSTEM FOR SEWING MACHINE

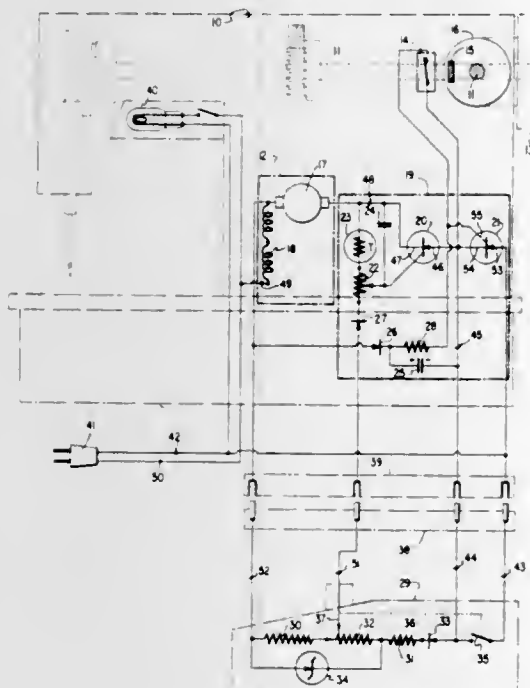
James W. Mais, Washington, D.C., George M. Nicholas, Lake Rogerene, N.J., and Donny V. Lee, Plainview, N.Y., assignors to The Singer Company, New York, N.Y., a corporation of New Jersey

Filed Oct. 24, 1968, Ser. No. 770,211

Int. Cl. C05d 13/00

U.S. Cl. 318-466

9 Claims



A circuit is disclosed for automatically driving a sewing machine to a predetermined position of the armshaft responsively to the normal relaxation of the foot controller. Two silicon controlled rectifiers (SCR's) are employed. One SCR controls the range of motor speeds by variable gate voltages supplied thereto by a foot controller-actuated resistance. A switch supplying A.C. line voltage to the speed control circuit is normally open in the relaxed position of the controller but is closed responsively to initial actuation of the controller. This switch is connected in shunt with the anode-cathode circuit of a second SCR which may be maintained conductive only for a predetermined time after the switch is opened. This conductive time is established by a timing capacitor which is charged through a diode only when

the switch is closed, and is discharged into the gate of the second SCR when the switch is opened. A normally-open reed switch is positioned to be influenced by a small permanent magnet mounted on the handwheel which is coupled to the armshaft and closure of this switch is thus effected in a predetermined position of the handwheel. The reed switch is connected across the gate-cathode circuit of the second SCR and, when closed, removes the gate voltage to turn off the SCR and stop the motor. The relaxed position of the foot controller provides a minimum resistance for establishing a fixed low-speed high-torque positioning drive for the motor. The timing capacitor is chosen with respect to its discharge resistance to provide a limited conductive time for the second SCR at least long enough to allow the low-speed drive to find the desired stop position of the armshaft after which the second SCR is rendered inoperative because the capacitor has discharged below the firing voltage. Thus the handwheel can be readily rotated manually to reposition the armshaft without danger of interference from the positioning drive which has been rendered inoperative until the next actuation of the foot controller.

3,564,377

MULTIPOINT CONTROL SYSTEM

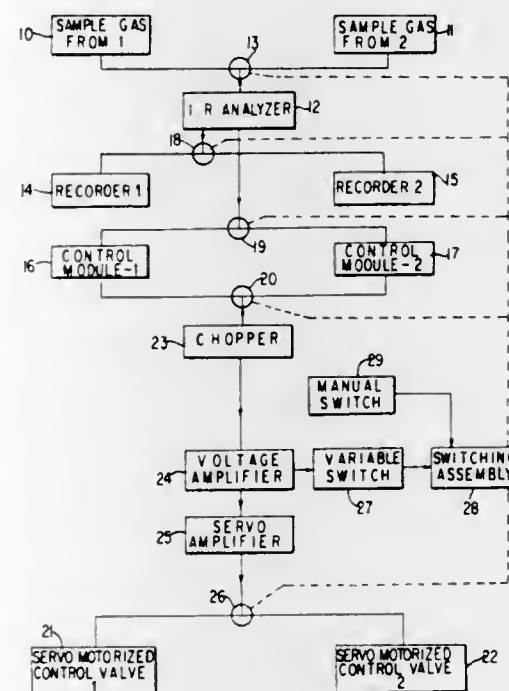
Richard E. Evans, Fort Lauderdale, Fla., and Frederick W. Roberts, Southport, Conn., assignors to Rolock Incorporated, Fairfield, Conn., a corporation of Connecticut

Filed Oct. 6, 1967, Ser. No. 673,466

Int. Cl. G05b 11/18, 11/32

U.S. Cl. 318-562

22 Claims



A multipoint industrial control system in which a plurality of units to be controlled are successively connected to a common sensor and to a plurality of three mode control modules, there being a separate module for each unit. A memory storage element at the input of each control module maintains the control circuitry at the last observed level of the process variable during the entire time that the sensor is connected to other stations so as to provide smooth transition of control from one cycle to the next. A variable switching means dependent upon demand allocates the dwell time of the sensor at any one unit or station to the demand or need for correction of the process variable. An overriding timing circuit effects switching of the control apparatus after a predetermined dwell of the sensor at any one station, thereby preventing undue dwell or locking of the sensor at a station.

3,564,378 ACTIVE FEEDBACK NETWORK FOR ANALOGUE PLOTTER SERVO SYSTEM

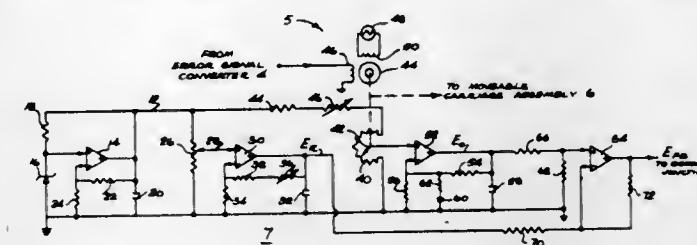
Charles E. Engle, Tustin, Calif., assignor to Valtec Corporation, a corporation of California

Filed Aug. 8, 1969, Ser. No. 848,498

Int. Cl. G05b 5/01, 19/36

U.S. Cl. 318-576

6 Claims



A stable reference voltage is applied across both a follow-up and a zero reference potentiometer that have a movable tap coupled to supply a DC voltage to high impedance input of a respective operational amplifier. The gain of these operational amplifiers, as determined by the amount of negative feedback, is selected to produce steady state DC output voltages of the same magnitude for any given position setting along the selected coordinate axis. The negative feedback path for the operational amplifier coupled to receive the voltage from the tap on the follow-up potentiometer contains an RC delay network that provides a phase lead effect at its output for preventing overshoot. The operational amplifier output voltages are applied to opposite inputs of another operational amplifier coupled in a grounded resistance bridge arrangement to develop a feedback voltage for comparison at a summing junction with a position input signal to generate an error signal for driving the servo motor.

3,564,379 AUTOMATIC POSITION INSPECTOR

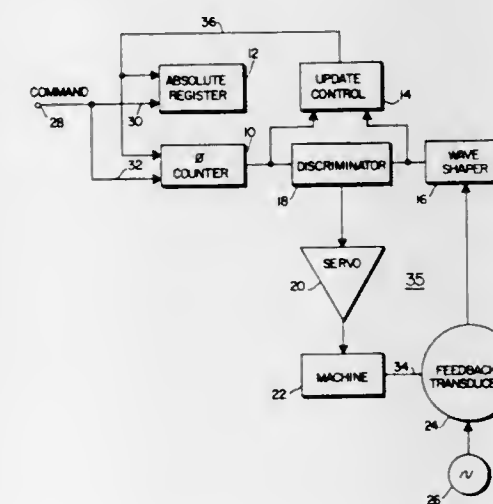
Joseph F. Bakel, Lyndhurst, and Brinley A. Gyorko, Waynesboro, Va., assignors to General Electric Company, a corporation of New York

Continuation of application Ser. No. 659,728, Aug. 10, 1967. This application July 2, 1969, Ser. No. 842,797

Int. Cl. G05b 19/28

U.S. Cl. 318-603

20 Claims



A machine tool numerical control system with the capability of tracking the machine tool movement when the control loop is broken. The command signal and feedback signal are compared and the error is used to update the absolute position register and also the command signal itself. When the control loop is again in operation there is substantially no discrepancy between the electronic equipment indicating position and actual position.

3,564,380 SELECTIVELY SEQUENTIALLY POSITIONING CONTROL

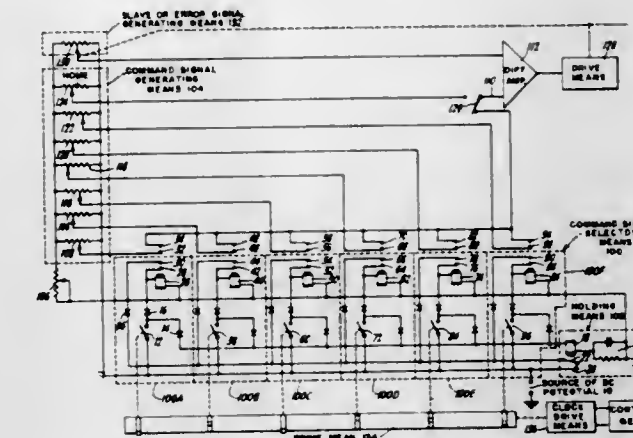
Maurice I. Zeldman, Norwalk, Conn., assignor to American Machine & Foundry Company, a corporation of New Jersey

Continuation of application Ser. No. 626,082, Mar. 27, 1967. This application Jan. 29, 1970, Ser. No. 7,364

Int. Cl. G05b 11/01

U.S. Cl. 318-663

8 Claims



A device for programming a servo drive system, particularly a plurality of discrete signals fed selectively to a servo drive system. A number of signal generating means such as resistors are selectively coupled to feed discrete potentials to a servo drive system. Each potential represents a preselected discrete position for the servo drive system. The use of same potential insures precise repetitive positioning of the servo drive system.

3,564,381 A.C. SYNCHRONOUS TRANSMITTER, D.C. SYNCHRONOUS RECEIVER SYSTEM WITH DEMODULATORS IN ONLY TWO OF THE THREE WINDINGS

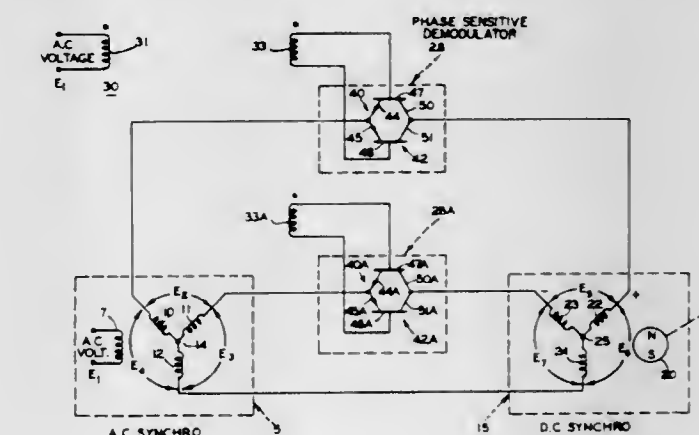
Walter Parfomak, Wallington, and Leon Tysko, Fairlawn, N.J., assignors to The Bendix Corporation, a corporation of Delaware

Filed Dec. 19, 1968, Ser. No. 785,137

Int. Cl. G05b 11/12

U.S. Cl. 318-23.5

8 Claims



An indicating system having alternating current synchro transmitters providing alternating current signals corresponding to a condition, each transmitter has three stator windings connected back to back with a direct current synchro receiver having three stator windings. Demodulators are connected in two of the back to back connections. The demodulators comprise a pair of transistors of opposite conductivity type controlled by an alternating current voltage phase related to the alternating current signals.

3,564,382 COULOMETER CONTROLLED BATTERY CHARGERS

Thomas Elston King, Ronald Lloyd Haines, and Howard Robert Braun, Ottawa, Ontario, and Ronald Denis Ouellette, Windsor, Ontario, Canada, and Jack Rodney McKague, Baden, Sollingen, Germany, assignors to Her Majesty the Queen in right of Canada as represented by the Minister of National Defence

Filed Sept. 13, 1968, Ser. No. 760,746

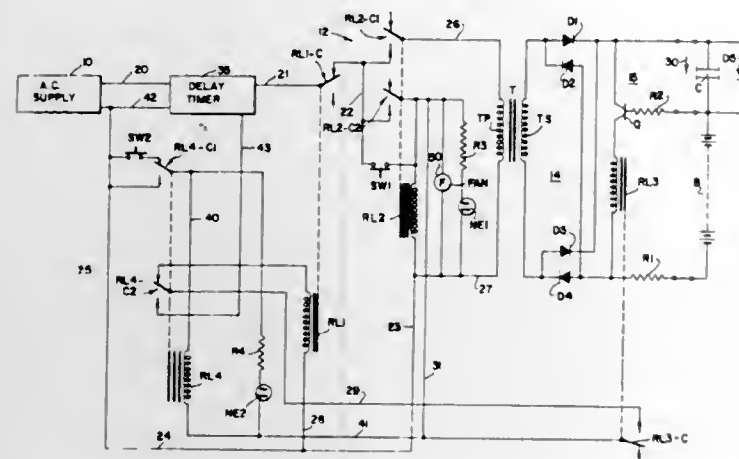
Claims priority, application Canada, Sept. 15, 1967,

144

Int. Cl. H02j 7/02

U.S. Cl. 320—39

11 Claims



Battery charging circuits using a coulometer in series with the battery to sense the amount of charge going into or out of the battery. The coulometer provides an abrupt rise in voltage upon passage of a predetermined net amount of charge therethrough, e.g. when the battery has been fully charged. This voltage actuates means to terminate further charging either by tripping a relay or deactivating a unijunction oscillator which normally provides gating pulses to an SCR in series with the battery and coulometer. Means are provided for causing a timed overcharge or an intermittent pulse type of overcharge.

3,564,383 BATTERY CHARGER UTILIZING BIMETALLIC SWITCH FOR AUTOMATIC SELECTION OF 6- OR 12-VOLT CHARGING

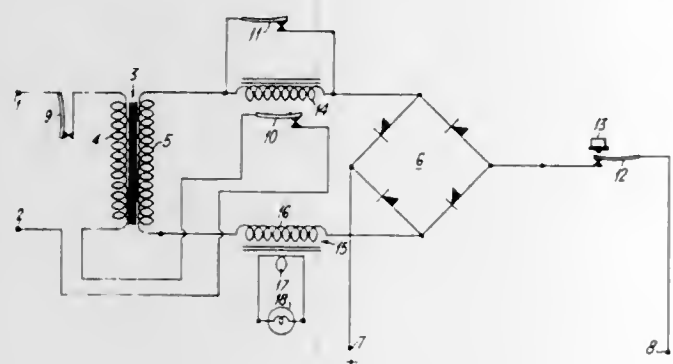
Frederick C. Wheeler, Bath, Arthur J. S. Seager, Calne, and Geoffrey J. Webb, Bath, England, assignors to J.D. Electronics Limited, Wiltshire, Leafeld, Corsham, England, a British company

Filed July 7, 1969, Ser. No. 839,246

Int. Cl. H02j 7/04

U.S. Cl. 320—39

8 Claims



A battery charger for charging 6- and 12-volt batteries includes a two-position charging voltage selection switch and a device which, in response to the charging current,

produces either a thermal or an electromagnetic effect which, if the charging current exceeds a particular value above the normal value, causes the switch to switch to the six-volt position. The construction or arrangement of the switch causes it to subsequently remain in this position. Voltage selection may therefore be achieved automatically in dependence on the voltage of the battery under charge.

3,564,384 HIGH EFFICIENCY POWER SUPPLY APPARATUS

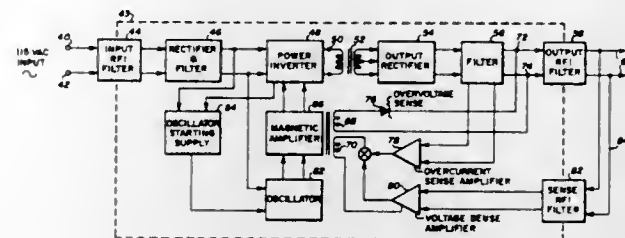
Alan J. Adler, Palo Alto, Calif., assignor to RO Associates, Inc., Menlo Park, Calif., a corporation of California

Filed Jan. 2, 1969, Ser. No. 788,471

Int. Cl. H02m 5/40

U.S. Cl. 321—2

6 Claims



A high efficiency power supply apparatus wherein the duty cycle of the power inverter is varied in accordance with the actual load conditions of the output circuit. A magnetic amplifier, which is responsive to an overvoltage sense detector, an overcurrent sense detector and a load voltage sense detector, is used to control the duty cycle of the power inverter by altering the waveform of the oscillator which is used to drive the power inverter.

3,564,385 GENERATOR FOR PRODUCING CONTROL SIGNALS FOR STRIKING THE CONTROLLABLE RECTIFIERS OF AN INVERTED CONVERTER

Flemming Thorsoe, Augustenborg, Denmark, assignor to Danfoss A/S Nordborg, Denmark, a company of Denmark

Filed Jan. 21, 1969, Ser. No. 792,685

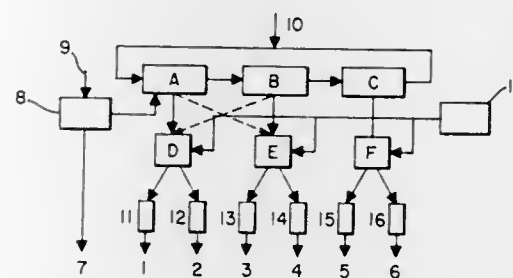
Claims priority, application Germany, Jan. 17, 1968,

P 16 13 769.2

Int. Cl. H02m 7/00

U.S. Cl. 321—5

10 Claims



A generator controls a three phase converter having six controllable rectifiers and a common quenching rectifier. A frequency emitter is controlled by an input voltage and emits a controlled frequency which is six times the three phase frequency. The frequency emitter controls the common quenching rectifier and also controls a three stage annular counter. The three outputs of the annular counter control three bistable multivibrator frequency dividers, each having two outputs. The output of each frequency divider is connected to a gate circuit which in turn controls one of the six controllable rectifiers. A correction circuit interconnects the three multivibrators to insure the proper sequence of firing of the six controllable rectifiers.

3,564,386 POWER SUPPLY FOR CONVERTING HIGH VOLT- AGE ALTERNATING CURRENT INTO HIGH VOLTAGE DIRECT CURRENT

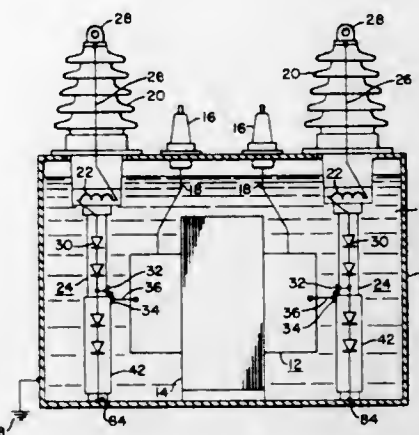
Merrill G. Leonard, Fowler, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 27, 1968, Ser. No. 787,346

Int. Cl. H01b 17/00; H02m 7/00

U.S. Cl. 321—8

10 Claims



A power supply for converting high voltage alternating current into high voltage direct current comprising a tank having a transformer therein. Bushings extending through the tank for connecting a power source to the transformer. High voltage bushings extending through the tank for connecting a direct current load to the power supply. Each of the high voltage bushings has attached thereto a terminal for connecting to a load, a choke coil, and a rectifier stack. The rectifier stacks extend into the tank and alternating current connections to the lower end of the rectifier stacks are automatically made when the rectifier stacks are inserted into the tank.

3,564,387 AC/DC CONVERTER

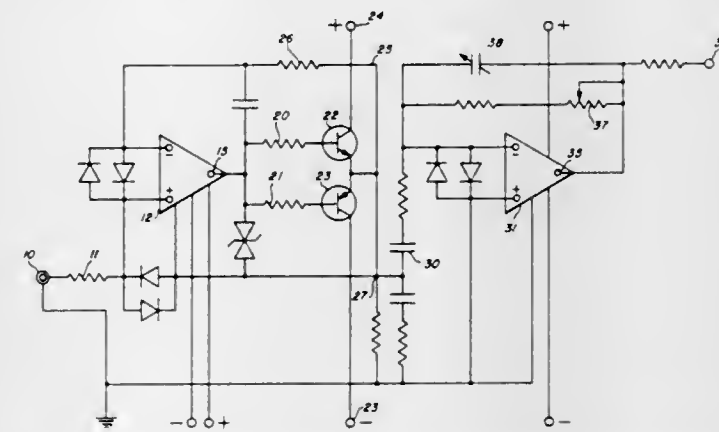
Richard E. Gadberry, Mesa, Ariz., assignor to Dickson Electronics Corporation, a corporation of Arizona

Filed June 19, 1969, Ser. No. 834,676

Int. Cl. H02m 7/00; H03k 5/00

U.S. Cl. 321—8

7 Claims



A converter for receiving audio frequency alternating current signals and producing a direct current output signal proportional to the AC signal in response thereto. An operational amplifier is direct connected to receive the AC signal and is provided with a feedback arrangement in a bootstrapping configuration. The output of the bootstrapped operational amplifier is applied through a coupling capacitor to a second operational amplifier that may have a desired gain greater than unity. The signal thus applied at the input of the converter is utilized by the first operational amplifier to drive the capacitor coupling succeeding stages; the output of the second opera-

tional amplifier is rectified and integrated to produce a DC analogue quantity proportional to the AC audio frequency amplitude applied to the converter.

3,564,388 CONTROL CIRCUIT ARRANGEMENT FOR CONTROLLED RECTIFIERS

Jean Marie Nolf, Forst, Belgium, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 7, 1968, Ser. No. 727,311

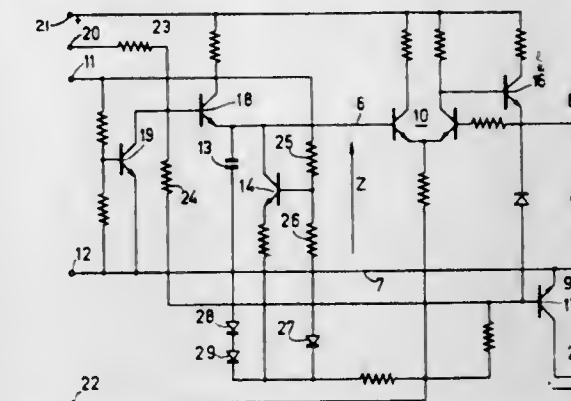
Claims priority, application Netherlands, May 13, 1967,

6706733

Int. Cl. H02p 13/26; H02m 7/00

U.S. Cl. 321—18

10 Claims



A system for regulating the voltage to a load as a linear function of an input signal comprises a controlled rectifier in series with the load and a source of full wave rectified AC voltage. A control circuit is connected to the rectifier gate electrode to control the firing angle as a function of said input signal. The control circuit includes a comparator to which is applied the input signal and a sinusoidal sawtooth signal in synchronism with the rectified AC pulses, the amplitude thereof being directly proportional to the amplitude of the rectified AC pulses and starting from the zero level of the input signal. Upon equality of the two signals, the comparator supplies a control signal to the rectifier gate electrode.

3,564,389 AC TO DC CONVERTER

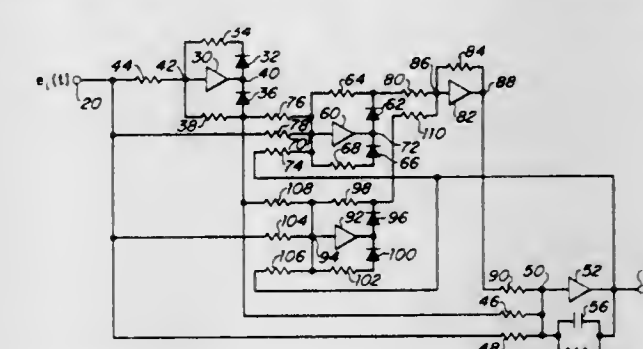
Peter L. Richman, 22 Barbary Road, Lexington, Mass. 01503

Filed May 16, 1969, Ser. No. 825,344

Int. Cl. H02m 7/00

U.S. Cl. 321—18

21 Claims

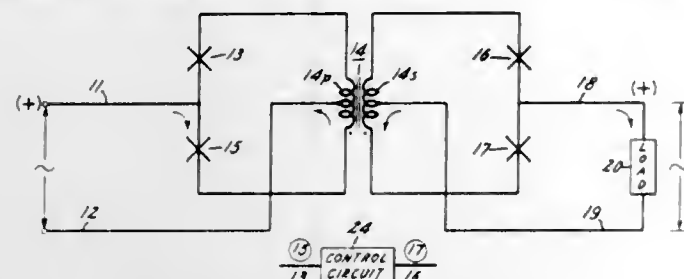


This is a system for converting a time-varying signal into a substantially steady-state output typically the RMS value of the original signal. The system includes a circuit for providing the absolute value of the input signal, and a gain circuit which provides a gain directly proportional to the absolute value and inversely proportional to the RMS value. The output of the latter is then averaged to provide RMS. Preferably, the gain circuit operates by clipping proportioned or scaled absolute signals at a plurality of levels determined as proportions of the steady-state output, and the resulting clipped values are summed together.

3,564,390
POWER CONVERTER CIRCUIT OPERATING AS AN ELECTRIC POTENTIAL TRANSFORMER
 Jerry L. Stratton, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
 Filed Apr. 16, 1968, Ser. No. 721,643
 Int. Cl. H02m 5/22

U.S. Cl. 321—60

1 Claim

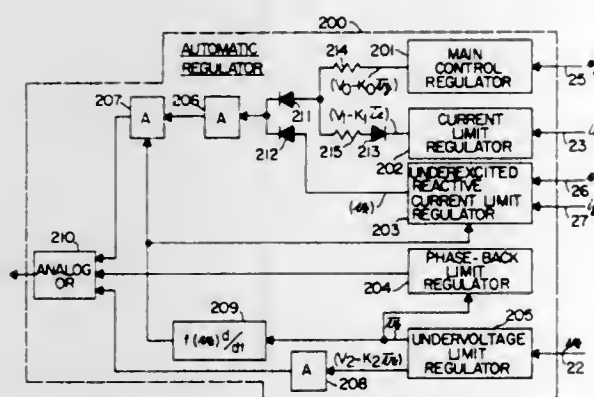
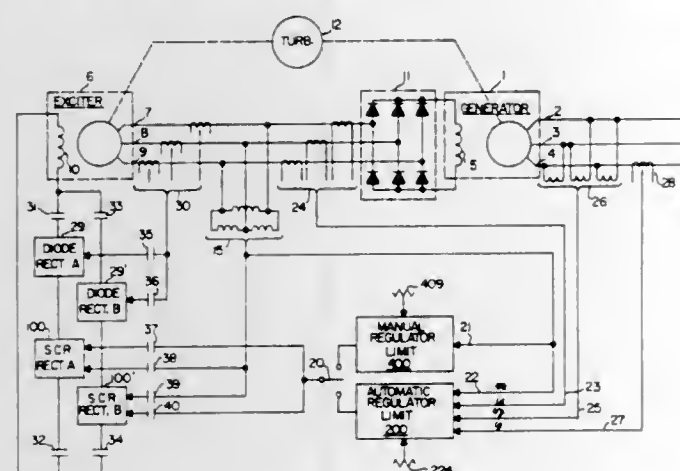


A power converter circuit or electronic transformer for an A.C. supply comprises a linear transformer whose windings are connected respectively to input and output terminals through inverter configuration switching circuits employing bidirectional conducting solid state switching devices or inverse-parallel pairs of unidirectional conducting solid state switching devices. By synchronously rendering conductive one switching device in the primary and secondary side switching circuits, and alternately and synchronously rendering conductive another device in each circuit at a switching rate substantially higher than the supply frequency, the input potential is converted to a higher frequency wave, transformed, and reconstructed at the output terminals. In this way the size of the transformer is reduced.

3,564,391
ROTATING ALTERNATING CURRENT GENERATOR SYSTEM
 Edward H. Dinger, Waynesboro, Va., assignor to General Electric Company
 Filed May 9, 1968, Ser. No. 727,783
 Int. Cl. H02p 9/30

U.S. Cl. 322—25

34 Claims



A rotating, alternating current generator system is described in which an exciter driven with the generator shaft supplies generator field current as well as the entire field

current required by the exciter. D-C field current for the exciter is obtained from the exciter output, rectified by a controlled rectifier unit. Regulation of generator output voltage (or some other variable measurable in the system as a voltage or current) is obtained through control of the firing angle of the controlled rectifier unit, thereby varying the level of exciter field current to adjust for changes in generator output conditions.

To obtain regulation over a wide range of exciter output voltages containing substantial distortion, firing voltage for firing the controlled rectifiers in the controlled rectifier unit is obtained by amplitude-clipping the exciter output voltage at a constant level independent of exciter output amplitude. The firing voltage waveform generator contains a clipping circuit capable of achieving such clipping to the same level for all rectifiers.

The firing voltage waveform generator fires the rectifiers through magnetic core firing circuits. Control of the exciter field current, and thus of a particular system variable (e.g., generator output voltage) is achieved through control of the reset flux produced in the magnetic cores in the firing circuits.

A Manual Regulator Unit is provided for regulating exciter field current to provide constant exciter output voltage. An Automatic Regulator Unit is provided for regulating exciter field current to provide constant generator output voltage. The Automatic Regulator Unit, which includes a non-linear rate feedback loop, includes several regulators, each responsive to a particular system variable for controlling exciter field current in accordance with that variable when its value goes beyond certain predetermined limits, in order to prevent system failure. The individual regulators are connected to control the rectifier unit through an analog OR-gate which passes only that regulator output signal having the greatest amplitude. The regulators in the Automatic Regulator Unit are: (1) the Main Control Regulator; (2) the Undervoltage Limit Regulator; (3) the Current Limit Regulator; (4) the Under-excited Reactive Current Limit Regulator; and (5) the Phase-Back Limit Regulator.

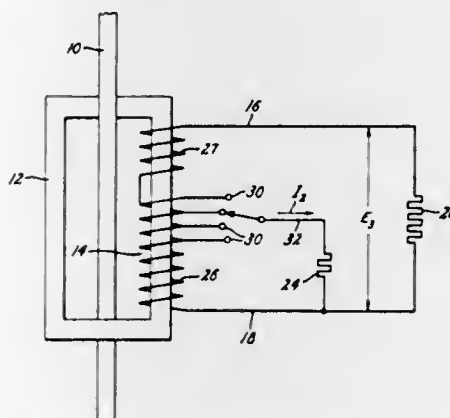
For preventing collapse of exciter self-excitation, a Current Boost Rectifier Unit is provided for maintaining minimum exciter field current under predetermined conditions which otherwise might result in such collapse. Particularly high reliability is achieved by providing two independent exciter field current supplies and by providing a selective failure circuit for preventing failure in one such supply from adversely affecting the other.

3,564,392
MAGNETIC TRANSDUCER WITH MEANS FOR COMPENSATING FOR TEMPERATURE CHANGES

Thomas J. Scully, King of Prussia, Pa., assignor to General Electric Company
 Filed Sept. 19, 1969, Ser. No. 859,369
 Int. Cl. G05f 1/14

U.S. Cl. 323—6

4 Claims



A magnetic transducer comprising a primary winding, a core of magnetizable material linked thereto, and a sec-

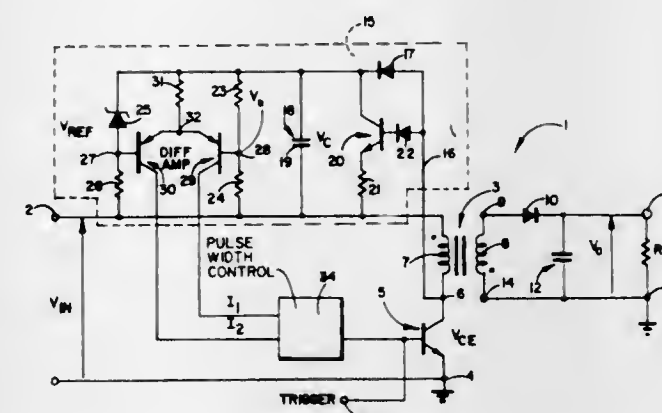
ondary winding linked to the core and having a high impedance connected thereacross across which a voltage signal proportional to primary current is developed. Across a portion only of the secondary winding, a temperature-insensitive resistor of relatively low ohmic value compared to that of the high impedance is connected. Current induced in the loop circuit comprising said secondary winding portion and the resistor connected thereacross produces a voltage drop across the secondary winding portion that counteracts the tendency of the voltage signal to increase in response to increases in the temperature of the secondary winding.

3,564,393
CIRCUIT USING CAPACITOR AND SWITCH ON PRIMARY WINDING OF TRANSFORMER FOR REGULATING VOLTAGE ON SECONDARY WINDING OF TRANSFORMER

James A. Williamson, Fullerton, Calif., assignor to North American Rockwell Corporation
 Filed Mar. 12, 1969, Ser. No. 806,484
 Int. Cl. G05f 1/56

U.S. Cl. 323—17

4 Claims

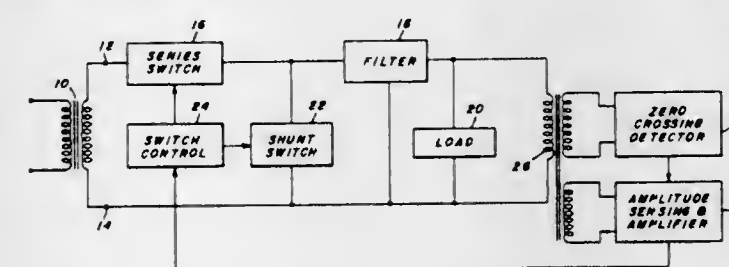


A system detects changes in the output voltage on the input side of a transformer used by the system and generates a control signal in response to the change for changing the power transferred to the output side of the transformer. The input and output have ground isolation. As a result of controlling the power transferred to the output side, the output voltage is maintained at a constant level.

3,564,394
CHOPPER-TYPE ALTERNATING CURRENT REGULATOR EMPLOYING AMPLITUDE SENSOR AND ZERO CROSSING DETECTOR
 Kenneth E. Opal, Oakmont, and John S. Hess, Jr., Pittsburgh, Pa., assignors to Power Control Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
 Filed Jan. 3, 1969, Ser. No. 788,789
 Int. Cl. G05f 1/44

U.S. Cl. 323—22

7 Claims



A fast response time voltage regulator which will maintain the amplitude of an alternating current voltage constant over a relatively wide range of frequencies. This is accomplished by chopping the input alternating current voltage at a frequency much higher than that

of the alternating current voltage to be regulated, and thereafter filtering the chopper waveform to reconstruct a true sine wave. By sensing the amplitude of the filtered output and by varying the "ON" and "OFF" times of the chopper as a function of variations in amplitude, said amplitude can be maintained constant.

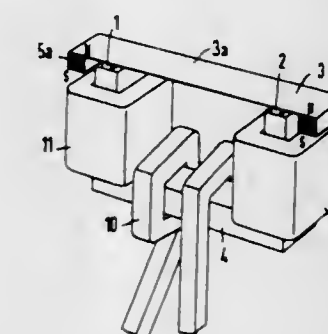
3,564,395
DIRECT-CURRENT TRANSFORMER HAVING A SINGLE COMMON MAGNETIC CIRCUIT
 Hans Hieronymus and Hans Martens, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

Filed June 28, 1968, Ser. No. 741,161
 Claims priority, application Germany, July 1, 1967, S 110,634

U.S. Cl. 323—44

Int. Cl. H02p 13/04

10 Claims



A device for transforming direct current comprises a single magnetic circuit which has a variable magnetic field in which the galvanomagnetic resistance members of a bridge network are located. The magnetic circuit has winding means for providing the controlling field excitation in dependence upon the direct current to be transformed. A direct-current amplifier has its input connected to the bridge network and has its output circuit in negative feedback connection with the winding means to provide the magnetic circuit with feedback excitation opposed to the controlling excitation. The magnetic circuit is at least in part magnetically saturable at magnitudes of the feedback excitation above predetermined limit value.

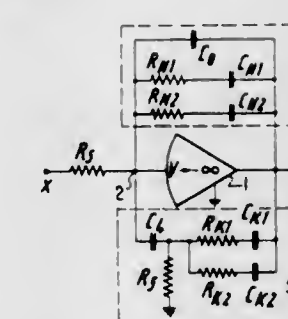
3,564,396
FOUR-POLE NETWORK EMPLOYED AS AN IMPROVED COMPENSATING CIRCUIT FOR A CAPACITOR'S DIELECTRIC ABSORPTION LOSSES

Friedrich Beerbom, Constance, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany

Filed Sept. 30, 1969, Ser. No. 862,271
 Claims priority, application Germany, Oct. 1, 1968, P 18 00 206.7
 Int. Cl. G05f 1/10

U.S. Cl. 323—66

13 Claims



A four-pole network connected as an equalizing means in an integrator composed of an amplifier and a capacitor forming a feed-back loop for the amplifier, to compensate

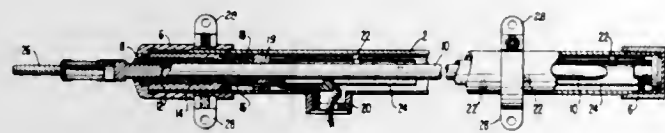
for the losses due to dielectric absorption in the integrating capacitor, the network being connected by two of its terminals across the capacitor to receive a signal from the capacitor and to supply the capacitor with a current whose amplitude characteristic is chosen so as to compensate for the voltage changes produced by such dielectric absorption.

3,564,397 LINEAR VARIABLE CAPACITANCE TRANSDUCER

Raymond W. Sargent, Bristol, and Siderius Van Manen, Vergennes, Vt., assignors to Simmonds Precision Products, Inc., Tarrytown, N.Y.
Continuation-in-part of application, Ser. No. 770,277, Oct. 24, 1968. This application Apr. 24, 1969, Ser. No. 819,012

U.S. Cl. 323-93 Int. Cl. G05f 3/00

5 Claims



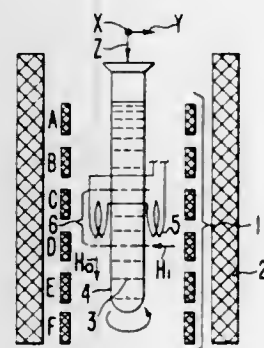
A linear variable capacitance transducer having an AC capacitance signal proportional to the linear displacement of a thin-walled metal tube which slides within another metal tube to provide a variable capacitance with the air therebetween as the dielectric.

3,564,398 MAGNETIC FIELD HOMOGENIZING COIL SETS HAVING SPATIAL INDEPENDENCE AND SPEC- TROMETER MEANS USING SAME

Forrest A. Nelson, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif.
Continuation of application Ser. No. 571,096, Aug. 8, 1966. This application July 18, 1969, Ser. No. 846,643

U.S. Cl. 324-0.5 Int. Cl. G01n 27/78

4 Claims



Magnetic field homogenizing coil sets are provided wherein each coil set defines a geometrical configuration of current paths to be energized to produce separate asymmetric distributions of current relative to a certain region of magnetic field to be corrected. These asymmetric distributions of current produce separate homogenizing magnetic field gradient components which are substantially confined to separate portions of the region of field to be corrected for cancelling certain residual magnetic field inhomogeneities in the separate portions of the field to be corrected. In this manner, the field homogenizing gradient components are spatially independent to prevent mutual

interference of their adjustment and whereby the adjustments produce unambiguous corrections of the field when sensed by gyromagnetic resonance of a sample within the region of field being corrected.

3,564,399 PROCESS AND DEVICE FOR THE DIRECT MEAS- UREMENT OF CHARACTERISTIC TIME CON- STANTS OF RISING OR FALLING CURVES AS A FUNCTION OF TIME, WITH PARTICULAR REF- ERENCE TO THE DIRECT MEASUREMENT OF NUCLEAR MAGNETIC RELAXATION TIMES

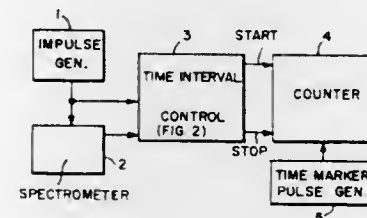
Günther Rudi Laukien, Am Silberstreifen,
Forchheim, Karlsruhe, Germany
Filed May 15, 1968, Ser. No. 729,200

Claims priority, application Germany, Nov. 2, 1967, B 95,209

U.S. Cl. 324-5

Int. Cl. G01n 27/78

12 Claims



The time constant of a portion rising or falling of an electrical signal waveform (especially representative of relaxation phenomena in nuclear spectroscopy) is determined. To ascertain the time constant, the count of a number of time marker pulses is begun at a first predetermined level of the waveform and ended at a second predetermined level. The number of time marker pulses counted is indicative of the time constant of that portion of the waveform whose signal level varied between and crossed the two predetermined levels.

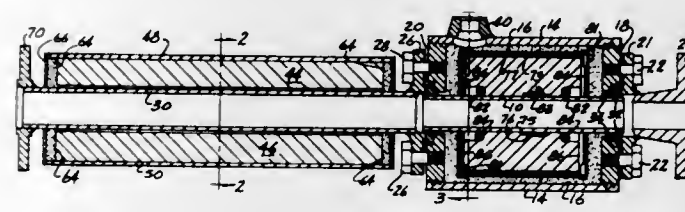
3,564,400 NUCLEAR MAGNETIC RESONANCE FLOWMETER EMPLOYING CERAMIC TUBE

Ronald L. Pike, Brown Deer, William H. Vander Heyden, Menomonee Falls, and John F. Toschik, Brown Deer, Wis., assignors to Badger Meter Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Apr. 18, 1968, Ser. No. 722,365

U.S. Cl. 324-5

Int. Cl. G01n 27/78

7 Claims



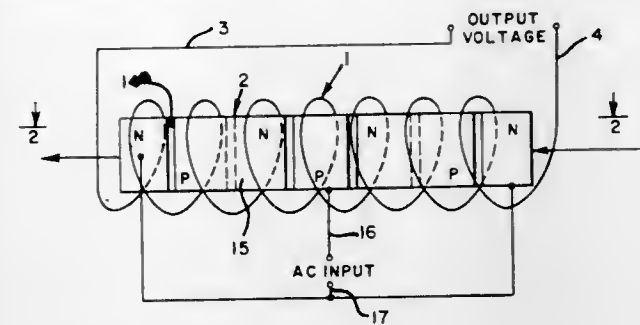
A nuclear magnetic resonance flowmeter, employing a ceramic tube as a conduit for paramagnetic fluid, is constructed using moldable ceramic material for encapsulating the coil structure of the flowmeter. The stresses encountered with high pressure, high temperature fluids can be accommodated and graphite seals prevent leakage of the fluid from within the ceramic tube. At each end of the tube a coupling is provided for connection to a conventional conduit. The coil structure is provided with apparatus for assisting in decoupling the receiver coil from the other coils located in proximity thereto, to reduce the noise content of the output signal furnished by the receiver coil.

3,564,401 THERMALLY CYCLED MAGNETOMETER

Grant W. Coon, Palo Alto, Calif., assignor to the United States of America as represented by the National Aeronautics and Space Administration
Filed Aug. 16, 1965, Ser. No. 480,211

U.S. Cl. 324-43

10 Claims



A magnetometer for measuring static and dynamic magnetic fields. A sensing coil surrounds a magnetic core. The temperature of the core is thermally cycled above and below the Curie temperature of the core thereby causing the permeability of the core to fluctuate. A voltage proportional to the magnetic field under test is induced in the sensing coil.

3,564,402 APPARATUS FOR MEASURING THE STRENGTH AND DIRECTION OF MAGNETIC FIELDS UTI- LIZING A PIEZOELECTRIC CRYSTAL

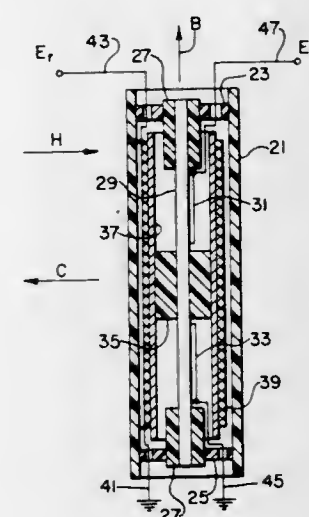
Roland Pittman, Walpole, Mass., assignor to Northrop Corporation, Palos Verdes, Calif., a corporation of California
Filed Jan. 31, 1969, Ser. No. 795,598

U.S. Cl. 324-43

Int. Cl. G01r 33/02

7 Claims

A multiple axis field sensor incorporating for each axis



a piezoelectric crystal acting as a spring restraining an electromagnet excited by a reference voltage against rotation in response to an external field, and circuit means controlled by the output of each crystal for producing a field strength signal.

3,564,403 APPARATUS AND METHOD FOR THE SIMULTA- NEOUS SEVERING AND CONTINUITY TESTING OF WIRE COILS

Olek Schwarz, Plainfield, N.J., assignor to Anaconda Wire and Cable Company, a corporation of Delaware
Filed Oct. 9, 1968, Ser. No. 766,166

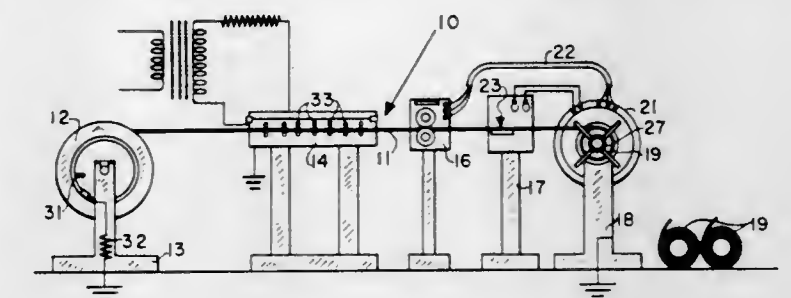
U.S. Cl. 324-51

Int. Cl. G01r 31/02

14 Claims

In a spark tester and coiler for insulated conductor, the continuity of the conductor in each coil is automatically

tested by means of a circuit that makes electrical contact through the cutting blade that severs the coil. The coil



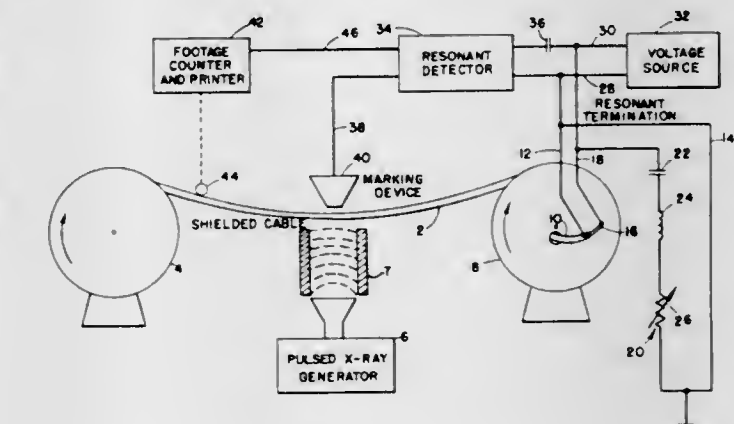
end of the conductor is grounded directly and the other end is grounded through resistance sufficiently high to appear open to the test circuit.

3,564,404 METHOD AND APPARATUS INCLUDING RESO- NANT TERMINATION FOR DETECTING INSU- LATION DIELECTRIC DISCONTINUITIES IN ELECTRIC CABLE

David Eigen, Passaic, N.J., assignor to The Okonite Company, Passaic, N.J., a corporation of Delaware
Filed Oct. 27, 1966, Ser. No. 589,891

U.S. Cl. 324-54

10 Claims



A method and apparatus for detecting discontinuities in the insulation of an electric cable wherein a stressing voltage is applied to the cable to cause ionization of dielectric discontinuities within the cable. The ionization is discharged to produce a signal having a radio-frequency component and the radio-frequency component detected by means of a resonant detector. Resonant termination means are provided for terminating the cable with respect to the radio-frequency component in the characteristic impedance of the cable thus presenting a low impedance to the radio frequency component signal and a high impedance to other signals. This provides a detected radio-frequency component substantially free of interference from reflected signals.

3,564,405 INSTANTANEOUS FOURIER FREQUENCY ANALYZER USING AN INTERFEROMETER

Herwig W. Kogelnik, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Feb. 9, 1968, Ser. No. 704,281

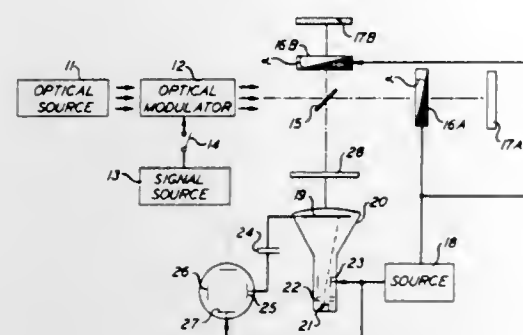
U.S. Cl. 324-77

Int. Cl. G01r 23/16

12 Claims

Instantaneous Fourier analysis of the frequency components in a signal is performed by means of the analysis of the pattern of interference fringes produced by two coherent light beams, which are intensity modulated in

accordance with the signal and which are provided with a systematically varied phase difference between interfering rays in the beams. The phase difference is varied in accordance with a linear function of the algebraic product of time and any function of distance from a point in the interference pattern where the phase difference is always equal to zero. In one embodiment, this type of varying phase is obtained by applying a saw-tooth time varying electric voltage across a pair of compound prisms, made of electro-optic material in part, upon which the



beams are incident in each arm of a Michelson interferometer arrangement, thereby deflecting the beams through an angle which is linearly proportional to the time after each saw-tooth has commenced. Observable changes in the pattern of interference fringes occur when the light intensity is thus modulated in accordance with the signal, as compared with no such modulation, and these changes occur only at positions in the interference pattern determined by the respective frequency components in the signal.

3,564,406

MEASURING AND CONVERSION SYSTEM

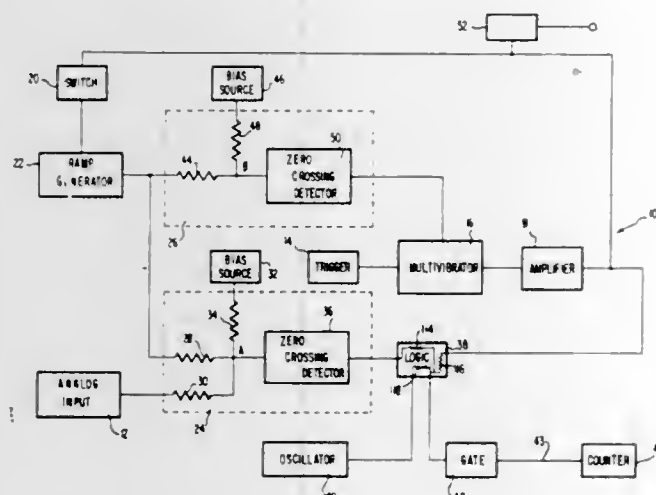
Robert M. Henderson, Williams Bay, and Joseph G. Green and Richard Zechlin, Beloit, Wis., assignors to Fairbanks Morse Inc., New York, N.Y., a corporation of Delaware

Filed Sept. 22, 1967, Ser. No. 669,913

Int. Cl. G01r 17/06, 19/26

U.S. Cl. 324—99

15 Claims



The measuring system of this invention includes a plurality of measuring stations, each of which utilizes a novel digital sensing unit. The sensing unit includes a transducer to convert an unknown factor to be measured into an electrical analog voltage and a novel conversion system which employs a voltage comparator unit capable of performing plural separate comparisons in a start pulse comparator and a stop pulse comparator. The start pulse comparator operates at a first coincidence point determined by the algebraic sum of a positive ramp signal, a negative bias

signal, and the unknown analog signal to initiate a pulse counting period, while a stop pulse comparator initiates a stop pulse to end the counting period upon coincidence between a second negative bias and the ramp signal. Digital pulses created during the counting period are then sent to a counting unit. These digital pulses may result from a number of separate sensing units, from a single sensing unit, or from a sensing unit formed by a number of separate transducers connected to a single conversion system. If desirable, the system may be employed directly without transducers as an analog voltage measuring and conversion unit.

3,564,407

APPARATUS FOR MEASURING THE MEAN SQUARE VALUE OF AN ELECTRICAL SIGNAL FROM SAMPLED SIGNAL MAGNITUDES

Eric Metcalf and Anthony John Ley, Farnborough, England, assignors to The Solartron Electronic Group Ltd., Farnborough, England

Filed Jan. 17, 1967, Ser. No. 609,831

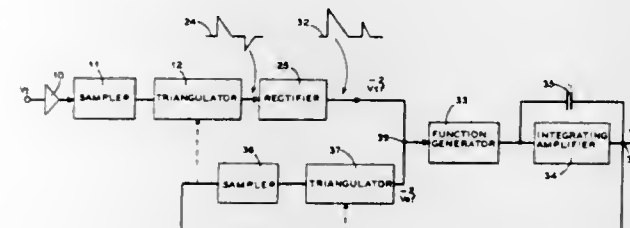
Claims priority, application Great Britain, Jan. 18, 1966,

2,377/66

Int. Cl. G01r 15/10, 17/06

U.S. Cl. 324—120

9 Claims



A voltmeter for measuring the root mean square or mean square amplitude of a voltage includes an input amplifier of high input impedance and low output impedance, the input of which is to be connected to the signal being measured. The instantaneous voltage of the output of the amplifier is sampled at discrete times and a series of signals are produced whose heights and lengths are both proportional to the voltage of the signal being measured. The signals produced after sampling, are triangular pulses and, more specifically, are triangular pulses of right-angled triangle configuration. The series of signals is converted into a pulse waveform consisting of a series of pulses of the same polarity with each pulse having an area proportional to the square of the amplitude of the signal from which it was formed. An integrator receives the pulses forming the pulse waveform and a signal derived from its own output so as to provide a D.C. voltage output which is either proportional to the mean area underneath the waveform and, hence, to the mean square value of the voltage of the signal being measured, or, by sampling the integrator output signal in a manner similar to that used after the input amplifier, proportional to the root of the mean area underneath the waveform and to the root mean square of the voltage of the signal being measured.

3,564,408

TEST DEVICE FOR AN ELECTRICAL CIRCUIT CARD

Frank G. Schulz, Rahway, and Mario Antonazzi, Oradell, N.J., assignors to The Bendix Corporation

Filed Aug. 12, 1968, Ser. No. 752,076

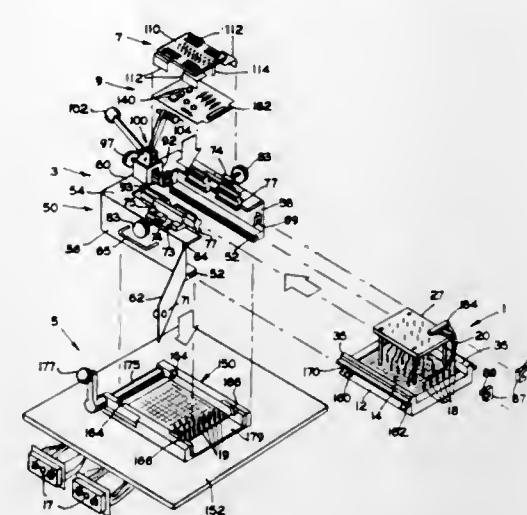
Int. Cl. G01r 15/12, 31/26

U.S. Cl. 324—158

26 Claims

A universal printed circuit card contact test fixture to mount many sizes and types of printed circuit cards for

making simultaneous electrical contact to selected solder nodes and rivers thereon and which test fixture is adaptable for automatic fault isolation testing of the printed circuit



cards to a discrete component level and is further adaptable to different types of cards with a minimal amount of new parts fabrication and set up time.

3,564,409

METHOD FOR MEASURING ENGINE R.P.M.

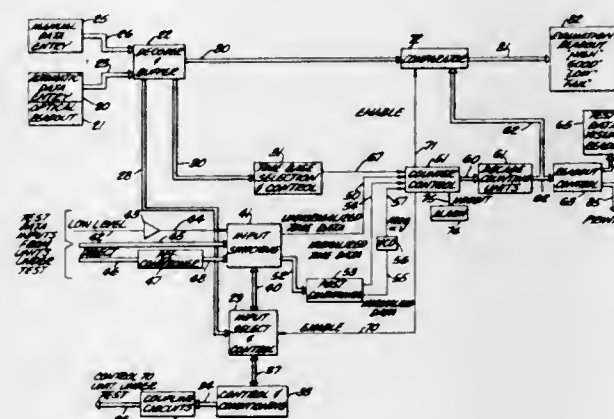
Don M. Muller and Lavar E. Whittle, Granada Hills, and Victor J. Chartrand, Chatsworth, Calif., assignors to Allen Electric and Equipment Company, Chicago, Ill.

Application Dec. 1, 1967, Ser. No. 687,390, now Patent No. 3,485,093, which is a continuation-in-part of application Ser. No. 487,861, Sept. 16, 1965. Divided and this application Jan. 21, 1969, Ser. No. 810,891

Int. Cl. G01p 3/48

U.S. Cl. 324—169

5 Claims



In an apparatus for the analysis and comparison of the performance of internal combustion engines, or similar systems, an improved method is provided for measuring the r.p.m. of the engine by first obtaining a signal derived from the firing voltage of a spark plug or from the distributor and then producing a digital output signal directly proportional to engine r.p.m.

3,564,410

DYNAMICALLY CALIBRATED VELOCITY INSTRUMENTATION TECHNIQUE

George T. Webb, Austin, Tex., assignor to International Business Machine Corporation, Armonk, N.Y.

Filed Jan. 14, 1969, Ser. No. 790,929

Int. Cl. G01p 3/54

U.S. Cl. 324—172

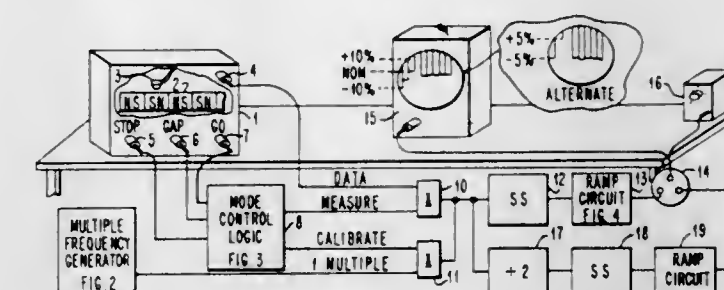
9 Claims

This invention is a technique for accurately measuring the spacing of signals such as bit signals from a recording medium passing a recording head. The method includes development of a dynamically calibrated oscilloscope

trace which provides instantaneous comparison of the signal frequency with a pattern of standard frequency signals. The system includes a generator of calibration signals of known frequency, mode control logic, mode control switches controlled by the mode control logic for selectively directing signals from the recording medium or signals from the multifrequency generator via frequency to voltage conversion circuits to display and alarm devices.

The method includes the following steps:

(1) Supplying an input signal as a series of pulses to be measured.



(2) Supplying a set of standard frequency signals.

(3) Multiplexing the input signal and the set of standard frequency signals according to predetermined sequence to establish a calibrated input signal sequence.

(4) Converting the calibrated input signal sequence to voltages corresponding to the frequency of the calibrated input frequency signal to provide a dynamically calibrated input frequency voltage signal.

(5) Utilizing the calibrated input frequency voltage signal for display and alarm purposes.

3,564,411

PULSE DETECTION BY MEANS OF PATTERN RECOGNITION

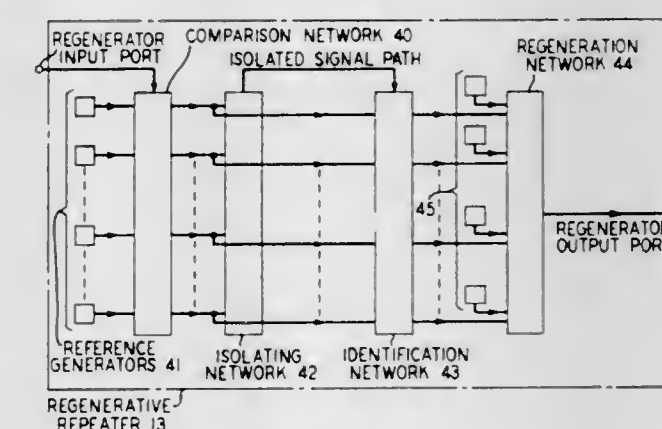
Harold Seidel, Warren Township, Somerset County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Mar. 18, 1969, Ser. No. 808,134

Int. Cl. H03k 11/00; H04b 7/18

U.S. Cl. 325—13

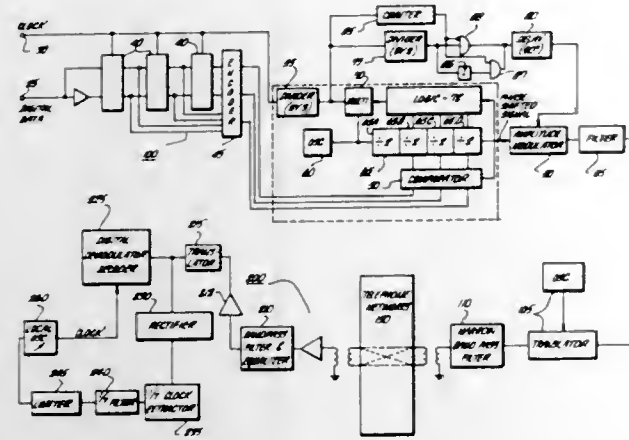
6 Claims



This application describes a system of pulse detection and regeneration which involves the steps of (1) comparing the received signal with a plurality of locally-generated, predistorted signals representing all possible pulse trains; (2) isolating the one comparison signal which is indicative of the "correct" locally-generated pulse train; (3) identifying the reference generator that produced the "correct" pulse train; and (4) transmitting an undistorted replica of the distorted received signal in response to said identification.

3,564,412

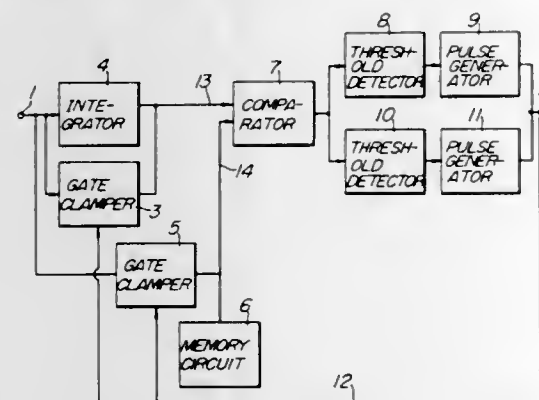
DERIVED CLOCK FROM CARRIER ENVELOPE
Sang Y. Whang, Miami, Paul E. Payne, Fort Lauderdale, and Robert G. Ragsdale, Hollywood, Fla., assignors to Milgo Electronic Corporation, Miami, Fla.
Filed Mar. 1, 1968, Ser. No. 709,609
Int. Cl. H04L 27/18, 7/108
U.S. Cl. 325—30 12 Claims



Digital data transmission at very high bit rates through randomly selected ordinary voice-grade telephone lines by the use of a transmitter which includes digital differential modulation and a receiver which includes a digital differential angle demodulation, together with a derived clock circuit at the receiver, is disclosed. The communication link includes bandpass filters which block sideband frequencies located at $1/T$ from the centerpoint, f_0 , of the filter; wherein T is the modulation period, and f_0 is the carrier frequency. For random data patterns, the envelope at the receiver, due to band-limiting, is peaked at the middle of a center modulation period and drops sufficiently toward zero amplitude between modulation periods so as to contain strong $1/T$ harmonics which provide for clock derivation by slaving a local oscillator with a $1/T$ output signal. For some non-varying data patterns, the envelope does not include sufficient ripple for clock derivation. Amplitude modulation of the digital angle modulation signal at a predetermined frequency is provided at the transmitter so as to produce a signal having $1/2T$ sidebands which are passed by the filter and thus are available at the receiver for clock derivation.

3,564,413

AREA QUANTIZATION DELTA MODULATION SYSTEM
Kosaku Uchida, Neyagawa-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Mar. 20, 1967, Ser. No. 624,476
Claims priority, application Japan, Mar. 29, 1966, 41/19,778, 41/19,779, 41/19,780; Aug. 26, 1966, 41/56,598; 41/56,599
Int. Cl. H03k 13/22 5 Claims

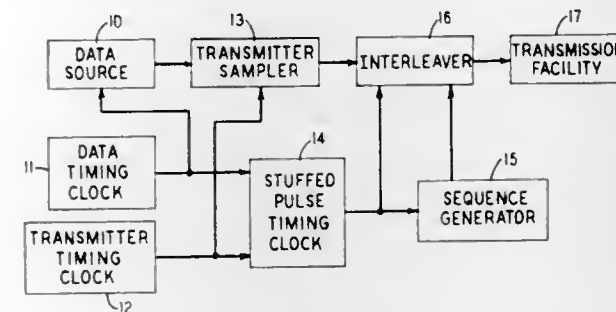


There is disclosed a modulation system based on a fundamental idea that the system produces a positive or negative output pulse when an area defined by the time

axis and the increment of input signal voltage after occurrence of the preceding output pulse from the system reaches a predetermined positive or negative amount. This system is constituted to feature less number of output pulses, high immunity against interfering pulses and longer pulse intervals, so that it can be used for the primary modulation in an asynchronous multiplex system like RADA.

3,564,414

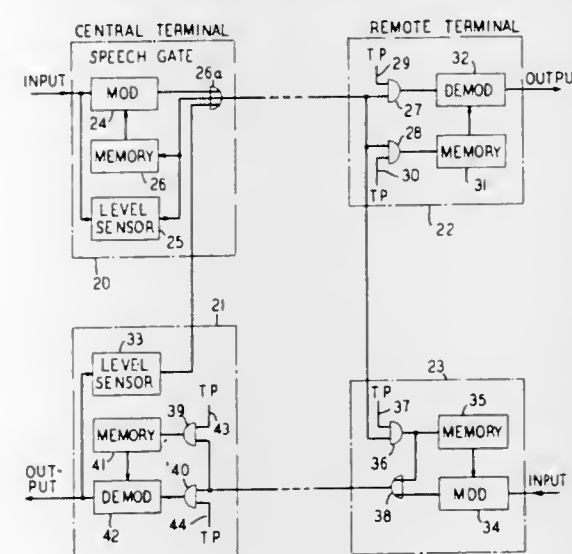
DIGITAL DATA RATE CONVERTER USING STUFFED PULSES
Paul M. Ebert, Fair Haven, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Mar. 28, 1969, Ser. No. 811,362
Int. Cl. H04b 1/00 12 Claims



A digital data transmission system designed to operate at one rate is adapted to transmit data at another rate without altering the transmission facility, provided the data source rate is lower than the transmission rate. The arrangement is such that data bits are sampled once only. Where multiple samples would otherwise have occurred, a predetermined pulse sequence is interleaved with the data samples to maintain synchronism.

3,564,415

BACKWARD ACTING COMPANDOR IN A DIGITAL TRANSMISSION SYSTEM
Stephen J. Brolin, Bronx, N.Y., and James M. Brown, Holmdel, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 3, 1968, Ser. No. 718,550
Int. Cl. H03k 13/22 16 Claims

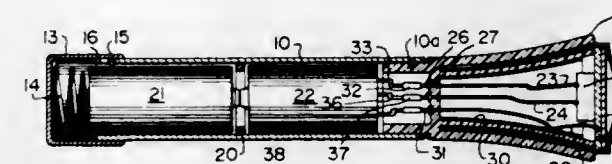


A digital transmission system is disclosed utilizing backward acting companding. A variable size step pulse source is used at the modulator to achieve compression and another is used at the demodulator to achieve complementary expansion. Means located at the demodulator responsive to a parameter of the transmitted message

waveform are used to determine the amplitude of the variable size step pulse produced at the remotely located modulator and at the demodulator.

3,564,416

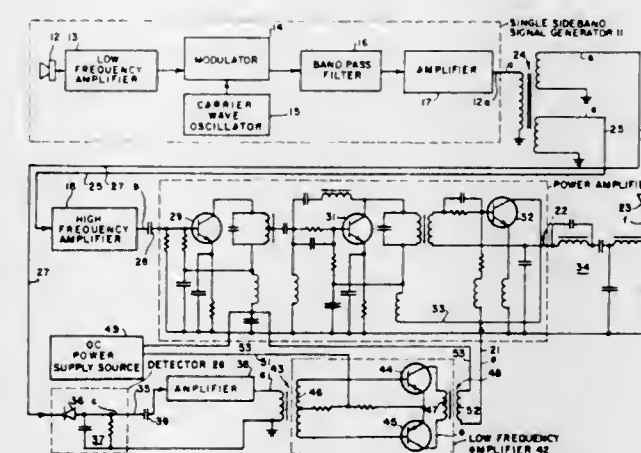
CORDLESS, SELF-CONTAINED MICROPHONE TRANSMITTER
Edward G. Price, 1471 East 6050 South, Salt Lake City, Utah 84121
Filed Mar. 29, 1968, Ser. No. 717,224
Int. Cl. H04b 7/20 1 Claim



A cordless, self-contained, frequency modulated microphone transmitter including a housing adapted to be hand-held; a microphone pickup element; and a circuit comprising a battery, an input impedance matching and equalization network, a triplex Colpitts radio frequency oscillator-modulator, an antenna that includes components of the microphone pickup element; and an isolating buffer amplifier to couple frequency modulated energy to the antenna.

3,564,417

SINGLE SIDEBAND TRANSMISSION SYSTEM FOR PRODUCING A MAXIMUM AMPLITUDE SIGNAL
Michio Korusu, Kawasaki-shi, Japan, assignor to Fujitsu Limited, Kawasaki, Japan
Continuation-in-part of application Ser. No. 432,487, Feb. 15, 1965. This application Mar. 11, 1968, Ser. No. 716,692
Claims priority, application Japan, Feb. 15, 1964, 39/7,954
Int. Cl. H04b 1/68 5 Claims

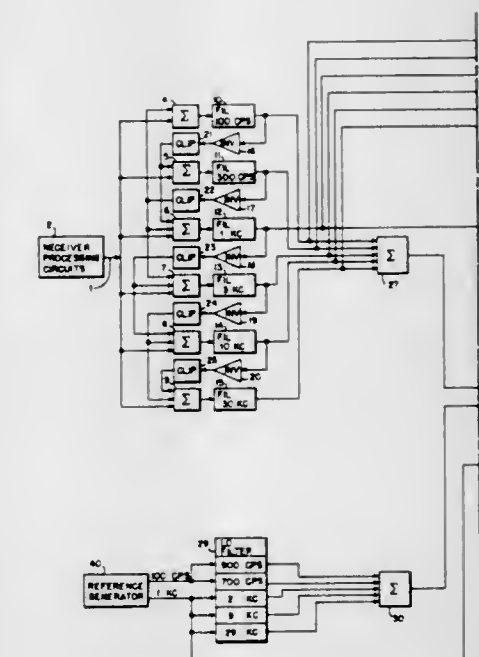
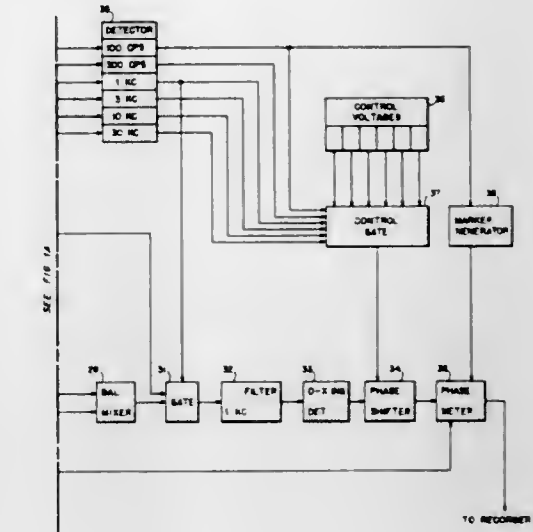


A generator of a single sideband transmission system produces a single sideband signal substantially without a carrier. The generator supplies the single sideband signal to a linear power amplifier via a high frequency amplifier. A detector detects a portion of the envelope of the single sideband signal and produces an output signal corresponding to such envelope. The output signal of the detector is superimposed on a DC signal to provide a resultant signal having an amplitude higher by the level of the DC signal than the amplitude of the output signal. The resultant signal is applied to the power amplifier in a manner to increase the amplification of the single sideband signal for transmission in accordance with the resultant signal.

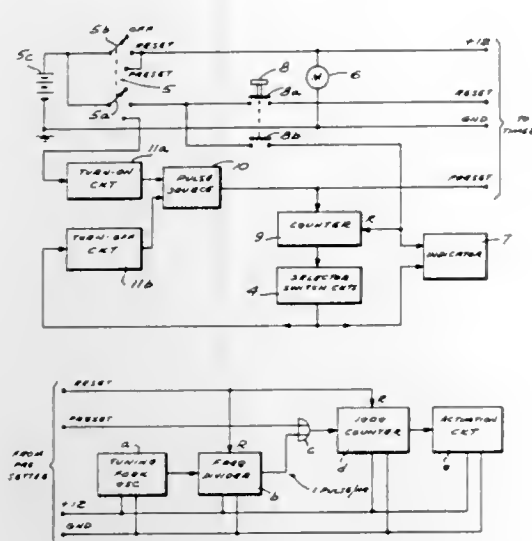
3,564,419

PULSE COUNTING SQUELCH CIRCUIT
Thomas M. Yackish, Hammond, Ind., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Mar. 10, 1969, Ser. No. 805,723
Int. Cl. H03g 3/24 6 Claims

The random distribution of zero axis crossings of noise as compared with the regular zero axis crossings of a desired signal is used to determine that the signal is being received. Zero axis crossings in a first direction are coupled through a gate to a counter to be counted thereby. Zero

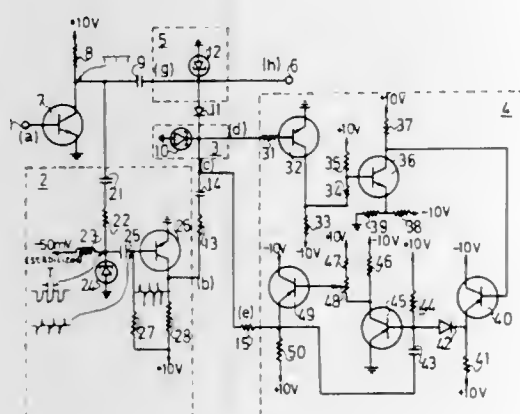


switches are so connected to electronic decimal counters that, when the timer is preset, a number of pulses is supplied to the timer which is the complement of the desired timer interval.



plied to the timer which is the complement of the desired timer interval.

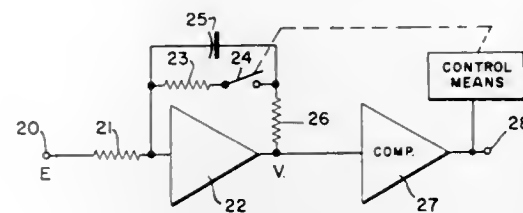
3,564,427
SYNCHRONIZING METHOD FOR HIGH FREQUENCY SIGNAL
Kozo Uchida, Tokyo, Japan, assignor to Iwatsu Electric Co., Ltd., Tokyo, Japan
Continuation-in-part of application Ser. No. 613,594, Feb. 2, 1967. This application Aug. 4, 1969, Ser. No. 847,343
Int. Cl. H03k 3/31, 25/02
U.S. Cl. 328—63 4 Claims



An improved synchronizing circuit for obtaining an output pulse of low repetition rate, which is synchronized with an input of high frequency, in a jitterless and stable condition. The synchronizing circuit is switched from a waiting condition to an inoperative condition by the high frequency input signal and then switched back from the inoperative condition to the waiting condition which is generated a pulse by one pulse before a synchronizing pulse of the input signal.

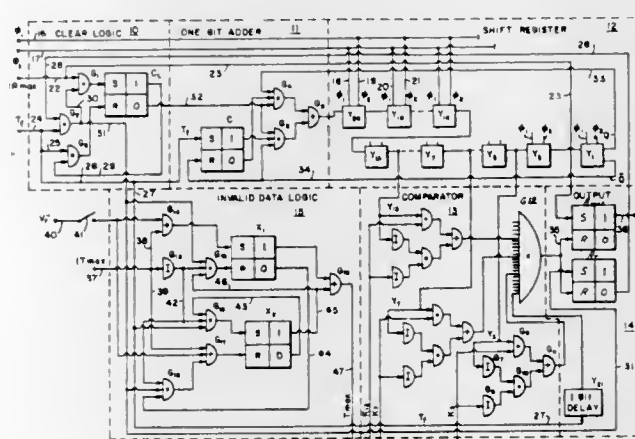
3,564,428
RESET TIME COMPENSATOR FOR FREQUENCY CONVERTER
Anthony M. Demark, Philadelphia, Pa., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Feb. 29, 1968, Ser. No. 709,446
Int. Cl. G06g 7/18; H03k 5/00
U.S. Cl. 328—127 3 Claims
There is provided a voltage to frequency converter which includes an integrating amplifier having a capaci-

tor feedback path. Impedance means are included in the feedback path to provide an offset voltage which is di-



rectly proportional to the input voltage such that the capacitor reset time is compensated.

3,564,429
PROGRAMMABLE RATE OSCILLATOR
Lawrence Miller, Anaheim, Clarence W. Padgett, Buena Park, Wiley T. Ruhl, Jr., Westminster, and Walter J. Schultz, Yorba Linda, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed Feb. 5, 1969, Ser. No. 796,668
Int. Cl. H03k 5/00
U.S. Cl. 328—129 8 Claims

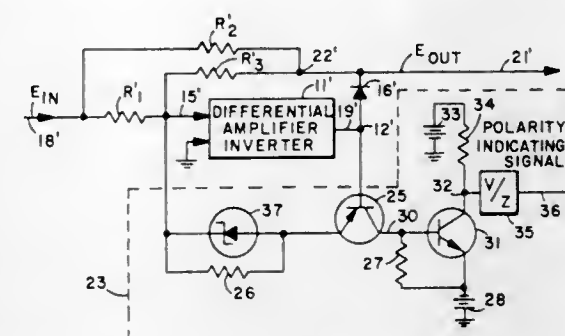


A programmable rate oscillator having a metal oxide semiconductor (MOS) recirculating shift register type counter coupled to a digital comparator to which is also coupled a programmed digital input time delay to switch a bistable multivibrator at the beginning of each count and again at the digital equality of the programmed digital input with the shift register accumulation in a data sampled sequence to produce a one-shot output delay in accordance with the programmed input time delay with means connected in association therewith to indicate valid and invalid data samples.

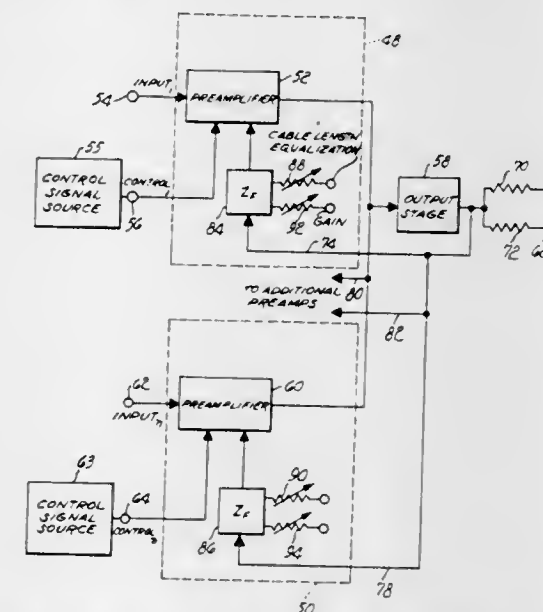
3,564,430
LINEAR RECTIFIER WITH POLARITY DETECTOR
Leif P. Brudevold, Orange, Calif., assignor to Collins Radio Company, Dallas, Tex., a corporation of Iowa
Filed Oct. 30, 1968, Ser. No. 771,956
Int. Cl. H03k 5/20
U.S. Cl. 328—140 4 Claims

A linear rectifier with an input signal polarity indicator and comprising a differential amplifier with first and second feedback means extending from the output terminal thereof back to the input terminal thereof. The first feedback means is conductive only in response to a first polarity of the input signal to cause generation of a portion of the output signal, and the second feedback means is conductive only in response to the second polarity of the input signal to cause generation of the remainder of the output signal. The second feedback means comprises means which

becomes conductive or nonconductive in accordance with the polarity of the input signal, thereby indicating the in-

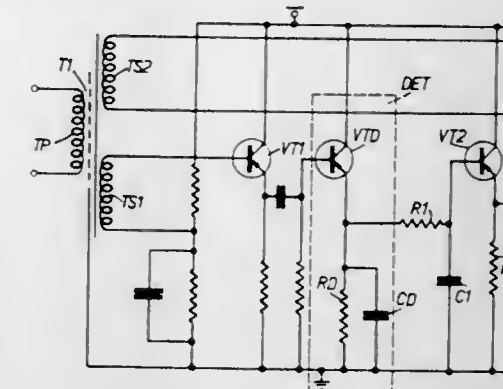


3,564,431
MULTIPLE INPUT CROSSPOINT GROUP WITH COMMON OUTPUT AMPLIFIER AND INDEPENDENTLY VARIABLE SWITCHING CIRCUITS
Ole Skrydstrup, Pierrefonds, Quebec, Canada, assignor to Central Dynamics, Ltd., Montreal, Quebec, Canada
Filed Apr. 22, 1968, Ser. No. 722,870
Int. Cl. H03k 17/00
U.S. Cl. 328—154 6 Claims



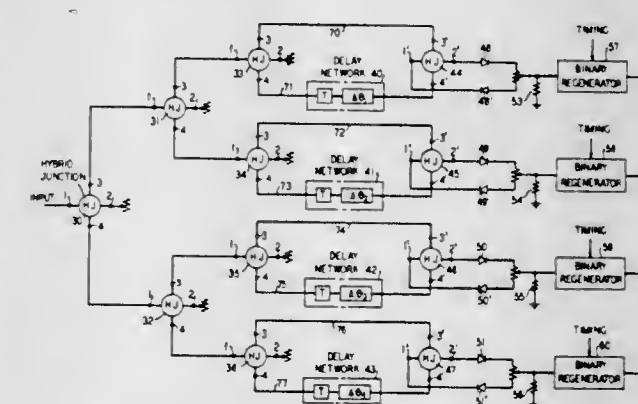
A multiple input crosspoint group with common output amplifier is disclosed where at each crosspoint of the group is disposed a video switching circuit having an independently variable transfer function. Each switching circuit is controlled by its own control signal to permit or prevent the passage of a video signal applied thereto. Each switching circuit includes means to provide delay line equalization and to compensate for attendant attenuation whenever the video signal applied thereto is the output from a delay line. Each of the switching circuits is connected to a common output stage which provides an output signal corresponding to the activated switching circuit. The output from the output stage is also connected back to all of the switching circuits as a negative feedback signal. It is on this signal that the gain adjusting and equalizing circuitry operates. The switching circuitry includes a differential amplifier, one input of which is connected to its associated video signal and the other of which is connected to the amplitude adjusted and equalized negative feedback signal. The differential amplifier includes a constant current transistor which feeds both transistors of the differential amplifier. The constant current transistor is responsive to the control signal to thereby switch the switching circuit on whenever the control signal is present. Also disclosed is circuitry for insuring that whenever one of the switching circuits is on the others are turned off.

3,564,432
VOICE FREQUENCY SIGNAL TRANSLATION CIRCUIT
Ralph Archibald Jones, Highbury, London, England, assignor to Her Majesty's Postmaster General, London, England
Filed Apr. 25, 1967, Ser. No. 633,447
Claims priority, application Great Britain, Apr. 29, 1966, 18,966/66
Int. Cl. H03d 1/04
U.S. Cl. 329—101 7 Claims



A signal translation circuit which combines a voice frequency input signal with a unipolar signal having an amplitude which follows the envelope amplitude of the input signal to produce a combined—unilateralized—signal which always retains the polarity of the envelope derived signal. Two-wire, bothway amplifier circuits, a conference telephone circuit and a loudspeaking telephone circuit using such translation circuits are described. All the circuits incorporate gates operated by unilateralized signals which have an instantaneous magnitude defined by the voice frequency signal envelope amplitude thereby directly relating the operating signal level to the input signal level.

3,564,433
MULTIPHASE DIFFERENTIAL-PHASE-MODULATED PCM REPEATER
Stewart E. Miller, 67 Wigwam Road, Locust, N.J. 07760
Original application Aug. 8, 1967, Ser. No. 659,099. Divided and this application Aug. 26, 1969, Ser. No. 870,926
Int. Cl. H04l 27/22
U.S. Cl. 329—112 2 Claims



This invention relates to apparatus and method for detecting a $2n$ -phase differential-phase-modulated PCM signal in which the relative phase shift between signals in adjacent time slots is $\pm (2m-1) \pi/2n$ radians, where $2n$ is the number of possible signal phases, and m signifies all the integers between one and n inclusive.

Phase detection involves dividing the input signal into $2n$ signal components, and then comparing the phase of each n of these components with the phase of the signal in the next succeeding time slot. This is done by delaying each of said n signal components a specified length of time which depends upon the number of signal phase states. The signals produced as a result of each of these

comparisons are amplitude-detected by means of a pair of oppositely-poled amplitude detectors, and then combined in a common impedance to produce n baseband signals which, when taken together, contain all the information necessary to regenerate the input signal. In particular, one of the baseband signals indicates the sign (\pm) of the phase shift whereas the sum of the other $(n-1)$ baseband signals indicates the magnitude of the phase shift.

3,564,434

INTEGRATED FREQUENCY SELECTIVE CIRCUIT AND DEMODULATOR INCLUDING PHASE LOCKED LOOP

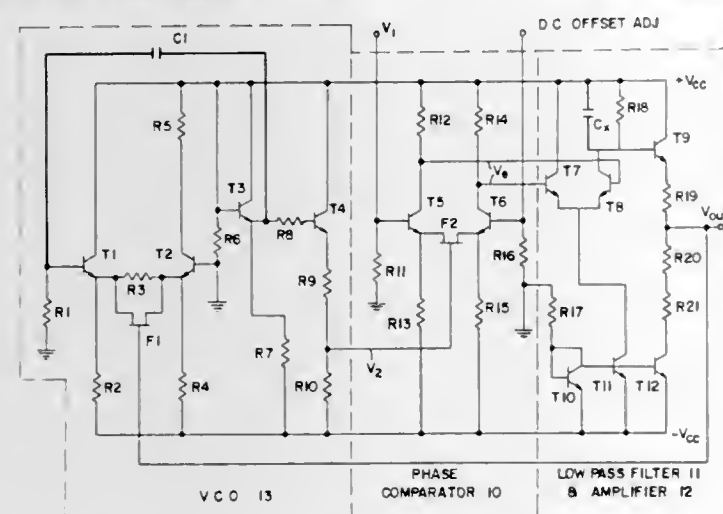
Hans R. Camenzind, Los Altos, and Alan B. Grebene, Sunnyvale, Calif., assignors to Signetics Corporation, Sunnyvale, Calif., a corporation of California

Filed July 29, 1968, Ser. No. 748,349

Int. Cl. H03b 3/04; H03d 3/24; H03k 3/26

U.S. Cl. 329-122

19 Claims



An integrated frequency selective circuit particularly used for demodulating an FM signal which includes a phase locked loop having a phase comparator coupled to a low pass filter and amplifier which in turn has an output voltage which is the desired demodulated input signal and is coupled to a voltage controlled oscillator. The frequency output of the oscillator provides the other input to the phase comparator to complete the loop. With the use of the phase locked loop, tolerance variations greater than 10% in integral circuit elements can easily be tolerated. Back to back diodes may be incorporated in the circuits to provide limiting action for improved interference rejection.

3,564,435

FREQUENCY DISCRIMINATOR OF SIMPLIFIED CONSTRUCTION

Albert Burgert, Arcueil, France, assignor to Compagnie Generale d'Electricite

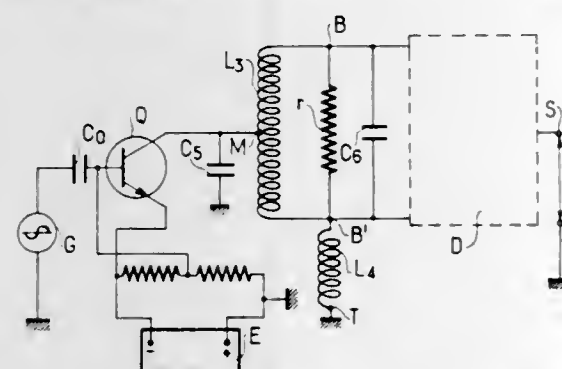
Filed Mar. 11, 1968, Ser. No. 712,087

Claims priority, application France, Mar. 10, 1967, 98,323

Int. Cl. H03d 3/26

U.S. Cl. 329-140

14 Claims



Frequency discriminator with a single coil having a first end connected to ground, a second end connected to

a first terminal of a differential detection network, a first tap connected to the second terminal of said network, and a middle tap connected between said second end and said first tap, which is connected to a source of variable frequency current, including a first tuning condenser connected between said second end and said first tap, and a second tuning condenser connected between said middle tap and ground.

3,564,436

HIGH INPUT IMPEDANCE AMPLIFIER

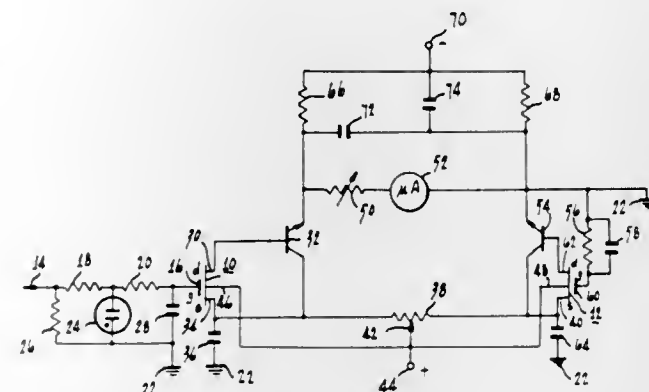
Sander L. Knanishu, Tappan, N.Y., assignor to RCA Corporation

Filed Feb. 28, 1968, Ser. No. 708,867

Int. Cl. H03f 3/26, 3/04

U.S. Cl. 330-3

4 Claims



A high input impedance amplifier suitable for coupling very low current or voltage to be measured to a meter includes at least one insulated gate field effect transistor to which the current or voltage to be measured is applied and at least one bipolar current controlled transistor whose input is coupled to the field effect transistor and whose output is coupled to the meter.

3,564,437

VIDEO SIGNAL AMPLIFYING CIRCUIT HAVING D.C. RESTORATION ACTION

Takashi Nakashima, Katsuta-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan

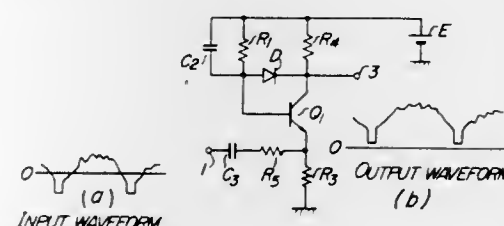
Filed Nov. 6, 1968, Ser. No. 773,930

Claims priority, application Japan, Nov. 8, 1967, 42/71,443

Int. Cl. H03f 21/00

U.S. Cl. 330-11

5 Claims



An amplifying clamp circuit comprising: an emitter grounded NPN transistor applied with a bias voltage to the base thereof through a series circuit of first and second resistors; a capacitor connected to the junction between said resistors to hold the electric potential of the junction; a diode inserted between the collector and said junction to allow a current flow therethrough when the collector potential becomes lower than that of said junction, thereby obtaining an amplifying clamp circuit operatingly deriving from the collector an output signal which is representative of an amplified input signal applied to the base and is clamped at the minimum level.

3,564,438

SIGNAL TRANSLATING CIRCUIT HAVING FIRST AND SECOND PAIRS OF SEMICONDUCTOR DEVICES WITH MATCHING CONDUCTION CHARACTERISTICS

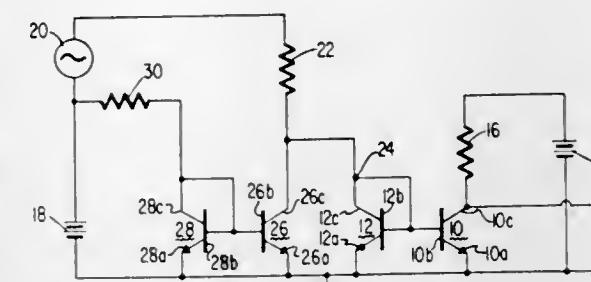
Allen L. Limberg, Somerville, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Mar. 3, 1969, Ser. No. 803,804

Int. Cl. H03f 3/68

U.S. Cl. 330-30

11 Claims



A signal translating circuit particularly well suited for fabrication as an integrated circuit which provides an output signal representative of a difference between two input signals, the output signal being referenced to a predetermined direct voltage level substantially independent of the direct voltage levels of the input signals. First and second pairs of semiconductor devices, the devices in each pair having matched conduction characteristics, are supplied with first and second input signals. The first input signal is coupled by an impedance to a junction between the first and second devices of the first pair and the second device of the second pair. The second input signal is coupled by a further impedance to a junction between the first and second devices of the second pair. An output signal which is a function of the difference between the input signals is derived across an output impedance coupled to the first device of the first pair.

3,564,439

DIFFERENTIAL AMPLIFIER

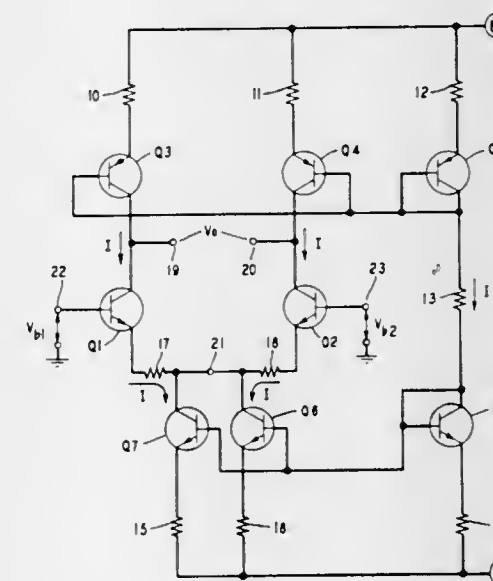
Tadikonda N. Rao, Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Filed May 21, 1969, Ser. No. 826,424

Int. Cl. H03f 3/68

U.S. Cl. 330-30

7 Claims



A differential amplifier utilizes matched transistor current sources in both the emitter and collector circuits

of the differential pair in order to achieve high common mode rejection and differential gain without sacrificing the differential output.

3,564,440

DC COUPLED DIFFERENTIAL AMPLIFIER

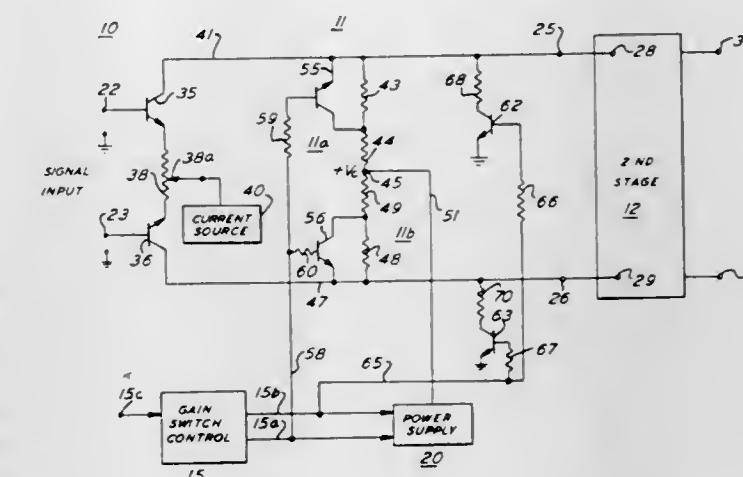
Don N. Lee, Willingboro, N.J., assignor to Computer Test Corporation

Filed Oct. 31, 1969, Ser. No. 872,962

Int. Cl. H03f 3/68

U.S. Cl. 330-30

9 Claims



A gain controlled wideband DC coupled differential amplifier having a fast response time in which the DC potentials at the outputs of the amplifier are maintained constant and equal in value as the gain is varied. To vary the gain, portions of the differential load resistances are short circuited and simultaneously compensating resistances are coupled to the load resistances. At the same time, the supply potential is varied in a direction tending to maintain constant the DC potentials.

3,564,441

LOW-PASS ACTIVE FILTER

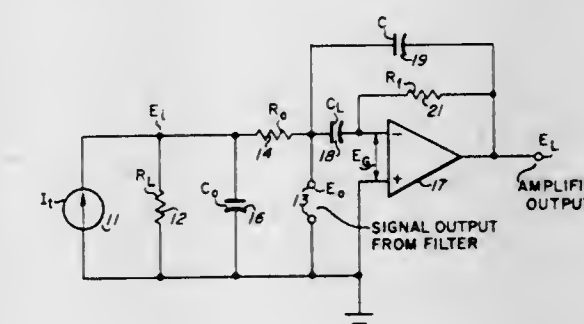
Melvin O. Eide, Seattle, Wash., assignor to United Control Corporation, Redmond, Wash., a corporation of Delaware

Filed Mar. 4, 1968, Ser. No. 710,218

Int. Cl. H03f 3/04

U.S. Cl. 330-31

6 Claims



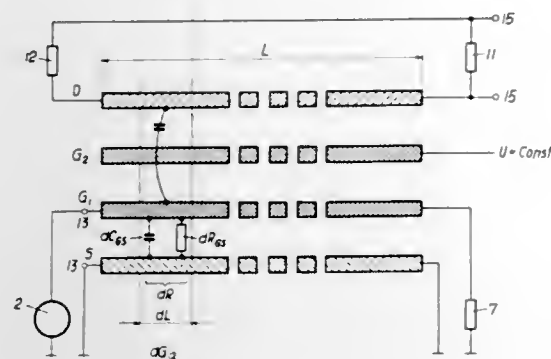
A low-pass filter employs an active filter preceded by a passive filter, the active filter being AC coupled in shunt with the passive filter. The passive filter carries most of the current, thus reducing the current supplied to the active filter and permitting the components of the active filter to be of smaller size.

3,564,442 INTEGRATED FIELD-EFFECT DISTRIBUTED AMPLIFIER

Reimar Germann, Graz, Austria, assignor to
Hans List, Graz, Austria
Filed Feb. 13, 1969, Ser. No. 798,878
Claims priority, application Austria, July 30, 1968,
A 7,441/68
Int. Cl. H03f 3/16

U.S. Cl. 330—35

1 Claim

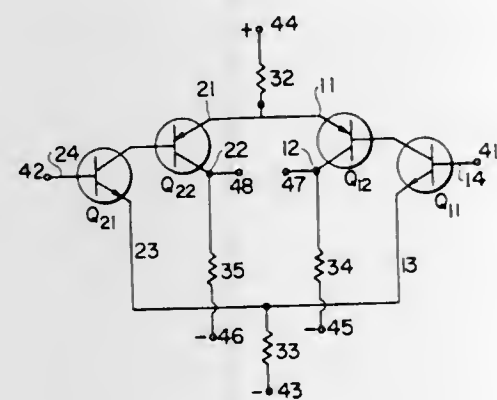


An integrated field-effect type distributed amplifier having a transistor with a drain electrode and two isolated gates to form homogenous networks and termination resistances. The amplifier also includes connections for the termination resistance connected to delay lines.

3,564,443 SEMICONDUCTOR INTEGRATED CIRCUIT DE- VICE CONTAINING LATERAL AND PLANAR TRANSISTOR IN A SEMICONDUCTOR LAYER

Minoru Nagata, Kodaira-shi, Japan, assignor to
Hitachi, Ltd., Tokyo-to, Japan
Filed June 29, 1967, Ser. No. 649,948
Claims priority, application Japan, June 29, 1966,
41/41,819
Int. Cl. H03f 3/14; H03k 3/26
U.S. Cl. 330—38

13 Claims



of the bound molecules in which the equilibrium geometrical configuration of atomic nuclei is different thereby creating population inversions between nuclear vibrational levels of said molecules sufficient to establish stimulated emission of radiation due to transitions between the nuclear vibrational levels.

3,564,450

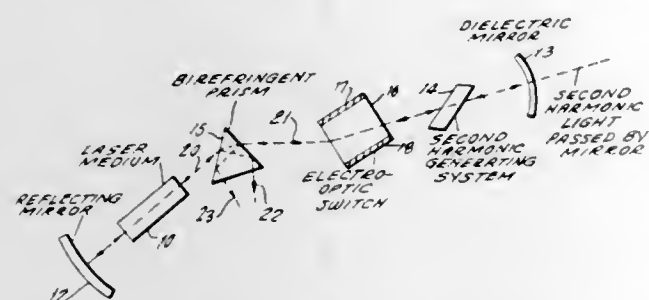
ELECTRO-OPTIC Q-SWITCH USING BREWSTER ANGLE CUT POKKELS CELL

Anthony Immarco, Elmhurst, Mark A. Steinhacker, New York, Richard J. Proebstl, Ridgewood, and Harold M. Stahl, Flushing, N.Y., assignors to Kollsman Instrument Corporation, Syosset, N.Y., a corporation of New York

Filed Oct. 11, 1967, Ser. No. 674,577
Int. Cl. G02f 1/26; H01s 3/00

U.S. Cl. 331-94.5

5 Claims



An electro-optic switch for high intensity light and useful as a superior Q-switch for the production of giant laser pulses. The switch includes a birefringent polarizing prism which totally internally reflects one component of unpolarized light and passes the other component toward a Brewster-angle cut Pockels cell. The Brewster-angle cut cell, when charged, circularly polarizes linear light passed by the polarizing prism, and subsequently linearly polarizes the circularly polarized light on its return pass through the cell with the returned light being totally reflected by the prism. When uncharged, the Pockels cell preserves the original polarization of light from the prism with this light passing back through the prism. No anti-reflection coatings are used in the system. A second prism can be added to operate the switch in a half-wave mode.

This invention relates to an electro-optic light switching device, and more particularly relates to a novel device for switching light of extremely high intensity which uses a birefringent polarizing prism which passes a linearly polarized light component from a source toward a Pockels cell with incident light on all interfaces being at or near the Brewster angle to eliminate the need for anti-reflection coatings and transparent electrodes and to minimize surface reflection losses. The switch has particular application to a Q-switched laser for the production of giant laser pulses with increased efficiency and with intensities high enough to destroy presently available anti-reflection coatings.

3,564,451

PIVOTALLY ADJUSTABLE Q-SWITCHED LASER OPERATING IN THE FAR-INFRARED OR SUB-MILLIMETER REGION

Mitsuyoshi Shimazu, Mitaka-shi, and Yasuzi Suzuki, Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan

Filed Oct. 4, 1967, Ser. No. 672,861
Claims priority, application Japan, Oct. 11, 1966, 41/66,813

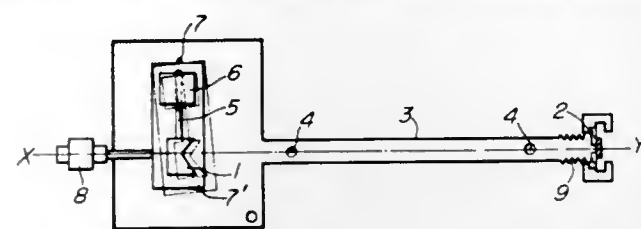
Int. Cl. H01s 3/00

U.S. Cl. 331-94.5

5 Claims

A laser device performing a Q-switch operation, wherein at least one of a pair of end parallel reflecting members composing a laser resonator is an orthogonal dihedral member. In this device, the right-angled edge of

said reflecting member is placed vertically to the optical axis of the resonator and means are provided for rotating said member about an axis vertical to said right-



angled edge and the optical axis and for rotating the same reflecting member slowly along the surface including said axis of vertical rotation and the optical axis with a point off said optical axis as a fulcrum.

3,564,452

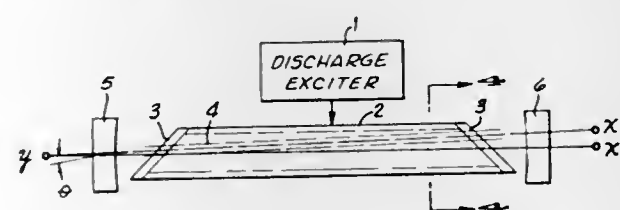
LASER WITH STABLE RESONATOR

Robert C. Rempel, Los Altos, Calif., assignor to Spectra-Physics, Inc., Mountain View, Calif., a corporation of California

Filed Aug. 23, 1965, Ser. No. 481,655
Int. Cl. H01s 3/02, 3/08, 3/22

U.S. Cl. 331-94.5

6 Claims



A gas laser in which the resonator reflectors are supported by an essentially non-adjustable structure in a position which establishes a fixed axis for the propagation of radiation in the resonator. Means are provided for independently adjusting the position of two length-wise spaced-apart portions of the plasma tube so that the axis of the plasma tube can be aligned with the resonator axis to within a distance which is less than the mode diameter of the resonator radiation.

3,564,453

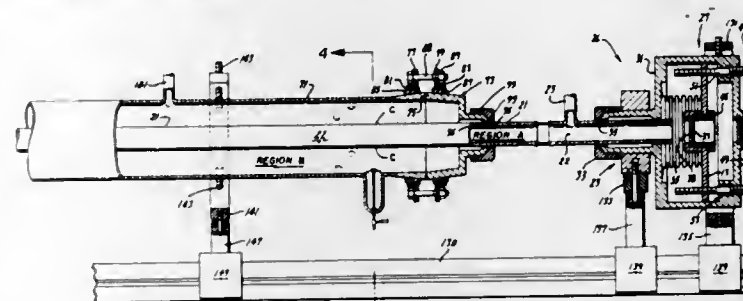
LASER AND METHOD

Irwin Wieder, Los Altos, Calif., assignor to Carver Corporation, Mountain View, Calif., a corporation of Delaware

Filed May 19, 1967, Ser. No. 639,819
Int. Cl. H01s 3/00

U.S. Cl. 331-94.5

9 Claims



A laser using the characteristic radiations for a chemical reaction as the source of pumping energy. A tube including an optical cavity contains a gaseous laser medium which is optically coupled either transversely or endwise to a region in which gaseous matter is chemically reacting as by burning or exploding. Examples are given of a carbon dioxide laser medium pumped by a chemical reaction forming carbon dioxide from carbon monoxide or hydrocarbon gas and oxygen.

3,564,454

LASER APPARATUS WITH LASER ROD BIREFRINGENCE INSENSITIVE POLARIZED CAVITY

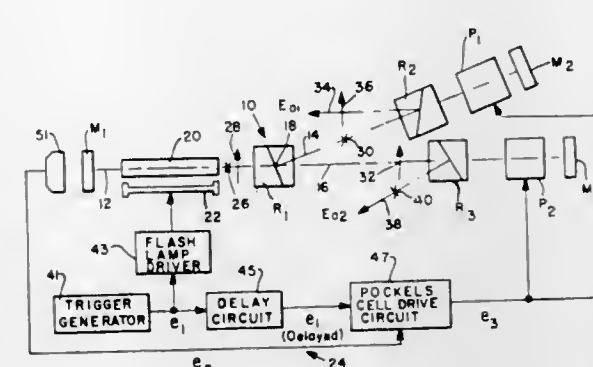
William R. Hook, Los Angeles, Roland H. Dishington, Pacific Palisades, and Ronald P. Hilberg, Redondo Beach, Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Nov. 28, 1967, Ser. No. 686,214
Int. Cl. H01s 3/16

U.S. Cl. 331-94.5

10 Claims U.S. Cl. 331-135

4 Claims



Laser apparatus in which a plurality of mirrors are positioned to define a resonant laser cavity, the laser cavity having first, second, and third radiant energy paths arranged to intersect at a common point to form a generally Y-shaped configuration, the mirrors each being positioned at the end of one of the paths. A source of laser radiation is positioned in the cavity to radiate laser energy along the first path. A Rochon prism is provided within the cavity at the common point for directing radiation of one polarity radiating along the first path from the source of radiation into the second path and radiation of another polarity into the third path, the prism being capable of directing the radiant energy of one polarity returning along the second path into the first path and the radiant energy of the other polarity returning along the third path into the first path. A second Rochon prism is positioned in the second path, the second path Rochon prism being capable of passing radiant energy of one polarity returning along the second path and directing radiant energy of another polarity into a path leading out of the cavity. A third Rochon prism is positioned in the third path, the third path prism being capable of passing radiant energy of the other polarity returning along the third path and directing radiant energy into another path leading out of the cavity. A first Pockels cell is positioned in the second path for changing the polarity of radiation returning along the second path to direct the radiation into the one path leading out of the cavity. A second Pockels cell is positioned in the third path for changing the polarity of radiation returning along the third path to direct the radiation into the other path leading out of the cavity. In one variation of the laser the first and second Rochon prisms are eliminated and the remaining Rochon prism positioned in the cavity at the common point serves to direct radiation of one polarity radiating along the first path into the second path and radiation of another polarity into the third path, the prism being capable of directing radiant energy of one polarity returning along the second path into the first path and radiant energy of another polarity into one of the paths leading out of the cavity, the prism being capable of directing radiant energy of another polarity returning along the third path into the first path and radiant energy of another polarity into another path leading out of the cavity. In still another variation, the second and third Rochon prisms along with the Pockels cell of the third path are eliminated and a quarter-wave is provided in the first path. In this variation a single output is obtained along one of the paths leading out of the cavity.

3,564,455

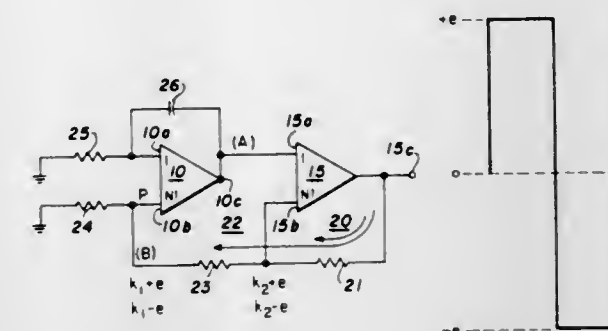
STABLE SQUARE-WAVE FREQUENCY GENERATOR USING TWO OPERATIONAL AMPLIFIERS WITH FEEDBACK

John O. Wedel, Baltimore, Md., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed July 24, 1969, Ser. No. 844,543
Int. Cl. H03b 5/20

U.S. Cl. 331-135

4 Claims



A square-wave frequency generator, formed of a pair of operational amplifiers driven at saturation and having two interconnected resistive feedback loops, has a resistor-capacitor integrating network connected across one of the amplifiers to create a stable square-wave output. Stability is ensured by employing the passive resistive elements, along with the capacitor, to establish the time period of a generated wave and, by driving the amplifiers at saturation, a self-sustaining output signal is provided whose period is relatively independent of possible minor variations in the internal supply potentials and ambient temperatures.

3,564,456

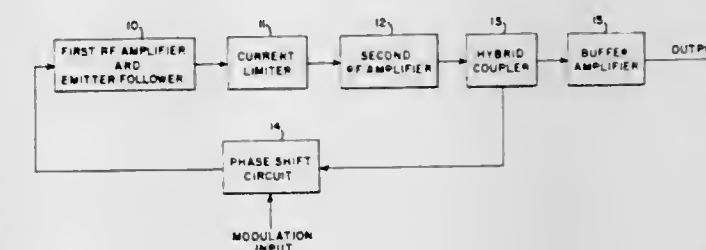
CIRCUIT FOR PRODUCING FREQUENCY-MODULATED SIGNALS

John H. Denny, Jr., Lynchburg, Va., assignor to General Electric Company

Filed Sept. 17, 1969, Ser. No. 858,773
Int. Cl. H03c 3/08; H03b 5/20; H04I 27/20

U.S. Cl. 332-16

6 Claims

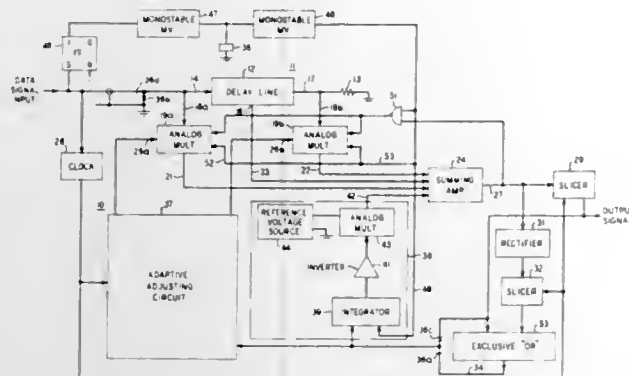


Frequency-modulated signals are produced by a circuit having first and second radio-frequency amplifiers connected by a limiter. The output of the second radio-frequency amplifier is connected to a hybrid coupler having two outputs. One coupler output is connected through a variable phase-shift circuit to the input of the first radio-frequency amplifier to produce oscillations which are frequency-modulated by varying the phase shift in response to an applied signal. The frequency-modulated oscillations have a relatively wide deviation and a relatively high deviation rate. The oscillations are derived from the other output of the directional coupler for utilization in any desired manner.

3,564,457
START UP CIRCUIT FOR ADAPTIVE EQUALIZER
 Cecil W. Farrow, Monmouth Hills, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
 Filed July 18, 1968, Ser. No. 745,928
 Int. Cl. H04b 3/04

U.S. Cl. 333—18

7 Claims

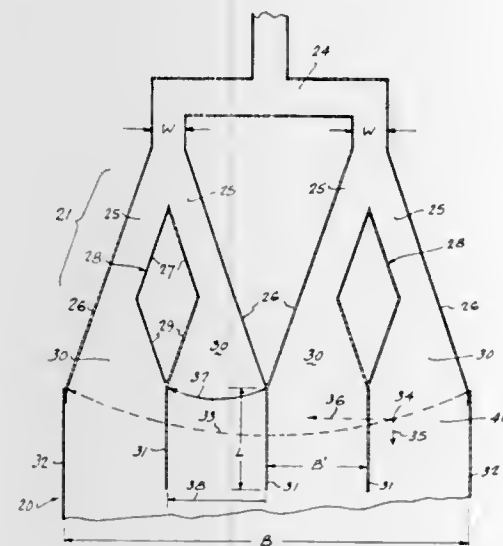


An adaptive transversal filter equalizer is described in which voltage controlled analog multipliers are employed as tap attenuators in conjunction with a D.C. offset adjusting loop. A special start-up circuit controls a start-up sequence so that the multiplication factors of the tap attenuators can be set to zero and the D.C. offset can be set to zero in a noninteracting manner.

3,564,458
BRANCHED WAVEGUIDE TRANSITIONS WITH MODE FILTERS
 William A. Cumming, Ottawa, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada, a corporation of Canada
 Filed Oct. 28, 1969, Ser. No. 871,848
 Int. Cl. H01p 1/16; H05b 9/06

U.S. Cl. 333—21

1 Claim



An input waveguide for feeding microwave energy in the TE₀₁ mode substantially uncontaminated by higher order modes into a rectangular waveguide that is used for heating relatively wide webs and thus requires a width in which the higher order modes could propagate, is composed of a plurality of divergent waveguide sections each diverging to a width too small to propagate the higher modes but each nevertheless containing incipient such modes by reason of the effect of the divergence, such divergent sections being followed by parallel-sided filter sections for damping out the incipient higher modes

before the plurality of energy paths thus formed are recombined to form a single TE₀₁ mode in the wide waveguide.

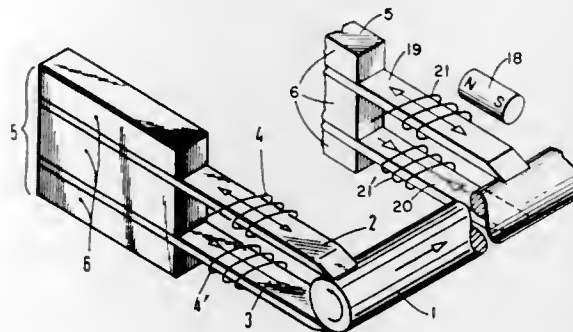
3,564,459
ATTENUATION SUPPORT DEVICE HAVING A SUBSTANTIALLY STEPLESS, EXPONENTIALLY VARYING TOTAL DAMPING RATE ALONG THE LONGITUDINAL LENGTH THEREOF
 Helmuth Hahn, Munich, Germany, assignor to Siemens Aktiengesellschaft, Erlangen, Germany, a corporation of Germany

Filed Sept. 23, 1966, Ser. No. 581,473
 Claims priority, application Germany, Sept. 29, 1965, S 99,759

Int. Cl. H03h 7/30, 7/10

U.S. Cl. 333—30

11 Claims



This invention relates to an attenuation support device, for use with delay lines. In particular, this invention may be used to attenuate undesirable mechanical vibrations which may be transmitted to magnetostrictive elements comprising an electrical-mechanical transducer, or a mechanical-electrical transducer and prevent reflection of said vibrations back to the delay line. The attenuation or damping of these undesirable mechanical vibrations is achieved using minimum length attenuation strips associated with the attenuation support device.

3,564,460
FOLDED PATH PERPENDICULAR DIFFRACTION DELAY LINE

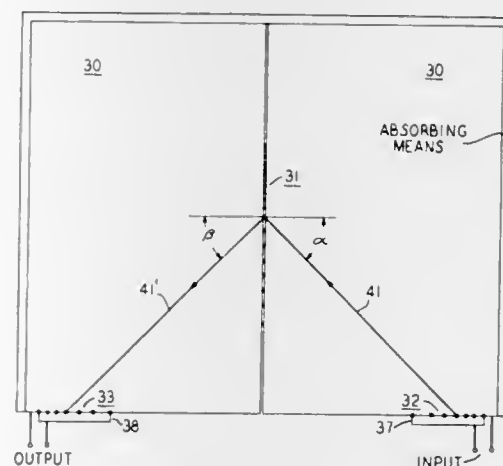
Erhard K. Sittig, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Dec. 18, 1967, Ser. No. 691,453

Int. Cl. H03h 9/30

U.S. Cl. 333—30

7 Claims



An intermediary graded grating, which may be transmitting, is positioned in the beam path between the input and output graded gratings usually found in a perpendicular

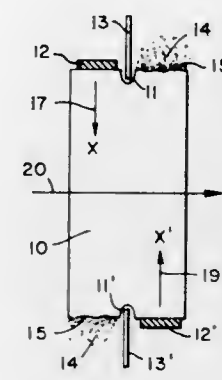
lar diffraction delay line. The intermediary grating intercepts the beams and rediffracts desired orders of them to the output grating without loss of the inherent averaging properties of the perpendicular diffraction delay line.

3,564,461
PROCESS FOR MAKING AN ULTRASONIC DELAY CELL
 James L. Jernigan, Inyokern, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Nov. 4, 1968, Ser. No. 772,989
 Int. Cl. H03h 7/30, 9/00; H04b 9/00

U.S. Cl. 333—30

8 Claims



A process for making an ultrasonic delay cell wherein a quartz rod is notched at each end halfway along its optical path. First and second ultrasonic transducers are mounted at opposite ends of the rod so that one acoustic beam is behind the other in the optical path. Protective shields are inserted into the notches to prevent damage to the transducers as the portion of the end of the rod opposite each transducer is sandblasted to terminate each acoustic beam.

3,564,462
HELICAL SPRING FOR ARTIFICIAL REVERBERATION DEVICES
 Werner Fidi, Baden, near Vienna, and Otto Marschall, Vienna, Austria, assignors to Akustische u. Kino-Geräte Gesellschaft m.b.H., Vienna, Austria

Filed Nov. 25, 1968, Ser. No. 778,692

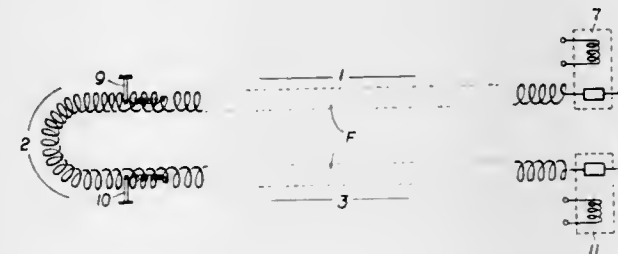
A 10,791/67

Claims priority, application Austria, Nov. 29, 1967, A 10,791/67

Int. Cl. H03h 7/30

U.S. Cl. 333—30

9 Claims



A helical spring for artificial reverberation devices is constructed to perform torsional vibration. Mounting means are connected to and support the spring under initial axial tension in a manner such that the spring has at least one straight or rectilinear portion and at least one curved portion. The straight portion is extended under stress in the direction of the axial tension. The turns of the curved portion are spaced apart sufficiently to be clear of each other.

3,564,463
MONOLITHIC PIEZOELECTRIC FILTER HAVING MASS LOADED ELECTRODES FOR RESONATION REGIONS ACOUSTICALLY COUPLED TOGETHER

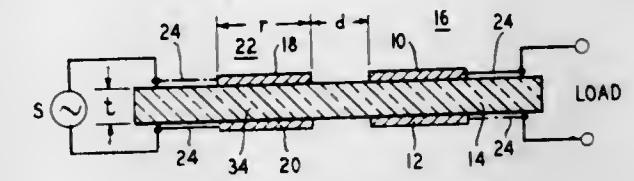
William D. Beaver, Center Valley, and Roger A. Sykes, Bethlehem, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Continuation-in-part of application Ser. No. 541,549, Apr. 11, 1966. This application June 17, 1966, Ser. No. 558,338

Int. Cl. H03h 9/00

U.S. Cl. 333—72

11 Claims



Energy is transmitted over a desired band by applying it to a pair of electrodes mounted on a crystal body and removing it from another pair of electrodes mounted on the crystal body. The electrodes have sufficient masses to concentrate thickness shear vibrations in the areas between the electrodes. The electrodes are spaced sufficiently far from the edges of the body so as to substantially eliminate the effects of the edges. The pairs of electrodes are spaced so as to couple the resonators formed by the electrodes and the body, but to limit the coupling below a given value.

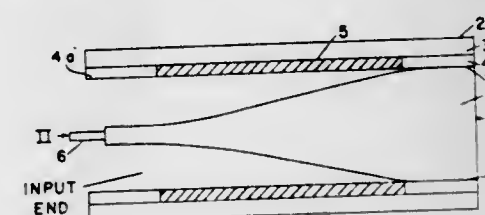
3,564,464
STRIP-LINE POWER DISSIPATIVE DEVICE
 Kenneth Edney Hancock, Roxboro, Quebec, and James I. Bullen, Mount Royal, Quebec, Canada, assignors to Canadian Marconi Company, Montreal, Quebec, Canada

Filed Aug. 21, 1967, Ser. No. 662,145

Int. Cl. H01p 1/22, 1/26

U.S. Cl. 333—84

5 Claims



A strip-line power dissipative device in which the ground plane or planes are made resistive whereby the power will be dissipated in the ground plane or planes.

3,564,465
CIRCUIT-INTERRUPTER CONSTRUCTION AND OPERATING-MECHANISM THEREFOR WITH PARTICULAR APPLICATION TO SINGLE-PHASE RECLOSERS

Ian J. Harvey, Bloomington, Ind., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 25, 1968, Ser. No. 770,490

Int. Cl. H01h 3/02

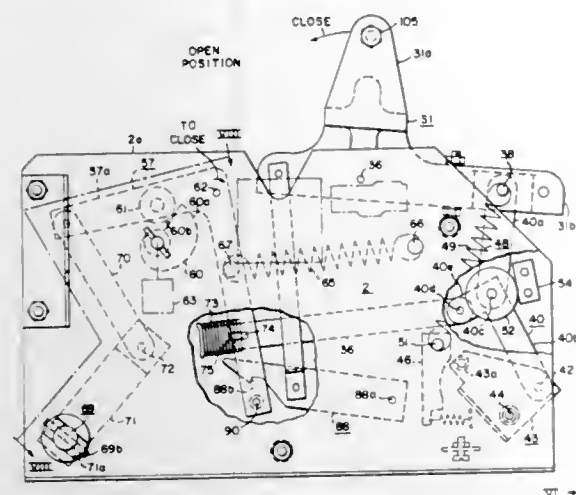
U.S. Cl. 335—73

10 Claims

A circuit interrupter is provided, of the in-line type, having a central grounded housing and oppositely-extending hollow bushing structures, through which extends an elongated conducting operating rod actuating

the movable contact of a vacuum-type circuit-interrupter unit disposed in one of the hollow bushing structures. A simplified quick-closing and quick-opening stored-energy-

arm assembly to be removed from the frame for full access to an operating coil or coils without the use of a tool. Provision is made for ready interchange of different



type of operating mechanism is provided, which may be motor-operated or manually-operated depending upon operating conditions.

3,564,466

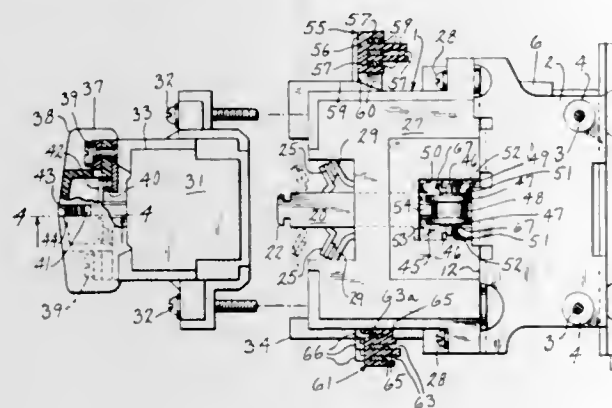
REVERSING SWITCH ASSEMBLY

Leland E. Lawrence, 6603 Revere Ave., Wauwatosa, Wis. 53213; Donald V. Zunft, 7231 Dorchester Lane, Green Dale, Wis. 53129; and John L. Haydu, 108 Enchanted Hills, Apt. T-3, Owings Mills, Md. 21117
Original application Jan. 29, 1969, Ser. No. 794,895.
Divided and this application Feb. 6, 1970, Ser. No. 9,137

Int. Cl. H01h 50/16

U.S. Cl. 335-132

1 Claim



A reversing switch assembly includes side-by-side switches interlocked by a roller that is engageable by the actuator of either switch to be moved to a blocking position with respect to the other. The terminals of the switches are interconnected by bus bar assemblies comprising preformed terminal connectors received in insulating holders.

3,564,467

MULTIPURPOSE DIRECT CURRENT RELAY

David L. Swindler, Northfield, Dennis J. Oblak, Seven Hills, and Charles Allan Schurr, Shaker Heights, Ohio, assignors to Square D Company, Park Ridge, Ill., a corporation of Michigan

Filed Feb. 25, 1969, Ser. No. 802,004

Int. Cl. H01h 50/16

U.S. Cl. 335-132

16 Claims

The relay has a contact-operating arm assembly including an armature and an adjustable retaining means which retains the armature in pivotal relationship with a magnetizable frame. The retaining means permits the contact

contact making and breaking devices and different operating coils so that the relay can be used for a wide variety of circuit controlling functions.

3,564,468

APPARATUS FOR CONTROLLING ELECTRIC CIRCUITS BY THE EFFECT OF A PLURALITY OF MEMBERS INFLUENCED BY A MAGNETIC FIELD AND ARRANGED IN PARALLEL

Gerard Sablayrolles, Villepreux, Jean-Claude Taulaigo, Marly-le-Roi, and Jean Lescarbourea, Nanterre, France, assignors to La Telemecanique Electrique, Nanterre, Hauts-de-Seine, France, a joint-stock company of France

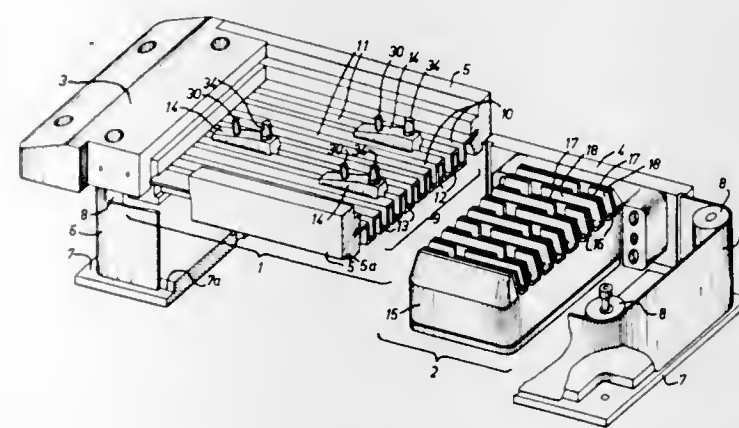
Filed June 17, 1969, Ser. No. 834,073

Claims priority, application France, June 20, 1968, 155,844

Int. Cl. H01h 9/00

U.S. Cl. 335-207

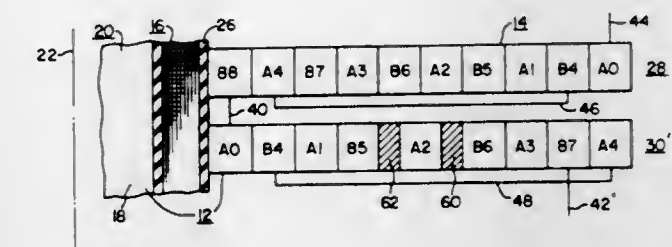
8 Claims



Apparatus for controlling electric circuits by the effect of a plurality of members influenced by a magnetic field and arranged in parallel, comprising two portions of which one has a relative movement with respect to the other; one portion carrying members associated with a magnetic field is formed by a plate capable of supporting a plurality of the said members in parallel lines, the said plate being constituted by a channelled member with a crenellated section so that it is provided on one side with

a series of first parallel grooves receiving the said members and on the other side with a series of other grooves inverted; a portion carrying elements influenced by the variation of the magnetic field is constituted by a unit capable of supporting a plurality of these elements in parallel lines, each element having two magnetizable pole- cheeks which project so as to embrace the members associated with the field, carried by the other portion, a plurality of magnetizable gutters with flanges being moved parallel to each other in the inverted grooves of the said plate, each gutter having a gap solely at the position of the sensitive element with which it is associated, while the two gutters located immediately on each side have their gaps located at different points.

to provide the desired coil outside diameter, or to provide cooling ducts between the turns of the coil, or both.



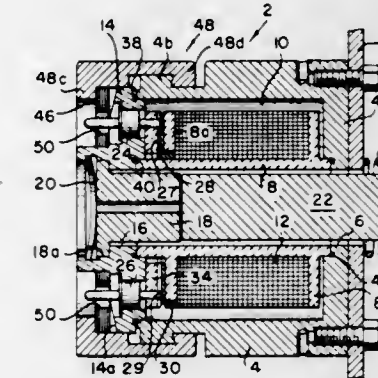
3,564,469

SOLENOID APPARATUS FOR ULTRA-HIGH VACUUM ENVIRONMENTS

Thomas A. Anastasio, Glen Burnie, and Richard G. Pokorski, Highland, Md., assignors to Dividean Incorporated, Severn, Md., a corporation of Maryland
Filed July 22, 1969, Ser. No. 843,403
Int. Cl. H01f 7/08

U.S. Cl. 335-260

17 Claims



Electric solenoid apparatus designed for use in an ultra-high vacuum environment, characterized in that the solenoid coil is contained in a tightly sealed annular chamber, electrical power being supplied to the coil via terminals extending through an end wall of the chamber to actuate a solenoid plunger external of the chamber. In accordance with an important feature of the invention, the coil housing consists of a plurality of separable sections between which seal elements are arranged, spring means external of the sealed chamber being provided to bias the housing sections together to tightly compress the seal elements. Consequently, the coil may be wound upon a cylindrical non-magnetic insulating core that defines the inner wall of the coil housing, thereby forming an interchangeable coil and core unit. The outer wall is formed of a magnetic material and defines a part of the return flux path for the solenoid coil.

3,564,470

ELECTRICAL WINDING STRUCTURES

Robert I. Van Nice, Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Apr. 16, 1969, Ser. No. 816,539

Int. Cl. H01f 15/14, 27/08

U.S. Cl. 336-60

10 Claims

An electrical winding having a plurality of pancake coils of the interleaved turn, high series capacitance type. Electrically conductive means is disposed between predetermined turns of at least certain of the pancake coils,

The electrically conductive means provides these functions without introducing discontinuities into the desired predetermined capacitive structure of the pancake coils.

3,564,471

ELECTRICAL WINDINGS

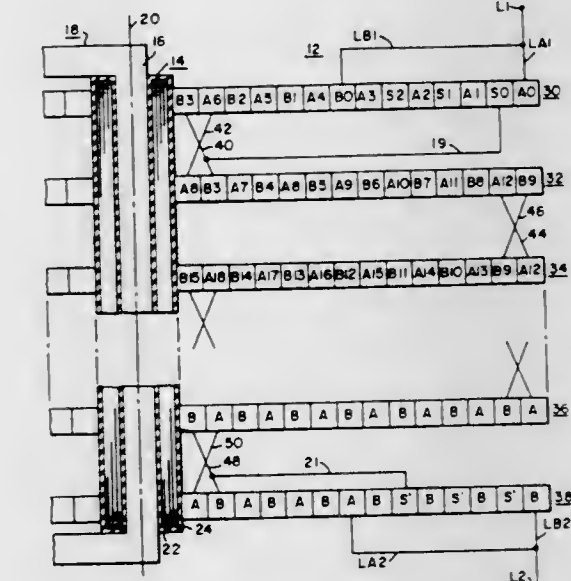
Robert I. Van Nice, Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 10, 1968, Ser. No. 782,637

Int. Cl. H01f 15/14

U.S. Cl. 336-70

11 Claims



Electrical windings of the high series capacitance, interleaved turn type, having at least first and second parallel paths between its electrical ends. In a first embodiment of the invention, the windings include a plurality of electrically connected pancake coils, each having at least two parallel electrical paths, with the pancake coils at each electrical end of the winding being constructed to provide a voltage difference between the two electrical paths at line and surge frequencies, which is maintained throughout the remaining pancake coils. The remaining pancake coils are constructed with first and second conductors, continuously radially interleaved across the build of the pancake coil. In another embodiment, all of the pancake coils are of the continuous type, with each parallel circuit including impedance means which has substantially the same impedance as each of the pancake coils at surge frequencies, but negligible impedance at line frequency. In this embodiment, a voltage difference between adjacent turns of the first and second parallel circuits is created only during a surge potential.

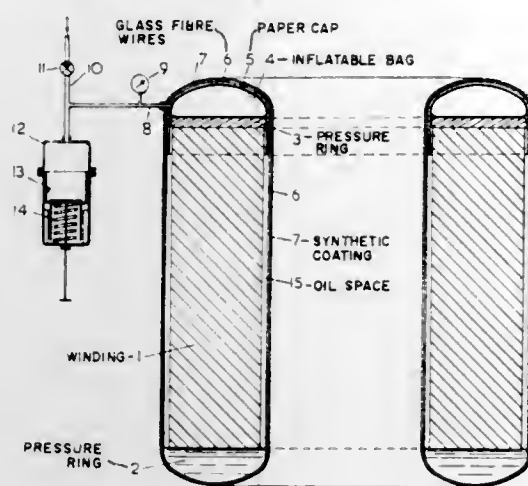
3,564,472 WINDINGS FOR TRANSFORMERS OR CHOKES COILS

Egbertus Adrianus Frowein, Arnhem, Netherlands, assignor to Smit Nijmegen Electrotechnische Fabrieken N.V., Nijmegen, Netherlands, a company of the Netherlands

Filed Aug. 2, 1968, Ser. No. 749,870
Claims priority, application Netherlands, Aug. 14, 1967, 6711138; Feb. 12, 1968, 6801940
Int. Cl. H01j 27/30

U.S. Cl. 336—209

12 Claims



Transformer or choke coil winding wrapped in a torus-shaped envelope made from material which is adapted to be subjected to a tensile load in planes containing the axis of the winding, in which a pneumatically or hydraulically expandable bag is provided between one or each of both end faces of the winding and said envelope to exert axial pressure on the winding.

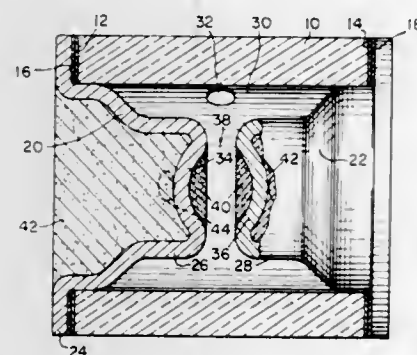
3,564,473 SURGE PROTECTOR

Chester J. Kawiecki, Santa Barbara, Calif., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill., a corporation of Illinois

Filed Nov. 21, 1967, Ser. No. 684,706
Int. Cl. H01h 79/00

U.S. Cl. 337—28

19 Claims



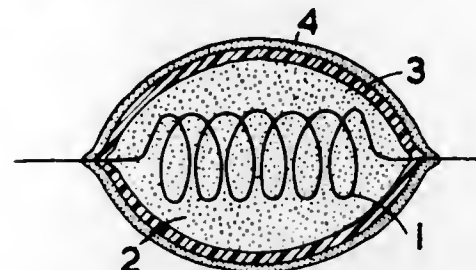
A miniature surge protector includes a pair of hollow electrode members extending within either end of a ceramic cylinder, such electrodes being brazed in position to complete a hermetic enclosure within the ceramic cylinder. The electrodes are provided with end walls which face one another within the cylinder to define a gap, and which are adapted to soften or melt under a prolonged continuation of an abnormal arc discharge across the gap. A means for making permanent contact between the electrodes, preferably including a fusible metal, is included within the hollow portion of each electrode. Such means is adapted to protrude through and make substantially permanent contact with the opposite electrode when the electrode end walls melt, whereby to provide a fail-safe feature.

3,564,474 ELECTRICALLY HEATABLE ELEMENTS

Jack Graham Firth, Burncross, near Sheffield, and Alfred Guest, Rotherham, England, assignors to National Research Development Corporation, London, England
Filed June 4, 1968, Ser. No. 734,474
Int. Cl. H01c 7/08; G01n 31/00

U.S. Cl. 338—25

3 Claims



An electrically heatable element with a filament embedded in a fused ceramic material having a softening point not greater than 1500° C. has a catalytic material deposited on the outer surface of the fused ceramic.

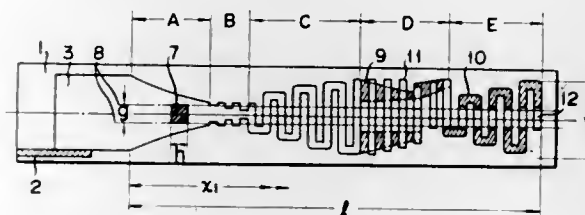
3,564,475 VARIABLE RESISTANCE ELEMENT WITH MULTIPLE PATTERNS FOR MEASURING INSTRUMENTS

Tatsuo Fujii and Yutaka Watano, Tokyo, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan, a Japanese corporation

Filed Oct. 15, 1968, Ser. No. 767,606
Claims priority, application Japan, Oct. 24, 1967, 42/68,036

Int. Cl. H01c 5/02, 9/02
U.S. Cl. 338—120

8 Claims



A variable resistance element is provided in which a film of material of known resistivity is deposited on a suitable plate in varying widths, a portion of the film being in a general serpentine pattern. A slidable contact of suitable width and height engages the resistance film and is movable relative thereto in a given path for varying the resistance value in a small step-wise manner. A resistance element of extended range may be provided by the addition of resistance film areas between incomplete loops of the serpentine pattern or added to complete the loops, the material of the second film having a higher resistivity than the first film. The slide preferably, engages only those portions of the first resistance film in the predetermined path.

3,564,476 ELECTRICAL COMPONENT INCLUDING INTRINSICALLY EQUALIZED RESISTANCES

Wayne A. Barden, Elkhart, Ind., assignor to CTS Corporation, Elkhart, Ind., a corporation of Indiana
Filed July 30, 1969, Ser. No. 846,192
Int. Cl. H01c 9/04, 5/06

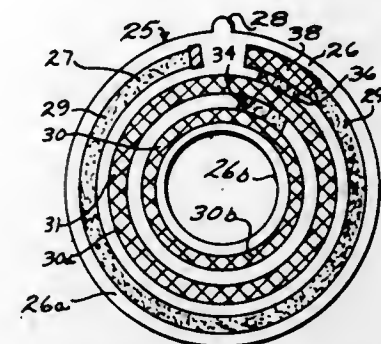
U.S. Cl. 338—120

10 Claims

An electrical component including a circuit module comprising a pair of fixed resistors, a resistance path for a variable resistance control, and a pair of collectors in spaced relationship to the resistance path disposed on a single substrate. One of the fixed resistors is electrically connected between one end of the resistance path and one of the collectors and the other fixed resistor is electrically connected between the two collectors. Contactor

means wipably engage the resistance path. Since the pair of fixed resistors and the resistance path are simultaneous-

ported by a hollow boss which boss is associated with a plate-like support including an electrical ground structure.



3,564,479 MOUNTING MEANS FOR AN ELECTRICAL CONNECTOR

Glenn Harlan Gluntz, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Original application Aug. 21, 1967, Ser. No. 661,898, now Patent No. 3,480,904, dated Nov. 25, 1969. Divided and this application Aug. 21, 1969, Ser. No. 852,007
Int. Cl. H01r 13/10, 13/42

U.S. Cl. 339—14

2 Claims

ly formed on the same substrate they have the same relative electrical characteristics and, therefore, are intrinsically equalized.

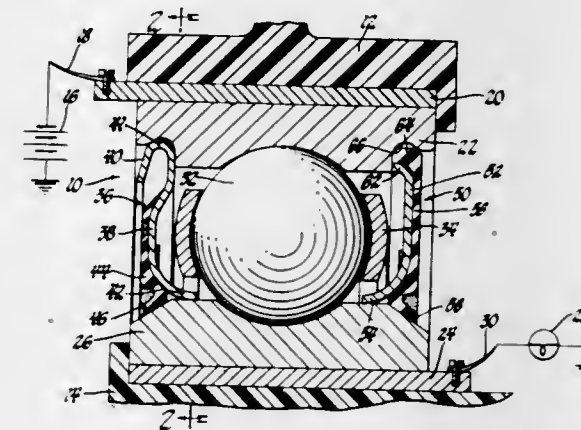
3,564,477 CONDUCTOR SEAL

Salvatore J. Pompei, Port Clinton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 11, 1969, Ser. No. 848,963
Int. Cl. H01r 39/02; F16c 19/00

U.S. Cl. 339—5

6 Claims



A ball bearing is equipped with an electrically conductive seal which both seals the annulus between the races and is adapted to carry an appreciable current between the races without damaging the balls. Electrical contact between the seal and the relatively rotating race is established by a plurality of fingers on the seal which are in-board of an annular sealing lip.

An electrical clip for grounding a post section of an electrical terminal to a metallic mounting panel has a base provided with U-shaped spring legs extending outwardly from the base in the same direction. The spring legs have springable post-engaging members directed towards the base. The base and the electrical clip is adapted to be disposed in an opening of the mounting panel with the post section extending through the opening and the post-engaging members resiliently engage the post section to effect an electrical connection between the metallic mounting panel and the post section.

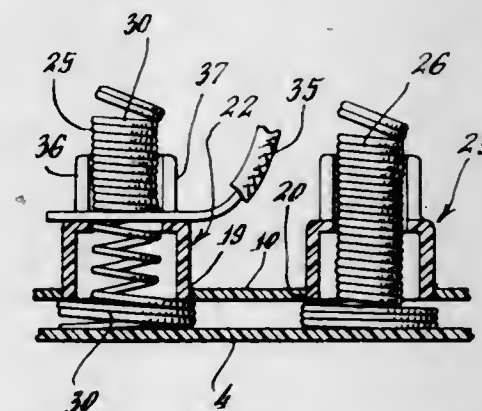
3,564,480 TOY ELECTRONIC CONNECTOR KIT

Theodore D. Dziubaty, Plainfield, N.J., assignor to Remco Industries, Inc., Harrison, N.J.

Filed Sept. 4, 1968, Ser. No. 757,434
Int. Cl. H01r 7/28

U.S. Cl. 339—18

6 Claims



A toy solderless connector kit is provided for temporary or permanent wiring of electronic devices. The connector kit includes a wiring plate having therein a plurality of openings. A wire-retaining spring having an enlarged lower end is mounted in each opening and is secured in position by a base plate mounted below the wiring plate and pressing against the lower end of the spring. Wires are interconnected by placing them between the coils of a spring when in tension and then releasing the spring.

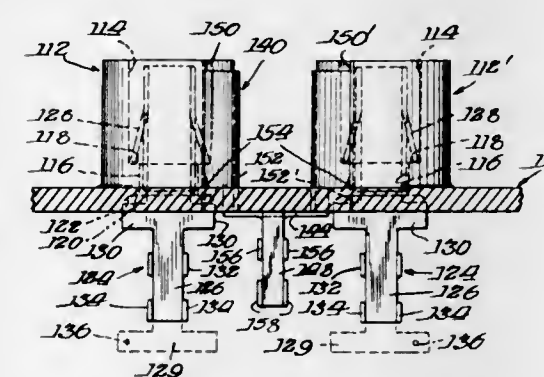
3,564,478 ELECTRICAL CONNECTOR AND GROUND STRUCTURE

Ike E. Hampton, Benton Harbor, Mich., assignor to V-M Corporation, Benton Harbor, Mich., a corporation of Michigan

Filed May 6, 1968, Ser. No. 726,977
Int. Cl. H01r 17/08, 13/42

U.S. Cl. 339—14

8 Claims



An electrical connector structure in which an electrical female connector is adapted to be insulatedly sup-

3,564,481

ELECTRICAL CONNECTOR

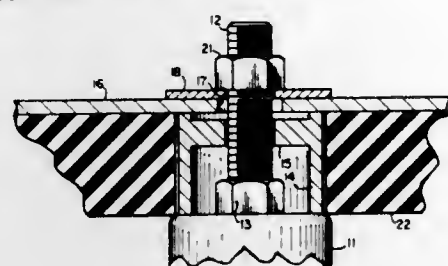
Marvin P. Young, Alexandria, Va., assignor to the United States of America as represented by the Secretary of the Navy

Filed Jan. 13, 1969, Ser. No. 790,644

Int. Cl. H01r 31/08

U.S. Cl. 339—19

7 Claims



This invention is directed to a spacer which provides a long line electrical contact between capacitor output terminals and a flat plate or between flat plate conductors which carry very high-pulsed currents. The spacer provides a long line contact between the surfaces along which the current is distributed to prevent electrical arcing between the surfaces.

3,564,482

HOOK TYPE SURFACE MOUNTED CONNECTOR

Kiyoji Yamanaka and Sadao Fukuzawa, Kadoma-shi, Osaka, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan, a corporation of Japan

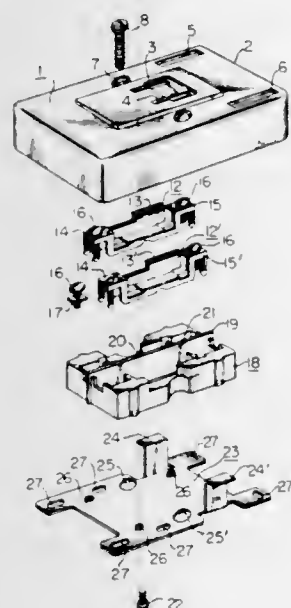
Filed July 3, 1968, Ser. No. 742,436

Claims priority, application Japan, July 7, 1967, 42/43,809, 42/58,845; Sept. 26, 1967, 42/81,965; Mar. 19, 1968, 43/21,760

Int. Cl. H01r 13/54

U.S. Cl. 339—91

3 Claims



An electrical connector of a hook type to be mounted on wall surfaces, which consists of a receptacle substantially in a box shape including electric terminals for connection with an electric source, and a plug body substantially in a box shape including plug blades for connection with said terminals to plug in electric devices. Each plug blade is provided with a hooking means for engagement with an inside surface of the receptacle box adjacent to an inserting hole for the blade when the latter is inserted into contact relation with one of said terminals, and then pulled substantially downward along the terminal. The inserting and pulling operations provide both the electrical connection and a stable fixing of the plug body to the receptacle. The stable fixing may be improved by the provision of a hook receiving means in the plug body and a corresponding receiver means in the receptacle.

3,564,483

SIGNAL LAMP WITH BUILT-IN GROUND STRAP

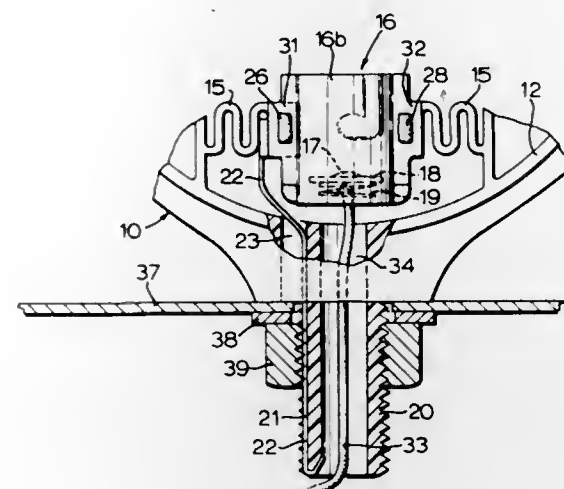
Hugo Magi, Etobicoke, Ontario, Canada, assignor to Dominion Auto Accessories Limited, Toronto, Ontario, Canada

Filed Mar. 21, 1969, Ser. No. 809,315

Int. Cl. H01r 13/32

U.S. Cl. 339—130

7 Claims



The housing of a signal lamp is fabricated of an electrical insulator, and a threaded stem depends from the housing for mounting the lamp on a support. A ground strap is electrically connected to one of the contacts of a bulb socket in the housing and has a part thereof positioned in an open channel in the stem such that this part is contacted by an electrically conductive nut adapted to be threaded on the stem when mounting the lamp in position.

3,564,484

ELECTRICAL CONNECTOR DEVICES HAVING IMPROVED TERMINAL MEANS

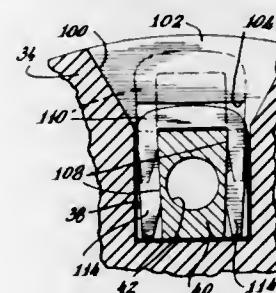
Carlo J. Gilberti, Bridgeport, Conn., assignor to Harvey Hubbell Incorporated, Bridgeport, Conn., a corporation of Connecticut

Filed Mar. 20, 1968, Ser. No. 714,513

Int. Cl. H01r 9/16

U.S. Cl. 339—136

6 Claims



An electrical connector device including a protective housing within which is positioned an insulator body which supports removable terminal-contact elements having spring metal retaining clips insertable into slots formed in the terminal block portions of the elements to secure the elements in the insulator body.

3,564,485

TERMINAL AND TERMINAL BLOCK COVER

John V. Cull and James D. Crowner, both of 2929 Cedar Springs, Dallas, Tex. 75219

Filed Jan. 23, 1969, Ser. No. 793,419

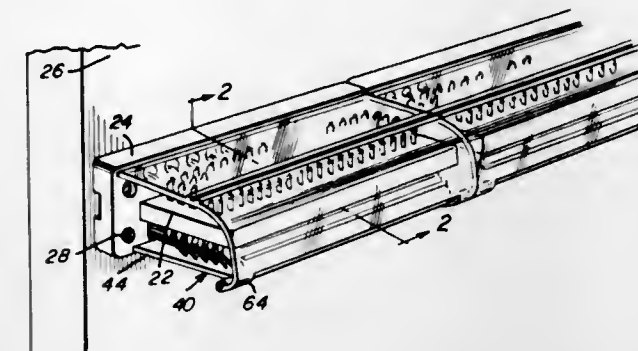
Int. Cl. H01r 9/00

U.S. Cl. 339—198

11 Claims

A protective transparent hinged cover device for covering the terminals on a conventional terminal block such as employed in the central switching stations of telephone

systems, telegraph systems, and other communication systems. The protective hinged cover device, or terminal guard, covers the terminals either on the top or on the bottom or both of the terminal blocks in order to prevent solder splash and loose wire scrap or clippings from shorting terminals, prevents the terminals from being bent,



protects the hands and arms of persons working in the vicinity of the terminal blocks from injury due to contact with sharp projecting terminals, is installed easily on existing terminal blocks with little or no modification of the terminal blocks and is constructed of transparent heat-resistant material to eliminate fire hazards.

3,564,486

ELECTRICAL JUNCTION BOX

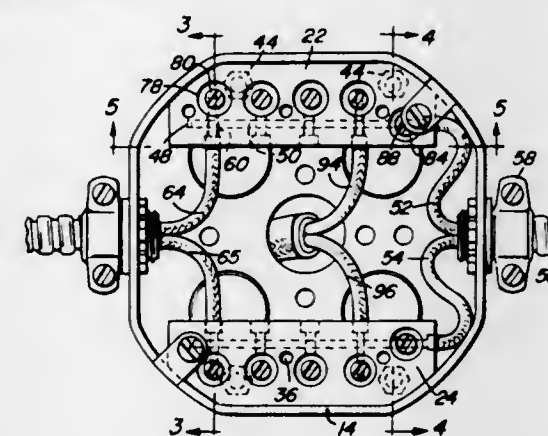
Xenophon G. Price, Hayesville, N.C., assignor of fifty percent to Gladys Kilpatrick, Murphy, N.C.

Filed Jan. 9, 1969, Ser. No. 793,642

Int. Cl. H01r 7/12, 13/22

U.S. Cl. 339—217

3 Claims



A junction box device having a plurality of connector assemblies therein. Each connector assembly includes a block removably secured within the junction box housing. The block is characterized by an inwardly formed elongated passageway adapted to receive a stripped power supply conductor therein. A plurality of inwardly formed transverse passageways are disposed in spaced perpendicular relation to the first elongated passageway, each transverse passageway being adapted to receive additional strip conductors therein. Fastening means are provided by each transverse passageway for causing the deformation of each transversely extending conductor around the power supply conductor so that electrical interconnection is effected.

3,564,487

CONTACT MEMBER FOR ELECTRICAL CONNECTOR

Harlan R. Upstone, Arcadia, and Bruce K. Arnold, Pasadena, Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Delaware

Filed Feb. 3, 1969, Ser. No. 796,083

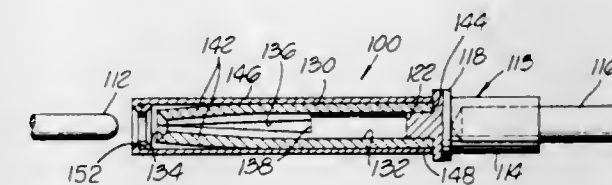
Int. Cl. H01r 11/08, 11/22

U.S. Cl. 339—258

3 Claims

The disclosure relates to a socket contact for an electrical connector having an elongated contact body with

rearwardly terminating means and having a tubular forward portion. The tubular forward portion containing a forward opening longitudinal slot therein has spring contact fingers having their roots at the rear end of the slot. A sleeve is provided above said fingers and secured proximate their roots thereof. The terminating means, the



spring fingers, and the sleeve means are each made of material which provides the desired performance parameter of that particular component. For example, the spring fingers utilize material which has good spring characteristics as well as maximum conductivity. The terminating means may be formed of a material which is readily crimpable.

3,564,488

SPEED MEASURING DEVICE OF MOVING OBJECTS

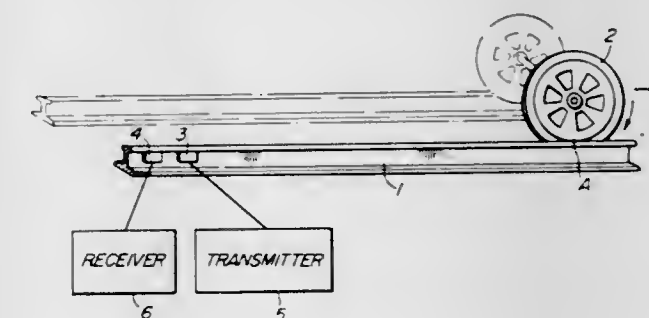
Akira Higashi, Musashino-shi, Masao Tsuboi and Kakutaro Wada, Koganei-shi, Taro Anzai, Fujisawa-shi, and Torao Suzuki, Yokohama, Japan, assignors to Hitachi, Ltd., and Japanese National Railways, both of Tokyo, Japan, both Japanese corporations

Filed June 16, 1969, Ser. No. 833,350

Int. Cl. G01s 9/66

U.S. Cl. 340—1

1 Claim



A speed measuring device of moving objects, in particular a device for measuring the speed of a moving body running on rails in which ultrasonic waves are sent out to at least one of the rails through a piezoelectrical transducer element to detect the Doppler frequency contained in the reflected wave from the neighborhood of the contact point between the wheel of the moving body and the rail for speed measurement.

3,564,489

RADIO COMMAND BUOY SYSTEM

Samuel Pure, Rydal, and James R. Howard, Huntingdon Valley, Pa., assignors to the United States of America as represented by the Secretary of the Navy

Filed Dec. 30, 1965, Ser. No. 517,800

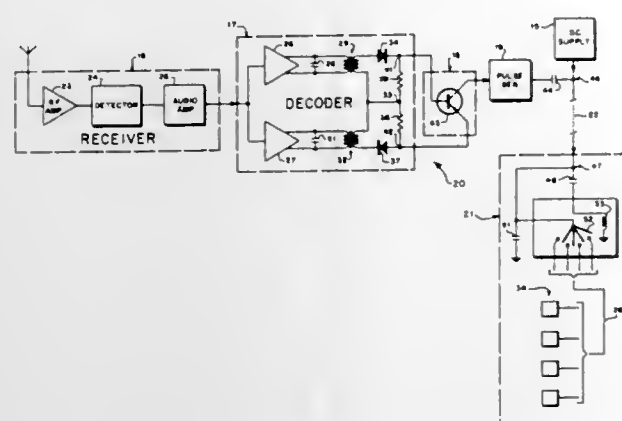
Int. Cl. G01s 9/66; H04b 1/00

U.S. Cl. 340—2

3 Claims

A radio command buoy system having an RF command link for selectively operating from a remote station a plurality of remote underwater sound source buoys deployed in a water area of interest. A pair of manually operated selector switches pass two different tones from

a plurality of discrete tone generators and the selected tones are combined and transmitted on a carrier wave. Each buoy is a radio receiving station having a decoder responsive to a selected pair of different of said tones.



The decoder output operates a stepping switch connected between a power supply and a plurality of electrically fired explosive charges. Each time the decoder tones are transmitted, the stepping switch causes a succeeding charge to explode.

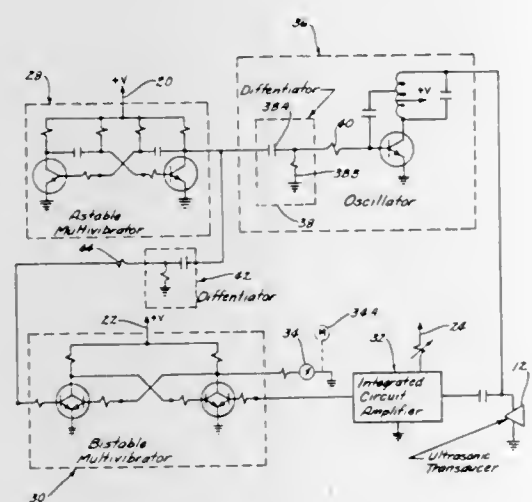
3,564,490

METHOD AND MEANS FOR MEASURING DEPTH OF WATER OR THE LIKE

Roger C. Camp, Ames, Iowa, assignor to Iowa State University Research Foundation, Ames, Iowa, a corporation of Iowa
Continuation of application Ser. No. 700,511, Jan. 25, 1968. This application Aug. 19, 1969, Ser. No. 854,020
Int. Cl. G01s 9/68

U.S. Cl. 340—3

4 Claims



An electronic depth gauge wherein a low frequency pulse generator is connected to an ultrasonic transducer through an oscillator to emit a signal downward through a body of water or the like, with the reflected signal being received by the transducer and converted to a reflected voltage input. An amplifier is connected to the transducer to amplify the reflected voltage, which in turn is connected to a switching mechanism. The switching mechanism is connected to the low frequency pulse generator and a meter of the D'Arsonval type, which is graduated in feet and which measures average current values proportional to the time that the unit measures maximum depth with respect to the time that the switch-

ing mechanism is interrupted by the amplified voltage of the signal reflected from the bottom of the body of water.

3,564,491

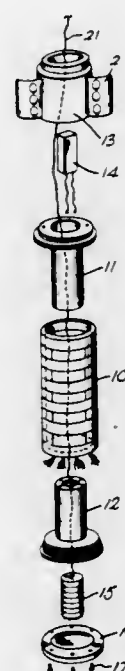
DIRECTIONAL SONAR TRANSDUCER

Ernest A. Granfors, Don L. Loveless, and Charles F. Boyle, Jackson, Mich., and Harry W. Kompanek, Santa Barbara, Calif., assignors to Sparton Corporation, Jackson, Mich.

Original application Sept. 8, 1967, Ser. No. 666,405, now Patent No. 3,444,508, dated May 13, 1969. Divided and this application Mar. 26, 1969, Ser. No. 810,616
Int. Cl. H04r 1/40

U.S. Cl. 340—10

3 Claims



A transducer for underwater acoustic sensing systems wherein the transducer comprises hollow piezoelectric ceramic cylinders acoustically isolated and stacked in a vertical interstitial array. Three transducer sections are utilized having an output level and relative polarity related in accordance with the direction from which the acoustic signal being received arrives. One of the acoustic receiving patterns is omnidirectional, and the others are sinecosine dipole patterns which have the characteristic of output level variation with bearing. The omni output provides an amplitude and phase reference for comparing the amplitude and polarities of the two bearing-sensitive signals. The resultant three signals, and compass information constitute the primary outputs of the sensing system which are transmitted to suitable decoding and radio transmission apparatus.

3,564,492

DEVICES FOR EMITTING ACOUSTIC WAVES IN A LIQUID MEDIUM

Pierre Magneville, Vernouillet, and Claude Duconge, Le Vesinet, France, assignors to Institut Français du Pétrole, des Carburants et Lubrifiants, Malmaison, Hauts-de-Seine, France

Filed Nov. 21, 1968, Ser. No. 777,838

Claims priority, application France, Nov. 21, 1967, 129,124

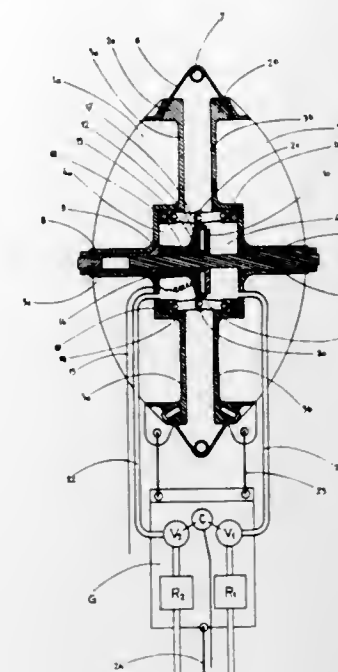
Int. Cl. H04r 23/02

U.S. Cl. 340—12

16 Claims

This device comprises at least two movable elements made of a rigid material and interconnected by a tightening membrane made of a deformable material which constitutes a tight enclosure with the movable elements. These elements have contact areas adapted to be applied intermittently against each other. Releasable means are provided for moving these elements away from each other and for locking them in spaced relationship to each other,

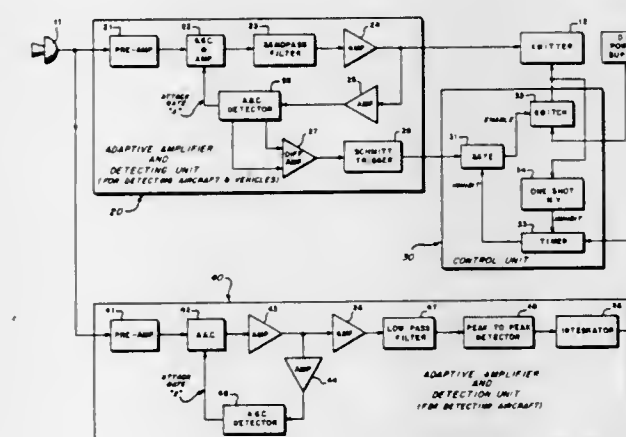
as well as means for limiting the deformation of the membrane toward the interior of the enclosure and means



3,564,493
ACOUSTIC ENERGY DETECTION SYSTEM
William L. Hicklin, Doylestown, Pa., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 28, 1968, Ser. No. 756,350
Int. Cl. G08b 13/16

U.S. Cl. 340—15

16 Claims



An acoustic energy system for passively detecting and distinguishing between ground vehicle sounds and aircraft sounds and for transmitting radio signals indicative of the ground vehicle sounds. The system includes an adaptive amplifier and detector circuit for detecting both ground vehicle and aircraft generated sounds and responding thereto for providing a first control signal, an adaptive amplifier and detector circuit primarily responsive to the more impulsive aircraft generated sounds for providing a second control signal, and transmitter ON-OFF control circuitry responsive to the first and second control signals for activating a transmitter to transmit ground vehicle sound signals and for deactivating the transmitter in the presence of aircraft sounds.

3,564,494

FAN FILTERING SEISMIC DATA

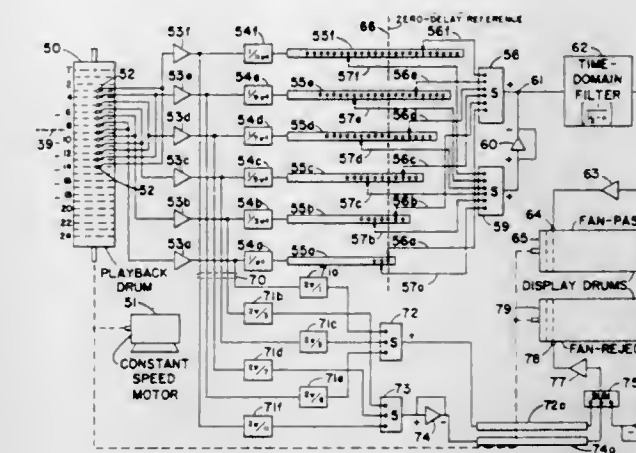
Clint W. Frasier, Cambridge, Mass., and John L. Shanks and Sven Treitel, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware

Filed Sept. 27, 1966, Ser. No. 582,389

Int. Cl. G01u 1/28

U.S. Cl. 340—15.5

1 Claim



for creating in this enclosure a pressure much lower than the pressure prevailing outside the enclosure.

In fan filtering seismic data traces to discriminate for or against certain arrivals on the basis of their apparent moveout across an array of traces, the requirement for applying different time-domain filters to the different traces during the filtering operation is avoided by first applying a set of specific weighting factors and time delays to the traces, followed by summing with the proper polarities. Passing the summation trace through a particular single time-domain filter gives the same output as the more complex process using a different time-domain filter for each two traces of the array. Fan-rejection filtering is also possible.

3,564,495

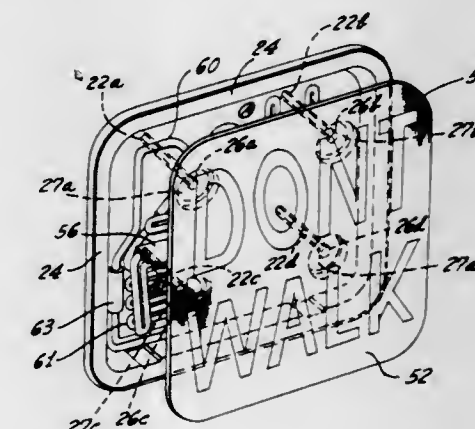
PEDESTRIAN TRAFFIC CONTROL SIGNAL UNIT
Samuel Gould, 5504 Garth Ave., Los Angeles, Calif. 90056, and James S. Gould, 11682 Pine St., Los Alamitos, Calif. 90720

Filed May 1, 1968, Ser. No. 725,741

Int. Cl. G08g 1/00

U.S. Cl. 340—44

6 Claims



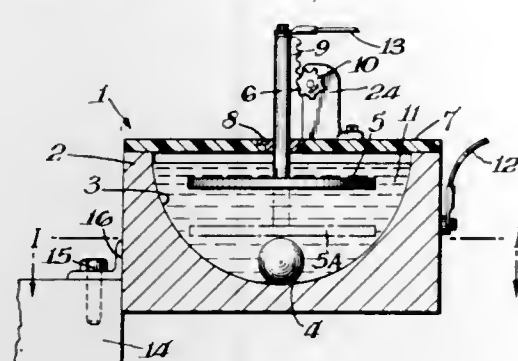
An improved pedestrian traffic crosswalk control signal unit of the "walk/don't walk" type is provided, which conforms in all respects with national safety standards, and yet which is less bulky in its construction than the prior art signal units, less expensive to build, and easier to ship without breakage.

3,564,496 CRITICAL ROLL ANGLE WARNING DEVICE FOR VEHICLES

Alfred P. Brooks, West Orange, N.J., and Aldo P. Osti, Richmond Hill, N.Y., assignors to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware
Filed Feb. 5, 1968, Ser. No. 702,938
Int. Cl. H01h 35/02

U.S. Cl. 340—52

7 Claims

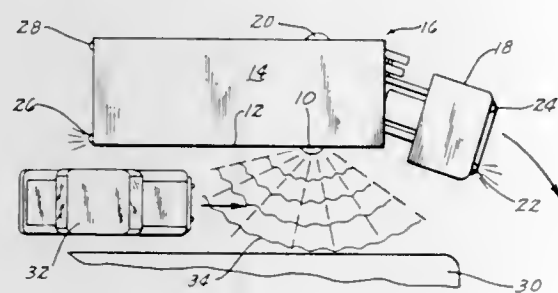


Actuating switch comprising a cup-shaped lower contact in which a small, electrically-conductive ball rolls as the cup is displaced from the vertical and a horizontal upper contact which retains the ball within the cup, the upper contact being vertically movable manually or by electrical means in response to load and operating characteristics of the vehicle so as to vary the angle of actuation with a varying critical roll angle.

3,564,497 VEHICLE SIGNALLING SYSTEM Joseph F. Gazzo, 1303 McKinley Ave., Des Moines, Iowa 50315 Filed Aug. 6, 1968, Ser. No. 750,617 Int. Cl. B60g 1/38, 5/00

U.S. Cl. 340—75

4 Claims



A device for signalling motorists and pedestrians by use of audio and visual signals directed directly at them that a vehicle is moving or is changing its direction. The signalling device is a localized message center positioned on the vehicle such as a semitruck at the point where danger exists thus alerting people to keep away. An important location for the signalling unit is on the right side of the trailer of a semitruck, to signal those in an area along the truck that cannot see the front and back truck turn signals and cannot be seen by the truckdriver.

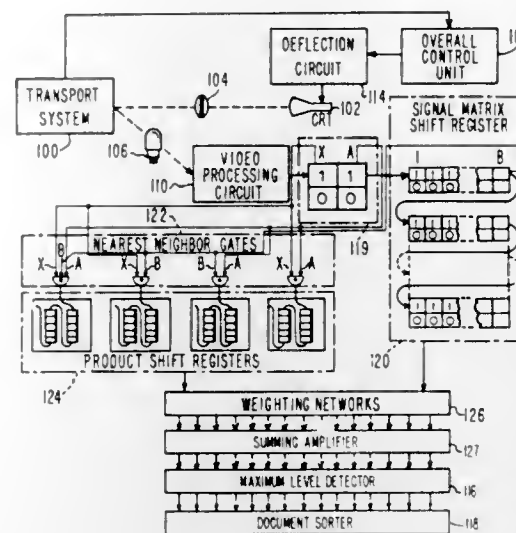
3,564,498 CHARACTER RECOGNITION SYSTEM David M. Stern, Merion Station, Pa., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan Continuation of application Ser. No. 522,916, Jan. 25, 1966. This application Oct. 31, 1969, Ser. No. 871,786 Int. Cl. G06k 9/12

U.S. Cl. 340—146.3

7 Claims

Apparatus for gating electrical signals from different combinations of neighboring ones of a few representative

stages of a character recognition matrix shift register, the output of each of the gates being applied to the input terminal of a different auxiliary shift register which is shifted

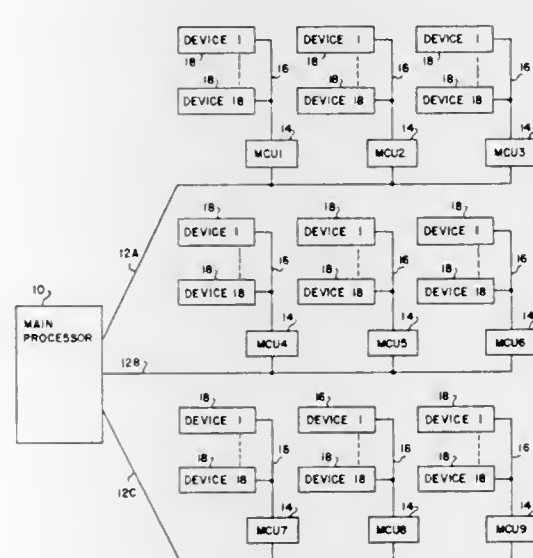


synchronously with the primary shift register. Each auxiliary shift register thereby stores a logical function of signals representative of neighboring areas of the character field that is examined.

3,564,499 MESSAGE TRANSMITTING SYSTEM Patrick Edward Ryan, Stamford, Conn., assignor to The Bunker-Ramo Corporation, Canoga Park, Calif., a corporation of Delaware Filed Jan. 25, 1968, Ser. No. 700,409 Int. Cl. H04q 9/00

U.S. Cl. 340—147

14 Claims



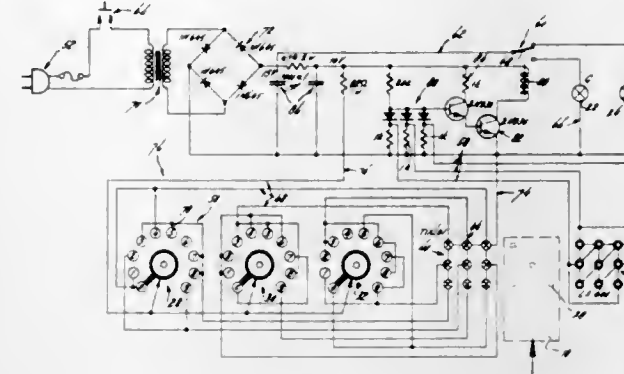
A system for transmitting messages from a central station to any selected one, or any selected combination, of remote devices while requiring that the central station transmit the message only a single time. A control unit is provided which unit has a memory with segments corresponding to each of the devices. Each message contains a destination code. The messages are applied by the central station to the control unit where the destination code is decoded and the message stored in the segments of the control unit memory corresponding to the device or devices for which the message is intended. The message in each segment of the control unit memory is subsequently transmitted to its associated device.

3,564,500 SYSTEM AND APPARATUS FOR VALIDATING AND VERIFYING OWNERSHIP OF CREDIT CARDS AND THE LIKE

Ralph V. Cook, 416 NW. 19th,
Oklahoma City, Okla. 73103
Filed June 23, 1969, Ser. No. 835,626
Int. Cl. H04q 3/02

U.S. Cl. 340—149

5 Claims



A system and apparatus for validating, verifying credit card and the like ownership, also usable for and in conjunction with, for example, determination of credit status of the owner, utilizing a known form of credit card having the usual visual identifying and recording means thereon. The card further includes a plurality of apertures therethrough arranged in coded positions to cooperate with selective plural light sources, the system being operable to activate only preselected ones of the light sources, as selected by a card owner or a clerk registering and recording a sale in accordance with a code number known only to the owner. Means are provided for receiving emitted light from the so activated light source passing through the coded apertures and operable when the user activated light sources correspond with the coded card apertures to activate, through light sensors, one or more interconnected electrical circuits to indicate visually validity or correct ownership of the card. Noncorrespondence of the preselected light source operation, coded apertures, and sensors, together with the circuits, serve to indicate nonverification of card. The system in conjunction with appropriate circuitry and additional apparatus also permits ascertaining credit standing or the like of a card bearer, or can serve to activate equipment extraneous to the system.

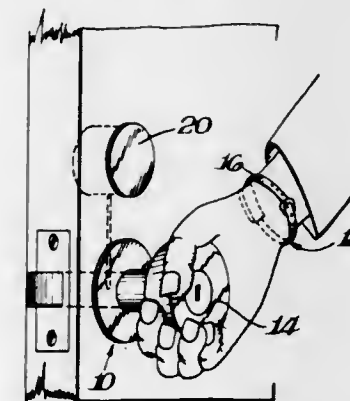
3,564,501 FREQUENCY CONTROLLED DOOR LOCKS William M. Flook, Jr., Greenspring Road, Greenville, Del. 19807

Continuation-in-part of application Ser. No. 568,178,
July 27, 1966. This application Sept. 21, 1967,
Ser. No. 669,655

Int. Cl. H04g 9/10, 9/12

U.S. Cl. 340—171

6 Claims



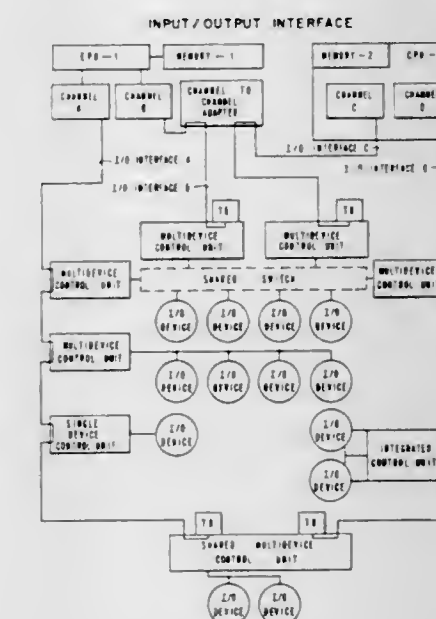
An electronic actuating arrangement includes both triggering means for operating an actuating device such as to permit the opening of a door, and lockout means for

preventing operation of the triggering means in the absence of an input signal of precisely predetermined frequency, or in the presence of incorrect signals. An amplifier is provided which may incorporate a quartz crystal resonator filter which has either a peak or a null characteristic at a predetermined frequency. When the resonator has the null characteristic, the filter is used in the lockout channel of the arrangement. When it has the peak characteristic the filter is used in the actuate channel.

3,564,502 CHANNEL POSITION SIGNALING METHOD AND MEANS William E. Bochner, Poughkeepsie, and Bruce L. McGilvray, Pleasant Valley, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York Filed Jan. 15, 1968, Ser. No. 697,797 Int. Cl. G06f 11/06

U.S. Cl. 340—172.5

25 Claims



Position information about an interrupted I/O device communicated to the CPU as a result of an error in its channel, even though no error occurred in the I/O device. The positional information about such I/O device is chosen in relation to the execution steps in a channel instruction, so that a retry may be made of the channel instruction being executed at the time of the channel error.

The recovery action to be taken at the I/O device for the same channel instruction varies with the positional information existing at the time of the channel error.

With start-stop I/O devices, the invention enables a retry of a single erroneously executed channel command both during a command chaining operation, as well as during non-chained command operations.

The channel-I/O interface is monitored by a time-position signaling circuit, which discretely cycles at different points in the execution of a channel instruction (or command) to an I/O device to generate codes representing respective time-positions during the execution. At the moment of a channel error, the input to the signaling circuit is blocked, so that it continues to provide the position code existing at the time of the channel error. The position code is transmitted into the channel status word of a computer system by a channel interrupt caused by the channel error. Then, the I/O movement condition existing at the time of the error is obtainable from information in the channel status word by relating the position code to the particular channel instruction, so that a retry of the channel instruction can be made.

processing capability. The main or central processor is coupled in a polling environment to the various terminal processors via a communication link. Communication or data transmission of each of the various peripheral or terminal processors to and from the central data processor is controlled by separate line discipline processors. A line discipline processor is coupled and responsive to the respective data processor at each remote site. The line discipline processor at each remote terminal edits and assembles the information to be transmitted and identifies, edits and assembles information received and performs other tasks related to the communication function thereby providing micro-programmed line discipline.

3,564,510

SELECTION, DISTRIBUTION AND DISPLAY SYSTEM

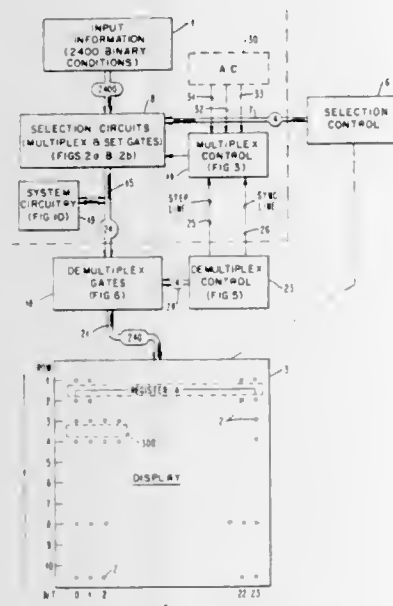
David S. Bagley and Anthony J. Di Benardo, Poughkeepsie, and Charles R. Doty, Jr., Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed June 20, 1968, Ser. No. 738,482

Int. Cl. G06f 3/14

U.S. Cl. 340—172.5

19 Claims



Disclosed is a selection, distribution and display apparatus for use with one or more data processing systems. The apparatus features, in one embodiment, an optical display having rows of indicators positioned adjacent and in the optical path of an optical screen. A selection control selects an identifying optical image, to be displayed on the screen, from a plurality of images and also selects a set of system conditions to be displayed by the indicators. The indicia of the optical image selected identify the system conditions which are being displayed by the indicators. After selection of an image and thereby the corresponding set of conditions to be displayed, condition signals are multiplexed over a multiplex bus to the display at a relatively slow speed capable of energizing the indicators. Alternatively, the same conditions are selected and gated at fast system speeds and are distributed over the same multiplex bus to other system locations (e.g. system storage). Additionally, stored conditions previously sensed at fast system speeds may be retrieved from other locations and displayed at indicator speeds.

3,564,511 DATA TRANSMISSION SYSTEM HAVING A CENTRAL COMPUTER AND TERMINAL APPARATUS

Francesco Restivo, Cascinette d'Ivrea, and Francesco Serracchioli, Banchette, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy, a corporation of Italy

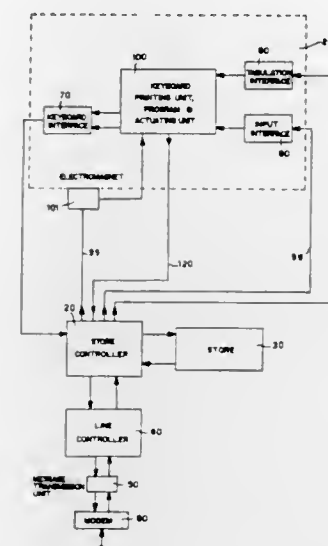
Filed Oct. 3, 1968, Ser. No. 764,708

Claims priority, application Italy, Oct. 3, 1967, 53,221/67

Int. Cl. G06f 3/04, 15/16

U.S. Cl. 340—172.5

17 Claims



A data transmission system having a central computer and terminal apparatus that transmits and receives data from the computer, the terminal apparatus having a programming unit that controls functions thereof and is responsive to service characters associated with blocks of characters constituting the data that is transmitted by the computer to cause programmed sequences of operation.

3,564,512

SYSTEM FOR COMPACTING AND EXPANDING DATA

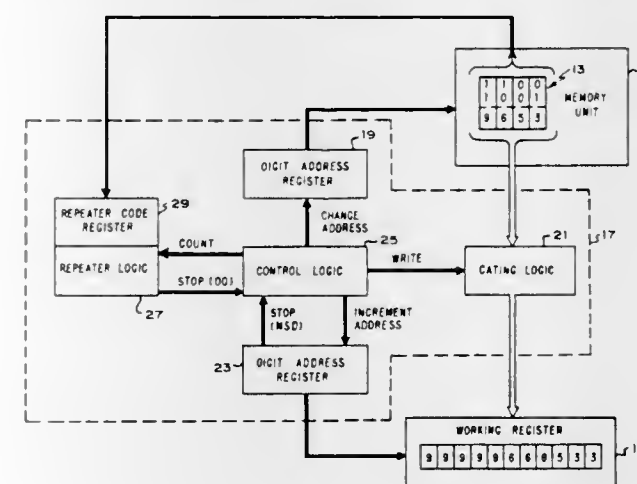
Thomas E. Osborne, San Francisco, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California

Filed Oct. 18, 1968, Ser. No. 768,643

Int. Cl. G06f 7/00

U.S. Cl. 340—172.5

2 Claims



A data system stores a multidigit number in a memory unit in compacted form. Each digit of a number is stored

in the memory along with an associated repeater code. Data expansion logic writes an addressed digit from the memory into a working register in either one digit position or a plurality of successive digit positions, depending on the value of the associated repeater code.

3,564,513

ADDRESS TRANSLATOR

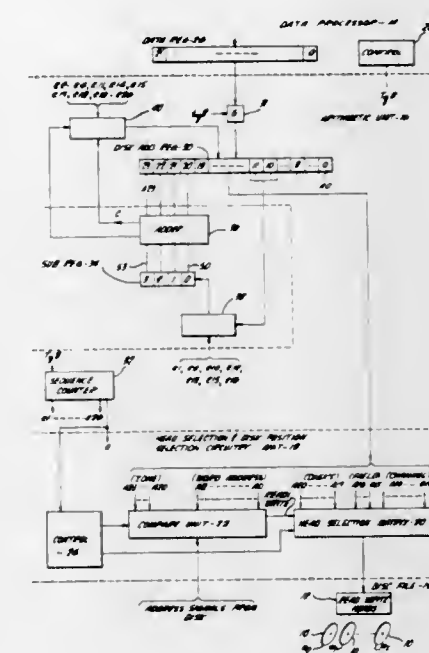
John A. Hibner, Sierra Madre, Calif., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Jan. 31, 1969, Ser. No. 795,590

Int. Cl. G06f 7/28

U.S. Cl. 340—172.5

16 Claims



A rotating recording surface having a predetermined information format. A plurality of transducers read and write on the surface. A controllable transducer selection circuit and an angular position selection circuit selects a transducer and an angular position of a recording surface for reading and writing. An arithmetic unit receives a coded address designating a location to be accessed and converts the address to separate transducer selection and angular position selection signals for controlling the respective selection circuits.

3,564,514

PROGRAMMABLE LOGIC APPARATUS

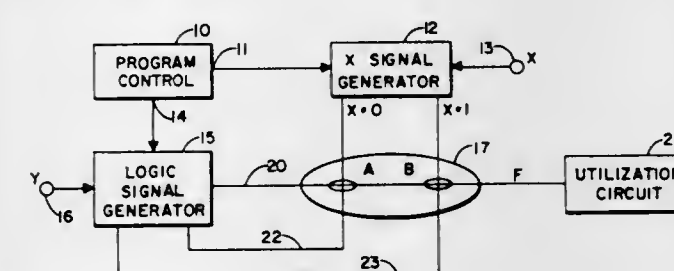
Dale C. Gunderson, St. Anthony Village, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Continuation-in-part of application Ser. No. 618,486, Feb. 24, 1967. This application May 23, 1969, Ser. No. 827,207

Int. Cl. H03k 19/166, 19/20

U.S. Cl. 340—172.5

8 Claims



This disclosure shows two embodiments of a logic cell using two and five bistable memory cells per logic cell.

3,564,515

INFORMATION HANDLING APPARATUS

Joseph W. Gratian, Rochester, N.Y., assignor to General Dynamics Corporation, a corporation of Delaware

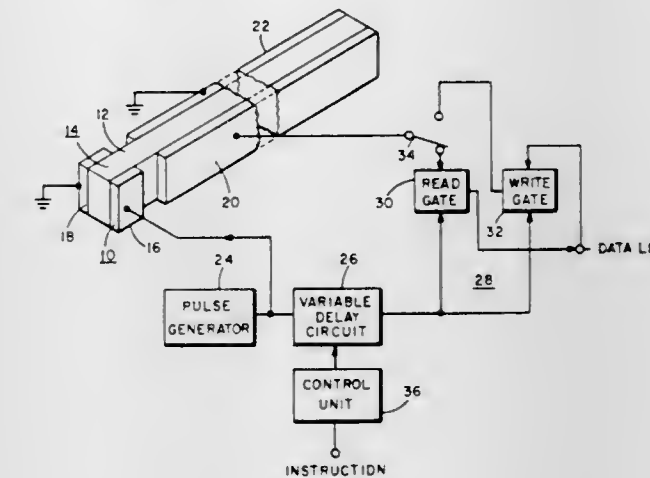
Filed Jan. 30, 1964, Ser. No. 341,297

The portion of the term of the patent subsequent to Aug. 16, 1987, has been disclaimed

Int. Cl. G11c 11/22

U.S. Cl. 340—173

7 Claims



A memory storage system which uses the interaction of a traveling stress pulse and an electrical field to polarize a ferroelectric material to represent information.

3,564,516

MAGNETIC MEMORY ELEMENT HAVING INFORMATION CORE AND READOUT CORE

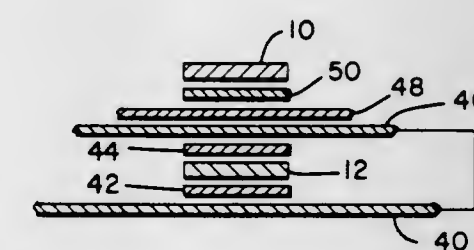
Frank R. Janisch, Savage, and William W. Davis, Minneapolis, Minn., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Continuation of application Ser. No. 356,165, Mar. 31, 1964. This application Apr. 5, 1968, Ser. No. 722,815

Int. Cl. G11c 5/02, 11/14

U.S. Cl. 340—174

9 Claims



A memory element comprising two open-flux-path thin-ferromagnetic-film layers having approximately the same physical dimensions, material composition and magnetic characteristics, termed the information core and the readout core, each having uniaxial anisotropy for providing parallel easy axes. A first embodiment utilizes coincident longitudinal and transverse write drive fields to align the magnetization of the information core and the readout core in a parallel relationship; a subsequent transverse set drive field switches the magnetization of the readout core causing it to align itself anti-parallel that of the information core whereas each core partially closes the

otherwise open flux path of the other. A second embodiment utilizes coincident longitudinal and transverse write drive fields of relatively long duration and of gently sloping leading and trailing edges to align the magnetization of the cores anti-parallel each other.

3,564,517

COMBINED DRO AND NDRO COINCIDENT CURRENT MEMORY

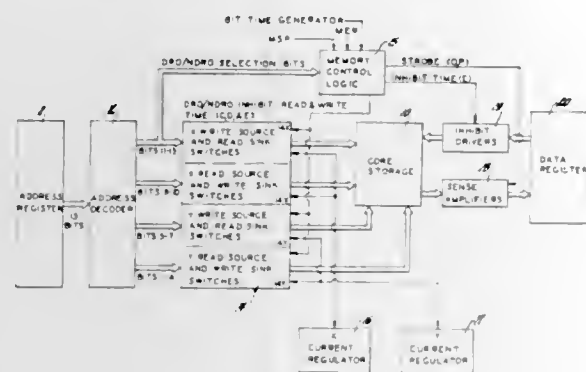
William E. McLean, Hales Corners, Wis., and Hayden A. Nelson, Santa Barbara, and David E. Ruch, Goleta, Calif., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed June 24, 1968, Ser. No. 739,251

Int. Cl. G11c 5/02, 11/06, 17/00

U.S. Cl. 340—174

12 Claims



A coincident current magnetic core memory comprising a plurality of core matrices each having a scratch pad or alterable DRO section and a fixed NDRO section sharing conductors of one coordinate axis and the sense windings of each matrix.

3,564,518

MAGNETIC SINGLE WALL DOMAIN PROPAGATION DEVICE

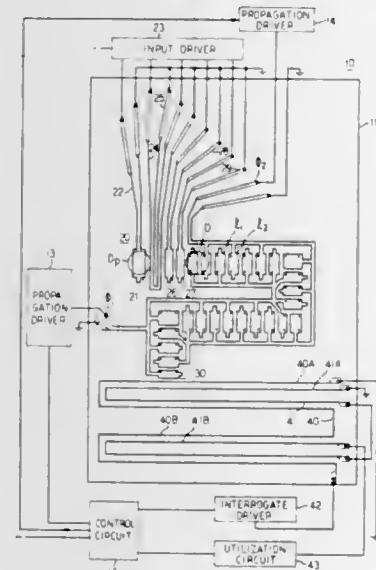
Robert F. Fischer, Livingston, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Apr. 4, 1969, Ser. No. 813,475

Int. Cl. G11c 11/14, 19/00

U.S. Cl. 340—174

5 Claims



An overlay array of magnetically soft dots permits a reduction in the complexity of a drive wiring configuration for propagating single wall domains. The dots are offset with respect to the wiring configuration defining

an astable position into which a domain is moved in each instance. Unidirectional movement of domains is ensured by the dots thus permitting two-phase propagation operation and a planar geometry for the wiring.

3,564,519

SEMI-PERMANENT MAGNETIC MEMORY ELEMENT AND A MEMORY MATRIX USING THEM

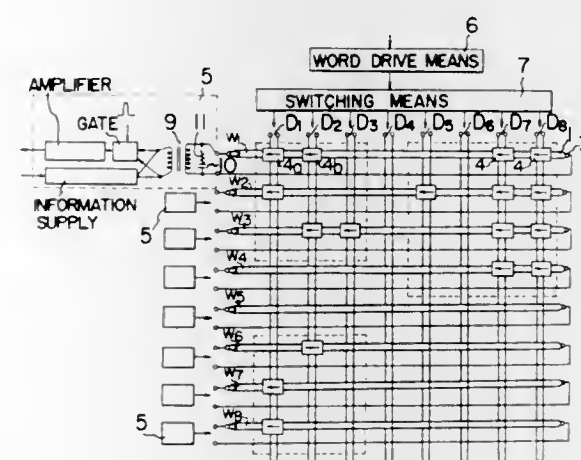
Shintaro Oshima, 28-7, 2-chome, Higashi-machi, Kichijoji, Musashino-shi, Tokyo-to, Japan; Yukio Nakagome, 1, 2-chome Nakamura, Nerima-ku, Tokyo-to, Japan; Tetsusaburo Kamibayashi, 130 Nobidome, Shinzomachi, Kitaadachi-gun, Saitama-ken, Japan; and Katsutaro Amano, 4072-6 Kamitsuruma, Sagami-hara-shi, Kanagawa-ken, Japan

Continuation of application Ser. No. 530,235, Feb. 25, 1966. This application Dec. 29, 1969, Ser. No. 888,148 Claims priority, application Japan, Feb. 27, 1965, 40/11,003; Mar. 8, 1965, 40/13,053; May 26, 1965, 40/30,780

Int. Cl. G11c 5/02, 11/14, 17/00

U.S. Cl. 340—174

7 Claims



A memory element comprising a ferromagnetic film, a first conductor coupled with the ferromagnetic film, a second conductor arranged orthogonally to the first conductor and coupled with the ferromagnetic film, means for establishing a rest direction of magnetization the film in either of two different directions which correspond to binary information to be stored, and means for applying a drive signal to the first conductor. The direction of residual magnetism of the film is established on a predetermined line lying in the film and substantially in parallel with the first conductor, and said two different directions are substantially in parallel with either of the conductors, whereby an output signal having either of two opposite polarities determined in accordance with the binary information can be non-destructively read out from the second conductor when the first conductor is energized by the drive signal. A memory matrix in which memory cells of only a partial zone of the matrix are semi-permanently fixed by employing the above-mentioned memory elements in the partial zone.

3,564,520

MAGNETIC HEAD ASSEMBLY

Robert A. Michaud, Sunnyvale, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California

Filed Dec. 2, 1963, Ser. No. 327,349

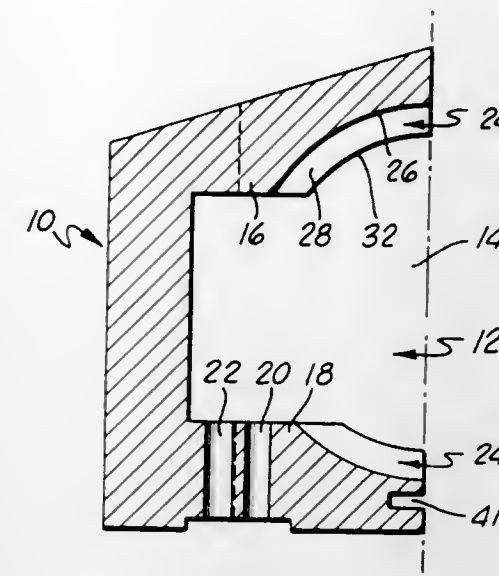
Int. Cl. G11b 5/16, 5/28, 5/42

U.S. Cl. 340—174.1

10 Claims

This invention relates to a magnetic head assembly and to a method for manufacturing such an assembly. More particularly this invention relates to a longitudinal type

of magnetic head assembly wherein a metal body includes an internal cavity with a radiused groove surface



which receives a radiused core having substantially the same radius of curvature as the groove surface.

3,564,521

MINIATURE MAGNETIC HEAD

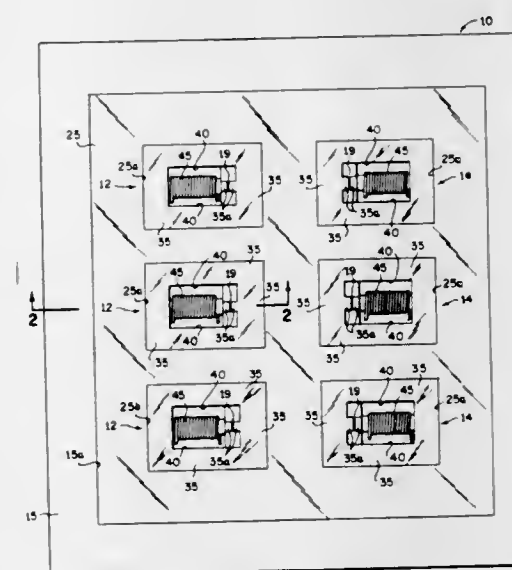
Cebern B. Trimble, Hawthorne, Calif., and Robert R. Skutt, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

Filed Dec. 6, 1965, Ser. No. 511,843

Int. Cl. G11b 5/20, 5/28, 5/42

U.S. Cl. 340—174.1

5 Claims



A miniature magnetic transducer head assembly comprising a non-magnetic substrate provided with recesses having a controlled depth and shaped according, at least, to the shape of the pole pieces of the head. The pole pieces are formed by deposition of magnetic material in the recesses. A thin wall of the substrate which separates the recesses provides the transducing gap between the pole pieces. A magnetic connecting path between the pole pieces is also provided on the substrate to form two parallel outer legs and a center leg. An exciting winding is wound manually around the center leg or can be formed by deposition.

3,564,522

TRANSDUCER WITH THIN FILM COIL AND SEMICONDUCTOR SWITCHING

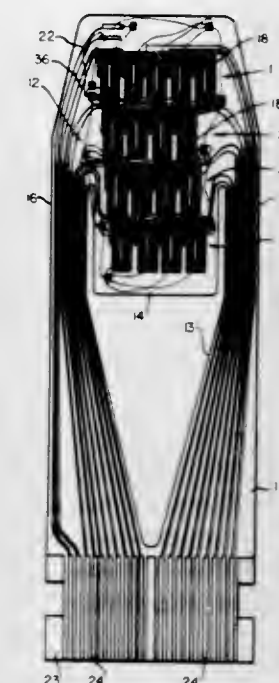
William W. Stevens, Jr., Atherton, Calif., assignor to Data-Disc, Incorporated, Palo Alto, Calif., a corporation of Nevada

Filed Dec. 16, 1966, Ser. No. 602,212

Int. Cl. G11b 5/20, 5/42

U.S. Cl. 340—174.1

12 Claims



A magnetic transducer having a thin, flexible member which carries and supports transducer windings and a core of magnetic material carried by the member in coupled relationship to said windings.

3,564,523

MULTIPLE TRACK MAGNETIC TAPE RECORDING APPARATUS

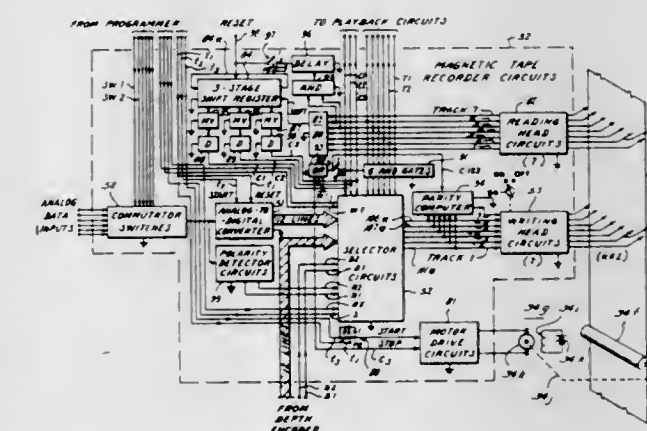
Arthur A. Cavelos, North Syracuse, N.Y., John S. Smith, London, England, and Bernard Vignerie-Noël, Westport, Conn., assignors to Schlumberger Technology Corporation, New York, N.Y., a corporation of Texas

Original application Sept. 3, 1964, Ser. No. 394,174, now Patent No. 3,360,774, dated Dec. 26, 1967. Divided and this application Nov. 22, 1967, Ser. No. 685,114

Int. Cl. G11b 5/00

U.S. Cl. 340—174.1

8 Claims



Apparatus is provided for the transfer of an information data signal having more bits than there are corresponding recording heads and tracks on the tape. Transfer of the information is accomplished by the successive recording of groups of bits which together comprise the information signal.

3,564,524

FIRE ALARM SYSTEM HAVING A DIODE COUPLED CHECKING CIRCUIT MEANS

Beat Walther, Andreas Scheidweiler, and Max Kuhn, Stafa, Switzerland, assignors to Cerberus AG, Manndorf, Switzerland, a corporation of Switzerland

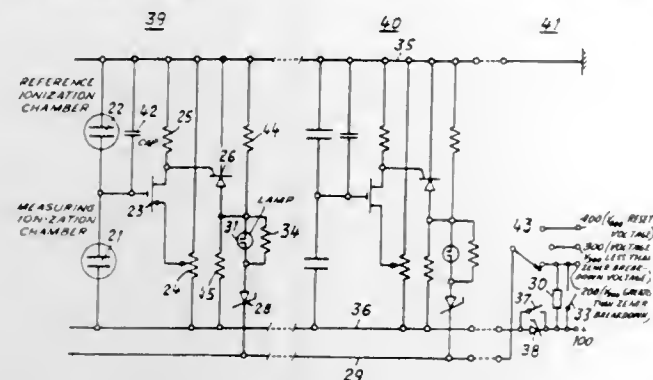
Filed May 4, 1967, Ser. No. 636,174

Claims priority, application Switzerland, May 9, 1966, 6,703/66

Int. Cl. G08b 29/00

U.S. Cl. 340-214

10 Claims



A fire alarm system including a plurality of fire alarms arranged in groups. Alarm-simulating conditions are produced in each fire alarm by an electric test signal, the response of each fire alarm being sent to an evaluation device at a central signal station through a logic circuit coupling the fire alarms together.

3,564,525

ROBBERY PROTECTION SYSTEM AND DEVICE FOR TEMPORARILY DISABLING A ROBBER AND VISIBLY MARKING HIS LOCATION

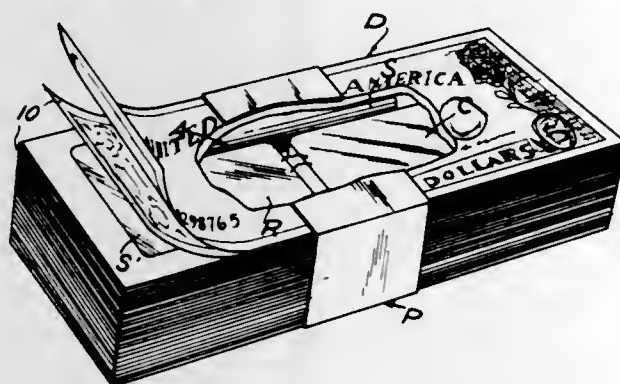
Harold J. Robeson, 2104 Clairmont Terrace NE., Atlanta, Ga. 30329, and Jerry L. Birchfield, Atlanta, Ga.; said Birchfield assignor to said Robeson

Filed Sept. 19, 1967, Ser. No. 668,903

Int. Cl. G08b 13/24; H04b 7/00

U.S. Cl. 340-224

12 Claims



The present invention relates to a robbery protection system and device for temporarily disabling and visibly marking the location of a robber after his departure from the robbed premises and includes a transmitter for emitting an electric field in the proximity of the escape path of the robber, and a dummy packet of currency having concealed therein a disabling and marking charge as well as means for activating said charge upon detection of said electric field.

3,564,526

PIPELINE LEAK DETECTION DEVICE

Ernest O. Butts, 1002 Alpine Ave.,

Ottawa 14, Ontario, Canada

Filed Nov. 16, 1967, Ser. No. 683,553

Claims priority, application Canada, Dec. 23, 1966,

978,842

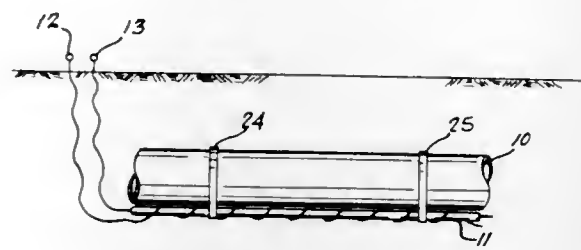
Int. Cl. G08b 21/00

U.S. Cl. 340-242

4 Claims

A device for use in detecting leaks in a buried pipeline comprising a pair of conductors positioned beneath said

pipe and spaced apart by an insulation which is degradable by the fluid contained within said pipe and substan-



tially impervious to ground water or other liquids which may contact the insulation during use.

3,564,527

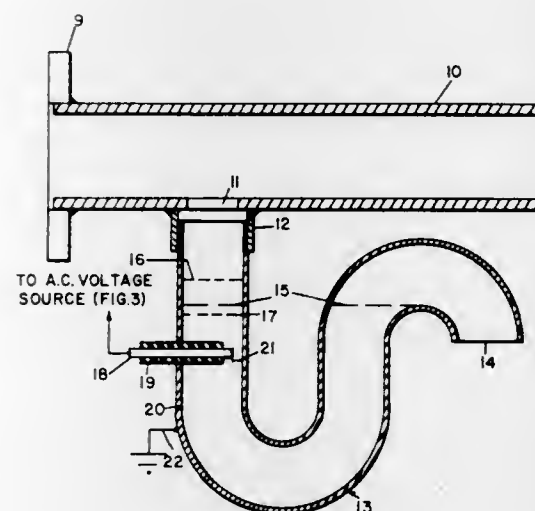
ALARM SCHEME FOR WASTE FLUID DRAIN
Julius Lerner, Broomall, and Robert Mayer, Delaware, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

Continuation of application Ser. No. 585,933, Oct. 11, 1966. This application May 28, 1969, Ser. No. 831,261

Int. Cl. G08b 21/00

U.S. Cl. 340-242

4 Claims



A sampling conduit samples the fluid flowing in the drain pipe of a waste water piping system for a floating-roof storage tank. The electrical conductivity of the fluid in the sampling conduit is monitored continuously, and an alarm is given when a predetermined change in this conductivity occurs.

3,564,528

ELECTRONIC CONTROL CIRCUIT

Robert W. Drushel, Farmington, Mich., assignor to Ex-Cell-O Corporation, Detroit, Mich., a corporation of Michigan

Continuation-in-part of applications Ser. No. 573,999,

Aug. 22, 1966; Ser. No. 583,875, Oct. 3, 1966; Ser.

No. 585,395, Oct. 10, 1966; and Ser. No. 595,189,

Nov. 17, 1966, now Patent No. 3,471,750. This

application Nov. 18, 1966, Ser. No. 595,442

Int. Cl. G08b 23/00

U.S. Cl. 340-248

13 Claims

An electronic control circuit for use in conjunction with electro-chemical machining apparatus comprising means for simultaneously sensing a plurality of parameters of an electric circuit and providing an output signal when a parameter has an undesired characteristic, switching means operably associated with the sensing means for receiving the output signals from the sensing means, and means operably associated with and actuated

3,564,530

MATERIAL MONITORING SYSTEM

Herbert Kroeck, Central Islip, and Jerrold A. Krasny, New York, N.Y., assignors to Weldotron Corporation, Newark, N.J., a corporation of New Jersey

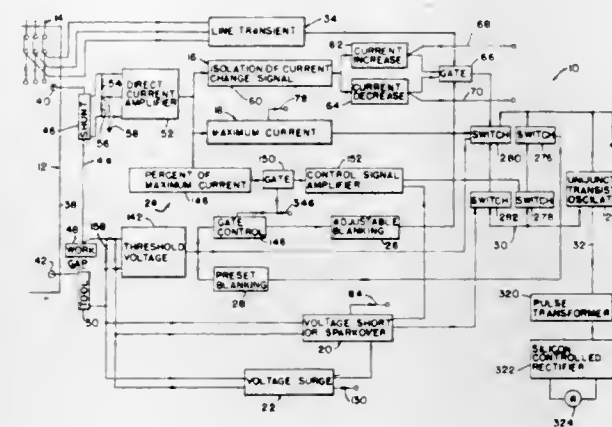
Filed May 22, 1968, Ser. No. 731,179

Int. Cl. G08b 21/00

U.S. Cl. 340-259

8 Claims

in response to the switching means for providing an output signal in accordance with the logic of the output signals received by the switching means operable to control the electro-chemical circuit and the corresponding control method. The parameters sensed include maximum current, current increase or decrease, minimum or threshold voltage, voltage surge, voltage shorting or gap spark-over, and maximum current and voltage. Means are also disclosed for sensing when the current reaches a predetermined percent of maximum current before the voltage



reaches a threshold value as a separate parameter, for preventing control in response to a sensed power line transient signal causing variation in machining circuit current and voltage, and for preventing an output signal to control the electro-chemical machining circuit during start-up for an adjustable predetermined period except when a voltage short or gap spark-over is sensed. A method of and means for indicating which parameter has provided the output signal due to an undesirable characteristic thereof is also disclosed.

3,564,529

ELECTROSTATIC FIELD RATE DETECTOR

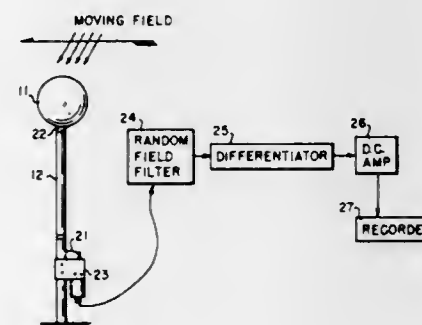
Maxime G. Kaufman, Camp Springs, Md., and Joseph P. Dougherty, Springfield, Va., assignors to the United States of America as represented by the Secretary of the Navy

Filed Oct. 21, 1965, Ser. No. 500,442

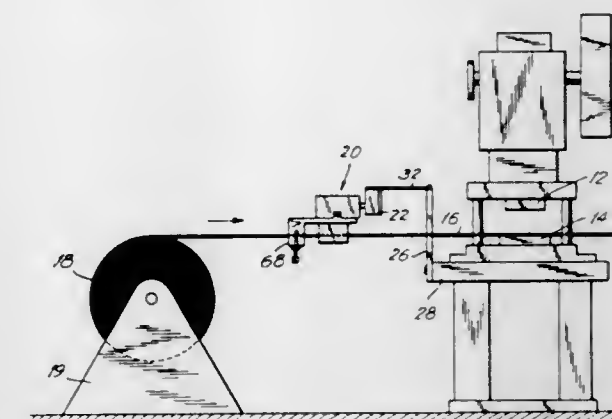
Int. Cl. G01r 29/12

U.S. Cl. 340-258

1 Claim



A system and method for electrostatically detecting the distance of one object from another utilizing a conductor placed in the electrostatic field of the moving object so that a rearrangement of charge on the conductor's surface occurs and this shifting of charge is directed through an impedance so that a voltage is developed which is a measure of the field strength causing the change in charge of the conductor. An input circuit, a differentiator, an amplifier, a recorder, and a sphere, as the conducting or detecting element, comprise the basic apparatus of this invention.



An apparatus for monitoring the thickness and width of a strip of material includes a pair of caliper rollers for monitoring the thickness and a pair of caliper plates for monitoring the width of the strip, all mounted on the block, and adapted to bind onto an oversize moving strip to move the block and thereby generate a stop signal.

3,564,531

BLADE ANGLE CONTROL DEVICE

Luther B. Burgh, P.O. Box 958,

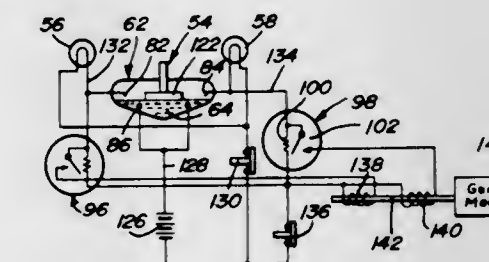
Poplar Bluff, Mo. 63901

Continuation-in-part of application Ser. No. 572,143, Aug. 12, 1966. This application July 24, 1967, Ser. No. 659,284

Int. Cl. G08b 21/00

U.S. Cl. 340-282

11 Claims



A body of mercury, the movement of which is dampened by baffles, establishes a conductive path between contacts within a chamber the position of which reflects tilting of a grading blade of automatically correct the position of the blade. The sensitivity of the device is varied by adjusting the position of an element partially submerged in the mercury.

3,564,532

DEVICE FOR DETECTING THE DECELERATION OF A ROTATING SHAFT

Noriyoshi Ando, Kariya-shi, Japan, assignor to Nippon Denso Kabushiki Kaisha, Kariya-shi, Japan

Filed Sept. 27, 1967, Ser. No. 671,076

Claims priority, application Japan, Oct. 3, 1966, 41/65,275; Nov. 9, 1966, 41/103,363

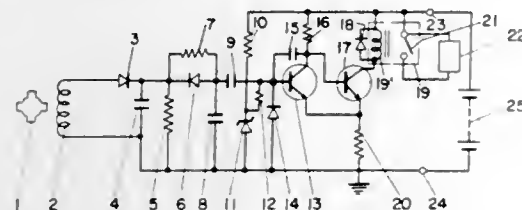
Int. Cl. G08b 21/00

U.S. Cl. 340-262

4 Claims

The velocity of a vehicle attained during each acceleration is converted into a voltage and stored in a capacitor. Upon a decrease in the velocity or in the voltage, the capacitor discharges against that voltage to bring switch-

ing transistors into operation so that the deceleration of the vehicle may be indicated. The deceleration can be in-



indicated either independently of the velocity of the vehicle or at velocities above a predetermined value.

3,564,533

TRIANGULAR GRAPHIC DIGITIZER

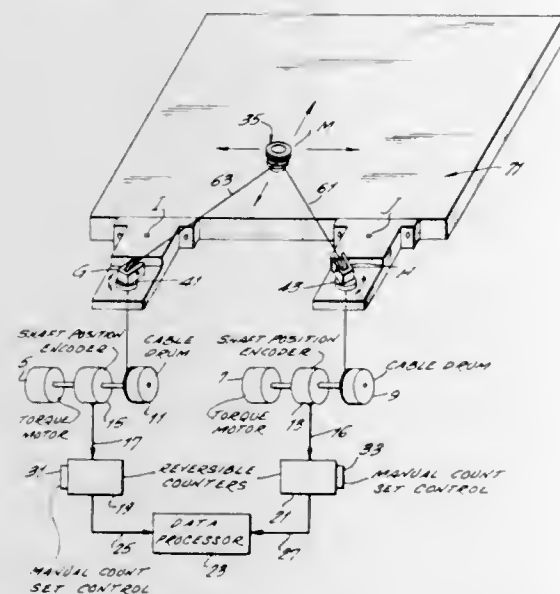
Thomas D. Linn, 100 Woodland St., Holliston, Mass. 01746

Filed Oct. 6, 1966, Ser. No. 584,747

Int. Cl. H03k 13/02

U.S. Cl. 340—347

10 Claims



A triangular graphic digitizer. Each of two cables is pivotally connected at one end to a common handpiece. The other end of each cable is wound around a respective encoder whose output is proportional to the distance of the cable to the handpiece. Each cable passes over a pulley which is mounted to swivel around an axis perpendicular to the plane of the working surface. The swiveling pulleys insure that the lengths of the cables represent the true position of the handpiece with no errors arising because of changes in the directions of the cables.

3,564,534

MAGNETIC DIGITAL AMMETER

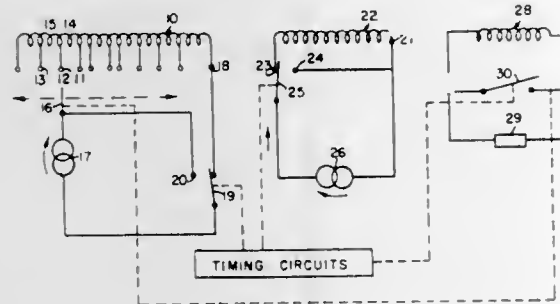
Peter E. Slavin, 25 Russell St., Woburn, Mass. 01801

Filed Jan. 3, 1967, Ser. No. 606,629

Int. Cl. H03k 13/02; G01r 19/36

U.S. Cl. 340—347

3 Claims



In a magnetic digital ammeter unknown analog currents are compared with known digital inputs in a single core for comparison purposes. The core has a magnetic

characteristic of a high permeability at the origin with a very small cross-section whereby small magneto motive forces will saturate the core material. The comparison of the analog signals to the digital signals is accomplished by causing both magneto motive forces produced by the two signals to go toward zero and noting the polarity of the back electro motive force developed. The series of back E.M.F. or "kik" polarities is employed to alter the digital MMF so that it approaches the signal MMF in magnitude. The very small cross-section of the core permits rapid switching since a large net MMF decreases towards a minimal net MMF with little delay owing to the need for a large change of flux.

3,564,535

VECTOR GENERATION BY ANALOG INTEGRATION OF A TRAIN OF STANDARDIZED DIGITAL PULSES

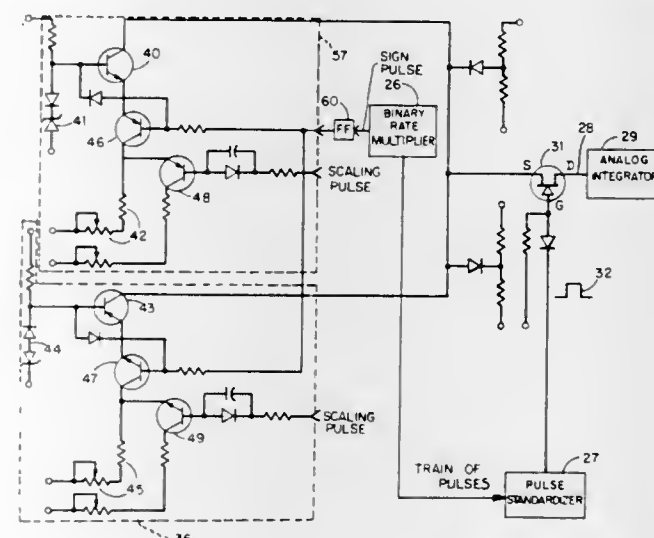
John E. Ward, Lexington, Robert H. Stotz, Bedford, Thomas B. Cheek, Watertown, and Uri F. Gronemann, Cambridge, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass., a corporation of Massachusetts

Filed Feb. 15, 1967, Ser. No. 616,239

Int. Cl. H03k 13/02

U.S. Cl. 340—347

7 Claims



An improved vector generator for display devices comprising a dual binary rate multiplier, pulse standardizers, current sources, gating, and analog integrators, which eliminates the need for up-down digital counters and digital-to-analog converters. The combination of pulse standardizer, current sources, gating, and analog integrator acts as an incremental one-bit digital-to-analog converter with accumulation.

3,564,536

SYNCHRO/DIGITAL CONVERTER

Gilbert P. Hyatt, Los Angeles, Calif., assignor to Tele-dyne Incorporated, Los Angeles, Calif., a corporation of Delaware

Filed Nov. 13, 1967, Ser. No. 682,043

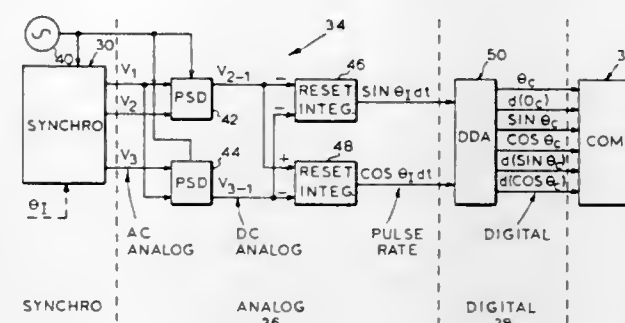
Int. Cl. H03k 13/02

U.S. Cl. 340—347

11 Claims

A synchro to digital converter capable of generating angle, sine, and cosine information in digital whole number and incremental form. Synchro signals applied to the converter are first transformed to AC analog form and thereafter to DC analog form. A digital computation means, such as a differential analyzer or stored program computer, subsequently operates on the signals to yield the desired information. The computation means implements a trigonometric identity and provides an error signal which is used to vary the output until the error is

reduced to zero. The computation means automatically compensates for any scale factor errors introduced in the



analog portion of the converter prior to the computation means.

3,564,537

ELECTROGRAPHIC RECORDER WITH SERIES CONNECTED GATES IN A DECODING MATRIX DRIVING AN ARRAY OF ELECTRODES

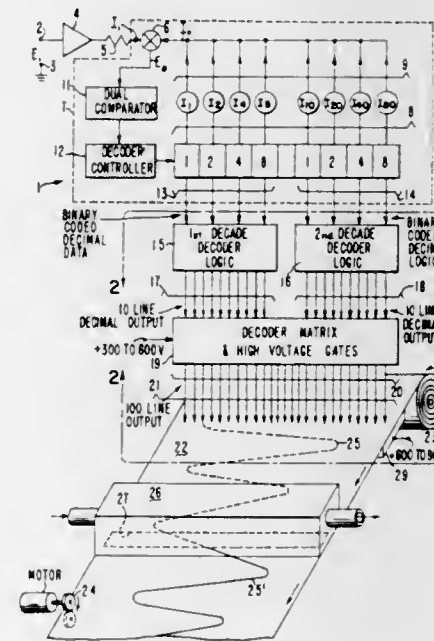
Fred Lee, Sunnyvale, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California

Filed Aug. 21, 1967, Ser. No. 661,872

Int. Cl. G03g 15/00; H03k 13/02

U.S. Cl. 340—347

5 Claims



An electrographic recorder is disclosed employing an array of writing electrodes disposed crosswise of an electrographic recording web. The recorder includes an input channel having an analog-to-digital converter means for converting analog input signals into binary coded decimal data outputs. The outputs are fed to first and second digit decoder logic circuits each producing 10 line decimal output signals fed to a one-out-of-100 decoder matrix which decodes the 10 line decimal outputs to produce 100 line output for driving a 100 electrode array to record the input signal on the electrographic web. The one-out-of-a-100 decoder matrix includes a series connection of first and second high voltage gating transistors. There are 100 first gating transistors, there being one transistor for each of the electrodes of the writing array. The control electrodes for the first gating transistors are ganged together in groups of 10 with every tenth transistor ganged together and fed by one of the 10 line decimal outputs of the first digit decoder. There are 10 second gating transistors series connected with the first transistors with one transistor series connected with each group of 10 first transistor gates. The second gating transistors are driven

from the output decoder signals derived from the second digit decoder. The series connected first and second gating transistors form a decoding matrix of 100 AND gates for applying the relatively high electrostatic writing potential to the selected writing electrode for reproducing the input signal on the recording medium.

3,564,538

MULTIPLE SLOPE ANALOG TO DIGITAL CONVERTER

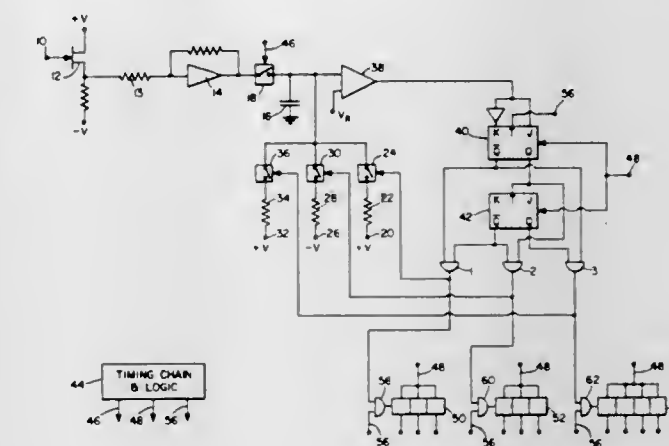
Frederick Bondzelt, Ormond Beach, and Lewis J. Neelands, DeLand, Fla., assignors to General Electric Company, a corporation of New York

Filed Jan. 29, 1968, Ser. No. 701,189

Int. Cl. H03k 13/02

U.S. Cl. 340—347

3 Claims



A capacitor is charged to a potential proportional to an analog voltage to be converted to a digital form. It is first discharged through the level of a reference potential by a relatively high constant current, it is next discharged in the reverse direction through the reference potential by a lesser constant current, and it is finally discharged in the first direction through the reference potential by a relatively low constant current. The durations of each of the discharging currents are measured, with appropriate weightings given the higher currents, producing an accuracy equivalent to that attainable if only the relatively low current were employed.

3,564,539

DIGITAL RESOLVER

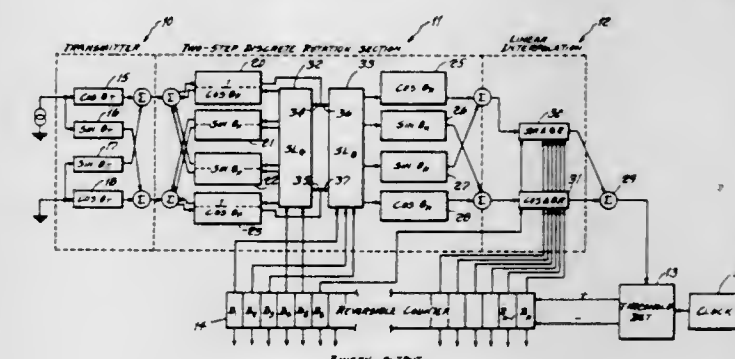
Brock S. Dew, Watertown, Mass., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Mar. 27, 1969, Ser. No. 811,046

Int. Cl. H03k 13/14

U.S. Cl. 340—347

9 Claims



A digital resolver is disclosed which rotates an input vector from a shaft angle transmitter in accordance with the number in a binary counter to achieve a null. The rotation is performed in three stages, two of which provide

for large, exact, discrete rotations and the third for a linear approximation. When a null is achieved, the angle through which the input vector has been rotated represents the angular position of the transmitter shaft. The resolver may be used either to control the angular position of the shaft or to read out the shaft angle of the transmitter as a binary number.

3,564,540

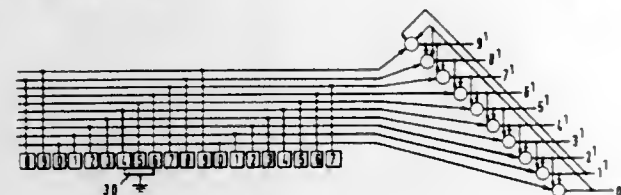
ELECTRICAL DIGITAL SCALE

David S. Evans, Kent, England, assignor to Moore Reed (Industrial) Ltd., Walworth, Andover, Hampshire, England, a corporation of the United Kingdom
Continuation-in-part of application Ser. No. 554,573, June 1, 1966. This application Aug. 27, 1969, Ser. No. 853,276

Int. Cl. G08c 9/08

U.S. Cl. 340—347

4 Claims



In order to produce an unambiguous read-out of a scale when a plurality of at least three contacts are simultaneously connected with a brush, the invention employs an arrangement of earthed logic elements, one for each contact of the scale and inhibited, on the one hand, by any of a plurality ($n-1$) of input signals constituted by the output signals of the logic elements of the next higher or lower contacts, which can be simultaneously connected with the brush, as the case may be, and, on the other hand, by an input signal being an inhibiting signal fed through a line connecting the logic element concerned with its contact, so that when the logic element is earthed, it will produce an output signal only if the logic element at least one of the said next higher or lower contacts, as the case may be, is not producing an output signal. As a result when three or more contacts are simultaneously connected with a brush, the logic element of one must necessarily produce an output signal and thus inhibit the logic elements of the other contacts.

3,564,541

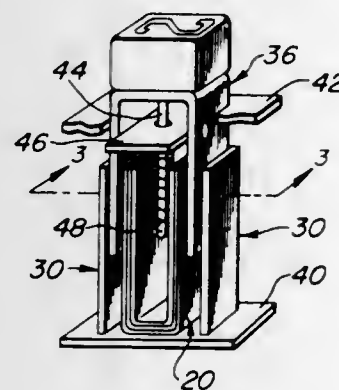
SWITCHING MECHANISM

Donald C. Gove, Manchester, Mass., assignor to Ikor, Incorporated, Burlington, Mass., a corporation of Massachusetts
Continuation-in-part of application Ser. No. 607,563, Jan. 5, 1967. This application Dec. 16, 1968, Ser. No. 783,959

Int. Cl. G08c 9/02

U.S. Cl. 340—365

6 Claims



The following specification describes a switch in which one or more conductive transmission bars are connectable to an input terminal and one or more discrete, conductive

receiving strips are each connectable to an output terminal. The input terminal is intended to be connected to a source of a signal of changing potential, and in one form is connectable to the transmission bars by a commutating device. In such case, a single large receiving strip can be used directly connected to the output terminal. In another form, the input terminal is directly connected to a single transmission bar and a number of receiving strips are connectable through commutation to the output terminal. A manually engageable key in the form of an electrostatic shielding element is normally interposed between the transmission and receiving elements so as to prevent capacitive coupling of the signal from occurring between the transmission and receiving elements. The key is movable to a position at which apertures in the key permit coupling and thus switching to occur. The key can, by virtue of the number and placement of apertures in it, directly encode the signal into a given numerical form defined by selective energization of the input terminals, and hence forms a basic element for a multiple key keyboard.

3,564,542

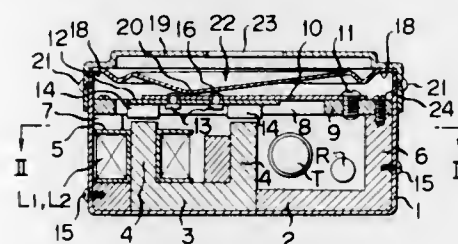
BUZZER HAVING CONVEX THIN FILM SOUNDING MEMBER

Yukio Arai, Chiba, Japan, assignor to Kabushiki Kaisha Hattori Tokeiten, Tokyo, Japan
Filed Feb. 11, 1969, Ser. No. 798,316
Claims priority, application Japan, Feb. 14, 1968, 43/9,052

Int. Cl. G08b 3/10

U.S. Cl. 340—384

9 Claims



A buzzer device including a vibrator having a magnet and electromagnetic means for exciting said vibrator. The buzzer device further includes a vibration film that is struck by the excited vibrator to produce a relatively strong but pleasant sound.

3,564,543

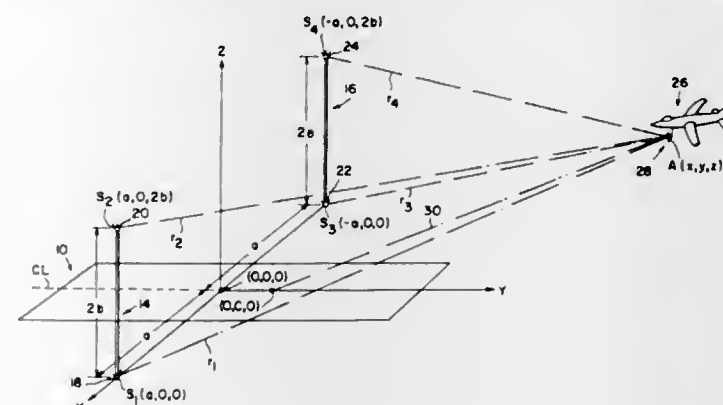
AIRCRAFT LANDING CONTROL SYSTEM

Isaac D. Nehama, Bethesda, Md., and Clarence A. Lovell, McLean, Va., assignors to Air Land Systems Co., Fairfax, Va., a partnership of Virginia
Filed Sept. 5, 1968, Ser. No. 757,667

Int. Cl. G01s 9/04, 9/56

U.S. Cl. 343—6.5

19 Claims



A versatile all-weather landing control system is disclosed, the aircraft landing control system being capable of landing aircraft in zero-zero visibility with the same

time spacing between aircraft as is achieved during normal, unlimited visibility landings. The subject invention contemplates the provision of a plurality of receiving antennas and/or transmitting antennas disposed in a predetermined geometric configuration on the ground adjacent the runway and preferably in symmetrical relationship to the center line thereof. The aircraft to be landed also carries receiving and transmitting equipment of varying complexity as desired. Through interaction of the ground and "on board" equipment, the spatial position of the aircraft and its deviation from a prescribed glide path can be determined, such determination involving a "tri-lateralization" technique utilizing data representative of the straight-line distance of the aircraft from the plurality of antennas on the ground. Once the aircraft position is known, guidance of the aircraft to landing is possible in a safe and accurate manner, the landing of the aircraft either being effected manually by the pilot or being effected by the "auto-pilot" system or the like on the aircraft, the actual guidance data either being computed on the ground or on the aircraft itself.

3,564,544

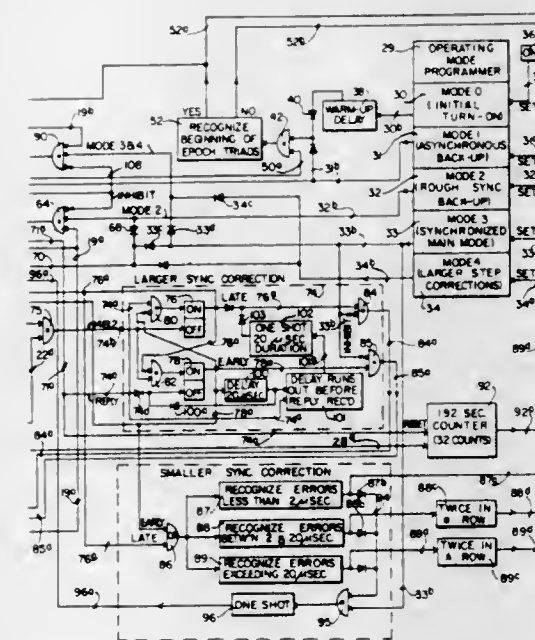
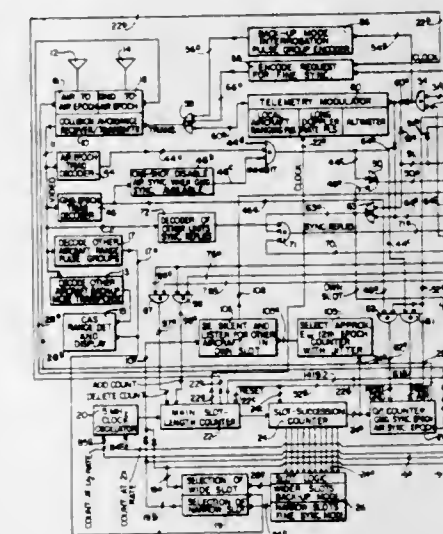
MULTIPLE MODE AIRCRAFT CLOCK SYNCHRONIZATION

William V. Scott, Depew, and William T. Lennon, Jr., Tonawanda, N.Y., assignors to Sierra Research Corporation, a corporation of New York
Filed Jan. 2, 1969, Ser. No. 788,560

Int. Cl. G01s 9/56, 9/10

U.S. Cl. 343—6.5

25 Claims



A system for synchronizing aircraft clocks to an established master time, the clocks having varying degrees of stability and these degrees establishing different modes

of local operation, depending upon momentary estimates of local clock accuracy; and the different modes including graduated rates of clock correction, as well as the selection of time slots in different series designated for occupancy by aircraft having estimated clock errors of different magnitudes, the system including an asynchronous back-up mode occupied by aircraft whose clocks are entirely out of synchronization. The system further includes means for selecting unoccupied slots, for establishing coarse synchronization in one mode, for then proceeding by proportional clock correction to modes of higher degrees of synchronization, and for changing to appropriate other unoccupied time slots and reducing the magnitude of subsequent clock corrections as a result of improvement in the degree of clock synchronization.

3,564,545

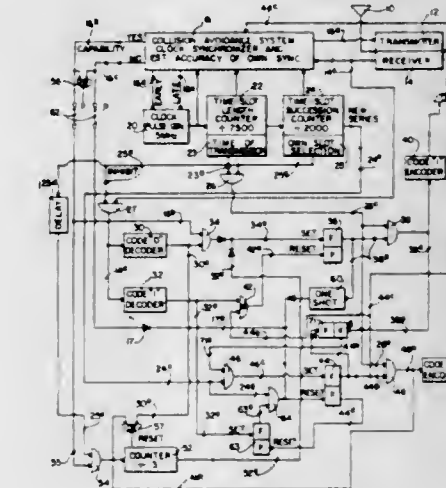
MASTER FUNCTION HAND-OFF SYSTEM

Lothar Gottlieb, Williamsville, and Martin R. Bates, Kenmore, N.Y., assignors to Sierra Research Corporation, a corporation of New York
Filed May 6, 1969, Ser. No. 822,195

Int. Cl. G01s 9/56

U.S. Cl. 343—6.5

12 Claims



In a system for synchronizing a plurality of mobile units to a repeating cycle of time slots comprising an established worldwide or system-wide time base to which the various mobile units are synchronized, but to different degrees, the present improvement is based upon the fact that some units are well synchronized and can become synchronization donors with respect to other less-well synchronized units, and that there are substantial benefits to be obtained from frequently handing-off the master function among those well-synchronized units. The present system provides means for accomplishing this handing-off of the function of synchronization donor in an orderly manner which will minimize the likelihood that at any particular moment there will be no synchronization donor or that there will be more than one synchronization donor within radio range of other mobile units, which comprise the synchronizees.

3,564,546

COUNTERMEASURES SYSTEM UTILIZING SUPERCONDUCTIVE FREQUENCY MEMORY DEVICE

Kay Howard Barney, Roslyn Heights, and Peter K. Shizume, Glen Oaks, N.Y., assignors to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware

Filed Aug. 10, 1959, Ser. No. 832,869

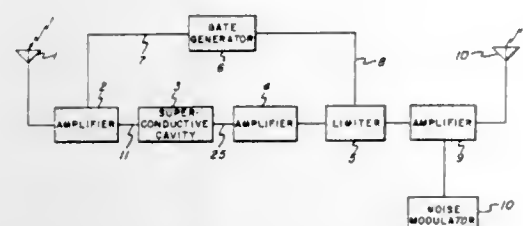
Int. Cl. G01s 7/42; H01p 7/06

U.S. Cl. 343—18

10 Claims

8. A countermeasures system comprising means for receiving pulsed microwave signals emitted by a victim

radar, a superconductive resonant cavity coupled to said means for receiving, said cavity being dimensioned so as to support a multiplicity of modes of oscillation within the frequency spectrum of the victim radar signals, means



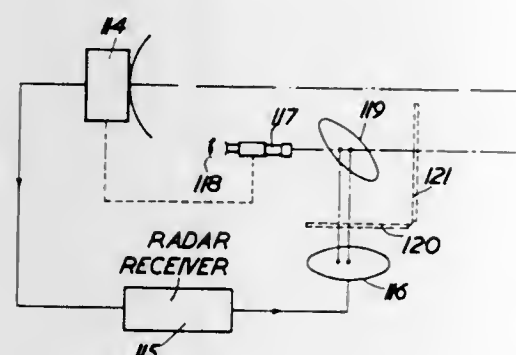
for maintaining the temperature of said resonant cavity below the superconductive transition temperature, and means for coupling out and transmitting back to the enemy radar the oscillations present in said resonant cavity.

3,564,547 RADAR APPARATUS FOR MISSILE GUIDANCE CONTROL

John Dent, Greenhill, Dundonald, County Down, Northern Ireland, assignor to Short Brothers & Harland Limited, Belfast, Northern Ireland
Filed June 3, 1960, Ser. No. 33,859
Int. Cl. G01s 9/14

U.S. Cl. 343—7.3

3 Claims



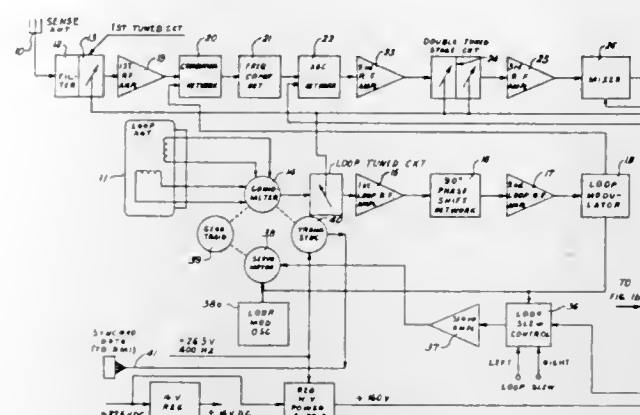
1. Missile guidance apparatus for use in homing a missile on to a target comprising:
means for irradiating the target and the missile with pulsed radar signals,
a signal receiver for receiving in a common channel pulsed radar signals reflected from the target and pulsed radar signals reflected from the missile,
means for separating the target signals from the missile signals,
a signal processing circuit,
means for feeding the separated target signals in one time-division channel and the separated missile signals in another time-division channel through said signal processing circuit common to the two time-division channels,
means for producing on a screen continuous displays of an image of the target and an image of the missile, said signal receiver comprising a radar scanner adapted to be so controlled as to track the target,
an optical viewing system arranged to be driven so as to follow the movements of the radar scanner and thereby track the target, and
means for optically projecting the said display of the target and missile so that an observer can observe an image thereof superimposed upon the optical image of the optical viewing system.

3,564,548 METHOD AND APPARATUS FOR CRYSTAL CONTROLLED AUTOMATIC DIRECTION FINDER

Ronald E. Grillot, Olathe, Kans., and James G. Farrar, Lee's Summit, Mo., assignors to King Radio Corporation, Olathe, Kans., a corporation of Kansas
Filed June 10, 1968, Ser. No. 735,853
Int. Cl. G01s 3/42

U.S. Cl. 343—117

33 Claims



A crystal controlled ADF (Automatic Direction Finder) utilizes a stabilized master oscillator (SMO) and a single reference crystal to provide digital frequency selection in preselected increments of any desired frequency within the tuning range of the ADF.

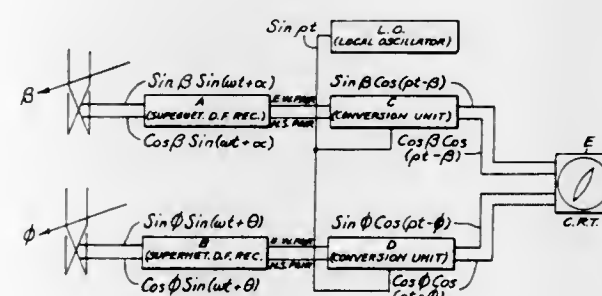
A reference frequency is derived from the single reference crystal and is used as a comparison for a newly selected frequency. A voltage controlled oscillator (VCO) is tuned by a varactor diode from a portion of the SMO circuit. The output of the VCO is fed to a variable frequency divider which divides the VCO frequency. A frequency discriminator brings the VCO frequency close to the reference frequency and a phase detector provides the additional fine control that brings the VCO to the exact selected frequency within the limits of the crystal reference.

3,564,549 DIVERSITY DIRECTION FINDING SYSTEMS

Samuel Henry Wilson Browning, Alverstoke, Gosport, England, assignor to The Commissioners for Executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Northern Ireland
Filed Mar. 27, 1957, Ser. No. 649,263
Int. Cl. G01s 3/06

U.S. Cl. 343—121

10 Claims



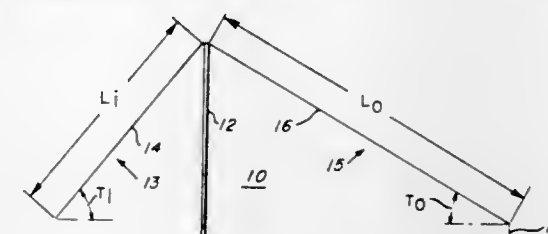
Diversity direction finding system wherein the outputs of two or more direction finding stations are combined using conversion units having a common local oscillator giving a reference phase to hold the conversion units in phase alignment.

3,564,550 ASYMMETRICALLY INCLINED RHOMBIC ANTENNA

Joseph T. de Bettencourt, West Newton, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed Mar. 29, 1967, Ser. No. 626,780
Int. Cl. H01q 11/06

U.S. Cl. 343—733

2 Claims



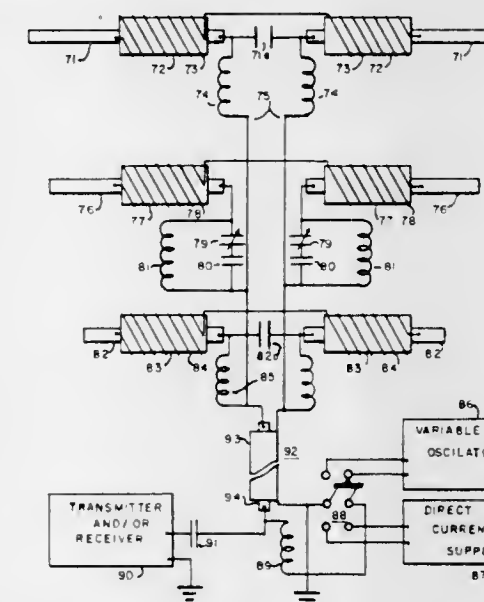
An antenna array employing asymmetrically inclined "rhombic" antenna elements in which the side length L_1 , semi-acute angle A_1 , and incline angle T_1 to the horizontal of the input V section differs from the side length L_0 , semi-acute angle A_0 , and incline angle T_0 , of the output or terminating V section of the "rhombic" element.

3,564,551 DIPOLE ANTENNA WITH ELECTRICALLY TUNED FERRITE SLEEVES

Harry A. Mills, 5904 32nd St. NW., Washington, D.C. 20015; Edward Lipson, 2105 Belvedere Blvd., Silver Spring, Md. 20902; and Noel R. Nelson, 12813 Camella Drive, Wheaton, Md. 20906
Filed Jan. 14, 1970, Ser. No. 2,871
Int. Cl. H01q 9/16

U.S. Cl. 343—747

2 Claims



A tunable antenna system having radiating elements with means having a normally fixed permeability associated therewith, a means for producing a magnetic field of varying strengths to change the permeability of the means having the normally fixed permeability and means for selectively adjusting the strength of the magnetic field to vary the inductance effect offered to the radiant energy.

3,564,552 PHASED ARRAY ANTENNA WITH RAINFALL DRAINAGE CHANNELS

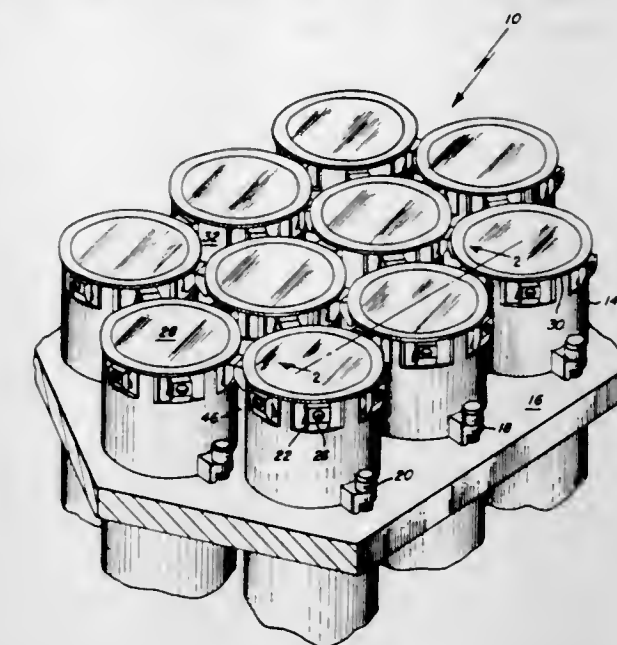
George A. Fraizer, Jr., Westford, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed June 28, 1968, Ser. No. 740,993
Int. Cl. H01q 1/48, 13/00

U.S. Cl. 343—778

12 Claims

A phased array antenna being protected against rainfall, comprising an antenna support structure; a plurality

of radiating elements each being raised away from said support structure a sufficient distance to permit the maximum projected rainfall to flow through the channels



formed by raising the elements; and, means for connecting the array elements together at the front edges to simulate the existence of a continuous ground plane.

3,564,553 AIRBORNE TRANSMITTING ANTENNA

James D. Leonard, Columbus, Ohio, assignor to North American Rockwell Corporation
Filed Nov. 8, 1967, Ser. No. 681,462
Int. Cl. H01q 11/10, 1/36

U.S. Cl. 343—792.5

3 Claims



An airborne transmitting antenna assembly having a dielectric base portion is provided with essentially flat conductors that are edge-mounted onto the dielectric to obtain a significantly increased power-handling capability without adversely affecting other antenna performance characteristics such as radiation patterns, radiation axial ratios, and the like.

3,564,554 FOLDED DIPOLE AND MOUNTING ASSEMBLY

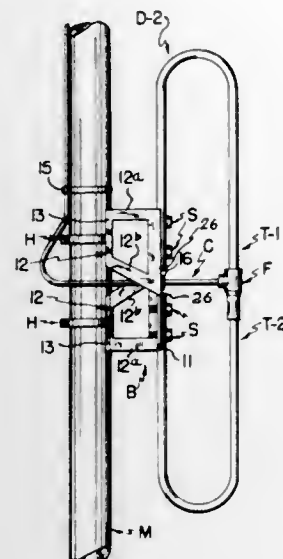
John Schuller, South Euclid, Ohio, assignor to Allen Electric & Equipment Company, a corporation of Michigan
Filed Aug. 12, 1968, Ser. No. 751,840
Int. Cl. H01q 9/26

U.S. Cl. 343—803

9 Claims

The aligned opposed legs of tubes bent into similar elongated U-shapes are secured mechanically in align-

ment as a folded dipole by a feed connection fitting between one aligned leg pair, and by bolting of the other pair to a narrow seat on the edge of a sheet metal bracket, having spaced parallel folded sides terminating in inwardly offset flanges curved for seated, rotationally adjustable, securement on a cylindrical mast by hose clamp



type clamping straps. The feed cable, passing through a grommited bracket aperture, is mechanically and electrically connected with the fitting, and thereby to the tubular members, in a design facilitating fabrication and assembly, especially of a plurality of assemblies on a mast.

3,564,555 BROAD BAND TRANSFORMER ANTENNA AND RELATED FEED SYSTEM

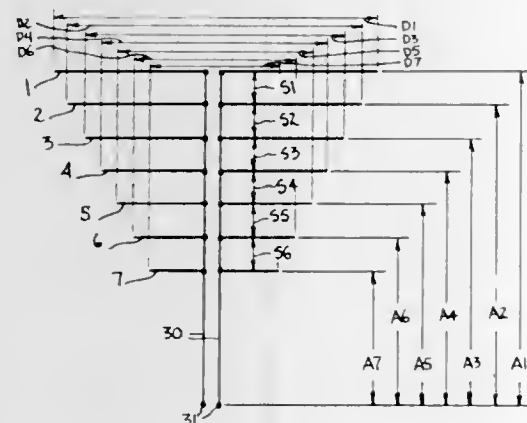
Raymond A. Rosenberry, 1501 Superior Bldg.,
Cleveland, Ohio 44114

Filed Jan. 10, 1968, Ser. No. 696,762

Int. Cl. H01q 11/04, 21/12

U.S. Cl. 343-811

10 Claims



A broad band transformer antenna having a series of overlapping triplet element cells in a fishbone type of arrangement of successively shorter element lengths. Each element of a triplet is shorter than and spaced from the preceding element by such calculated increment as will cause the straddling elements, as well as all other elements of the series, to be phased the same electrically in relation to the resonant element, and cause the straddling elements to have counter-balancing currents, voltages and reactive components with respect to the central resonant element to eliminate surge impedance and create a null reactance system with respect to a free space wave. The impedance at the terminating feed point of any resonant

element in an active triplet is uniform at the applied resonant frequency; each element length and impedance is coordinated to its transformer line length and impedance to produce the desired matched impedance at the transmission line feed point, and excellent broad banding is achieved with relatively few elements. At any selected frequency within the antenna range, the elements of the non-active triplets present substantially infinite impedance to their transformer feed points. The triplet is the basic cell unit, but any odd number of element or element units can be properly sized and spaced to constitute such a straddle cell.

3,564,556 ELECTROSTATIC PRINTING APPARATUS

Kenmi Tsukatani, Mitaka-shi, and Makoto Ohta, Tokyo,
Japan, assignors to Fujitsu Limited, Kawasaki, Japan,
a corporation of Japan

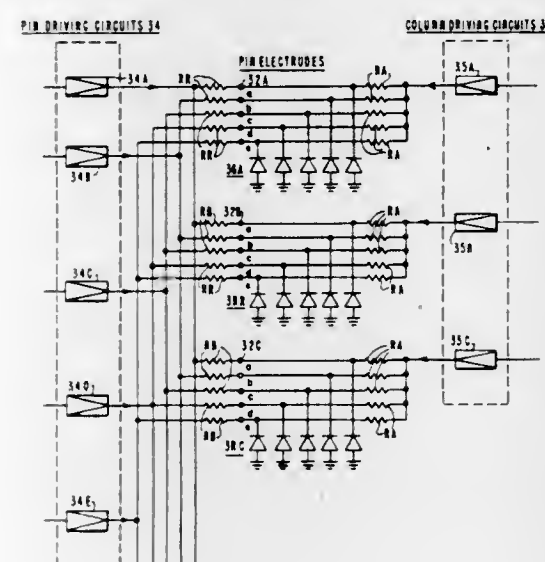
Filed Feb. 20, 1969, Ser. No. 801,066

Claims priority, application Japan, Feb. 23, 1968,
43/11,506

Int. Cl. G01d 15/06; H04l 15/34

U.S. Cl. 346-74

7 Claims



Each of n groups of pin electrodes comprises m pin electrodes for printing n columns in a line, each column including m pin electrodes. m pin driving circuits are connected to and drive the pin electrodes and n column driving circuits are connected to and drive the pin electrodes with a signal of opposite polarity. Each of a plurality of clamping circuits clamps a corresponding one of the pin electrodes to a potential between it and a potential plate lower than a no-printing threshold level. The pin electrodes are selectively driven by signals supplied by only one of the pin driving and column driving circuits to print an electrostatic image on a record medium interposed between the pin electrodes and the potential plate. The signals have a polarity which is not clamped by the clamping circuits.

3,564,557 SELF-CLOCKING RECORDING

Leonard B. Ruthazer, Norwood, Mass., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed May 21, 1968, Ser. No. 730,756

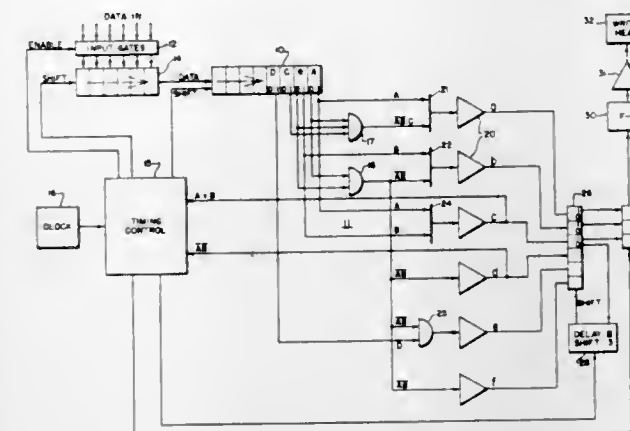
Int. Cl. G08c 9/04; G11b 5/02, 27/28

U.S. Cl. 346-74

22 Claims

A serial coding arrangement for binary information is described following the requirement that at least every other bit position contains a signal transition. To achieve

this, a coding scheme is used in which three of the possible configurations of two binary bits of information are encoded as three unique three bit configurations and the fourth two bit configuration is encoded along with the



following two bits of binary input information in one of four unique six bit configurations. This could be described as variable length coding and implementation arrangements for both the encoding and decoding are disclosed.

3,564,558 HIGH-DENSITY MAGNETIC RECORDING SCHEME

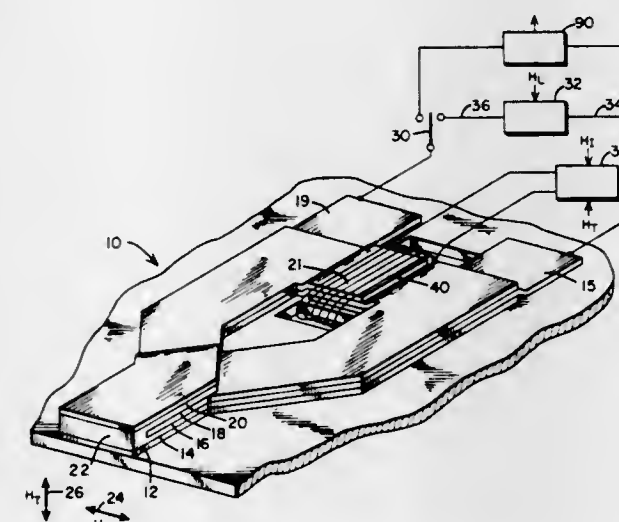
Charles H. Tolman, Bloomington, and Paul E. Oberg
and Maynard C. Paul, Minneapolis, Minn., assignors to
Sperry Rand Corporation, New York, N.Y., a corporation
of Delaware

Filed Aug. 26, 1968, Ser. No. 755,186

Int. Cl. G11b 5/16, 5/02, 5/30

U.S. Cl. 346-74

20 Claims



A method of high-density magnetic recording using a magnetic recording head having a recording gap that is inductively coupled to a relatively moving or stationary thin-ferromagnetic-film recording medium of a thickness that is insufficient to support Bloch walls, i.e., can only support Néel walls, between adjacent domains and having an easy axis that is orthogonal to the direction of relative movement or parallel to the recording gap. The recording medium's interdomain Néel walls are formed with the magnetization within the walls having the same directional rotational, i.e., winding, sense, e.g., clockwise or counterclockwise, by applying first or second and opposite polarity orthogonal fields H_x and H_y in the recording gap.

3,564,559 ELECTROSTATIC RECORDER WITH ELECTRODES ARRANGED INSIDE OF A HOLLOW TYPE ROLL

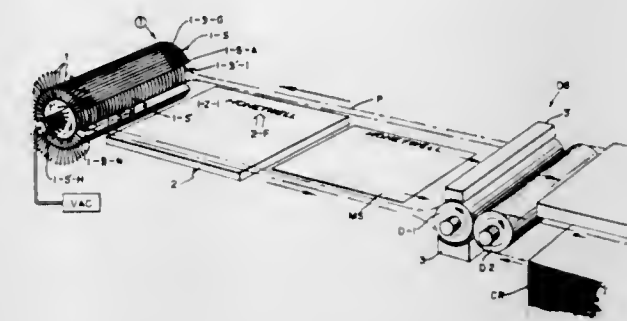
Earl E. Masterson, Newtonville, David W. Bernard, Sherborn, and Michael J. Shebanow, Medfield, Mass., assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Nov. 1, 1967, Ser. No. 679,891

Int. Cl. G01d 15/06; B41f 17/00

U.S. Cl. 346-74

21 Claims



A high speed electrostatic printing mechanism including a hollow type roll presenting a concave matrix of raised-font electrodes configured as different alpha-numeric print characters. In one embodiment rows of character-font are presented, each along a respective conductive strip, these strips being electrically-independent and surrounding an inner rotating drive roll provided to advance dielectric recording media past the strip matrix to be selectively charge-imaged. The electrostatic transfer-potential applied across selected 'print-areas' of the dielectric can be arranged to (electrostatically) image, either 'line-by-line' (driving a record repeatedly past the matrix, one pass for each line), or 'by-the-page' (provided sufficient memory storage and fast-switching means are available). The dielectric is thereafter developed and copied at a toner/transfer station.

3,564,560 RECORDING IN AN ELECTRO-OPTIC MEDIUM

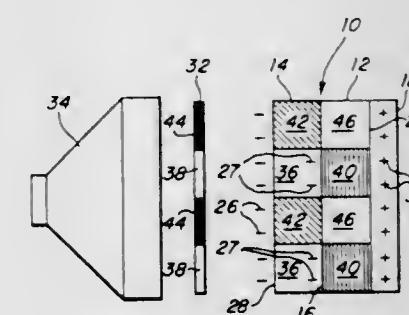
Ralph Edward Aldrich, Arlington, and Paul John Caruso, Bedford, Mass., assignors to Ittek Corporation, Lexington, Mass., a corporation of Delaware

Filed June 27, 1968, Ser. No. 740,709

Int. Cl. G01d 15/06; G11c 11/42

U.S. Cl. 346-74

12 Claims



A method and apparatus are disclosed for storing information supplied in the form of a radiation pattern by establishing an electro-static charge distribution across an electro-optic medium and a photoconductor medium to create, across the electro-optic medium, an electric field which varies as a function of radiation applied to the photoconductor medium, and results in corresponding variations in an electro-optic characteristic of the electro-optic medium.

ERRATA

For All Classes Out see:
Patent Nos. 3,564,561 thru 3,564,608

3,564,561

TRIBOROHYDRIDE-8 SALT PREPARATION
Dorothy Ann Livingston Carvalho, Bridgeport, Conn., and Nestor W. Shust, Silver Spring, Md., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed Nov. 16, 1962, Ser. No. 343,173
Int. Cl. C01b 6/20, 6/22

U.S. Cl. 23—358 18 Claims

1. A process for producing triborohydride-8 salts comprising reacting pentaborane-9 with a basic material in the presence of a liquid having the formula $R-O-H$ wherein R is selected from the group consisting of hydrogen and lower alkyl radicals.

6. A process as defined in claim 1 wherein said basic material is ammoniacal.

3,564,562

PREPARATION OF DIFLUOROCYANAMIDE, PERFLUOROGUANIDINE AND PERFLUOROFORMAMIDINE

Simon Frank and Marion Douglas Meyers, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed May 11, 1962, Ser. No. 195,023
Int. Cl. C01c 3/16

U.S. Cl. 23—359 11 Claims

1. The method of preparing fluorinated compounds which comprises contacting finely divided biguanide with gaseous fluorine admixed with an inert carrier gas; and collecting the reaction products including 1,1-difluorocyanamide.

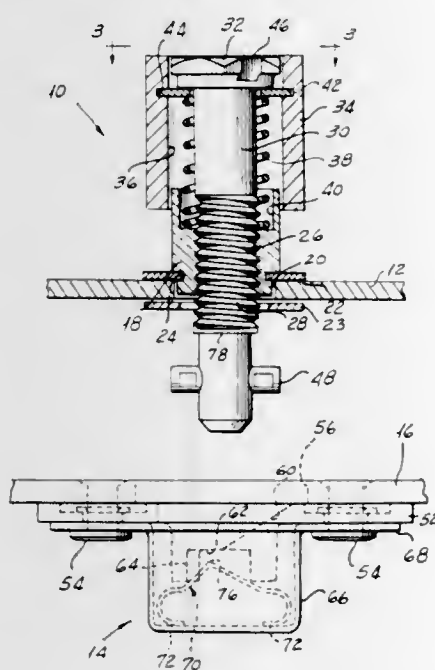
6. The method of preparing fluorinated compounds which comprises contacting a fluid bed comprising finely divided biguanide with a mixture of gaseous fluorine and an inert carrier gas, said fluid bed being at a temperature within the range of from -15°C. to $+120^{\circ}\text{C.}$; collecting the products of the reaction; and isolating, as separate components, perfluoroformamidine, perfluoroguanidine and 1,1-difluorocyanamide from the reaction products.

3,564,563

ADJUSTABLE QUICK ACTING FASTENER
Walter Trotter, Fair Lawn, Paul R. Gley, Hillsdale, and Werner Dellth, Ringwood, N.J., assignors to Rex Chainbelt Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed Jan. 9, 1968, Ser. No. 696,545
Int. Cl. A44b 17/00

U.S. Cl. 24—221

7 Claims



An adjustable quick acting fastener in which a crosspin stud releasably locked in an axially adjusted position on a nut carried by one of two members to be fastened

carries a crosspin, the ends of which are adapted to ride up cam surfaces and onto level surfaces against stops, all provided by a receptacle carried by the other member, in response to rotation of the stud and nut assembly. A spring held in operative relationship with the receptacle by a cover has locking detents which snap behind the ends of the crosspin to hold the stud and nut assembly against accidental reverse rotation after the crosspin ends have been moved into engagement with the stops.

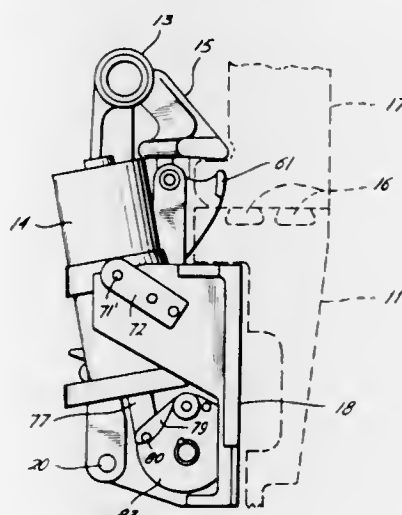
3,564,564

LATCHING MECHANISM

T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of Jacob C. Cobin, Los Angeles, and Leo L. Rhodes, Palos Verdes Estates, Calif.
Filed Nov. 21, 1969, Ser. No. 878,731
Int. Cl. A44b 21/00

U.S. Cl. 24—263

17 Claims



A latch for latching docking rings on a space vehicle, for example. It includes a latching hook connected to a stored energy power package, such as a spring, and a cocking handle which simultaneously unlatches the hook and stores energy in the power package. It also includes triggering means to properly position the hook and to retain the hook in the cocked position until released at the desired time.

3,564,565

PROCESS FOR ADHERENTLY APPLYING BORON NITRIDE TO COPPER AND ARTICLE OF MANUFACTURE

Rolf R. Haberecht, Richardson, and Robert J. Patterson, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
No Drawing. Filed May 5, 1964, Ser. No. 365,153
Int. Cl. C23b 5/52; C23c 11/00

U.S. Cl. 29—195 62 Claims

Disclosed is a process for adherently depositing a film of boron nitride directly upon the surface of a substrate consisting primarily of copper or copper alloy, comprising the steps of first degenerating the surface of the substrate by the interspersing of foreign atoms into the lattice structure of the copper, and then depositing a film of boron nitride on the degenerated surface.

3,564,566

PROCESS AND FABRICATION OF TAPERED TITANIUM AND/OR OTHER ALLOY EXTRUSIONS

George H. Heltman, Shrewsbury, Mass., assignor to The Boeing Company, Seattle, Wash., a corporation of Delaware
Filed Nov. 26, 1968, Ser. No. 779,047
Int. Cl. B23p 17/00

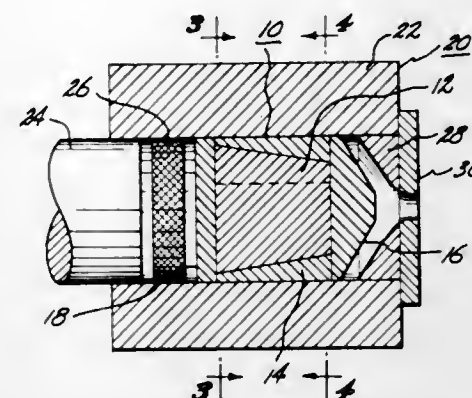
U.S. Cl. 29—423

2 Claims

A preformed longitudinally tapered structural shape such as a T section, a Z section, a round bar, etc., is en-

cased in the core of a dissimilar material. The encasement is extruded, after which the encasing material is re-

a master array through the use of suction to hold said wafer on a support means. The wafer is positioned by engaging and disengaging the edge of the wafer and the wafer is axially aligned by displacing said support means.



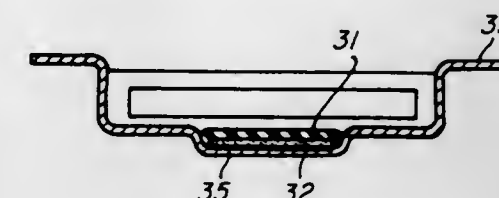
3,564,569

METHOD OF MAKING VOLTAGE REGULATORS
Roger William Nolan, Redditch, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Jan. 4, 1968, Ser. No. 695,787
Claims priority, application Great Britain, Jan. 16, 1967, 2,185/67
Int. Cl. G01r; G05f; H01b

U.S. Cl. 29—593

4 Claims

moved to leave a tapered T or Z, etc. shape dependent upon the shape of the preform.



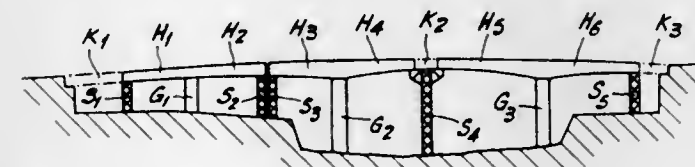
3,564,567

BUILDING METHOD FOR MULTISPAN STRUCTURES

Vilman Mladynovitch, Neuilly-sur-Seine, France, assignor of one-half to Coyne & Bellier, Bureau d'Ingenieurs Conseils, Paris, France, a company of France
Filed Jan. 15, 1968, Ser. No. 690,775
Claims priority, application France, Jan. 19, 1967, 91,774
Int. Cl. B23p 19/00

U.S. Cl. 29—429

4 Claims



A method of building a continuous girder lying on intermediate supports and two end supports, which consists in building symmetrically on each side of each intermediate support girder sections according to balanced cantilever principle, and reducing the negative bending moment on each intermediate support by using temporary supports providing upwardly directed forces on chosen girder section ends before connecting the ends of said sections, and lastly building the end sections of the girder.

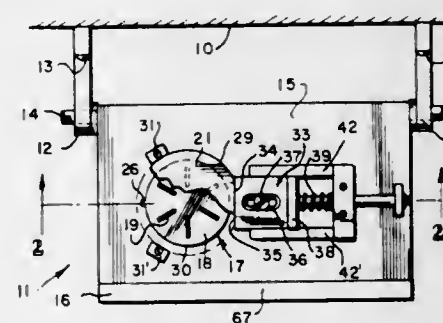
3,564,568

METHOD OF LOCATING AND HOLDING SEMICONDUCTOR WAFER

Victor Craig Bunner, Indianapolis, Ind., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind. a corporation of Delaware
Filed Aug. 22, 1968, Ser. No. 754,676
Int. Cl. B01j 17/00; B23q 17/00; H05k 13/04

U.S. Cl. 29—572

3 Claims



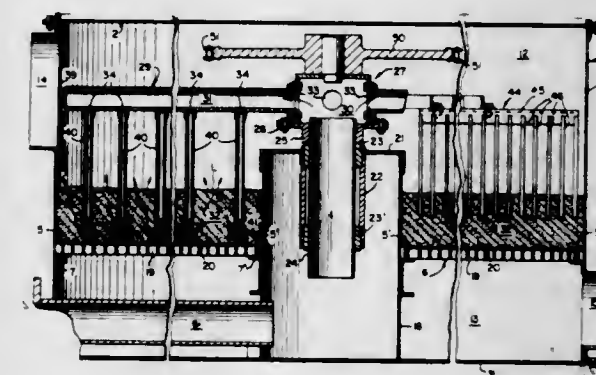
A method for locating and holding a semiconductor wafer with respect to an image of geometrical patterns of

A dust collecting and filter cleaning apparatus having a filter media consisting of a bed of granular material for removing dust from dust laden gases passing therethrough. When the bed becomes loaded with dust deposits, the flow of dust laden gas is interrupted and a reverse flow of clean gas is passed up through the entire bed area for fluidizing

3,564,570
GAS-SOLIDS SEPARATOR
Roland L. Lincoln, Macungie, Frank G. Miller Jr., Bethlehem, and Walter C. Gothe, Macungie, Pa., assignors to Fuller Company, a corporation of Delaware
Filed Mar. 8, 1968, Ser. No. 711,652
Int. Cl. B01d 46/36

U.S. Cl. 55—286

14 Claims

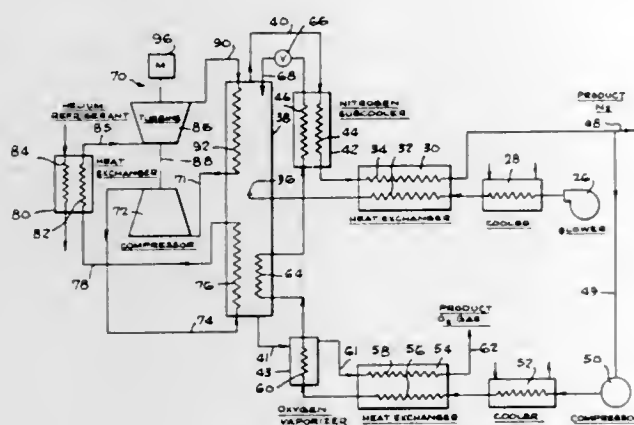


the granular bed and simultaneously compressed air pipes are moved through the granular bed to produce rapid agitation of localized areas of the bed to liberate the deposited dust particles which are conveyed out of the apparatus with the reverse clean gas flow.

3,564,571

SEPARATION OF AIR UTILIZING A CLOSED-CYCLE HELIUM REFRIGERATION SYSTEM

James D. Yearout, Rolling Hills, Calif., assignor, by mesne assignments to McDonnell Douglas Corporation, Santa Monica, Calif., a corporation of Maryland
Continuation of application Ser. No. 539,840, Apr. 4, 1966. This application May 26, 1969, Ser. No. 828,806
Int. Cl. F25j 1/02, 3/04, 3/02
U.S. Cl. 62—40 12 Claims



In the separation of oxygen and nitrogen from air, the process involving introducing compressed cooled air at its saturation temperature into a fractionating column, passing another gaseous medium such as helium into heat exchange relation along the lower portion of the fractionating column, the helium being at a temperature to supply heat along the lower portion of the column, cooling the resulting heated helium, preferably by heat exchange with an external refrigerant followed by work expansion of the helium, passing the cooled helium gas into heat exchange relation along the upper portion of the column, such helium being at a temperature to remove heat along the upper portion of the column, compressing the exiting helium and recycling same in heat exchange relation along the lower portion of the column, thus effecting a differential distillation of the air in the column, and separating nitrogen overhead from the upper end of the column and liquid oxygen from the lower end of the column.

In a preferred procedure, nitrogen overhead is passed in heat exchange relation with compressed feed air for cooling same, a portion of the heated nitrogen gas is compressed and cooled, and such cool compressed nitrogen passed in heat exchange relation with liquid oxygen withdrawn from the bottom of the column, cooling the compressed nitrogen and vaporizing the oxygen, which is withdrawn as product, the cooled nitrogen is passed in heat exchange relation with the lower portion of the column, is subcooled by heat exchange relation with nitrogen overhead withdrawn from the column, is throttled, and the resulting liquid nitrogen introduced as reflux to the top of the column.

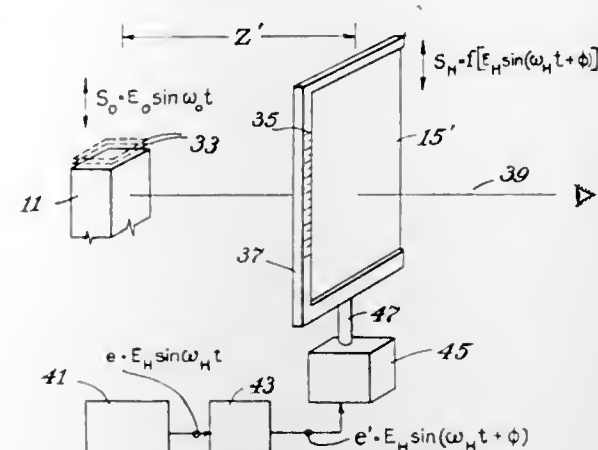
The system has the advantage of employing a single fractionating column operating at or slightly above atmospheric pressure, with reduced power consumption and increased efficiency, the only gas requiring significant compression being the portion of the gaseous nitrogen withdrawn from the upper end of the column and recycled to provide additional reflux to the column.

METHOD AND APPARATUS FOR MEASURING THE FREQUENCY OF VIBRATION OF AN OBJECT USING HOLOGRAMS

Richard L. Nelson, 179 W. Granville Road, Worthington, Ohio 43085
Filed Dec. 11, 1967, Ser. No. 689,589
Int. Cl. G01h 13 Claims

U.S. Cl. 73—71.3

10 Claims



Measuring the amplitude and frequency of vibration of a solid object wherein a hologram is made of the object under investigation and an image of this object is reconstructed and vibrated for use in comparing its controlled vibration with that of the object.

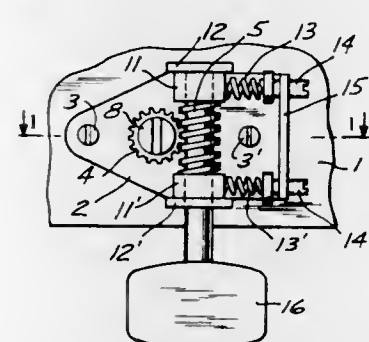
3,564,573

TUNING DEVICE FOR STRINGED MUSICAL INSTRUMENTS

Hans Wüstl, Waldstrasse 41, Bubenreuth, near Erlangen, Germany
Original application Jan. 23, 1967, Ser. No. 610,892, now Patent No. 3,496,825. Divided and this application Aug. 7, 1969, Ser. No. 848,164
Int. Cl. G01d 3/14 13 Claims

U.S. Cl. 84—306

13 Claims



A tuning device for a stringed musical instrument in which a selected one of the strings of the instrument can be gradually and accurately tuned by continuously biasing a spindle into rotation-transmitting play-free engagement with a worm gear which in turn is secured to a rotary shaft having attached thereon the string to be tuned.

3,564,574

MUSICAL WOODWIND INSTRUMENT

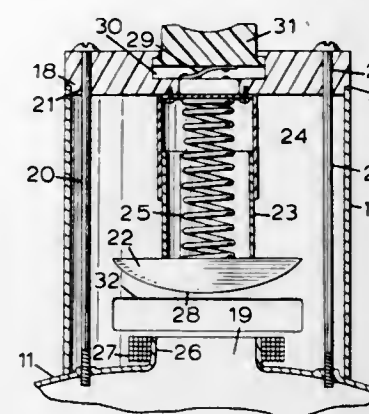
John W. Singular, 566 Paisley Road, Guelph, Ontario, Canada
Filed Nov. 18, 1968, Ser. No. 776,415
Int. Cl. G10d 7/06 2 Claims

U.S. Cl. 84—380

2 Claims

A saxophone having circular tone holes each of which is provided with an electro-magnetically operable valve for selectively covering and uncovering the tone hole, so that the weight and manufacturing costs of the saxophone

may be reduced, and the tone holes may be positioned at the locations for optimum pitch quality without awkward fingering of the instrument being required. The valve member of each valve has a face of part-spherical form which contacts the associated tone hole when the tone hole is in the covered condition, the dimensions of said face



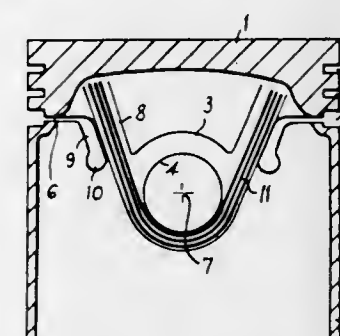
being greater, in a plane parallel to the plane of the tone hole, than the diameter of the tone hole. Each valve includes a casing which co-axially surrounds the associated tone hole and which is formed with two diametrically opposed openings the lower edges of which are in the plane of the tone hole.

3,564,575
PISTONS

John Anthony Catharall, Leamington Spa, England, assignor to Associated Engineering Limited, Warwickshire, England, a company
Filed Mar. 5, 1969, Ser. No. 804,459
Claims priority, application Great Britain, Mar. 15, 1968, 12,834/68
Int. Cl. F16j 1/04 14 Claims

U.S. Cl. 92—230

14 Claims



The present invention relates to pistons and to methods for their manufacture. According to the invention a piston includes filamentary reinforcement provided at least in the region of the or each gudgeon pin bore. The filamentary reinforcement may extend from the region of or adjacent to the piston crown to the region of the or each gudgeon pin bore.

3,564,576

GELATIN COATING COMPOSITIONS CONTAINING A MIXTURE OF SODIUM MALEOPIMARATE AND A SUCROSE ESTER OF AN ALIPHATIC ACID

William J. Knox, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Continuation-in-part of application Ser. No. 365,180, May 5, 1964. This application Sept. 11, 1964, Ser. No. 395,949
Int. Cl. G03c 1/38 11 Claims

U.S. Cl. 96—114.5

11 Claims

Coating processes and compositions of matter coated thereby comprising gelatin and containing therein, as a

coating aid, a mixture of sodium maleopimarate and a sucrose ester of an aliphatic acid are disclosed. Said processes and coating compositions find particularly good usage in photographic layers, emulsions and elements.

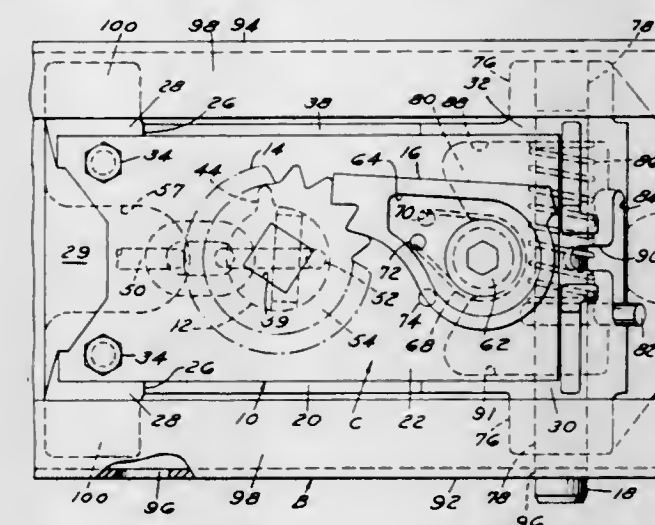
3,564,577

VEHICLE TIE-DOWN STRUCTURE

Donald J. Blunden, Southfield, and Allan C. Kack, Detroit, Mich., assignors to Whitehead & Kales Company, River Rouge, Mich., a corporation of Michigan
Filed Aug. 19, 1969, Ser. No. 851,209
Int. Cl. B61d 45/00; B60p 7/08 4 Claims

U.S. Cl. 105—369

4 Claims



A vehicle tie-down structure comprising a longitudinally extend rail adapted to be anchored lengthwise upon a longitudinally extending deck of a transport, and a carriage movable lengthwise of the rail. The carriage has a rotatable shaft upon which is wound a flexible element adapted to engage and hold a vehicle. A ratchet gear and pawl are provided for preventing rotation of the shaft in one direction, and a lock pin is provided for securing the carriage to the rail in longitudinally adjusted position.

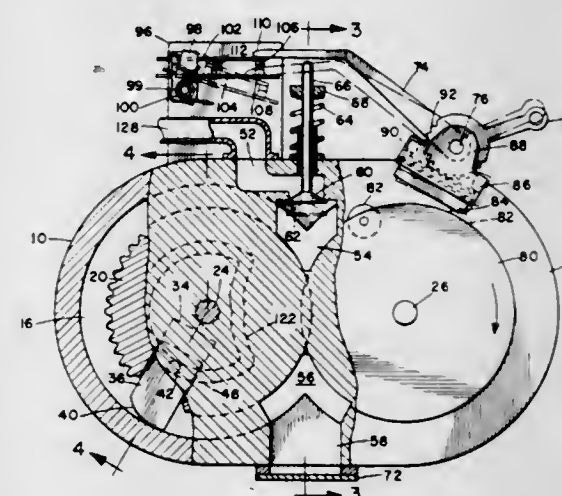
3,564,578

ROTARY ENGINE

John H. Taylor, 2033 Wilbur St., San Diego, Calif. 92109
Continuation-in-part of application Ser. No. 820,174, Apr. 29, 1969. This application Dec. 31, 1969, Ser. No. 889,543
Int. Cl. F02b 53/06 8 Claims

U.S. Cl. 123—8.49

8 Claims



A rotary engine having a pair of inter-engaging rotors, each with a cam guided slide element which rides in an annular cylinder chamber. Ignition timing means is combined with variable valve actuating mechanism and the

engine is adaptable to gaseous fuels with oxidizer, or conventional liquid fuel and air mixtures, admitted under pressure, combustion being very complete with minimum noxious exhaust emission. Basic elements of the engine are designed to allow axial stacking of multiple units on common rotor shafts.

3,564,579

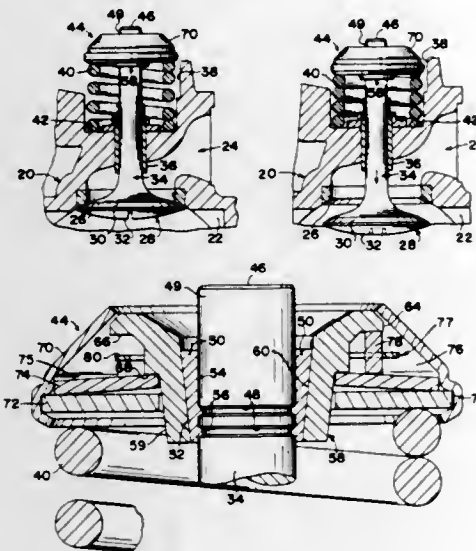
VALVE ROTATING DEVICE

George B. K. Meacham, Birmingham, and Vernon A. Johnson, Southfield, Mich., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
Continuation-in-part of application Ser. No. 687,288, Dec. 1, 1967. This application Apr. 25, 1969, Ser. No. 824,352

Int. Cl. F011 1/32

U.S. Cl. 123—90.3

34 Claims



A rotating device for poppet-type valves including a spring washer and a plurality of sprags positioned between first and second parts, one of said parts being interconnected for rotation with the valve. Deflection of the spring washer on the valve open stroke causes the sprags to pivot from a first to a second position relative to the spring washer, producing rocking movement of the sprags and rotation of the valve. The sprags are mounted on a resilient device which encircles the valve stem and normally but yieldably holds the sprags in said first position.

3,564,580

ANTI-POLLUTION DEVICE

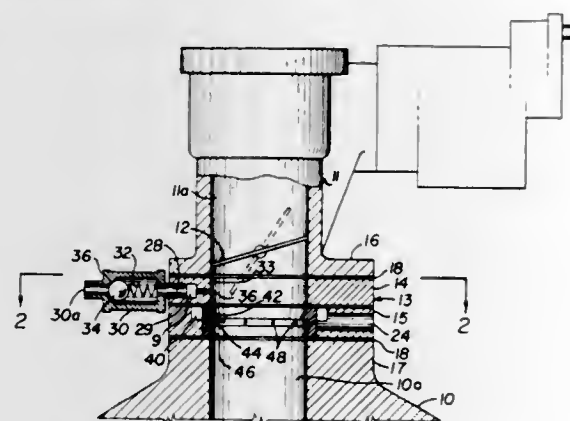
Alphonse Cinque, Lynbrook, N.Y., assignor to Dorado Research Corporation, Lynbrook, N.Y., a corporation of New York

Filed Dec. 29, 1969, Ser. No. 888,792

Int. Cl. F02m 23/00

U.S. Cl. 123—119

10 Claims



An anti-pollution device comprising a plate member inserted between a carburetor and the intake manifold. The member has a bore which is shaped with a straight

section, a convergent section and a divergent section. Supplemental air is permitted to enter the divergent section by means of holes in a plenum chamber (surrounding the bores) which receive the supplemental air from conduits. A larger quantity of air is automatically controlled by a valve to enter the bores through the straight section during engine deceleration.

3,564,581

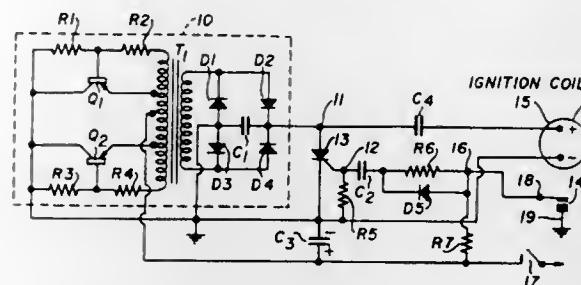
IGNITION SYSTEM

Frederick L. Winterburn, 92 Knoxdale Road, Ottawa, Ontario, Canada
Continuation-in-part of application Ser. No. 310,550, Sept. 23, 1963. This application Jan. 11, 1965, Ser. No. 425,686

Int. Cl. F02p 3/06

U.S. Cl. 123—148

13 Claims



A capacitor discharge type of ignition system is provided with an electronic switch triggered from the breaker points through a capacitor and diode. The capacitor discharges through a resistor in parallel with the diode on point closing to provide a time constant delay to eliminate the effect of point bounce.

3,564,582

OBTURO-MUCO-RETRACTOR

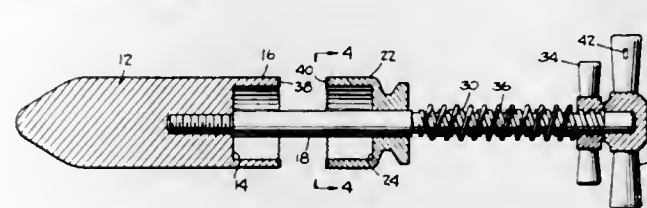
Richenel J. Tjong-Joe-Wal, Cornells Jong Baw Straat 16, Paramaribo, Surinam

Filed Aug. 11, 1969, Ser. No. 849,004

Int. Cl. A61b 17/00, 17/11

U.S. Cl. 128—346

7 Claims



An instrument for proctological operations comprising a cylinder with tapered tip and concave base secured to a handled shaft disposed axially through the base, a concave closure member slidably mounted on the shaft with its concavity facing the cylinder cavity, a wing nut threaded on the shaft between the closure member and the handle, and a coil spring disposed around the shaft between the wing nut and the closure member, with the latter adapted to be urged against the cylinder by rotation of the wing nut.

3,564,583

ELEVATED WIG

Raphael Klugmann, New York, N.Y., assignor to Alfred Klugmann, Inc., New York, N.Y.
Filed Jan. 6, 1970, Ser. No. 853

Int. Cl. A41g 3/00

U.S. Cl. 132—53

2 Claims

A wig including a foundation element of relatively inextensible material and having inner and outer surfaces. Hair is attached to the outer surface to cover substantially the entire foundation element. A lining element composed of the relatively resiliently expandable textile material of size and shape generally corresponding to that

of the foundation element is interconnected to the inner surface of the foundation element over a substantial area thereof, leaving a generally centrally disposed area which is free of interconnection, such that when the lining element is in relatively unstressed condition, the portion of the foundation element which is free of interconnection



therewith will be of an area substantially greater than the corresponding portion of the lining element. When the wig is worn, the lining element is placed in contact with the head of the wearer, the unconnected corresponding area of the foundation element being thereby bowed upwardly to give an impression of greater height to the wearer.

3,564,584

MACHINES FOR WASHING BEER KEGS AND LIKE CONTAINERS

Maurice Ruddick, Rochester, Kent, England, assignor to Burnett & Rolfe Limited, Rochester, England, a British company

Filed Aug. 12, 1968, Ser. No. 751,858

Claims priority, application Great Britain, Aug. 18, 1967,

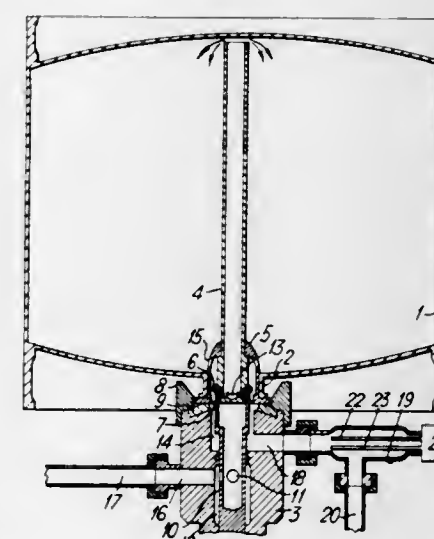
38,125/67

The portion of the term of the patent subsequent to July 8, 1985, has been disclaimed

Int. Cl. B08b 3/10, 9/14

U.S. Cl. 134—57

3 Claims



A machine for automatically washing beer kegs or like containers comprises a head which is arranged to be applied to the bung hole or other opening of the container and which has an inlet passage for the supply of washing liquid to the container and for the supply of steam or gas under pressure and an outlet passage out of which liquid supplied to the container is blown by the steam or gas, the supply of liquid and gas or steam and other operations of the machine being controlled by a control device. The control device is connected to a liquid detector which is in communication with the outlet passage, such that after the supply of washing liquid and the subsequent supply of gas or steam, the detector causes the control device to initiate a further operation of the machine only when the detector detects the absence of washing liquid in the outlet passage. The detector is an electrical device which is sensitive to the electrical conductivity of the fluid

flowing through the outlet passage, the conductivity of liquid being greater than the conductivity of steam or gas.

3,564,585

METHOD FOR MAKING STAINLESS STEEL CLAD ALUMINUM

William C. Camp, McMurray, Pa., assignor to Composite Metal Products, Inc., a corporation of Pennsylvania
No Drawing. Filed Aug. 19, 1968, Ser. No. 753,750
Int. Cl. B23p 3/02; C22f 1/04

U.S. Cl. 148—11.5

16 Claims

Aluminum is clad with stainless steel by mechanically cleaning the aluminum, heating the metal surfaces, in a heating zone, to a temperature above the recrystallization temperature of the aluminum, bringing the cleaned surface in contact with the stainless steel surface under a pressure to effect a two-step reduction of 5% to 35% in each of the metals. A 0.25% to 2.0% reduction is accomplished in the first stage, outside the heating zone, while the metals are above the recrystallization temperature with the remainder in the second stage. A diffusion bond is formed and the bonded metals are annealed at 700° F. to 900° F.

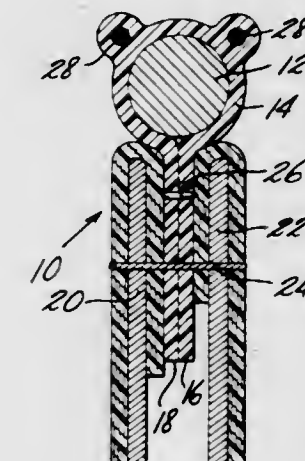
3,564,586

PROTECTIVE RING FOR GOLF CLUB BAGS

Loman H. Le Goff, Morrisville, Pa., assignor to Acushnet Company, a corporation of Massachusetts
Filed Aug. 28, 1969, Ser. No. 853,740
Int. Cl. A63b 55/00

U.S. Cl. 150—1.5

10 Claims



A metal annular ring to be attached to the mouth of a golf bag is surrounded by plastic. The plastic has an extension thereon which projects down from the ring for attachment to the mouth of the bag to anchor the metal ring in position in the golf bag mouth. The plastic protects the mouth of the bag against wear and the metal ring reinforces the structure to preserve the shape of the mouth of the bag.

3,564,587

SEALING GLASS COMPOSITIONS AND ARTICLES BONDED THEREWITH

James Leslie Ellis, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
No Drawing. Original application Sept. 29, 1966, Ser. No. 583,105, now Patent No. 3,459,569, dated Aug. 5, 1969. Divided and this application July 15, 1969, Ser. No. 842,004

Int. Cl. B22b 17/06

U.S. Cl. 161—193

9 Claims

A composite article comprising two glass or glass-ceramic surfaces bonded together by an intermediate layer

of bonding glass consisting essentially of 10-22 mole percent Li_2O , 5-12 mole percent Cu_2O , 0-3 mole percent Fe_2O_3 , 0-2.5 mole percent MnO_2 , 6-10 mole percent Al_2O_3 and 55-70 mole percent SiO_2 .

3,564,588

CHEMILUMINESCENT SYSTEM FOR DETECTING LIVING MICROORGANISMS

Giorgio Soli, Los Angeles, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed July 7, 1964, Ser. No. 380,958

Int. Cl. C12k 1/04

U.S. Cl. 195-103.5

6 Claims

A method for detecting living microorganisms in abnormal concentrations and differentiating them from inert matter by taking advantage of the ability of microorganisms to decompose hydrogen peroxide through the enzyme, catalase, which they generate. Therefore, by providing a system containing hydrogen peroxide and a chemiluminescent compound the enzyme decomposes the peroxide thereby activating the chemiluminescent compound which produces a light change and reveals the presence of living microorganisms.

3,564,589

IMMERSION-TYPE AQUARIUM HEATER WITH AUTOMATIC TEMPERATURE CONTROL AND MALFUNCTION SHUT-OFF

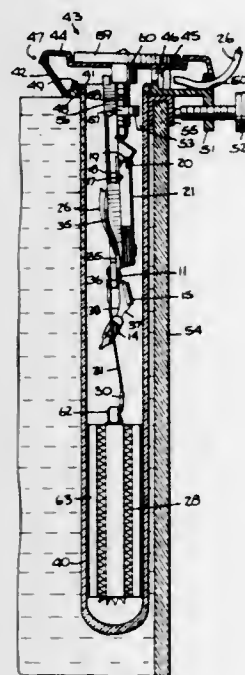
Henry M. Arak, 2480 Ocean Parkway, Brooklyn, N.Y. 11235

Filed Oct. 13, 1969, Ser. No. 865,621

Int. Cl. H05h 3/78

U.S. Cl. 219-331

5 Claims



An immersion-type electric aquarium heater consisting of a housing, securable to an aquarium wall, in combination with an open-necked tube opening into and suspended from the housing, with a heating element and a mounting-supported temperature-responsive switch unit disposed within the tube and electrically connected in a circuit to an electric plug, with the contact points of the switch unit members manually adjustable with respect to

each other, and a capacitor electrically connected across the lines of the electric plug in a circuit parallel to the circuit of the heating element.

3,564,590

GARMENT CARRIER

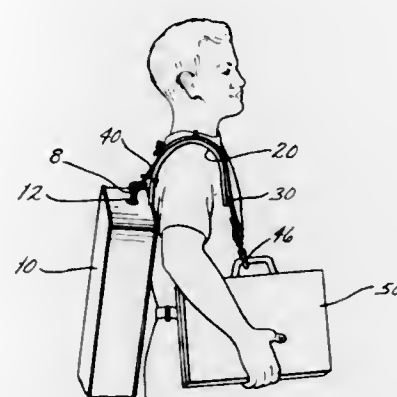
John A. Hebel, 249 Churchill Lane, Ballwin, Mo. 63011

Filed Sept. 30, 1969, Ser. No. 862,183

Int. Cl. A45f 3/02

U.S. Cl. 224-5

12 Claims



A garment carrier for hanger-held clothing includes a carrier strap adapted to fit over the user's shoulder. At its rear end the strap is connected in a garment bag, while at its forward end the strap is provided with a hook which can be easily gripped or engaged with the handle of a small valise to counteract the weight of the clothing. A shoulder pad is interposed between the user's shoulder and the strap to distribute the weight of the clothing across the user's shoulder.

3,564,591

REGISTER AND ELECTRICAL SIGNAL GENERATOR APPARATUS

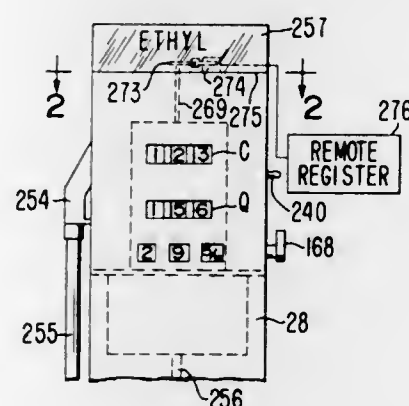
John B. Riddle, Los Altos Hills, and Frederick K. Tanaka, Hayward, Calif., assignors to Micro-Magnetic Industries, Inc., Palo Alto, Calif., a corporation of California

Filed July 23, 1969, Ser. No. 843,952

Int. Cl. G06c 15/42; B67d 5/26

U.S. Cl. 235-94

10 Claims



An electrical signal generator coupled to a mechanical register apparatus of a gasoline pump is disclosed. A set of number wheels for registering the cost of the gasoline is coupled to a driven gear train for rotating the number wheels during a counting operation and is decoupled from

the driven gear train and coupled to a reset gear train for resetting the number wheels to zero during a reset operation. The signal-generator comprises a rotatable shaft and a first gear means coupled to the driven gear train for rotating the main drive shaft during the counting operation. A second gear means coupled to the reset gear train rotates the shaft to a home position during the resetting operation.

3,564,592

TOTALIZER ALINER MECHANISM

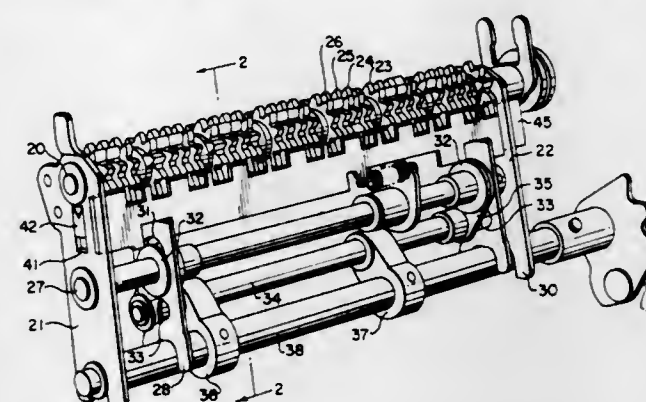
George J. Eberhardt, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

Filed Jan. 15, 1969, Ser. No. 791,329

Int. Cl. G06c 25/00, 29/00

U.S. Cl. 235-130

4 Claims



An aliner mechanism for selectively releasing a totalizer element for operation while disabling the remaining totalizer elements. The aliner mechanism includes a notched member which is slidably mounted for movement between several positions, each position selecting only one totalizer element for operation, the totalizers including an add-subtract totalizer element.

3,564,593

COUNTDOWN COUNTER FOR DUPLICATING MACHINE

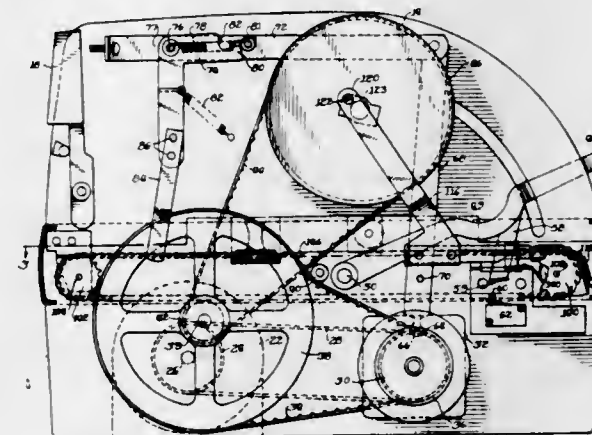
Paul G. Bielik, North Riverside, Ill., assignor to Bell & Howell Company, Chicago, Ill., a corporation of Illinois

Filed Oct. 20, 1969, Ser. No. 867,520

Int. Cl. G06m 3/02

U.S. Cl. 235-132

5 Claims



This invention is directed to countdown counting apparatus for use with duplicating machines including a copy selector movable along a straight line path rather than a rotary path, which may be pre-set to duplicate any desired number of copies. Operationally, the copy selector is automatically indexed one unit in the direction of its home position during each duplicating cycle of the machine. Operation of duplicating machine is automatically terminated upon the selector attaining the home position.

3,564,594

PULSE RATE COMPUTER INCLUDING STORAGE REGISTERS FOR FEEDING BACK PARTIAL RESULTS OF COMPUTATIONS

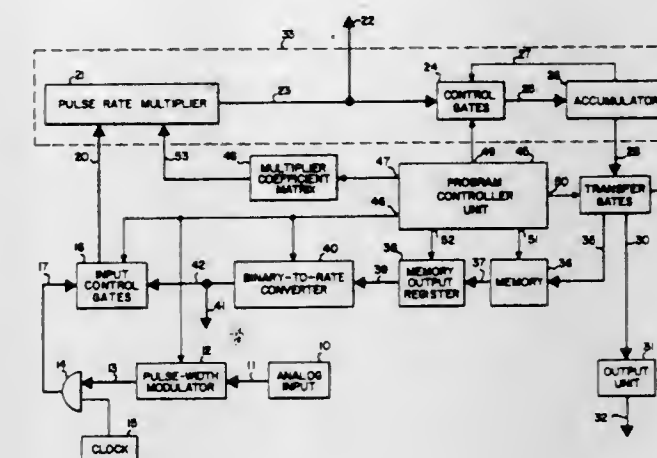
Vincent Montalto, Jr., Fridley, Anoka, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Aug. 5, 1965, Ser. No. 477,370

Int. Cl. G06f 1/00

U.S. Cl. 235-150.3

14 Claims



A pulse rate computer including storage registers arranged in a feedback configuration for feeding back partial results of computations is shown and described.

3,564,595

DATA INTERPOLATION FOR COMPUTER CONTROL OF MACHINE TOOLS

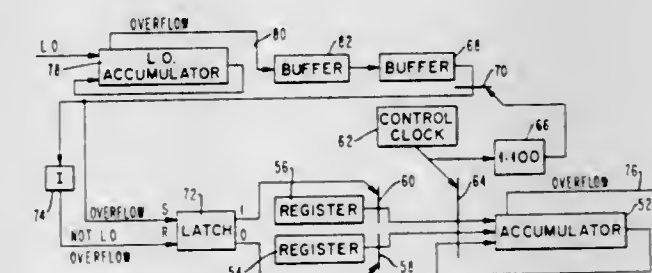
Albert R. De Florio, Philadelphia, Pa., and Donald Wertzman, Mahopac, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Nov. 19, 1968, Ser. No. 776,948

Int. Cl. G08c 19/20; H03k 3/78

U.S. Cl. 235-151.11

7 Claims



A system for interpolating data so as to generate a stream of pulses for controlling a machine tool or other precise mechanism. The interpolation is broken into a high-speed portion and a low-speed portion. The low-speed portion is performed by a general purpose computer and the high-speed portion is performed by a special purpose interpolator.

3,564,596

DECISION COUNTER

Cabell N. Pryor, Jr., Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed June 29, 1962, Ser. No. 206,529

Int. Cl. G06f 15/34

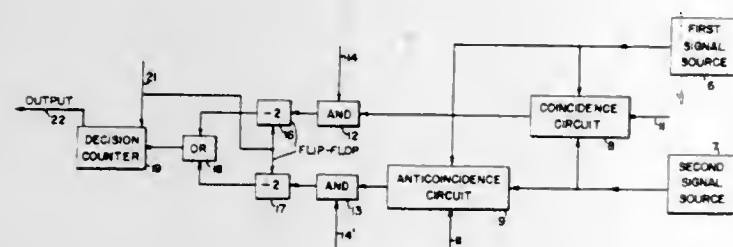
U.S. Cl. 235-181

6 Claims

3. A logical decision circuit comprising a first and a second AND gate each having an input for receiving

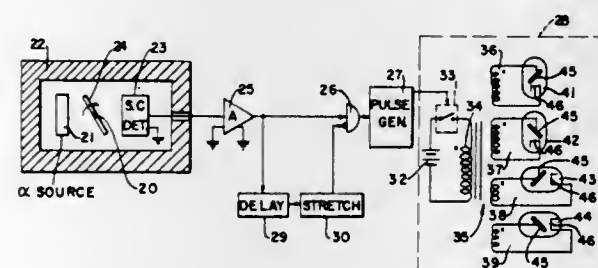
pulses, an output terminal and an enabling means for passing the input pulses to the output terminal during a first and a second period of time respectively; a first and a second resettable divide-by-two circuit each having an input terminal connected to a different one of the said first and second AND gates for receiving the passed pulses, an output terminal for passing every second received pulse, and a reset terminal for setting the first and second divide-by-two circuits in an initial condition for passing every second pulse received; a multi-stage resettable decision counter means connected to both of said first and second divide-by-two circuits for counting all pulses passed by said last-named circuits and producing an output pulse whenever the sum of pulses received by both of said first and second divide-by-two circuits is greater than twice the counting capacity of the decision counter, and producing no output pulse whenever the total sum of pulses received by said first and second di-

vide-by-two circuits is less than twice the counting capacity of decision counter, and producing an output pulse whenever the sum of pulses received by said first and second divide-by-two circuits is equal to twice the counting capacity of the counter means and obtained by summing an even number of pulses to said first divide-by-two circuit and an even number of pulses to said second divide-by-two circuit, and producing no output pulse whenever the sum of pulses received by said first and second divide-by-two circuits is equal to twice the counting capacity of the counter means and obtained by summing an odd number of pulses to said first divide-by-two circuit and an odd number of pulses to said second divide-by-two circuit; and reset means for setting said, first and second divide-by-two circuits and said decision counter in an initial condition at the beginning of a cycle of operation.



and the exposed recording layer is treated with an aqueous liquid to develop the information therein.

3,564,598
RANDOM PULSE POSITION DETERMINING SYSTEM AND METHOD
Linus K. Hahn, Columbus, Ohio, assignor, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission
Filed Dec. 20, 1966, Ser. No. 603,221
Int. Cl. G01t 1/16
U.S. Cl. 250—83.3 22 Claims



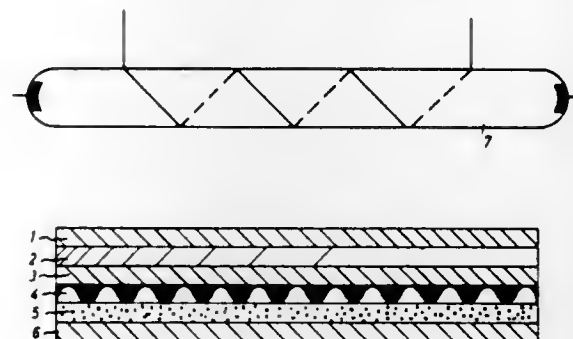
A system for determining the relative positions of a plurality of nucleonic sources relative to a nucleonic detector includes a single processing channel for deriving signals indicative of the range and azimuth of the sources relative to the detector. The signals are applied to a plane position indicator having memory features such that an indication of a nucleonic source position is derived only in response to the repeated derivation of similar range and azimuth indicating signals. The memory may comprise a cathode ray tube phosphorous face or electronic computing type network.

3,564,599
PROCESS FOR THE PREPARATION OF POLY-DODECALACTAM WITH HIGH MOLECULAR WEIGHT
Siegfried Schaaf and Wolfgang Griehl, Chur, Grison, Switzerland, assignors to Inventa A.G. für Forschung und Patentverwertung, Zurich, Switzerland
No Drawing. Filed Jan. 23, 1964, Ser. No. 339,601
Claims priority, application Switzerland, Jan. 29, 1963, 1,047/63
Int. Cl. C08g 20/10
U.S. Cl. 260—78 5 Claims

1. A process for preparing a high molecular weight polyamide capable of after-polymerization in an inert gas atmosphere at temperatures below its melting point, which comprises polymerizing ω -dodecalactam by heating under exclusion of water at temperatures above 300° C. in the presence of a phosphoric acid in the amount of 0.05–1% by weight calculated on the ω -dodecalactam.

3,564,597
THERMOGRAPHIC RECORDING PROCESS FOR REPRODUCING CONTINUOUS TONE TRANSPARENCIES
Marcel Nicolas Vrancken, Hove, Belgium, assignor to Gevaert-Agfa N.V., Mortsel, Belgium, a Belgian company
Filed Jan. 11, 1967, Ser. No. 608,572
Claims priority, application Great Britain, Jan. 11, 1966, 1,351/66
The portion of the term of the patent subsequent to Nov. 4, 1986, has been disclaimed
Int. Cl. G03b 41/00
U.S. Cl. 250—65 12 Claims

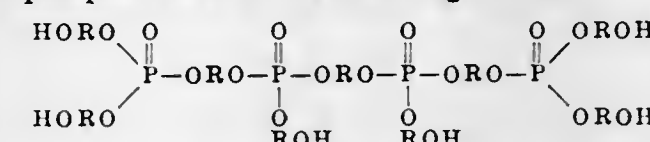
A process of reproducing information wherein a heat-sensitive recording layer adapted to change the water-permeability thereof when heated and containing uniformly distributed therethrough finely-divided material absorbing visible radiation and converting the same to heat is exposed to radiation through a continuous tone transparency to be reproduced and a screen, the time of the exposure being not more than one-tenth of a second, and the intensity of the radiation being sufficient to produce



3,564,600
3,4-DIMETHYL-5-ETHYLPHENYL METHYL CARBAMATE
Jerome G. Kuderna, Jr., Modesto, Calif., and Donald D. Phillips, Metuchen, N.J., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 200,643, June 7, 1962. This application Feb. 24, 1964, Ser. No. 346,997
Int. Cl. C07c 101/12
U.S. Cl. 260—479 1 Claim
Disclosed is 3,4-dimethyl-5-ethylphenyl methyl carbamate, useful as an insecticide.

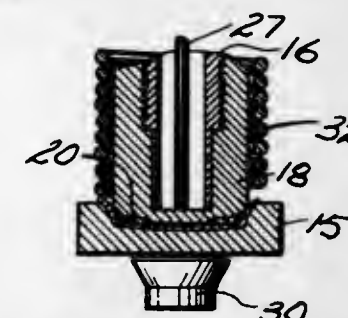
3,564,601
OXIDATION OF TRIVALENT PHOSPHORUS ESTERS TO PENTAVALENT PHOSPHORUS ESTERS
Enrique R. Witt, Corpus Christi, Tex., Sam Carpenter, New City, N.Y., and Stone D. Cooley, Basking Ridge, N.J., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Continuation of application Ser. No. 43,731, July 19, 1960. This application June 10, 1964, Ser. No. 374,140
Int. Cl. C07f 9/02
U.S. Cl. 260—929 1 Claim

A phosphate ester of the following formula:



wherein R is the dipropylene ether radical, which may be used in polyurethane foam production.

3,564,602
METHOD OF PREPARING CLOSURES CONTAINING A FOAMED ANNULAR SEALING LINER AND THIN CENTRAL PORTION
Robert Peck, Elmhurst, Ill., assignor to W. H. Hutchinson & Son, Inc., Chicago, Ill., a corporation of Delaware
Filed Aug. 29, 1963, Ser. No. 305,361
Int. Cl. B29d 9/06, 9/08, 27/04
U.S. Cl. 264—45 7 Claims

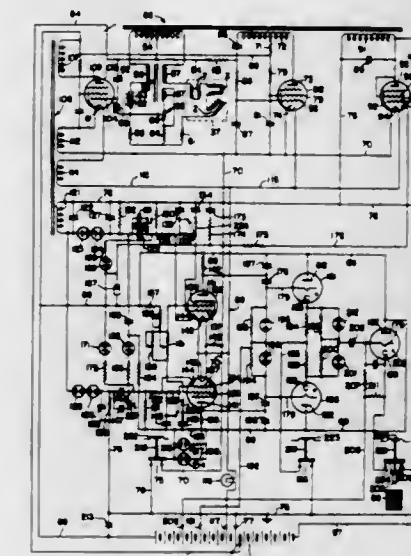


A process for the production of "bottle caps" or crown closures with a liner having a very thin transparent central portion and a foamed annular ring. The foamable vinyl plastisol is deposited in the interior of the inverted closure. The deposited mass is then shaped by a plunger having a raised portion in its central portion. The shaped mass is then heated to gel the plastisol. Thereafter, the shaped plastisol is heated to a higher temperature to fuse and foam the plastisol.

3,564,603
MAGNETIC FIELD DETECTING SYSTEM
Joseph B. Tate, Jr., and Louis W. Erath, Washington, D.C., assignors to the United States of America as represented by the Secretary of the Navy
Original application Oct. 8, 1945, Ser. No. 621,155. Divided and this application Aug. 26, 1954, Ser. No. 454,646
Int. Cl. H03b 3/02
U.S. Cl. 331—183 6 Claims

4. In a magnetic field testing system of the type employing an inductance bridge of which an unbalance

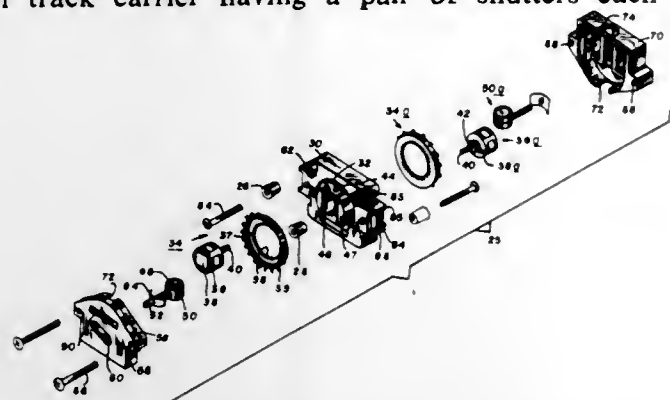
therein is a measure of the deviation of the magnetic field under test from a predetermined value, the combination of an alternating current generator for supplying exciting current to said bridge and an amplitude regulator for controlling the amplitude of said exciting current, said combination comprising a first electron discharge device, an inductive winding connected in the space-discharge path of said first device and inductively coupling said bridge to transfer energy thereto, a parallel tuned resonant circuit inductively coupled to said winding, circuit means including said inductive winding and said resonant circuit operatively associated with said first electron discharge device to form therewith an oscillator for generating alternating current and causing same to appear in said resonant circuit, the frequency of said alternating current being determined by the inductive impedance of said inductance bridge in conjunction with the parametric values of said winding and said resonant circuit, a normally disabled grid-controlled electron discharge device having its anode



directly connected to one side of said resonant circuit and the cathode directly connected to the opposite side of said resonant circuit, conduction of said grid-controlled device being effective to provide a load shunting said resonant circuit to thereby draw current therefrom so as to control the amplitude of the generated alternating current, circuit connections for maintaining the anode and cathode of said grid-controlled device at the same D-C potential level in the absence of alternating current in said resonant circuit, said circuit connections enabling the presence of alternating current in said resonant circuit to establish a potential difference between said anode and said cathode, and alternating current translating means for applying the potential of the generated alternating current appearing in said resonant circuit to the control grid of said grid-controlled device for rendering said grid-controlled device conductive when the amplitude of the generated alternating current exceeds a predetermined amplitude value whereby said grid-controlled device controls the amplitude of the generated alternating current.

3,564,604
MOTION PICTURE FILM EDITOR
Gary Kaess, Fair Lawn, N.J., assignor to Atlas-Rand Corporation, Paramus, N.J., a corporation of New Jersey
Filed Nov. 25, 1969, Ser. No. 879,795
Int. Cl. G03b 21/32
U.S. Cl. 352—129 7 Claims
An editor and/or viewer for motion picture film is adapted to selectively accommodate two sizes of film.

The dual accommodation is provided by a removable film track carrier having a pair of shutters each dis-



posed in way of a film track adapted to be brought in alignment with a projection path.

3,564,605

BENZOFURAN CARBAMATES AND METHOD FOR CONTROLLING ARTHROPODA NEMATODA

William G. Scharpf, Rocktown, N.J., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 14, 1964, Ser. No. 403,912
Int. Cl. A01n 9/28; C07d 5/42

U.S. Cl. 424-285

14 Claims

Benzofuranyl N-unsubstituted and N-hydrocarbon substituted carbamates in which the carbamate is located on the benzene moiety are useful as pesticides.

3,564,606

3-AMINO-5-HALOGENATED ARYLOXYMETHYL-1,2,4-OXADIAZOLES

Herman Breuer, Regensburg, Germany, assignor to Olin Corporation, a corporation of Virginia

No Drawing. Continuation-in-part of application Ser. No. 566,480, July 20, 1966. This application Oct. 9, 1967, Ser. No. 673,977

Claims priority, application Germany, July 30, 1965, C 36,548

Int. Cl. C07d 85/52

U.S. Cl. 260-307

10 Claims

A series of 3-amino-5-halogenated aryloxymethyl-1,2,4-oxadiazoles are provided by the reaction of selected acyl

carbodiimides with hydroxylamine or salts thereof to provide an intermediate N-acylsubstituted-N'-hydroxyguanidine which is converted to the substituted-1,2,4-oxadiazoles by treatment with base. The substituted-1,2,4-oxadiazoles are useful agricultural chemicals, and it has been found that they are particularly outstanding selective herbicides.

3,564,607

HALOGENATED ARYLOXYACETYL CYANAMIDES

Herman Breuer, Regensburg, Germany, assignor to Olin Corporation, a corporation of Virginia

No Drawing. Continuation-in-part of application Ser. No. 566,480, July 20, 1966. This application Oct. 9, 1967, Ser. No. 674,008

Claims priority, application Germany, July 30, 1965, C 36,548

Int. Cl. C07c 103/30

U.S. Cl. 260-429.9

19 Claims

A series of halogenated aryloxyacetyl cyanamides has been provided. These compounds are characterized by unique biological properties, and it has been found that members of the series provided herein are outstanding herbicides.

3,564,608

SELECTED N-ACYLSUBSTITUTED-N'-HYDROXYGUANIDINES

Hermann Breuer, Regensburg, Germany, assignor to Olin Corporation, a corporation of Virginia

No Drawing. Continuation-in-part of application Ser. No. 566,480, July 20, 1966. This application Oct. 9, 1967, Ser. No. 673,975

Claims priority, application Germany, July 30, 1965, C 36,548

Int. Cl. C07c 103/30

U.S. Cl. 260-559

5 Claims

Selected N - acylsubstituted - N - hydroxyguanidines are provided by the reaction of selected acyl carbodiimides with hydroxylamine or salts thereof. The substituted guanidines are useful agricultural chemicals particularly as herbicides.

DESIGNS

FEBRUARY 16, 1971

219,904

HEADBOARD FOR A BED

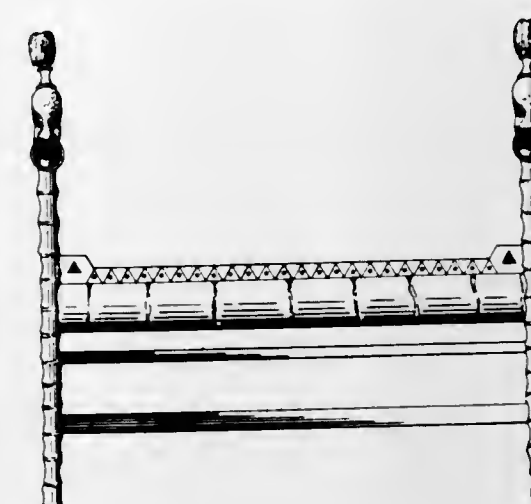
John H. Jordan, Jr., 8124 S. Crandon Ave., Chicago, Ill. 60617

Filed Aug. 29, 1969, Ser. No. 18,918

Term of patent 14 years

Int. Cl. D6-01

U.S. Cl. D5-4



219,905

KNOB

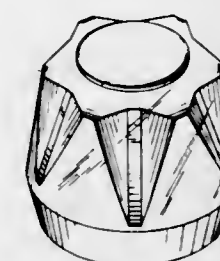
Adolf Gottwald, Iserlohn, Germany, assignor to Friedrich Grohe, Hemer, Germany, a firm

Filed Mar. 13, 1970, Ser. No. 21,897

Term of patent 14 years

Int. Cl. D8-03

U.S. Cl. D8-145



219,906

PULL

Martin R. Lambert, New Hamburg, Ontario, Canada, assignor to Amerock Corporation, Rockford, Ill., a corporation of Connecticut

Filed May 26, 1969, Ser. No. 17,347

Term of patent 14 years

Int. Cl. D8-03

U.S. Cl. D8-166



219,907

NUT

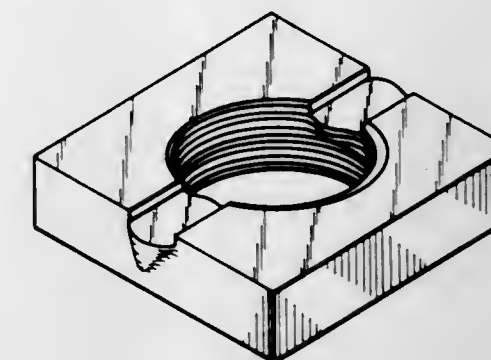
Arthur R. Breed, Euclid, Ohio, assignor to The Lamson & Sessions Co., Cleveland, Ohio, a corporation of Ohio

Filed Jan. 21, 1969, Ser. No. 15,411

Term of patent 14 years

Int. Cl. D8-04

U.S. Cl. D8-274



219,908

BOTTLE OR SIMILAR ARTICLE

Ted L. Beaver, Roselle, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed Feb. 2, 1970, Ser. No. 21,259

Term of patent 14 years

Int. Cl. D9-01

U.S. Cl. D9-61



219,909

JAR

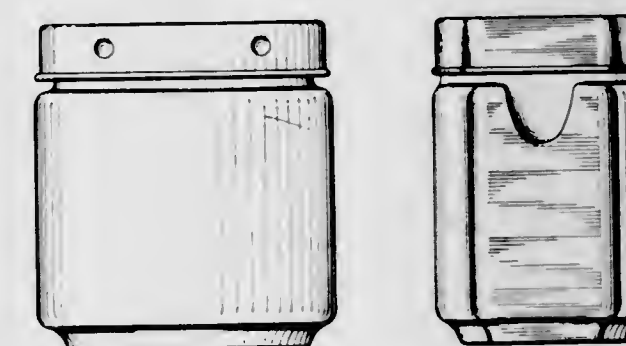
Clarke Hambley and Joseph Torres, Westchester County, N.Y., assignors to Chesebrough-Pond's Inc.

Filed Nov. 3, 1969, Ser. No. 19,904

Term of patent 14 years

Int. Cl. D9-01

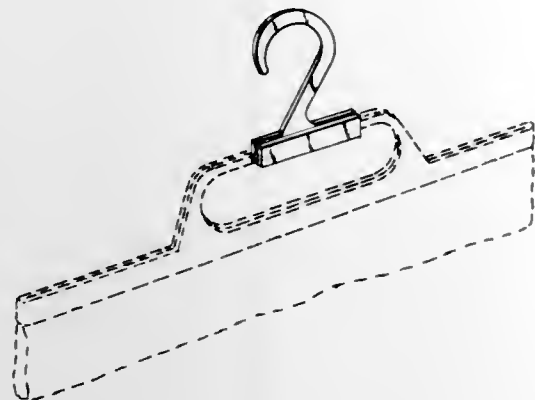
U.S. Cl. D9-163



219,910

HOOK SUPPORT FOR CARRIER BAG HANDLE
Seymour Kamins, Oceanside, and Norman Rosenberg, Bayside, N.Y., assignors to CTP Industries Inc., Brooklyn, N.Y., a corporation of New York
Filed Oct. 9, 1968, Ser. No. 13,910
Term of patent 14 years
Int. Cl. D9—99

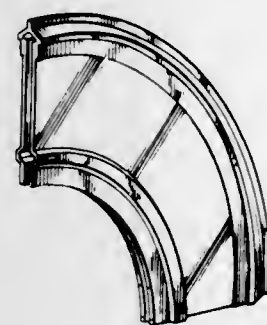
U.S. Cl. D9—291



219,911

CARTRIDGE FOR AUTOMATIC BUNDLING STRAP TOOL
Laszlo Hidassy, Elizabeth, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J., a corporation of New Jersey
Filed Oct. 27, 1969, Ser. No. 19,735
Term of patent 14 years
Int. Cl. D9—99

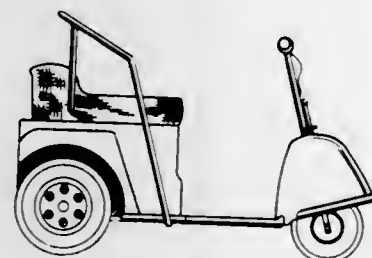
U.S. Cl. D9—294



219,912

PORTABLE MOTORIZED CART
Edward N. Brennan, Tacoma, Wash. (10689D Maplewood Road, Cupertino, Calif. 95014), and Brian L. Brennan, 11616 Gorhame Ave. 6, Los Angeles, Calif. 90049
Filed Apr. 17, 1969, Ser. No. 16,798
Term of patent 14 years
Int. Cl. D12—08

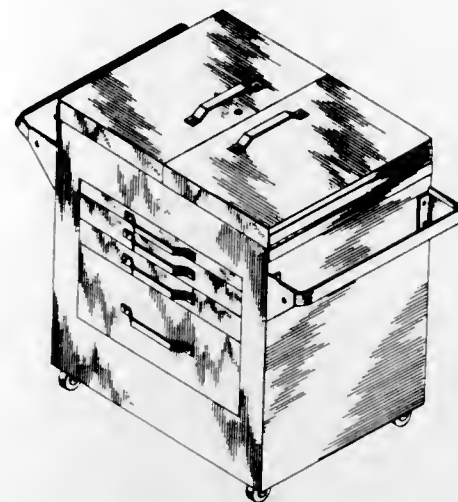
U.S. Cl. D14—3



219,913

TOOL BOX
Howard R. Malm and Grace M. Malm, both of 3907 65th St., Sacramento, Calif. 95820
Filed Nov. 17, 1969, Ser. No. 20,122
Term of patent 7 years
Int. Cl. D12—14

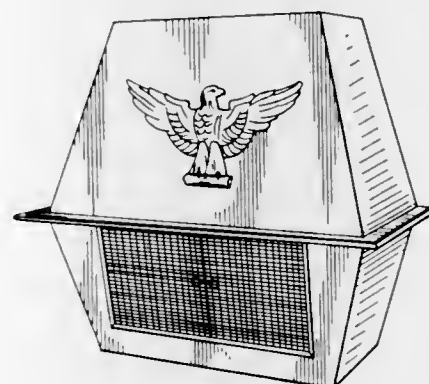
U.S. Cl. D14—3



219,914

WALL FIREPLACE
Edwin L. McElheny, R.R. 1, Nappanee, Ind. 46550
Filed Jan. 15, 1970, Ser. No. 20,939
Term of patent 14 years
Int. Cl. D23—03

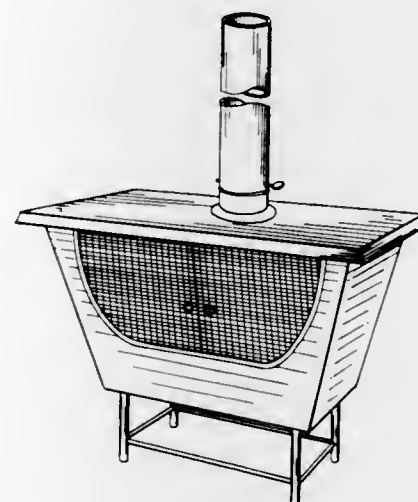
U.S. Cl. D23—94



219,915

PREFABRICATED FIREPLACE
Edwin L. McElheny, R.R. 1, Nappanee, Ind. 46550
Filed Jan. 15, 1970, Ser. No. 20,938
Term of patent 14 years
Int. Cl. D23—03

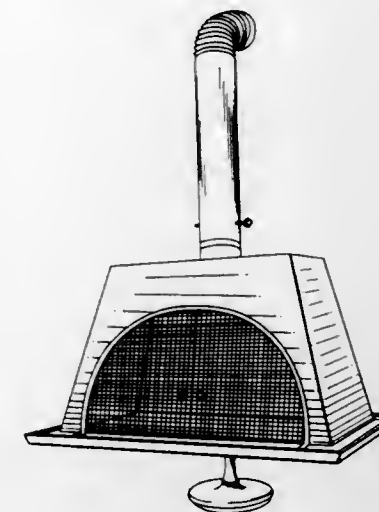
U.S. Cl. D23—97



219,916

FIREPLACE
Edwin L. McElheny, R.R. 1, Nappanee, Ind. 46550
Filed Jan. 15, 1970, Ser. No. 20,940
Term of patent 14 years
Int. Cl. D23—03

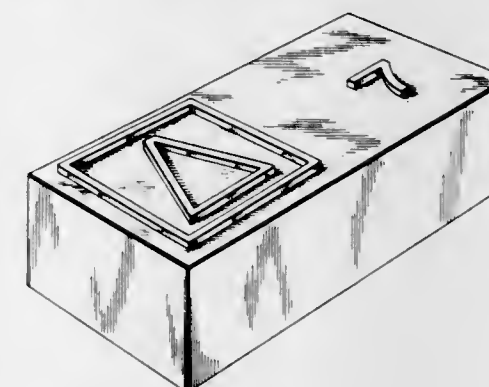
U.S. Cl. D23—97



219,917

SET OF EDUCATIONAL CHILDREN'S BLOCKS OR THE LIKE
William King Skinner, 102 NW. 15th St., Gainesville, Fla. 32601
Filed Mar. 14, 1969, Ser. No. 16,253
Term of patent 14 years
Int. Cl. D19—08

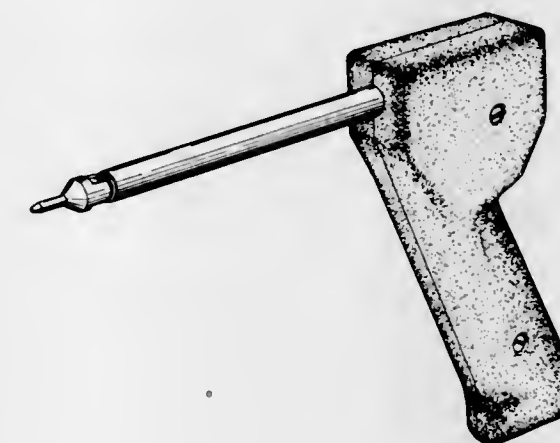
U.S. Cl. D25—1



219,918

LEAK TEST VACUUM PROBE
Guy E. Mongodin, Huntington, and Leon Malmel, Hicksville, N.Y., assignors to Veeco Instruments Inc., Plainview, N.Y., a corporation of New York
Filed Aug. 6, 1969, Ser. No. 18,558
Term of patent 14 years
Int. Cl. D10—11

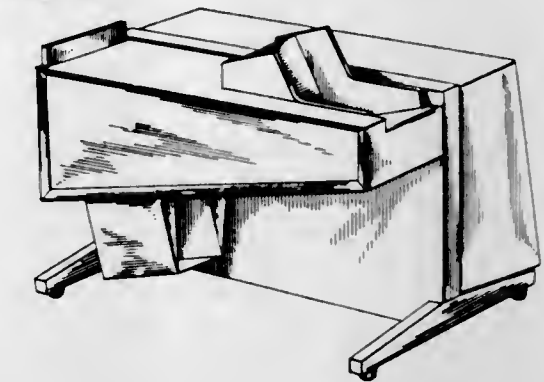
U.S. Cl. D26—1



219,919

CARD READER
Norman Allen Cargill, Warminster, Pa., assignor to Peripheral Dynamics, Inc., Norristown, Pa., a corporation of Pennsylvania
Filed Jan. 21, 1970, Ser. No. 21,022
Term of patent 14 years
Int. Cl. D14—02

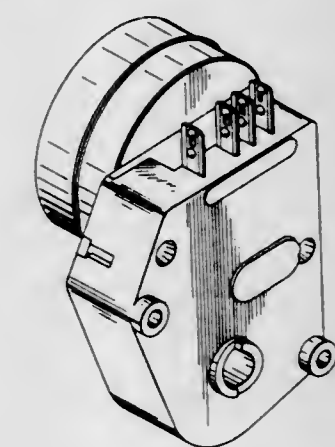
U.S. Cl. D26—5



219,920

COVER FOR A SEQUENTIAL TIMER AND MOTOR
Elmo W. Volland and Kurt Pauker, Indianapolis, Ind., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed July 3, 1969, Ser. No. 18,050
Term of patent 14 years
Int. Cl. D13—03

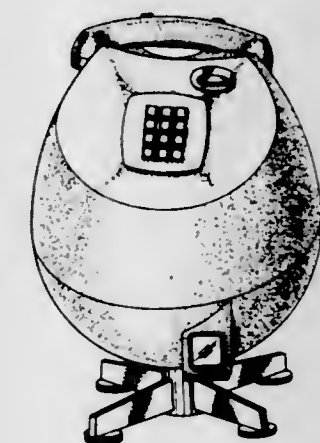
U.S. Cl. D26—13



219,921

PUBLIC TELEPHONE OR SIMILAR ARTICLE
Akira Furusawa, Shin Iwabuchi, Chuta Aikawa, and Shoji Sakai, Tokyo, Japan, assignors of one-half each to Nippon Telegraph and Telephone Public Corporation and Tamura Electric Works, Limited, both of Tokyo, Japan, both corporations of Japan
Filed Nov. 6, 1969, Ser. No. 20,057
Claims priority, application Japan May 15, 1969
Term of patent 14 years
Int. Cl. D14—03

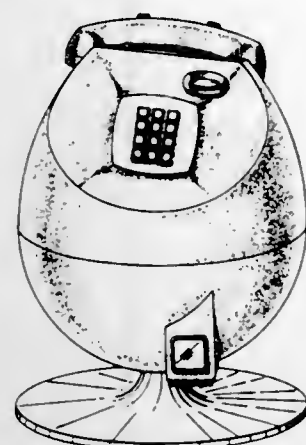
U.S. Cl. D26—14



219,922

PUBLIC TELEPHONE OR SIMILAR ARTICLE
Akira Furusawa, Shoji Sakai, Chuta Aikawa, and Shin Iwabuchi, Tokyo, Japan, assignors of one-half each to Nippon Telegraph and Telephone Public Corporation and Tamura Electric Works, Limited, both of Tokyo, Japan, both corporations of Japan
Filed Nov. 6, 1969, Ser. No. 20,058
Claims priority, application Japan May 15, 1969
Term of patent 14 years
Int. Cl. D14—03

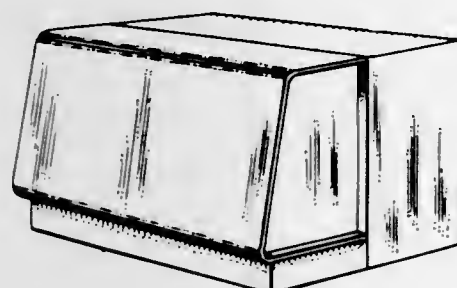
U.S. Cl. D26—14



219,923

DISTRIBUTION TRANSFORMER
Alphonse J. Marchand, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Sept. 23, 1969, Ser. No. 19,263
Term of patent 14 years
Int. Cl. D13—02

U.S. Cl. D26—15



219,924

CHRISTMAS TREE ORNAMENT
Ramona McD. Trush, 67 Albany St., Cazenovia, N.Y. 13035
Filed Nov. 24, 1969, Ser. No. 20,260
Term of patent 14 years
Int. Cl. D11—05

U.S. Cl. D29—1



219,925

CHRISTMAS TREE ORNAMENT
Ramona McD. Trush, 67 Albany St., Cazenovia, N.Y. 13035
Filed Dec. 8, 1969, Ser. No. 20,396
Term of patent 14 years
Int. Cl. D11—05

U.S. Cl. D29—1



219,926

FARROWING PEN
Lyle W. Lage, Gladbrook, Iowa 50635
Filed Sept. 22, 1969, Ser. No. 19,248
Term of patent 7 years
Int. Cl. D30—01

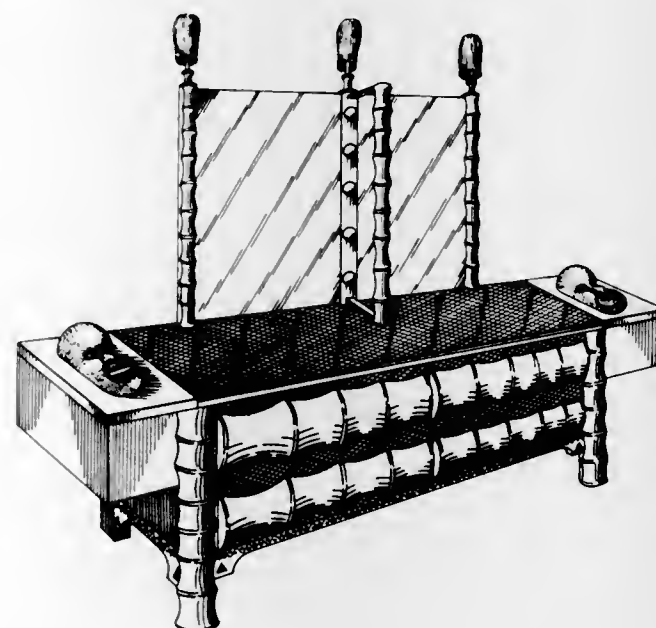
U.S. Cl. D30—1



219,927

DRESSER
John H. Jordan, Jr., 8124 S. Crandon Ave., Chicago, Ill. 60617
Filed Aug. 29, 1969, Ser. No. 18,915
Term of patent 14 years
Int. Cl. D6—01

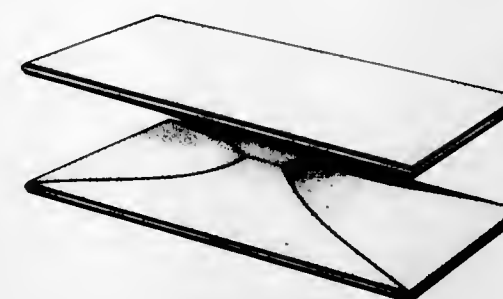
U.S. Cl. D33—6



219,928

TABLE
Ralph S. Tincher, 4731 Babylon St., Montgomery County, Ohio 45439
Filed Sept. 26, 1969, Ser. No. 19,309
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D33—14



219,929

INDICIA COVER FOR GAME BOARD
Mark Herring, Scottsbluff, Nebr., assignor to James A. Warner and Margie Louise Warner, both of Scottsbluff, Nebr.
Original design application June 19, 1969, Ser. No. 17,776.
Divided and this application Feb. 20, 1970, Ser. No. 21,533
Term of patent 14 years
Int. Cl. D21—01

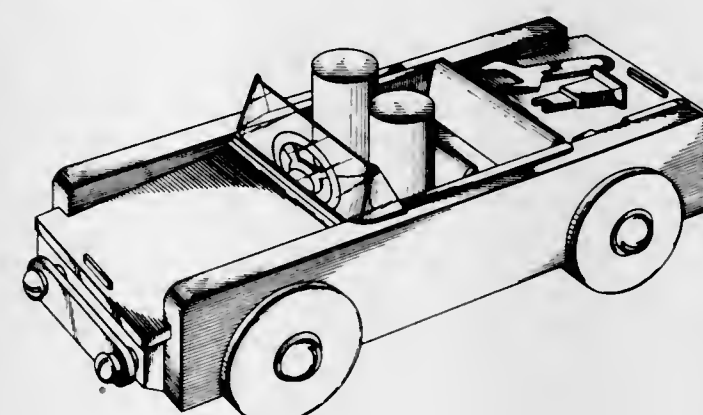
U.S. Cl. D34—5



219,930

TOY AUTOMOBILE
Edward A. Fogarty and Marvin I. Glass, Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill., a partnership
Filed Jan. 19, 1970, Ser. No. 20,992
Term of patent 14 years
Int. Cl. D21—02

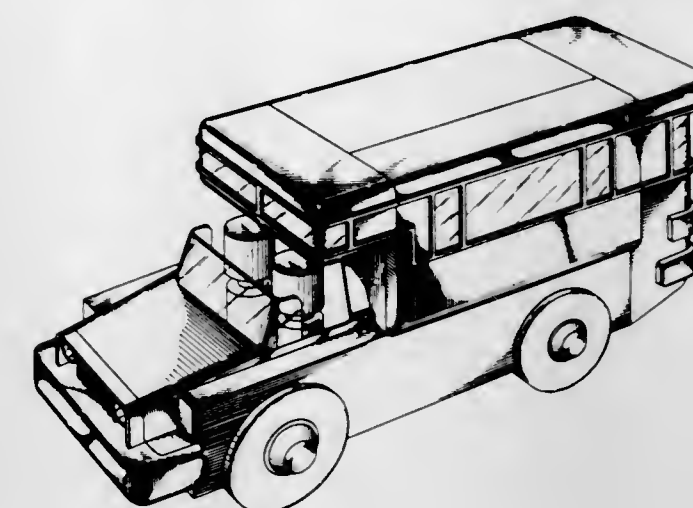
U.S. Cl. D34—15



219,931

TOY CAMPER OR SIMILAR ARTICLE
Edward A. Fogarty and Marvin I. Glass, Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill., a partnership
Filed Jan. 19, 1970, Ser. No. 20,970
Term of patent 14 years
Int. Cl. D21—02

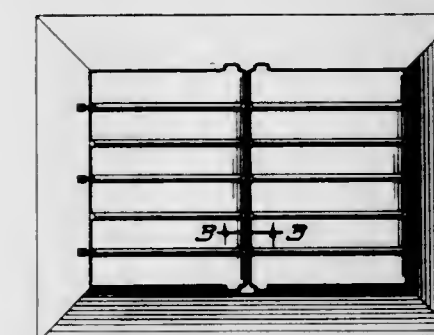
U.S. Cl. D34—15



219,932

COVER UNIT FOR PARTICULATE MATERIAL SPREADER AND THE LIKE
Loren E. Tyler, 102 Chevy Chase Drive, Wayzata, Minn. 55391
Filed Sept. 2, 1969, Ser. No. 18,933
Term of patent 14 years
Int. Cl. D15—03

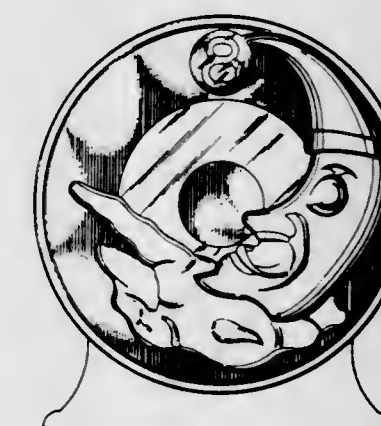
U.S. Cl. D35—2



219,933

CLOCK
Theophile L. De Zinno, 1337 SW. 14th St., Miami, Fla. 33145
Filed June 20, 1969, Ser. No. 17,790
Term of patent 14 years
Int. Cl. D10—01

U.S. Cl. D42—7



219,934

PLATE OR SIMILAR ARTICLE

Eric Kurer, Hegnau, Switzerland, and Erich Hans Slany, Esslingen-Zell, Germany, assignors to Ornapress AG., Schwerzenbach, Switzerland, a corporation of Switzerland

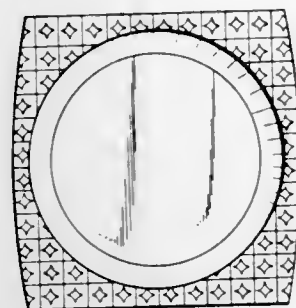
Filed Dec. 29, 1969, Ser. No. 20,657

Claims priority, application Switzerland Aug. 4, 1969

Term of patent 14 years

Int. Cl. D7—01

U.S. Cl. D44—15



219,935

PLATE OR SIMILAR ARTICLE

Eric Kurer, Hegnau, Switzerland, and Erich Hans Slany, Esslingen-Zell, Germany, assignors to Ornapress AG., Schwerzenbach, Switzerland, a Swiss corporation

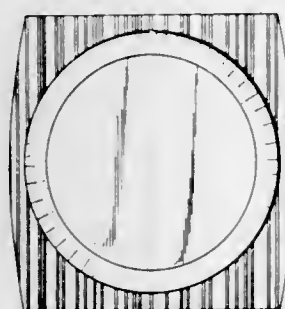
Filed Dec. 29, 1969, Ser. No. 20,658

Claims priority, application Switzerland Aug. 4, 1969

Term of patent 14 years

Int. Cl. D7—01

U.S. Cl. D44—15



219,936

FORK OR THE LIKE

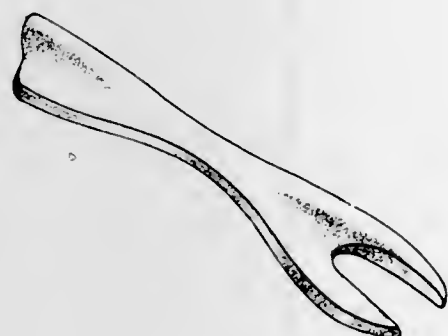
Clement P. Salla, 790 Bay St., Toronto, Ontario, Canada

Filed Apr. 1, 1969, Ser. No. 16,539

Term of patent 14 years

Int. Cl. D7—03

U.S. Cl. D44—29



219,937

HOUSING FOR A COMBINATION WASHER-DRYER LAUNDRY APPLIANCE

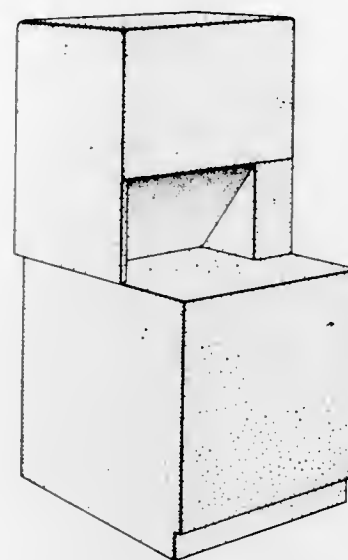
Paul E. Petkowitz, Sterling Heights, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Nov. 3, 1969, Ser. No. 19,889

Term of patent 14 years

Int. Cl. D15—06

U.S. Cl. D49—1



219,938

CANOE

Keith Duane Erickson, 3727 S. 900 E.,

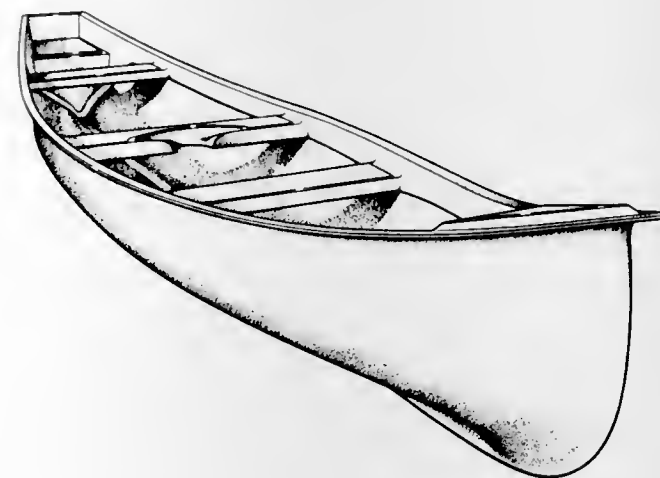
Salt Lake City, Utah 84106

Filed Aug. 5, 1969, Ser. No. 18,546

Term of patent 14 years

Int. Cl. D12—06

U.S. Cl. D71—1



219,939

BOOTH UNIT FOR A LOUNGE OR THE LIKE

Billy Joe Walters, 1916 "B" Demer Road,

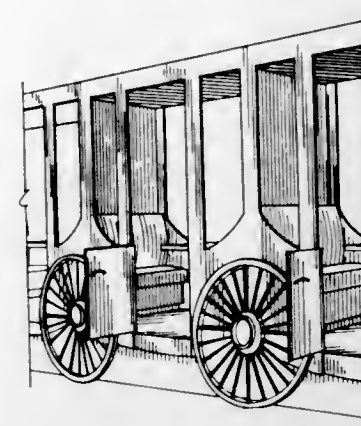
St. Simons Island, Ga. 31522

Filed May 26, 1969, Ser. No. 17,326

Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D80—2



219,941

CIGAR CUTTER

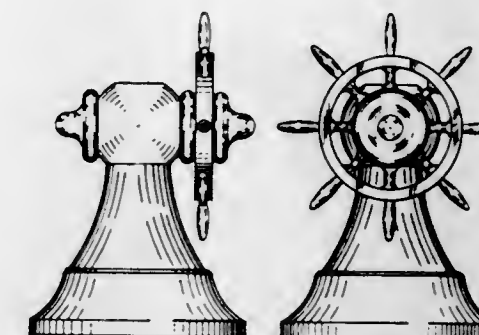
Gosta Swanson, Box 26, Hollis, N.H. 03049

Filed Feb. 19, 1970, Ser. No. 21,524

Term of patent 14 years

Int. Cl. D27—99

U.S. Cl. D85—7



219,942

TIRE

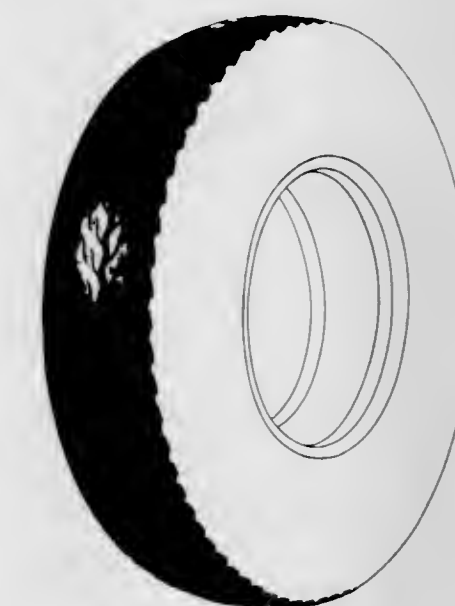
John C. Smithkey, Jr., North Canton, and John R. Bauer and John H. Keck, Akron, Ohio, assignors to The Good-year Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Filed Jan. 14, 1970, Ser. No. 20,927

Term of patent 14 years

Int. Cl. D12—14

U.S. Cl. D90—20



219,940

MERCHANDISE DISPLAY STAND

William S. Leath, Birmingham, Ala., assignor to Ebsco

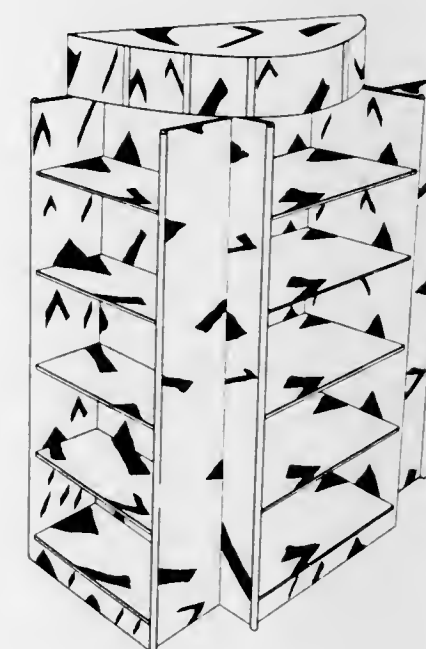
Industries, Inc., a corporation of Delaware

Filed Feb. 24, 1969, Ser. No. 15,865

Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D80—9



**219,943
TIRE**

Charles W. Roberts, Akron, Ohio, assignor to Lee Tire & Rubber Company, Conshohocken, Pa., a corporation of Ohio

Filed Apr. 27, 1970, Ser. No. 22,656
Term of patent 14 years
Int. Cl. D12-14

U.S. Cl. D90-20

**219,944
TIRE**

Harold D. Fetty, Birmingham, Mich., and John K. Vohs, Union City, Tenn., assignors, by direct and mesne assignments, to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Filed May 15, 1970, Ser. No. 22,991
Term of patent 14 years
Int. Cl. D12-14

U.S. Cl. D90-20

**219,945
COMBINED KNIFE AND SPOON**

Clement P. Salla, 709 Bay St., Toronto, Ontario, Canada

Filed Apr. 1, 1969, Ser. No. 16,522
Term of patent 14 years
Int. Cl. D7-03

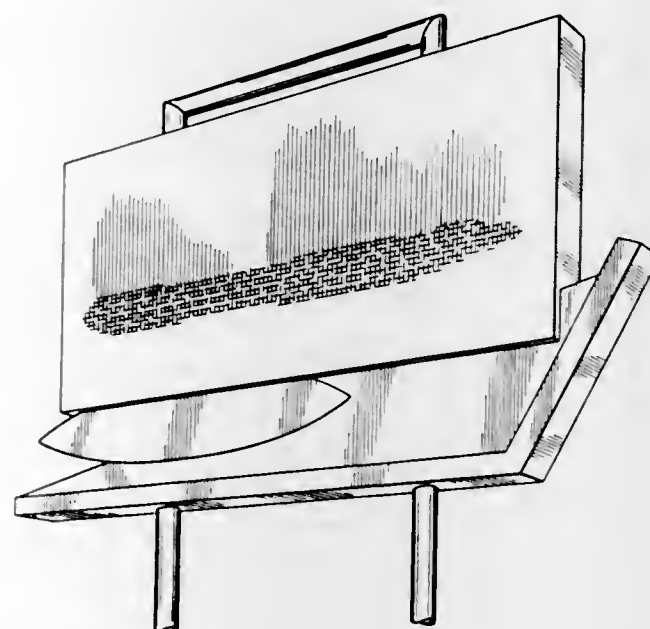
U.S. Cl. D95-3

**219,946
BILLBOARD**

Carl A. Birnberg, 1641 Ford Parkway, and Henry S. Kristal, 1855 Pinehurst Ave., both of St. Paul, Minn. 55116

Filed Mar. 14, 1969, Ser. No. 16,240
Term of patent 14 years
Int. Cl. D20-03

U.S. Cl. D95-12

**LIST OF PATENTEEES**

TO WHOM

PATENTS WERE ISSUED ON THE 16TH DAY OF FEBRUARY, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Aagaard, Einar Andreas, to U. S. Philips Corporation, mesne. Electronic relay arrangement. 3,564,291, Cl. 307-252.
- AB Elektroverken i Gavle: See—
- Algotsson, Sven Erik; and Lorentzon, Sune Hugo Ivan, 3,564,112.
- AB Tetra Pak: See—
- Carlsson, Inge Lennart; and Andersson, Lars-Goran, 3,563,374.
- Abbott, John G.: See—
- Leier, Edward J.; and Edgar, Jack, 3,563,593.
- Abbott Laboratories: See—
- Harnden, Michael R., 3,563,992.
- Abcor Inc.: See—
- Cooper, William W., IV; and Pierce, Russell W., 3,563,889.
- Abeck, Wilhelm: See—
- Greiner, Joachim; Eichler, Wolfgang; Abeck, Wilhelm; and Muller, Erich, 3,564,156.
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- Acorn Anodising Company Limited: See—
- Kape, James M.; and Hannaby, William Berwyn, 3,563,867.
- Acushnet Company: See—
- LeGoff, Loman H., 3,564,586.
- Adamovske strojirny narodni podnik: See—
- Hanzlik, Rudolf; and Drlik, Vladimir, 3,563,536.
- Adamowicz, Norman C.: See—
- Clauss, Richard J.; Adamowicz, Norman C.; and Tremmel, Robert A., 3,563,866.
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- Nelson, Ardell H.; Hutter, Leonard J.; Latshaw, William E.; Adams, John H.; Terlesky, John; and Hauser, Dale R., 3,562,986.
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- Ploog, Robert, 3,564,195.
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- Jensen, Homer, 3,563,501.
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- Cummings, David B., 3,564,305.
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- Hoffmann, Charles, 3,564,050.
- Agfa-Gevaert Aktiengesellschaft: See—
- Ernst, Otto; Gunther, Eberhard; Meckl, Heinz; Odenbach, Herbert; and Pelz, Willibald, 3,563,746.
- Greiner, Joachim; Eichler, Wolfgang; Abeck, Wilhelm; and Muller, Erich, 3,564,156.
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- Aikyo, Susumu: See—
- Tokunaga, Mitio; Kawanami, Mitsuru; and Aikyo, Susumu, 3,564,281.
- Air Land Systems Co.: See—
- Nehama, Isaac D.; and Lovell, Clarence A., 3,564,543.
- Air Products and Chemicals, Inc.: See—
- Brenner, Walter; and Doelp, Louis C., Jr., 3,564,067.
- Aisin Seiki Company Limited: See—
- Okamoto, Tosiaki; and Kawai, Sinji, 3,563,612.
- Ajinomoto Co., Inc.: See—
- Oki, Toshikazu; Nishimura, Yukio; Sayama, Yoshio; Takemi, Hisao; Kitai, Atsuo; and Ozaki, Asaichiro, 3,563,857.
- Akin, Thomas: See—
- Hughes, Charles O.; and Akin, Thomas, 3,563,587.
- Aktiebolaget Kamyr: See—
- Richter, Johan C. F. C., 3,563,891.
- Aktiebolaget Svenska Kullagerfabriken: See—
- Nilsson, Sven Walter, 3,563,107.
- Aktiengesellschaft Brown, Boveri & Cie: See—
- Burgi, Paul; and Schaumann, Rolf, 3,564,336.
- Aktiengesellschaft der Von Moos: See—
- Stauffer, Werner; Thalmann, Armin; and Kung, Carl, 3,563,298.
- Akustische v. Kino-Gerate Gesellschaft m.b.H.: See—
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- Alba-Teran, Eric: See—
- Gordon, Michael; and Alba-Teran, Eric, 3,563,292.
- Alburn, Harvey E.: See—
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- Aldrich, Paul E.; and Hermann, Edward C., to Du Pont de Nemours, E. I., and Company. Pharmaceutically active derivatives of 4-phenylbicyclo [2.2.2] octane and oct-2-ene-1-carbinols and carboxaldehydes. 3,564,060, Cl. 260-613.
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- Kompert, Paul; and Nilson, Carl-Goran, 3,563,453.
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- Whitehouse, John B.; and Alhorn, Gunnar G. B., 3,563,000.
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- Allen Electric & Equipment Company: See—
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- Muller, Don M.; Whittle, Lavar E.; and Chartrand, Victor, 3,564,409.
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- Anello, Louis G.; and Sweeney, Richard F., 3,563,999.
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- Parks, Roby A., 3,563,614.
- Altman, James E. Pepper coring apparatus. 3,563,289, Cl. 146-52.
- Alumet Manufacturing Corporation: See—
- Rheingold, Lawrence M.; and Berlin, Milton, 3,563,819.
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- Oshima, Shintaro; Nakagome, Yukio; Kamibayashi, Tetsusaburo; and Amano, Kitsutaro, 3,564,519.
- Amchem Products, Inc.: See—
- Newhall, William F., 3,564,046.
- American Cyanamid Company: See—
- Carvalho, Dorothy Ann Livingston; and Shust, Nestor W., 3,564,561.
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- Holmlund, Chester Eric; Evans, Ralph Henry, Jr.; and Ellestad, George Alfred, 3,564,019.
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- Remers, William Alan; Gibbs, Gabriel Joseph; and Weiss, Martin Joseph, 3,564,002.
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- American Home Products Corporation: See—
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Anderson, Arthur W. Gel electrophoresis unit. 3,563,880, Cl. 204-299.
Anderson, Dean B.; August, Rudolf R.; Mc Dowell, William A.; and Plonski, Siegfried G., to North American Rockwell Corporation. Rectangular dielectric optical waveguide of width about one-half wavelength of the transmitted light. 3,563,630, Cl. 350-96.
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Anderson, Ralph: *See—*
Miller, Clarence L.; and Anderson, Ralph, 3,563,818.
Anderson, Wilmer C.; and Cruger, Richard, to General Time Corporation. Pre-setter for timers. 3,564,426, Cl. 328-48.
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Ando, Noriyoshi, to Nippon Denso Kabushiki Kaisha. Device for detecting the deceleration of a rotating shaft. 3,564,532, Cl. 340-262.
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Antonini, Albert; and Trebillon, Emile, to Produits Chimiques Pechiney-Saint-Gobain. Fluid bed catalytic method for producing trichloropropanes. 3,564,065, Cl. 260-659.
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Arai, Yukio, to Kabushiki Kaisha Hattori Tokeiten. Buzzer having convex thin film sounding member. 3,564,542, Cl. 340-384.
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Arm, Helmut; Beutler, Helmut; Hertel, Hasso; and Lowenfeld, Rudolf, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Dyeing preparations for the manufacture of water-insoluble azo dyestuffs on textile material of aromatic polyesters of triacetyl cellulose. 3,563,686, Cl. 8-44.
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- Wheatley, Donald G., to Ford Motor Company. Soft top air cleaner assembly. 3,563,010, Cl. 55-510.
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- Wheeler, Frederick C.; Seager, Arthur J. S.; and Webb, Geoffrey J., to J. D. Electronics, Limited. Battery charger utilizing bimetallic switch for automatic selection of 6 or 12 volt charging. 3,564,383, Cl. 320-39.
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- Wing, Willis G., to Sperry Rand Corporation. Apparatus for sensing movement about a plurality of axes. 3,563,662, Cl. 356-106.
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- Yearout, James D., to McDonnell Douglas Corporation, mesne. Separation of air utilizing a closed-cycle helium refrigeration system. 3,564,571, Cl. 62-40.
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- Young, Robert G.; and Wainio, Albert W., to Westinghouse Electric Corporation. Method of making air stable cathode for discharge device. 3,563,797, Cl. 117-223.
- Youngblood, Leonard C., to Uniroyal, Inc. Tire mold with removable inserts. 3,562,861, Cl. 18-44.
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- Zapf, Gerhard, to Sintermetallwerk Krebsge G.m.b.H. Method for removing burrs from sintered work pieces. 3,563,082, Cl. 72-374.
- Zaremski, Leonard A., to Kennametal Inc. Break apart container for small articles. 3,563,405, Cl. 220-23.8
- Zavanski, Fredrick J. Recovery of polymer powders from pressurized solutions of polymer. 3,563,975, Cl. 260-94.9
- Zdrzil, Jan: See—
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- Zegna, Giorgio; and Zegna, Giulio. Process and apparatus for sorting elongated articles such as bobbin tubes of textile machines. 3,563,376, Cl. 209-73.
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- Zeigler, Charles F. Laminated thermostatic metal. 3,563,712, Cl. 29-195.5
- Zeigler, Philip B., to General Motors Corporation. Adjustable control pedals. 3,563,111, Cl. 74-512.
- Zeldman, Maurice I., to American Machine & Foundry Company. Selectively sequentially positioning control. 3,564,380, Cl. 318-663.
- Zelina, William B., to General Systems, Inc. Static regenerative control of direct current motors from an A. C. source. 3,564,365, Cl. 318-251.
- Zenere, Livio. Method for prearranging polyamide resin belts and straps to subsequent welding operations. 3,563,829, Cl. 156-249.
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- Zievers, James F.; Riley, Clay W.; and Novotny, Charles J., to Industrial Filter & Pump Mfg. Co. Purified liquid sugar concentrate and method of manufacturing same. 3,563,799, Cl. 127-46.
- Zilg, George L.; and Milan, Henry J., to Singer Company, The. Storage compartments for a sewing machine carrying case. 3,563,625, Cl. 312-208.
- Zimmerman, Abraham A.: See—
Engel, Lawrence J.; Gianni, Michael H.; and Zimmerman, Abraham A., 3,564,056.
- Zimmerman, Abraham, to Esso Research and Engineering Company. Ethers containing difluoramino groups. 3,564,055, Cl. 260-584.
- Zimmerman, Jerrel L.: See—
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- Zimmerman, Jos., Messrs.: See—
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- Zimmerman, Roger W., to Sprague Electric Company. Stacked capacitor. 3,564,360, Cl. 317-261.
- Zinnert, Friedrich; and Kolm, Hans-Georg, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the oxidative bleaching of crude montan wax. 3,564,032, Cl. 260-423.
- Zipper, Jaime A., to Searle, G. D., & Co., mesne. Intrauterine contraceptive method. 3,563,235, Cl. 128-130.
- Zuck, Daniel R. Compound helicopter. 3,563,496, Cl. 244-7.
- Zunft, Donald V.: See—
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- Zwickert, Charles Emile. Components of structures for the assembly of panels. 3,562,995, Cl. 52-732.
- Zwicky, Robert W., to Shell Oil Company. Method of recovering hydrocarbons from an underground hydrocarbon containing formation. 3,563,312, Cl. 166-261.
- Zwillenberg, Melvin L.: See—
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- Zylinski, Charles W., to Harte & Company, Inc. Method of manufacturing a decorative vinyl surface. 3,563,827, Cl. 156-209.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 16TH DAY OF FEBRUARY, 1971

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Balle, Walter, and P. Musch, to Continental Gummi-Werke Aktiengesellschaft. Methods for the vulcanizing of pre-formed tires. Re. 27,060, 2-16-71, Cl. 264—315.
 Charlot, Lincoln H., Jr., to Minnesota Mining & Mfg. Co. Electrical detecting means. Re. 27,064, 2-16-71, Cl. 343—75.
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 Fisher, John, to The Warner & Swasey Co. Optical encoder. Re. 27,063, 2-16-71, Cl. 340—347.
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 Lang, Karl A. Diffusion furnace. Re. 27,065, 2-16-71, Cl. 13—25.
 Michael, Larry. Basketball net anti-whip device. Re. 27,067, 2-16-71, Cl. 273—15.
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 Rubenstein, David, to ChemStress Industries, Inc. Method of making a reinforced composite concrete pipe. Re. 27,061, 2-16-71, Cl. 156—86.
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 Fisher, John. Re. 27,063.
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 Wiggins, Richard F., to The Gyromat Corp. Recirculating system for flowable materials. Re. 27,058, 2-16-71, Cl. 118—7.
 Williams, Clarence E. Safety storage cabinet. Re. 27,066, 2-16-71, Cl. 312—351.

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 Pancho, Juan V., 1/2 to D. Barry, Jr. Bougainvillea plant. 3,029, 2-16-71, Cl. 54.
 Thompson, John L. Crabapple tree. 3,028, 2-16-71, Cl. 34.

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 Breed, Arthur R., to The Lamson & Sessions Co. Nut. 219,907, 2-16-71, Cl. D8—274.
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 Brennan, Edward N. and B. L. Portable motorized cart. 219,912, 2-16-71, Cl. D14—3.
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 Fetty, Harold D., and J. K. Vohs, to The Goodyear Tire & Rubber Co. Tire. 219,944, 2-16-71, Cl. D90—20.
 Fogarty, Edward A., and M. I. Glass, to Marvin Glass & Associates. Toy automobile. 219,930, 2-16-71, Cl. D34—15.
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CLASSIFICATION OF PATENTS

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NOTE.—First number, class; second number, subclass; third number, patent number

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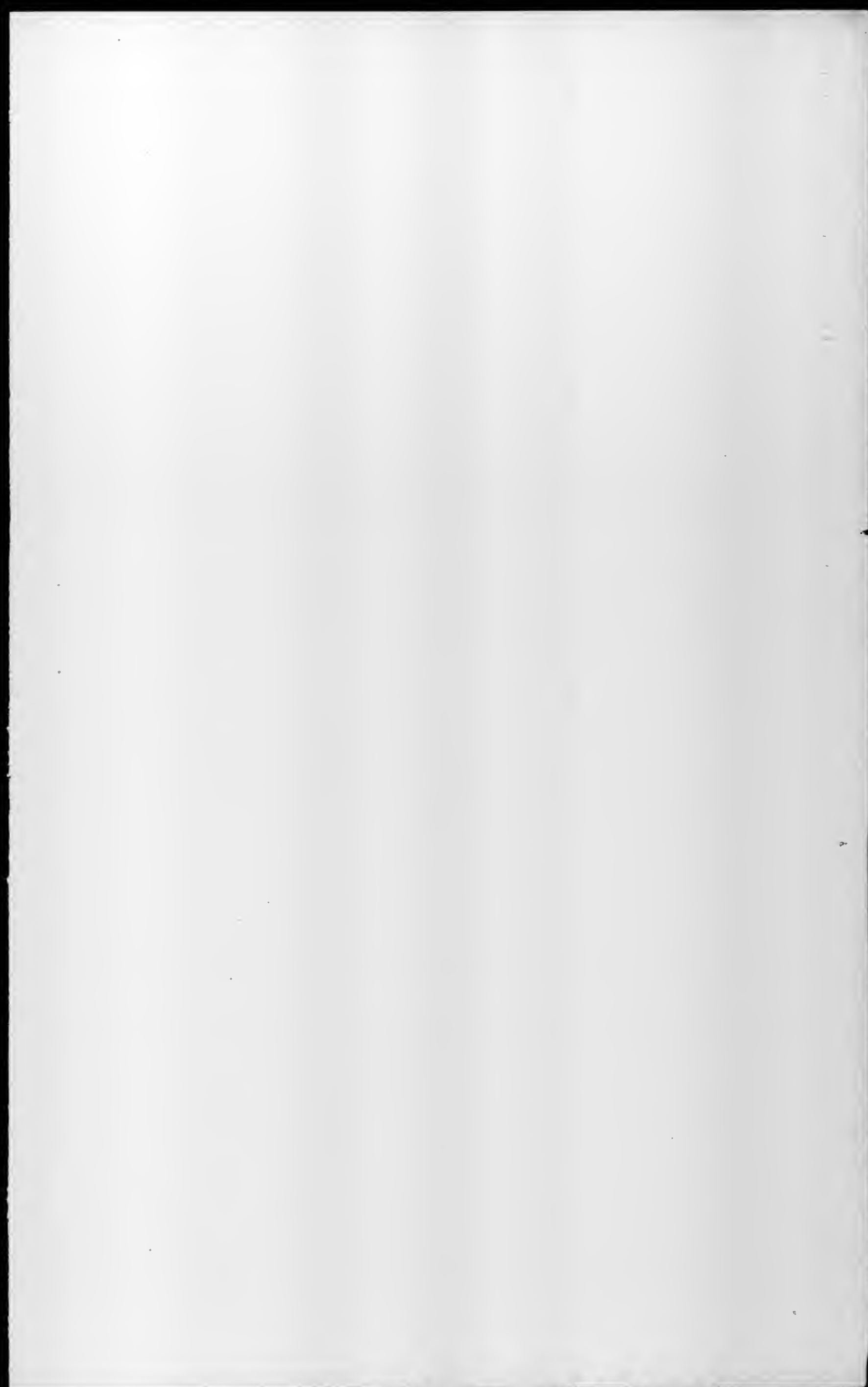
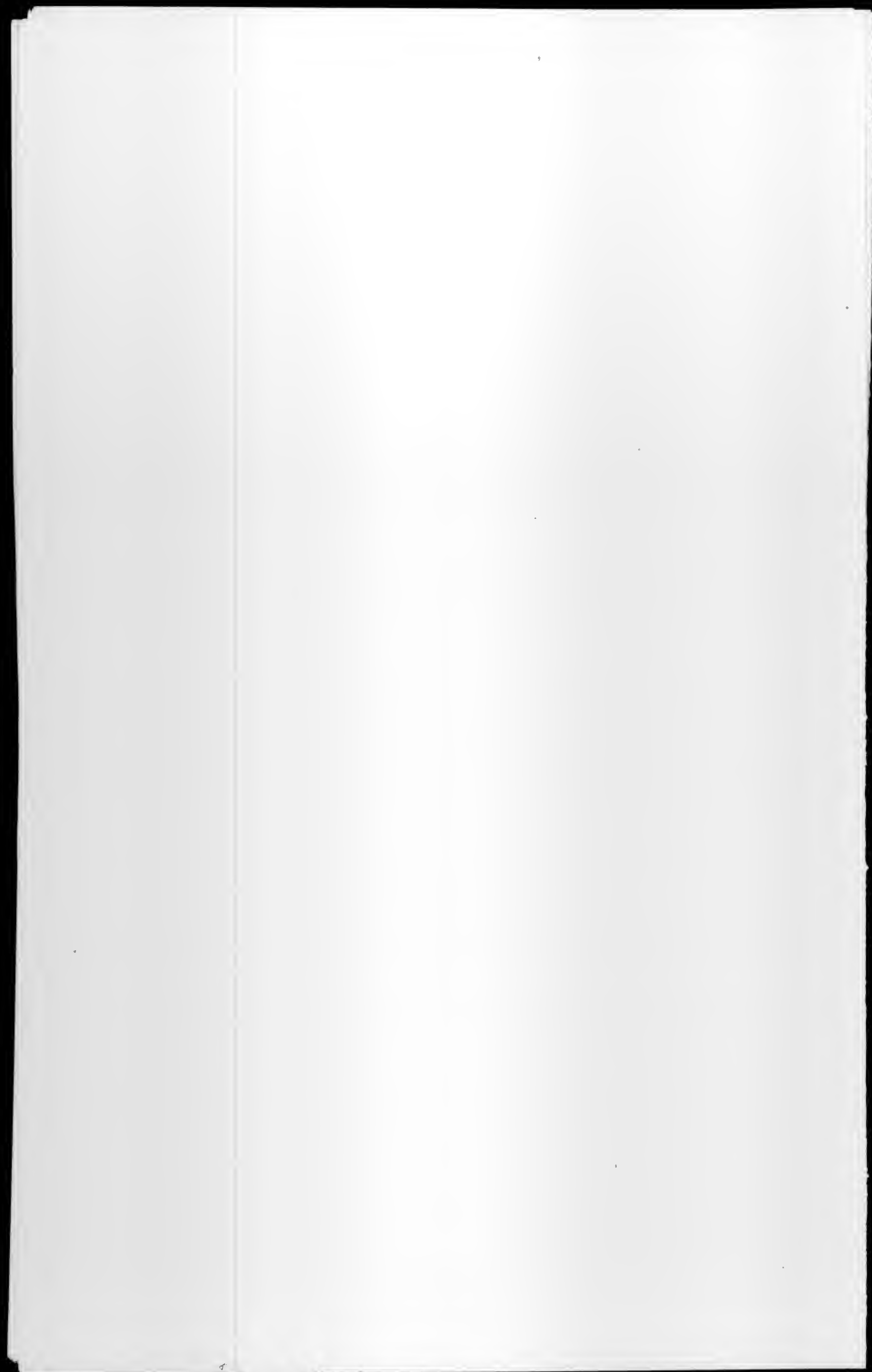
(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

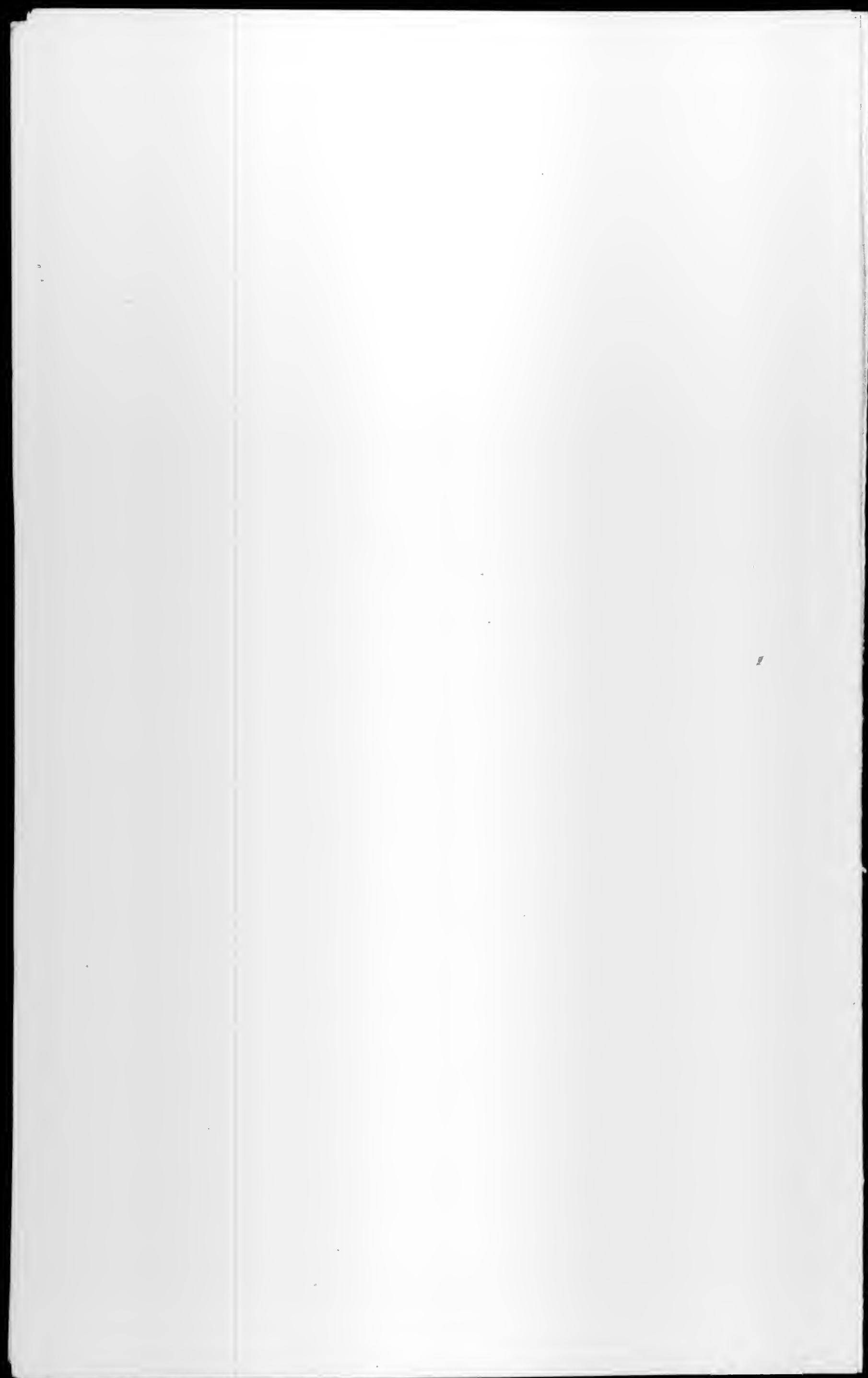
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3,563,457	3,563,178	3,562,830	3,564,153	3,564,095	3,563,693
3,563,458	3,563,259	3,562,850	3,564,186	3,564,097	3,563,694
3,563,460	3,563,263	3,562,861	3,564,514	3,564,106	3,563,697
3,563,512	3,563,333	3,562,877	3,564,516	3,564,108	3,563,702
3,563,514	3,563,366	3,562,884	3,564,558	3,564,110	3,563,713
3,563,535	3,563,388	3,562,923	3,564,594	3,564,114	3,563,735
3,563,582	3,563,413	3,562,932	28 : 3,563,617	3,564,116	3,563,740
3,563,614	3,563,462	3,562,975	29 : 3,563,008	3,564,125	3,563,753
3,563,615	3,563,484	3,563,004	3,563,055	3,564,130	3,563,754
3,563,626	3,563,547	3,563,007	3,563,184	3,564,131	3,563,770
3,563,638	3,563,587	3,563,009	3,563,185	3,564,135	3,563,780
3,563,675	3,563,592	3,563,010	3,563,256	3,564,141	3,563,800
3,563,716	3,563,608	3,563,013	3,563,606	3,564,158	3,563,802
3,563,763	3,563,723	3,563,029	3,563,643	3,564,164	3,563,807
3,563,764	3,563,869	3,563,030	3,563,671	3,564,192	3,563,819
3,563,769	3,563,918	3,563,031	3,563,758	3,564,194	3,563,835
3,563,777	3,563,978	3,563,033	3,563,774	3,564,206	3,563,836
3,563,790	3,563,982	3,563,053	3,563,893	3,564,207	3,563,850
3,563,798	3,564,005	3,563,076	3,564,022	3,564,209	3,563,852
3,563,799	3,564,019	3,563,091	3,564,026	3,564,210	3,563,865
3,563,823	3,564,147	3,563,095	3,564,047	3,564,221	3,563,878
3,563,876	3,564,253	3,563,097	3,564,092	3,564,222	3,563,911
3,563,908	3,564,254	3,563,133	3,564,099	3,564,245	3,563,924
3,563,930	3,564,261	3,563,175	3,564,333	3,564,258	3,563,934
3,563,940	3,564,271	3,563,181	3,564,531	3,564,258	3,563,948
3,563,945	3,564,283	3,563,218	3,564,590	3,564,325	3,563,964
3,563,954	3,564,302	3,563,219	3,563,318	3,564,340	3,563,973
3,563,960	3,564,353	3,563,260	3,563,329	3,564,346	3,563,981
3,563,992	3,564,418	3,563,329	3,563,319	3,564,350	3,564,002
3,564,013	3,564,424	3,563,339	3,563,481	3,564,351	3,564,007
3,564,030	3,564,455	3,563,348	3,562,845	3,564,381	3,564,016
3,564,031	3,564,469	3,563,394	3,563,306	3,564,403	3,564,055
3,564,044	3,564,504	3,563,442	3,562,871	3,564,404	3,564,073
3,564,045	3,564,508	3,563,464	3,563,284	3,564,405	3,564,076
3,564,052	3,564,529	3,563,469	3,563,326	3,564,408	3,564,118
3,564,087	3,564,543	3,563,515	3,563,647	3,564,411	3,564,121
3,564,101	3,564,596	3,563,534	3,562,847	3,564,414	3,564,136
3,564,107	25 : 3,562,811	3,563,549	3,562,887	3,564,433	3,564,172
3,564,137	3,562,816	3,563,553	3,562,894	3,564,438	3,564,175
3,564,154	3,562,838	3,563,557	3,562,898	3,564,439	3,564,175
3,564,193	3,562,849	3,563,558	3,562,905	3,564,440	3,564,227
3,564,195	3,562,881	3,563,564	3,562,912	3,564,457	3,564,235
3,564,219	3,562,899	3,563,583	3,562,927	3,564,460	3,564,250
3,564,264	3,562,978	3,563,589	3,562,948	3,564,480	3,564,266
3,564,279	3,562,979	3,563,603	3,562,982	3,564,496	3,564,275
3,564,292	3,562,991	3,563,604	3,563,022	3,564,518	3,564,290
3,564,316	3,563,086	3,563,652	3,563,023	3,564,563	3,564,293
3,564,593	3,563,089	3,563,679	3,563,024	3,564,563	3,564,296
3,564,602	3,563,101	3,563,687	3,563,049	3,564,605	3,564,298
18 : 3,562,882	3,563,143	3,563,712	3,563,098	3,564,605	3,564,299
3,562,888	3,563,145	3,563,787	3,563,100	3,564,664	3,564,300
3,562,900	3,563,146	3,563,866	3,563,164	3,564,664	3,564,315
3,562,956	3,563,152	3,563,870	3,563,176	3,564,671	3,564,318
3,563,017	3,563,212	3,563,871	3,563,191	3,564,681	3,564,321
3,563,052	3,563,335	3,563,896	3,563,200	3,564,684	3,564,328
3,563,332	3,563,356	3,563,900	3,563,202	3,564,687	3,564,348
3,563,355	3,563,369	3,563,920	3,563,239	3,564,690	3,564,349
3,563,399	3,563,401	3,563,923	3,563,243	3,564,693	3,564,363
3,563,447	3,563,432	3,563,941	3,563,254	3,564,696	3,564,371
3,563,507	3,563,552	3,563,943	3,563,272	3,564,699	3,564,390
3,563,596	3,563,623	3,563,946	3,563,276	3,564,702	3,564,415
3,563,669	3,563,627	3,563,958	3,563,327	3,564,705	3,564,422
3,563,832	3,563,681	3,563,969	3,563,371	3,564,708	3,564,436
3,563,863	3,563,739	3,563,979	3,563,461	3,564,711	3,564,448
3,564,057	3,563,795	3,564,003	3,563,467	3,564,714	3,564,450
3,564,062	3,563,801	3,564,036	3,563,508	3,564,717	3,564,502
3,564,168	3,563,839	3,564,181	3,563,527	3,564,720	3,564,506
3,564,295	3,563,845	3,564,183	3,563,528	3,564,723	3,564,507
3,564,366	3,563,853	3,564,189	3,563,545	3,564,726	3,564,510
3,564,369	3,563,874	3,564,269	3,563,551	3,564,729	3,564,515
3,564,419	3,563,889	3,564,274	3,563,572	3,564,732	3,564,523
3,564,465	3,563,936	3,564,276	3,563,625	3,564,735	3,564,530
3,564,476	3,563,937	3,564,278	3,563,725	3,564,738	3,564,544
3,564,568	3,564,124	3,564,285	3,563,736	3,564,741	3,564,545
19 : 3,562,933	3,564,133	3,564,339	3,563,750	3,564,744	3,564,546
3,563,014	3,564,155	3,564,343	3,563,756	3,564,747	3,564,576
3,563,140	3,564,163	3,564,374	3,563,765	3,564,750	3,564,580
		3,564,444	3,563,767	3,564,753	3,564,583

36 : 3,564,589	39 : 3,563,600	40 : 3,563,975	42 : 3,563,714	45 : 3,563,842	51 : 3,563,079
37 : 3,562,855	3,563,620	3,563,976	3,563,719	3,564,232	3,563,170
3,562,880	3,563,637	3,564,021	3,563,728	3,564,238	3,563,189
3,562,924	3,563,672	3,564,035	3,563,729	47 : 3,562,826	3,563,278
3,562,925	3,563,676	3,564,165	3,563,814	3,563,005	3,563,423
3,562,930	3,563,708	3,564,500	3,563,817	3,563,270	3,563,485
3,563,021	3,563,711	41 : Re.27.059	3,563,885	3,563,502	3,563,499
3,563,498	3,563,721	3,562,844	3,563,886	3,563,705	3,563,550
3,563,700	3,563,805	3,562,994	3,563,887	3,563,838	3,563,897
3,563,730	3,563,811	3,563,148	3,563,919	3,564,078	3,564,088
3,563,837	3,563,826	3,563,378	3,563,938	3,564,148	3,564,151
3,563,841	3,563,840	3,563,439	3,563,942	3,564,218	3,564,273
3,563,892	3,563,843	3,563,566	3,563,984	48 : 3,562,946	3,564,368
3,564,145	3,563,847	3,563,639	3,564,015	3,562,998	3,564,379
3,564,310	3,563,848	3,563,880	3,564,048	3,563,088	3,564,391
3,564,345	3,563,849	3,564,152	3,564,067	3,563,135	3,564,456
3,564,486	3,563,864	3,564,356	3,564,072	3,563,173	3,564,481
39 : Re.27.063	3,563,894	42 : 3,562,897	3,564,169	3,563,198	52 : 3,563,269
Re.27.067	3,563,901	3,562,903	3,564,185	3,563,210	3,563,844
3,562,827	3,563,932	3,562,904	3,564,216	3,563,231	53 : 3,562,815
3,562,833	3,563,949	3,562,907	3,564,225	3,563,257	3,563,028
3,562,854	3,564,001	3,562,911	3,564,280	3,563,311	3,563,286
3,562,864	3,564,063	3,562,918	3,564,282	3,563,314	3,563,431
3,562,873	3,564,091	3,562,920	3,564,286	3,563,322	3,563,504
3,562,934	3,564,120	3,562,922	3,564,301	3,563,334	3,563,539
3,562,970	3,564,126	3,562,929	3,564,303	3,563,358	3,563,661
3,563,003	3,564,128	3,562,986	3,564,304	3,563,392	3,563,788
3,563,011	3,564,149	3,562,988	3,564,329	3,563,434	3,563,813
3,563,027	3,564,182	3,562,989	3,564,337	3,563,452	3,564,441
3,563,074	3,564,224	3,563,060	3,564,342	3,563,503	54 : 3,563,159
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3,563,093	3,564,330	3,563,106	3,564,365	3,563,567	3,562,921
3,563,096	3,564,373	3,563,109	3,564,372	3,563,648	3,562,976
3,563,104	3,564,386	3,563,177	3,564,392	3,563,653	3,563,039
3,563,110	3,564,466	3,563,295	3,564,394	3,563,743	3,563,067
3,563,119	3,564,477	3,563,301	3,564,428	3,563,789	3,563,211
3,563,124	3,564,553	3,563,325	3,564,463	3,563,883	3,563,247
3,563,130	3,564,554	3,563,396	3,564,470	3,563,972	3,563,267
3,563,158	3,564,555	3,563,398	3,564,471	3,564,017	3,563,280
3,563,169	3,564,572	3,563,403	3,564,479	3,564,069	3,563,341
3,563,171	3,564,587	3,563,405	3,564,489	3,564,070	3,563,352
3,563,179	3,564,592	3,563,410	3,564,498	3,564,074	3,563,404
3,563,188	3,564,598	3,563,421	3,564,527	3,564,215	3,563,428
3,563,190	40 : 3,562,819	3,563,427	3,564,570	3,564,220	3,563,477
3,563,234	3,562,993	3,563,459	3,564,585	3,564,248	3,563,555
3,563,264	3,563,162	3,563,490	3,564,586	3,564,251	3,563,571
3,563,290	3,563,313	3,563,501	3,564,595	3,564,410	3,563,595
3,563,310	3,563,315	3,563,506	43 : 3,564,051	3,564,485	3,563,670
3,563,373	3,563,336	3,563,523	44 : 3,563,478	3,564,565	3,564,143
3,563,380	3,563,375	3,563,574	3,563,479	3,564,601	3,564,242
3,563,384	3,563,389	3,563,622	3,563,487	49 : 3,564,416	3,564,270
3,563,397	3,563,517	3,563,640	3,563,674	50 : 3,563,238	3,564,360
3,563,426	3,563,610	3,563,655	3,564,029	3,563,609	3,564,361
3,563,440	3,563,706	3,563,660	45 : 3,562,866	3,564,397	3,564,406
3,563,448	3,563,724	3,563,683	3,563,121	51 : 3,562,818	3,564,466
3,563,455	3,563,791	3,563,695	3,563,296	3,562,857	3,564,517
3,563,522	3,563,879	3,563,696	3,563,704	3,562,863	56 : 3,563,393
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PATENT OFFICE NOTICES

Patents Available for Licensing

DEPARTMENT OF AGRICULTURE

Pursuant to 7 CFR 19.3 (35 FR 7493), the Administrator of the Agricultural Research Service, U.S. Department of Agriculture has determined that certain Department inventions shall be made available for exclusive licensing under the provisions of Government Patent Policy (28 FR 10943) and 7 CFR 19.5 (35 FR 7493). Notice is hereby given that the following Department inventions are available for exclusive licensing:

2,816,039. PROCESS FOR MAKING POWDERED FRUIT JUICES, Roderick K. Eskew.

2,816,840. PROCESS FOR MAKING FULL-FLAVORED POWDERED FRUIT JUICE, Victor A. Turkot, Roderick K. Eskew, and Nicholas C. Aceto.

2,906,630. PROCESS FOR DEHYDRATING LIQUID FOOD-STUFFS WITH PRESERVATION OF VOLATILE FLAVORS, Victor A. Turkot, Roderick K. Eskew, and Nicholas C. Aceto.

2,964,407. DRIED FAT-CONTAINING MILK PRODUCTS OF EASY DISPERSIBILITY, Howard I. Sinnamon, Nicholas C. Aceto, and Roderick K. Eskew.

3,300,338. PROCESS FOR TREATING WASHABLE LEATHER, Martin L. Fein, Samuel J. Viola, and Edward M. Flachione.

3,165,508. DEGRADED STARCH POLYOXYALKYLENE ETHER COMPOSITIONS AND PROCESS FOR PRODUCING THE SAME, Felix H. Otey and Charles L. Mehlretter.

3,377,302. SAPONIFIED STARCH ACRYLATE GRAFTS, Lewis A. Gugliemelli, Mary Ollidene Weaver, and Charles R. Russell.

3,414,530. GRAFT POLYMERS OF POLYALKYLENE OXIDES ON STARCH AND DEXTRIN, Albert Zilkha, Menashe Tahan, and Gabriel Ezra.

3,425,971. SALT-RESISTANT THICKENERS COMPRISING BASE-SAPONIFIED STARCH-POLY-ACRYLONITRILE GRAFT COPOLYMERS, Lewis A. Gugliemelli, Mary Ollidene Weaver, and Charles R. Russell.

3,160,552. CELLULOSIC PULPS COMPRISING CROSS-LINKED CEREAL PULPS AND PRODUCTS MADE THEREWITH, Charles R. Russell, Russell A. Buchanan, and Carl E. Rist.

3,385,719. PROCESS FOR PRODUCTION OF AN ALKALI STARCH XANTHATE SOLUTION, Earl B. Lancaster, Howard F. Conway, Lawrence A. Welnecke, and Edward L. Griffin, Jr.

Patent Application S.N. 865,199, Filed: Oct. 8, 1969. CYCLOHEXIMIDE AS AN ABSCISSION AID IN HARVESTING CITRUS FRUIT, William C. Cooper.

3,205,130. PHOSPHORAMIDES AND THIOPHOSPHORAMIDES AS INSECT CHEMOTHERAPY, Paul H. Terry and Alexej B. Borkovec.

3,084,094. NEMATOCIDAL HALOALKYL ACID ESTER, Samuel I. Gertler.

3,431,116. PROCESS FOR THE PRODUCTION OF CONFECTIONERY FATS, R. O. Feuge, N. V. Lovegren, and B. B. Gajee.

Applicants for exclusive licenses will have a period of 60 days from date of publication (36 F.R. 1919; Wednesday, February 3, 1971) in which to file information as required by Sec. 19.6 *Application for Licenses*, 7 CFR (35 FR 7493). Also, applicants should examine all other Sections published under Part 19, *Licensing Department Inventions*. Applications should be mailed to the Administrator, Agricultural Research Service, U.S. Department of Agriculture, Washington, D.C. 20250.

T. W. EDMISTER,

Acting Administrator, Agriculture Research Service.

Certificates of Correction for the Week of Feb. 23, 1971

D. 214,751	3,473,925	3,502,601	3,518,522	3,523,720	3,532,686	3,536,888	3,541,481
D. 218,260	3,478,068	3,507,076	3,520,107	3,524,083	3,533,084	3,537,540	3,541,554
D. 218,843	3,479,706	3,507,701	3,520,116	3,524,225	3,534,093	3,537,593	3,542,065
Re. 26,887	3,484,873	3,509,427	3,520,167	3,524,507	3,534,185	3,537,596	3,542,086
Re. 26,926	3,486,386	3,510,029	3,520,375	3,524,735	3,534,249	3,537,731	3,542,094
3,402,824	3,487,365	3,513,153	3,520,940	3,525,724	3,534,276	3,537,858	3,542,116
3,409,663	3,488,506	3,514,464	3,521,058	3,525,773	3,534,576	3,538,114	3,542,233
3,414,604	3,488,730	3,515,161	3,521,143	3,525,793	3,535,185	3,538,954	3,542,434
3,418,374	3,489,913	3,515,313	3,521,430	3,527,609	3,535,249	3,539,251	3,542,797
3,432,275	3,490,938	3,515,764	3,521,460	3,527,695	3,535,256	3,539,456	3,543,207
3,432,420	3,491,118	3,515,806	3,521,510	3,527,976	3,535,822	3,539,515	3,544,333
3,441,338	3,491,921	3,516,010	3,521,621	3,528,335	3,536,452	3,539,547	3,544,564
3,441,859	3,495,902	3,516,368	3,521,733	3,528,957	3,536,524	3,539,549	3,545,911
3,446,727	3,496,113	3,516,950	3,521,943	3,529,421	3,536,585	3,539,622	3,545,992
3,448,294	3,496,504	3,516,986	3,522,570	3,529,543	3,536,589	3,539,827	3,546,147
3,452,011	3,497,486	3,518,485	3,522,633	3,531,256	3,536,604	3,540,158	3,546,437
3,454,437	3,499,543	3,518,648	3,522,975	3,531,329	3,536,606	3,540,530	
3,466,292	3,501,450	3,519,111	3,523,288	3,532,583	3,536,628	3,540,542	
3,471,895	3,501,539	3,519,121	3,523,413	3,532,619	3,536,650	3,541,240	

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF FEBRUARY 9, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	7-15-69
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	4-01-69
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director.....	10-09-69
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director....	11-03-69
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..	7-02-69
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oil Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	4-09-70
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	
SECURITY, GROUP 220—R. L. CAMPBELL, Director.....	7-01-69
Ordnance, Firearms and Ammunition; Radar, Underwater Signaling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	12-01-69
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.....	1-24-70
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
PHYSICS, GROUP 280—R. L. EVANS, Director.....	10-16-69
Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	
DESIGNS, GROUP 290—R. L. CAMPBELL, Director.....	5-04-70
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.....	12-01-69
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	10-01-69
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director.....	10-02-69
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director.....	2-03-70
Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director.....	12-24-69
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	

Expiration of patents: The patents within the range of numbers indicated below expire during February, 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 660, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 86th Congress, approved August 22, 1964 (66 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 161.

Patents..... Numbers 2,667,637 to 2,670,467, inclusive
Plant Patents..... Numbers 1,248 to 1,259, inclusive

DEFENSIVE PUBLICATIONS

FEBRUARY 23, 1971

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T883,020

PROCESS AND APPARATUS FOR DRAWING SYNTHETIC YARN

Darryl S. Addington, P.O. Box 511,
Kingsport, Tenn. 37662

Filed July 24, 1969, Ser. No. 844,436

Int. Cl. D02j 1/22

U.S. Cl. 264-290

1 Sheet Drawing. 16 Pages Specification

Yarn drawing process wherein the draw point is localized by gripping the yarn at the exit point of the heated feed roll. A gripper roll presses the yarn against the feed roll after the yarn has been heated to drawing temperature. The yarn is stretched by a draw roll rotating faster than the feed roll. Additional heating means may optionally be used between the feed and draw rolls to effect a post-draw heat treatment. The yarn can be pretensioned before passage to the feed rolls. Polyester yarn, e.g. polyethylene terephthalate, can be processed using a draw ratio in excess of 3X. The result of the process is localization of the draw point leading to uniform drawing. The product is therefore uniformly dyeable.

T883,021

SUSPENDED NEGATIVE CONTACT PRINTING

James V. Nealon, 208 Winona Blvd.,
Rochester, N.Y. 14617

Filed Oct. 13, 1969, Ser. No. 865,586

Int. Cl. G03b 27/02

U.S. Cl. 355-78

1 Sheet Drawing. 4 Pages Specification

Photographic contact prints, without Newton rings, and with minimum dirt defects, are produced by tensioning (16, 18) a negative (10) to be printed between supports (12, 14). The photographic print material (20) on which the copy is to be made is held above the negative (10). And a curved pressure pad or shoe (26) is applied to bow the negative (10) and print material (20) intimately together. While such bowing takes place, a lamp (28) is excited to expose the print material (20) through the negative (10).

T883,022

PREPARATION OF AMMONIUM 1,4-CYCLO-HEXANEDICARBOXYLATE

Thomas H. Strickland and Charles J. Kibler, both of
P.O. Box 511, Kingsport, Tenn. 37662

Continuation of application Ser. No. 565,412, July 15, 1966. This application Dec. 19, 1969, Ser. No. 4,158

Int. Cl. C07c 51/36

U.S. Cl. 260-514

No Drawing. 5 Pages Specification

Ammonium 1,4-cyclohexanedicarboxylate is prepared by hydrogenating terephthalic acid in the presence of an excess of ammonium hydroxide over platinum catalysts. Ammonium 1,4-cyclohexanedicarboxylate is a valuable chemical intermediate, e.g., in the synthesis of polyamides.

T883,023

GAS DRYING OVEN WITH ENDLESS BELT AND BELT CLEANER

Robert L. Craven and John F. Hesselberth, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Feb. 3, 1970, Ser. No. 8,353

Int. Cl. F26b 19/00

U.S. Cl. 34-85

1 Sheet Drawing. 8 Pages Specification

An apparatus for moving fibrous batts impregnated with an adhesive through a gas dryer that includes an endless belt having upper and lower reaches passing respectively into and out from the dryer. The belt has slots through it to permit circulation through the belt as it passes through the dryer. A driven rotatable nylon bristle brush is located adjacent the lower reach so that its bristles extend into the slots of the belt as the lower reach moves past the brush. An air circulation system encompassing the brush and the belt located at the entrance to the dryer may be used to control the temperature of the brush.

T883,024

PROCESS FOR THE SUSPENSION POLYMERIZATION OF VINYL CHLORIDE

Samuel V. Abramo, 307 Concord Ave., McDaniel Crest 19803, and Norman P. Rockwell, 9 Walnut Ridge Road 19807, both of Wilmington, Del.

Continuation of application Ser. No. 657,419, July 31, 1967. This application Mar. 17, 1970, Ser. No. 24,967

Int. Cl. C08f 1/11, 15/24

U.S. Cl. 260-87.1

1 Sheet Drawing. 10 Pages Specification

A suspension polymerization process for vinyl chloride homopolymer and copolymers with, e.g. vinyl acetate, vinylidene chloride and propylene. The process involves heating with agitation a suspension of the monomer or monomers in water containing a suspending agent and up to 0.075% by weight based on monomer of alpha, alpha'-azobis(alpha,gamma-dimethylvaleronitrile) initiator, at a temperature of 35-65° C., preferably 45-55° C. The rate of polymerization obtained is greater than the rate obtained with ten times the equivalent amount of lauroyl peroxide initiator. The resulting polymers provide films and sheets with greater thermostability than those obtained with lauroyl peroxide initiator.

T883,025

CONTROLLER FOR GLASSBLOWING

George J. Hanggi, 1605 Trio Lane, and Harry L. Mussett, 427 Drake, both of Ponca City, Okla. 74601

Filed Apr. 6, 1970, Ser. No. 25,803

Int. Cl. F16k 31/165

U.S. Cl. 137-495

1 Sheet Drawing. 12 Pages Specification

Apparatus for controlling the gas supplying for glassblowing, wherein the glassblower is isolated from the

glass apparatus being worked upon, particularly useful when working upon a glass apparatus containing a toxic product. The apparatus includes a valve chamber connected to a pressurized gas supply and the apparatus being worked upon, and a valve member pivotally supported in the valve chamber for controlling the flow of gas to the apparatus being worked upon. A flexible diaphragm forms one wall of the valve chamber and the glassblower's mouth piece is placed in communication with the side of the diaphragm opposite to the valve chamber for flexing the diaphragm when the glassblower blows or sucks on the mouth piece. A lever system providing a mechanical advantage connects the diaphragm to the valve member. An adjustable spring is disclosed for urging the valve member closed. A relief valve for the valve chamber is also disclosed.

T883,026**PROCESS AND APPARATUS FOR COOLING A REVOLVING ROLL**

Jerry W. Furrow, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed May 15, 1970, Ser. No. 37,705

Int. Cl. F26b 3/00

U.S. Cl. 34—9

2 Sheets Drawing, 7 Pages Specification

A hot revolving roll may be cooled in a hood which partially encloses the same, by continuously directing a mist of water on the surface of the roll under the hood whereby water vapor is produced and the roll is cooled, continuously admitting a stream of air into the enclosure to entrain water vapor and continuously removing air containing entrained water vapor from the enclosure.

T883,027**SOIL APPLICATION OF IRON SULFATE WITH FLUID POLYPHOSPHATE FERTILIZERS**

John J. Mortvedt and Paul M. Giordano, Florence, Ala., assignors to Tennessee Valley Authority, a corporation of the United States

Filed May 18, 1970, Ser. No. 38,528

Int. Cl. A01g 1/00

U.S. Cl. 71—1

No Drawing, 6 Pages Specification

Ferrous sulfate or ferric sulfate can be readily mixed with polyphosphate solution or suspension fertilizers. The maximum amount that will dissolve in solution fertilizers is about 1 percent iron. This amount can be increased to about 3 percent iron in suspension fertilizers. If the fertilizer is first diluted with water, the maximum level can be increased to as much as 5 percent iron before the mixture gels, but this decreases the fertilizers grade markedly. When applied to iron-deficient soils these relatively cheap iron sulfates in fluid polyphosphate fertilizers are available for crops. However, these salts usually are not available when applied alone to soils. Results of field trials have suggested that about 4 to 8 pounds of iron per acre supplied in the above fertilizer may be required for optimum production of grain sorghum. Band application of this material near the row crop is recommended to minimize reactions with the soil. Studies have shown that ferrous sulfate may be the preferred iron source because it does not readily form crystalline reaction products in the mixture upon standing. Fluid fertilizer with reasonably high polyphosphate contents are recommended when applying iron sulfate.

T883,028**POLYESTER COMPOSITIONS**

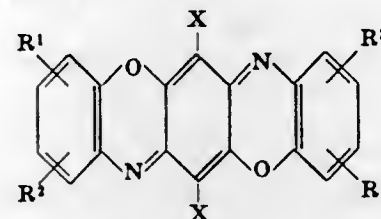
Gordon C. Newland and Raymond C. Harris, both of P.O. Box 511, Kingsport, Tenn. 37662, and John W. Tamblin, P.O. Box 92, Jonas Ridge, N.C. 28641
Continuation of application Ser. No. 717,422, Mar. 29, 1968. This application June 1, 1970, Ser. No. 41,733

Int. Cl. C08g 51/66; C09b 1/16

U.S. Cl. 260—40

No Drawing, 18 Pages Specification

A thermoplastic composition comprising a polyester and a fluorescing amount of a triphenyldioxazine compound having the formula



in which each X is halogen;

each R¹, R², R³ and R⁴, when taken independently, is hydrogen, halogen, nitro, amino, acetamido, benzamido, phenylamino, alkyl, halogenated alkyl, alkoxy, phenyl, substituted phenyl and phenoxy;

R¹ and R², when taken together with the adjacent carbon atoms to which they are attached, form an acryl or heterocyclic ring;

and R³ and R⁴, when taken together with the adjacent carbon atoms to which they are attached, form an aryl or heterocyclic ring.

T883,029**PROCESS FOR IMPROVING THE DIMENSIONAL STABILITY OF PNEUMACEL FIBERS**

Donald W. Selby, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed June 4, 1970, Ser. No. 43,551

Int. Cl. D04h 3/08, 3/12

U.S. Cl. 156—180

No Drawing, 18 Pages Specification

A process for preparing a dimensionally stable compressed batt of inflated polyester pneumacel staple fibers by making an uncompressed batt of the fibers, compressing the uncompressed batt at a specific heat setting temperature for a specified time and cooling the compressed batt while maintaining compression. The polyester can be polyethylene terephthalate. If desired, the batt may be treated with an adhesive binder prior to compressing.

The process stabilizes the compressed batt and reduces its tendency to expand, or grow, back toward its original uncompressed volume, especially when subjected to heat.

T883,030**IMPARTING FLAVOR TO AND RETAINING FLAVOR IN FOOD PRODUCTS BY COATING WITH ACETYLATED MONOGLYCERIDES**

Louis J. Lee, P.O. Box 511, Kingsport, Tenn. 37662

Filed June 22, 1970, Ser. No. 48,495

Int. Cl. A23l 1/22; A23b 1/10

U.S. Cl. 99—140

No Drawing, 9 Pages Specification

An artificial flavor may be imparted to and retained in various foodstuffs such as meats, fish, cheese, raisins, nuts and the like by adding the flavor to the foodstuff in either frozen or unfrozen condition followed by dipping the treated food in a molten bath of distilled acetylated monoglycerides, withdrawing the foodstuff from the bath and cooling to room temperature, forming a solid, waxy, protective coating thereon. Similar coating of an untreated foodstuff locks in its natural flavor, which is retained even after storage in frozen condition for long periods of time. Coating of the foodstuff in this manner

also prevents loss of moisture which may otherwise cause so-called "freezer burn" rendering frozen food undesirable. By dispersing a small amount of a food antioxidant in the monoglycerides before application to a foodstuff, additional protection from oxidative deterioration is provided.

T883,031**DIRECT POSITIVE SILVER HALIDE EMULSIONS SENSITIZED WITH CHLORANIL, 1,2-ORTHOQUINONE, OR POLYNUCLEAR HETEROCYCLIC COMPOUNDS**

Paul B. Gilman, Jr., and Frederick J. Ranner, both of Kodak Park, Rochester, N.Y. 14650

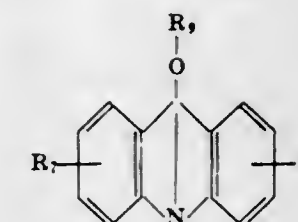
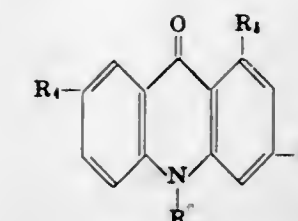
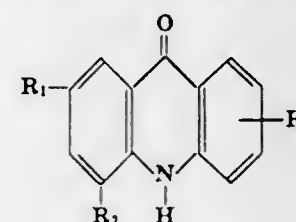
Filed July 9, 1970, Ser. No. 53,629

Int. Cl. G03c 1/28

U.S. Cl. 96—107

No Drawing, 25 Pages Specification

Direct positive photographic silver halide emulsions, such as those described in Berriman U.S. Pat. 3,367,778 issued Feb. 6, 1968 or Illingsworth U.S. Pat. 3,501,307 issued Mar. 17, 1970, are sensitized with chloranil, a 1,2-orthoquinone, an acridine, an acridone or a thiadione. Preferred sensitizers include chloranil, 4-phenyl-1,2-orthoquinone, and compounds having one of the following formulas:



wherein R represents a hydrogen atom, a phenyl group or an aminophenyl group; R₁ represents an alkoxy group of a nitro group; R₂ represents a hydrogen atom or a phenoxy group; R₃ represents a hydrogen atom, a halogen atom or a nitro group; R₄ represents a hydrogen atom, a halogen atom, or an alkyl group; R₅ represents a hydrogen atom or an alkoxy group; R₆, R₇ and R₈ each represents a hydrogen atom, a halogen atom or an alkoxy group; and, R₉ represents alkyl or aryl. A typical direct positive silver halide emulsion contains 4-phenyl-1,2-orthoquinone or 7-tetramyl-3-chloro-thioacridine or 3,7-dichlorothioacridone or 2-chloro-7-methoxy-5-phenoxyacridine as sensitizer and 5-m-nitrobenzylidenerhodanine as electron acceptor.

REISSUES

FEBRUARY 23, 1971

27,068

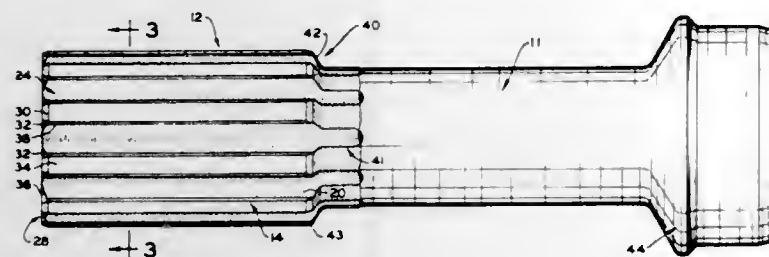
SLIP SPLINE ASSEMBLY

Wilson T. Groves, Toledo, and Raymond F. Lowry, Maumee, Ohio, assignors to Dana Corporation, Toledo, Ohio, a corporation of Virginia
Original No. 3,367,142, dated Feb. 6, 1968, Ser. No. 554,132, May 31, 1966. Application for reissue Jan. 26, 1970, Ser. No. 888,179

Int. Cl. F16d 3/06

U.S. Cl. 64-23

10 Claims



Drive shaft slip spline assembly with an internally splined sleeve member and an externally splined shaft member mating with each other. The shaft member has a nylon coating on its spline portion to form the load bearing friction surface thereof, with the tip portions of the internal spline being spaced from the root portion of the external spline to provide for cold flow of the nylon coating.

27,069

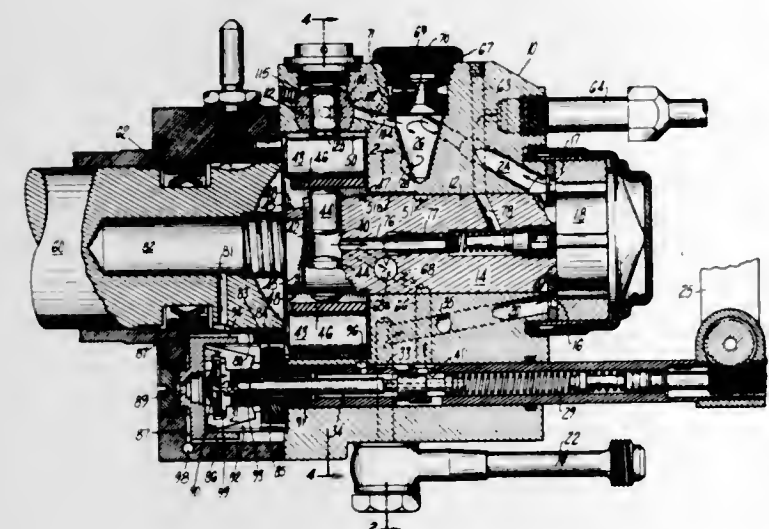
FUEL PUMP AND PURGING SYSTEM THEREFOR

Vernon D. Roosa, West Hartford, Conn., assignor to Stanadyne, Inc., Wilson, Conn., a corporation of Delaware
Original No. 3,363,569, dated Jan. 16, 1968, Ser. No. 513,153, Dec. 9, 1965. Application for reissue Jan. 13, 1970, Ser. No. 2,556

Int. Cl. F04b 25/00

U.S. Cl. 417-253

12 Claims



A fuel pump having a rotor with low pressure transfer or feed pump on one end and a high pressure charge pump on the other for the delivery of discrete charges of

fuel to the several cylinders of an associated engine wherein a conduit including a metering valve connects the outlet of the transfer pump to the inlet of the charge pump, and a vortex air separator in the form of a cone-shaped recess is provided in the conduit for the serial passage of fuel from the transfer pump and to the charge pump with the inlet to the separator being adjacent the larger diameter thereof and directing fuel tangentially into the separator and at an acute angle away from the apex thereof to receive fuel from the transfer pump, the separator having an outlet adjacent its apex and an air vent communicating with the central portion of its base.

27,070

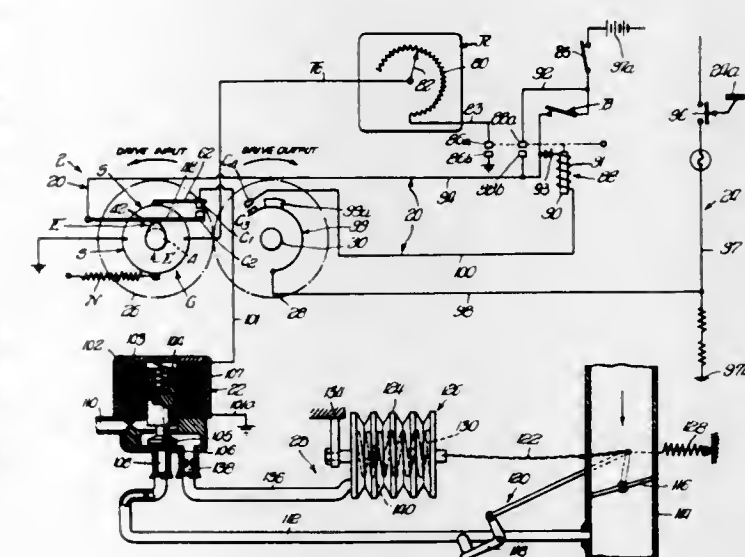
SPEED CONTROL DEVICE

Clarence D. Fox, Decatur, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Original No. 3,297,104, dated Jan. 10, 1967, Ser. No. 414,124, Nov. 27, 1964. Application for reissue Jan. 22, 1968, Ser. No. 746,715

Int. Cl. B60k 31/00

U.S. Cl. 180-109

13 Claims



A speed control device for a motor vehicle includes an electrically actuated throttle operator controlled by speed sensitive electrical circuitry. The circuitry includes a speedometer driven electrical generator for sensing vehicle speed as a function of reaction torque, a variable resistance connected to the generator for selecting a desired speed, a manually operated push button for placing the device in operation, and employs the vehicle brake light circuit for removing the device from operation.

27,071

ELECTRICAL SYSTEM, EQUIPMENT FOR FORMING SAME, AND METHOD OF INSTALLATION

Frederick J. Somes, Jr., 85 Duval, Grosse Pointe Shores, Mich. 48236
Original No. 3,448,203, dated June 3, 1969, Ser. No. 626,577, Mar. 28, 1967. Application for reissue May 15, 1970, Ser. No. 37,603

Int. Cl. B21d 5/08; H02g 3/04, 7/00

U.S. Cl. 174-99

15 Claims

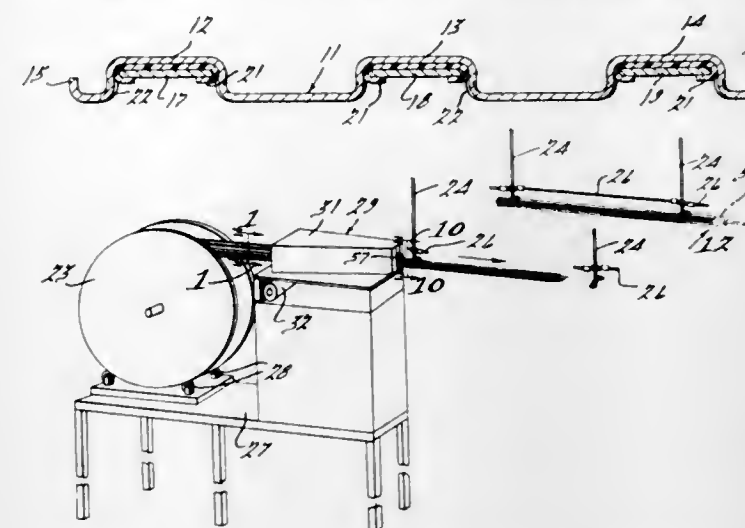
A metal strip having electrical conductors therealong is coiled on a reel. Desired lengths of said strip are pulled

FEBRUARY 23, 1971

U. S. PATENT OFFICE

1327

off the reel by a mechanism which also bends down the sides of the strip, thus forming a continuous housing which



is fed through hangers to form a busway in an overhead electrical power distribution system.

27,072

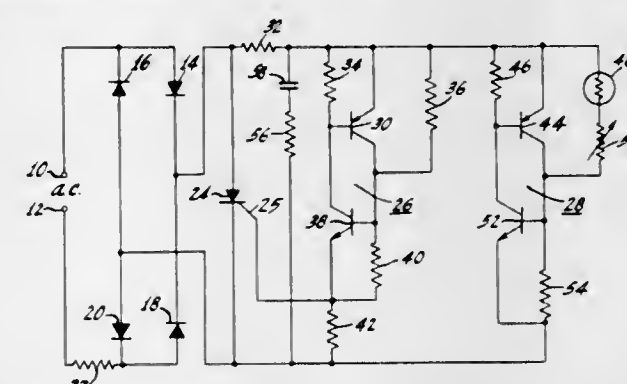
INTEGRAL PULSE SWITCHING SYSTEMS

George D. Hanchett, Summit, N.J., assignor to RCA Corporation, a corporation of Delaware
Original No. 3,334,244, dated Aug. 1, 1967, Ser. No. 399,280, Sept. 25, 1964. Application for reissue Mar. 25, 1968, Ser. No. 717,054

Int. Cl. H03k 17/74

U.S. Cl. 307-255

9 Claims



D.C. pulses are applied to a silicon controlled rectifier and to two normally non-conductive paths in parallel therewith. The paths become conductive at adjustable voltage of the applied pulse, whereby either one path or the other becomes conductive during each pulse depending on the adjustment and ambient conditions. If the first of the paths becomes conductive first, it renders the SCR conductive and prevents the other path from becoming conductive during the rest of that pulse. If the second path becomes conductive first, it prevents the first path, and therefore the SCR from becoming conductive during the rest of that pulse. In a modification A.C. may be applied to two reversely connected SCR's, the above paths being energized by rectified A.C.

27,073

ENERGY SENSOR

Morry L. Schimmel, University City, Mo., and Roy H. Bleikamp, Jr., and Victor W. Drexellus, Edwardsville, Ill., assignors to McDonnell Douglas Corporation, St. Louis, Mo., a corporation of Maryland
Original No. 3,263,489, dated Aug. 2, 1966, Ser. No. 380,553, July 6, 1964. Application for reissue June 5, 1968, Ser. No. 741,816

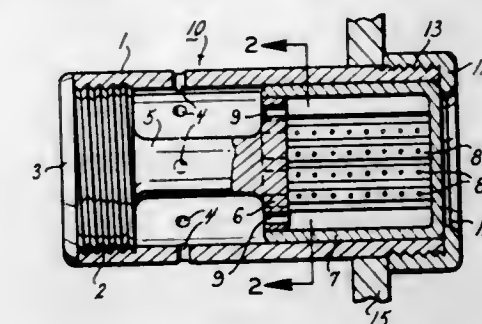
Int. Cl. G01n 33/22

U.S. Cl. 73-35

8 Claims

An energy sensor includes two members which are shiftable relative to each other. One of the members is provided with a socket while the other member fits into the socket. A honeycomb section is positioned in the

socket between the two members and has its columns extending parallel to the direction of movement between the members. The honeycomb section is precrushed to overcome its columnar strength. The socket is vented to



eliminate back pressure when the members move relative to each other so that the honeycomb section offers substantially the only resistance to forces applied to the members.

27,074

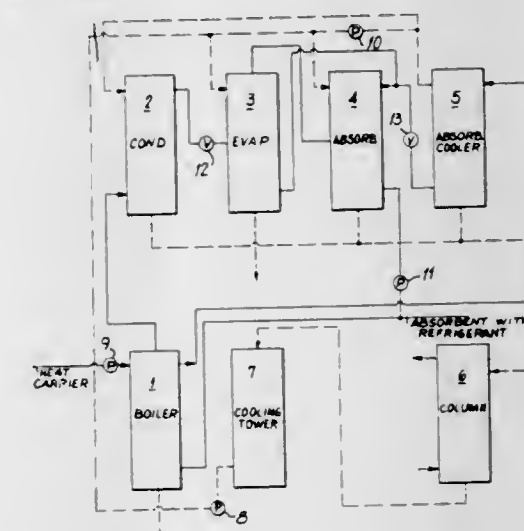
REFRIGERATION PROCESS

Mikhail Emmanuilovich Aerov, Tatiana Alexandrovna Bystrova, Nina Ivanovna Zelentsova, and Vera Afanasjevna Kulkova, Moscow, U.S.S.R., by Nauchno-Issledovatel'skiy Institut Sinteticheskikh Spirtov i Organicheskikh Produktov, assignee, Moscow, U.S.S.R.
Original No. 3,312,078, dated Apr. 4, 1967, Ser. No. 390,672, Aug. 19, 1964. Application for reissue Aug. 20, 1969, Ser. No. 855,434

Int. Cl. F25b 15/04

U.S. Cl. 62-112

7 Claims



A refrigeration process comprises evaporating a refrigerant from an absorbent saturated with the refrigerant by direct contact with a heat carrier which is readily separable from the absorber and refrigerant, thereafter condensing the vaporized refrigerant by heat exchange with a cold carrier, then evaporating the refrigerant condensate by heat exchange with a medium to be cooled which is readily separable from the refrigerant and then saturating the cooled absorbent with the refrigerant vapors and returning the saturated absorbent to the initial evaporation stage.

27,075

METHOD OF FABRICATING PREOXIDIZED SILVER-CADMIUM OXIDE ELECTRICAL CONTACTS

Peter C. Murphy and Fredrik O. Haarbye, Indianapolis, Ind.; said Haarbye assignor to P.R. Mallory & Co., Inc., Indianapolis, Ind., a corporation of Delaware
Original No. 3,317,991, dated May 9, 1967, Ser. No. 445,038, Apr. 2, 1965. Application for reissue May 8, 1969, Ser. No. 830,898

Int. Cl. B22f 3/24

U.S. Cl. 29-420.5

17 Claims

A method of manufacturing preoxidized silver-cadmium oxide materials comprising, atomizing molten

silver-cadmium alloy to form silver-cadmium alloy particles, cooling said particles, internally oxidizing cadmium contained in the particles, compacting and heating the oxidized particles, extruding the compacted particles to form a desired shape and working the shape to the extent necessary to obtain the desired final size.

and two of the wheel brakes, the valve assembly having a combined poppet and check valve urged closed by a first spring, this spring being backed up by a piston urged toward it by a second spring, the piston being retractable in proportion to fluid pressure forced past said valve toward the outlets of the valve assembly.

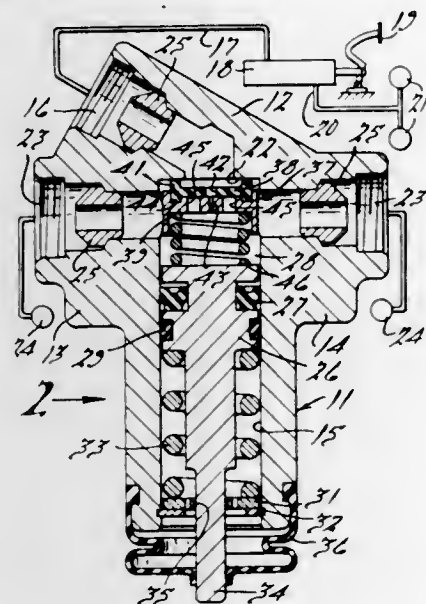
27,076

PRESSURE SENSITIVE METERING VALVE

Kenneth B. Swanson, Bannister, Mich., assignor to Midland-Ross Corporation, Owosso, Mich., a corporation of Ohio
Original No. 3,453,029, dated July 1, 1969, Ser. No. 664,757, Aug. 31, 1967. Application for reissue Oct. 21, 1969, Ser. No. 877,911

Int. Cl. B60t 8/26, 15/00

U.S. Cl. 303—6



An automotive braking system having a pressure sensitive metering valve interposed between the master cylinder

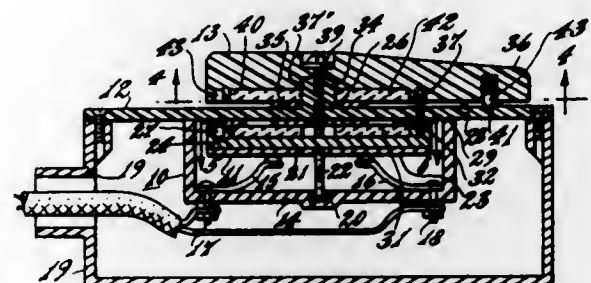
MAGNETICALLY OPERATED SWITCHES

John A. Bear, deceased, late of Philadelphia, Pa., by Wharton D. Bear, administrator, Philadelphia, Pa., assignor to Wharton D. Bear, Philadelphia, Pa.
Original No. 3,317,870, dated May 2, 1967, Ser. No. 270,401, Apr. 3, 1963. Application for reissue Apr. 18, 1969, Ser. No. 830,165

Int. Cl. H01h 5/02, 21/00

U.S. Cl. 335—207

9 Claims



A magnetically operated switch which is operated by snap action and is magnetically locked in the "on" and "off" position to prevent chattering and operation under vibrating conditions. A master and slave unit are provided with an equal number of pairs of poles to operate the switch. The movement of the master unit is greater than the movement of the slave unit by an amount that will provide magnetic repulsion between the units at the ends of the switching motion.

27,077

PATENTS

GRANTED FEBRUARY 23, 1971

GENERAL AND MECHANICAL

3,564,609

FLEXIBLE SPACE SUIT TORSO RESTRAINT SYSTEM

Edwin G. Vail, Slimsbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Aug. 5, 1968, Ser. No. 750,334

Int. Cl. A62b 17/00

U.S. Cl. 2—2.1

2 Claims



A fabric torso structure has a plurality of plates disposed thereon interconnected by a plurality of flexible cables which are capable of rigid tension in response to pressures within the torso resulting from the inflation of the suit. The plates and cables are so disposed as to provide a plurality of hoop load restraints circumferentially about the torso assembly, and a plurality of plug load restraints at least one at the front of the torso assembly and at least one at the back of the torso assembly.

convolute. A plurality of pre-shaped convolutes are sewn together so as to form a convolute section of a pressurized suit.

3,564,611

LOWER SHOULDER FOR A PRESSURIZED SUIT

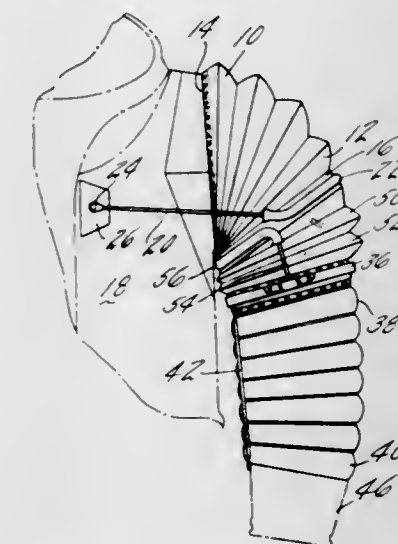
John C. Hardy, Westogue, and James F. Wilber III, Hazardville, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Dec. 20, 1968, Ser. No. 785,606

Int. Cl. A62b 17/00

U.S. Cl. 2—2.1

2 Claims



Plug load restraints with a medial turnaround are located in the sagittal plane between a main shoulder turn-around guide and an arm bearing in the lower shoulder of a pressurized suit, thereby to increase mobility of the arm and the shoulder. The lower shoulder restraint system includes pre-shaped convolutes fabricated of restraint cloth.

3,564,610

PRE-SHAPED CLOTH CONVOLUTES FOR A PRESSURIZED SUIT

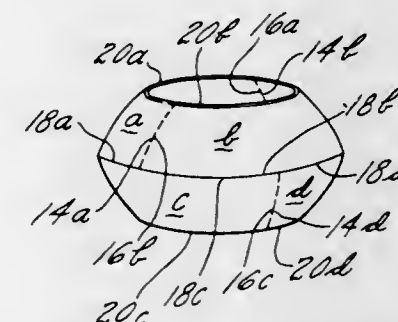
Michael A. Marroni, Jr., Westogue, and Douglas E. Getchell, Windsor Locks, Conn., and John J. Korabowski, Springfield, Mass., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Dec. 20, 1968, Ser. No. 785,602

Int. Cl. A62b 17/00

U.S. Cl. 2—2.1

2 Claims



One or more arcuate pieces of flat cloth are sewn together to form a frusto cone; two frusto cones being sewn together at their large ends form a pre-shaped

3,564,612

CHEF'S CAP AND METHOD OF MAKING

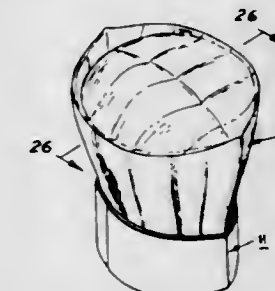
Gilbert B. Wagenfeld, Bala Cynwyd, Pa., assignor to Cellucap Manufacturing Co., Philadelphia, Pa., a corporation of Pennsylvania

Filed Mar. 20, 1969, Ser. No. 808,850

Int. Cl. A42b 1/22

U.S. Cl. 2—197

32 Claims



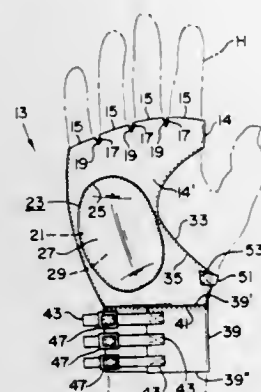
A chef's type of hat having a crown piece of lightweight flexible material which is dovetail pleated, edge-sealed and so folded as to provide the same with an infolded central portion which may be outwardly pressed to form a closed top high rise crown for the hat. A head band formed of flexible but stiffer material than that of the crown piece is permanently secured to the bottom portion of the crown

piece and circumferentially embraces the same. The head band is adjustable in its head size and the crown piece is secured thereto with all of its pleat folds bonded together at their ends except within a limited area wherein the pleat folds are openable to provide for expansion of the crown girth in correspondence with expansion to head size of the head band. The head band may be interiorly provided with a sweat band. The hat is produced as a flat unit which may be expanded to shape by its wearer.

3,564,613
BOWLING GLOVE
Carl G. Fowler, 417 Huntington,
Jonesboro, Ark. 72401
Filed Oct. 20, 1969, Ser. No. 867,591
Int. Cl. A41d 19/00

U.S. Cl. 2—159

8 Claims



A bowling glove for use by a person while participating in the sport of bowling, as an aid to him in his endeavor to develop skill or control of the bowling ball. The bowling glove includes a removable rigid stiffener piece which fits into a pocket on the back side of the glove and substantially keeps the bowler's wrist straight. The palm side of the glove includes a bulbous pad enclosed in a pocket situated over the heel of the hand and adapted to rest against the bowling ball and provides the beginning with a better feel or grip on the bowling ball.

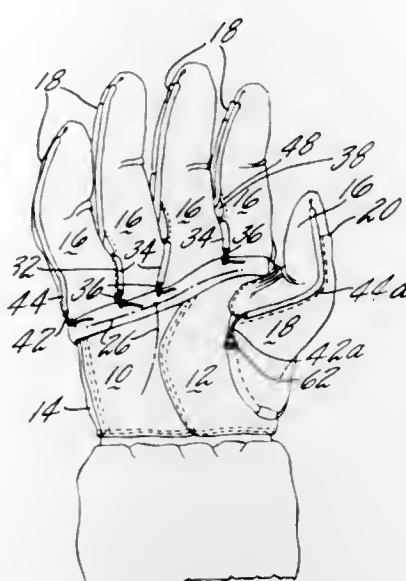
3,564,614
GLOVE FOR A PRESSURIZED SUIT
Douglas E. Getchell, Windsor Locks, John C. Hardy, Westogue, Jerome C. Smart, Wethersfield, and Simone R. Bastille, West Hartford, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Dec. 20, 1968, Ser. No. 785,468
Int. Cl. A41d 19/00; A62b 17/00

U.S. Cl. 2—161

11 Claims

A glove for a pressurized suit includes a plurality of finger stalls joined to a main glove restraint assembly along the knuckles at the rear and along the break line of the palm, each finger stall comprising an inner, flexible bladder, a one-way stretch cloth panel providing hoop load restraint across the back of each stall, restraint cloth across the front of each stall, and a pleated restraint cloth protection cover over the one-way stretch cloth on the back of each stall. A diamond shaped, folded web joins the root of one stall to the root of an adjacent stall, and the position of the web is stabilized by restraint cords leading from the crotch thus formed between adjacent stalls at the front and the rear to a point near the knuckles on the back trunk and to a point near the palm break line on the front trunk. Lateral restraints are provided in piping within the lateral seams of each side of each finger stall, the piping running along the rear seam of the web and the restraint cord therein passing through a section of piping which holds the rear web stabilizing restraint cord and terminating at an adjacent point. The main glove

body is comprised of a rear trunk, a palm heel panel or trunk, and a thumb transition piece. A thumb stall is fashioned in a manner similar to that of an individual

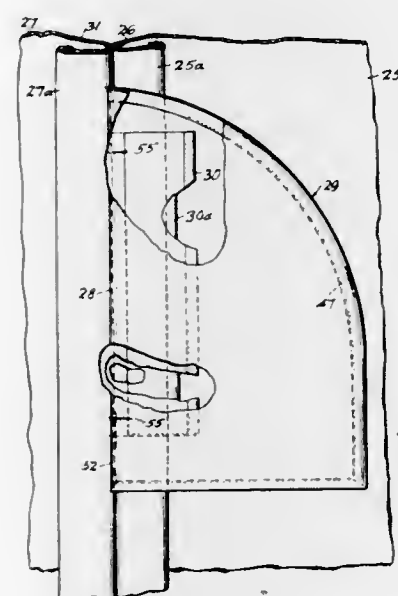


finger stall, but without any webbing. Lateral restraints on the thumb stall are joined together in a turnaround that circumscribes the base of the thumb stall.

3,564,615
UNIVERSAL GARMENT POCKET AND METHOD
Harry Jacobson, 611 Broadway,
Mount Vernon, N.Y. 10012
Filed Feb. 7, 1969, Ser. No. 797,525
Int. Cl. A41d 27/20

U.S. Cl. 2—247

18 Claims



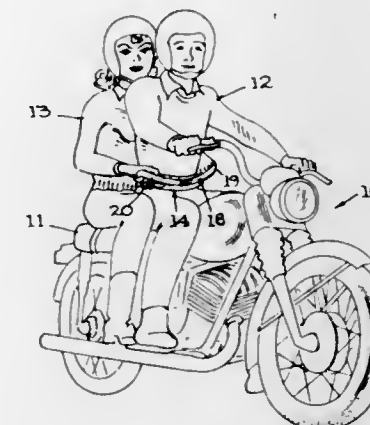
A machine stitched, flat completely tailored and finished universal pocket is attached while being constructed, to any type of, and at any point of, an unlined garment in which pockets are visible, such as trousers, unlined coats, skirts and the like. It is reversible for outside arrangement and visibility. The pocket bag receives a gusset for expansibility. It is secured to the garment only at the slit or entrance opening of the pocket by a single continuous line of machine stitching. The pocket sheet is folded in half with the fold as closely adjacent the slit as the stitching permits. The slit is a straight, curved, crooked or bent line. The corresponding end portions of the stitching on opposite sides of, and circumscribing, the slit converge to meet at a relatively or slightly dull point. During construction, the pocket sheet or finished pocket bag

is turned back and forth through the slit as many times as required to give complete access for continuous machine stitching of all parts, such turning being possible because of the independence of the pocket bag or sheet from the garment except for the slit stitching. Embellishment such as facings, flaps, tapes, zippers, stripes and the like are applied during construction.

3,564,616
SAFETY DEVICE
Angelo F. Battaglia, 1703 Walnut St.,
Philadelphia, Pa. 19103
Filed Sept. 8, 1969, Ser. No. 856,052
Int. Cl. A41f 9/00

U.S. Cl. 2—311

5 Claims

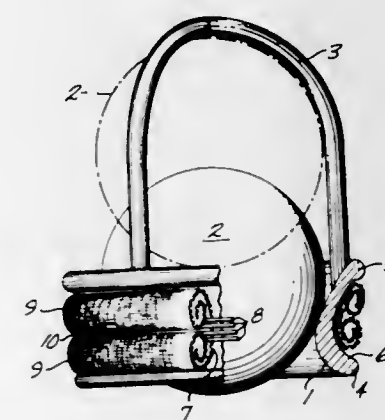


The invention relates to safety devices for drivers of high speed unenclosed vehicles and includes either as a part separable therefrom, or integral therewith, a strap element which may be used by a passenger riding in tandem to the driver of the vehicle.

3,564,617
PROSTHETIC HEART VALVE BURIED SEWING RING
Lester R. Sauvage, 1210 22nd Ave. E. 98102; Stephen J. Wood, 2223 E. Crescent Drive 98102; and Knute E. Berger, 2856 32nd Ave. S. 98144, all of Seattle, Wash.
Filed Aug. 22, 1968, Ser. No. 754,608
Int. Cl. A61f 1/22

U.S. Cl. 3—1

3 Claims

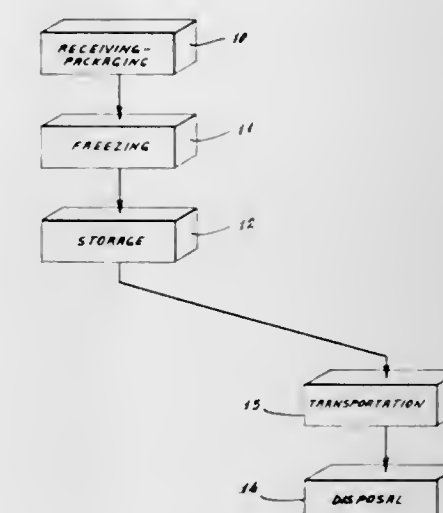


A sewing ring of limp knit synthetic plastic material is received in the external anticlastic groove of a rigid prosthetic heart valve venturi ring so that very little if any of the sewing ring protrudes out of the groove. Such sewing ring includes a central band portion and opposite axial free edge portions curled to form loose rolls having a crevice between them. The central band of the sewing ring is anchored in the bottom of the groove by several

3,564,618
HANDLING AND DISPOSAL OF TOILET WASTES
Charles Ayres Williams, 1230 West St.,
Guilford, Conn. 06437
Filed Nov. 4, 1968, Ser. No. 773,194
Int. Cl. A47k 11/02

U.S. Cl. 4—1

4 Claims

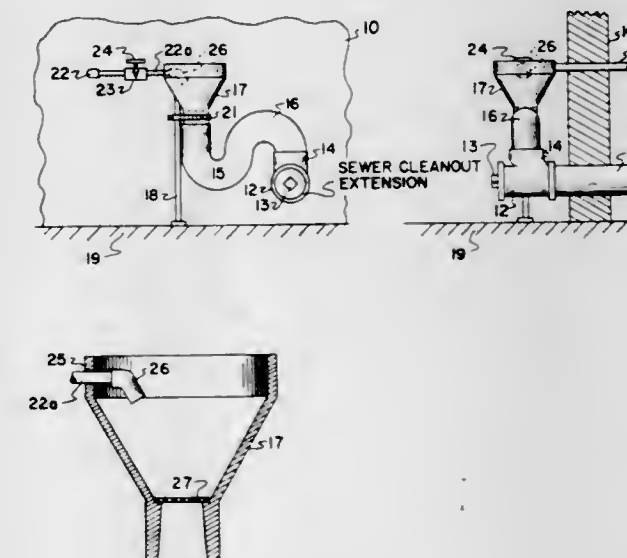


This invention is a method of handling and disposal of toilet wastes, consisting of means for receiving such wastes, packaging and freezing such wastes to a solid state at the place of deposit, then transporting the frozen wastes to a disposal area.

3,564,619
FAUCET FLUSHING EXCREMENT BOWL
Merlen D. Magathan, 4547 Auhay Drive,
Santa Barbara, Calif. 93105
Filed Sept. 16, 1968, Ser. No. 767,561
Int. Cl. E03d 1/30, 1/36, 3/10

U.S. Cl. 4—10

5 Claims



Animal feces are collected and deposited in a funnel type of bowl having bars or apertured plates creating apertures in the outlet of about 1/2 inch minimum size. A

faucet disposed above the funnel directs a stream of water on the feces and breaks them up, causing the particles to pass through the outlet apertures and into the sewer system. The device is placed outside a house and is most conveniently connected to the sanitary sewer system of a house by an extension on a sewer clean out, one or more being customarily extended to the exterior of the house. Preferably plastic components are used which can be quickly assembled by suitable plastic cement, making it possible for householders to install the plumbing and the device.

3,564,620

BEDSIDE DRAINAGE BAG

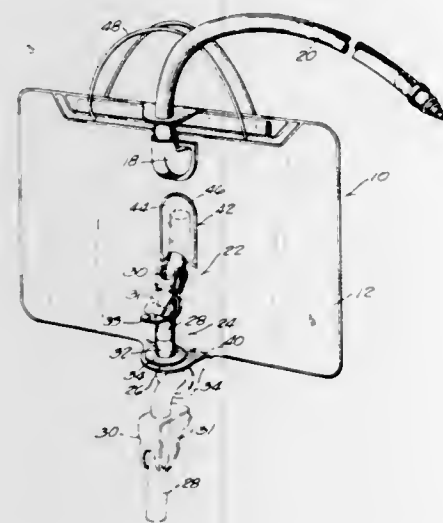
James L. Clark, Whitefish Bay, Wis., assignor to Plastronics, Inc., Milwaukee, Wis., a corporation of Wisconsin

Filed Jan. 23, 1969, Ser. No. 793,413

Int. Cl. A61g 9/00

U.S. Cl. 4-110

3 Claims



A bedside drainage bag for use in hospitals and the like, comprising a bag portion adapted to retain fluid therein having an inlet tube connected thereto for carrying fluid into the bag. A drainage assembly mounted on the bag for periodically draining the contents therefrom, comprised of a drain fitting fastened to a depending flap portion at the bottom of the bag. A drain tube is attached to the end of the drain fitting and can be pivoted from a depending drain position to an upright storage position. A valve member mounted on the tube controls flow there-through, and a drain tube pocket of special design is provided on the face of the bag into which the end of the drain tube is inserted to thereby retain the drainage assembly when in its storage or non-use position.

3,564,621

SHOWER FIXTURE

Samuel L. Fletcher, 1141 33rd Ave., Greeley, Colo. 80631

Filed Sept. 9, 1968, Ser. No. 758,377

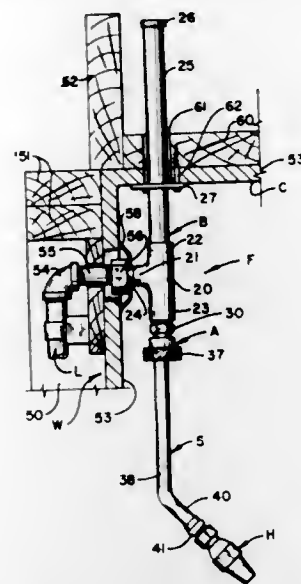
Int. Cl. A47k 3/22

U.S. Cl. 4-145

9 Claims

An adjustable fixture for a shower head adapted to be mounted in a shower stall and connected to a supply pipe extending from the wall of the stall. The fixture is formed as an elongated, tubular body having an outstanding stub at its base which is connected to the supply pipe. The body extends upwardly from this connection and if necessary, extends through the ceiling of the shower stall. A tubular stem is mounted within the body with its lower portion extending from the base of the body and with a shower head on its lower end. An adaptor is attached to

the base of the body through which the tubular stem slidably extends to permit the tubular stem to be adjustable



within the body and to permit it to be locked at any selected rotative and elevational position.

3,564,622

SWIMMING POOL WITH VERTICALLY ADJUSTABLE BOTTOM

Bernard Johannes Klein Menlekamp, Den Dolder, Netherlands, assignor to N.V. Grontmij, Grondverbetering-en Ontginningmaatschappij, De Bilt, Netherlands

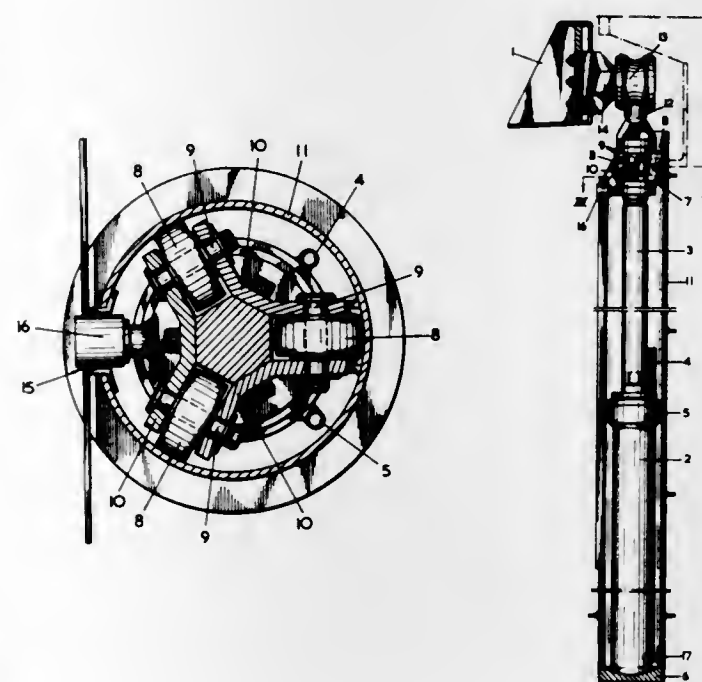
Filed Nov. 22, 1968, Ser. No. 778,277

Claims priority, application Netherlands, Nov. 24, 1967, 6716044

Int. Cl. E04h 3/19

U.S. Cl. 4-172.13

8 Claims



A swimming pool has a bottom which is vertically adjustable to regulate the depth of the pool for training and

other purposes, by means of hydraulic jacks including guide means for braking the vertical movement of the pool bottom when it tilts.

3,564,623

TRUSS-SUPPORTED SWIMMING POOL

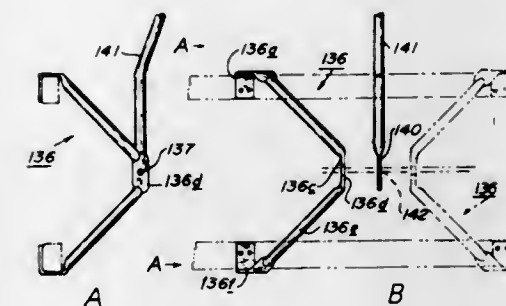
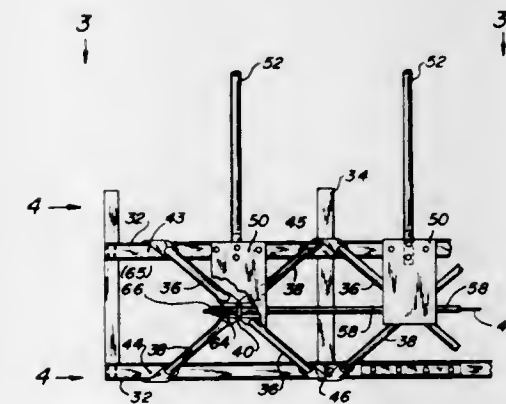
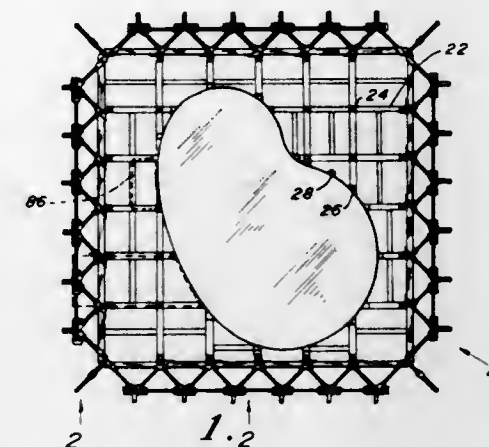
John I. Schaeffer, Forest Place, Towaco, N.J. 07082

Filed June 26, 1969, Ser. No. 836,763

Int. Cl. E04h 3/16; E04c 3/04; E02d 27/32

U.S. Cl. 4-172.19

10 Claims



A swimming pool having a multiplicity of straight side wall portions each joined at their ends to support a liner or other wall structure. The wall portions are of a triangular truss construction in which the members forming the truss may be assembled and disassembled. The side walls providing the strength members of the swimming pool are also provided with leveling means so that the framework may be leveled and supported on uneven ground and may be assembled and disassembled for use in reasonably level locations.

**3,564,624
VENTILATING SYSTEMS FOR SANITARY SYSTEMS**

Arthur Chester Paley, 21 Boldrewood St., Turner, Canberra, Australia

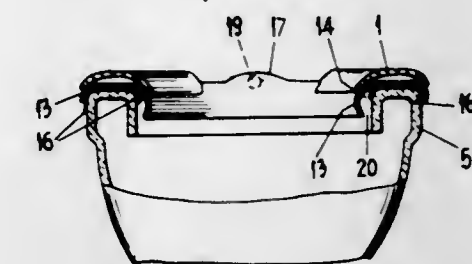
Filed Dec. 6, 1968, Ser. No. 784,538

Claims priority, application Australia, Dec. 7, 1967, 30,923/67

Int. Cl. A47k 13/00; E03d 9/04

U.S. Cl. 4-217

1 Claim



This invention is a ventilating system for a sanitary system which includes ventilating means adjacent the top of the pan of the sanitary system, the ventilating means including openings or a gap through which malodorous gases are drawn to an exhaust outlet.

3,564,625

PATIENT HANDLING APPARATUS

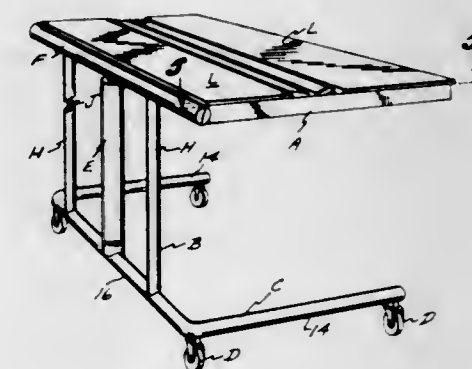
Harry A. Danielson, 5844 N. 2nd Ave., Phoenix, Ariz. 85013

Continuation-in-part of application Ser. No. 614,382, Jan. 16, 1967, now Patent No. 3,451,070, which is a continuation-in-part of application Ser. No. 402,397, Oct. 8, 1964, now Patent No. 3,298,042, dated Jan. 17, 1967. This application June 24, 1969, Ser. No. 835,968

Int. Cl. A61g 7/10; 7/08

U.S. Cl. 5-81

9 Claims



Patient handling apparatus including two frame-supported, rectangular panels that may occupy either vertical or horizontal positions, with the frame being removably supported in a horizontal position on two cantilever arms forming a part of the movable portion of the apparatus. The frame may be lowered to encircle a bed-supported patient when the panels are vertically positioned, after which the panels are sequentially lowered to horizontal positions to permit the patient to be disposed thereon by a relatively little rolling movement.

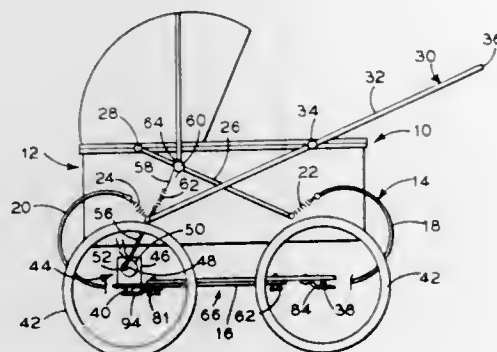
The frame, panels, and supported patient may then be moved to a predetermined location, such as over an operating table, X-ray table, bed, or the like. The frame, panels, and supported patient may rest on an operating or X-ray table, and thereafter the movable portion of the apparatus separated from the frame, if desired. After the

patient has received the necessary medical treatment, the cantilever arms may be caused to engage the frame to permit the patient to return to a hospital bed, with the patient being separated from the supporting panels and positioned on the bed by reversing the above-described operation.

3,564,626
BABY CARRIAGE ROCKER DEVICE
Steve J. Nelson, 351 W. 18th St.,
New York, N.Y. 10011
Filed Apr. 3, 1969, Ser. No. 813,227
Int. Cl. A47d 9/02

U.S. Cl. 5-109

3 Claims

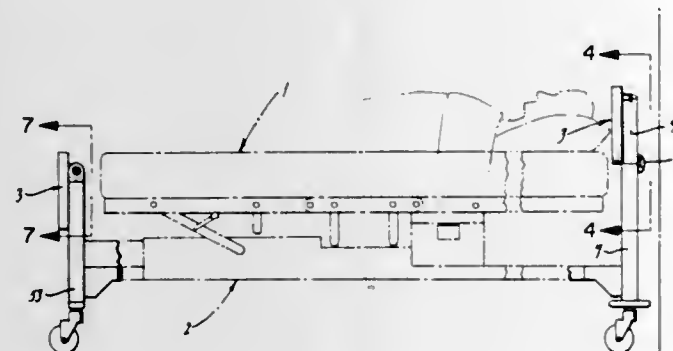


A baby carriage rocker device for a baby carriage of the type having a coach resiliently mounted on a frame wherein the frame is supported by at least two spaced axles, the device includes a motor having a rotatable shaft which mounts a disc provided with an eccentrically located pin. The motor is supported by means which extends between and is connected to the axles so that the weight of the motor does not unbalance the carriage. The pin is connected to one side of the frame by a spring connection so that the rotation of the shaft affects rocking of the carriage.

3,564,627
MULTIPURPOSE BED ATTACHMENT
Charles D. Allard and Eugene R. Allard, San Leandro,
and Robert Ross Newton, Hayward, Calif., assignors
to Sana Products, Inc., San Leandro, Calif., a corporation
of California
Filed Aug. 14, 1968, Ser. No. 752,528
Int. Cl. A47b 23/00

U.S. Cl. 5-332

1 Claim

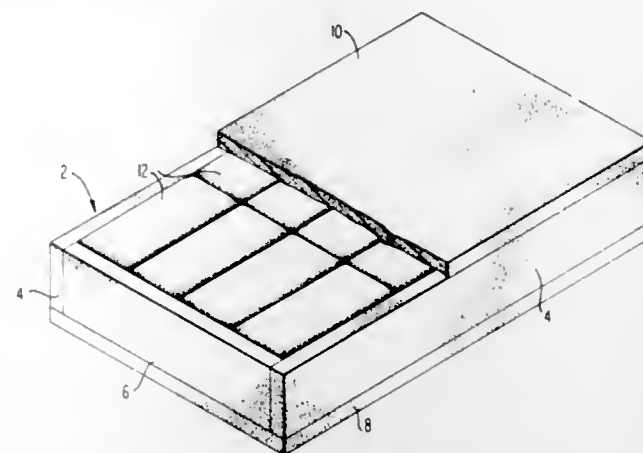


An attachment for a bed consisting of an elongated planar member substantially the width of the bed, a hinged means permitting vertical and horizontal positioning of the planar member and hand engageable release and locking means for selectively placing the planar member.

3,564,628
LAMINATED MATTRESS WITH SEALED FOUNDATION UNITS
John A. Oxford, P.O. Box 647,
Americus, Ga. 31709
Filed June 6, 1968, Ser. No. 734,921
Int. Cl. A47c 27/10

U.S. Cl. 5-348

8 Claims

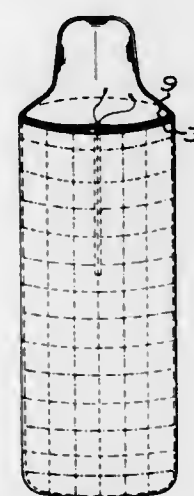


A mattress construction employing a plurality of individual air-tight foundation units inserted within the interior of a foam material housing in a juxtaposed relationship but without being secured to each other or to the housing walls.

3,564,629
SLEEPING BAGS
Karl Alfred Sten Rogius, Malmö, Sweden, assignor to
Nordiska Fjäderfabriken AB, Malmö, Sweden
Filed Dec. 23, 1968, Ser. No. 786,092
Claims priority, application Sweden, Dec. 29, 1967,
17,995/67
Int. Cl. A41d 13/00

U.S. Cl. 5-343

1 Claim



A sleeping bag comprises two bags which can be put into and withdrawn and detached from one another and whose through stitchings are relatively offset, the bags when inserted one into the other being so tightly interconnected that an insulating air volume is enclosed between the two bags.

3,564,630
POLYAMIDE FIBERS AND FIBER BLENDS OF ENHANCED DYEABILITY
Francis S. Moussalli, Charlotte, N.C., assignor to Celanese Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed July 5, 1966, Ser. No. 562,526
Int. Cl. D06p 1/66, 3/24, 3/82

U.S. Cl. 8-21

12 Claims

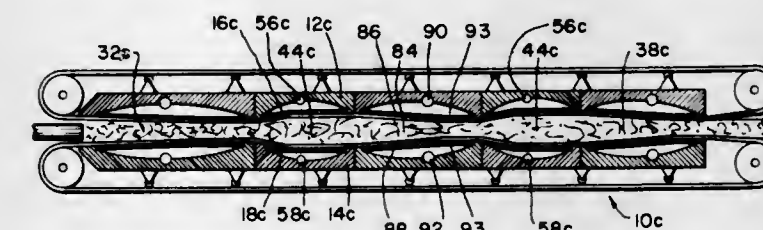
A process for increasing the deep dye characteristics of polyamides, particularly aromatic polyamides when in

combination with keratinous fibers as blends of nylon and wool and the dyed product produced thereby. The process involves pretreating the fiber in yarn or fabric form with a long chain alkyl aromatic quaternary ammonium salt and subsequently dyeing the fiber with an acid dye. The pretreatment with the quaternary ammonium salt increases the affinity of the polyamide for acid dyestuffs without greatly effecting the dye affinity of the keratinous fiber, thereby providing greatly improved dye uniformity. The dye uniformity in blends of both aliphatic and aromatic polyamides is increased according to the present process. When the polyamide is an aromatic polyamide, it is preferred to use a carrier in the dyebath to aid in the dyeing of the fiber.

3,564,631
PULP TREATING APPARATUS AND METHOD
Elmer R. Burling, Nashua, N.H., assignor to Improved Machinery Inc., Nashua, N.H. a corporation of Delaware
Filed May 16, 1968, Ser. No. 729,810
Int. Cl. D21c 9/02, 9/18

U.S. Cl. 8-156

7 Claims

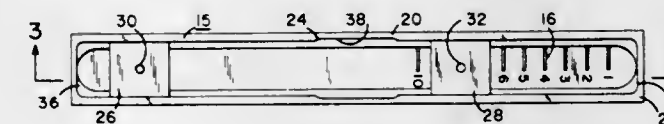


An apparatus for treating pulp, comprising a pair of platens having adjacent perforate walls spaced to form opposing sides of an elongated processing chamber and constructed to cause the chamber to include at least a pair of narrowing pressing zones interconnected by an intermediate widening expanding zone. A pair of perforate conveying belts are longitudinally driven through the chamber adjacent the perforate walls for transporting pulp therethrough; and conduits are connected to the pressing and expanding zones for, respectively, draining liquid therefrom and supplying dilution liquid thereto. Also a method for treating pulp through the employment of this apparatus.

3,564,632
ADJUSTABLE SURFBOARD FIN HOLDER
William L. Bahne, Jr., 3864 Strand Way,
San Diego, Calif. 92109
Filed Oct. 17, 1968, Ser. No. 768,253
Int. Cl. A63c 15/06

U.S. Cl. 9-310

9 Claims

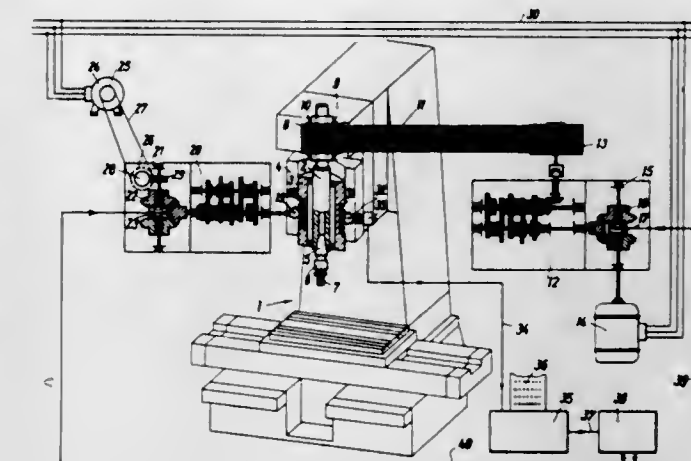


An adjustable surfboard fin holder that provides infinite longitudinal positioning of the surfboard fin, within given limits, that allows the surfboard fin to be located in a secured position that is marked with indicia, to facilitate optimum surfboard handling.

3,564,633
METHOD AND APPARATUS FOR TERMINATING THE AXIAL DEPTH OF A THREAD CUTTING OPERATION
Gerhard Stadel, Berlin, Germany, assignor to Herbert Lindner G.m.b.H., Berlin, Germany
Filed Aug. 15, 1968, Ser. No. 753,011
Claims priority, application Germany, Sept. 15, 1967, P 16 27 391.9
Int. Cl. B23g 1/00, 3/00

U.S. Cl. 10-129

10 Claims



In a thread cutting operation, such as the tapping of a blind hole, wherein a tap performs a natural axial feed motion in accordance with its angular velocity and pitch, a second axial feed motion is superposed upon the natural axial feed motion of the tap, at an axial speed differing by a constant ratio from the natural axial speed of the tap. The difference between the two axial travels is compensated by an idle travel, and the axial depth of the tapping is terminated responsive to a predetermined value of the second axial travel in proportion to the two axial travels from one common starting point. The apparatus includes two drives, one rotating a drill spindle and the other feeding the drill spindle mounting axially, so that both the drill spindle and its mounting are driven synchronously in a predetermined relationship, there being a tap chucked in the drill spindle. The tap performs its own axial feed motion against the bias of a spring to accommodate the above-mentioned idle travel.

3,564,634
FLOWLINE CLEANING TOOL STORAGE AND CONDITIONING DEVICE
Peter Hood, Canoga Park, Calif., assignor to North American Rockwell Corporation
Filed June 27, 1968, Ser. No. 740,552
Int. Cl. B08b 9/04

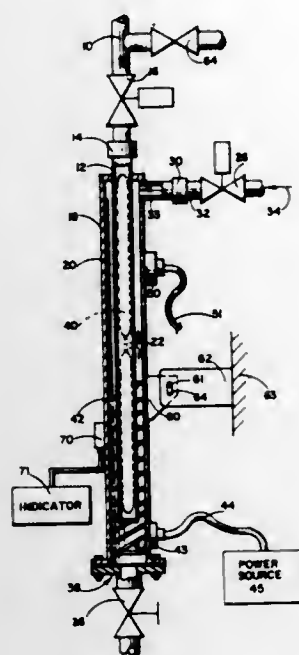
U.S. Cl. 15-104.06

6 Claims

An elongated cylindrical member is adapted to be connected to a flowline. A cleaning tool is normally stored within the cylindrical member ready for use in the flowline. Openings are defined in the walls of the cylindrical member to allow a controlled fluid flow from and to the inner portion of the member. A rigid fluid tight housing encloses the cylindrical member and forms an annular passageway therewith. Means are provided for supplying a fluid, under pressure, to the housing enclosure. Heating means are provided for heating the fluid to a temperature sufficient to melt deposits contained on the tool. Drain means are fixed to the housing for flushing out the deposits suspended in the liquid. The housing and cylindrical member are pivotally mounted

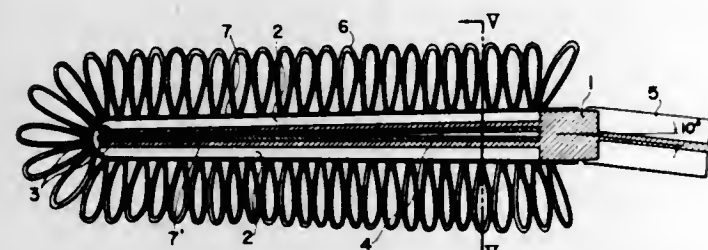
with respect to the flowline to allow the housing and cylindrical member to be disconnected from and rotated with

direction relative to the central longitudinal axis of said diverging gap defined between the opposing top faces of the T-shapes of said upper and the lower nipping rods. The mop having this structure provides a resiliency and handling convenience which has never before been possible in cleaning or dusting the external curved body surfaces of automobiles or like constructions.



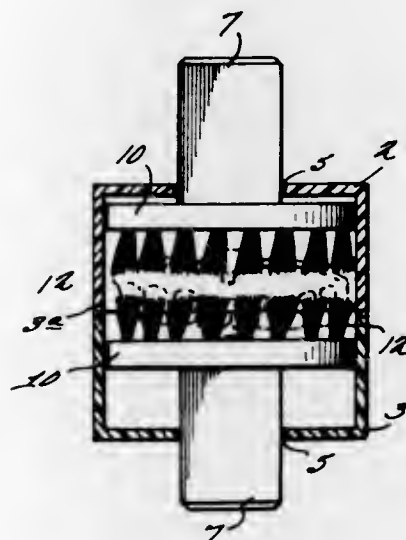
respect to the flowline for easy removal and replacement of the cleaning tool.

3,564,635
MOP ELEMENT NIPPER AND STICK
Shigeharu Komai, Osaka-shi, and Yuichiro Migita, Toyonaka-shi, Japan, assignors to Dusk Franchise Co., Ltd., Osaka-shi, Japan
Filed Dec. 31, 1968, Ser. No. 788,132
Int. Cl. A47I 13/20; B25g 1/02
U.S. Cl. 15-147 1 Claim



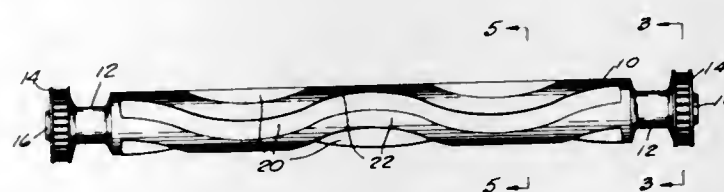
A mop element nipper and stick for the manufacture of a mop intended for use in cleaning and dusting the body surfaces of automobiles or like constructions and being made of a material selected from the group consisting of metals, hard synthetic resins and woods and having the structure comprising a base member formed in the central portion thereof, two upper and lower nipping rods each having a T-shaped cross section and extending forwardly from the front side of said base member, said T-shaped rods being arranged in such a way that the top horizontal faces of the flange-like members of these T-shapes oppose each other, said opposing faces of the substantially horizontal transverse flange-like members of said T-shaped nipping rods being in contact with each other at the foremost ends of said nipping rods and parting from each other with a gradually increasing clearance therebetween as the nipping rods go closer to said base member to form a diverging gap therebetween, said mop element nipper and stick structure further comprising a handling stick extending rearwardly from the rear side of said base member in a slightly downwardly angled

3,564,636
BRUSHING DEVICE
Herbert J. Tomer, 5034 Wallace Lane, Murrysville, Pa. 15668
Filed Jan. 6, 1969, Ser. No. 789,239
Int. Cl. A46b 7/08, 13/08
U.S. Cl. 15-160 4 Claims



A pair of round cups are adapted for abutment on their open ends, and have apertures in their bottoms through which plugs extend, the latter carrying disc-shaped brushes on their inner ends and projecting outwardly to a position where they may be contacted by the palms of the hands of the user to press the brush-carrying discs toward each other, the round cups being at the same time gripped by the fingers of the user and partially rotated in reverse directions; thereby effectively brushing an artificial denture which is positioned between said brushes.

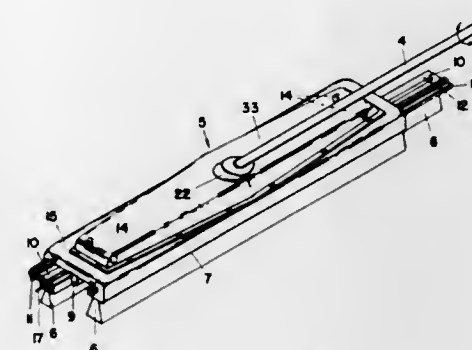
3,564,637
PLASTIC BLOCK FOR REVOLVING BRUSH
John E. Gollish, Greendale, Wis., assignor to E. R. Wagner Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Jan. 8, 1969, Ser. No. 789,901
Int. Cl. A46b 7/10
U.S. Cl. 15-182 3 Claims



A block for a revolving brush such as the kind used in carpet sweepers which has sinuous shaped elongated recesses, integrally formed pulleys with radially project-

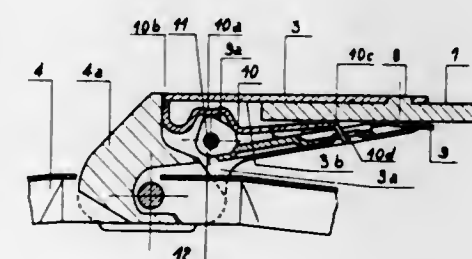
ing ridges, and bearing holes characterized by being molded from polystyrene in condition for final use except for the drilling of the bristle tuft holes in the ribs between the recesses.

3,564,638
EXPANDABLE PUSH BROOM
Reinhardt E. Buchholtz, 3818 E. Bridgeport, Spokane, Wash. 99207
Filed June 20, 1969, Ser. No. 835,176
Int. Cl. A46b 7/02
U.S. Cl. 15-201 9 Claims



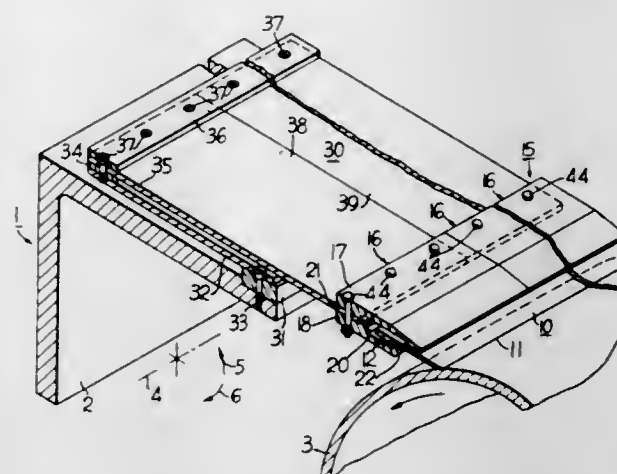
A push broom having a bristled cross-head with a pair of bristled slidable sections movable one out each end to facilitate varying the length of the cross-head within predetermined limits and cable means driven by rotation of the broom handle to impart equal and opposite movements to said sections.

3,564,639
WINDSHIELD WIPER ASSEMBLY
Roger Habert, Paris, France, assignor to Ducellier & Cie, Paris, France, a corporation of France
Filed June 12, 1969, Ser. No. 832,777
Claims priority, application France, June 20, 1968, 155,784
Int. Cl. B60s 1/42
U.S. Cl. 15-250.32 6 Claims



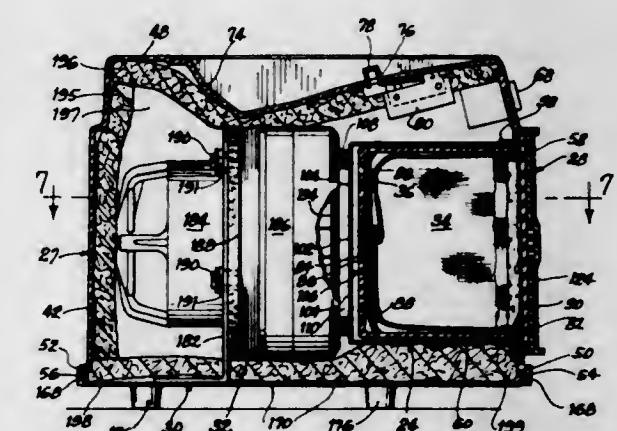
The free end of the oscillating arm of a windshield wiper assembly and the connector head of the stirrup assembly which carries the wiper blade are slip-fitted together and the arm has a projection received in an opening in the connector head to interlock them. The interlock is releasably held by a leaf spring which bears upon the arm opposite the interlock. The latching lever has a cam which engages the leaf spring and rotates the lever to bear against the arm when the arm is between the leaf spring and the connector head. The lever may be manually swung away from the arm to allow the interlock to be disengaged and the parts separated. The free end of the leaf spring is angled to form a guide for inserting the arm in place and additional guides in the form of guide ears may be provided.

3,564,640
DOUBLE CANTILEVER SUPPORTED DOCTOR BLADE
Donald B. De Noyer, Beloit, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Dec. 19, 1968, Ser. No. 785,200
Int. Cl. D21g 3/00, 3/02, 3/04
U.S. Cl. 15-256.51 2 Claims



A doctor is disclosed having a pivotable doctor back parallel to and spaced from a roll of a paper making machine. A blade carried by a blade holder is connected to the back by resilient means comprising a first cantilever connected to the doctor back and projecting away from the roll, and a second cantilever connected to the free end of the first cantilever with the free end of the second cantilever projecting toward the roll. The second cantilever supports on the free end thereof a blade holding assembly to carry the blade. The blade is thus carried by a double cantilevered resilient means for supplementing the resiliency of the blade for contour following engagement of the blade with the roll.

3,564,641
PORTABLE VACUUM UNIT
Roy E. Meyer, Sterling, Ill., assignor to Wahl Clipper Corporation, Sterling, Ill., a corporation of Illinois
Filed Oct. 14, 1968, Ser. No. 767,455
Int. Cl. A47I 5/36
U.S. Cl. 15-323 6 Claims



A portable vacuum unit adapted for countertop use includes a housing, a vacuum chamber within the housing at one end thereof for receiving a refuse bag in the chamber, a door on the housing providing access to the chamber, a vacuum hose-receiving opening extending through the door for communication with the interior of the chamber, a perforated base plate on the housing forming an enclosure therewith, and a motor and fan assembly mounted on the base plate within the housing for communication with the interior of the chamber.

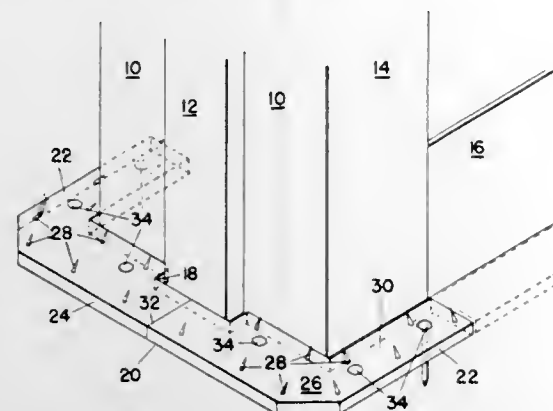
3,564,642

METHOD AND MEANS FOR ANCHORING CARPET

Eugene O. Blackburn, 7013 Sprague Ave. E.,
Spokane, Wash. 99206
Filed May 16, 1968, Ser. No. 729,599
Int. Cl. A47g 2/04

U.S. Cl. 16—7

4 Claims



My present invention relates to a method and means for anchoring carpet at its marginal edges where there are relatively small plan irregularities at the juncture with the floor to be carpeted of substantially vertical members.

3,564,643

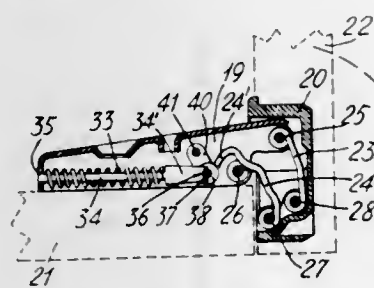
DEVICE FOR QUADRILATERALLY ARTICULATED INVISIBLE HINGE, ADAPTED TO AUTOMATICALLY SHUT A DOOR OR A FLAP AND THE LIKE

Luciano Salice, Cantu, Italy, assignor to
Arturo Salice S.p.A., Milan, Italy
Filed Jan. 24, 1969, Ser. No. 793,797
Claims priority, application Italy, Jan. 26, 1968,
12,040/68

Int. Cl. E05d 3/06

U.S. Cl. 16—163

1 Claim



A device for quadrilaterally articulated invisible hinge, adapted to automatically shut a door or flap and the like without the aid of any other members, comprising a spring member secured to the fixed element of the hinge and at least one cam on which said spring member operates, said cam being fast with one of the moving elements forming the articulated quadrilateral incorporated in said hinge, said spring member comprising at least one cylindrical helical spring.

3,564,644

AUTOMATIC POULTRY BREAST CUTTER

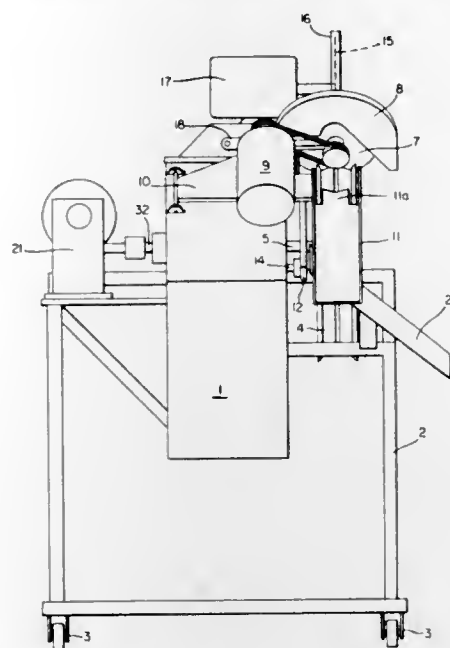
David T. Cannon, 1018 Rainbow Ave.,
Pensacola, Fla. 32505
Continuation of application Ser. No. 716,396, Mar. 27,
1968. This application Dec. 8, 1969, Ser. No. 882,862
Int. Cl. A22c 21/00

U.S. Cl. 17—11

6 Claims

Apparatus for slicing poultry breasts or the like into at least four sections which includes a support for carrying a series of breasts consecutively along a selected path of travel, the support having a pair of slots formed therein, one slot being in the direction of the path of travel and the other slot being transverse to the path. A first rotary

cutter saw is mounted for cutting action in the direction of and along the path of travel so that as the breast on the support moves through one portion of the path, the cutting edge passes through the breast along the first slot dividing the breast into two sections. A second rotary saw is mounted for cutting action in a direction transverse to the path of travel and for intermittent, reciprocal movement into and away from the path so that when the



second saw is moved into the path of travel the cutting edge passes through the second slot in the support and slices the breast transversely into four sections. Drive means and control means are provided to periodically move the second saw into cutting position when the support and breast are stationary at a selected location and move the saw away from the support when the support and breast are in motion.

3,564,645

DEVICE FOR THE ELECTROCUTION OF POULTRY

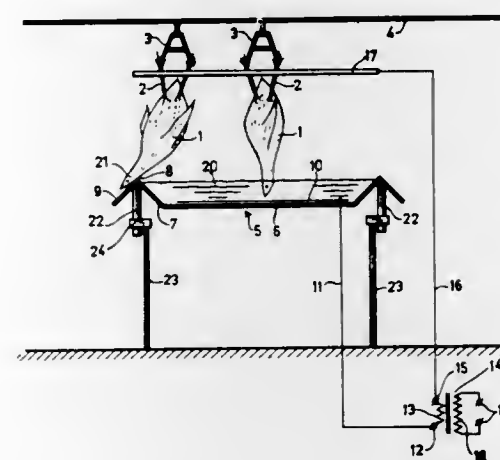
Bram J. M. G. Brugman, Boxmeer, Netherlands, assignor to Stork Amsterdam N.V., Amsterdam, Netherlands

Filed Sept. 9, 1968, Ser. No. 758,309
Claims priority, application Great Britain, Aug. 12, 1968,
38,552/68

Int. Cl. A22c 21/00

U.S. Cl. 17—11

4 Claims



A device for the electrocution of poultry, to which the poultry are supplied, hanging by their legs on a conveyor track, comprising a basin filled with electrically conductive liquid which is connected to one pole of an electrical source, the poultry being electrocuted by plunging their heads into the liquid, while their legs simultaneously are being connected to the other pole of the electrical source.

3,564,646

DEVICE FOR CUTTING THE ARTERY IN THE NECK OF POULTRY

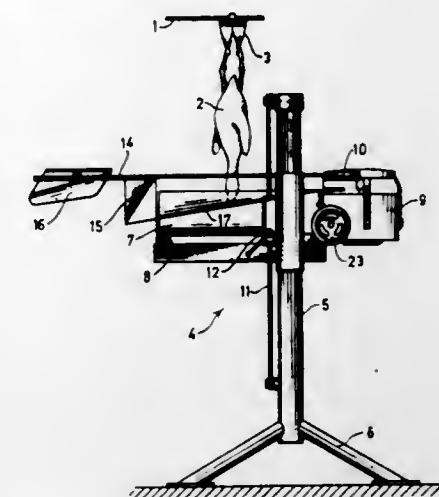
Bram J. M. G. Brugman, Boxmeer, Netherlands, assignor to Stork Amsterdam N.V., Amsterdam, Netherlands

Filed Nov. 27, 1968, Ser. No. 779,485
Claims priority, application Great Britain, Oct. 11, 1968,
48,334/68

Int. Cl. A22b 3/08

U.S. Cl. 17—11

5 Claims



A device for cutting the artery in the neck of poultry with a guide channel for the necks thereof and an upper edge which diverges to a gradually narrowing inlet, the bottom of the channel being inclined upwardly from the inlet to the outlet end of the channel and a rotating disc being placed at the end of the guide channel, protruding into the channel while a horizontal pivotal lever is placed across the upper side of the channel before the cutting disk.

3,564,647

SHIRRED CASING ARTICLES, METHOD AND APPARATUS FOR MAKING SAME

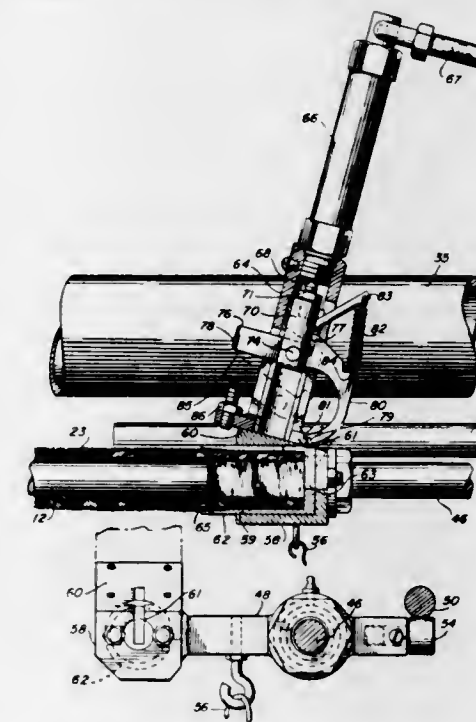
Edward A. Matecki, Evergreen Park, Ill., assignor to Union Carbide Corporation, a corporation of New York

Original application Mar. 2, 1965, Ser. No. 436,584, now
Patent No. 3,419,401, dated Dec. 31, 1968. Divided and
this application Sept. 3, 1968, Ser. No. 810,044

Int. Cl. A22c 11/02

U.S. Cl. 17—42

7 Claims



A machine for producing a hollow shirred meat casing stick having a closure at one end that is effective to block the passage of meat emulsion while being pervious to gas

and humid air comprising a mandrel for supporting a major portion of a shirred meat casing stick, an annular cradling cup aligned with the doffing end of the mandrel, means for compressing the fore end of the casing stick into the cradling cup, arcuate blade means for disuniting a segment of casing from the sticks fore end and crimping, inturning and anchoring the segment into the stick's bore, means for removing the cup and doffing the stick from the mandrel.

3,564,648

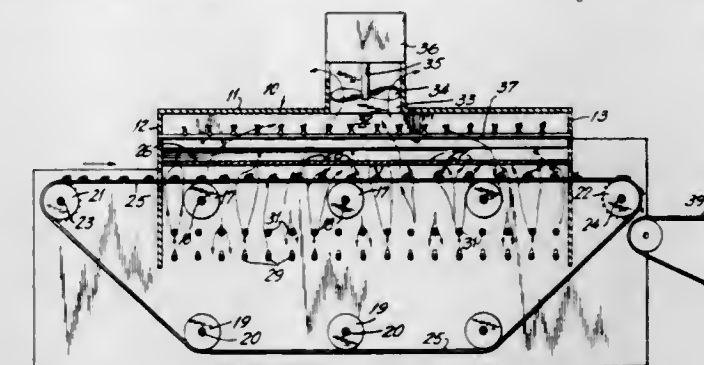
SHUCKING OF BIVALVES

Harold F. Snow, Scarborough, Maine, assignor to Borden, Inc., New York, N.Y., a corporation of New Jersey
Filed Apr. 8, 1969, Ser. No. 814,298

Int. Cl. A22c 29/00

U.S. Cl. 17—74

9 Claims



This invention relates to the method of and apparatus for separating the meats of bivalves from the shells containing same and comprise a cell, means for continuously moving said bivalves through said cell, a heating source disposed on one side of said moving means, interference means interposed between said source and said moving means for retaining said source at a predetermined distance from said bivalves, and means disposed on the opposite side of said moving means for regenerating heat supplied from said source whereby said bivalves are completely enveloped in a concentrated high-temperature medium.

3,564,649

TIRE PRESS LOADER AND UNLOADER

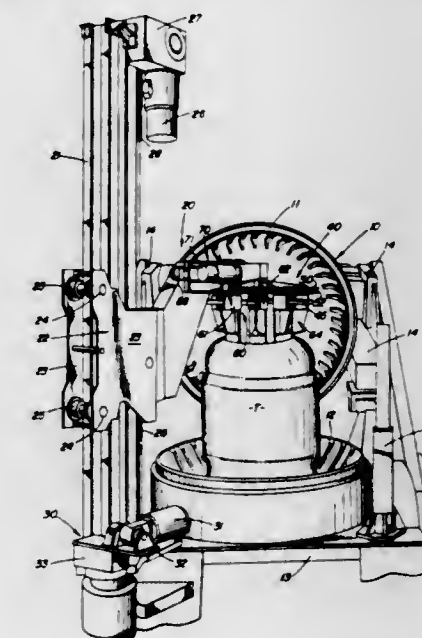
Leslie E. Soderquist, Silver Lake, Ohio, assignor to McNeil Corporation, Akron, Ohio, a corporation of Ohio

Filed Jan. 21, 1969, Ser. No. 792,383

Int. Cl. B29b 5/02

U.S. Cl. 18—2

8 Claims



A device for automatically loading and unloading a tire vulcanizing press. A loading and unloading chuck

having gripping means is controlled by a pivoted motor so that tires, particularly large and heavy tires, can be adequately and safely carried to and from the press. The pivoted motor enables the chuck to maintain a sufficient and substantially constant radial holding force on the bead area of the tire so that no slippage occurs.

3,564,650

APPARATUS FOR EXTRUDING PLASTIC STRANDS AND CUTTING THEM UP INTO PELLETS

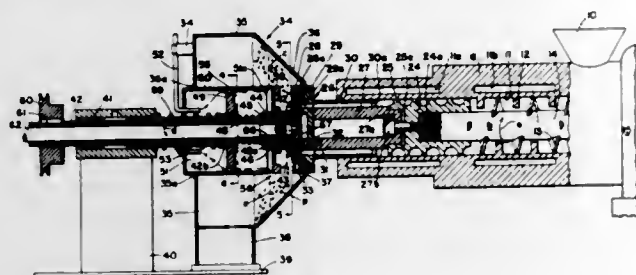
Henry F. Irving, Saginaw, Mich., assignor to Baker Perkins Inc., Saginaw, Mich., a corporation of New York

Continuation-in-part of application Ser. No. 461,840, June 7, 1965. This application Dec. 6, 1967, Ser. No. 688,398

Int. Cl. B29f 3/00

U.S. Cl. 18—12

24 Claims



Pelletizing apparatus, including a barrel with a reciprocating and rotating mixer shaft therein, and die means on the end of the shaft with axially extending ports for extruding strands of plastic material therethrough, and wherein rotary knife means mounted for reciprocation with the shaft cuts the strands into pellets.

3,564,651

NON-STICK FLUOROCARBON RESIN-SURFACED MIXING ELEMENT

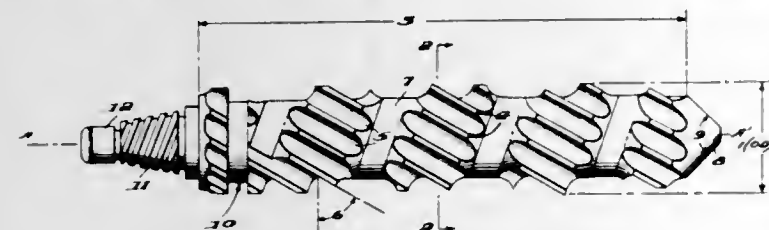
Robert A. Covington, Jr., and Henry M. Mittelhauser, Jr., New Castle County, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Apr. 29, 1968, Ser. No. 725,098

Int. Cl. B29f 3/00

U.S. Cl. 18—12

6 Claims



Mixing elements of elastomer extruders having a non-stick fluorocarbon resin surface and specifically useful in curtailing product inhomogeneity during sulfur halide modification of sulfur-curable elastomers. The fluorocarbon resin comprises tetrafluoroethylene homopolymers or tetrafluoroethylene-hexafluoropropylene copolymers.

3,564,652

PLASTIC ARTICLE FABRICATION DEVICE

Francis Baugues, Brussels, and Michel Lorge, Berchem-Sainte-Agathe, Belgium, assignors to Solvay & Cie, Brussels, Belgium

Filed May 9, 1967, Ser. No. 637,165

Claims priority, application Belgium, May 10, 1966, 27,883; Dec. 7, 1966, 36,852

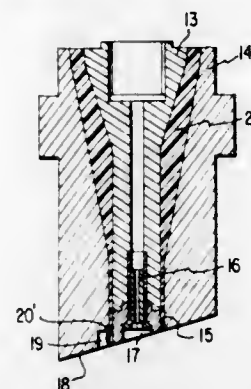
Int. Cl. B29d 23/04

U.S. Cl. 18—14

7 Claims

An arrangement for extruding a straight hollow tube and for cutting the tube into parisons along a plane

oblique to the longitudinal tube axis, the extrusion head having an internal mandrel whose end face lies in an



oblique plane parallel to the cutting plane, and an external die whose tube contacting surface terminates in a plane perpendicular to the longitudinal axis of the head.

3,564,653

VARIABLE EXTRUSION APPARATUS

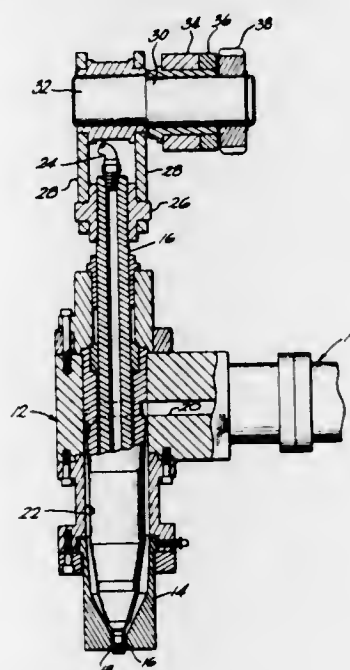
George H. Sparks, Dansville, and Edward Fischer, Saline, Mich., assignors, by mesne assignments, to Haskon, Inc., a corporation of Delaware

Filed Aug. 23, 1967, Ser. No. 662,631

Int. Cl. B29d 23/04

U.S. Cl. 18—14

9 Claims



Apparatus for blow molding hollow plastic articles which includes an extrusion head having a die and a mandrel defining an annular extrusion orifice. The mandrel is axially shiftable relative to the die so that the cross section of the orifice can be varied to vary the cross section of the tube. Shifting of the mandrel is automatically controlled so that in each cycle of operation of the blow molding machine a programmed movement of the mandrel occurs to provide optimum wall thickness of the extruded tube for blowing the desired article.

3,564,654

AUTOMATIC PRESSING TOOL FOR ANISOTROPIC PERMANENT MAGNETS

Erich Steingrover, Bonn, Germany, assignor to Magnetfabrik Bonn GmbH vorm. Gewerkschaft, Bonn, Germany, a corporation of Germany

Filed Jan. 21, 1969, Ser. No. 792,291

Claims priority, application Germany, Mar. 19, 1968, P 16 08 355.9

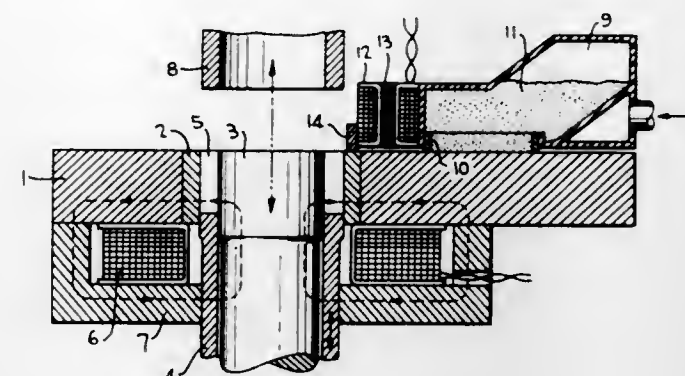
Int. Cl. B30b 11/02, 15/30

U.S. Cl. 18—16.5

5 Claims

An automatic press for making permanent magnets from magnet powder wherein a mold has an opening for

receiving the magnet powder, a press ram for pressing the magnet powder and an electromagnetic means for establishing a magnetic field while the magnet powder is being pressed; the magnet powder is fed into the mold



opening by means of a filling device carrying a quantity of the magnet powder, and a demagnetizing coil operatively connected to the filling device demagnetizes the adjacent parts of the pressing tool after each stock of the ram.

3,564,655

CONTAINER MOLDING APPARATUS

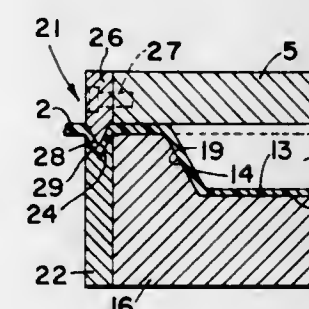
Richard W. Smith, Saginaw, Mich., assignor to Miller Mold Company, Saginaw, Mich., a corporation of Michigan

Filed Mar. 22, 1968, Ser. No. 715,241

Int. Cl. B29c 1/00

U.S. Cl. 18—19

8 Claims



A method and apparatus for molding simultaneously a plurality of thin wall containers from an elongated strip of thermoplastic material which is advanced from a molding station to a cutting station at which successive groups of containers are molded. At the rear of each group of cavities the mold has means for pleating the thermoplastic sheet for the purpose of enabling the pleat to absorb tensile forces generated in the sheet upon the molding of an immediately succeeding set of containers, thereby avoiding the imposition of bending or bowing forces on the end walls of the previously molded containers.

3,564,656

THERMODYNAMIC MOLDING OF PLASTIC ARTICLES

Louis H. Barnett, Fort Worth, Tex., assignor to Vistron Corporation, Cleveland, Ohio, a corporation of Ohio

Filed Jan. 24, 1968, Ser. No. 700,166

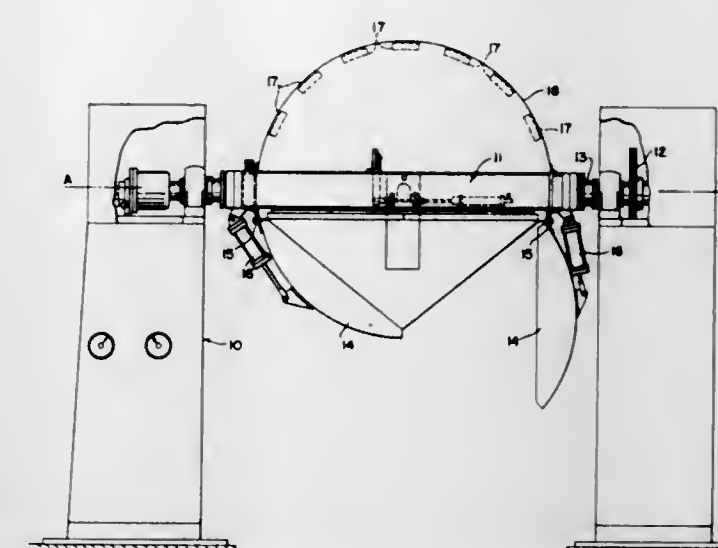
Int. Cl. B29c 5/00

U.S. Cl. 18—26

4 Claims

The instant application relates to an apparatus and method for rotationally molding articles from thermoplastic synthetic resins and modified naturally occurring materials using a predominantly infra-red heating means.

More particularly, the instant application relates to an improvement of the apparatus and method disclosed in U.S. Patent No. 3,315,314 which improvement permits



the thermodynamic molding of even very large articles in an extremely short molding cycle without using highly automated and complicated equipment.

3,564,657

INJECTION MOLDING MACHINE

Katashi Aoki, 6037 Oaza Minamijo, Sakaki-machi, Hanishima-gun, Nagano-ken, Japan

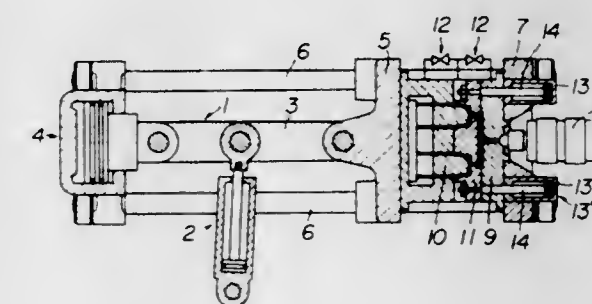
Filed Jan. 16, 1969, Ser. No. 791,737

Claims priority, application Japan, Jan. 20, 1968, 43/2,977; Jan. 24, 1968, 43/4,179

Int. Cl. B29f 1/00

U.S. Cl. 18—30

7 Claims



An injection molding machine of the type having female mold and male mold reciprocable into and out of contact with the female mold, including limit switch means for testing whether the molds have been cleared fully and are in condition for a sequential molding step.

3,564,658

APPARATUS FOR INJECTION MOLDING

Karl Hehl, Loosburg, Wurttemberg, Germany, assignor to Arburg Maschinenfabrik, Wurttemberg, Germany

Filed July 12, 1968, Ser. No. 744,457

Claims priority, application Germany, Apr. 20, 1968, P 17 78 350.5

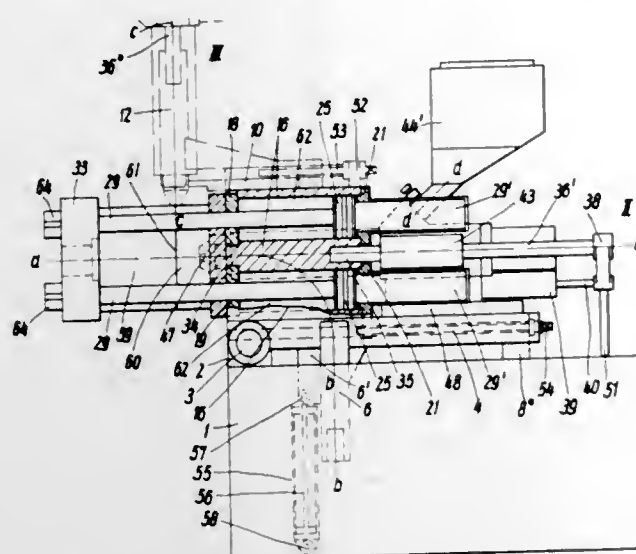
Int. Cl. B29f 1/00

U.S. Cl. 18—30

17 Claims

Injection molding apparatus including a base and an injection mold clamping means which is displaceable in its axial direction as well as pivotal by at least 90° with respect to such base by means provided therefor. Such

clamping means being provided with at least one material injecting means coaxially fastened thereto and



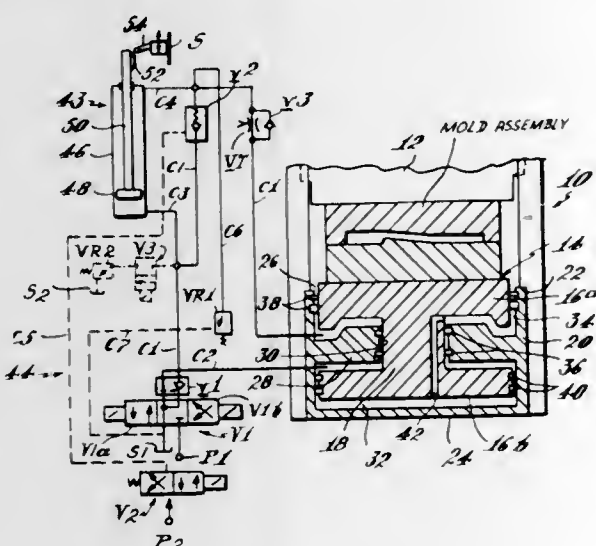
means for perpendicularly connecting an additional injecting means.

3,564,659

HYDRAULIC PRESS AND CONTROL THEREFOR
Friedrich Koch and Helmut Heym, Achim, near Bremen, Germany, assignors to Desma-Werke Gesellschaft mit beschränkter Haftung, Bremen, Germany
Filed Jan. 21, 1969, Ser. No. 792,321
Int. Cl. B29f 1/00

U.S. Cl. 18—30

8 Claims

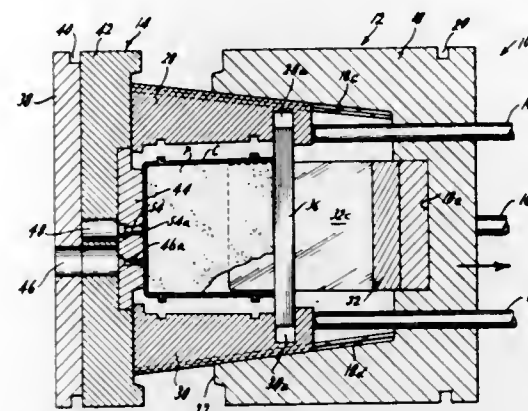


A hydraulic press having fixed and movable platens between which a mold assembly may be held for receiving an injection of a bottom-forming composition in the manufacture of shoes, a large cylinder containing a piston movable therein a relatively short distance toward and away from the fixed platen for effecting movement of the movable platen toward the fixed platen for clamping and away from the fixed platen for unclamping, valve means for supplying pressure to the large cylinder to apply clamping pressure and for exhausting clamping pressure to permit controlled movement of the movable platen away from the fixed platen, a control piston movable in consonance with the large piston through a distance which is a relatively large multiple of the distance through which the large piston moves, a switch operable by movement of the control piston as the latter moves away from the fixed platen to disable the valve means and hence terminate movement of the large piston away from the fixed platen, and means for adjusting the initial position of the switch to obtain accurate control of the movable platen away from the fixed platen and hence separation of the mold parts.

3,564,660
INJECTION MOLDING MACHINE
George Darnell, 40 Mount Joy Ave.,
Scarsdale, N.Y. 10583
Filed Dec. 9, 1968, Ser. No. 782,097
Int. Cl. B29c 7/00

U.S. Cl. 18—42

16 Claims



An injection molding machine for molding a box-like object having plural internal walls forming corresponding compartments separated by partitions, such as carrying cases or boxes for the dairy and beverage industries, in which the machine includes a mold having an ejection section and an injection section, with provision on the ejection section for forming all of the essential structural elements of the molded object.

3,564,661

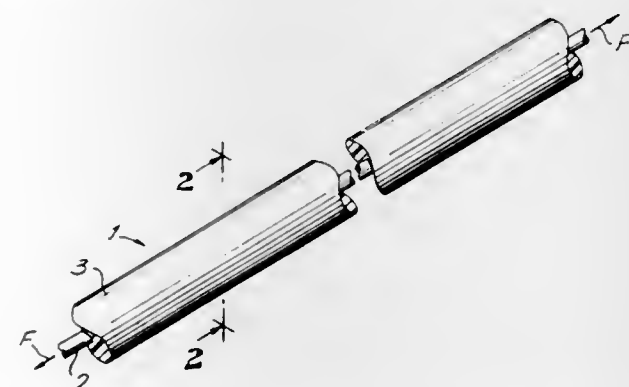
FLEXIBLE MANDRELS

William J. Atwell, Bloomingdale, N.J., assignor to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey

Filed Nov. 6, 1967, Ser. No. 680,853
Int. Cl. B29c 1/06

U.S. Cl. 18—45

8 Claims



A flexible mandrel having a thermoplastic outer sleeve which is filled with a more resilient radially compressed material. The outer sleeve is formed about the inner more resilient core while the latter is in longitudinally stretched condition, so that the sleeve will thereafter permanently maintain the core in radially compressed condition.

3,564,662

SUPPORTING STAND FOR INSTRUMENTS

Max Dold, Freiburg, Germany, assignor to
Fma. F. L. Fischer, Freiburg, Germany
Filed Sept. 5, 1968, Ser. No. 757,689
Claims priority, application Germany, Sept. 9, 1967,
F 32,797
Int. Cl. A61l 3/02

U.S. Cl. 21—84

11 Claims

A supporting stand for instruments comprising a frame and a fixed horizontal shaft in the frame. A plurality of clamping sleeves are secured to individual levers

pivotable on the shaft. The shaft is provided with flattenings for holding the levers, which are provided with interiorly loaded stay elements, in rest or horizontal posi-



tion or in tilted raised position. The stand is adapted to fit in a case provided with closable openings for access of sterilizing medium.

3,564,663

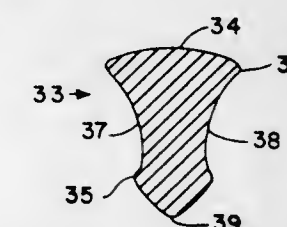
CLIP

John T. Roberts, Simpsonville, S.C., assignor to W. R. Grace & Co., Duncan, S.C., a corporation of Connecticut

Filed Dec. 31, 1968, Ser. No. 788,169
Int. Cl. B65d 77/18; F16b 2/26

U.S. Cl. 24—30.5

3 Claims



A clip that is a generally U shaped wire of uniform cross section with an inwardly directed face that has a curved inner edge that broadens out toward the face's outer edge. The clip has a groove on each side of its inner edge.

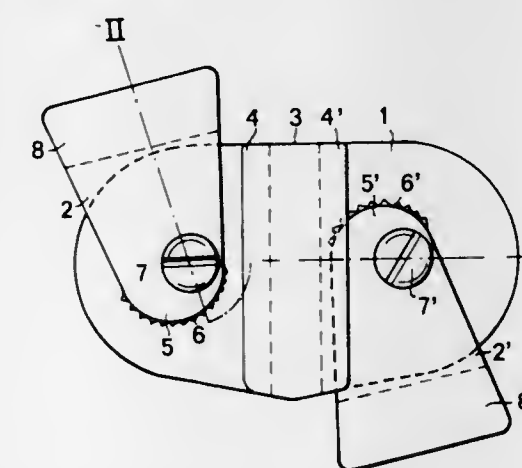
3,564,664

ROPE CLAMP

Folke Dage, Asby Sateri, Stigtomta, Sweden
Filed Oct. 23, 1967, Ser. No. 677,169
Claims priority, application Sweden, Oct. 21, 1966,
14,461
Int. Cl. A16g 11/10

U.S. Cl. 24—134

7 Claims



A rope clamp having a base plate to be attached to a support surface and carrying a wall member having an abutment surface constituting one gripping surface of the clamp and extending in a substantially vertical direction from the base plate. At least one clamp member freely rotatable about a gudgeon attached to the base plate, the axis of said gudgeon extending in a substantially vertical direction from the base plate, and comprises a sector-shaped eccentric portion cooperating with said abutment

surface of the vertical wall member to hold a rope. The rotatable clamping member includes a portion which projects laterally of said eccentric portion in a direction from the gudgeon axis opposite to the clamping member and perpendicular to said axis, and which is so dimensioned and arranged relative to the eccentric portion that the centre of gravity of the rotatable clamping member as a whole is located within said portion projecting laterally of the eccentric portion.

3,564,665

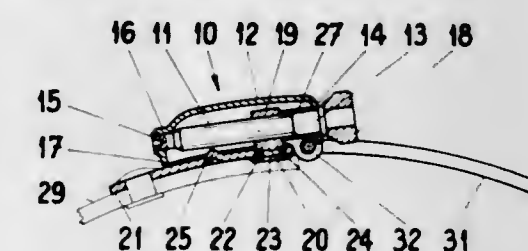
ADJUSTABLE SHOE CLOSURE DEVICE WITH SPINDLE AND TILTABLE NUT

Robert Schoch, Singen, Hohentwiel, Germany, assignor to Weinmann Aktiengesellschaft, Schaffhausen, Switzerland, a corporation of Switzerland

Filed Aug. 27, 1969, Ser. No. 853,320
Claims priority, application Germany, Aug. 30, 1968,
P 17 85 246.9
Int. Cl. A43b 5/04

U.S. Cl. 24—68

4 Claims



An adjustable closure device for a shoe upper has two inter-engageable closure means, one of which includes a spindle turnably but longitudinally immovably journaled in a housing, and a nut is revolvably journaled in a support plate that is mounted on the upper and engages the spindle and enables the spindle to be moved longitudinally relative to the nut by turning the spindle and to be moved rotatably about an axis that is perpendicular to the extension of the support plate.

3,564,666

DEVICE FOR THE TEMPORARY FASTENING OF PARTS ON A SUBSTRUCTURE BY MEANS OF SCREWS

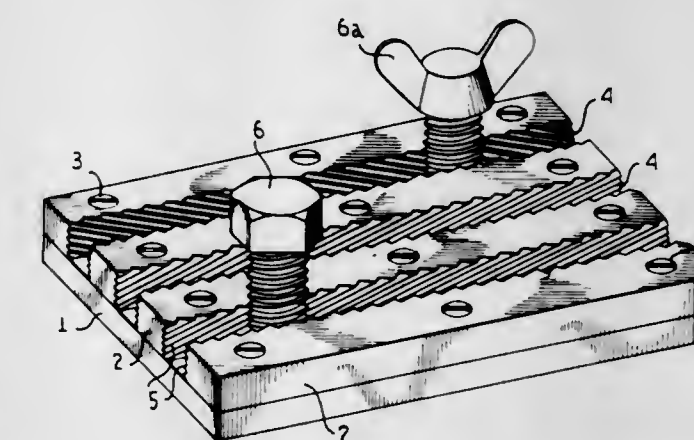
Siegfried August Dold, 10 Breslauer Strasse,
4134 Rheinberg, Germany

Filed Oct. 24, 1968, Ser. No. 770,247

Claims priority, application Germany, Oct. 25, 1967,
P 16 25 478.7

U.S. Cl. 24—73

12 Claims



This disclosure relates to a device for the fastening of parts on a substructure by means of screws. The device may be provided with one or more screw receivable slots having parallel walls with each slot being of a width corresponding to the diameter of the thread of the intended screw. The slot walls carry thread-like profiles to

fit the intended screw. The opposing profiles may either slope in the same direction to facilitate the feeding of a screw into the slot from one end toward the center thereof or the profiles may slope in the opposite directions to facilitate the insertion of a screw through a normal screwing actions.

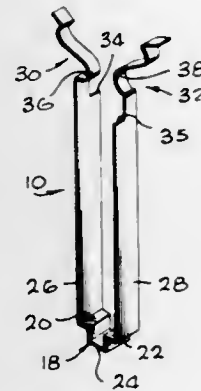
3,564,667 SKI CLAMP

Gerald H. Parrick III, Los Angeles, Calif. (5424 Corteen Place, North Hollywood, Calif. 91607); Gerald G. Clodfelter, Los Angeles, Calif. (4657 Kraft Ave., North Hollywood, Calif. 91602); and Norman P. Marshall, Jr., Los Angeles, Calif. (18407 Dearborn St., Northridge, Calif. 91324)

Filed May 9, 1969, Ser. No. 823,398
Int. Cl. A44b 21/00

U.S. Cl. 24—81

18 Claims



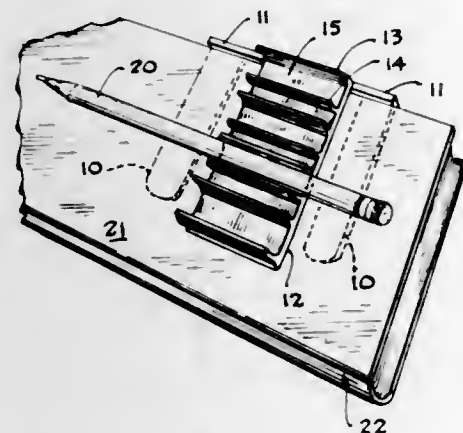
The clamp is a one-piece member of resilient material in the form of a U-shaped structure having upright arms. The arms are adapted to embrace a pair of skis. The arms extend upward above the skis and define first and second exposed recesses or channels for the reception and retained engagement of a pair of ski poles so that insertion of a ski pole locks the arms around the skis.

3,564,668 HOLDER FOR PENCILS OR THE LIKE TO BE CLIPPED ON BOOK

Charles R. Kirk, 408 S. Rush St.,
Roselle, Ill. 60172
Filed July 29, 1969, Ser. No. 845,784
Int. Cl. A44b 21/00

U.S. Cl. 24—81

3 Claims



A holder for pens and pencils and the like has a plurality of semi-cylindrical clips with a longitudinal opening along one side into which the object can be inserted to be engaged by the holder. These clips are positioned parallel to each other on a support. The support is connected to a back and is intermediate to fingers parallel to the support. This is a unitary apparatus formed of polypropylene by injection molding. The apparatus may be secured

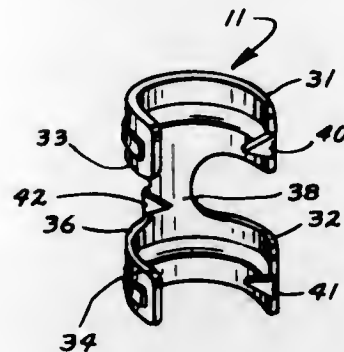
to an item, such as the cover of a book, by slipping the fingers across the inside of the cover with the support on the outside so that the cover is frictionally engaged therebetween.

3,564,669 ROPE CLAMP

Colonel Henry, Lawton, Iowa 51030
Filed July 14, 1969, Ser. No. 841,312
Int. Cl. F16g 11/00

U.S. Cl. 24—123

4 Claims



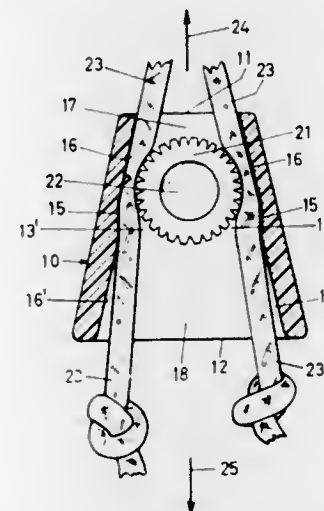
A rope clamp comprising a main clamping jaw having a central axis, a central bight zone along said axis, first and second pairs of laterally disposed clamping ears, one on either side of said central axis, and a pair of transverse recesses formed on opposite sides of said central axis and between individual ears of each of said pairs of ears and defining a connecting link zone therebetween, locking teeth with pointed tips extending outwardly from the ends of each of the clamping ears of said first pair of ears and from the edge surface of said connecting link in oppositely disposed relationship from the first pair of ears. Each of the locking teeth is provided with a pointed tip for impaling a rope section held within said jaw, the axis of each of said locking teeth being arranged generally parallel to the axis of said jaw.

3,564,670 CORD FASTENER

Sigurd Walter Bengtsson, Goteborg, Sweden
(Rattgatan 6, 421 76 Vastra Frolunda, Sweden)
Filed June 5, 1968, Ser. No. 734,696
Claims priority, application Sweden, June 16, 1967,
8,512/67; Denmark, Nov. 22, 1967, 5,846/67
Int. Cl. F16g 11/04

U.S. Cl. 24—126

8 Claims



A cord fastener of the type having a casing with a tunnel adapted to receive therethrough two cord parts to be interconnected, a clamping roller for the cord parts movable longitudinally in the tunnel and operable to clamp the cords against portions of side walls closer together at one end of the tunnel than at the other end of

the tunnel with a pin extending through a longitudinal closed end slot in one of the wider walls of the casing for manipulation to displace the roller for cord-clamping position, the wider wall having the slot being resiliently flexible normal to its plane in longitudinal alignment with the slot and in the widest portion of such wide wall to enable displacement to pass the pin to the slot during insertion and assembly of the roller from the adjacent end of the tunnel into operative relation within the tunnel. A guide groove may be provided in the inner face of the flexible portion of the wider wall to facilitate passage of the pin to the assembled relation, and the groove may be in a portion of the wall which is raised from its outer surface. The opposite wider wall may have a rib on its outer face about a large area thereof. The narrower side walls may be shorter at the wide end of the casing thus enhancing the resiliency of the resilient portion of the slotted wall. The narrow walls may be shorter at the narrow end of the casing to provide recesses to receive the cord parts in diverging directions.

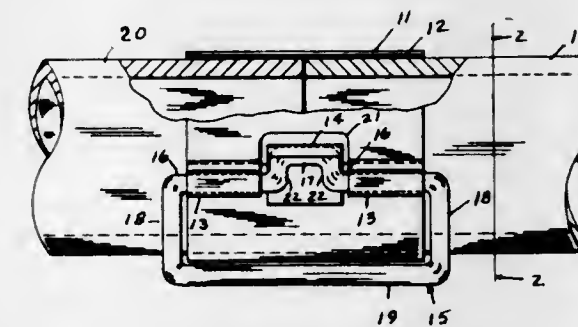
3,564,671 QUICK DISCONNECT CLAMP

Albert E. Straus, Erie, Pa., assignor to Morris Coupling and Clamp Company, Erie, Pa., a corporation of Pennsylvania

Filed June 27, 1969, Ser. No. 837,109
Int. Cl. B65d 63/00; F16l 55/16

U.S. Cl. 24—270

7 Claims



The specification discloses a coupling device of a familiar type for pipe or rigid tubing made up of a band that surrounds the pipe, a flexible sheet between the band and the pipe, and an improved clamping lever which functions in a toggle-like manner and is made up of a lever in the form of a loop. The loop is made up of a rod with two spaced parallel parts that are connected to one end of the clamp. The rod is bent back at right angles from the top spaced parts and a second rod part forming an integral handle is integral with the spaced parts. The adjacent ends of the two spaced side parts are bent at right angles in a direction opposite the handle and a rod part extends between the distal ends of the side parts forming a bearing which is received in an end of the band. When the handle lies adjacent the pipe, the two ends of the band are parallel to each other. When the handle is swung over, the two ends of the band move away from each other. One end of the band can be released by unhooking the lever and releasing the flexible sheet.

3,564,672 MULTIPLE HARNESS STRAP QUICK RELEASE BUCKLE

Robert G. McIntyre, Manhattan Beach, Calif., assignor to McDonnell Douglas Corporation, a corporation of Maryland

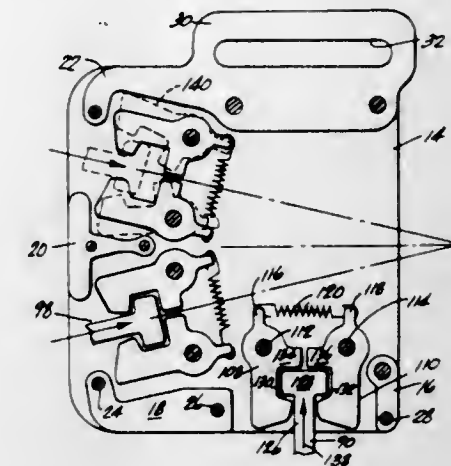
Filed Nov. 26, 1968, Ser. No. 779,110
Int. Cl. A44b 11/25, 17/00

U.S. Cl. 24—205.19

5 Claims

A multiple harness strap quick release buckle for first releasing the shoulder straps and then the restraint belt around the waist of the user. This buckle comprises pairs

of pivoted, spring-biased locking dogs having cam portions which are operated by strap insertions to move the dogs to locked position. As the dogs grasp the strap insertions, spring actuated saddles move down behind the dog



to prevent them from unlocking. To move the dogs to unlocked position, a first unlocking device must be operated prior to the operation of a second unlocking device for releasing the locking dogs which then are sequentially unlocked.

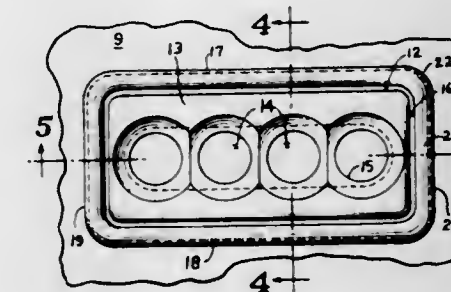
3,564,673 ADJUSTABLE SNAP FASTENER FOR WALLETTS OR THE LIKE

Domenic John Daddona, Jr., Waterbury, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut

Filed July 22, 1969, Ser. No. 843,340
Int. Cl. A44b 17/00

U.S. Cl. 24—206

3 Claims



An adjustable snap fastening means for securing a flap to a panel has a novel construction of the female fastening means with its elongated plastic block which can hold the stud at any of several selected locations. A one-piece retainer for the block has a frame with uninterrupted rounded corners and clamping flanges which extend substantially the full length of the frame. The sheet metal blank from which the frame is formed is inwardly notched at each end so that the returned portions forming the supporting webs for the block terminate considerably short of the ends of the frame so as not to interfere with the formation of the corners and the attachment of the frame to the block.

3,564,674 PAPER CLIP

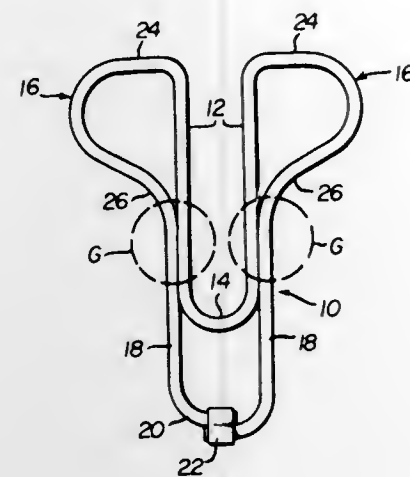
Genevieve A. Chaplin, Detroit, Mich., assignor of one-half to Albin Chaplin, Detroit, Mich.
Filed Feb. 24, 1969, Ser. No. 801,693
Int. Cl. A44b 21/00

U.S. Cl. 24—261

4 Claims

A paper clip having improved gripping and holding characteristics. The improved clip is formed from a length of wire joined at its opposite ends into a closed or

continuous element. The clip is symmetrical with two telescoped bight portions, usually of U-shaped, joined by



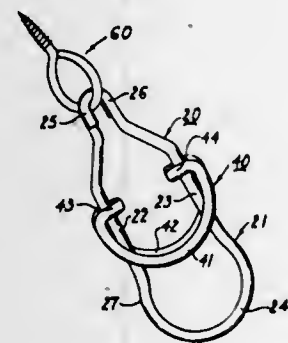
a pair of loop sections each interconnecting one leg of one bight to one leg of the other bight.

3,564,675 LOOP-LOCK SLIDER

Charles A. Nickason, Vancouver, British Columbia, Canada, assignor to Towel-Kling Holdings Ltd., Vancouver, British Columbia, Canada, a corporation of Canada
Filed May 27, 1968, Ser. No. 732,285
Int. Cl. A44b 21/00

U.S. Cl. 24—263

13 Claims



A clamp for detachably securing washcloths or towels to a wall which includes a wire loop member elongated to provide two opposed straight leg portions and a slider consisting of two arcuate wire portions located one on each of opposite sides of the loop and terminating at the ends in a portion which slidably embraces the straight leg portion of the loop.

3,564,676 NOISE-ATTENUATING PIPE FASTENER

Konrad Oeser, Hohn-Grenzhausen, near Coblenz, Germany, assignor to Gesellschaft für Technischen Fortschritt m.b.H., Hohn-Grenzhausen, Germany, a company of Germany

Filed Oct. 7, 1968, Ser. No. 765,555
Claims priority, application Germany, Oct. 25, 1967, P 16 50 019.9

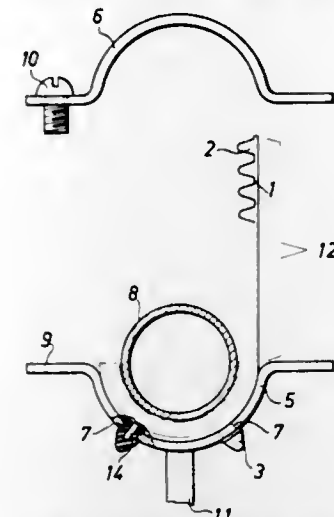
Int. Cl. B65d 63/00; F16l 3/08

U.S. Cl. 24—279

9 Claims

A metallic pipe clip lined with one or more rubber strips having a smooth outer and a corrugated inner face. The smooth face is held against the inner wall of the metal clip by mushroom-shaped buttons passing from the rubber strip through openings of the metal clip. The corrugations

or ribs on the inner face are elongated axially of a fastened pipe. Metal-to-metal contact and the resulting ready



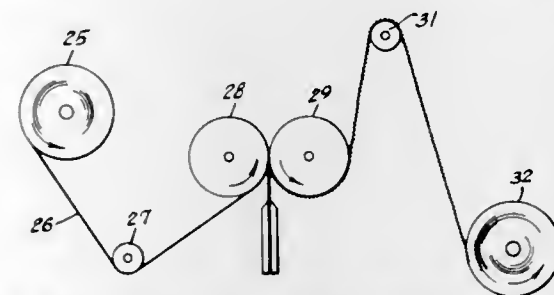
propagation of noise from the pipe system to a supporting structure is prevented.

3,564,677 METHOD AND APPARATUS OF TREATING MATERIAL TO CHANGE ITS CONFIGURATION

Frank Kalwaites, Somerville, N.J., assignor to Johnson & Johnson, a corporation of New Jersey
Filed Nov. 6, 1967, Ser. No. 680,617
Int. Cl. D02g 3/00

U.S. Cl. 28—1

20 Claims



This is a method for treating various materials such as films, yarns, sheet materials, etc. to change the configuration of the material. The material to be treated is moved in a first direction and at a first speed. The direction the material is moving is changed to a second direction. At substantially the same time the direction of the movement is changed the speed at which the material is moving is also changed. The apparatus comprises a pair of rotatable rolls rotating in the same direction and positioned with respect to each other to form a nip of minimum clearance. A blade is placed into the nip in contact with the surface of both rolls. The material to be treated is passed between the blade and one roll around the edge of the blade and delivered from between the blade and the second roll in its new configuration.

3,564,678 METHOD AND MACHINE FOR ASSEMBLING BULKHEAD TO ROCKET LAUNCHERS

John J. Nash, Ferguson, Mo., assignor to Alisco, Inc., St. Louis, Mo., a corporation of Delaware

Filed Feb. 7, 1969, Ser. No. 797,416

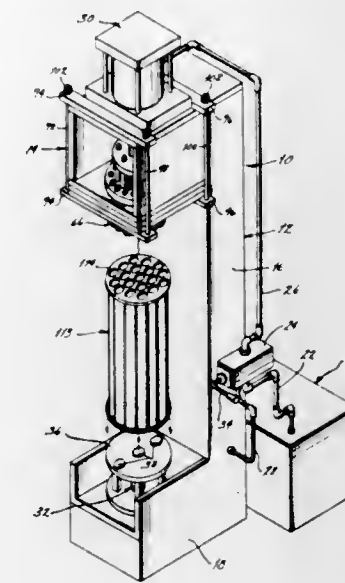
Int. Cl. B23p 13/00

U.S. Cl. 29—1.11

11 Claims

A machine for assembling and securing a bulkhead to the end of a rocket launcher is provided for use where the rocket launcher includes a bundle of cylindrical tubes and the bulkhead has a plurality of collar flanges registered with and protruding into the ends of the rocket tubes. The machine comprises a plurality of cylindrical collets adapted to register with and protrude inside the collar flanges of the bulkhead and being expandable radially to cause the collar flanges to press outwardly

against the inner surfaces of the tubes to secure the bulkhead to the tubes. Each collet is expanded by a bell-shaped drawbar which is slidably movable within the collet and which cams the expandable walls of the collet outwardly during its longitudinal movement. The plurality of expanding collets in addition to securing bulkheads to ends of rocket tubes, it sizes the opening in bulkhead to permit the loading and firing of rocket without interference, it also assures center to center alignment of all firing tubes, and longitudinal alignment to maintain a consistent pattern of rockets when fired.



The method for securing the bulkhead to the rocket launcher includes placing it over the ends of the tube bundle with its collar flanges fitted loosely inside the ends of the tubes, inserting a plurality of expandable cylindrical collets inside the collar flanges, and moving the drawbars longitudinally to cause the cylindrical collet walls to expand.

3,564,679 METHOD AND MEANS FOR PRODUCING AN UMBRELLA FRAME OF PLASTIC MATERIAL

Rudolf Meyer, Chiemseestrasse 42, Gstadt am Chiemsee, Germany

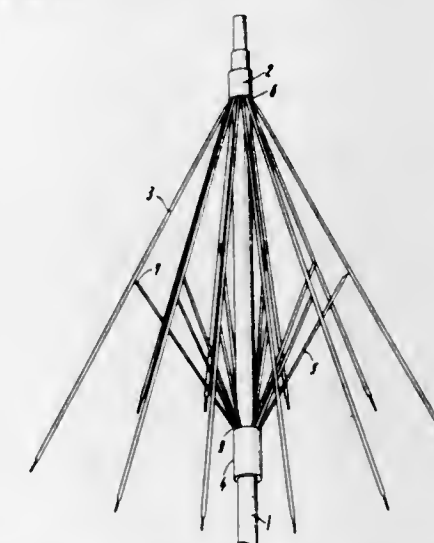
Filed Feb. 13, 1968, Ser. No. 705,093

Claims priority, application Germany, Feb. 15, 1967, B 91,191

Int. Cl. B21f 41/00

U.S. Cl. 29—25

8 Claims



A method for producing an umbrella frame of injection-molded plastic material comprising a crown, a stick, a slider with roof ribs connected to struts, the ribs and struts being attached to the stick and slider respectively.

3,564,680 PROCESS FOR FABRICATING AN ELECTROLUMINESCENT DISPLAY DEVICE

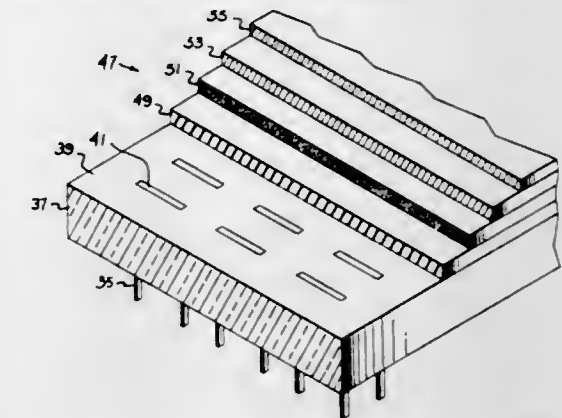
Donald R. Kerstetter, Emporium, Pa., assignor to Sylvania Electric Products Inc., a corporation of Delaware

Filed Feb. 18, 1969, Ser. No. 800,122

Int. Cl. H01j 9/00

U.S. Cl. 29—25.14

9 Claims



An electroluminescent display device includes a substrate of ceramic material having a planar surface, a plurality of spaced electrical conductors embedded therein including spaced electrode segments affixed to the planar surface and electrically connected to at least one of the conductors extending in a direction normal to the planar surface, a layer of dielectric material affixed to the planar surface and electrode segments, a layer of phosphors affixed to the dielectric layer, and a transparent conductive layer affixed to the phosphor layer.

In one display device fabrication process, a plurality of spaced electrical connectors and at least one surface of the ceramic substrate material are placed in contacting relationship, confined within a mold, fired to embed the electrical conductors in the ceramic substrate material and form a substantially planar surface of ceramic substrate material. Then, the display structure including a plurality of spaced electrode segments forming a display configuration, a layer of dielectric material, a layer of phosphors, and a layer of transparent electrically conductive material is affixed to the planar surface of the ceramic substrate material.

3,564,681 METHOD OF MANUFACTURING ELECTRIC INCANDESCENT LAMP AND MOUNT STRUCTURE THEREFOR

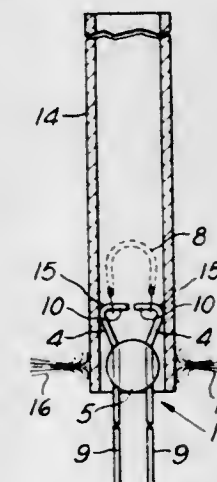
Reginald J. Ayres, Cape Coral, Fla., assignor to General Electric Company, a corporation of New York

Original application Apr. 12, 1967, Ser. No. 630,400, now Patent No. 3,475,641, dated Oct. 28, 1969. Divided and this application Jan. 8, 1969, Ser. No. 789,752

Int. Cl. H01j 9/18, 9/36

U.S. Cl. 29—25.15

8 Claims



The mount structure for an electric incandescent lamp is made by first bending a length of lead-in wire into a

hairpin-shaped wire preform with its bight end preferably of greater span than the adjacent leg portions, fusion-sealing a glass bead around the adjacent leg portions of the hairpin-shaped wire preform to tie them together, and then mounting a filament on the bight portion of the hairpin-shaped wire preform and severing the bight portion at a region between its connections to the filament to divide the hairpin-shaped wire preform into two separate lead-in wires with their severed ends out of contact with one another. The bight forming bends in the lead-in wires of the mount have a close sliding fit with the inner wall of the tubular lamp envelope to center the mount therein.

3,564,682

METHOD OF MAKING A SPARK GAP

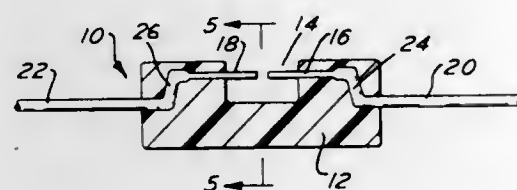
Joseph J. Carroll, Jr., Springfield, and Ferdinand A. Rocchi, Hatboro, Pa., assignors to TRW Inc., a corporation of Ohio

Filed Dec. 7, 1967, Ser. No. 688,795

Int. Cl. H01j 9/00

U.S. Cl. 29—25.17

1 Claim



An electrical spark gap component comprising a cylindrical body of an electrical insulating plastic has a transversely extending recess in the cylindrical surface thereof. A pair of wires of an electrically conductive metal are embedded in the body and extend substantially longitudinally along the body. One end of each of the wires projects from a side of the recess in the body and extends partially across the recess in spaced relation from the surface of the recess. Such ends of the wires project from opposite sides of the recess and are arranged in closely spaced relation to provide a gap therebetween. The other ends of the wires project from the ends of the body.

The spark gap is made by molding a cylindrical plastic body around the mid-portion of a wire with the ends of the wire projecting from the ends of the plastic body. A slit is cut transversely across the plastic body with the slit being deep enough to also cut through the wire. The plastic at each side of the slit is removed from around the cut ends of the wire to form a recess and expose the end portions of the cut wire.

3,564,683

CUTTING OF DEPOSIT FORMING STEEL AND CUTTING TOOLS FOR SUCH STEELS

Wolfgang Schedler, 5 Lindenstrasse, A6600 Reutte, Austria, and Johann Bodem, A6600 Reutte, Muhl 164, Austria

Filed June 13, 1968, Ser. No. 748,890

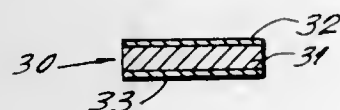
Claims priority, application Austria, June 14, 1967,

A 5,528/67

Int. Cl. B23p 15/28; B26d 1/00

U.S. Cl. 29—95

2 Claims



Cutting of deposit forming steels, such as described in French Pat. No. 1,387,441, with tungsten carbide cutting insert having a high tungsten carbide content is

difficult. Efficient cutting of such deposit forming steels over a wide speed range from about 50 to about 35 m./min. is made possible by embodying in the cutting edge surface stratum of the cutting tool at least 15% of one or more of the carbides or borides of Ti, Ta, Zr, Nb and V, or at least 50% aluminum-oxide in the tool surface stratum may be embodied either by diffusion, or by affixing such surface layer to a known tungsten carbide insert, or by sintering stratified compacts of powder particle mixtures cohering a thick powder mixture layer containing a large proportion of tungsten carbide is covered along one or on its opposite layer surfaces with a thin powder mixture strata, each of which contains at least 15% of one or more of the carbides or borides of Ti, Ta, Zr, Nb and V.

3,564,684

STEPPED CUTOFF BLADE

Paul J. Wietrzykowski, 1617 N. Wood St.,

Chicago, Ill.

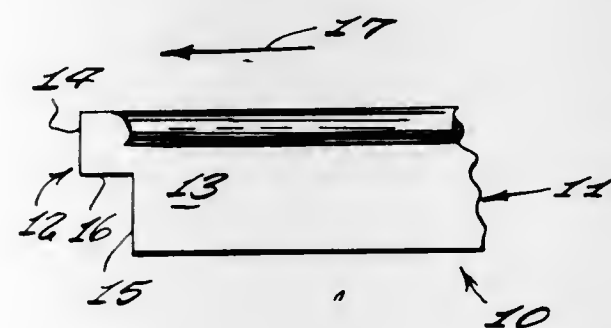
60622

Filed Oct. 16, 1968, Ser. No. 768,077

Int. Cl. B26d 1/00

U.S. Cl. 29—95

1 Claim



An improved cutting tool which includes a pair of steps so as to cut metal without leaving a wall scouring.

3,564,685

TOOL FOR BEVELLING AND SQUARING PIPE ENDS

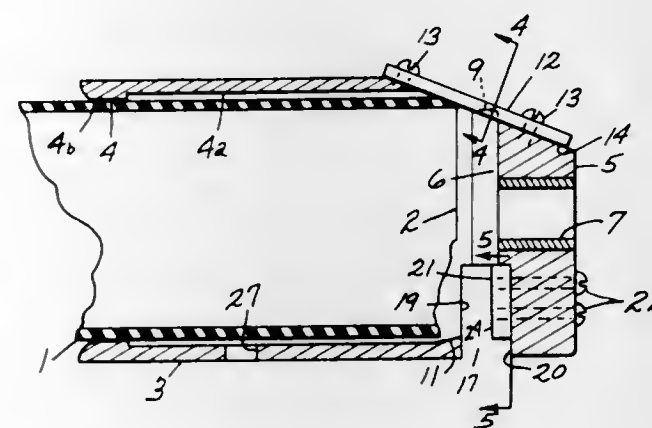
Bengt G. Bjalme and Robert E. Buhl, Erie, Pa., assignors to Reed Manufacturing Company, Erie, Pa., a corporation of Pennsylvania

Filed Dec. 13, 1968, Ser. No. 783,524

Int. Cl. B23d 3/22; B26d 1/12; B27f 1/08

U.S. Cl. 29—105

6 Claims



A tool for externally beveling and squaring the ends of pipe consisting of a body having an elongated bore rotatably and slidably journaled on the outer surface of the pipe and holding the body concentric with the pipe,

and bevelling and squaring tools having cutting edges machining the end of pipe by rotating the body relative to the pipe.

3,564,686

HELICAL PATTERN, BENT NODE HONEYCOMB ROLL

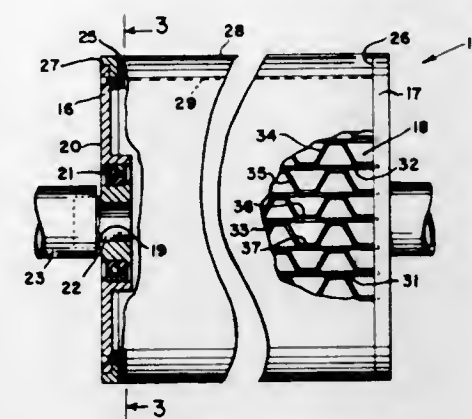
Edward T. Bryand, South Portland, Maine, assignor to Metal-Tech Inc., Biddeford, Maine, a corporation of Maine

Filed Mar. 1, 1968, Ser. No. 709,662

Int. Cl. B21b 1/00

U.S. Cl. 29—121

7 Claims



A honeycomb roll formed of alternate straight and undulated strips extending axially thereof, the outer edges of the undulated strips extending radially outwardly beyond the outer edges of the straight strips. The nodes of the undulated strips are bent circumferentially over into the radial plane of the adjacent straight strip so that a single thickness strip edge is presented, entirely around the exterior face of the roll. The nodes of the undulated strips are identical in configuration, and in substantially parallel, axially extending undulations, rather than "back to back" but are staggered slightly circumferentially to define a helix rather than to define an annulus.

3,564,687

MANUFACTURE OF FOLDING-COT HARDWARE

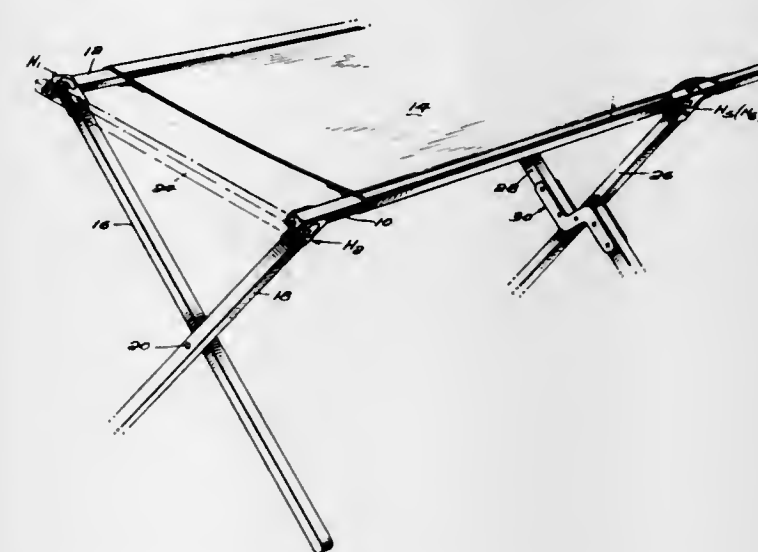
Hyman Kramer, 2764 E. 16th St., Brooklyn, N.Y. 11235

Filed Apr. 29, 1969, Ser. No. 820,138

Int. Cl. B23p 13/00, 17/00

U.S. Cl. 29—150

4 Claims



A method of forming hinge-part blanks for both the L-shaped and T-shaped two-part leg hinges used in fold-

ing cot manufacture by stamping same from a metal strip according to a blank layout providing for the production of both blank shapes from said metal strip with minimal scrap.

3,564,688

METHOD FOR FORMING A SHOCK ABSORBING STRUCTURAL MEMBER

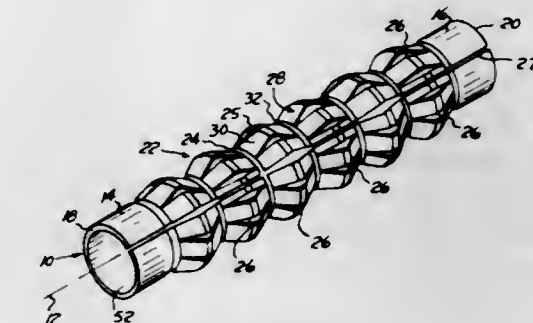
William J. De Gail, Detroit, Mich., assignor, by mesne assignments, to Kopy Tool Corporation, Ferndale, Mich., a corporation of Michigan

Original application July 14, 1966, Ser. No. 565,223, now Patent No. 3,412,628, dated Nov. 26, 1968. Divided and this application June 7, 1968, Ser. No. 735,434

Int. Cl. B23p 17/00

U.S. Cl. 29—155

11 Claims



A method for forming a structural member which is adapted to remain rigid when subjected to forces below a predetermined magnitude and to collapse and absorb energy when forces in excess of the predetermined magnitude are imposed on it. The method includes forming sheet steel into an elongated tubular configuration, forming a series of regularly spaced circumferential grooves of reduced thickness along the length of the tube, forming longitudinal slits or cut-outs in the tube, and then outwardly expanding the tube at alternate pairs of grooves so that alternate tube sections are expanded to a larger diameter than intermediate tube sections. Alternatively, the tube may be expanded at each third groove, with intermediate tube sections retaining their original shape.

3,564,689

METHOD OF FABRICATING A TURBINE BLADE HAVING A LEADING EDGE FORMED OF WELD METAL

Julius Hirtlenlechner, Kapfenberg, Austria, assignor to Gebr. Bohler & Co. Aktiengesellschaft, Vienna, Austria

Filed May 27, 1968, Ser. No. 732,394

Claims priority, application Austria, May 26, 1967,

A 4,892/67

Int. Cl. B21k 3/04; B23p 15/02

U.S. Cl. 29—156.8

3 Claims

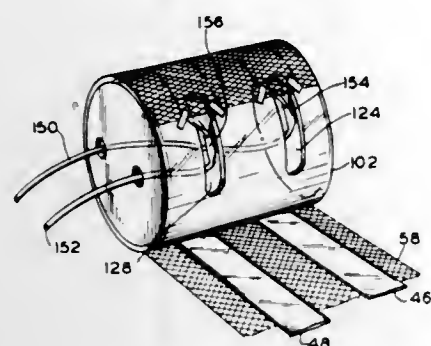


The production of turbine blades in which a blade blank is provided in the area of the inlet edge with a steel weld portion, which, after smoothing of any uneven spots, is shaped together with the blade body to the final dimensions in a drop forge and finally subjected to heat treatment.

3,564,690

METHOD OF WINDING ARTIFICIAL KIDNEYSEdward A. Koertge, 2414 Castle Drive,
St. Louis, Mo. 63136

Filed Feb. 10, 1969, Ser. No. 797,759

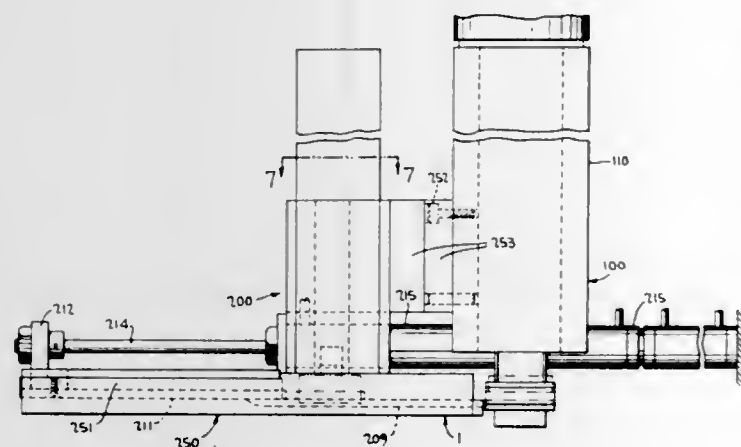
Int. Cl. B21d 53/00; B21k 29/00; B23p 15/26
U.S. Cl. 29—157 5 Claims

The disclosure relates to a machine for manually winding artificial kidneys utilizing simple threading and winding techniques, providing a work area for permitting manual operations during winding, and being suited for use by the moderately skilled.

3,564,691

UNIT CARRIER FED ELECTRONIC COMPONENT INSERTION MACHINEDaniel W. Ackerman, Chenango Bridge, N.Y., assignor
to Universal Instruments Corporation, Binghamton,
N.Y., a corporation of New York

Filed Sept. 20, 1968, Ser. No. 761,229

Int. Cl. H05k 13/04 17 Claims
U.S. Cl. 29—203

An insertion apparatus for inserting dual inline unit carrier mounted electrical components directly into a board, the components having depending leads on opposite sides thereof and the unit carrier including side flanges. The apparatus comprises an inserter means adapted to reciprocate along a fixed path, a unit carrier positioning means having unit carrier flange engaging means thereon to position said unit carrier in alignment with the path of said inserter means, and a carrier feeding arrangement adapted to supply unit carriers with components to said positioning means during each operational cycle of said inserter means. The inserter means passing through the unit carrier in forcing the component into said board.

3,564,692

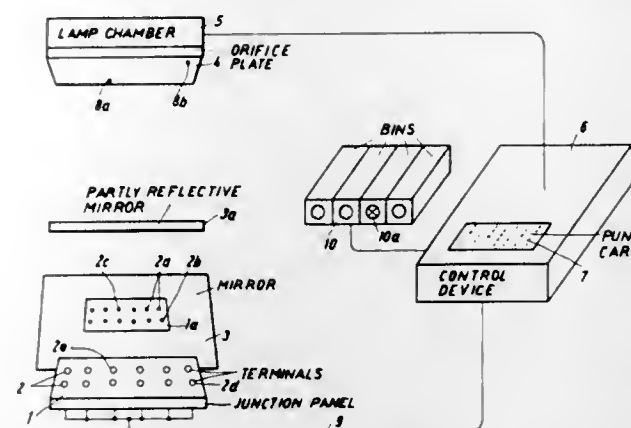
METHOD AND APPARATUS FOR OPTICALLY MARKING THE TERMINALS OF A JUNCTION PANEL WHICH ARE TO BE CONNECTEDRudolf Knoll, Ulm (Danube) and Peter Knoll, Nattheim,
Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany

Filed Sept. 23, 1968, Ser. No. 763,052

Claims priority, application Germany, Feb. 24, 1968,
P 16 90 348.3; Aug. 29, 1968, P 17 90 024.2

Int. Cl. H05k 13/00, 3/30

U.S. Cl. 29—203 54 Claims

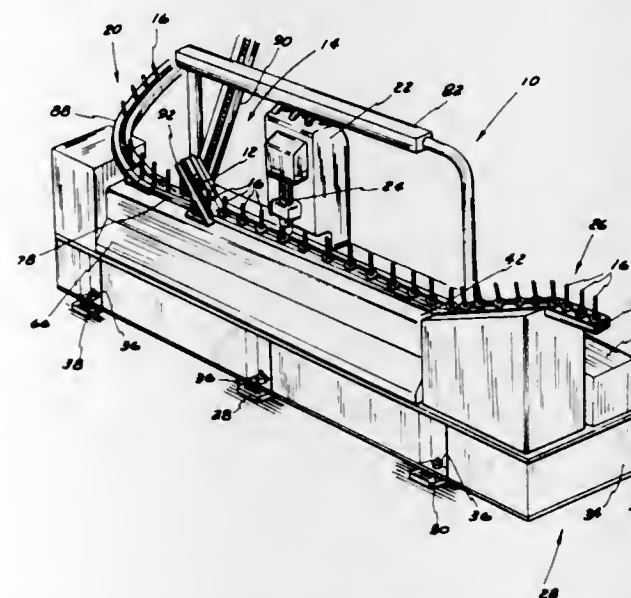


A method and apparatus for optically marking individual terminals of a junction panel to visually indicate the terminals that are to be wired. The method and apparatus, which effects the marking in such a way that the optical markings cannot be intercepted by either the hands of the person wiring the junction panel or the wires previously connected, includes the steps of, or means for, viewing, via at least one partly reflective mirror, the junction panel or an image thereof and superimposing on the view or image of the junction panel an image of the optical markings cannot be intercepted by either the view or image of at least one of the terminals which is to be electrically connected.

3,564,693

AUTOMATIC CONVEYING AND ASSEMBLY MACHINEMarcus J. Auernhammer, Detroit, Mich., assignor to
Visi-Trol Engineering Company, Detroit, Mich., a corporation of Michigan

Filed Jan. 10, 1969, Ser. No. 790,347

Int. Cl. B23p 19/04; B23g 7/10 9 Claims
U.S. Cl. 29—208

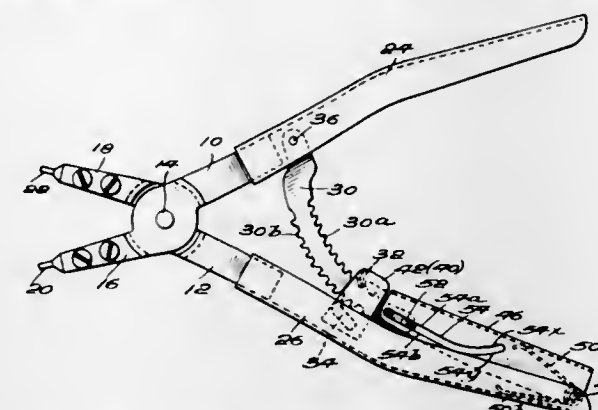
An automatic assembly machine having an over and under, linear conveyor for moving the work mounted along one side of an elongated, unitary base, and various

tooling and assembly stations mounted on the base, adjacent the conveyor, in such a manner as to be accessible for maintenance, adjustment and the like.

3,564,694

PLIER-TYPE TOOLS FOR ASSEMBLING AND DISASSEMBLING OPEN-ENDED SPRING RETAINING RINGSMelvin Millheiser, North Bellmore, N.Y., assignor to
Waldes Kohinoor, Inc., Long Island City, N.Y., a corporation of New York

Filed Oct. 1, 1968, Ser. No. 764,230

Int. Cl. B23p 19/04; B25b 7/04 6 Claims
U.S. Cl. 29—229

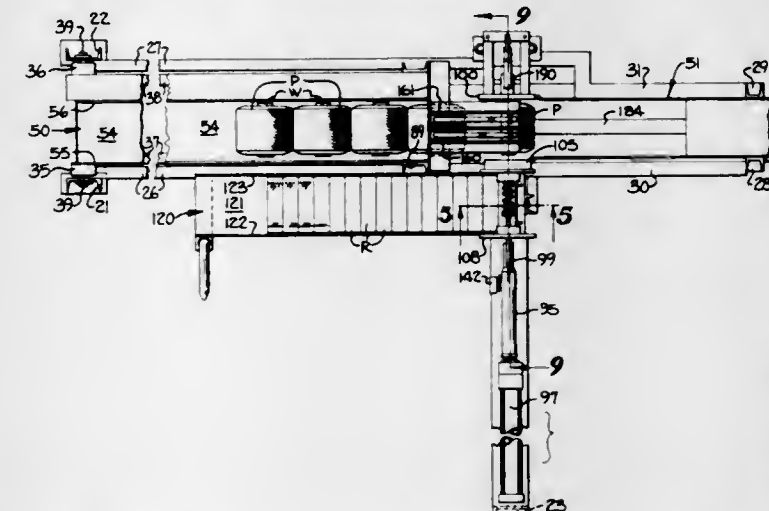
An improved design of pliers of the type disclosed in U.S. Pat. No. 2,439,785 for use in assembling and disassembling split spring retaining rings. The double ratchet employed therein is in the form of the segment of a circle, but rather than the center thereof coinciding with the pliers' fulcrum as in the patented design, said center is disposed rearwardly of both said pliers fulcrum and the point of pivotal connection of said segment to one plier handle and is further disposed to one side of the plier center line. Such results in positioning of the ratchet segment so that its concave edge faces generally rearwardly and in its free end moving in a path which extends generally longitudinally along the inner edge of the other plier handle. The latter mounts a depressible stepper lever for actuating the ratchet segment between positions in which the teeth along its opposite edges engage oppositely disposed fixed pawls.

3,564,695

APPARATUS FOR PREPARING PACKAGES OF YARN FOR SUBSEQUENT TREATMENT

David M. Willis, William O. Young, Jr., and Walter J. Quattlebaum, Spartanburg, S.C., assignors to Butte Knitting Mills, Spartanburg, S.C., a corporation of Delaware

Filed June 13, 1967, Ser. No. 645,645

Int. Cl. B23p 19/04 12 Claims
U.S. Cl. 29—234

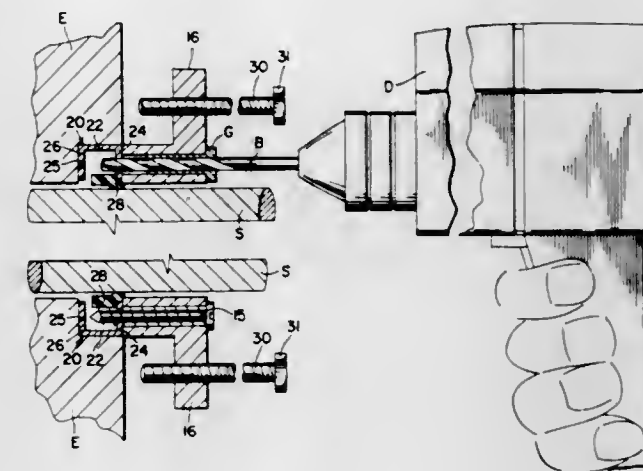
Apparatus whereby a plurality of core supported wound packages of yarn are moved in a predetermined

common path of travel past a core replacement station and a replacement core is substituted for the winding core at the core replacement station, in order to prepare the packages of yarn for subsequent treatment such as dyeing and the like.

3,564,696

APPARATUS FOR REMOVING OIL OR GREASE SEALSJoseph F. Shepanski 216 Huffman Mill Road,
Burlington, N.C. 27125

Filed May 29, 1968, Ser. No. 733,140

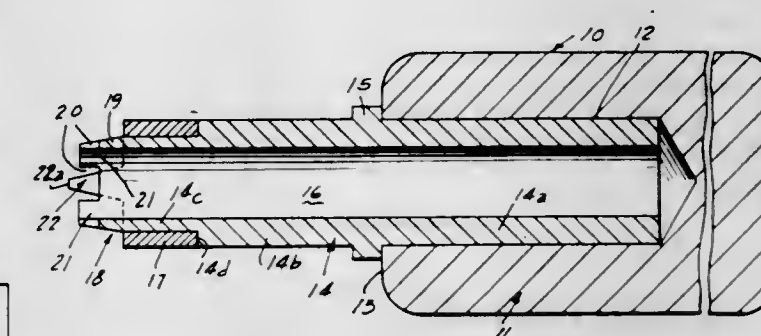
Int. Cl. B23p 19/02 4 Claims
U.S. Cl. 29—235

The present invention is directed to apparatus for more quickly removing oil or grease seals from engines while preventing damage to the engine housing or shaft.

3,564,697

COLLET LOCK REMOVAL TOOLJohn H. Shalaty, Wickliffe, and Herbert W. Arp, Chardon,
Ohio, assignors to TRW Inc., Cleveland, Ohio, a corporation of Ohio

Filed Apr. 7, 1969, Ser. No. 813,835

Int. Cl. B23p 19/04; B25b 27/24 8 Claims
U.S. Cl. 29—249

A tool for removing multi-finger internally beaded collets from grooved stems which has a stem receiving hollow head with forwardly projecting tapered tabs adapted to act between the stem and each finger of the collet for expanding the fingers sufficiently so that their beads will not engage in the groove of the stem and also having an indexing prong fitting in a slot between adjacent fingers for positioning the tabs at the midpoints of the fingers. The tool is especially adapted for removing lock and spring retainer assemblies from grooved poppet valve stems.

3,564,698

APPARATUS FOR THE INSTALLATION OF REFRACTORY BLOCKS

Bernhard Tinnes, Zollikon, Switzerland, assignor to Metacon A.G., Zollikon, Switzerland, a corporation of Switzerland

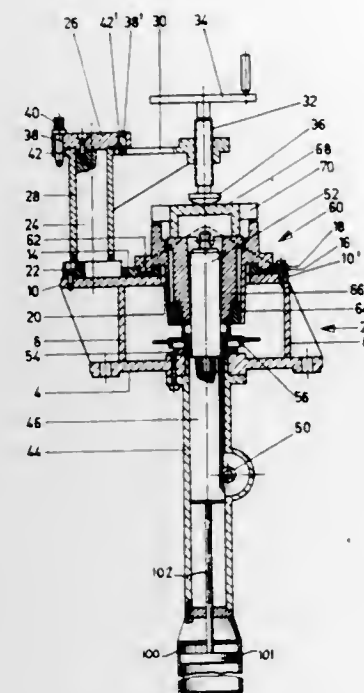
Filed July 1, 1968, Ser. No. 741,453

Claims priority, application Switzerland, July 6, 1967, 9,567/67

Int. Cl. B23p 19/02

U.S. Cl. 29—251

11 Claims



An apparatus for the installation of refractory blocks or stones at the control or shutoff slide mechanism of a liquid metal container or the like which comprises frame means, and positioning means for the movable slide element of the slide mechanism provided at the frame means. A centering mandrel is supported in the frame means and is adapted to always engage with a refractory block or stone. Furthermore, there is provided a press-in mechanism including a press mandrel having a press axis. The press mandrel is mounted to be relatively movable with respect to the frame means into at least two working positions. The press-in mechanism serves to displace the frame means and the press mandrel relative to one another. In one of the working positions the press axis of the press mandrel coincides with the lengthwise axis of the centering mandrel and in the other working position this press axis is displaced parallel to such lengthwise axis.

3,564,699

METHOD AND SYSTEM FOR HOT DE-OILING AND HOT BRIQUETTING

James E. Moore, Glenview, Ill., assignor to Komarek-Greaves and Company, a division of Berwind Corporation, Rosemont, Ill., a corporation of Pennsylvania

Original application Apr. 15, 1968, Ser. No. 721,474, now Patent No. 3,497,190, dated Feb. 24, 1970. Divided and this application Dec. 18, 1969, Ser. No. 886,337

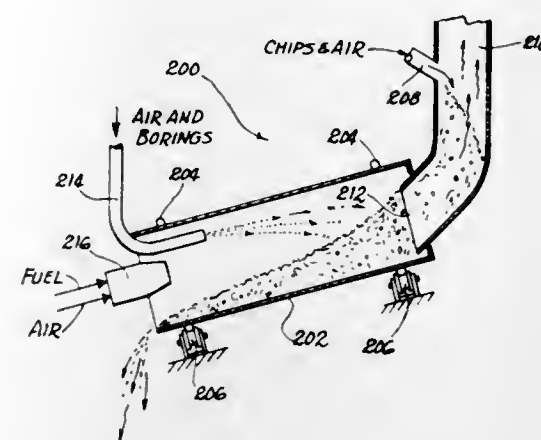
Int. Cl. B23q 17/00

U.S. Cl. 29—403

8 Claims

A system for hot de-oiling and hot briquetting material wherein the material is heated to burn off or vaporize foreign substances and is then transported to a briquetting machine for forming of the material into briquets. The improvements of the invention relate to furnace constructions and to methods of operation for heating the

material. The furnace constructions comprise a combustion zone for the material being fed into the system. The material is introduced in two parts comprising coarser material introduced at an upper level and fines and air introduced at a lower level with combustion gases from



the lower level being fed upwardly for contact with the coarser material. An outlet is defined by the constructions and means are provided for moving the materials within the furnace to the outlet and for delivering the materials to briquetting equipment.

3,564,700

METHOD OF MANUFACTURING SEATING FURNITURE

Heinz Binek, Freckenhorst, Germany, assignor, by mesne assignments, to Consolidated Burris International, Ltd., Lincolnton, N.C., a corporation of North Carolina

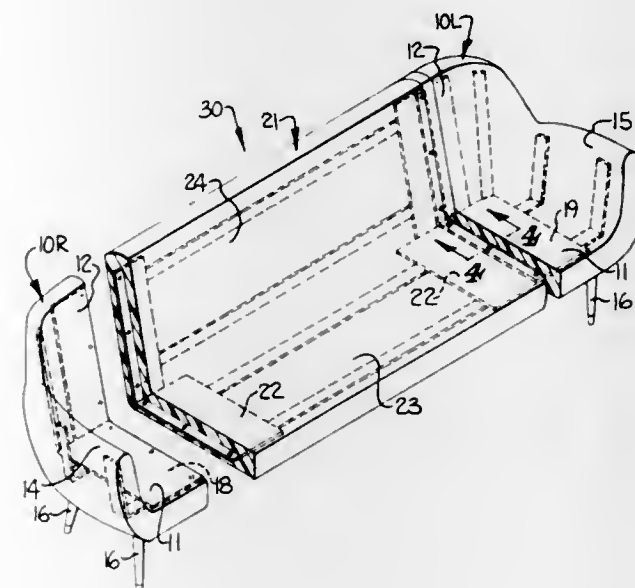
Filed June 13, 1968, Ser. No. 736,831

Claims priority, application Germany, June 15, 1967, P 42,376

Int. Cl. B23p 17/00

U.S. Cl. 29—415

5 Claims



Multiple person seating furniture pieces, such as couches and the like, are disclosed as being produced in accordance with a method wherein synthetic foam material is formed into a chair body having a seat, a backrest, and right and left sidearm portions. The chair body thereafter is severed to produce a pair of end sections which are then joined

with an intermediate section to complete the assembly of a couch body having a seat and backrest terminating at respective ends of the couch body in right and left side-arm portions.

3,564,701

METHOD OF AND APPARATUS FOR MANUFACTURING MINERAL INSULATED ELECTRIC CABLES

Derek Raymond Nash, Appleton, and Hermann Richard Lorch, Southport, England, assignors to British Insulated Callender's Cables Limited, London, England

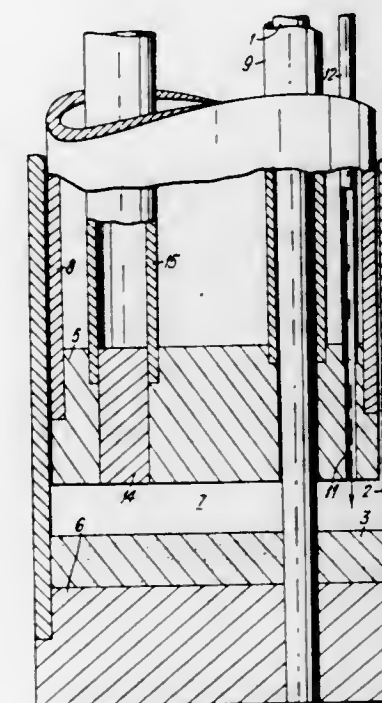
Filed Feb. 7, 1969, Ser. No. 864,229

Claims priority, application Great Britain, Feb. 7, 1968, 6,008/68

Int. Cl. B23p 19/00; H05k 13/00; H01b 13/00

U.S. Cl. 29—429

19 Claims



In the manufacture of mineral insulated electric cables air is evacuated from the space between a conductor guide and the closed lower end of the sheath tube through a filter in the conductor guide. After mineral insulating powder has been introduced into the evacuated space through a passage bounded at least partially by the guide, air entrained in the powder is evacuated through the filter to cause or assist the powder to form a densely-compact mass. A space is formed between the conductor guide and the compacted powder by relative movement between the sheath tube and guide, further powder is introduced into the evacuated space, and the sequence of operating steps repeated as necessary.

3,564,702

METHOD AND APPARATUS FOR PREFABRICATING TIMBER FRAMES

James Hurn, Rowley, Melksham, Wiltshire, England; Charles R. F. King, 6 Somerset Lane, Bath, Somerset, England; and Donald R. Deane, Foxhall Farm, Weston, Bath, Somerset, England

Filed Aug. 19, 1968, Ser. No. 753,399

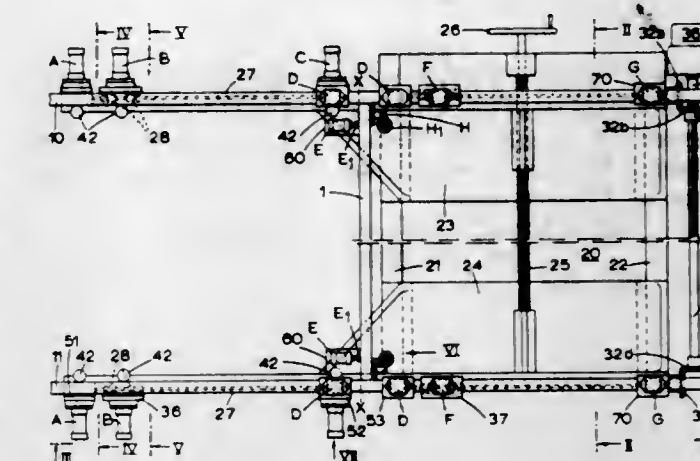
Claims priority, application Great Britain, Aug. 23, 1967, 38,789/67

Int. Cl. B23p 19/00, 19/04

U.S. Cl. 29—430

18 Claims

Method and apparatus for manufacturing prefabricated timber frames, wherein adjustably movable car-



studs are nailed to the stringers so that the centers of the studs may be varied.

3,564,703

METHOD OF ALIGNING FRICTION WELDED PARTS

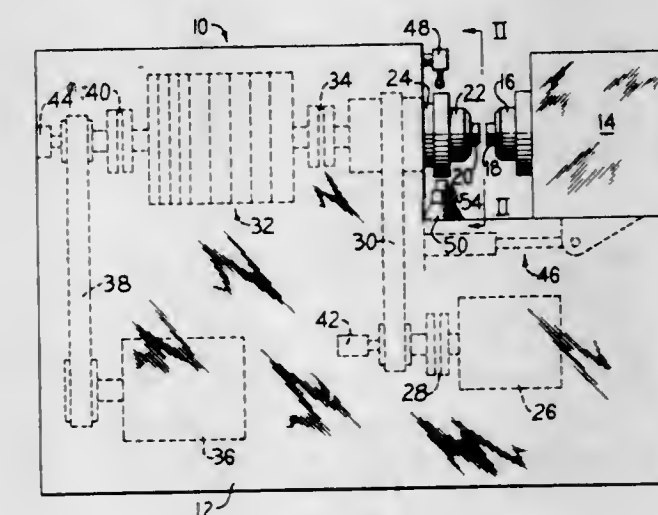
Jozef Kiwalle, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of California

Filed Nov. 20, 1968, Ser. No. 777,289

Int. Cl. B23k 27/00

U.S. Cl. 29—470.3

6 Claims



A friction welding process is accurately controlled to provide for the welding of workpieces in a manner such that the joined workpieces are oriented in precise angular alignment with respect to each other.

3,564,704

METHOD OF MANUFACTURING NUCLEAR FUEL ELEMENT

Melville Albert Feraday, Deep River, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada, a corporation of Canada

No Drawing. Continuation-in-part of application Ser. No. 647,246, June 19, 1967. This application June 4, 1968, Ser. No. 734,240

Int. Cl. B23p 17/00, 25/00

U.S. Cl. 29—527.7

17 Claims

The method of manufacturing a nuclear reactor fuel element having a core of delta phase (U₃Si) uranium-silicon alloy including the steps of heat treating the uranium-silicon alloy core at about 800° C. for a period of time to transform the alloy peritectoidally to the delta phase and surrounding the core by sheathing. The core

contains a void space either in the form of a central hollow core or in the form of uniformly dispersed porosity in the range 3-25% of the volume of the core.

3,564,705

METHOD FOR PROVIDING ORIENTED POLE PIECES IN A DYNAMOELECTRIC MACHINE

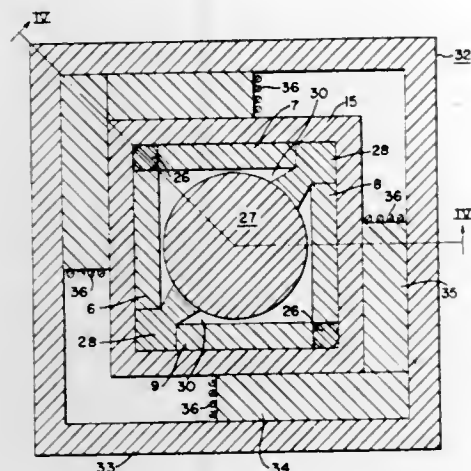
Alexander W. Cohardt, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 7, 1967, Ser. No. 688,900

Int. Cl. H02k 15/00

U.S. Cl. 29-596

6 Claims



Oriented pole pieces are provided in a permanent magnet dynamoelectric machine by introducing at predetermined locations in the machine frame a hardenable non-magnetic matrix material in a fluid condition loaded with ferromagnetic particles, establishing a magnetic field within the frame to orient the particles, and then fixing the particles in oriented alignment by hardening the fluid matrix material.

3,564,706

COMBINATION MILLING MACHINE AND NIBBLER AND METHOD FOR CONTOUR CUTTING

Hans Klingel, Korntal, near Stuttgart, Germany, assignor to Firma Trumpf & Co., Stuttgart-Wellmndorf, Germany

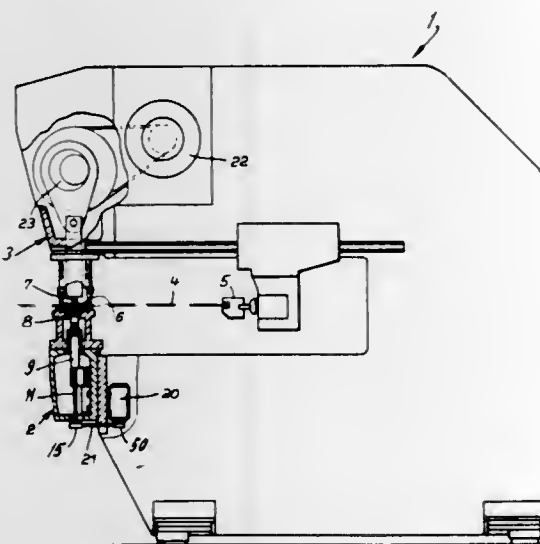
Filed May 22, 1969, Ser. No. 826,905

Claims priority, application France, May 28, 1968, 153,123

Int. Cl. B23p 23/00

U.S. Cl. 29-564

10 Claims



A combination milling machine and nibbler includes a workpiece support and guide with a nibble punch mounted above the guide and driven by a separate punch motor

for operation on a workpiece preferably for forming an initial contour or outline on the workpiece and a milling cutter arranged below the workpiece support and being movable to an operative position for forming the final contour of the workpiece to the exact dimensions required.

3,564,707

METHOD FOR WINDING WIRE COILS

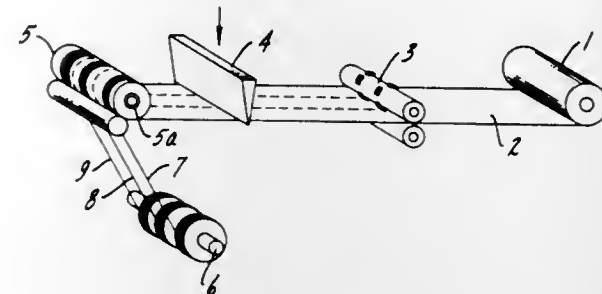
Gordon S. Ensign, River Forest, Ill., assignor to Rollan Electric Co., Chicago, Ill., a corporation of Illinois

Filed Oct. 21, 1968, Ser. No. 769,176

Int. Cl. H01f 7/06

U.S. Cl. 29-605

1 Claim



A means and method of forming a wire coil by interwinding a wide roll of paper and a plurality of spaced wire strands, the paper having openings pre-positioned between the wire strands for subsequent separation of individual coils.

3,564,708

METHOD OF MAKING A PLATED CORE ELECTRICAL COMPONENT

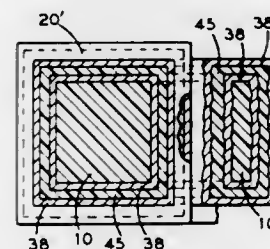
John C. Harris, Durham, N.C., assignor to Technitrol, Inc., Philadelphia, Pa., a corporation of Pennsylvania

Filed Apr. 15, 1968, Ser. No. 721,313

Int. Cl. H01f 7/06

U.S. Cl. 29-606

2 Claims



A method of making an electrical component including providing a torous with a raised portion including a fin which winds about the torous to form a helix. Raised members are provided between at least one pair of turns of the helix. The torous, fin and member are coated with a conductor. The conductor coated fin and member are removed so that the conductive coating remaining on the torous forms a winding on the toroidal core.

Other embodiments are disclosed which include methods for making electrical components having multi-layered windings and electrical components having a plurality of windings in which adjacent turns are in juxtaposed relationship.

3,564,709

PROCESS OF MAKING A CONNECTOR

Raymond Hickton, Halesowen, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England, a British company

Filed Dec. 5, 1967, Ser. No. 688,255

Claims priority, application England, Dec. 12, 1966, 55,490/66

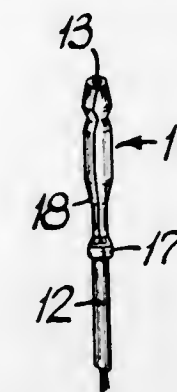
Int. Cl. H02g 15/00

U.S. Cl. 29-629

3 Claims

A method of manufacturing a connector unit which in use constitutes one part of a plug and socket connector, including the steps of placing a plurality of conductive

pins in a mould, injecting synthetic resin around the pins, and allowing the resin to set, is characterised in that each pin is formed by shaping a conductive blank so that the two opposite edges of the blank are in mutual contact, and the blank forms an open ended tube, inserting a lead



into one end of the tube, and deforming said one end of the tube so as to simultaneously connect the tube to the lead, and close said one end of the tube, thereby minimising loss of synthetic resin through the pins during the moulding operation.

3,564,710

SAFETY RAZORS

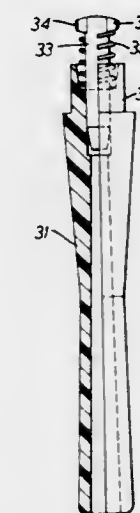
Edward Eric Pomfret, Tring, England, assignor to The Gillette Company, Boston, Mass., a corporation of Delaware

Filed June 26, 1968, Ser. No. 740,126

Int. Cl. B26b 21/18

U.S. Cl. 30-68

3 Claims



A safety razor comprising three separable parts, namely a handle, a guard and a cap, the handle including a peg which is surrounded by helical coil compression spring and has a non-circular head, the head being adapted to pass through an aperture in the guard and a registering non-circular aperture in the cap, partial rotation of the handle when the parts have been thus assembled serving to lock the parts against axial separation, the spring then urging the guard towards the cap so as to clamp a blade inserted between guard and cap.

3,564,711

PIPE CUTTING TOOL

Frederick R. McFarland, Lancaster, Pa., assignor to K-D Manufacturing Company, Lancaster, Pa., a corporation of Pennsylvania

Filed Apr. 19, 1968, Ser. No. 722,733

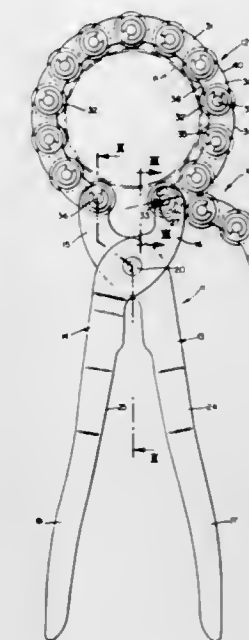
Int. Cl. B23d 21/06; B26b 27/00; B26d 3/16

U.S. Cl. 30-100

1 Claim

A tool is provided, utilizing a pliers-like hand operable portion in combination with a link chain, with rotatable cutting elements carried at each end of each of the chain

links, and with the chain being adapted to be wrapped around pipe and the like which is to be cut, with one end of the chain carried by the pliers-like tool portion, and with various selected other portions of the chain being adapted to be engaged by a jaw of the pliers-like member, for setting the working size of the chain in accordance with the diameter of pipe which is to be cut, with



the tool being adapted to be grasped and tightened thereby providing a tightening action of the chain against the pipe. The tool may then be worked back and forth to enable the rotating cutting elements to cooperate together in providing a single circular score line around the outside of the pipe which is to be cut, until the pipe is cut through.

3,564,712

ETCHING TOOL

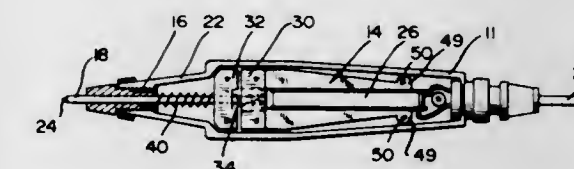
Dhu Aine J. Davis, Wheaton, Ill., assignor to Hermetic Coll Co., Inc., a corporation of Connecticut

Original application Feb. 10, 1967, Ser. No. 615,102, now Patent No. 3,375,380, dated Mar. 26, 1968. Divided and this application Sept. 22, 1967, Ser. No. 669,870

Int. Cl. B43l 13/00

U.S. Cl. 30-164.9

1 Claim



An electric tool in which an elongate casing defines a handle portion for the tool with an interior cavity and an opening at one end leading to the cavity. An elongate electromagnet is mounted in the cavity and an armature is mounted in the casing adjacent the opening for vibratory movement relative to the electromagnet. An etching rod extends through the openings and is secured to the vibrating armature. A spring biased adjusting collar is threaded into the opening and exposed exteriorly of the casing for grasping to adjust the displacement of the etching rod. The core of the electromagnet comprises two pieces with a coil therebetween and hinged at adjacent ends for pivotal movement toward and away from the coil. A hinge member for the two piece core guides the armature and also guides the etching rod.

3,564,713

HEDGE TRIMMER

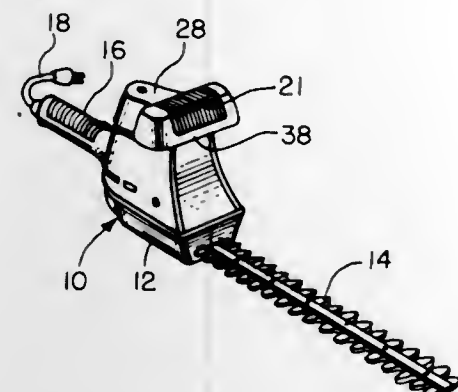
George L. Congdon, Fort Atkinson, Wis., assignor to McGraw-Edison Company, Elgin, Ill., a corporation of Delaware

Filed Apr. 23, 1969, Ser. No. 818,516

Int. Cl. B26b 19/02

U.S. Cl. 30—208

8 Claims



A hedge trimmer having a housing supporting a pair of blades movable in shearing arrangement, where the trimmer housing has integral handle sections formed thereon, one handle section being at the rearward end of the housing and the other handle section being at the upper forward end of the housing and having a top wall and a laterally disposed peripheral wall extended downwardly therefrom terminating spaced above the blades to permit the fingers of the user to grip a forward portion thereof and thumb of the user to be confined against a rearward portion thereof.

3,564,714

TRIMMER BLADE TOOTH CONFIGURATION

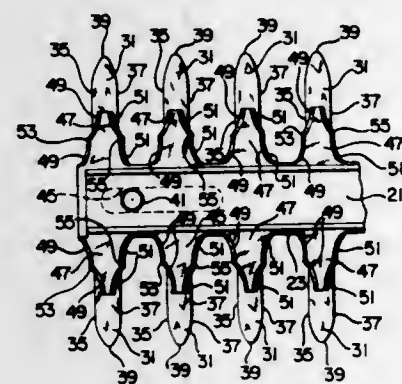
Kenneth R. Wells, Joppa, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md., a corporation of Maryland

Filed Apr. 19, 1968, Ser. No. 722,625

Int. Cl. B26b 19/02

U.S. Cl. 30—223

2 Claims



The device disclosed herein is a portable, power operated tool for trimming hedges, shrubs and the like and includes a housing adapted to have an electric motor supported therein. Power for the motor is supplied by a source such as a battery supported on the housing, and a handle on the housing facilitates easy manipulation and control. A stationary, double-edged, toothed comb is fixed to the housing and the motor is adapted to reciprocate a double edged, toothed blade disposed in overlying relation with the comb. The teeth of the blade have a novel configuration calculated to enhance cutting efficiency and improve feeding characteristics while minimizing power requirements of the motor and/or power source.

3,564,715

DRY SHAVES SHEAR PLATE

Henricus Josef Driessen and Jan Van Veen, Drachten, and Cornelis Petrus Lodewijk Commissaris, Rijswijk, Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y., a corporation of Delaware

Filed June 21, 1968, Ser. No. 739,132

Claims priority, application Netherlands, July 5, 1967, 6709297

Int. Cl. B26b 19/06

U.S. Cl. 30—346.51

10 Claims



A dry shaver shear plate having a non-uniform thickness, and a corresponding non-uniform surface for contacting the skin of the user.

3,564,716

HYDRAULICALLY OPERATED TOOL

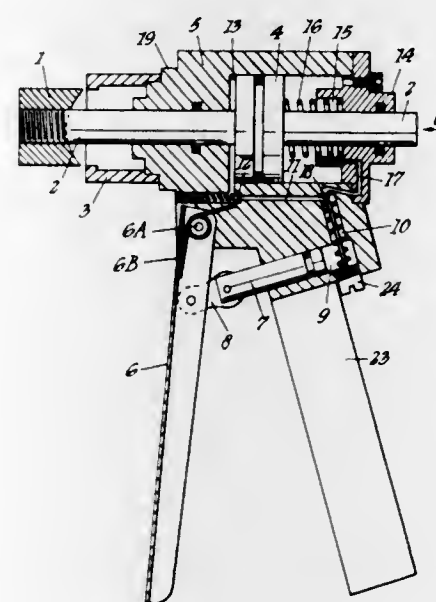
William Burrows, % Burrows Brothers, Shelbourne Road, Brockhampton Lane, Havant, Hampshire, England

Filed May 17, 1968, Ser. No. 730,062

Int. Cl. B26f 1/00

U.S. Cl. 30—360

3 Claims



A hydraulically operated tool for punching holes in metal plates or crimping lugs which consist of a tool with a hand operated lever coupled to a fluid pressure creating pump, such that repeated operation of said lever gradually increases the pressure created by said pump to retract a piston rod into the tool, the outer end of the piston rod passing through a stationary die and terminating in a removable punch, movable relative to said die.

3,564,717

INTRA-ORAL TRACING APPARATUS

Paul L. Ennor, 3171 Somerset Place, Lafayette, Calif. 94549

Filed June 30, 1969, Ser. No. 837,550

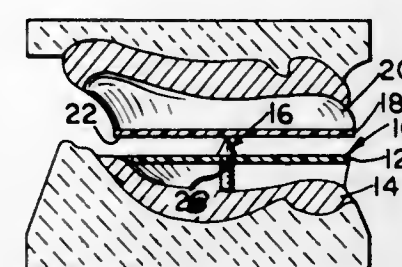
Int. Cl. A61c 9/00

U.S. Cl. 32—19

8 Claims

Intra-oral tracing apparatus for Gothic arch tracing and denture equilibrating comprising a base member and a

contact plate having a surface thereon markable by ink, a slide on the trackways so that the slide can be moved from self-inking adjustable ball-point element carried by the one end to the other. The slide is provided with a slot



base member, and means for selectively adjusting the height of the ball-point element relative to the base member.

3,564,718

LOGIC PLOTTER

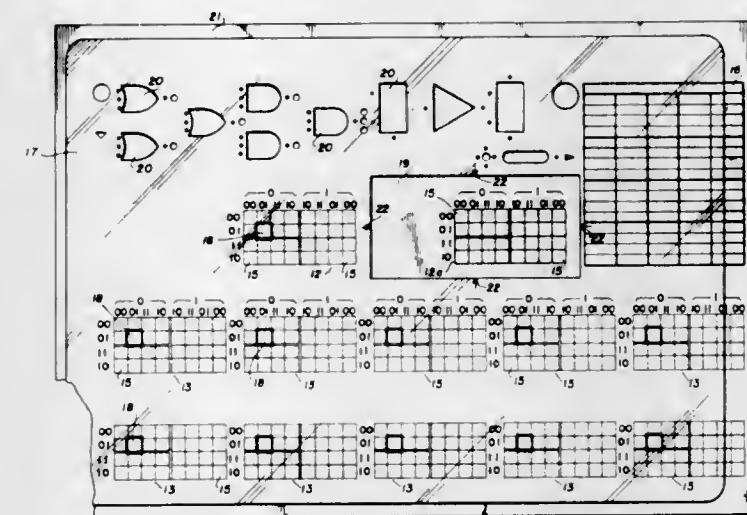
George E. Goode, 1222 Chippewa Drive, Richardson, Tex. 75080

Filed Mar. 25, 1969, Ser. No. 810,131

Int. Cl. G06g 1/00

U.S. Cl. 33—1

7 Claims



Disclosed is a method and graphic plotting apparatus for designing and analyzing logic circuits. A template overlay having a plurality of precisely located apertures, an enlarged window, and a number of standard logic symbol cutouts is disposed over a worksheet having a plurality of Karnaugh maps thereon. The registration of the template apertures and/or enlarged window with the correspondingly located minterms of the Karnaugh maps is used in the design and analysis of logic circuitry.

3,564,719

DRAWING DEVICE

Bruce D. Feltenberger, 22 W. 31st St., Erie, Pa. 16508

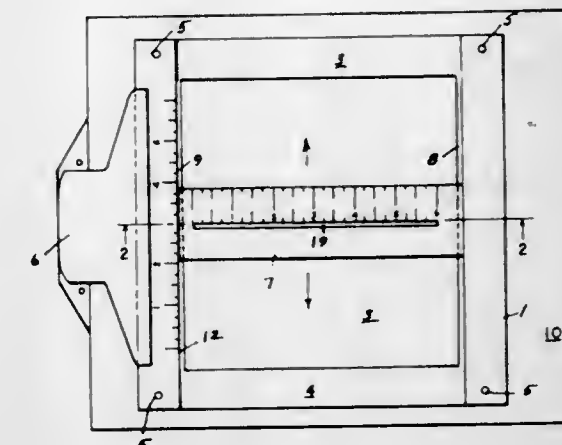
Filed June 12, 1969, Ser. No. 832,695

Int. Cl. B43l 13/04

U.S. Cl. 33—76

1 Claim

A drawing device made up of two side members and two end members integrally connected together forming an open frame. The side members each have a trackway supported on them which is approximately half the thickness of the side members and the same thickness as the end members. A slide, which functions as a T-square and is generally rectangular in cross section, has its ends rest-



along its center from one side to the other into which the point of the pencil of the draftsman can be inserted.

3,564,720

TRACK TYPE DRAFTING MACHINE

Seiichi Komura, Osaka, Japan, assignor of one-half to Muto Kogyo Kabushiki Kaisha, Tokyo, Japan

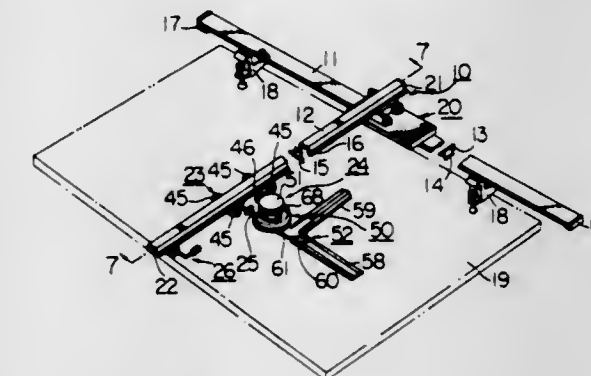
Filed Mar. 20, 1969, Ser. No. 808,909

Claims priority, application Japan, Apr. 2, 1968, 43/26,112; Apr. 12, 1968, 43/29,598; Apr. 23, 1968, 43/33,266; May 3, 1968, 43/36,075; May 7, 1968, 43/37,193

Int. Cl. B43l 13/02

U.S. Cl. 33—79

2 Claims



The track type drafting machine of the present invention comprises several improvements in or on the constructions of a cursor slidably mounted on a transverse track of a track type drafting machine, a member connecting a drafting head with a scale or rule unit to another cursor slidably mounted on a longitudinal track associated with the transverse track in perpendicular relationship therewith, means for preventing noisy sounds which occur in movements of a balance weight within the longitudinal track, means for preventing a damage caused by an accidental drop of the balance weight, and means for exerting an appropriate tension in ropes holding the balance weight.

3,564,721

TESTING CONCENTRICITY OF THREADED SURFACES AND DEVICE THEREFOR

Donald B. Wilson, 1529 Ries St., Barberton, Ohio 44203

Filed Aug. 9, 1968, Ser. No. 751,405

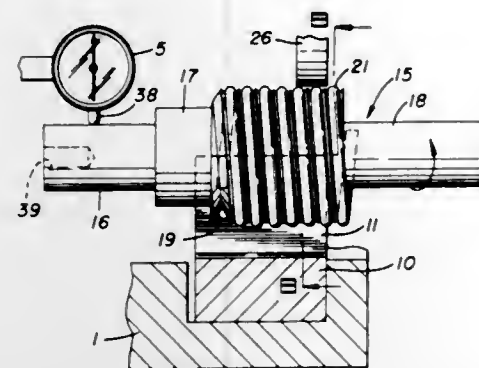
Int. Cl. G01b 5/28

U.S. Cl. 33—174

2 Claims

A device is shown for checking the concentricity of external and internal threads embodied in an element

which includes a smooth cylindrical surface concentric therewith. A spring coil prepared from wire of uniform diameter is threaded over or within the threads (depend-



ing upon whether they are external or internal threads) and the check is made with the resulting coil surface which projects beyond the crest of the thread.

3,564,722

METHOD OF DEHYDRATING MAGNESIUM CHLORIDE POWDER

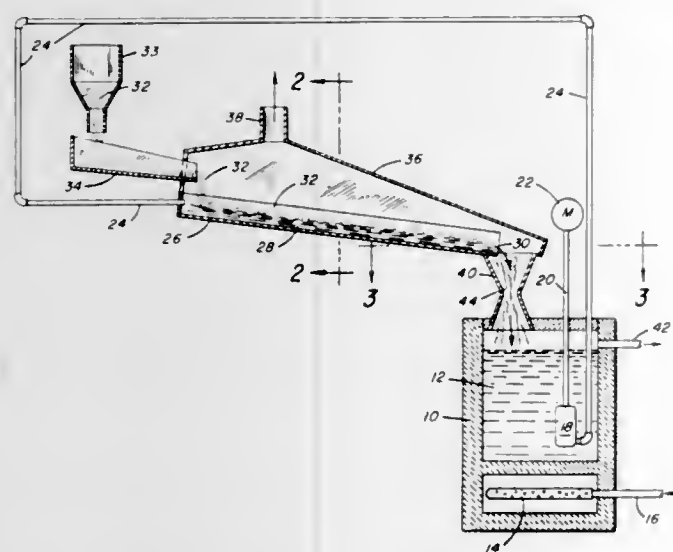
Roger M. Wheeler, Tulsa, Okla., assignor to American Magnesium Company, Tulsa, Okla., a corporation of Delaware

Filed Feb. 24, 1969, Ser. No. 801,476

Int. Cl. F26b 3/00

U.S. Cl. 34-9

11 Claims



This invention relates to a magnesium chloride dehydrating method and to apparatus for practicing the invention. A stream of molten salts containing magnesium chloride is carried by a launder and solid particles or powder of magnesium chloride, having some water therein, is discharged upon the stream, the heat of the stream causing the water to be flashed off as steam. The steam is withdrawn and the dehydrated powder is thereafter rapidly mixed with and melted by the molten stream as it is discharged into a closed bath.

3,564,723

METHOD AND APPARATUS FOR TREATING, PARTICULARLY DRYING, MATERIAL

Arjun Dev Passey, 960 Myrand, and Jean Raymond Moreau, 2998 La Promenade, both of Ste. Foy, Quebec, Canada

Filed Jan. 21, 1969, Ser. No. 792,564

Claims priority, application Great Britain, Feb. 16, 1968, 7,805/68

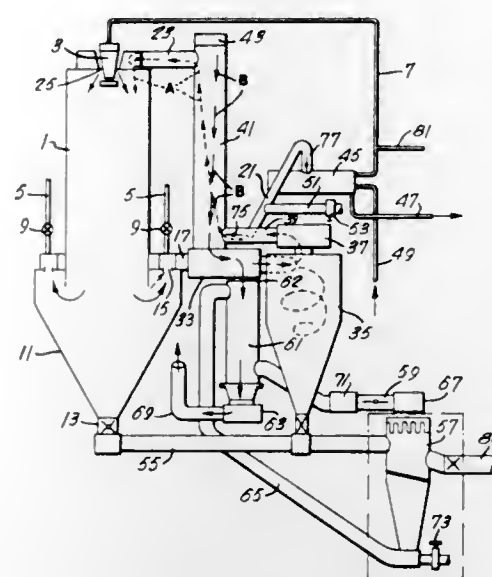
Int. Cl. F26b 3/00

U.S. Cl. 34-22

18 Claims

A method and apparatus for treating material comprising contacting the material with recirculated super-

heated vapor. The method and apparatus are particularly suited to dry material using recirculated superheated steam. During the drying operation, a portion of the



superheated vapor, after contacting the material, is bled off in an amount substantially equal to the amount of moisture picked up in drying the material.

3,564,724

MOISTURE CONTROL SYSTEM WITH CURL COMPENSATION

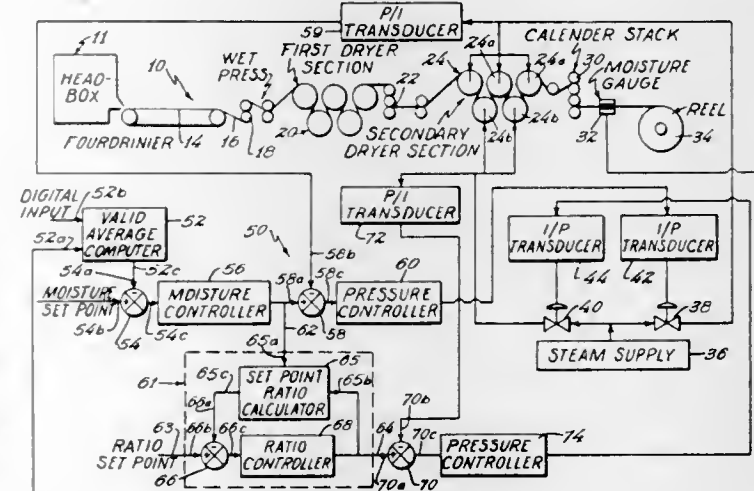
Marion A. Keyes IV, South Beloit, Ill., and John Arthur Gudaz, Beloit, Wis., assignors to Beloit Corporation, Beloit, Wis., a corporation of Wisconsin

Filed Dec. 18, 1968, Ser. No. 784,665

Int. Cl. F26b 19/00

U.S. Cl. 34-48

13 Claims



Upper and lower drying sections, each comprising a plurality of steam-heated drying rolls, are employed in the drying of the paper web as it passes therebetween. A first control loop is associated with the upper section and a second control loop is associated with the lower section. These dryer loops determine the respective amounts of steam delivered to the two sections. A moisture control loop outputs a set point to the first dryer loop and a second set point is provided for the second dryer loop, the second set point being modified so that the rate of steam flow to the second dryer section is maintained in a preferred relationship to the rate supplied by the first dryer section so that the curl of the web is minimized.

3,564,725

CYLINDER FOR FORMING OR TREATMENT OF MATERIAL WEBS

Nikolai Alfsen, Boverbru, Norway, assignor to Alfsen OG Gunderson A/S, Oslo, Norway

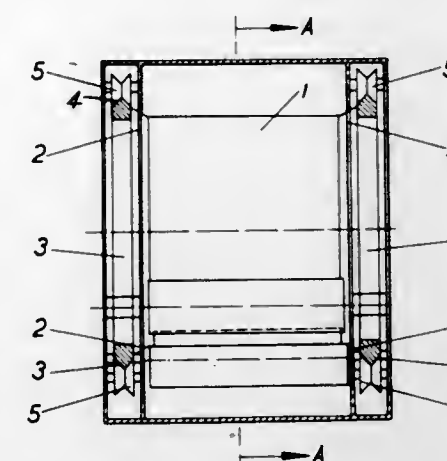
Filed Mar. 25, 1969, Ser. No. 810,115

Claims priority, application Norway, Mar. 29, 1968, 1,201/68

Int. Cl. F26g 11/02

U.S. Cl. 34-121

4 Claims



A cylinder for forming or treating web materials, the shell of the cylinder being formed of a thin, endless band which is axially stretched between two rings supported rotatably in such a manner that the tension in the band is maintained.

3,564,726

VACUUM DRYER FOR BACTROL WEIGHT CONTROL SYSTEM

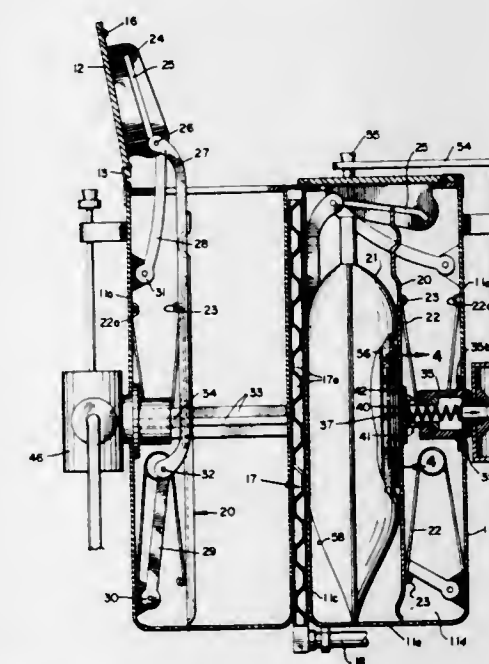
John M. Nociti and Anthony Giotta, New York, N.Y., assignors to Fairchild Hiller Corporation, Hagerstown, Md., a corporation of Maryland

Filed Dec. 26, 1967, Ser. No. 693,291

Int. Cl. F26b 21/06

U.S. Cl. 34-51

11 Claims



Apparatus for dehydrating the contents of a bag, said apparatus having a heating chamber including a chamber having a pressure plate for bringing the bag into contact with a heating unit when the chamber is closed and a valve responsive to the differential pressure between the interior of the bag and the chamber for controlling the venting of the effluent vapor to a low pressure area. The apparatus also includes a valve responsive to the condition of the seal of the apparatus to prevent the atmosphere outside of the apparatus from being evacuated through the chamber to the low pressure area.

3,564,727

FREEZE DRYER USING AN EXPENDABLE REFRIGERANT

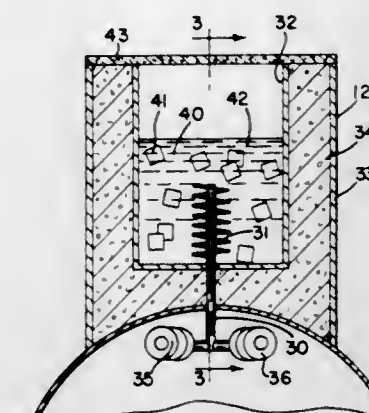
Douglas S. Fraser, New Paltz, N.Y., assignor to The Virtis Company, Inc., Gardiner, N.Y., a corporation of New York

Filed Mar. 3, 1969, Ser. No. 803,760

Int. Cl. F26b 13/30

U.S. Cl. 34-92

4 Claims



A freeze drying arrangement having means to permit the use of an expendable refrigerant. A transparent door is also disclosed having a metallic layer thereon to permit viewing therethrough while reflecting radiant energy which could affect the temperature level in the chamber.

3,564,728

HIGH INTENSITY LIGHT CURING APPARATUS

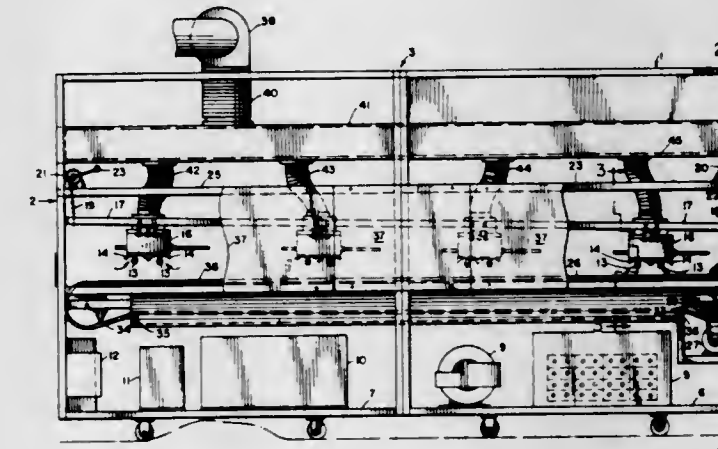
Larry L. Martin, Park Forest, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio

Filed Mar. 20, 1969, Ser. No. 808,752

Int. Cl. F26b 19/00

U.S. Cl. 34-236

7 Claims



A high intensity light curing apparatus is provided comprising, in combination, a support adapted to support articles coated with a composition capable of being cured by exposure to high intensity light, high intensity light curing means comprising at least one high intensity light emitting tube, said tube having a reflector associated therewith adapted to reflect high intensity light from said tube to an article carried by said support, and means for forcibly circulating air between said tube and its associated reflector. In a preferred embodiment, the tubes are disposed in pairs with each tube having a reflector associated therewith, said reflectors each being curved on each side of its respective tube and being separated from one another between said tubes by an air space, with the provision of means for circulating air through an opening above each of said tubes as well as said space between the reflectors. Means are also provided for controlling the air flow, for changing the position of the tubes and reflectors with respect to the article support and for withdrawing gases and vapors from a point adjacent the surface of the article support.

3,564,729

MEDICAL TRAINING DEVICE

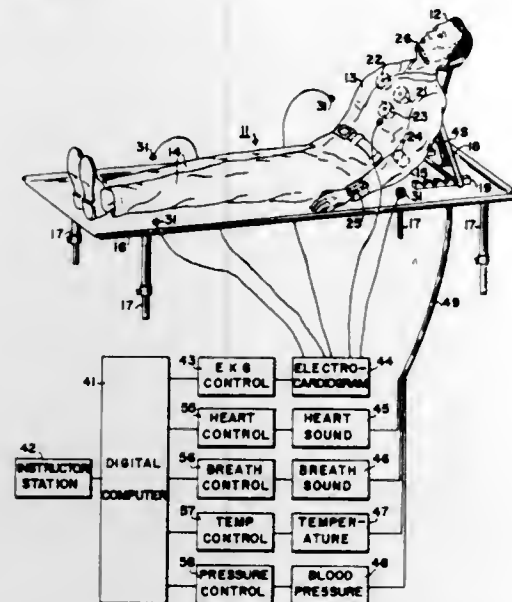
Morris Ackerman, Chevy Chase, Md., assignor to Singer-General Precision, Inc., Binghamton, N.Y., a corporation of Delaware

Filed June 28, 1968, Ser. No. 741,013

Int. Cl. G09b 23/28

U.S. Cl. 35-17

4 Claims



Medical training methods have changed somewhat over the years but, in total, probably less than training in most other fields. Although the medical practitioner has at his disposal new and better electronic aids for both diagnosis and treatment, little has been developed in the way of electronic training devices. This invention provides one means for improving medical training. A mannequin, as lifelike as possible, is equipped with electronic transducers for simulating the noises usually heard in the thorax. Provisions are made for duplicating the sounds of the heart, of breathing, of the pulse, even of coughing when desired. Each of these sounds has several conditions. For example, the heartbeat is that of a normal person with the further selective modification to that of an abnormal heart. Other abnormal sounds can be duplicated at will. This invention further contemplates the modification of the sounds under the control of a computer so that a program of training can be established and automatically followed.

3,564,730

VISUAL AID FOR ILLUSTRATING ATOMIC AND MOLECULAR STRUCTURE

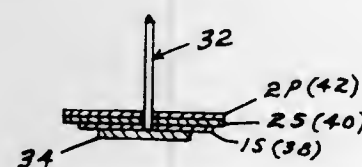
Gregory P. Stefanich, 516 1/2 3rd St. NW., Chisholm, Minn. 55719

Filed June 6, 1969, Ser. No. 831,135

Int. Cl. G09b 23/26

U.S. Cl. 35-18

9 Claims



A spindle, a multiplicity of planar members, each of the planar members having a central hole acting as a nucleus and adapted to receive the spindle to mount the members thereon one upon the other, each of the planar members having indicia illustrating one or more electron orbitals thereon, the orbitals on a given planar member having a means distance from the nucleus differing from that on another planar member, the extent of the orbitals on each member outwardly of the nucleus indicating the mean distance of an electron from the nucleus, and relatively small disc means for indicating electrons on said

planar members for selective illustration of an atom or collectively with said members combined to illustrate molecules.

3,564,731

PLANNING AND ORGANIZATIONAL AID

Otto Weller, 7 Bergstrasse, 6334 Asslar,

Kreis Wetzlar, Germany

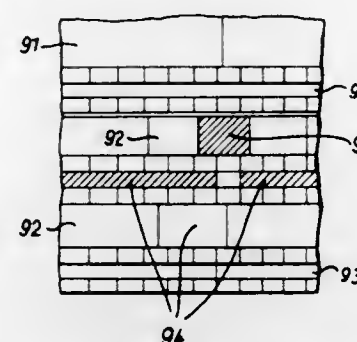
Filed May 29, 1967, Ser. No. 641,805

Claims priority, application Germany, June 1, 1966, W 41,710

Int. Cl. G09b 19/18

U.S. Cl. 35-24

1 Claim



The invention relates to an aid for planning and organizational schemes and comprises a tracked board having a gridwork and manually movable members in the tracks for giving a progress comparison with the gridwork.

3,564,732

SHEET WITH PAIR TREE INDICIA AND HOMONYMS BEARING PEAR-SHAPED CARDS

Inez Adams Lynd, Ironton, Ohio, assignor to

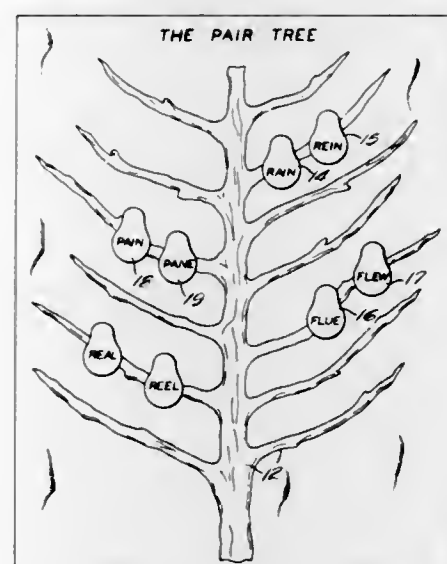
Wayne Lynd, trustee, Ironton, Ohio

Filed June 29, 1966, Ser. No. 561,485

Int. Cl. G09b 19/22

U.S. Cl. 35-35

1 Claim



There are disclosed several forms of apparatus for playing educational games, and methods for using such apparatus. The first apparatus consists of a cloth sheet having depicted thereon a representation of a tree designated as "The Pair Tree." Pairs of tags are provided, each tag of a pair having written thereon a word which when pronounced sounds like the word written on the other tag of the pair but is spelled differently. These are homonyms. The tags are shaped like pears.

The second apparatus consists of a plurality of playing cards having written thereon homonyms.

The third apparatus consists of a sheet formed of wood and of the shape of a large triangle to which are attached during the playing of the game pairs of smaller sheetlets, each pair having a pair of homonyms and each pair being of a like geometrical shape while all other pairs have different geometrical shapes.

3,564,733

EDUCATIONAL DEVICE

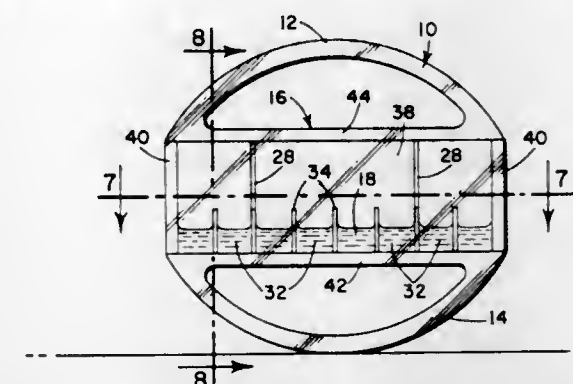
Sheldon B. Field, Floral Park, N.Y., and William A. Crago, Cowes, Isle of Wight, England, assignors, by mesne assignments, to Flume Stabilization Systems, Inc., Hoboken, N.J., a corporation of New Jersey

Filed May 5, 1969, Ser. No. 821,647

Int. Cl. G09b 23/00

U.S. Cl. 35-50

25 Claims



A device for teaching the effectiveness of the passive tank stabilizer. A small, lightweight article having two oppositely positioned rocker members is partially filled with a stabilizing mass. When placed on one of said rocker members, the device rocks to and fro for a relatively long period of time. When, however, the article is placed on its other rocker member, it rocks for only a brief period of time, thus demonstrating the effectiveness of the passive tank stabilizer.

3,564,734

COLOR COLLATING DEVICE

Nicholas F. Abraham, 70 Claremont St.,

Rochester, N.Y. 14621

Filed Apr. 4, 1969, Ser. No. 813,563

Int. Cl. G09b 25/00

U.S. Cl. 35-53

19 Claims



A color collating device for simulated article viewing including a closed housing, means for illuminating the interior of said housing, the housing including a viewing aperture and a colored member supported in the housing. A plate is provided having a mirrored portion in optical alignment with the viewing aperture, whereby when the colored member is illuminated, the mirrored portion of the plate means reflects the color of the colored member. The purpose of this device is to give a very graphic view of colors, shapes and textured surfaces to people who would have need of seeing how certain colors, textures, shapes, sizes and proportions would look before the actual items are made up.

3,564,735

TACTILE TOYS

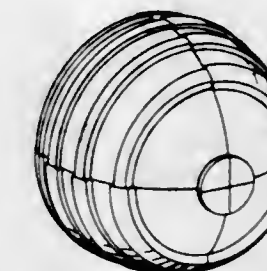
Raymond James Fisher, 222 Mason St., Woonsocket, R.I. 02895

Filed June 26, 1967, Ser. No. 648,590

Int. Cl. G09b 1/36

U.S. Cl. 35-73

7 Claims



Tactile toys are puzzle-type toys used to test and develop a person's powers of tactile apperception and differentiation. They are comprised of a plurality of interlocking parts, the facing surfaces of which have a distinct texture. In solving the puzzle, the user is required to segregate and connect the correct plurality of parts on the basis of tactile apperception and differentiation. Since all parts have some facing surface and since the plurality of parts includes at least one additional interlocking part, the facing surface of which has a different texture from all of the others, the user correctly solves the puzzle of the toy by either constructing a form which has a surface with a continuous regular texture or by recognizing that the assembled form has incorporated an interlocking part, the texture of which differs from that of the other interlocking parts.

3,564,736

SHOE ORNAMENTATION

Joy A. Cunningham, 5680 Reynoldsburg-Baltimore Road,

Pickerington, Ohio 43147

Filed Nov. 14, 1968, Ser. No. 775,700

Int. Cl. A43b 00/00

U.S. Cl. 36-1

8 Claims



There is disclosed a walking shoe for an individual provided with an opening through which ornamentation is visible which ornamentation is intended to match or complement the costume of the wearer. In some cases the shoe has a frame with an opening therethrough. The frame may be of plastic or of metal. It may be detachably secured to the shoe by adhesive, by adhesive strips, or by means of appropriate hooks. Secured to the frame so as to show through the opening is a patch which may be of cloth, plastic, flexible metal or other appropriate material which is of a color and/or design to match or complement the color and/or design of the costume of the wearer of the shoe. In one embodiment, a patch of cloth is held removably in the frame by a resilient patch of plastic which springs into, and is held in, a pocket formed in the back

of the frame. In such case, the patch of cloth is preferably held to the resilient plastic patch by adhesive, although it may if desired be merely clamped in place by the spring of the resilient patch. Alternatively, the upper of the shoe may itself be formed with an opening through which a patch is visible.

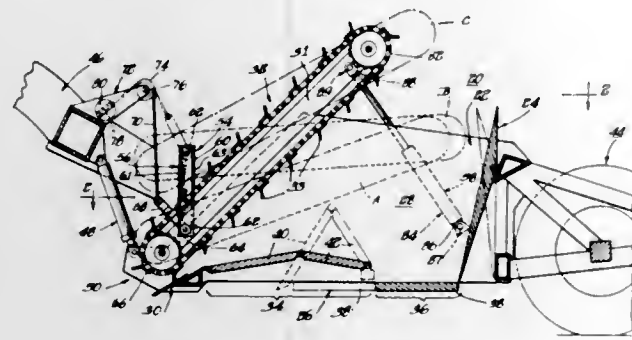
3,564,737

EARTH MOVING VEHICLE

Lovel R. Simmons, Willie O. Ray, Jr., and Thomas H. Scott, Jackson, Miss., assignors to M-R-S Manufacturing Company, Flora, Miss., a corporation of Delaware
Filed Dec. 20, 1968, Ser. No. 785,532
Int. Cl. B60p 1/36

U.S. Cl. 37-8

24 Claims



A positive drive and mounting assembly for an elevator conveyor of an earth moving vehicle comprising a front mounting and drive arrangement including a pair of substantially vertically oriented guide members, one of which is mounted on each side wall of the vehicle, a carriage member mounted for movement on each one of the guide members and attached to a respective side of the front end of the elevator conveyor, and drive means for moving the carriage members along respective guide members and thereby positively to position the elevator conveyor with respect to an earth scraper mounted at the lower front end of the vehicle. A rear mounting arrangement also is provided pivotally to connect the rear end of the elevator conveyor to the side walls of the vehicle. The rear mounting arrangement also may be positively driven.

3,564,738

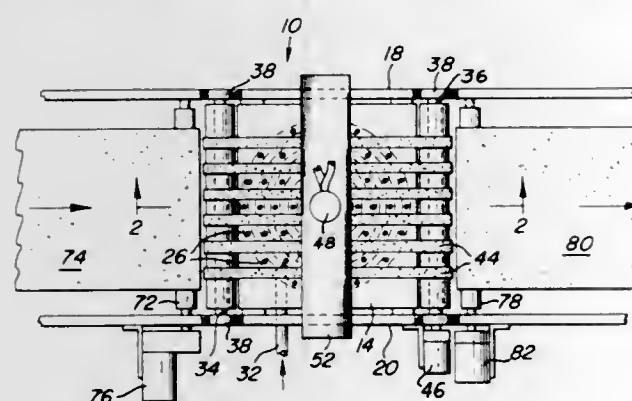
METHOD AND APPARATUS FOR ARRANGING AN ARTICLE OF LAUNDRY TO A PLANAR FORM

Alfred Batzdorf, Neshaminy Woods, Langhorne, and Amotz Frenkel, Lansdale, Pa., assignors to American Electronic Laboratories, Inc., Colmar, Pa., a corporation of Pennsylvania

Filed Mar. 6, 1969, Ser. No. 804,889
Int. Cl. D06c 3/00 D06f 67/04

U.S. Cl. 38-143

14 Claims



A method and apparatus for arranging a flexible article, such as a towel, napkin, sheet or the like, which is heaped in random configuration, to a substantially planar form. The method and apparatus includes holding the article

at a point of single thickness and applying a current of air across the surface of the article in all radial directions from the holding point. The flow of the current of air over the surface of the article completely unfolds the article until the article lies in substantially a single plane.

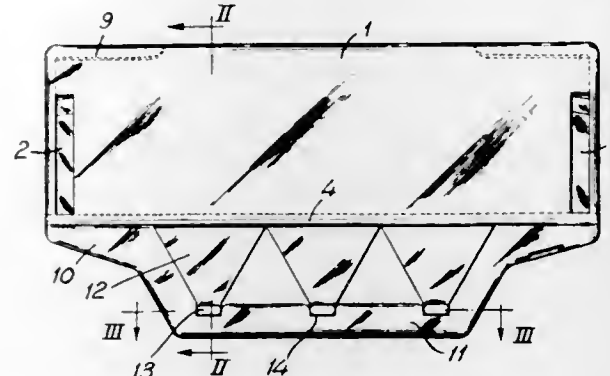
3,564,739

ONE-PIECE LABEL-HOLDER

Bernard Marc Claudius Gauche, 9 Hameau des Artistes (11 Avenue Junot), Paris, France
Filed Oct. 25, 1968, Ser. No. 770,571
Claims priority, application France, Oct. 31, 1967, 126,501
Int. Cl. G09f 3/18

U.S. Cl. 40-16.4

8 Claims



A one-piece label-holder obtained by moulding, which includes a transparent pane for receiving the label under its inside face and which is formed with windows in opposite marginal areas and with upstanding borders on its inside face that comprise a portion extending along the outer edges of said windows and another angled portion at the top of the pane, the borders comprising beneath the windows, strip-forming extensions for retaining the label at the rear.

3,564,740

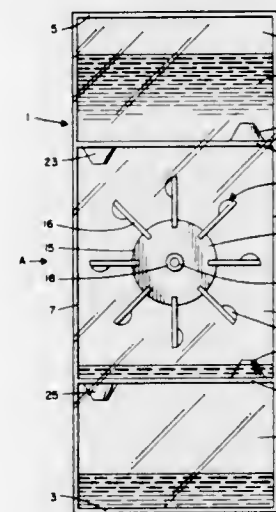
FLUID NOVELTY DEVICE

Virgil T. Calfee, Dallas, Tex., assignor to L. C. Burch, Jr., Dallas, Tex.

Filed June 6, 1968, Ser. No. 742,472
Int. Cl. G09f 13/24

U.S. Cl. 40-106.21

14 Claims



A multicompartiment display device wherein fluids of individually distinct specific gravities produce a decorative effect by movement of the fluids, and in which the gravity flow of one fluid occurs simultaneously with the upward flow of another in a reversible mechanism through a symmetrical porting arrangement that requires no mechanically moving parts.

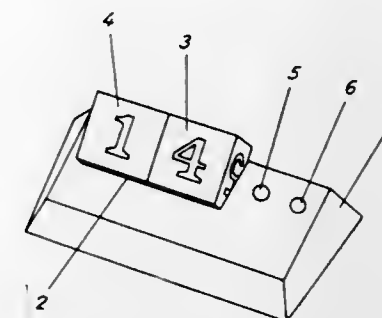
3,564,741

PERPETUAL CALENDARS

Stig Harry Kåhre and Karl Olov Harald Löwemo, Linköping, Sweden, assignors to AB Svensk Trafiness, Linköping, Sweden, a corporation of Sweden
Filed Aug. 23, 1968, Ser. No. 754,758
Int. Cl. B42d 5/04

U.S. Cl. 40-107

2 Claims



A perpetual calendar using two date cubes arranged side by side in a receptacle and having only one numeral on each side, the one of said cubes being provided with the six numerals 0, 1, 2, 3, 4 and 5 and the other cube with the six numerals 0, 1, 2, 6, 7 and 8, the numeral 6 being shaped to serve also as the numeral 9. There may be two further cubes arranged side below the above mentioned date cubes, one said lower cube serving as a day cube and the other as a month cube. The receptacle for the cubes is formed to expose the necessary indicia of the cubes and to enable the lifting of the cubes by a grip between the finger and thumb in order to rearrange the cubes.

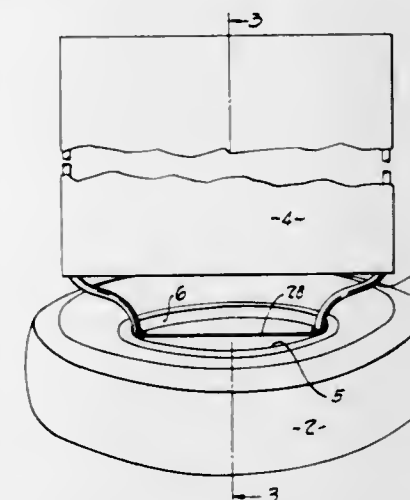
3,564,742

TIRE SUPPORTED SIGNBOARD

Harold J. Gilmore, Shaker Heights, and William B. Comiskey, University Heights, Ohio, assignors to Sales Promotions Products, Inc., Cleveland, Ohio
Filed June 12, 1968, Ser. No. 736,333
Int. Cl. G09f 7/00, 1/14

U.S. Cl. 40-125

14 Claims



A planar signboard frame made of tubing, and the like, and supported on a tire and including a two-sided sign with a pocket having a sliding fit over the frame.

3,564,743

BANNER MOUNTING DEVICE

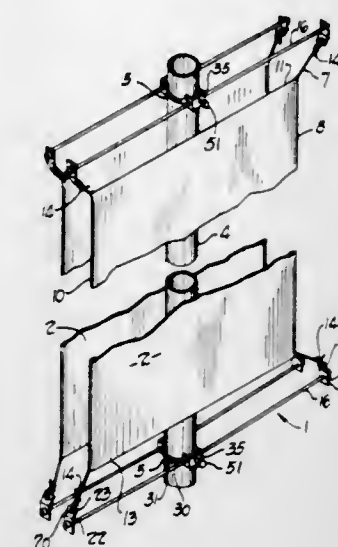
Harold J. Gilmore, Shaker Heights, Ohio, assignor to Sales Promotion Products, Inc., Cleveland, Ohio, a corporation of Ohio
Filed Sept. 23, 1968, Ser. No. 761,647
Int. Cl. G09f 1/00

U.S. Cl. 40-125

17 Claims

A banner mounting device having a resilient transverse member, a mounting bracket having means inter-

locking with the transverse member for proper location intermediate the ends thereof and stop means on the transverse member for holding arms at the end which



have apertures in which the banner ropes are tied. The devices are normally used in pairs to mount the banners associated therewith on poles and the like.

3,564,744

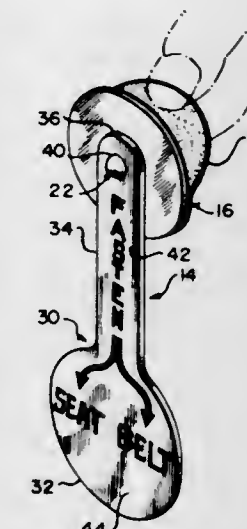
AUTOMOTIVE SAFETY SIGNAL DEVICE

Alvin L. Shook, 301 S. Pearl, Salem, Ill. 62881

Filed Feb. 20, 1969, Ser. No. 800,856
Int. Cl. G09f 7/00

U.S. Cl. 40-125

1 Claim



An automotive safety signal device in the form of a simple and inexpensive ignition lock cover member which is pivotally mounted over the ignition lock in a normally obstructive manner and which must be visually recognized and physically moved aside by the driver in the act of inserting the ignition key into the ignition lock with the outer face of the cover member being prominently provided with warning signal means to alert the driver to fasten his seatbelt before starting the engine.

3,564,745

TRANSPARENCY MOUNT

Ralph L. Johnson, Wheaton, and Robert I. Henkel, Kenilworth, Ill., assignors to Johnson & Quin, Inc., a corporation of Illinois
Filed Oct. 1, 1968, Ser. No. 764,112
Int. Cl. G09f 1/10

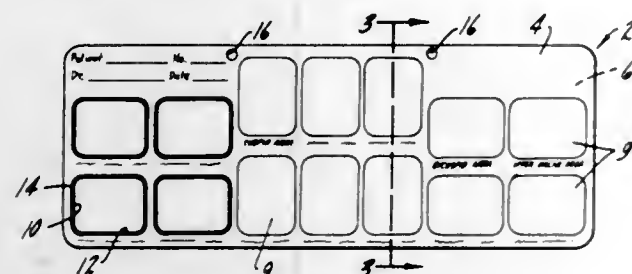
U.S. Cl. 40-158

1 Claim

A viewing sheet or carrier for mounting photographs, X-ray films and similar matter which comprises an assemblage of a top and bottom sheet, the bottom sheet

having a layer of pressure-sensitive adhesive and the other sheet being capable of being peeled off of the adhesive layer. Each of the sheets have cuts or perforations forming removable segments, the removable segments of the bottom sheet being smaller than the congruently-shaped segments formed in the top sheet so that, upon

receiver on the firearm after a spent cartridge case is ejected due to bolt actuation; novel supplemental magazine overlying the upwardly opening receiver and including dual acting spring means for automatically gravity dispensing fresh cartridges into a receiver of a single shot fire arm to convert it into a repeater type.



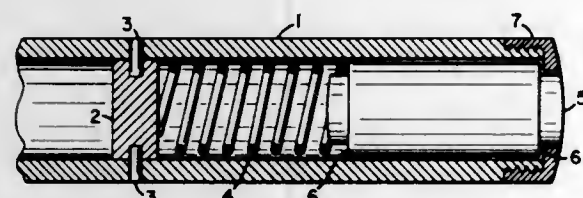
the peeling off or the punching-out of the segments, there is provided an adhesive lined or framed mounting area for affixing photographs, X-ray films and the like. There is also disclosed a method of making such a mount wherein, in order to achieve the adhesive-lined or border-like mounting area, a specific die-cutting process is employed.

3,564,746 MAIN-SPRING RELEASING ACCESSORY FOR FIREARMS

Elbert E. McConnell, 80 Church St.,
Merrimac, Mass. 01860
Filed Mar. 28, 1969, Ser. No. 811,355
Int. Cl. F41c 27/00

U.S. Cl. 42—1

6 Claims



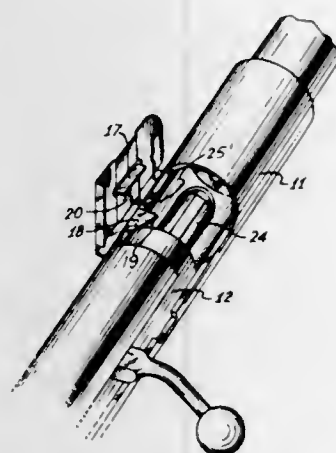
A device for releasing the tension of the main-spring of a firearm without becoming a captive part thereof.

3,564,747 LOADER TO CONVERT SINGLE-FIRE BOLT-LOADING FIREARMS TO REPEATERS

Hector Mendoza Orozco, Bartolache 1914,
Mexico City 21, Mexico
Filed Oct. 8, 1968, Ser. No. 776,297
Int. Cl. F41c 25/02, 25/00

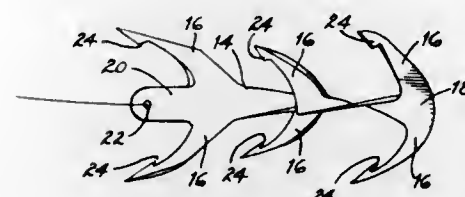
U.S. Cl. 42—18

10 Claims



A conversion, magazine-adaptor for use on bolt-operated, single shot firearms in which one or more supplemental rounds are gravity-fed to an upwardly opening

The disclosure is an improved fish lure having a helically twisted elongate body carrying a plurality of angularly displaced shanks and hooks thereon. The lure is formed out of sheet metal, the helical body providing for rotation of the lure as the latter is drawn through water and also to dispose the hooks angularly spaced apart through 360 degrees.

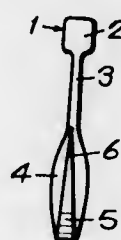


3,564,749 FISHHOOK

Shigekatsu Fujii, 281 Gamae, Nishiwaki,
Hyogo Prefecture, Japan
Filed Nov. 12, 1968, Ser. No. 774,678
Claims priority, application Japan, Nov. 16, 1967,
42/73,765
Int. Cl. A01k 83/00

U.S. Cl. 43—43.16

5 Claims



A fishhook comprising an uppermost portion, a stem portion, a first curved portion, a sharply pointed tip, and a downwardly directed pointed end contiguous with said sharply pointed tip.

Said uppermost portion and said first curved portion have a width larger than the width of said stem portion.

3,564,750 SUBTERRANEAN TERMITE DETECTOR-EXTERMINATOR

John Burgess, 91-638 Aikanaka Road,
Ewa Beach, Hawaii 96706
Filed Aug. 6, 1968, Ser. No. 750,678
Int. Cl. A01m 1/20

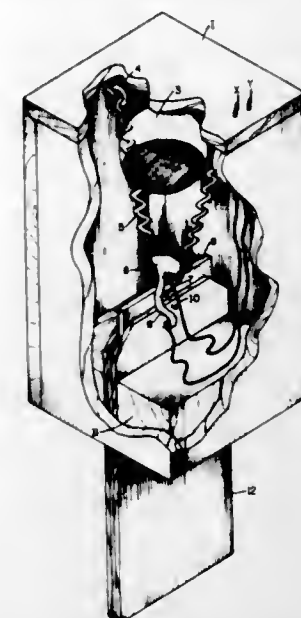
U.S. Cl. 43—107

2 Claims

A structure for use in protecting wooden parts of buildings against subterranean termites in the form of a baited trap, which when actuated, discharges an insecticide onto the termites. A frangible insecticide container is mounted in an enclosed chamber and a projectile is held under spring tension by consumable trigger means. When the

trigger means is consumed by termites, the projectile is released and breaks the container to discharge the in-

secticide. A signal device is associated with the trap to indicate that the structure has been attacked by termites.



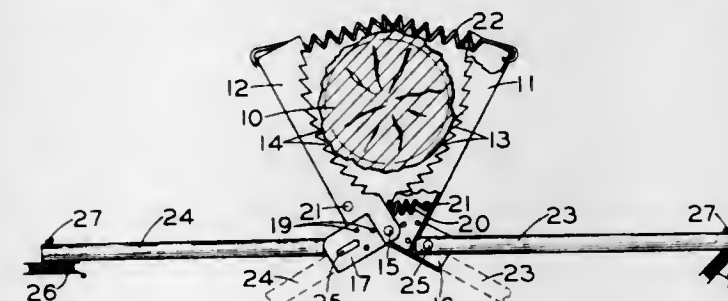
secticide. A signal device is associated with the trap to indicate that the structure has been attacked by termites.

3,564,751 COLLAPSIBLE FISHING GEAR WITH RODS AS HANDLES OF TONGS-TYPE ATTACHMENT

Raymond B. Holiman, 323 Rose St.,
Little Rock, Ark. 72205
Filed July 22, 1969, Ser. No. 843,551
Int. Cl. A01k 97/10

U.S. Cl. 43—21.2

11 Claims



A fishing gear suitable for automatic operation is in the form of a spring-driven tongs-type clamp suitable for removably attaching the gear to a wood member which extends upwardly above water. The jaws of the clamp are continuously biased to the closed position, and actuated to an open position by movement of a pair of associated fishing rods which serve as handles. A pivotal mounting of the rods permits selective circumferential positions of attached fishing lines. The gear can be compactly folded for carrying and stowing.

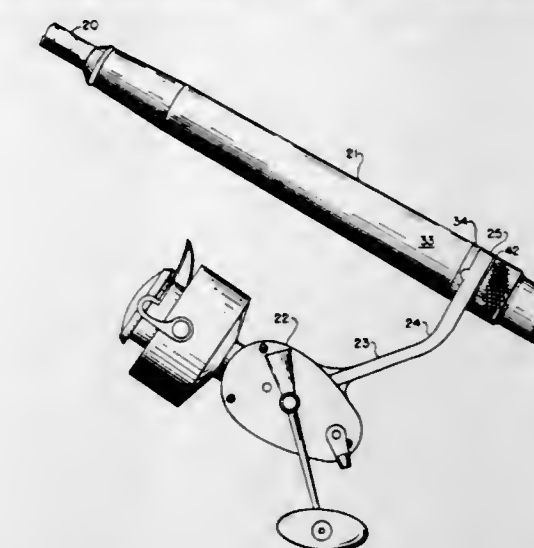
3,564,752 REEL ATTACHMENT

Robert Thomas Catignani, Fort Lee, N.J., assignor to The Garcla Corporation, a corporation of New Jersey
Continuation-in-part of application Ser. No. 809,500,
Mar. 24, 1969. This application Jan. 27, 1970,
Ser. No. 6,145
Int. Cl. A01k 87/06

U.S. Cl. 43—22

20 Claims

A spinning reel is attached to a fishing rod handle, the spinning reel having a rearwardly-extending stalk terminating in a flat foot containing a tapered crotch, the fishing rod handle having a rear flange, a tapered saddle projecting from the rear flange to extend within the tapered crotch, and a clamping disk adapted to be screwed toward the rear flange to secure the foot therebetween, the



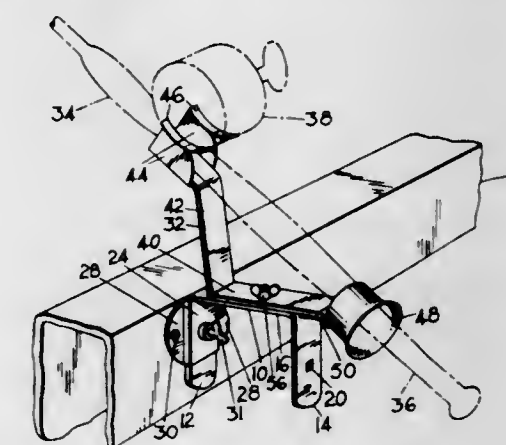
rearwardly-extending portion of the clamping disk turned about it with means to prevent the complete unscrewing and removal of the clamping disk.

3,564,753 FISHING POLE HOLDER

Glen E. Fravel, 8005 N. Van Houten Ave.,
Portland, Oreg. 97208
Filed Dec. 15, 1969, Ser. No. 884,831
Int. Cl. A01k 97/10

U.S. Cl. 43—21.2

1 Claim



A fishing pole holder having a U-shaped base for adjustably holding a body member with a cradle at its forward end for supporting a portion of a fishing pole therein and a socket at the other end for telescopically receiving the butt end of the pole. The cradle is arranged to be engaged by a fishing reel on the pole in the manner to prevent rotation of the pole in the holder, and the socket is hingedly connected to the body member on a lateral axis so that the butt end of the pole can be rapidly and easily removed axially from such socket member. A bracket is attachable to the boat for receiving one or the other of the legs of the U-shaped base depending upon the mounting position desired for the pole-supporting body member.

3,564,754 ARTIFICIAL FISHING LURE ARTICLE

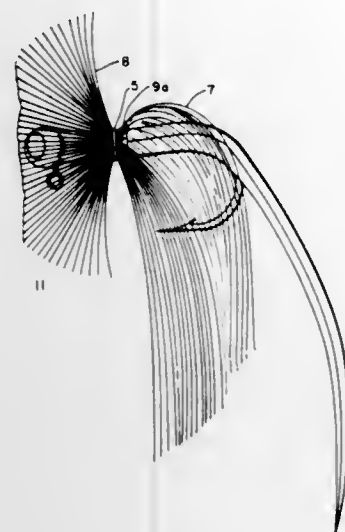
Lowell W. Brawley, 1540 Carlton Ave. 95350, and
Gerald D. Peek, 1509 Grimes Ave. 95351, both of
Modesto, Calif.
Filed Aug. 13, 1969, Ser. No. 849,642
Int. Cl. A01k 85/00

U.S. Cl. 43—42.26

10 Claims

An artificial fishing lure comprises a weight member with a fish hook having its shank connected thereto, preferably by embedding it in the weight member. Numerous

strips of rubber-like material extend along the weight member and hook combination, and are bound thereto by a flexible tie member which is connected at one end to the weight member, preferably by embedding, and is wrapped around the pieces of strip material to bind them intermediate their ends to the assembly. The strips radiate generally outwardly to frame the weight member as viewed from the front. Preferably a rubber worm is impaled on



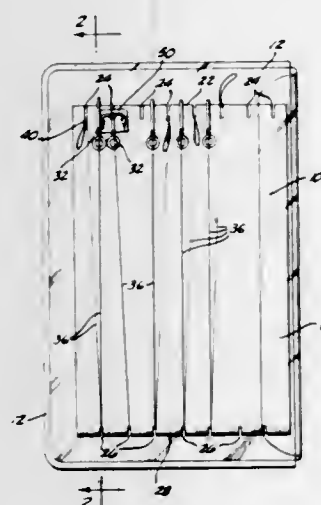
the shank of the hook. The lure is preferably fabricated by embedding the shank of the hook and one end of the flexible tie member in the weight member, either during molding of the weight member or thereafter, followed by the application of the strip pieces. The combination of the weight or body member, the embedded hook, and the embedded flexible tie member can be used in the fabrication of other lures, or for do-it-yourself fabrication of the preferred lure.

3,564,755 SNELED FISHHOOK HOLDER

Harry J. Lindgren, Sr., Van Nuys, Calif., assignor to Jane E. Johnson, Van Nuys, Calif.
Filed Oct. 31, 1969, Ser. No. 872,866
Int. Cl. A01k 97/06

U.S. Cl. 43—57.5

3 Claims



A snelled fishhook holder comprising a block of material having a plurality of positions in one end to receive the barbed end of a fishhook. The block of material is substantially rectangular in shape and has a plurality of guide slots in the end opposite the fishhook positions, to receive the fishhook leaders extending therethrough. A

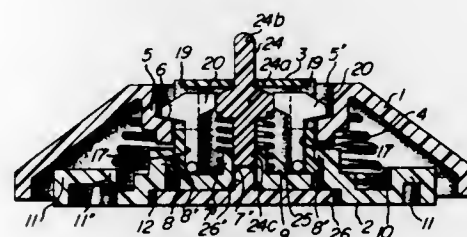
plurality of lateral grooves is provided across the one end juxtaposed to the positions for receiving the fishhooks and corresponding guide slots are provided in the one end corresponding to the guide slots on the opposite end of the block to receive knots in leaders extending around the flat surface of the block to accommodate other lengths of leader.

3,564,756 TOY MINE

Gunpei Yokoi, Kyoto, Japan, assignor to Nintendo Co., Ltd., Kyoto, Japan, a corporation of Japan
Filed Aug. 12, 1969, Ser. No. 849,308
Claims priority, application Japan, Feb. 12, 1969, 44/12,298
Int. Cl. A63h 33/00

U.S. Cl. 46—1

2 Claims



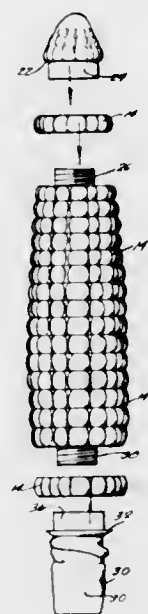
A toy resembling a land mine. The toy comprises a spring-actuated cover, latch members and an actuating member, said actuating member having a portion which holds said latch members in latching engagement with said cover, said actuating member being depressible to permit said latch members to disengage from said cover whereby the latter is violently sprung.

3,564,757 TOY CORN COB

Richard W. Fields, 714 Chapel Hill Blvd., Boynton Beach, Fla. 33435
Filed Aug. 8, 1968, Ser. No. 751,163
Int. Cl. A63h 33/00

U.S. Cl. 46—11

1 Claim



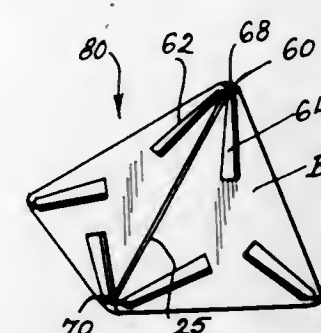
A simulated corn cob that is to be employed for educational purposes and which comprehends a multiplicity of sections being detachably connected so that the different areas of an ear of corn may be discussed separately as the appropriate section is disassembled and exhibit separately so that the degree of growth may be made more apparent to the student.

3,564,758 POLYGONAL BUILDING ELEMENTS WITH CONNECTORS THEREFOR FOR ASSEMBLING TOY STRUCTURES

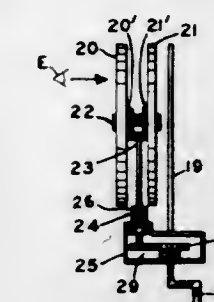
Arthur N. Willis, 706 Plume St., Spartanburg, S.C. 29302
Filed Sept. 4, 1968, Ser. No. 757,281
Int. Cl. A63h 33/10

U.S. Cl. 46—31

3 Claims



Flat disc elements in the form of regular polygons have radial notches at corners thereof to interfit and interlock for forming toy geometric structures of various shapes. Notches may have projections to engage in holes in interfitted discs. Webs with multiple arms are also provided for engaging corners of a plurality of polygonal elements to form polyhedrons.



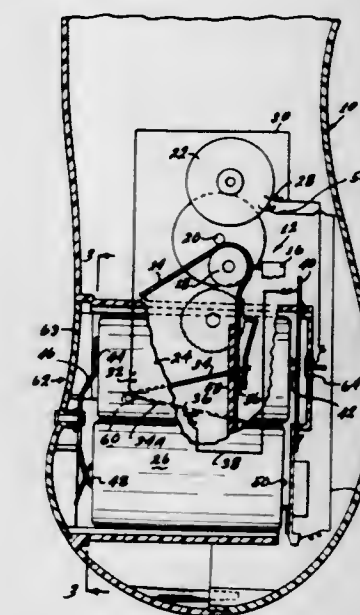
The members are rotated oppositely and when they are rotated oppositely, a viewer looking through the members receives the illusion or impression of motion, for instance, rising or falling motion, or side motion.

3,564,761 TOY SWITCH APPARATUS

David L. Bear, Palos Verdes, and Gregory M. Gunther, Palos Verdes Estates, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware
Filed Dec. 5, 1968, Ser. No. 781,559
Int. Cl. A63h 33/00

U.S. Cl. 46—45

7 Claims

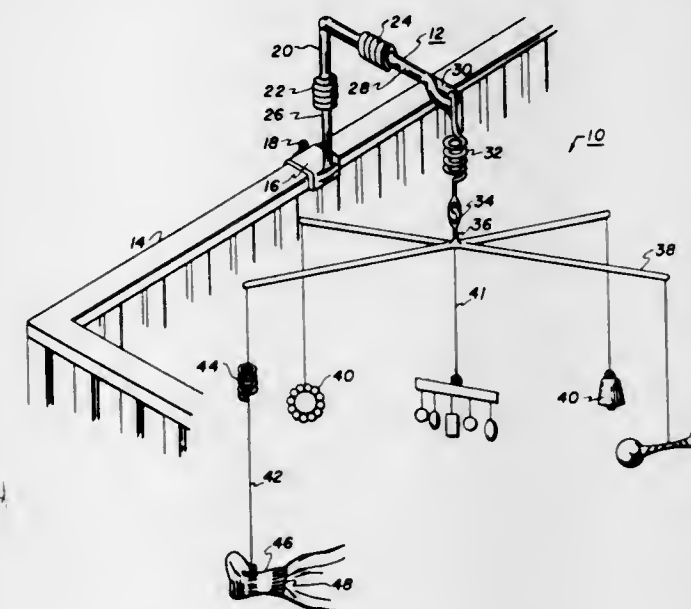


3,564,759 EDUCATIONAL TOY FOR AN INFANT, AND MEANS FOR ACTUATION BY THE INFANT

William J. Buttermore, 5785 Somerset, Detroit, Mich. 48224
Filed Dec. 19, 1968, Ser. No. 785,077
Int. Cl. A63h 5/00; A63b 21/00

U.S. Cl. 46—32

7 Claims



An educational toy for an infant having a plurality of bright objects and bells thereon with means for resiliently mounting the toy; and means for attaching the toy to the infant for self amusement by the infant.

Apparatus for use in battery powered toys to switch them on and off. A switch for manually starting a toy that automatically latches on immediately after starting, comprises a battery cover plate which can be pressed in to push the battery momentarily against a contact. A switch for automatically turning off a toy when it falls over comprises a contact member that is deflected by battery weight when the toy falls to a horizontal position, to allow the battery to move away from an opposite battery case contact.

3,564,760 OPTICAL ILLUSION TOY

Patrick J. McGannon, 2797 Stevens St., Oceanside, N.Y. 11572
Filed Jan. 21, 1969, Ser. No. 792,870
Int. Cl. A63h 1/24

U.S. Cl. 46—47

6 Claims

A pair of transparent members are mounted co-axially for opposite rotation. One of the members has a plurality

3,564,762 AIR-BLOWING DOLL HAVING AIR DUCT COMBINED WITH CONNECTING MEANS

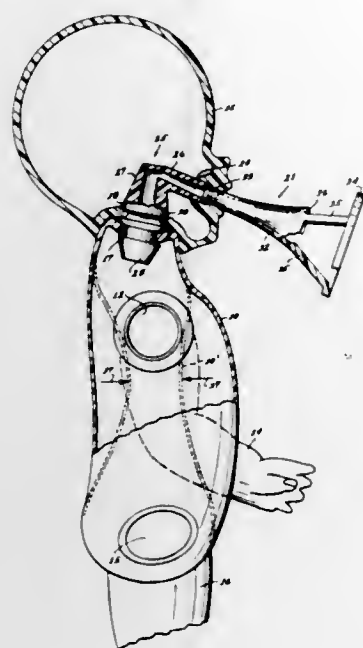
Dorland L. Crosman, Palos Verdes Estates, Rollin C. Johnson, Hermosa Beach, and Thomas E. See, Huntington Beach, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware
Filed Sept. 16, 1968, Ser. No. 759,965
Int. Cl. A63h 5/00

U.S. Cl. 46—117

2 Claims

An air-blowing doll including a flexible torso and a head interconnected physically by an air duct which also

forms an airtight connection between the doll's torso and a mouth opening in the doll's head. Various attachments may be inserted into the doll's mouth and may be actuated by squeezing the doll's torso. Among these are a horn and a balloon-blowing attachment having check valves for permitting air flow into the balloon but not out of the



balloon, and also permitting air flow from the atmosphere into the doll but not back again. Finally, a bubble-blowing attachment may be used comprised of an outwardly flared tube and a soap-film supporting ring spaced from the tube to equalize the air flow.

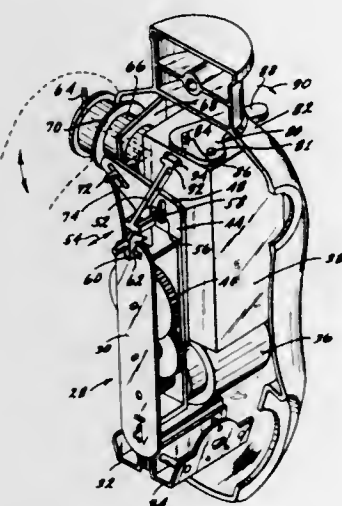
3,564,763

YO-YO DOLL

Dale P. Cleveland, Torrance, and Thomas R. Wilson, Manhattan Beach, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware
Filed May 5, 1969, Ser. No. 821,767
Int. Cl. A63h 11/00

U.S. Cl. 46—120

7 Claims

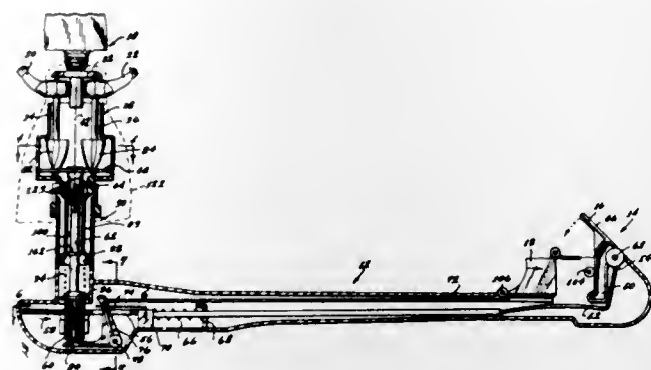


A doll which can either walk or move one of its arms up and down to simulate operation of a yo-yo or paddle ball. A motor driven mechanism mounted on the legs has an oscillating bar which can be coupled to the torso to sway the torso so as to cause the doll walking, and can be uncoupled from the torso to pivotally oscillate one of the doll's arms so the arm appears to operate a yo-yo.

3,564,764
PUPPET SHOW TOY
Dorland L. Crosman, Palos Verdes Estates, Cedric E. Iwasaki, Hermosa Beach, Richard L. May, Manhattan Beach, and Alec R. M. McTurk, Redondo Beach, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware
Filed Dec. 16, 1968, Ser. No. 784,149
Int. Cl. A63h 7/00

U.S. Cl. 46—126

2 Claims

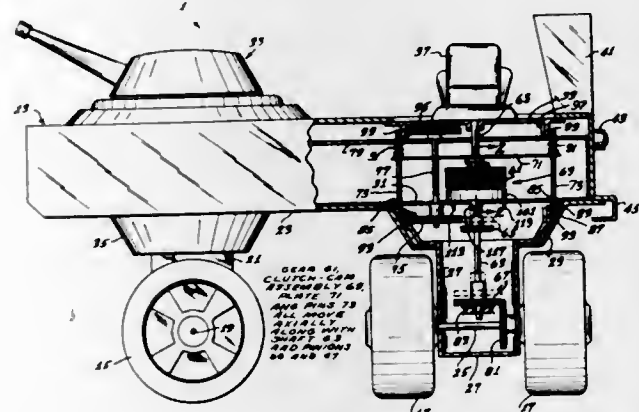


A puppet show toy which enables the operator to move the puppet from a position in the audience. The toy includes a figure which can be pivoted to face in any direction and having arms that can be clapped together. A long frame extends laterally from the figure, and a control box on the end of the frame carries a lever for controlling figure pivoting and a trigger for controlling clapping of the arms.

3,564,765
POWERED TOY VEHICLE HAVING MOTOR MEANS SELECTIVELY, DRIVINGLY, CONNECTABLE TO A STEERING MECHANISM AND A DRIVING MECHANISM
Lester T. Stormon, Manhattan Beach, and Oldrich Fryc, Redondo Beach, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware
Filed Nov. 20, 1968, Ser. No. 777,282
Int. Cl. A63h 17/00

U.S. Cl. 46—206

14 Claims

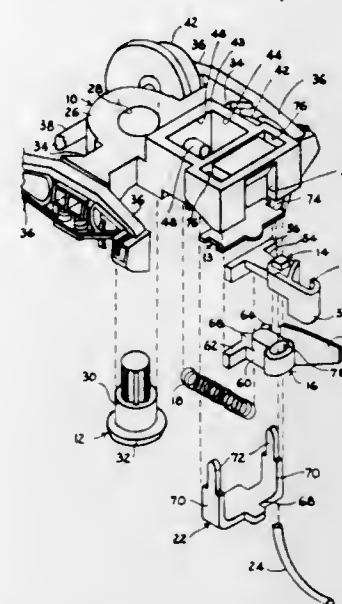


This is a toy vehicle incorporating a self-contained motor for providing rotational power, a steering mechanism continuously changing its direction only as long as receiving rotational power, a drive mechanism for propelling the vehicle in the direction of the steering mechanism only as long as receiving rotational power, and a remotely controlled transmission mechanism continuously operatively coupled to the motor for alternately shifting, upon command, the rotational power from the motor to either the steering mechanism or to the drive mechanism.

3,564,766
MODEL RAILROAD COUPLER AND RELATED MECHANISM
Clarence K. Edwards, 835 Morrison St., and Lawrence D. Edwards, 2816 Rosemont Ave., both of Medford, Oreg. 97501
Filed Mar. 13, 1969, Ser. No. 806,840
Int. Cl. A63h 19/18

U.S. Cl. 46—236

13 Claims

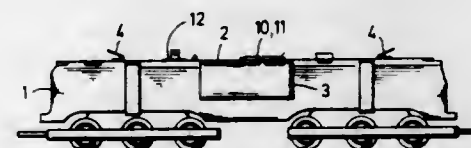


A novel model railroad coupler is provided, adapted to be made for equipment of any selected scale, including particularly the currently popular very small scale of 1/160, known as N-gauge. The coupler includes the features of automatic coupling, magnetic uncoupling, and delayed uncoupling. Conventional couplers, lacking the capabilities and advantages referred to, can be converted into our improved coupler with little effort, and through the utilization of only a few, simple and inexpensive substitute parts.

3,564,767
ELECTRIC LOCOMOTIVE FOR TOY AND MODEL RAILROADS
Max Ernst, Lohengrinstr. 14, Nuremberg, Germany
Filed Aug. 12, 1968, Ser. No. 751,794
Claims priority, application Germany, Aug. 12, 1967, P 16 03 281.8
Int. Cl. A63h 19/10

U.S. Cl. 46—243

16 Claims



An electric locomotive for toy and model railroads which comprises a plurality of current consumers, including a driving motor, and in which for conducting the current from terminals to the current consumers there is provided a printed conductor plate inserted into the locomotive.

3,564,768
COATED CORN SEED
Otto L. Hoffman, Shawnee, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed Oct. 25, 1968, Ser. No. 770,856
Int. Cl. A01c 1/06

U.S. Cl. 47—57.6

2 Claims

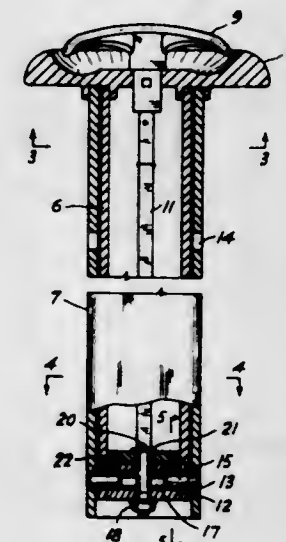
Corn is protected from injury by N,N-dialkylthiocarbamate ester pre-emergent herbicides by coating the corn seeds prior to planting with a non-phytotoxic quantity of

a bifunctional compound selected from the group consisting of 1,8-naphthalic anhydride, lower alkyl 1,8-naphthalate esters, N,N-diallyl-1,8-naphthalamic acid, barium and tin 1,8-naphthalates, 1,8-naphthalic acid, propynylamine salts of strong inorganic acids, N,N'-dialkylloxamide, N,N'-dipropynylloxamide, N,N,N',N'-tetrapropynylloxamide and N,N'-dipropynylmalonamide.

3,564,769
ANTI-THEFT DEVICE
Arthur G. Wilson, 1 Watson Ave., Neutral Bay, New South Wales, Australia, and Roy Johnston, 36 Lucasville Road, Glenbrook, New South Wales, Australia
Filed Mar. 18, 1969, Ser. No. 808,164
Claims priority, application Australia, Mar. 28, 1968, 35,693/68
Int. Cl. E05b 65/00

U.S. Cl. 49—35

2 Claims

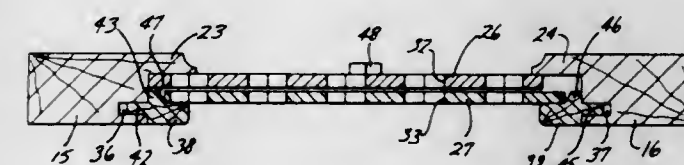


A vehicle anti-theft device having inner and outer tubular members, the outer tube being secured in the ground so that it does not project appreciably above ground level, the inner tube being arranged so that it may be positioned substantially above ground level and having locking means positioned in it which may be brought into engagement with the outer tube.

3,564,770
CLOSURE STRUCTURE
William J. Korbelic, Benton Harbor, Mich., assignor to Kaywood Division, Joanna Western Mills Company, Benton Harbor, Mich., a corporation of Delaware
Filed Oct. 27, 1969, Ser. No. 869,508
Int. Cl. E06b 7/02

U.S. Cl. 49—38

4 Claims



A rectangular frame having grooved stiles and rails into which the edges of a pair of parallel and adjacent panels are received and held so that one of the panels can move in its plane transversely of the other panel. The panels are provided with uniformly spaced and uniformly dimensioned openings which are aligned in one position of one panel with respect to the other and are substantially blocked in another position of the one panel with respect to the other. A pair of blind stops are removably mounted on the stiles to permit the insertion and removal of the panels with respect to the frame.

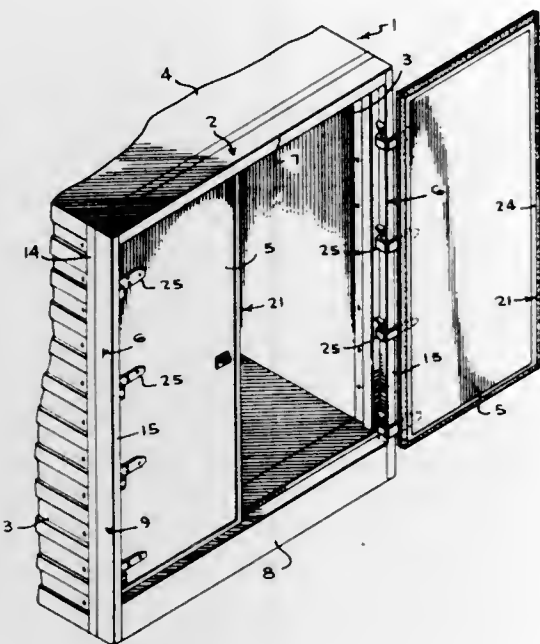
3,564,771 REAR VERTICAL MEMBER AND DOOR MOUNT ASSEMBLY

Augustus T. Reynolds, Savannah, Ga., assignor to Great Dane Trailers, Inc., Savannah, Ga., a corporation of Georgia

Filed Apr. 30, 1969, Ser. No. 820,601
Int. Cl. E06b 7/16

U.S. Cl. 49—383

3 Claims



A rear vertical member and door mount assembly for vehicles, or containers, wherein the rear vertical member includes a rearwardly extending part with an angular, transverse, unbroken flange at the rear. The door rear edge seals against the vertical member and is hinged to hinge butts welded in the angle of the vertical member rearward extension and transverse flange. The hinges are offset to recess the door within the vertical member and to provide channel seats for the vertical member to allow the door to swing in a 270° arc.

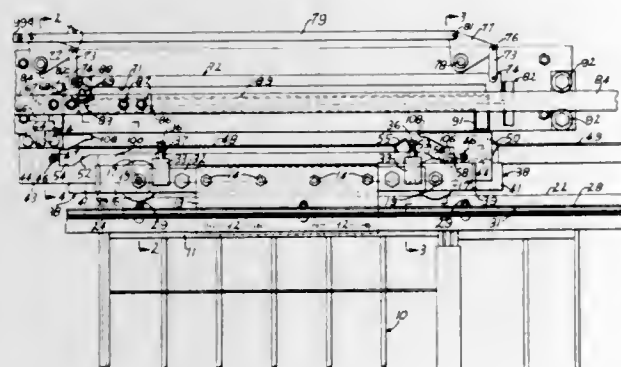
3,564,772 PRISON DOOR OPERATING AND LOCKING MECHANISM

Melvin G. Ozler and John W. Montgomery, Decatur, Ala., assignors to Willo Products Company, Inc., a corporation of Alabama

Filed Sept. 29, 1969, Ser. No. 861,722
Int. Cl. E05b 47/00

U.S. Cl. 49—15

9 Claims



Slide bar detachably connected to door carriage and movable to door open and closed positions. Cam surfaces at opposite ends of slide bar engage and lower lock bar actuating member when door opened and closed and lift lock bar upon initial movement of slide bar away from

door opened and closed positions. Slide bar actuator connected to main bar while in intermediate position and disconnected therefrom while in upper and lower positions, with door in fully open or closed position. Safety member prevents movement of door carriage without corresponding movement of slide bar.

3,564,773 SEALING DEVICE FOR A CLOSING ELEMENT

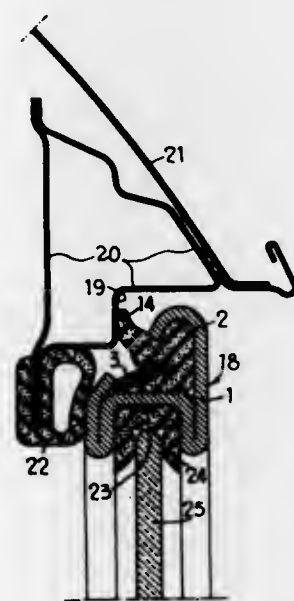
Michel Bonnaud, Montbellard, France, assignor to Automobiles Peugeot, Paris, France, and Regie Nationale des Usines Renault, Billancourt, France, both French bodies corporates

Filed Aug. 9, 1968, Ser. No. 751,495
Claims priority, application France, Sept. 21, 1967, 121,712

Int. Cl. E04b 1/66

U.S. Cl. 49—488

3 Claims



The device comprises a sectional support element having a recess whose entrance is a constricted and defined by two flanges. A removable sealing element having a heel portion and a lip portion is engaged in the recess by its heel portion, the lip portion extending outside the recess. A removable locking strip engages the heel portion and locks it in the recess by engagement behind one of the aforementioned flanges.

3,564,774 WALL STRUCTURE

Robert P. Lickliter and Earl Abbott, Hamburg, and John F. Reeves, Tonawanda, N.Y., assignors to Flangeklamp Corporation, Buffalo, N.Y.

Continuation-in-part of application Ser. No. 703,955, Feb. 8, 1968. This application Nov. 20, 1968, Ser. No. 777,437

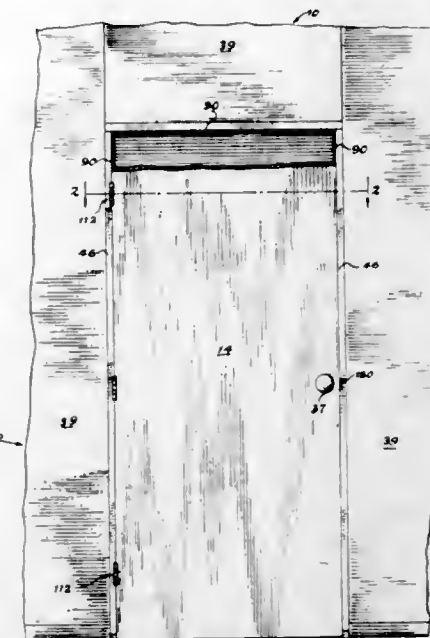
Int. Cl. E06b 1/18

U.S. Cl. 49—504

16 Claims

A door frame assembly comprising a pair of elongated, interfitted elements, each having interlocking portions for connection to a double wall structure. The elements are provided with shoulder portions having co-planar surfaces acting as a door stop, the shoulder portions being spaced to define an opening for receiving a strip of cushioning material resting against the shoulder portions. A mounting plate is secured behind the exposed side face of the door frame assembly for receiving fastening means of a hinge assembly. A strike assembly is also secured behind the exposed side face and is provided with an adjustable stop against which the door latching detent abuts to preclude rattling. Panel extension clips are frictionally

interfitted between horizontally and vertically extending paired panel connectors for removably securing them together to receive door frame assemblies forming a corner



of a doorway opening. A brace clip extends between the inner surfaces of the door frame assembly for reinforcing the same and adding rigidity thereto.

3,564,775 RESONANT SONIC CLEANING UTILIZING PARTICULATE MATERIAL IN CONJUNCTION WITH A SONIC REFLECTIVE BAFFLE MEMBER

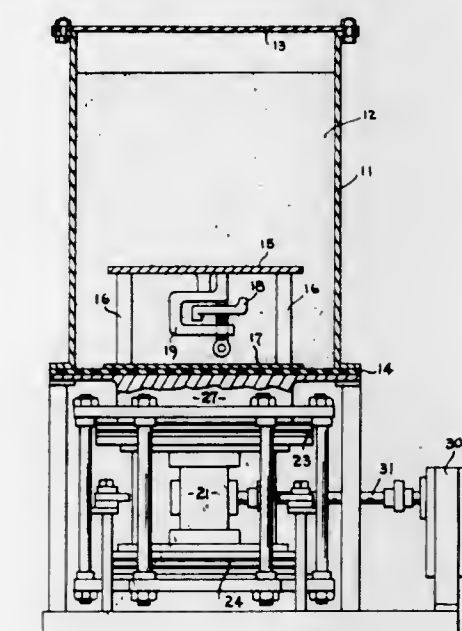
Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406

Filed Feb. 10, 1969, Ser. No. 797,751

Int. Cl. B24b 19/00

U.S. Cl. 51—7

4 Claims



A part to be cleaned is suspended in a particulate medium. The granules of the particulate material are randomly vibrated by means of a resonant vibration system, the output of which is coupled to such material through a vibrational member such as a diaphragm. A sonic reflective baffle member is supported in the midst of the granular medium opposite the diaphragm with the part to be cleaned located between the baffle and diaphragm. The baffle functions to concentrate the acoustical energy so as to cause a streaming of the particulate material in the region adjacent to the part. Such energy works on all sides of the part to provide highly effective cleaning and finishing action thereon.

3,564,776 OPTICAL SURFACE GENERATING METHOD AND APPARATUS

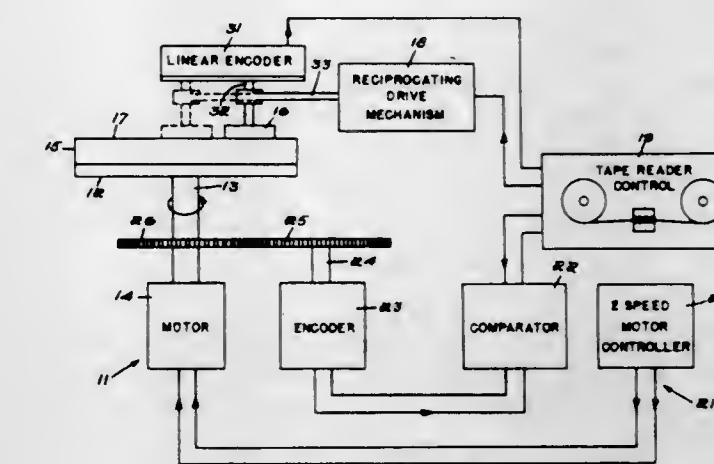
Ronald Aspden, Bedford, Mass., assignor to Itek Corporation, Lexington, Mass., a corporation of Delaware

Filed Apr. 16, 1969, Ser. No. 816,683

Int. Cl. B24b 1/00, 7/00

U.S. Cl. 51—55

26 Claims



A surface modifying method wherein an optical lap is moved over the work surface of an optical blank in a path having a circumferential component and an oscillating radial component controlled so as to change directions when the lap is adjacent predetermined positions on the blank's work surface. Control of the radial components direction reversals with respect to both the blank's radius and circumference permits generation of completely symmetrical surface changes.

3,564,777 PORTABLE BELT GRINDER AND SUPPORT THEREFOR

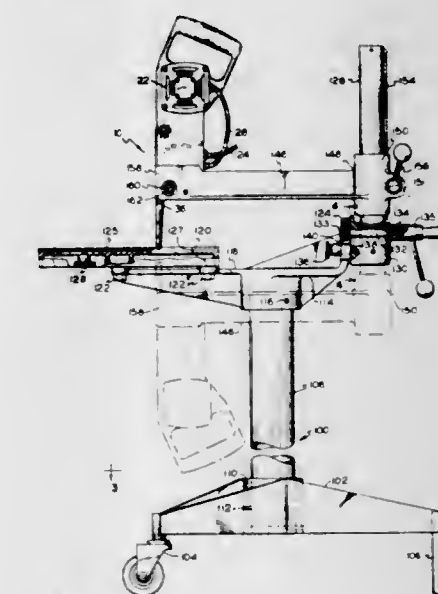
Charles E. Kerr, Hillsboro, Oreg., assignor, by mesne assignments, to Eltec, Inc., Portland, Oreg., a corporation of Oregon

Filed July 17, 1968, Ser. No. 745,564

Int. Cl. B24b 23/06, 21/00

U.S. Cl. 51—148

7 Claims



A portable belt grinder having a housing, a first roller mounted within the housing, and an elongated interchangeable platen supported by the housing and extending exteriorly of the housing longitudinally thereof. A second roller is mounted on the exterior end of the platen and is spaced a distance away from the housing greater than the width of the platen. An endless

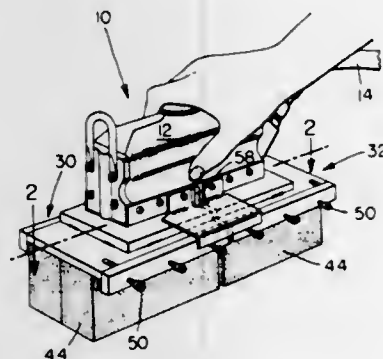
belt of abrasive material passes around the first and second rollers and is supported by the platen along at least a part of its length, whereby a first portion of the belt is enclosed within the housing and the second portion extends axially exteriorly of the housing a distance greater than its width. A support for the grinder is disclosed having a base portion, a work supporting member attached to the base portion, the work supporting member having a slot therethrough. A bracket is attached to the work supporting member and a support post is rotatably attached to the bracket. An arm is movably attached to the support post at one end and is attachable to the housing of the grinder at the other end, the arm being adapted to support the grinder in a position whereby the second portion of the abrasive belt may pass through the slot in the work supporting member.

3,564,778
APPARATUS FOR FINISHING FORMING DIES
Charles H. Haas, Philadelphia, Pa., assignor to The Budd Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Nov. 21, 1968, Ser. No. 777,758
Int. Cl. B24b 23/00

U.S. Cl. 51-170

1 Claim

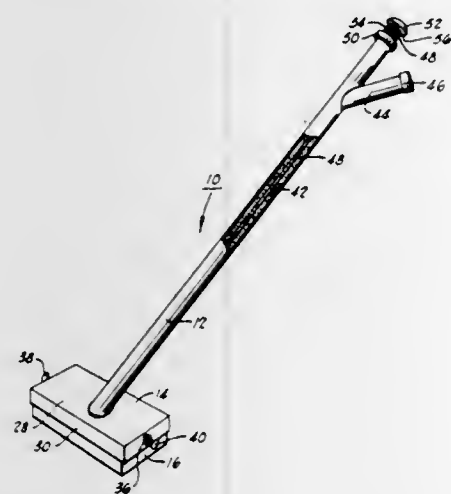


A power tool for grasping high mass rectangular abrasive stones and for oscillating the high mass abrasive stones in straight line inertia-balanced opposition.

3,564,779
DEVICE FOR ABRASION CLEANING OF CONCRETE AND THE LIKE
Ervin Koehn, 706 E. Maple, Enid, Okla. 73701
Filed July 10, 1968, Ser. No. 743,672
Int. Cl. B24d 15/02

U.S. Cl. 51-205

1 Claim



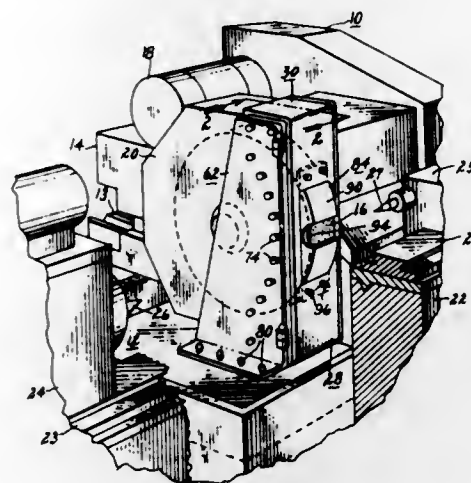
Apparatus for abrasion cleaning which consists of a first holder portion for securely supporting an abrading object, and a handle assembly rigidly secured to the

holder and having its interior filled with cleaning compound which is releasable by periodic actuation of a valve assembly to pass through the holder means to the interface between the abrading implement and the surface being cleaned.

3,564,780
OPERATOR-PROTECTIVE SHIELD
Rolf T. Grzymek, Cincinnati, and Howard W. Renner, Wyoming, Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio, a corporation of Ohio
Filed May 6, 1969, Ser. No. 822,119
Int. Cl. B24b 55/04

U.S. Cl. 51-269

15 Claims



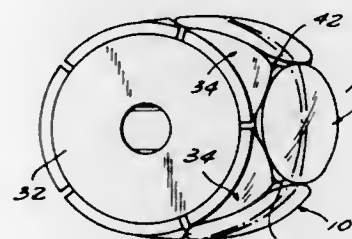
A combination guard design for high-speed cutting tools, especially grinding wheels, consisting of two portions that telescope together; the aft conventional portion is the standard grinding wheel guard which is attached to and reciprocates with the wheelhead or wheel slide; the forward part is an operator-protective shield (comprised basically of a main frame, at least one side cover and a replaceable guard segment with a definite size workpiece opening), fixedly secured to the machine base or frame and in overlapping relation with the standard grinding wheel guard in all operating positions of the wheel slide, said combination in the event of grinding wheel failure substantially completely preventing broken wheel fragments from leaving the grinding machine and causing injury to the operator.

3,564,781
ASSEMBLY FOR MOUNTING LENS BLANKS
William M. Catron, Plantation, Fla., assignor to Univis Inc., Fort Lauderdale, Fla., a corporation of Ohio
Original application Dec. 6, 1967, Ser. No. 688,454.
Divided and this application Aug. 4, 1969, Ser. No. 861,534

U.S. Cl. 51-277

Int. Cl. B24b 13/00

3 Claims



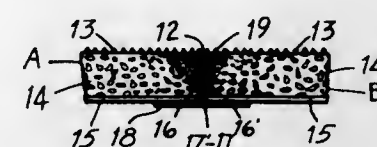
The method of manufacturing a multifocal lens blank which may finally be processed into a prescription lens having reading and distance portions separated by a

shoulder extending the width of the lens, wherein a plurality of optical glass workpieces, specially shaped for efficient further processing, are blocked about the circumferential edge of a blocking wheel and auxiliary slabs of optical glass are provided in the spaces between adjacent pieces. During the grinding and polishing operations, which are performed on the workpieces to transform them to lens blanks, the auxiliary slabs provide the additional support needed by the processing tools to form relatively undistorted lens surfaces.

3,564,782
ABRASIVE BELT JOINT
George L. Haywood, Latham, N.Y., assignor to Norton Company, Troy, N.Y., a corporation of Massachusetts
Filed June 6, 1967, Ser. No. 643,884
Int. Cl. B24d 11/00

U.S. Cl. 51-399

4 Claims

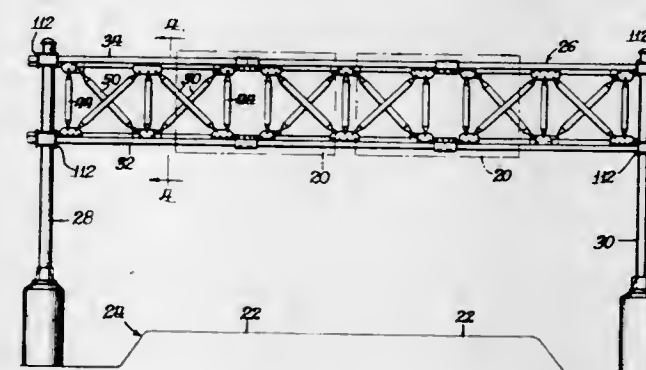


A joint is formed in a thick, resiliently compressible material by undercutting at least one end of the material to provide a greater length at the top surface than at the bottom and then compressing the additional material contained in such greater length before joining the undercut end to the other end of such material. This results in a greater density of material at the top surface of the joint and as the joint passes over a small roll or the like, the compressed material expands and keeps the joint from gapping at the top surface thereof.

3,564,783
SUPERHIGHWAY DRIVER DIRECTION STRUCTURE ERECTIBLE IN THE FIELD
Samuel B. Dunne, Dixon, Ill., assignor to Fosco Fabricators, Inc., Dixon, Ill., a corporation of Pennsylvania
Filed Aug. 5, 1969, Ser. No. 847,607
Int. Cl. E01f 9/01; E04c 3/04

U.S. Cl. 52-38

6 Claims

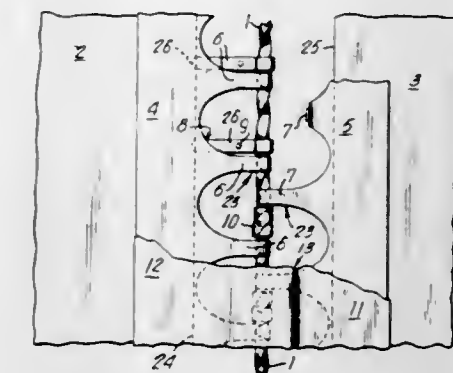


Support structure of light metal for driver direction signs that overlie vehicular passageways on superhighways is erected in the field from standardized components. Preformed tubular webs of light metal are joined to specially designed tubular chords of light metal by means of integral fins on the chords, specially constructed and strengthened end segments of the webs, preshaped stress-distribution plates of light metal, and bolts mutually integrated into joints that can be readily bolted together tightly in the field to produce a horizontal sign support structure free of looseness and having more than adequate strength and abundant dependability undiminished by hidden structural defects or by outdoor exposure.

3,564,784
STRUCTURAL ASSEMBLY
Sebastian Mollinger, 17 Irving Place, Montreal 970, Quebec, Canada
Filed Mar. 12, 1969, Ser. No. 806,616
Claims priority, application Canada, Mar. 14, 1968, 14,876
Int. Cl. E04b 1/347

U.S. Cl. 52-63

12 Claims

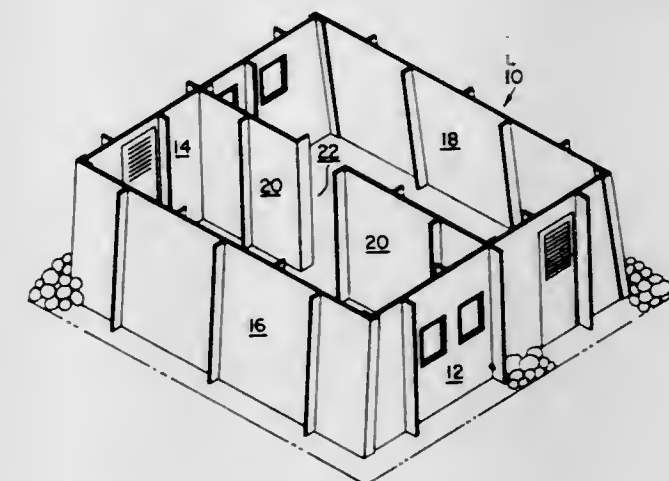


A structural assembly for use as roofs or walls in buildings comprising flexible sheets of material, supporting cables and means for connecting the sheets to the support cables.

3,564,785
BUILDING STRUCTURE
John W. Kephart, Jr., 1115 Norsam Road, Gladwyne, Pa. 19035
Filed June 19, 1969, Ser. No. 834,713
Int. Cl. E04b 1/32, 1/344

U.S. Cl. 52-71

20 Claims



A plurality of sheet material panels are shop assembled to thereby form a wall or the roof of a building structure. The panels of the wall or roof are hinged to each other for being folded each upon the others for delivery of the wall or roof to the building site in a compact bundle to facilitate handling and shipping thereof, and for being unfolded at the building site prior to being erected in position.

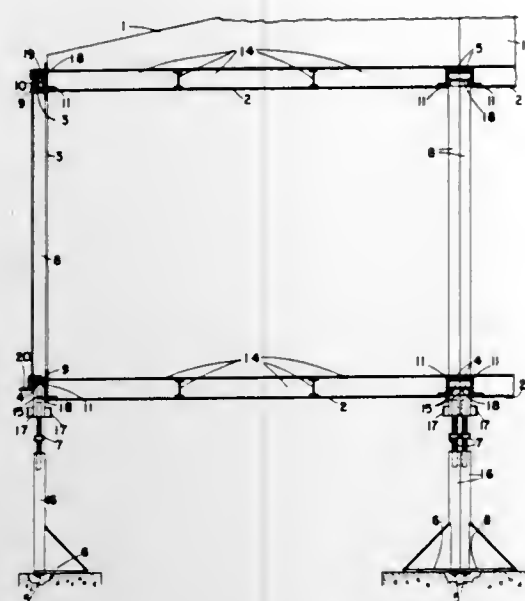
3,564,786
MASS PRODUCTION HOUSING
David Baker, 2141 Sudbury Place NW., Washington, D.C. 20012
Continuation of application Ser. No. 782,517, Nov. 15, 1968. This application Jan. 9, 1970, Ser. No. 1,834
Int. Cl. E04b 1/348; E04b 1/02

U.S. Cl. 52-79

10 Claims

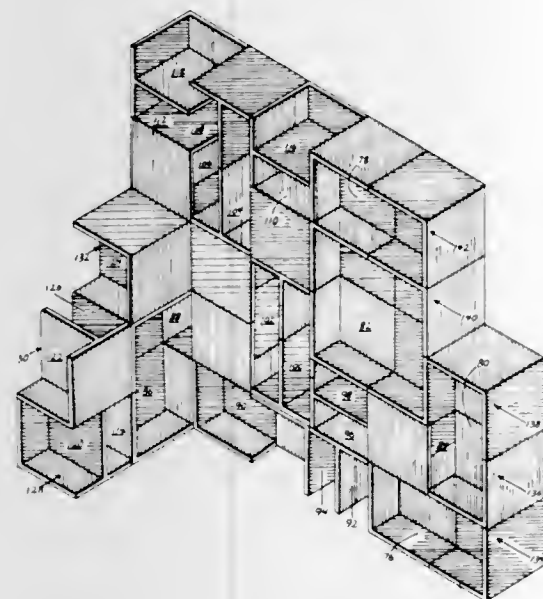
A housing system comprising a plurality of modular segments arranged in a basic plan module to form a house,

apartment, or other building adapted for expansion by addition of similar modules, each module comprising a structural space frame arranged for permanent or de-



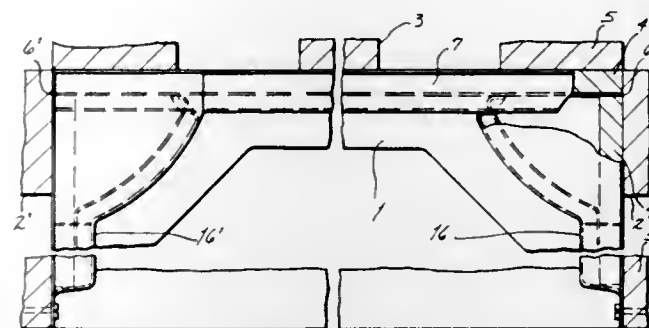
mountable erection and having adjustable pedestal foundations for leveling, a standardized floor deck and roof base unit, and a modular exterior wall unit frame.

3,564,787
MODULAR DESIGN BLOCK
Raymond Sherman, 172 E. 88th St.,
New York, N.Y. 10028
Continuation of application Ser. No. 730,772, May 21,
1968. This application Dec. 3, 1969, Ser. No. 876,169
Int. Cl. H63h 33/04; E04b 1/348
U.S. Cl. 52—79 1 Claim



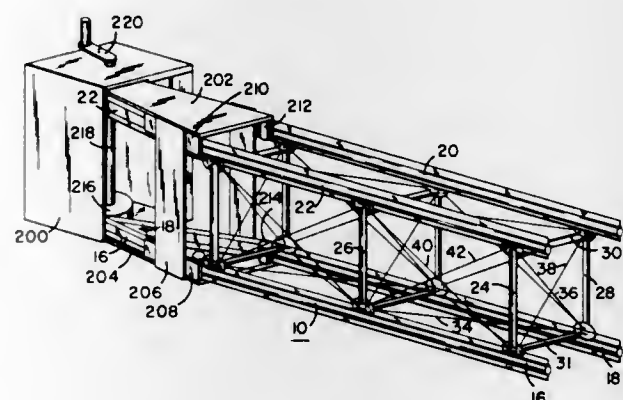
Each block of a set of blocks is formed of three square members, each member lying in a plane perpendicular to the planes of the other two members. A first member is offset from the edges of the second and third members so that the first member forms a T with the second member and a T with the third member, while the second and third members have an edge in common and form an L with each other. Each member is colored in accordance with a first scheme on one side and in accordance with a second scheme on the other side. The blocks can be nested together to form a multiplicity of different patterns.

3,564,788
WALL PANELING
John W. Moore, St. Louis, Mo., assignor to Swan Corporation, St. Louis, Mo., a corporation of Missouri
Filed May 12, 1969, Ser. No. 823,818
Int. Cl. E04b 2/06, 2/72
U.S. Cl. 52—270 4 Claims



An assembly of uniquely interfitting wall panels mutually adapted for covering the surface of perpendicularly related walls so as to obscure any imperfections in the joint therebetween while suitably compensating for same, there being means for securing said panels to the underlying wall and studding and with a male and female co-operative locking means for interconnecting adjacent panels.

3,564,789
EXTENDABLE-RETRACTABLE BOX BEAM
Wesley W. Vyvyan and Laurence H. Warden, San Diego, and Richard E. Hunter, Poway, Calif., assignors to The Ryan Aeronautical Co., San Diego, Calif.
Filed Dec. 9, 1968, Ser. No. 782,170
Int. Cl. E04h 12/10
U.S. Cl. 52—108 15 Claims

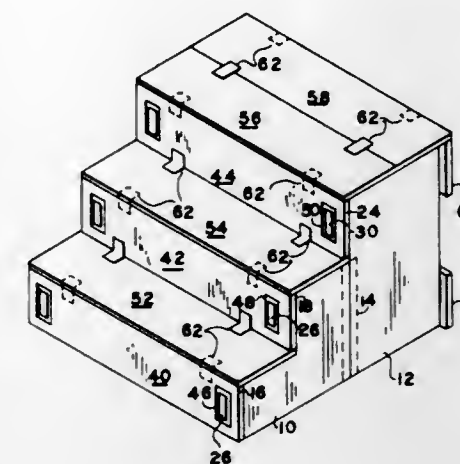


An extendable and retractable box beam structure that may be collapsed into a coil shape and selectively extended and expanded to a longitudinal and linear structure that forms a rigid box beam structure.

3,564,790
COLLAPSIBLY PORTABLE STEP AND SUPPORT APPARATUS
Aldin L. Rehfeld, Aberdeen, S. Dak., assignor to E-Z Fold Mobile Steps Inc., Aberdeen, S. Dak., a corporation of South Dakota
Continuation-in-part of application Ser. No. 787,494, Dec. 27, 1968. This application Nov. 3, 1969, Ser. No. 873,567
Int. Cl. E04f 11/06, 11/18
U.S. Cl. 52—183 14 Claims

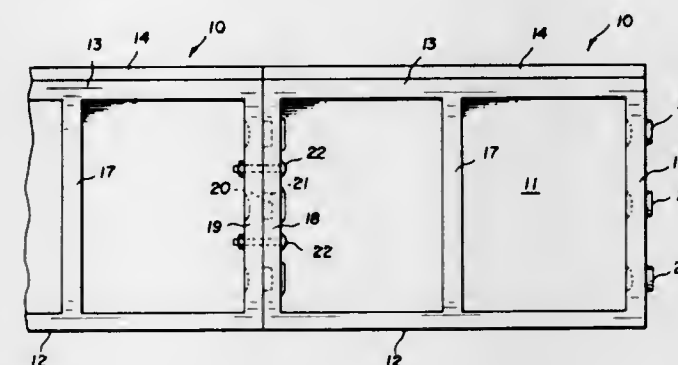
Collapsible steps which when assembled form a very rigid support due to a tongue and receiver interlocking

technique used to attach the parts. Several embodiments are shown. In all of them, tongue and receiver locking means combinations are uniquely constructed adjacent the



base of the steps such that the weight of the steps keeps the pieces in place and together. Further, a locking means in the form of a rail provides additional support to keep the pieces in place.

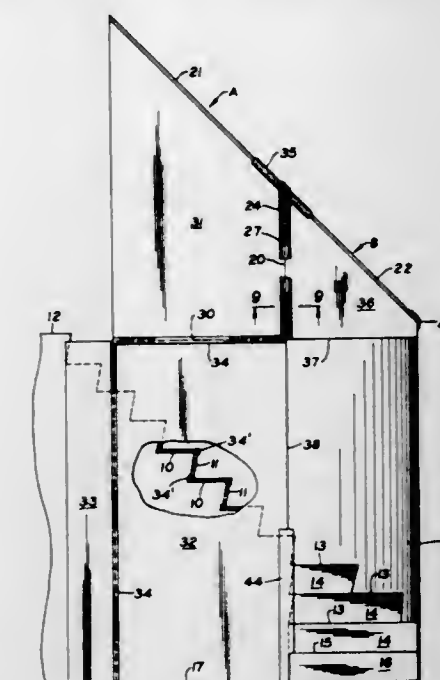
3,564,791
SWIMMING POOL WALL
George F. Arp, 557 Whitney Road,
Fairport, N.Y. 14450
Filed Feb. 27, 1969, Ser. No. 802,849
Int. Cl. E02d 27/00; E04h 3/16
U.S. Cl. 52—169 7 Claims



A swimming pool wall is formed of uniform sections of molded structural foam secured together, and the sections include: a front facing wall; a base integral with the bottom edge of the facing wall; a coping wall integral with the top edge of the facing wall; end walls integral with the facing wall, the base, and the coping wall; the end walls having projections and recesses fitting together for alignment of the sections; and a rib integral with the base, the coping wall, and the back of the facing wall.

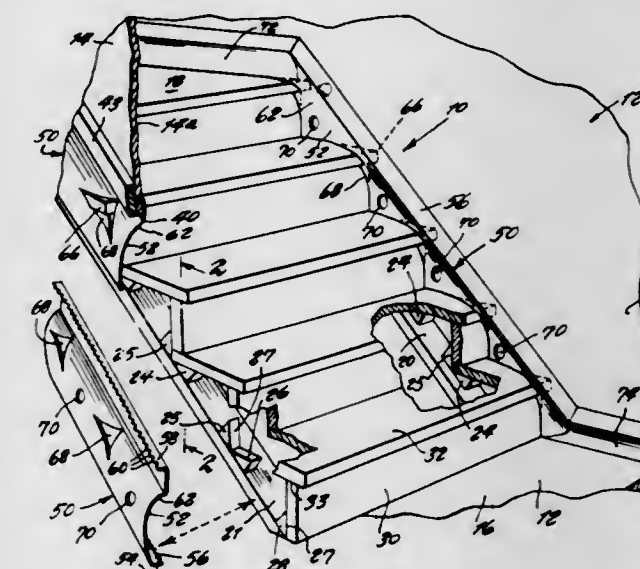
3,564,792
ENCLOSED PORTABLE STAIRCASE
Arthur Carol Sanford, P.O. Box 1177,
Pompano Beach, Fla. 33061
Filed Sept. 3, 1969, Ser. No. 854,940
Int. Cl. E04f 11/02
U.S. Cl. 52—187 10 Claims

An enclosed, self-contained staircase construction having a straight section and a curved section, each with a ceiling, steps and supporting walls, the walls comprising



matching edges, with detachable connector means for joining said edges.

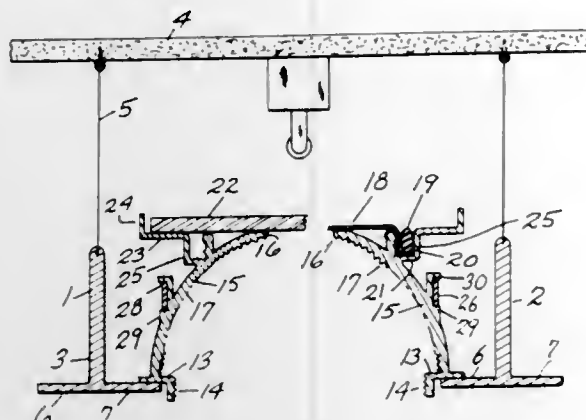
3,564,793
INVERTED BASE FOR STAIRS
Erich Willfurth, 31 W. Chestnut St.,
Farmingdale, N.Y. 11735
Filed Aug. 11, 1969, Ser. No. 858,237
Int. Cl. E04f 11/00 10 Claims



A stairway having at least one side wall with the steps thereof each constituted by a vertical riser and a horizontal tread supported on triangular prop blocks secured on parallel inclined bottom boards in transverse opposed relation. Shaped to fit the steps in the entire length of the stairway and at the wall side thereof is a sheet metal base serving as a base-board that is arched inwardly and provided at its tip and bottom edges with oppositely directed toothed flanges adapted for penetration into the side wall and bottom board respectively. A row of shaped openings is provided in the arched portion of the inverted base to accommodate the juncture corners of the riser and tread. In vertical relation to selected treads there is provided in the arched portion an opening for the reception of an electric light bulb socket for illuminating the stairs.

3,564,794
LIGHT DIFFUSING CEILING FRAME
 Elmer Price, Los Angeles, Calif., assignor to Wilson Research Corporation, Erie, Pa., a corporation of New York

Filed Oct. 9, 1968, Ser. No. 766,182
 Int. Cl. E04b 5/55, 5/62
 U.S. Cl. 52—223 4 Claims



A frame such as used for light diffusing panels is made from rigid sections jointed end to end by miter joints which are clamped in assembled relation by an external tension band, preferably of steel stripping.

3,564,795
PRE-CAST MODULAR BUILDING UNITS WITH UTILITY DUCTS
 Jesse Vernon Henton, 906 Rusken St., Bryan, Tex. 77801
 Filed July 25, 1968, Ser. No. 747,534
 Int. Cl. E04b 1/348; E04f 17/08
 U.S. Cl. 52—79 16 Claims

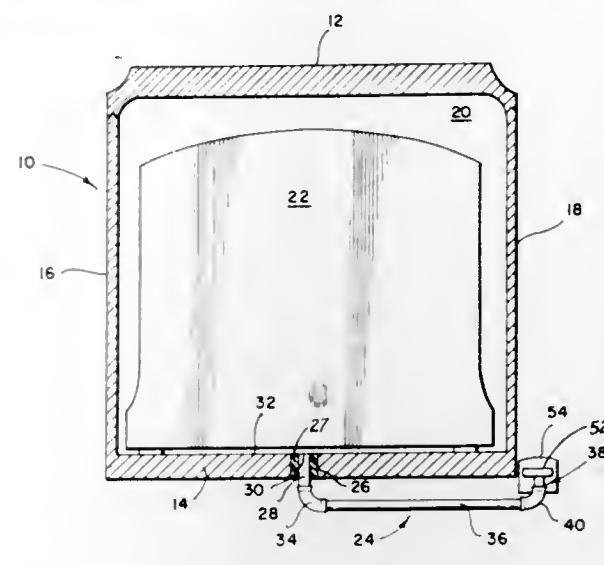


A building construction and method for making and using pre-cast modular structural units which can be mass produced, assembled and made habitable at a minimum cost. The building construction unit contemplated is comprised of a plurality of pre-cast modules having utility ducts running generally transverse to the span. The method of the invention contemplates a unique series of steps for casting the modules and assembling them into building units.

3,564,796
INTERMENT CRYPT DRAIN AND GAS EXHAUST
 John A. Smith, 30 Old Woodlands Road, 7100 Sumter Highway, Columbia, S.C. 29209
 Filed Jan. 2, 1969, Ser. No. 788,587
 Int. Cl. E04h 13/00; E04b 7/00
 U.S. Cl. 52—131 3 Claims

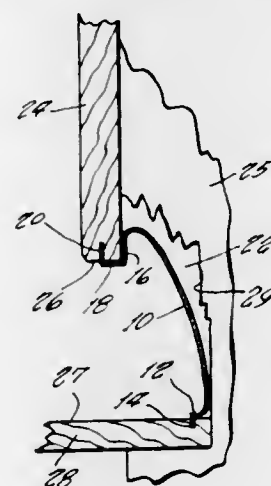
An interment crypt is provided having a fluid exhaust device. A conduit extends from the crypt through a

check valve and to a vertically extending tube terminating in an air chamber defined by a globe. The fluid passing through the conduit exits as the valve into the



air chamber and then dissipates into the ground. With this construction, the need for special sumps and complex exhaust systems is eliminated.

3,564,797
BASE MEMBER BETWEEN A FLOOR AND WALL
 Erich Willfurth, 31 W. Chestnut St., Farmingdale, N.Y. 11735
 Filed Dec. 27, 1968, Ser. No. 787,500
 Int. Cl. E04f 11/04
 U.S. Cl. 52—287 2 Claims



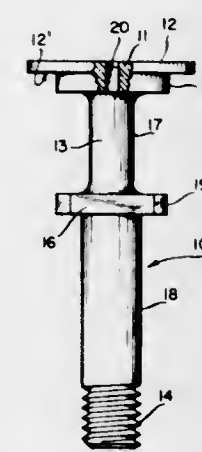
An inverted base for use at the juncture of a wall and floor such that when applied in position at the base of a wall and at floor level will be wholly located inwardly of the surface of the wall. The inverted base is formed of a thin, stiff, yet sufficiently flexible sheet metal and may be of any desired re-entrant configuration and may assume a number of structural forms as which each is the same along its bottom edge portion by being provided with a forwardly extending substantially horizontal lip having a row of depending spaced apart teeth. The teeth are formed in the manner of saw teeth being triangular in shape and with beveled edges to insure their being easily driven into the floor. At the upper end of one form of inverted base there is provided a U-shaped lip having like teeth for penetration into the lower edge of a panel or wall board; another form having the upper edge portion of the inverted base tapered for insertion between the panel or wall board and the wall studs; a third form having the upper edge portion of the inverted base bent over to resiliently engage the inside surface of the panel or wall board; and a fourth form having a slotted upper end portion adapted to underlie the lower edge of a panel or wall board to receive an L-shaped strip having teeth

of a size for penetration into a panel of harder material or panel that is thin.

In each of the above forms of inverted base there is provided a recess at the base of the wall that extends inwardly of the wall surface and the lower edge of the panel or wall board is vertically spaced a distance above the floor level.

To prevent hazardous contact with the teeth of the inverted base there is provided a wrapper or cover in strip form to encase the teeth during handling of the inverted base in transport or in storage and prior to the installation thereof.

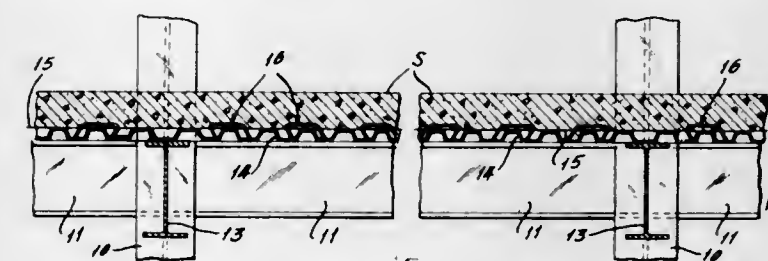
3,564,798
FASTENER FOR CELLULAR SANDWICH PANEL
 Louis G. Darby, Marietta, and John J. Grosko, Jr., Smyrna, Ga., assignors to Lockheed Aircraft Corporation, Burbank, Calif.
 Filed Apr. 17, 1969, Ser. No. 817,003
 Int. Cl. F16b 13/14
 U.S. Cl. 52—303 6 Claims



An improved potted fastener for honeycomb panels includes an anti-rotation projection, the shape and location of which is coordinated with a potting and vent hole in the fastener head to allow free flow of the potting compound over the entire length of the stem inside of the honeycomb. This improves the shear transfer, sonic fatigue, and sealing characteristics of the installed fastener. Moreover, this projection is located, so that (1) an additional load path for the transfer of a tension load on the shank of the fastener is provided into the potting material, and (2) complete removal of the core and cured adhesive from the face sheets during installation is not necessary.

This fastener also includes a lip on its head for coaction with the adjacent panel face sheet. Relative movement is thereby prevented assuring the inserted fastener to face sheet load path as well as a good seal where required.

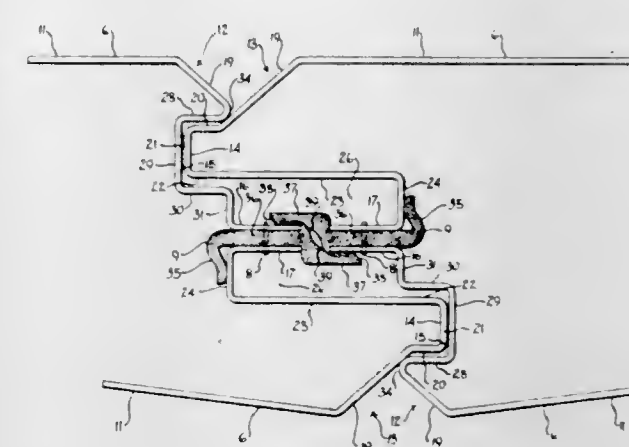
3,564,799
SHEAR CONNECTOR FOR DEEP CORRUGATED STEEL FORMED COMPOSITE STRUCTURE
 Richard E. Hanson, Edwardsville, Ill., assignor to Granite City Steel Company, Granite City, Ill., a corporation of Delaware
 Filed Dec. 31, 1968, Ser. No. 788,179
 Int. Cl. E04b 5/16, 5/57
 U.S. Cl. 52—334 7 Claims



A shear connector for composite structures in which continuous deep corrugation form sheets with concrete

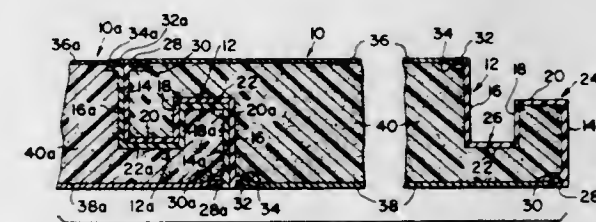
are united to the supporting beams by the shear connector shaped to resist the loads in tension and to bridge corrugations so that the concrete in the slab and the form sheets act together with the supporting beams.

3,564,800
SHEET METAL MODULAR WALL UNITS
 Robert V. Armitage, Albany, Wis., assignor to Varco-Pruden, Inc., Pine Bluff, Ark., a corporation of Delaware
 Filed Dec. 9, 1968, Ser. No. 782,149
 Int. Cl. E04b 2/88, 2/28; E04c 2/08
 U.S. Cl. 52—394 16 Claims



The invention provides a modular structural member formed from a rectangular sheet metal blank bent to define a medial panel section flanked by opposite rearwardly extending marginal sections. One marginal section comprises a tongue and, spaced rearwardly thereof, a laterally outwardly projecting rearwardly facing flange that is offset laterally inward a substantial distance from the tongue. The other marginal section comprises a groove portion laterally opposite the tongue and another flange, laterally opposite the first and projecting laterally outwardly beyond the panel section. Such members can be interconnected side by side as a facade for a standing wall, or pairs of them can be fastened together, flanges opposed, to provide curtain wall modules.

3,564,801
JOINT ELEMENT FOR SECURING PARTITIONS OR THE LIKE
 Amado Sanchez Huerta, Edif. Aldabedi, Calle Internacional, Las Acacias, Caracas, Venezuela
 Filed Nov. 15, 1968, Ser. No. 776,205
 Int. Cl. E04c 1/10, 2/20
 U.S. Cl. 52—580 3 Claims



A joint element for securing partitions or the like to each other wherein male and female mating means are provided for each edge of a partition with the male and female mating means being universal and including all right angular corners to insure good joining between the partitions. The joint provides a tortuous path to minimize temperature equalization on opposite sides of the partition. The joints are particularly useful in partitions for refrigerated compartments and the like which include facing members and a filling of insulating material.

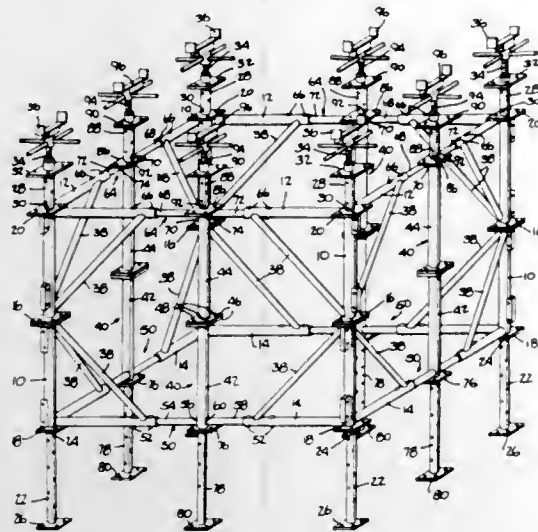
3,564,802 SCAFFOLDING SYSTEM

Jean-Paul L. Dreyfus, 305 E. 86th St.,
New York, N.Y. 10028

Filed Oct. 7, 1969, Ser. No. 864,497
Int. Cl. E04g 1/14

U.S. Cl. 52—637

9 Claims



This invention relates to a three-dimensional scaffolding system having four vertically extending corner posts, upper horizontal members connecting the upper ends of adjacent posts and lower horizontal members connecting the lower ends of adjacent posts, an I-link for connecting the medial portion of one upper horizontal member with a medial portion of its adjacent lower horizontal member.

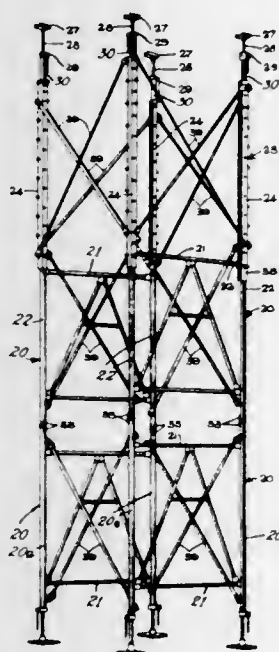
3,564,803 EXTENSIBLE SCAFFOLD AND OTHER LOAD SUPPORTING ELEMENTS

Alan J. Breeze, Epsom, Patrick A. D. Evans, Wheathampstead, Colin Wheelock, Clevedon, and William D. Orwin, Beaconsfield, England, assignors to Mills-Scaffold Company Limited, London, England, a British company

Filed Dec. 6, 1968, Ser. No. 781,785
Claims priority, application Great Britain, Dec. 9, 1967, 56,080/67, 56,081/67, 56,083/67; Mar. 5, 1968, 10,525/68, 10,526/68, 10,528/68; May 31, 1968, 26,105/68

Int. Cl. E04g 1/06, 1/20, 7/24
U.S. Cl. 52—638

7 Claims



This invention relates to scaffold and other load supporting elements, which are of telescopic construction, wherein the outer member is formed as a channel, as opposed to a close-sided tube.

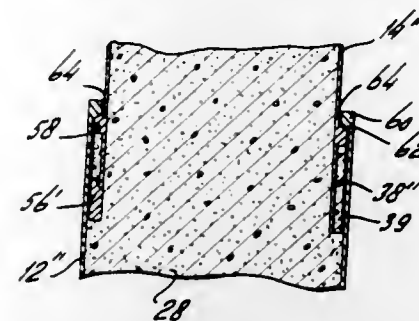
3,564,804 METHOD OF ALIGNING AND LONGITUDINALLY LOCKING CYLINDRICAL TELESCOPING SECTIONS OF INCREASINGLY SMALLER DIAMETER

Bill Archer, Meridian, and John L. Low III, Laurel, Miss., assignors to Arlo, Inc., Jackson, Miss., a corporation of Mississippi

Filed Mar. 11, 1969, Ser. No. 806,174
Int. Cl. E04h 12/12, 12/34

U.S. Cl. 52—741

3 Claims



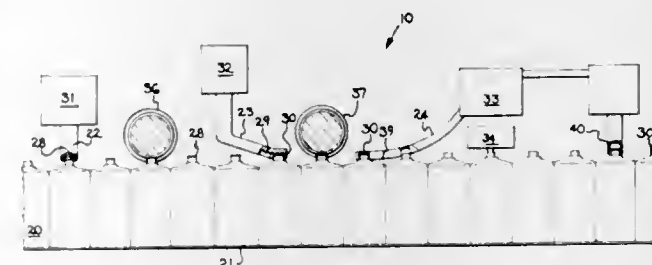
Method for aligning and longitudinally locking a plurality of telescoping sections with respect to each other, particularly a method for aligning and interlocking said sections as they are being filled with pressurized concrete, so as to telescope and extend the sections vertically as a pole.

3,564,805 METHOD FOR DECAPPING AND RECAPPING CONTAINERS

George V. Mumford, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Apr. 9, 1969, Ser. No. 814,532
Int. Cl. B65b 3/04, 7/28

U.S. Cl. 53—15

18 Claims



Method for removing temporary plastic dust covers from containers, filling the containers and reapplying an assembled closure upon the container. The plastic dust cover is mechanically removed from an empty bottle by telescoping thereon an overcap and causing the liner to lock into the interior of the overcap. Where it is impracticable to mechanically lock the dust cover into the overcap, the plastic dust cover is removed from the empty bottle by first coating the dust cover with an adhesive, telescoping thereon an overcap and bonding the dust cover to the overcap. When the overcap is removed prior to filling the bottle, the plastic dust cover is retained against the bottom of the overcap forming a permanent liner for the overcap. The combined overcap and dust cover are reapplied to the container after it is filled, thereby providing a simple means to assemble the components of the composite closure assembly.

3,564,806 SYRINGE ASSEMBLING METHOD AND MACHINE

Walter G. Klettke, Cooper, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

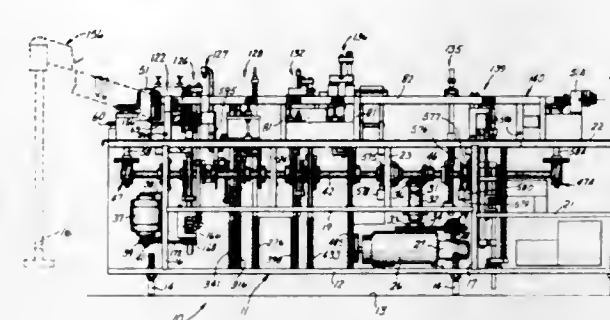
Filed Sept. 16, 1968, Ser. No. 759,875
Int. Cl. B65b 3/10, 31/00

U.S. Cl. 53—22

24 Claims

An apparatus for automatically assembling the various components of a syringe comprising a barrel, a plunger,

a stopper, a hub, a needle and a needle cover. Automatic check means are provided at various points along the assembly line of the apparatus to verify that the assembly of each syringe has progressed satisfactorily. The syringe is filled with a fluid during the assembly operation.



assembly line of the apparatus to verify that the assembly of each syringe has progressed satisfactorily. The syringe is filled with a fluid during the assembly operation.

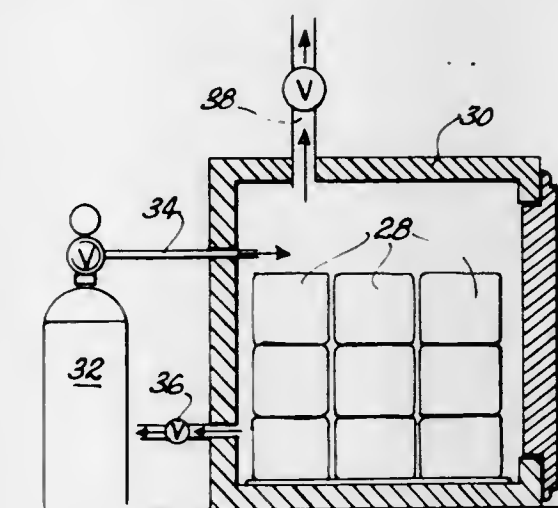
3,564,807 HAND PUPPET CONSTRUCTIONS AND METHOD FOR THEIR PRODUCTION

Bernard F. Brieske, Palatine, Ill., assignor to Vision Wrap Industries, Inc., Schiller Park, Ill., an Illinois Corporation

Filed July 26, 1968, Ser. No. 747,911
Int. Cl. B65b 25/00, 31/00, 55/18

U.S. Cl. 53—23

3 Claims



A hand puppet construction comprising opposed plastic sheets which are heat sealed together at their adjoining edges. Printing is formed on at least one of the sheets with the printing material being located on an interior facing surface. To insure complete sterilization so that the construction can be directly associated with food products, the constructions are packed in containers and then exposed to a gaseous sterilizing atmosphere to insure the destruction of contaminants.

3,564,808 LIQUEFIABLE MATERIAL PACKAGED IN FLEXIBLE PLASTIC CONTAINERS

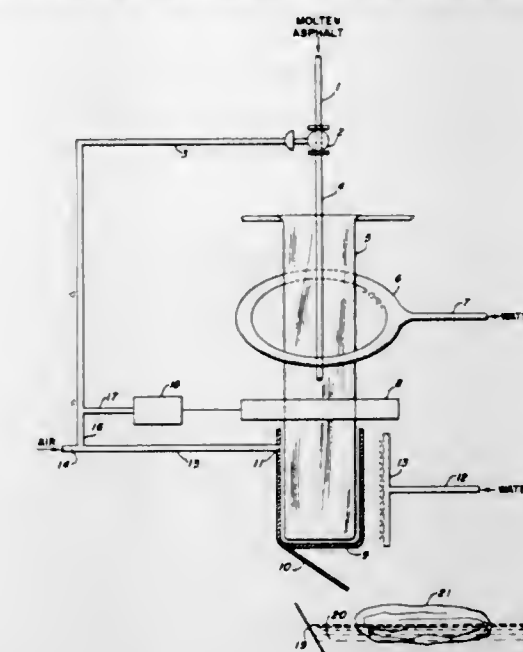
George E. Kent, Willowdale, Ontario, Canada, assignor to Esso Research and Engineering Company, a corporation of Delaware

Filed Nov. 8, 1968, Ser. No. 774,473
Int. Cl. B65b 63/08, 3/06, 57/14

U.S. Cl. 53—25

14 Claims

A normally solid or semi-solid material, such as asphalt, paraffin wax, sulfur, etc., is packaged in plastic bags by feeding the material in a molten state to a plastic tube sealed at its bottom end and disposed within a mold which serves to support, cool and shape the plastic tube during filling. After filling to a desired level, the tube contained within the mold is sealed at a position



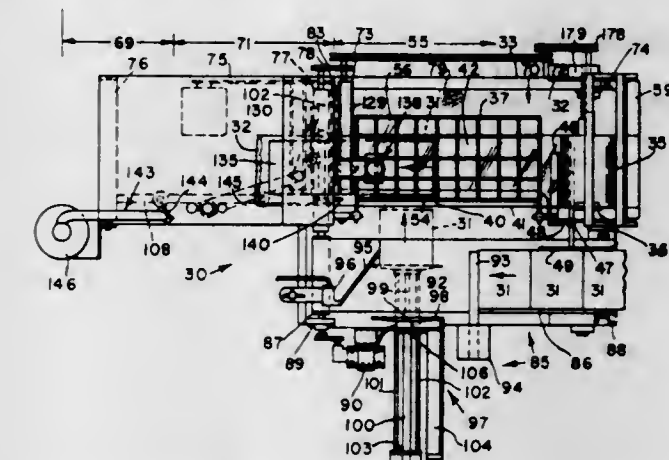
from the mold and further cooled to provide a flexible container holding a solidified material.

3,564,809 AUTOMATIC HEAT SEAL PACKAGING MACHINE AND METHOD

James G. Keramas, 57 Kilby St., Woburn, Mass. 01801
Filed Oct. 8, 1968, Ser. No. 765,819
Int. Cl. B65b 9/06

U.S. Cl. 53—28

12 Claims



A package sealer having a pair of oppositely disposed L shaped heat sealing-film severing bars for packaging articles in centre folded, heat sealable plastic film is fully automatic. The successive articles are automatically fed laterally between the plies of the film, then moved longitudinally to between the heating bars for a predetermined dwell during heating and severing and then moved away from the bars. The L shaped heating bars are each supported at three points on pistons of air cylinders, to move toward the centre of the height of each package and apply equalized heating and severing pressure on the film at that height.

3,564,810 WRAPPING METHOD AND APPARATUS

Fred J. Faletti, 2187 Shasta Way NE., Atlanta, Ga. 30329, and Ollie B. Wilson, Jr., P.O. Box 97, Riverdale, Ga. 30274

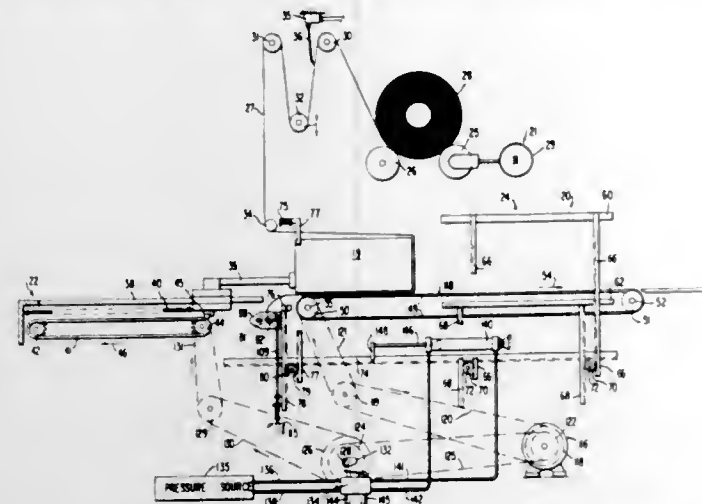
Filed May 27, 1968, Ser. No. 732,197
Int. Cl. B65b 11/48

U.S. Cl. 53—33

6 Claims

A wrapping method and apparatus wherein the wrapping material utilized to wrap the objects is taken from a single roll or supply of wrapping material. The loose end of the wrapping material is held so that the material ex-

tends in a vertical plane, the object to be wrapped is thrust through the plane of the wrapping material so that the wrapping material extends around the bottom, leading end and top of the object, and the trailing portion of the wrapping material is pressed and sealed together, and cut away from the object. The loose wrapping material at the sides of the object is similarly pressed and sealed



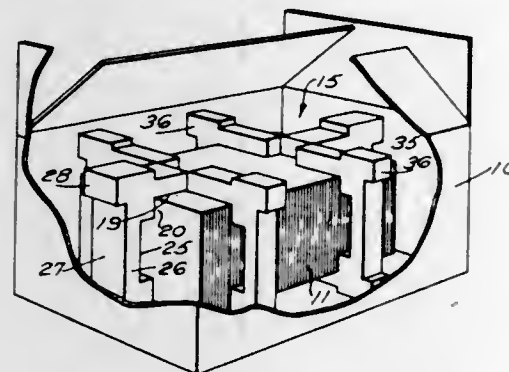
together, so that the object is substantially enclosed within the wrapping material. The portion of the wrapping material cut away from the trailing end of the object is also pressed and sealed together, and a small amount of material is advanced from the roll of material toward the point where the loose end of the material is held, to remove the seam formed by the previous wrapping function from the path of the next object to be wrapped.

3,564,811

CUSHIONING MEMBER FOR PACKING AN ARTICLE IN A CONTAINER

Harry Freeman, Slatersville, R.I., assignor to Tainer Tech Corporation, a corporation of Delaware
Continuation-in-part of application Ser. No. 790,908, Jan. 14, 1969. This application May 27, 1969, Ser. No. 828,233

Int. Cl. B29d 27/00; B65b 3/04; B65d 85/30
U.S. Cl. 53—35 7 Claims



A cushion for an article in a container comprising a plurality of U shaped or apertured sections which are hinged together by an integral hinge, and a method of forming the sections from a rectangular block, the cushion consisting essentially of foamed plastic such as polyethylene with a hinged portion of the foamed plastic compacted into a linear form.

3,564,812

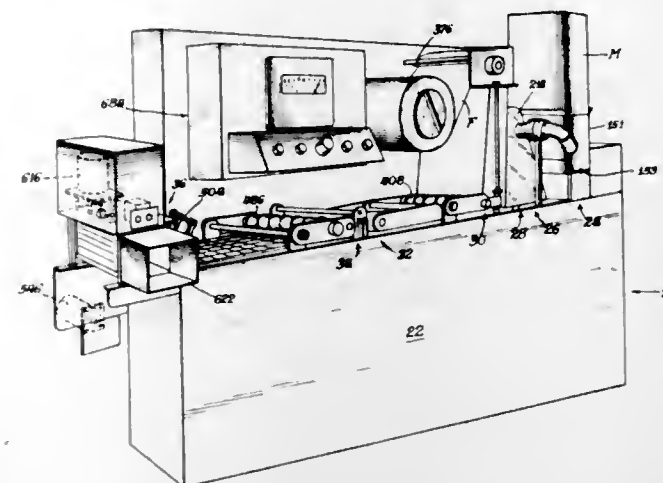
PACKAGING APPARATUS AND PROCESS

Martin Mueller and Carl Byrd, Chicago, and Rodney E. Ludder, Glen Head, Ill., assignors, by mesne assignments, to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio

Filed Oct. 9, 1968, Ser. No. 766,058
Int. Cl. B65b 1/04, 3/04, 5/00

U.S. Cl. 53—37 21 Claims
An apparatus and process for packaging comestibles in containers semi-permanently associated with carrier

trays wherein the trays themselves are handled by the apparatus throughout the packaging process, thereby eliminating the need for manually handling individual containers. A stack of trays having interested containers are provided at a dispensing station, and the trays are dispensed one at a time upon a continuously moving conveyor. The conveyor moves the tray to a sterilizing station, where the containers in the tray are sterilized. The sterilized containers are then transported to a filling station,



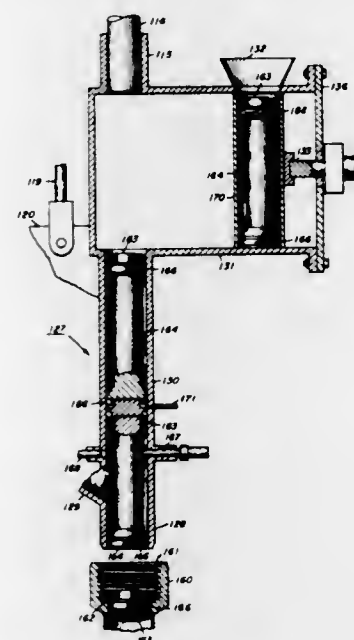
where the comestible to be packaged is placed within the containers. The filled containers then progress to a cover applying station where a cover film is heat sealed to the filled containers. Subsequently, the covered containers move to a cutting station wherein the cover film is both longitudinally and transversely slit to segregate each of the individual containers on its carrier tray. The trays with the filled and sealed containers then pass to a removal station, where the trays are removed and packed for subsequent shipment to an end user.

3,564,813

FLOWABLE MATERIAL CONTROL SYSTEM

Edward F. Stell, Saratoga, Calif., assignor to General Electric Company, a corporation of New York
Filed Apr. 29, 1968, Ser. No. 725,096
Int. Cl. B65b 1/06, 57/00, 31/00

U.S. Cl. 53—37 10 Claims



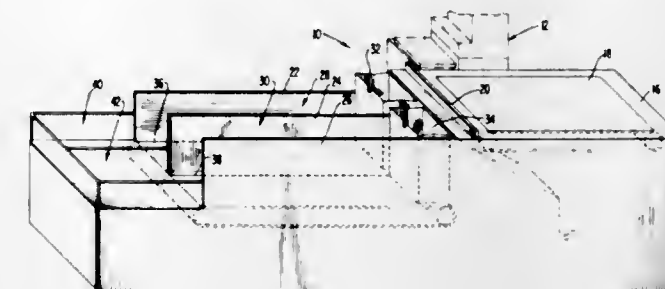
A system for controlling flowable material is disclosed which uses a two-piece sealing member to simultaneously seal a filling means outlet and a container inlet. This system is especially advantageous in filling containers with toxic materials such as radioactive waste materials, since at no time is a contaminated surface exposed to the environment.

3,564,814

BAGGING CHECKOUT COUNTER

Oscar W. Graveley, Sanborn, N.Y., assignor to Niagara Frontier Services, Inc., Buffalo, N.Y.
Filed Aug. 26, 1968, Ser. No. 755,139
Int. Cl. B65b 43/26, 67/04

U.S. Cl. 53—189 11 Claims



A check-out arrangement for supermarkets in which a pair of adjacent and parallel bagging lanes are provided and there being mechanism automatically to open and feed bags to one end of each lane so that the cash register attendant continuously is presented with a choice of two bags into which articles to be checked may be disposed. Belt conveyors form the bottoms of the lanes and are adapted for selective operation to advance the bags in the lanes whenever a bag is filled or a check-out operation is completed, the conveyed bag being automatically replaced by an open bag. The lanes act as accumulating devices for discharging filled bags to a pickup station.

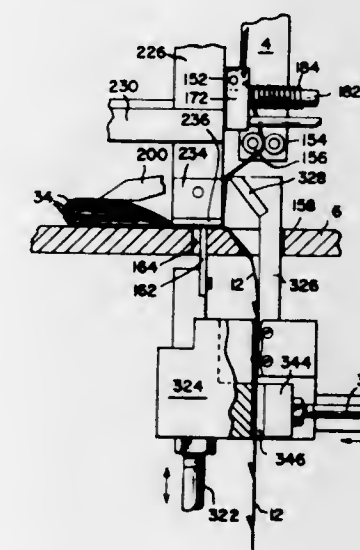
3,564,815

BANDING MACHINE

Frederick Bescrypt, Cherry Hill, N.J., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

Filed Jan. 12, 1968, Ser. No. 697,371
Int. Cl. B65b 13/02, 27/08

U.S. Cl. 53—198 3 Claims



Conveyor means position a stack of similar or dissimilar items in a path. An endless strip of banding material extends downwardly through said path and can be held at a position below the path by gripping means. Advancing means urge the stacked items along the path and into the strip to wrap the strip about the stack of items until both the upper and lower portions of the wrapped strip extends in overlapping relation beyond the items. Bonding means unite the overlapped strip together and cutting means cut it to leave a band about the stack of items and the cut portions of the strip bonded together. Means are provided to remove the cut portion of the strip.

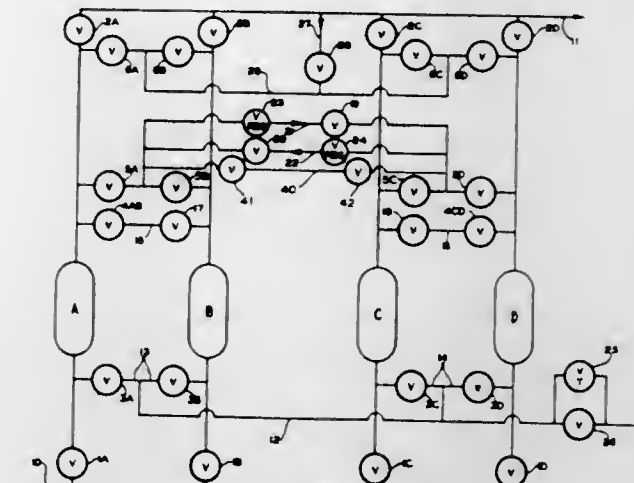
3,564,816

SELECTIVE ADSORPTION PROCESS

Louis Bela Batta, Grand Island, N.Y., assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York

Filed Dec. 30, 1968, Ser. No. 787,847
Int. Cl. B01d 53/04

U.S. Cl. 55—26 9 Claims



A pressure swing adsorption process for separation of gas mixtures in which at least four adsorbent beds are joined so that the adsorbate loaded bed is pressure equalized with two other beds in staged sequence.

3,564,817

PROCESS FOR SCRUBBING WASTE GASES

Earl Ocus Kleinfelder, Antioch, Calif., and Herbert Valdsaar, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed May 16, 1969, Ser. No. 825,392
Int. Cl. B01d 53/00

U.S. Cl. 55—71 3 Claims
A process for removing small amounts of titanium tetrachloride and other chloride impurities from waste gas produced during the chlorination of a titaniferous ore by first acid scrubbing the gas with sulfuric acid of 75 to 95 weight percent concentration and then scrubbing with water to produce a clear gas that may be vented to the atmosphere without fuming.

3,564,818

PROCESS FOR REMOVAL OF SO₂ FROM FLUIDS

Jack S. Lasky, 29 Newman Ave., Verona, N.J. 07462, and Ronald W. Fuest, 6 Lakeview Drive, Kinnelon Borough, N.J. 07405

No Drawing. Filed Dec. 11, 1968, Ser. No. 783,137
Int. Cl. B01d 53/02

U.S. Cl. 55—73 10 Claims
The present invention relates to a process for removing SO₂ from a fluid such as water, waste gases, etc., which removal is achieved by passing said fluid through a shaped article formed from a polyolefin, polyester or nylon in admixture with a nitrogen-containing polymer.

3,564,819

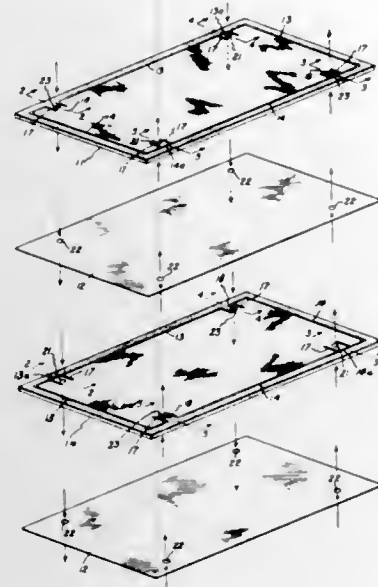
MEMBRANE PACKAGE CONSTRUCTION

Charles K. Neulander and William J. Ward III, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

Filed Feb. 24, 1970, Ser. No. 13,267
Int. Cl. B01d 13/00

U.S. Cl. 55—158 6 Claims
A packaged membrane device is described which consists of a plurality of spaced membranes disposed in substantially parallel surface-to-surface array so as to define

both a first group of flow volumes and a second group of flow volumes alternating between the first group. Membrane-spacing means (e.g. a woven screen) is located in each of the flow volumes. The walls of the device extend transversely to the membranes and serve the dual purposes of defining the periphery of each of the flow volumes and of bonding together adjacent membranes and the spacing means located therebetween into an integrated structure. The distribution of separate flows of fluid to

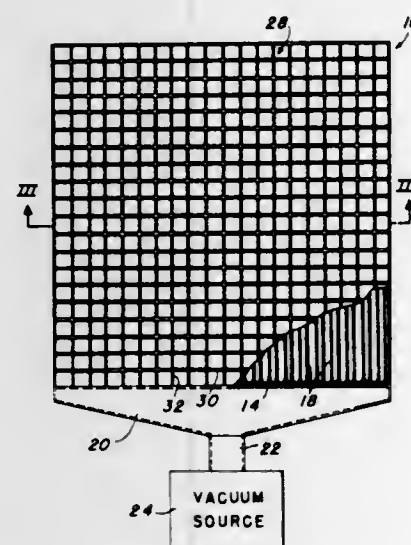


and from each group of flow volumes is facilitated by a plurality of discontinuous channels having gas-tight walls that extend transversely between adjacent membranes. Each channel places a pair of adjacent flow volumes of the same group in flow communication, while at the same time the gas-tight wall of each channel bonds together the portion of the spacing means embedded therein and the portions of the membranes located at each end of the wall.

3,564,820
GASEOUS FLOW SEPARATOR
Henry O. Nelson, 5227 Castle Hills Drive,
San Diego, Calif. 92109
Filed Apr. 2, 1969, Ser. No. 812,731
Int. Cl. B01d 45/08

U.S. Cl. 55-278

1 Claim



A gaseous flow separator which has a plurality of vertical, spaced apart filter elements transversely extending across the flow in at least two rows, the filter elements

in one row being staggered with respect to those in the other row to intercept substantially the entire flow, each filter element having means for entrapping the particulate matter in the flow and conducting the matter in a downward direction and out of the flow path.

3,564,821
APPARATUS FOR MOWING, CONDITIONING AND WINDROWING FORAGE
Clyde L. Taylor, 1545 S. Chinoworth St., Visalia, Calif. 93277, and William Ernest Hamel, 718 Madera St., Dos Palos, Calif. 93620
Filed Apr. 24, 1968, Ser. No. 723,783
Int. Cl. A01d 43/10

U.S. Cl. 56-23

9 Claims

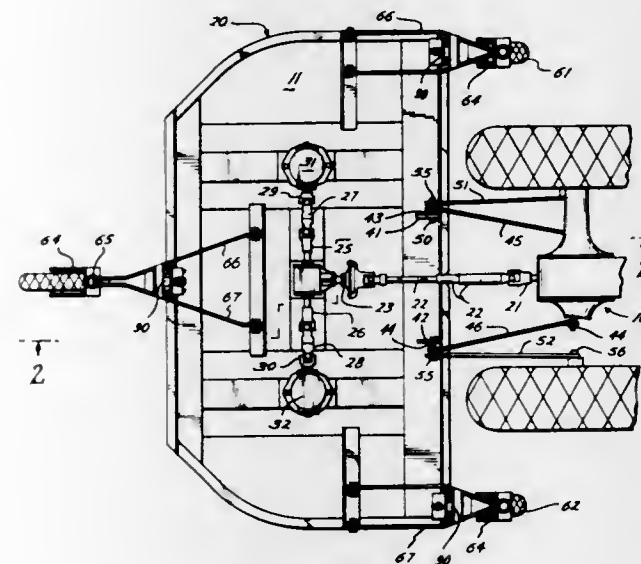


Apparatus for mowing, conditioning and windrowing forage having an inlet conveyor for moving the forage to one end and conditioning means for picking up the forage from the conveyor and delivering it into a windrower.

3,564,822
FULL FLOATING MOWER
Anthony R. Engler, Houston, Tex., assignor, by mesne assignments, to Douglass Industries, Inc., Houston, Tex., a corporation of Texas
Filed Nov. 21, 1968, Ser. No. 777,692
Int. Cl. A01d 35/26

U.S. Cl. 56-25.4

2 Claims



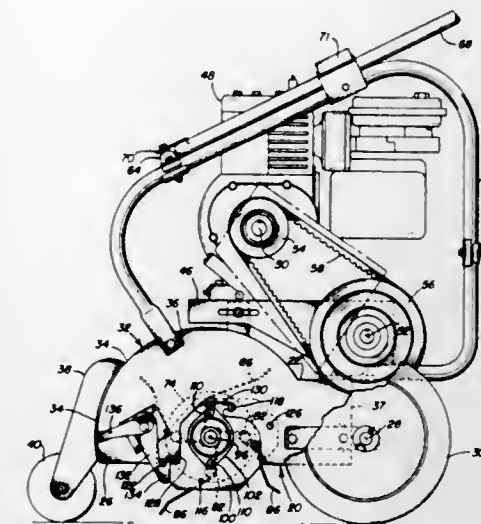
A mower, intended to be drawn by a pulling body such as a tractor, the mower having a rigid frame, independently mounted and triangularly spaced wheel structures, plural cutting blades permitting a wide cutting swath within the unitary rigid frame. The linkage to the pulling body permits relative vertical motion of the mower relative to the tractor as well as relative twisting motion, but restricts relative lateral motion.

3,564,823
POWER RAKE
Loy D. Rhoads, Enon, Ohio, assignor to Parker Sweeper Company, Springfield, Ohio, a corporation of Ohio
Continuation of application Ser. No. 654,807, July 20, 1967. This application Mar. 2, 1970, Ser. No. 14,804
Int. Cl. A01g 1/12

U.S. Cl. 56-27

7 Claims U.S. Cl. 56-328

3 Claims

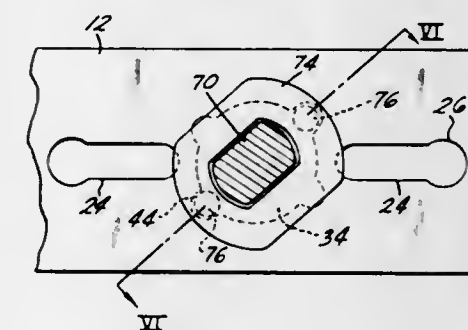


An assembly for a turf treating machine including a rotatable shaft, spaced bearings for the shaft in bearing plates, means being provided for attaching the assembly by the bearing plates to two supports. Specifically, the supports on the machine are provided with slots which receive studs carried by the bearing plates. Cam locking levers are movable for locking the studs in the slots.

3,564,824
ROTARY MOWER BLADE
Robert L. Tygh, Jr., Jackson, Mich., assignor to Michigan Production Grinding Co., Clark Lake, Mich., a corporation of Michigan
Filed May 5, 1969, Ser. No. 821,704
Int. Cl. A01d 55/18

U.S. Cl. 56-295

6 Claims

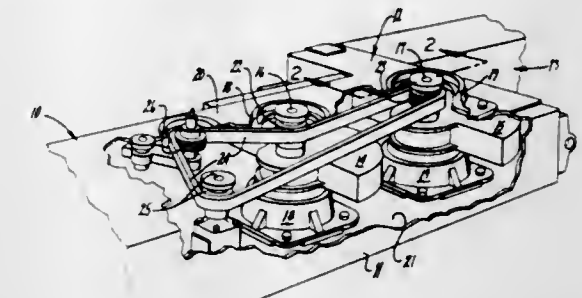


A rotary mower blade that is universally usable with all types of rotary mowers wherein the central region of the blade includes a circular hole which may receive an adapter having a smaller hole located therein. The blade includes slots and notches for permitting the blade to be mounted upon blade shafts utilizing this type of connection feature, and notches are also defined in the periphery of the hole defined in the blade central region, and in the adapter periphery, for the accommodation of rotary mowers utilizing pins spaced closer to the axis of the blade rotation than permits reception into the blade slots.

3,564,825
VARIABLE INERTIA WEIGHT FOR TREE SHAKER
Russell D. Gould, San Jose, and John E. Richter, Felton, Calif., assignors to AgMac Inc., Ripon, Calif., a corporation of Delaware
Filed Sept. 30, 1968, Ser. No. 763,667
Int. Cl. A01g 19/08

U.S. Cl. 56-328

3 Claims

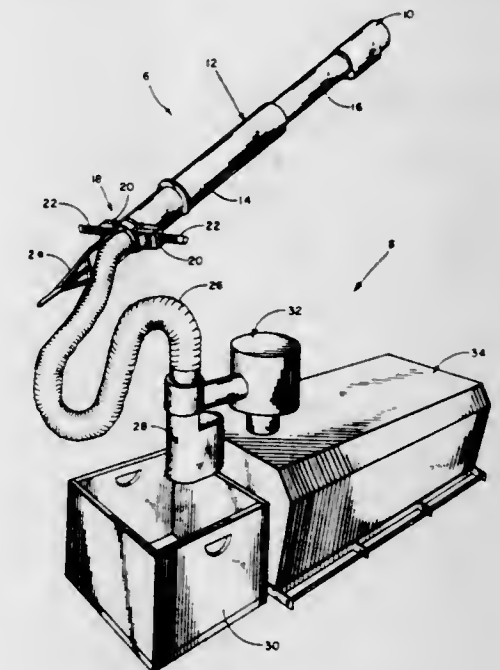


A variable inertia weight bob for use in tree shakers consisting of an eccentric hollow structure partially filled with lead pellets.

3,564,826
ARTICLE HANDLING APPARATUS
William J. Middleton, Jr., Felton, Del., assignor to ILC Industries, Inc., Dover, Del., a corporation of Delaware
Filed Apr. 21, 1969, Ser. No. 817,910
Int. Cl. A01g 19/08

U.S. Cl. 56-328

50 Claims



A pneumatic article handling apparatus for gathering and conveying articles such as fruit. The apparatus automatically removes the articles such as fruit from its natural habitat and conveys it to a collector.

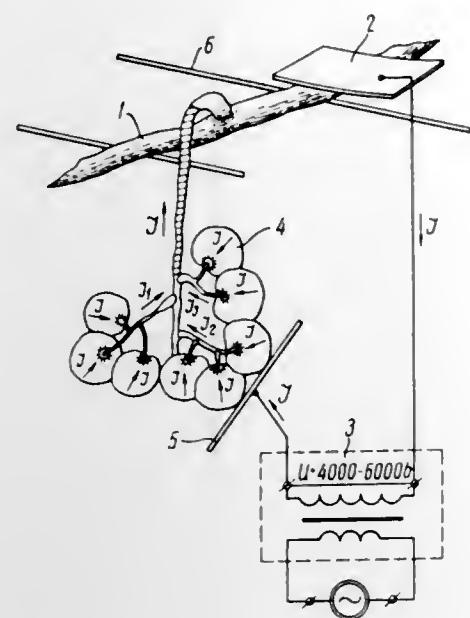
3,564,827
METHOD AND APPARATUS FOR HARVESTING GRAPES
Alexandr Mikhailovich Negrul, UL Novo-Peschanaya 23, kv. 300, Moscow, U.S.S.R.; and Josif Andreevich Stojushkin, Ljuberetsky raion, Pos. Kosino 37, kv. 88; Vladimir Nikolaevich Osminkin, Ljuberetsky raion, Pos. Kosino 37, kv. 80; and Jury Lvovich Breshkov, Ljuberetsky raion, Pos. Kosino 37, kv. 23, all of Moskovskaya Oblast, U.S.S.R.
Filed Apr. 25, 1969, Ser. No. 819,196
Int. Cl. A01g 19/00

U.S. Cl. 56-331

2 Claims

A method of harvesting fruit, for example grapes, wherein the fruit are severed from the spurs by burning

up the fruit stems due to the difference in the ohmic resistance of the spur, fruit and its stem, and a device for its realization consisting of a source of electrical power and two spaced plates connected thereto, one being



adapted to contact a spur, the other being adapted to contact the depending fruit with the result that an electrical current will pass from one plate through the fruit, stem and spur to the other plate and in the process the stem will burn thus separating the fruit from the spur.

3,564,828 TRANSPORTABLE PRESSING MACHINE FOR COMPRESSING CROP

Cornelis van der Lely, 7 Bruschenrain,
Zug, Switzerland

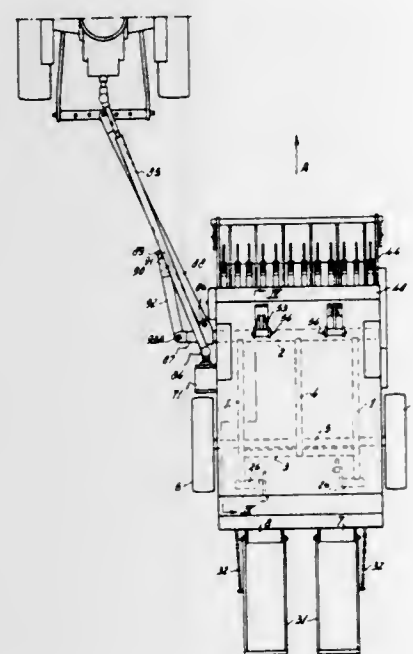
Filed Oct. 1, 1968, Ser. No. 764,074

Claims priority, application Netherlands, Oct. 5, 1967,
6713534; Mar. 7, 1968, 6803207

Int. Cl. A01f 15/04

U.S. Cl. 56—343

25 Claims



An agricultural machine with a crop pick-up and feeding members for moving picked up crop to one of several side-by-side pressing channels. The crop enters the channels at one end thereof and reciprocating plungers and knives are moved to compress and cut the crop. The plungers are off-set relative to one another. The feeding members, knives and plungers can be driven by a power take-off.

3,564,829 APPARATUS AND METHOD FOR SPINNING YARN

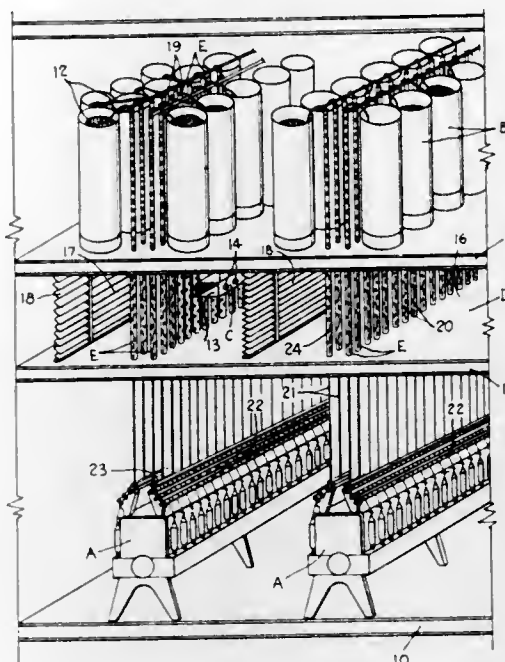
Kiyohiro Tsuzuki, 30 Woodland Way Circle
Greenville, S.C. 29601

Filed Oct. 19, 1967, Ser. No. 676,448

Int. Cl. D01h 5/00

U.S. Cl. 57—36

2 Claims



An enclosure is provided positioned remote from a spinning frame and a source of textile slivers for receiving air under controlled conditions of temperature and humidity. The enclosure confines the air against dispersion into the ambient areas as would create unpleasant conditions for personnel working with the equipment. The slivers are exposed to the conditions prevailing within the enclosure thus, conditioning the slivers to a predetermined moisture content prior to introducing the slivers into the drafting system of a spinning frame.

3,564,830 APPARATUS FOR BEARING DOWN A RING RAIL

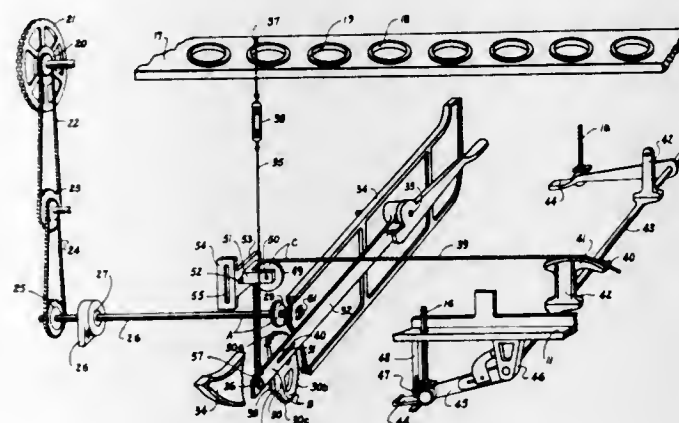
Bobby R. Ayers, Anderson, S.C., and William B. Seabrook, Gastonia, N.C., assignors to Seabrook, Inc.,
Anderson, S.C., a corporation of South Carolina

Filed Oct. 17, 1968, Ser. No. 768,396

Int. Cl. D01h 9/14

U.S. Cl. 57—54

6 Claims



Apparatus for bearing down a ring rail includes means driven at a predetermined speed by the drive for a textile strand processing machine, means movable out of a position remote from the means driven at a predetermined speed to driving engagement therewith, and means for lowering the ring rail driven by said movable means.

3,564,831 APPARATUS FOR WINDING DOUBLE TWIST THREADS

Joannes Francis Marcel Bonnabaud, 12 Rue Branly,
Roanne, Loire, France, and Claude Brat, 119 Route de
Vichy, Riorges, Loire, France

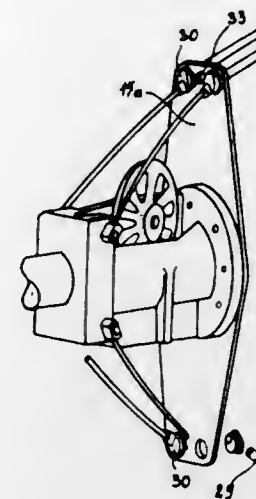
Filed June 17, 1968, Ser. No. 737,568

Claims priority, application France, Aug. 3, 1967,
49,005

Int. Cl. D01h 1/10

U.S. Cl. 57—58.52

5 Claims



Apparatus for winding double twist threads or wires includes a cradle suspended between and rotatable on hollow shafts through which the filament extends. A hollow guide conducts the filament about one side of the cradle and is dynamically balanced and is supported by stiffening rods that are disposed in pairs on opposite sides of the cradle and that bow outwardly away from the cradle and inwardly toward each other on each side of the cradle. The thread guide assembly is in a number of pieces that are connected together and connected to the cradle through vibration damping resilient material.

3,564,832 THREAD STORAGE DISC FOR TWO-FOR-ONE TWISTING SPINDLES

Willy Helmes, Krefeld, Germany, assignor to Palltex
Project-Company G.m.b.H., Weeserweg, Germany

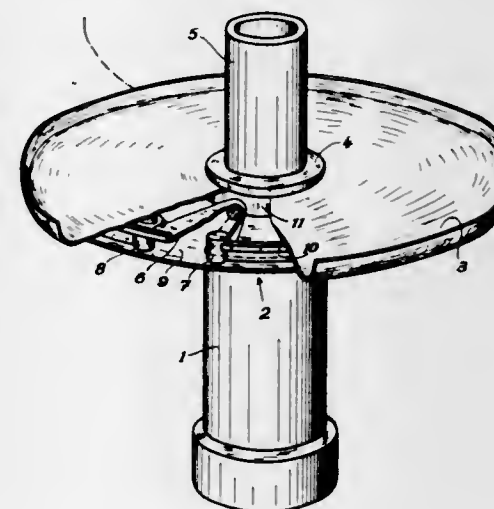
Filed Sept. 19, 1968, Ser. No. 760,821

Claims priority, application Germany, Sept. 21, 1967,
P 30,089

Int. Cl. D01h 7/86

U.S. Cl. 57—58.84

3 Claims



A thread storage disc for two-for-one twisting spindles with at least one radially directed thread exit passage having at the outer end thereof two highly wear resistant deviating members, in which said thread exit passage has a closed cross-sectional contour over its entire length and consists of one single piece with the thread storage disc.

3,564,833 FRICTION FALSE TWISTING

Roy Spencer Holliss, Pontypool, England, assignor to
Imperial Chemical Industries Limited, London, Eng-
land, a corporation of Great Britain

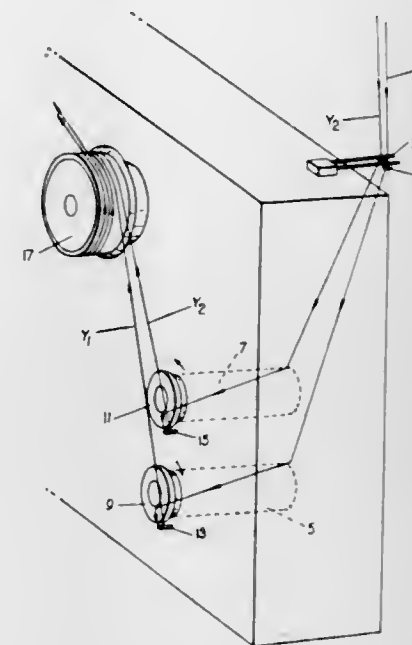
Filed Jan. 22, 1969, Ser. No. 792,981

Claims priority, application Great Britain, Jan. 30, 1968,
4,777/68

Int. Cl. D02g 1/04; D01h 7/92, 13/08

U.S. Cl. 57—77.4

1 Claim



Apparatus for friction false twisting in which a twist barrier comprising a stationary cylindrical pin is so positioned at a distance of the order of 1/8 inch from the periphery of the outlet end of a friction false twist tube with which the yarn being false twisted makes frictional contact and to guide means around or through which the yarn is withdrawn from said twist tube that the yarn may be partially wrapped around said pin with an arc of contact therewith of between 60° and 100°.

3,564,834 TWIST SET POLYAMIDE YARN AND PROCESS FOR ITS MANUFACTURE

Raymond J. Ella, Geneva, Switzerland, assignor to E. I.
du Pont de Nemours and Company, Wilmington, Del.,
a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No.
723,871, Apr. 24, 1968, which is a continuation-in-part
of application Ser. No. 671,600, Sept. 29, 1967. This
application July 9, 1969, Ser. No. 840,526

Int. Cl. D02g 1/02, 3/30

U.S. Cl. 57—140

8 Claims

Crepe fabrics having the lively and supple qualities associated with silk crepes are prepared from certain twisted, heat-treated polycarbonamide yarns. These fabrics are washable and resistant to water spotting.

3,564,835 HIGH TENACITY TIRE YARN

Robert Le Roy Keefe, Jr., Chadds Ford, Pa., and William
Osborne Statton, Wilmington, Del., assignors to E. I.
du Pont de Nemours and Company, Wilmington, Del.,
a corporation of Delaware

Continuation-in-part of application Ser. No. 728,125,
May 10, 1968. This application Mar. 12, 1969, Ser.
No. 806,583

Int. Cl. D02g 3/48

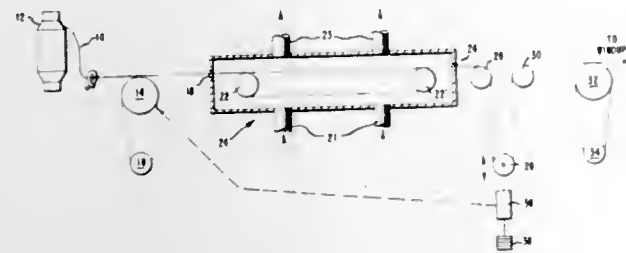
U.S. Cl. 57—140

5 Claims

The performance characteristics of polyamide and polyester yarns which are to be used for tire cords are im-

proved by a method in which drawn low twist continuous filament yarns are stretched at a constant tension between 75 and 98% of the tension required to break the yarn while exposed to a temperature between 200° C. to 260° C. for a period of time of from about 5 to 120 seconds. The yarn after cooling at the stretching tension is char-

acterized by having filaments which are essentially round in cross section throughout their length. The filaments have crystalline domains having an orientation angle less than 10 degrees and an X-ray long-period intensity of less than about 0.4 optical density units for polyester yarns and less than about 0.2 optical density units for polyamide yarns.



acterized by having filaments which are essentially round in cross section throughout their length. The filaments have crystalline domains having an orientation angle less than 10 degrees and an X-ray long-period intensity of less than about 0.4 optical density units for polyester yarns and less than about 0.2 optical density units for polyamide yarns.

3,564,836

7-DAY AUTOMATIC ALARM CLOCK

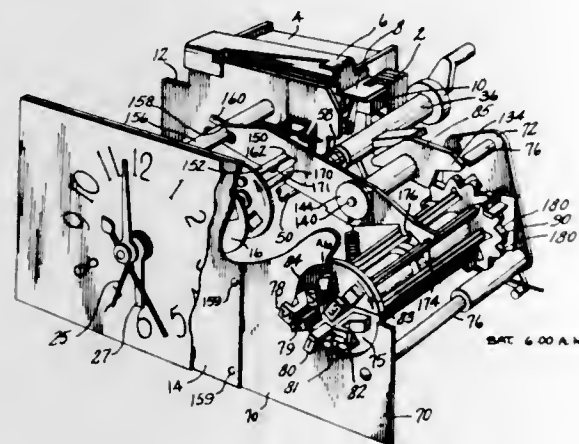
Robert L. Boyles, Wayland, Mass., assignor to General Electric Company, a corporation of New York

Filed May 7, 1969, Ser. No. 822,659

Int. Cl. G04b 23/08

U.S. Cl. 58—17

10 Claims



A 7-day automatic alarm clock which can be preset to the desired daily alarm time and can also be programmed so that the alarm will ring only on the desired days of the week.

3,564,837

FREQUENCY DIVIDER FOR AN ELECTRONIC WATCH

Eugene R. Keeler, Suffern, and Lewis B. Shady, Irvington, N.Y., assignors to Timex Corporation, Waterbury, Conn., a corporation of Connecticut

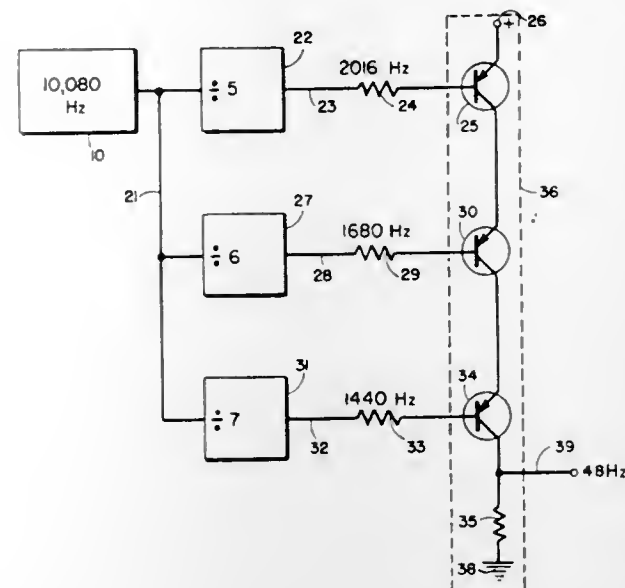
Filed Feb. 5, 1969, Ser. No. 810,899

Int. Cl. G04c 3/00

U.S. Cl. 58—23

3 Claims

A horological instrument includes an electric circuit which counts down from a high-frequency time base,



are relatively prime integers of each other, and an "and" circuit.

3,564,838

ELECTRONIC CLOCK

Jean Fellrath and Max Forrer, Neuchatel, Switzerland, assignors to Centre Electronique Horloger S.A., Neuchatel, Switzerland, a Swiss company

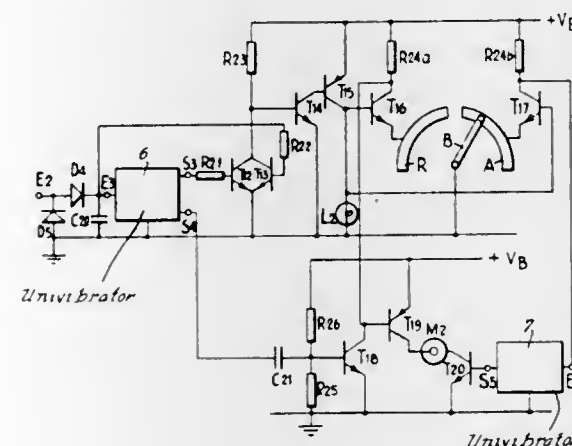
Filed Dec. 11, 1967, Ser. No. 689,680

Claims priority, application Switzerland, Dec. 13, 1966, 17,739/66

Int. Cl. G04c 3/00

U.S. Cl. 58—23

5 Claims



An electronic clock controlled by periodic wireless time signals, the signals comprising modulations of a carrier wave, the modulations occurring once every second, an additional modulation occurring in the first second of every minute in order to mark the beginning of the minute, the electronic clock further comprising a HF receiver, a detector to transform the modulations into a second pulse every second and into a second pulse followed by a minute pulse at the beginning of every minute, a step-by-step motor driving means, the motor driving means including means for visually indicating the time, the detector including means for controlling the motor means, circuit means for adjusting the indicating means in the event of lack of synchronization between the signals and the time indications, the circuit means including means for selecting the minute pulses from the

second pulses, the selecting means including two inputs and an output, means for reproducing a minute pulse at the output when the selecting means is simultaneously excited by a minute pulse at one input and by a pulse complementary to one of the second pulses at the other input, the adjusting circuit including means for transducing the selected minute pulses into signals comparable with the position of the time indicating means so as to detect a lack of synchronization.

3,564,839

WATCH MAINSPRING BARREL

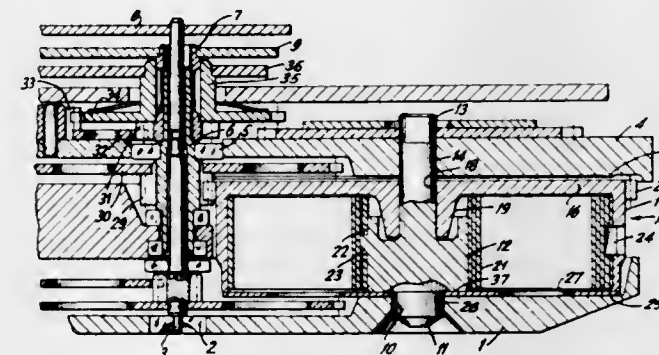
Paul Wuthrich, Woodbury, Conn., assignor to Timex Corporation, Waterbury, Conn., a corporation of Connecticut

Continuation of application Ser. No. 632,040, Apr. 19, 1967. This application June 2, 1969, Ser. No. 840,086

Int. Cl. G04b 1/16

U.S. Cl. 58—86

1 Claim



The motive power of a watch consists of a flat coiled spring, called the mainspring. The inner end of the mainspring is attached to an arbor, i.e., a shaft. The outer end is connected to a barrel having cylindrical side walls and a covering top. The bottom edge of the side wall of the barrel rotates on a hard metal plate having a plurality of holes. The metal plate rests on a frame member of the watch.

3,564,840

HOROLOGICAL REGULATOR

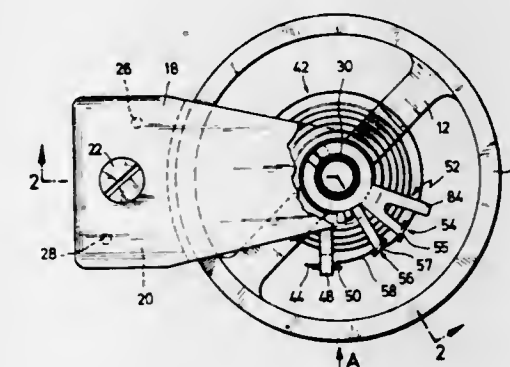
Heinz Meitinger, Pforzheim, Germany, assignor to Timex Corporation, Waterbury, Conn., a corporation of Connecticut

Filed Nov. 20, 1969, Ser. No. 878,364

Int. Cl. G04b 17/14

U.S. Cl. 58—109

15 Claims



In a horological instrument, a regulating device cooperates with at least one spring and one oscillator mass to regulate the frequency of the mechanical oscillator. The regulator includes a first adjustable fork and a stabilizing fork which may be adjusted along with the first fork.

3,564,841

MANUAL AND AUTOMATIC SPEED CONTROL SYSTEMS FOR GAS TURBINES

Malcolm John McArthur, Whetstone, England, assignor to The English Electric Company Limited, London, England, a British company

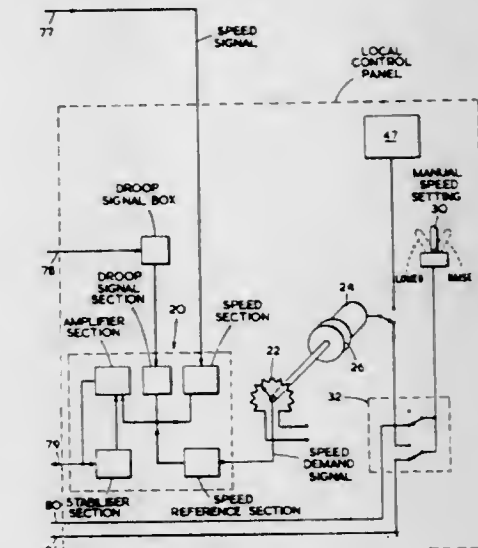
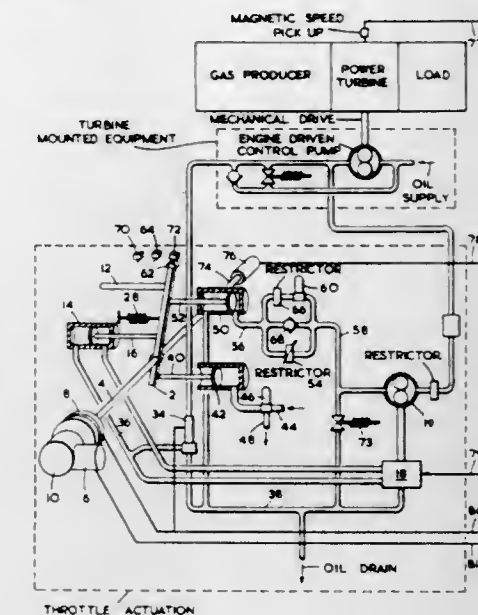
Filed July 24, 1969, Ser. No. 844,253

Claims priority, application Great Britain, Aug. 2, 1968, 36,946/68

Int. Cl. F02c 9/02; F02d 39/00

U.S. Cl. 60—6

8 Claims



A control system by which the speed of a gas turbine can be controlled either automatically or manually, with a smooth change-over from one to the other. The system includes a pivoted lever 2 which controls the turbine throttle 12 under the action of an hydraulic servo-device 14 controlled by a governor 20 during automatic operation. The lever pivot is a shaft 4 connected to a manually controlled motor 6 via a reduction gear 10 and a clutch 8 which is engaged when a throw-over switch 32 is operated to neutralise the servo-device 14.

3,564,842

CONTROL SYSTEM FOR FLUID-OPERATED POSITIONING MECHANISM

Nicolaas G. J. W. Van Marle, Dordrecht, Netherlands, assignor to Aviolanda Maatschappij Voor Vliegtuigbouw N.V., Papendrecht, Netherlands, a corporation of the Netherlands

Filed July 9, 1968, Ser. No. 743,402

Claims priority, application Netherlands, July 14, 1967, 6709808

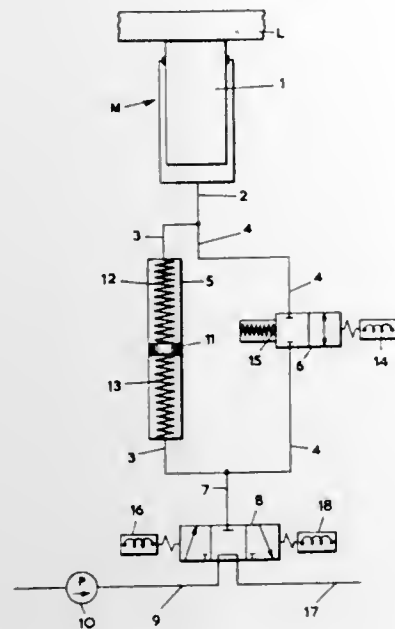
Int. Cl. F15b 7/00; F01b 31/00

U.S. Cl. 60—10.5

2 Claims

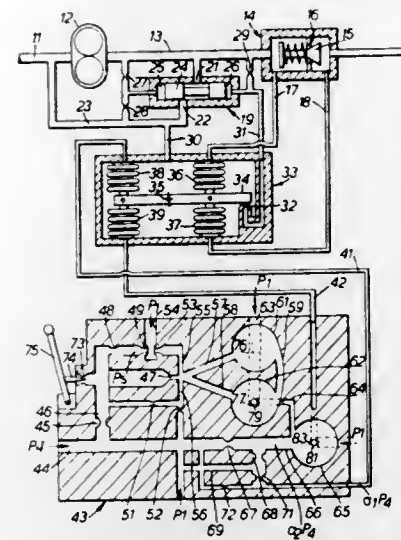
A fluid power operated control system for operating a mechanism including an element adapted to be sub-

jected to an automatically proceeding movement under the control of said control system, characterized by a metering cylinder included in the power fluid circuit which controls the movement of said element, said metering cylinder being arranged, after the adjustment of an



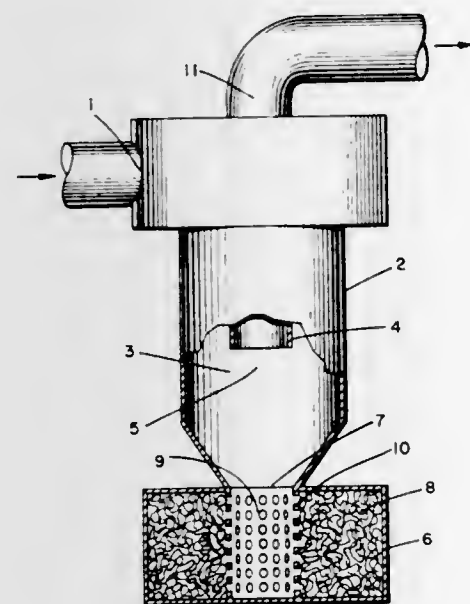
3,564,844
PRESSURE RATIO CONTROL SYSTEM FOR A GAS TURBINE ENGINE
Ronald Rimmer, Cheltenham, England, assignor to Dowty Fuel Systems Limited, Cheltenham, England, a British company

Filed July 18, 1969, Ser. No. 843,153
Claims priority, application Great Britain, July 18, 1968, 34,172/68
Int. Cl. F02c 9/10; F15c 1/14
U.S. Cl. 60—39.28 4 Claims



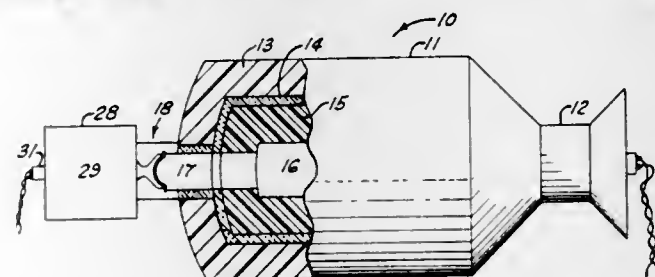
energizing command circuit, to allow a limited quantity of power fluid to flow through said power fluid circuit, and to allow the throughflow of a further like limited quantity of power fluid only after a mutation in said command circuit.

3,564,843
PARTICULATE TRAP
Daniel A. Hirschler, Jr., Birmingham, and Denis L. Lenane, Ferndale, Mich., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia
Filed Feb. 27, 1969, Ser. No. 802,987
Int. Cl. F02b 75/10
U.S. Cl. 60—29 13 Claims



A cyclone particulate separator having a mesh-lined collection chamber such that the mesh defines a hollow cylindrical core having the same diameter as the reject hole. A perforated liner can be placed in the core. Prevents the re-entrainment of particulates removed from a pulsating gas stream such as the exhaust stream from an internal combustion engine.

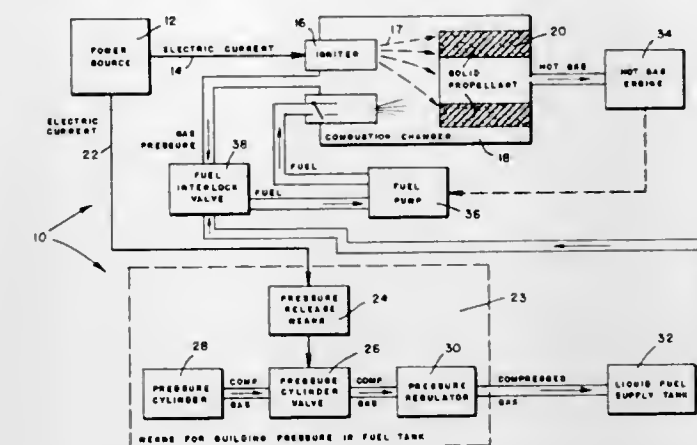
3,564,845
MEMBRANE SEAL ASSEMBLY FOR USE WITH SOLID PROPELLANT ROCKET MOTORS HAVING SELECTIVE ZONING CAPABILITIES
Isidore H. Friedman, Jr., and Glenn E. Webb, Jr., Huntsville, Ala., assignors to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
Filed Sept. 19, 1968, Ser. No. 760,827
Int. Cl. F02k 9/04, 9/06
U.S. Cl. 60—39.47 1 Claim



A rupturable membrane seal assembly for use in separating the zones of a solid propellant grain in a solid pro-

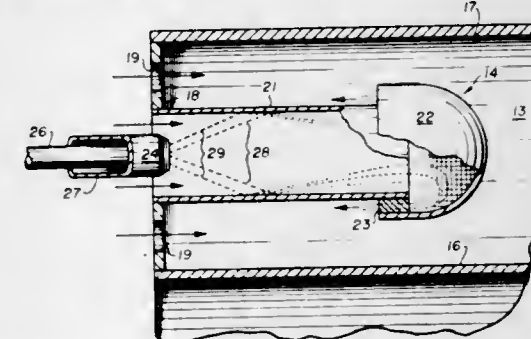
pellant rocket motor having selective zoning capabilities that will be disintegrated, when the pressure in a gas generator separated from the solid propellant rocket motor by the membrane seal assembly becomes greater than the pressure in the solid propellant rocket motor.

3,564,846
LIQUID-FUEL PROPULSION SYSTEM
Daniel M. Moore, Glendora, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Sept. 25, 1968, Ser. No. 762,461
Int. Cl. F02c 3/12; F02g 1/00
U.S. Cl. 60—39.48 13 Claims



A liquid-fuel propulsion system used in a torpedo for driving a hot gas engine. A charge of solid propellant is ignited in a combustion chamber and simultaneously compressed gas is released into a fuel supply tank, thereby building up pressure in the tank. The combustion of the solid propellant produces an initial quantity of hot gases which pressurize the combustion chamber and drive a hot gas engine which, in turn, drives a fuel pump. A pressure-controlled check valve communicating with the combustion chamber opens after the pressure in the chamber has built up to a required predetermined value, whereupon liquid fuel, capable of burning only when subjected to a certain minimum pressure and temperature, is caused to flow from the pressurized fuel tank, through the check valve and fuel pump and into the combustion chamber where it ignites, burns, and continues to supply communicating pressure to the pressure-controlled check valve.

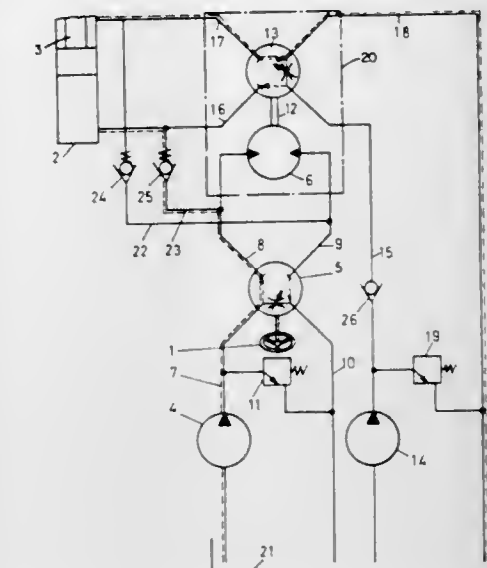
3,564,847
COMBUSTION DEVICE FOR GAS TURBINE ENGINES
David W. Wagner, Wayne, N.J., assignor to Curtiss-Wright Corporation, a corporation of Delaware
Filed Oct. 11, 1968, Ser. No. 766,724
Int. Cl. F02c 3/24
U.S. Cl. 60—39.71 5 Claims



The combination of an atomizing spray nozzle discharging into a vaporizing device positioned in the combustion chamber of a gas turbine engine enhances vaporization of the fuel, improves cooling of the vaporizer, and prevents vapor lock in the fuel feed tube.

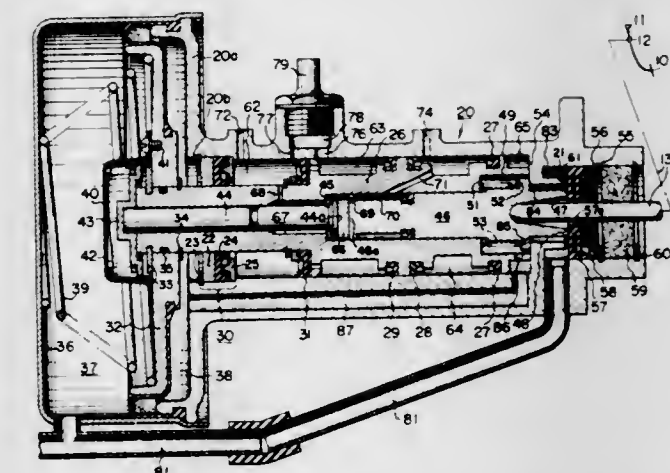
3,564,848
STEERING EQUIPMENT PARTICULARLY FOR HEAVY VEHICLES
Johannes Vagn Baatrup, Sonderborg, and Vagn S. L. Bender, Nordborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark, a corporation of Denmark
Filed May 8, 1969, Ser. No. 822,986
Claims priority, application Germany, May 3, 1968, P 17 55 387.6
Int. Cl. F15b 15/18 11 Claims

U.S. Cl. 60—52



The invention relates to a hydrostatic steering system for heavy vehicles. The system comprises dual units in series with one unit being a working unit and the other unit being a control unit. Each unit incorporates change-over and shut-off valve means and metering means. A steering wheel actuates the control unit and the metering means of the control unit actuates a control motor which in turn actuates the metering means of the working unit. The metering means of the working unit actuates a working motor connected to the steering linkage of the vehicle.

3,564,849
PNEUMATIC BOOSTER ASSEMBLY FOR BRAKE SYSTEM
Yooichi Huruta and Yoshiharu Adachi, Kariya-shi, Japan, assignors to Aisin Seiki Company Limited, Kariya-shi, Aichi-ken, Japan, a corporation of Japan
Filed May 29, 1968, Ser. No. 733,075
Claims priority, application Japan, May 30, 1967, 42/34,708
Int. Cl. F15b 7/08, 9/10
U.S. Cl. 60—54.5 14 Claims



The invention provides a pneumatic servo- or booster assembly adapted for cooperation with a hydraulic automotive wheel brake system comprising a first hydraulic

piston and a second hydraulic piston arranged to cooperate with a common hydraulic cylinder which is hydraulically connected with wheel brake cylinders, wherein locking means are provided within the master cylinder for the prevention of lost motion of the brake pedal, said lock means being effective only when the foot effort exceeds a predetermined servo range of said assembly.

3,564,850

FLUID-DYNAMIC ENGINE

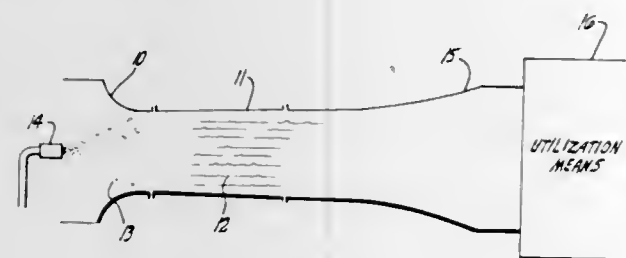
Giusto Fonda-Bonardi, Los Angeles, Calif., assignor of six and one-half percent each to Robert S. Estes, Los Angeles, and Edward S. Merrill, Palm Springs, eight percent each to Emmett Steele and Jay Kurtz, nine percent to James Linahan, two percent to Carl Clement, all of Los Angeles, and one percent to Royal M. Galvin, Pacific Palisades, Calif.

Filed Feb. 11, 1969, Ser. No. 798,367

Int. Cl. F01k 3/18; F02k 1/00

U.S. Cl. 60—59

9 Claims



This invention relates to a fluid-dynamic engine wherein a gas is accelerated through the engine at the speed of sound at the sonic speed of the gas and imparting energy to the gas while maintaining it at the sonic speed. The engine may comprise a duct having a sonic duct section interposed between convergent and divergent sections so that it is successively accelerated to the sonic speed through the convergent section and moves through the sonic section at the sonic speed.

3,564,851

PRESSURE MOTOR

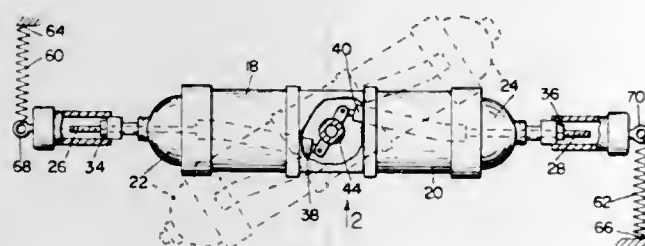
William N. Matson, 556 Westminster Hill Road, Fitchburg, Mass. 01420

Filed Aug. 27, 1969, Ser. No. 853,460

Int. Cl. F01b 29/00

U.S. Cl. 60—1

6 Claims

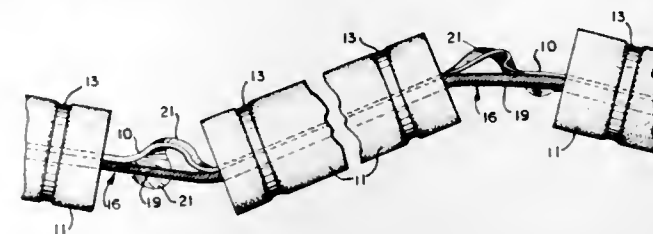


An elastomeric member, means placing the same under tension, and means intermittently elongating the member by applying pressure to it in a direction generally normal to the axis of tension, and resilient means attached to the elastomeric member causing an oscillatory motion thereof upon alternate pressure and release of pressure on said member.

3,564,852
FLEXIBLE FLOATING BOOMS
Millard F. Smith, Westport, Conn.
(P.O. Box 295, Saugatuck, Conn. 06882)
Filed Aug. 25, 1969, Ser. No. 852,776
Int. Cl. E02b 3/04, 15/04

U.S. Cl. 61—1

6 Claims



A supple, flexible, floating oil boom, self-reinforced by a taut, integral, high-tensile-strength, multiple-strand stainless steel cable anchored centrally at longitudinally spaced points to a thin, flat, flexible polymer fin. The fin is arrayed "standing on edge" in a generally vertical position, and the cable is anchored to the fin at a level adjacent to the undersides of longitudinally spaced-apart buoyant floats likewise anchored to the flat continuous fin along its upper edge. The cable is held just beneath the water surface when the boom is afloat, with ballast weights anchored along its lower edge holding the boom upright. In the regions between the buoyant floats, the fin is provided with excess slack length forming loosely curved bights of extra fin material, having a greater length than the corresponding segment of taut reinforcing cable, and providing extreme flexing capability in all directions. The excess slack fin bight between floats permits sharply bent flexing of the boom to conform closely to the crest or trough of a steep wave while maintaining full tension on the taut reinforcing cable. The boom is likewise capable of sharply-bent, sidewise lateral flexing in response to waves, turbulence, impacts or manual accordion-folding operations.

3,564,853

METHOD OF CONTROLLING EROSION ON SEASHORES

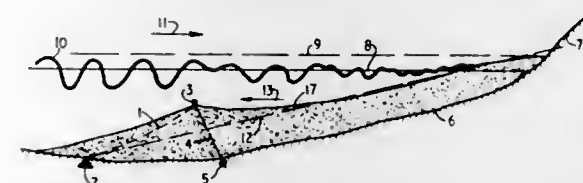
Zoltan Csizsar, 96 Walpole St., Merrylands, New South Wales 2160, Australia

Filed Mar. 24, 1969, Ser. No. 809,839

Int. Cl. E02b 3/04

U.S. Cl. 61—5

10 Claims



The invention relates to methods of and appliances for preventing the erosion by wave action of foreshores of large expanses of water. The appliances comprise flexible curtains of fine mesh placed below the water level in the path of incoming waves in the large expanses of water. Sand or sediment is allowed to build up on one side or the other of the flexible screens.

3,564,854

SEPTIC TANK SYSTEM

George W. Berthold, 513 Giuffrias Ave., New Orleans, La. 70001

Filed May 13, 1969, Ser. No. 824,107

Int. Cl. E02b 13/00; F24f 7/04

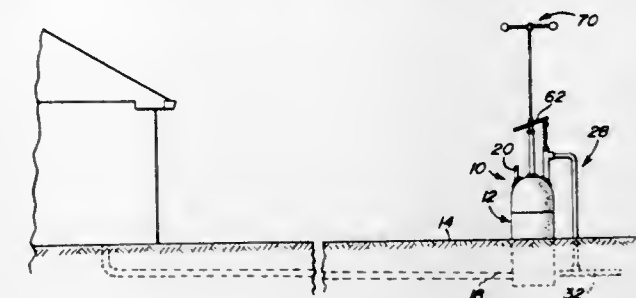
U.S. Cl. 61—13

20 Claims

A septic tank system including an upright partially embedded septic tank having an air intake vent communicating with the upper interior of the tank for the

introduction of fresh air thereto, and an air discharge line spaced from the air vent and extending from the above ground portion of the tank to a drain field whereby a flow of air through the tank is possible so as to assist

member is in position and a second port vertically spaced upward from the first port. A batch of quick-setting cement material, e.g., gypsum cement mixtures, is pumped through the first port to fill the annulus to a level



in the decomposition of the sewage. A baffle system is internally located within the tank so as to prevent a back-flow of air through the vent and an air pump unit is associated with the discharge line so as to provide for a forced flow of air.

3,564,855

METHOD AND DEVICE FOR MAKING SLIT WALLS

Johann Mörner, 8207 Endorf, Kurf 7, Germany

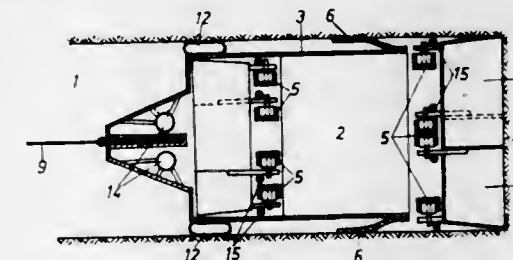
Filed Mar. 20, 1969, Ser. No. 808,757

Claims priority, application Germany, Apr. 8, 1968, P 17 59 188.7

Int. Cl. E02d 5/18

U.S. Cl. 61—35

14 Claims



Proposed is a method of making slit walls, wherein a slit wall section present in the soil and filled with a thixotropic liquid in a known manner is excavated and respectively driven ahead at a front end by means of a bucket chain excavator. On this occasion, the bucket chain excavator is sealed off against the side walls of the excavated slit and against the sole of the slit so that liquid-filled spaces separate from each other are created in front and in the rear of the bucket chain excavator respectively. For producing the drive-on force for the bucket chain excavator, the liquid level in the space located in front of the bucket chain excavator is lowered as compared to the liquid level in the space located behind the bucket chain excavator so that the bucket chain excavator is driven forward by the hydrostatic pressure differential. The slit made in this manner is subsequently filled up with concrete.

3,564,856

PROCESS AND APPARATUS FOR CEMENTING OFFSHORE SUPPORT MEMBERS

Elmo M. Blount, Irving, and Joseph U. Messenger, Dallas, Tex., assignors to Mobil Oil Corporation, a corporation of New York

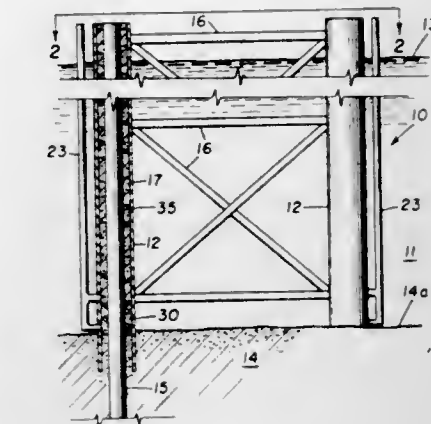
Filed Apr. 11, 1969, Ser. No. 815,476

Int. Cl. E02d 5/34

U.S. Cl. 61—46

10 Claims

The specification discloses a process and apparatus for cementing in two stages an annulus formed between an offshore support member and a pile driven therethrough. The support member is provided with a first port which normally lies adjacent the mudline when the support



approximately adjacent the second port. This material is allowed to set to form a seal at the lower end of the annulus and then additional cement material is pumped through the second port to finish filling the annulus.

3,564,857

APPARATUS FOR PROTECTING UNDERGROUND EXCAVATIONS AGAINST COLLAPSE

Hans-Joachim von Hippel, 12 Burgle,

7771 Oberstenweiler, Germany

Filed Oct. 2, 1969, Ser. No. 863,077

Claims priority, application Germany, Jan. 23, 1969,

P 19 03 181.3; May 31, 1969, P 19 27 768.0

Int. Cl. E21d 15/44

U.S. Cl. 61—45

10 Claims

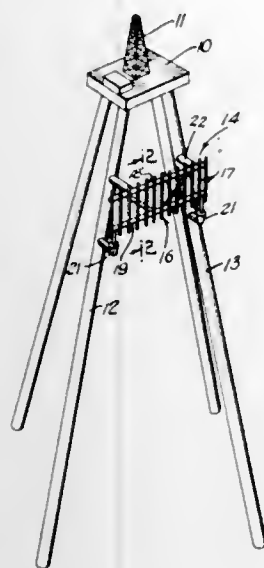
An apparatus for protecting underground excavations against collapse includes roof support means, advancing means which advances longitudinally along the floor of the respective excavation, and connecting arrangements which connect the roof support means with the advancing means for movement of the latter. Upright shield means is arranged so as to trail the roof support and advancing means and extends transversely of the direction of movement thereof. The shield means has an upper and a lower end portion. At least two cylinder and piston means are provided each having one end connected to the advancing means and another end articulately connected to the shield means at the upper and lower end portions thereof, respectively.

3,564,858

BOAT LANDING FOR OFFSHORE STRUCTURE
Ivo C. Pogonowski, Houston, Tex., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Apr. 1, 1969, Ser. No. 812,123
Int. Cl. E02b 3/22

U.S. Cl. 61—48

5 Claims



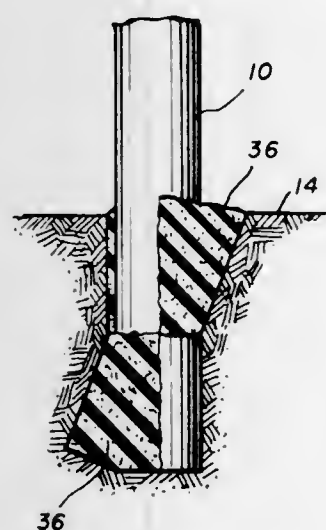
The invention relates to a landing platform for a pier or offshore structure which is ordinarily subject to high waves, turbulent water and/or a generally corrosive atmosphere. The replaceable landing platform is operably carried on the offshore structure and so mounted to absorb the shock of a floating vessel when the latter comes in severe contact with the platform during a docking, loading or unloading operation. The platform includes a resilient, pivotal connection as well as one or more shock-absorbing elements which permit restrained horizontal movement when the platform is subjected to a displacing force.

3,564,859
METHOD OF RESETTING UTILITY POLES OR THE LIKE

Jack P. Goodman, 2500 S. Tejon, Englewood, Colo. 80110
Filed Apr. 1, 1969, Ser. No. 812,254
Int. Cl. E02d 5/74, 27/00

U.S. Cl. 61—53.5

6 Claims



A method of resetting utility poles or the like which have become canted or tilted from original vertical position, straightens the pole and injects a foamable synthetic resin into the remaining voids in the ground surrounding the pole and into any cracks or crevices in the pole, so that on expansion of the resin the voids, cracks and crevices are all completely filled, most of the end of the pole underground is covered with the resin, and the cured resin holds the pole vertically.

3,564,860
THERMOELECTRIC ELEMENTS UTILIZING DISTRIBUTED PELTIER EFFECT

Allen D. Reich, Des Plaines, Marland L. Stanley, Lombard, and Kenneth J. Kountz, Roselle, Ill., assignors to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois

Filed Oct. 13, 1966, Ser. No. 586,486
Int. Cl. H01v 1/32

U.S. Cl. 62—3

5 Claims

A thermoelectric couple for use in a Peltier cooling device includes P-type and N-type thermoelectric elements in which at least one of said thermoelectric elements is formed of a material having varying thermoelectric properties. The Seebeck coefficient (absolute value) of the material adjacent the cold junction is significantly less than the Seebeck coefficient (absolute value) of material adjacent the hot junction. The variance in such properties may be a continuous gradient, or the thermoelectric elements may be made up of discrete segments of different materials bonded together.

3,564,861

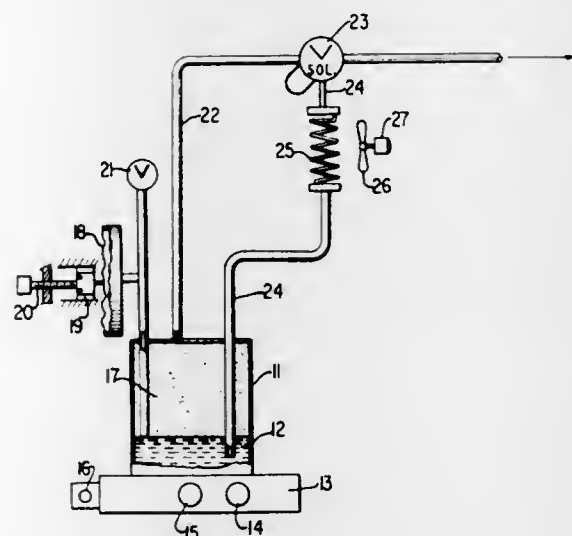
METHOD AND APPARATUS FOR CONTROLLING VOLATILE MATERIAL SUPPLY AS A GAS

Harold Willids Andersen, Oyster Bay, Harold W. Andersen, Laurel Hollow, and Charles H. Harrison, Oyster Bay Cove, N.Y., assignors to H. W. Andersen Products, Inc., Oyster Bay, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 561,777, June 30, 1966. This application Sept. 15, 1969, Ser. No. 857,802

U.S. Cl. 62—50

Int. Cl. F17c 7/00

8 Claims



The method and apparatus for controlling the delivery from a source of supply to a package or container of accurately measured quantities of volatile materials, supplied as liquids and delivered as gases, wherein the temperature and pressure of the materials are automatically stabilized close to the point of delivery as a function of heat exchange operations on the materials in their liquid phase.

3,564,862

METHOD AND APPARATUS FOR SUPPORTING A PIPELINE IN PERMAFROST ENVIRONMENT

Hadi T. Hashemi, P.O. Box 2594, and Cedimir M. Sliepcevich, 2500 Butler Drive, both of Norman, Okla. 73069

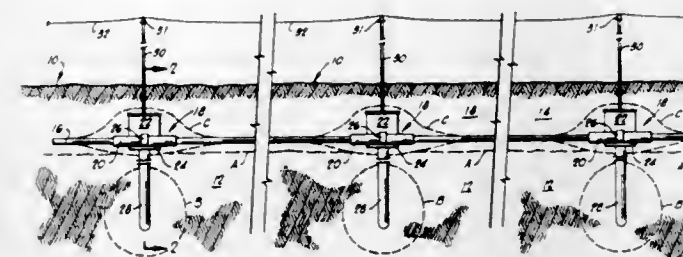
Filed Sept. 12, 1969, Ser. No. 857,355
Int. Cl. F25d 23/12

U.S. Cl. 62—56

12 Claims

The method of installing a pipeline in a permafrost environment including the steps of laying the pipeline

below the surface of the ground, continuously freezing the soil below the pipeline at locations spaced longitudinally therealong to form a series of frozen earth piles supporting the pipeline, and concurrently, heating the pipeline at longitudinally spaced intervals therealong to prevent congelation of liquids being moved in the pipeline.



The apparatus of the invention comprises a refrigeration unit having an evaporative chamber positioned below the pipeline and a condenser chamber surrounding the pipeline. The refrigeration unit is constructed so that expansion in the evaporation chamber freezes the earth beneath the pipeline to form a pier or vertically extending supporting structure of frozen earth, and so that the compression and condensation of the refrigerant fluid heats the pipeline.

3,564,863

REFRIGERATION SYSTEM PURIFIER

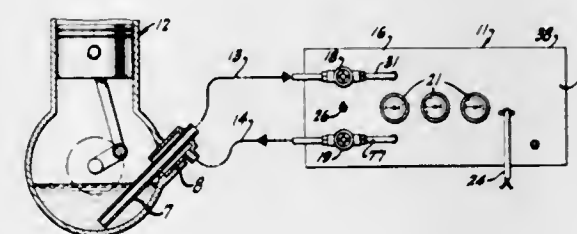
Brady R. Sasselli, Tustin, Calif., assignor to Refrigeration System Purifiers, Tustin, Calif., a corporation of California

Filed May 14, 1968, Ser. No. 735,487

Int. Cl. F25b 43/02

U.S. Cl. 62—84

2 Claims



A portable fluid purifier for temporary connection to a refrigeration system, primarily the compressor, is provided with a sequence of filtering media contained in one or more filter elements. The media are separated by flow facilitating screens and the filter elements are provided with flow facilitating channels and a tight but readily releasable seal.

3,564,864

TEMPERATURE CONTROL APPARATUS
Gerald Robin Scrine, Gilton, Cambridge, England, assignor to Shipowners Refrigerated Cargo Research Association, Cambridge, England, a corporation of United Kingdom

Filed Jan. 2, 1969, Ser. No. 788,423

Claims priority, application Great Britain, Jan. 4, 1968, 682/68

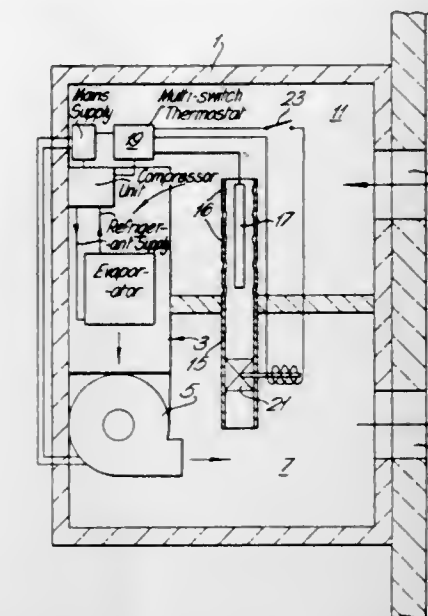
Int. Cl. F25d 17/00

U.S. Cl. 62—180

8 Claims

This invention relates to apparatus for controlling the temperature of a refrigerated cargo space, and in particular to apparatus for a clip-on refrigerator unit for a refrigerated container, in which the temperature of the supply of fluid to the cargo space or the temperature of the fluid returning from the space to the refrigerator unit

is automatically monitored and hence, the refrigerator unit is controlled. The fluid, preferably air, is continuously



circulated through the container and its temperature can be controlled either for chilled or frozen cargo.

3,564,865

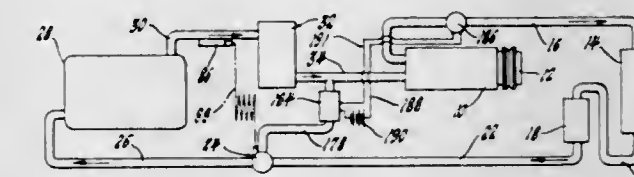
AUTOMOTIVE AIR-CONDITIONING SYSTEM
Gary E. Spencer, Dayton, and Mervin R. Butts, West Milton, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 6, 1969, Ser. No. 848,014

Int. Cl. F25b 41/00

U.S. Cl. 62—197

6 Claims



In preferred form, an automotive air-conditioning system having a compressor, a condenser, an expansion valve, an evaporator and a flow regulating throttling valve serially connected together, respectively, and including an equalizer line between the expansion valve and the throttling valve outlet. The equalizer line is normally blocked by a thermally actuated valve which opens when the compressor temperature exceeds a predetermined maximum. The opening of the equalizer line transmits compressor inlet pressure to the expansion valve which opens it to allow refrigerant to flow through the evaporator and into the compressor for cooling purposes.

3,564,866

CRYOGENIC COOLING SYSTEM
T. O. Paine, Acting Administrator of the National Aeronautics and Space Administration, with respect to an invention of Raymond E. Frazee, La Crescenta, Calif.

Filed Feb. 11, 1969, Ser. No. 798,277

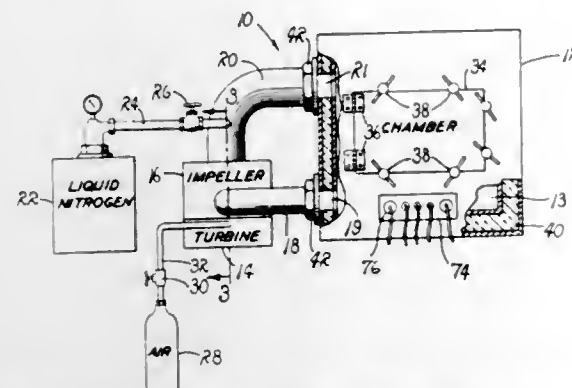
Int. Cl. F25b 19/00

U.S. Cl. 62—514

8 Claims

A cryogenic cooling system, of general utility, adapted to achieve a high rate of cooling and characterized by a closed circuit including a cooling chamber through which there is established a circulating flow of cryogen, such as vaporized nitrogen, an impeller having an air-driven turbine connected therewith adapted to impart to the impeller selected rates of rotation for accelerating the flow of cryogen to selected flow rates as the cryogen is circulated through the chamber, an injector for injecting liquid cryogen into the established flow, and an atomizer for

atomizing the injected cryogen, whereby the cryogenic liquid may be atomized and vaporized as it is introduced



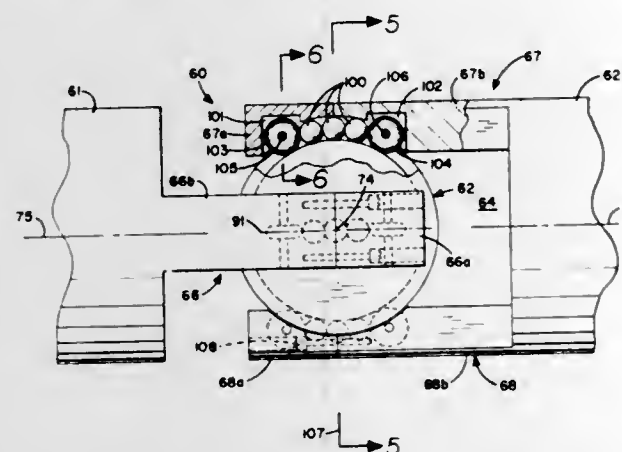
into the established flow of cryogen as it is circulated through the cooling chamber.

3,564,867

CONSTANT VELOCITY UNIVERSAL JOINT
Lloyd E. Rethwisch, 3127 W. Graciosa Lane,
Anaheim, Calif. 92804
Filed May 15, 1969, Ser. No. 824,888
Int. Cl. F16d 3/30

U.S. Cl. 64-21

1 Claim



A constant velocity universal joint for transmitting rotation from one shaft to another comprising a centering member having two pairs of opposing shoes having arcuate end walls. Each shaft is provided with a yoke having opposing arcuate interior surfaces, the centering member being positioned with the end walls of one pair of shoes facing the interior surfaces of one yoke and with the end walls of the other pair of shoes facing the interior surfaces of the other yoke. According to one embodiment of the invention, each yoke has opposing interior walls having a slot therein, the bottom walls of the slots forming the arcuate interior surfaces, the shoes extending into the slots. According to another embodiment of the invention, each of the shoes has an arcuate raceway formed in the arcuate end wall thereof, each of the yokes has an arcuate raceway formed in each arcuate interior surface thereof, and a plurality of balls are positioned between the raceways in the shoes and the raceways in the yokes.

3,564,868

UNIVERSAL JOINT

Ernest Wildhaber, Brighton, N.Y.
(124 Summit Drive, Rochester, N.Y. 14620)
Continuation-in-part of application Ser. No. 736,185,
June 11, 1968. This application Oct. 28, 1969, Ser.
No. 871,935

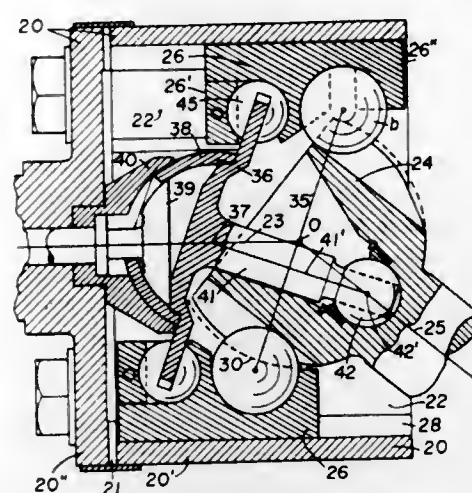
Int. Cl. F16d 3/30

U.S. Cl. 64-21

14 Claims

This constant-velocity universal joint contains an outer member and a generally cup-shaped inner member both provided with ways at a constant distance from their axes. The ways are engaged by balls maintained in position by

sliding blocks movable along the ways of preferably the outer member. The displacement of said blocks is effected by a part pivotable with respect to both members. This



part acts through ball-parts that are either bodily movable with the blocks or have a constant distance from the axis of the pivotable part.

3,564,869

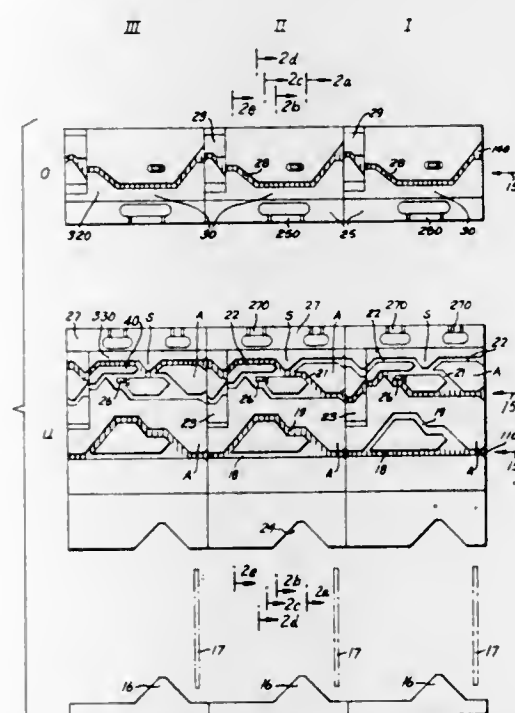
MULTIPLE-SYSTEM DOUBLE-CYLINDER CIRCULAR KNITTING MACHINE FOR KNITTING LINKS-AND-LINKS PATTERNS
Ernst-Dieter Plath, Tallingfen, Germany, assignor to
Mayer & Cie. Maschinenfabrik, Tallingfen, Germany, a firm

Filed July 24, 1968, Ser. No. 747,232
Claims priority, application Germany, Aug. 2, 1967,
M 75,011

Int. Cl. D04b 9/10

U.S. Cl. 66-14

4 Claims



A multiple-system double-cylinder circular knitting machine having upper and lower cylinders each provided with a cam assembly and a needle assembly one of which rotates with respect to the other for acting on a circumferential row of double-ended latch needles in a given direction. The upper and lower cylinders respectively have coupling sliders coacting with the needles for transferring them between the upper and lower cylinders, while the lower cylinder has pattern jacks and intermediate jacks coacting with the pattern jacks for controlling the coupling sliders of the lower cylinder. Each of the cylinders is divided into a series of independent knitting systems, and each knitting system of the lower cylinder is provided with a collecting station where all of the coupling sliders are

collected, and a selecting station where a selection is made of those pattern jacks which will influence the intermediate jacks to bring about movement of selected coupling sliders of the lower cylinder. In accordance with one feature of the invention, the selecting station of each knitting system is situated, as seen in the direction in which the row of needles are acted upon, in advance of the collecting station of each knitting system.

3,564,870

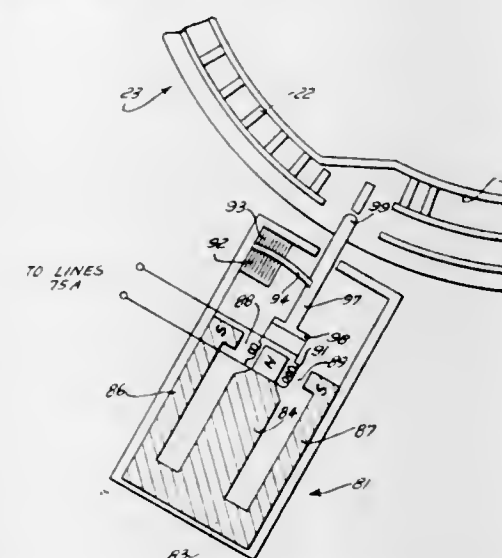
ELECTROMAGNETIC ACTUATOR FOR A CIRCULAR KNITTING MACHINE
Heinz Glaussinger, 161 Zuckerbergstr.
7 Stuttgart, Germany

Filed June 19, 1969, Ser. No. 834,724
Claims priority, application Germany, June 22, 1968,
P 17 60 710.2

Int. Cl. D04b 15/78

U.S. Cl. 66-50

2 Claims



An improved electromagnetic actuator for the jacks of a circular knitting machine employs a low-mass coil as the movable element in place of a relatively massive core to minimize inertia and maximize switching speed. The coil is coupled to a low-mass push rod to move one of a plurality of the jacks into knitting position in response to an output signal coupled to the coil from a pattern control mechanism.

3,564,871

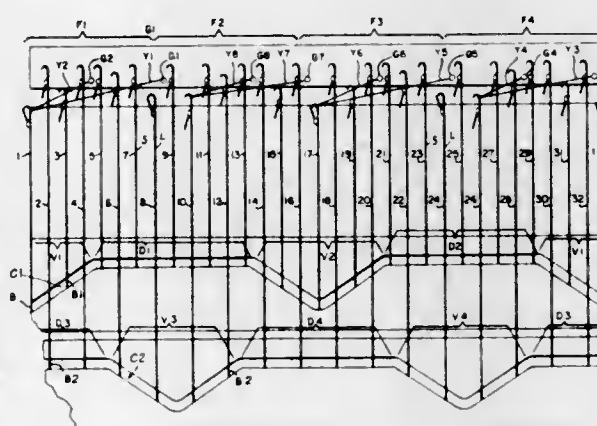
KNIT TUBULAR FABRIC, METHOD AND APPARATUS FOR MAKING THE SAME
Roy D. Falgenbaum and John Greczin, both of 7312
School Lane, Melrose Park, Pa. 19126

Filed Apr. 4, 1968, Ser. No. 718,680

Int. Cl. D04b 9/44

U.S. Cl. 66-9

1 Claim



A circular knitting machine having four feeds; a pair of yarn guides for each feed, for feeding a pair of separated yarns at said feed, means causing alternate needles

to pass between the yarns of each pair of yarn guides and causing intermediate needles to engage and knit said yarns to form a double yarn stitch, said alternate needles casting off, un-knit, the yarn from a first yarn of another pair of yarn guides and floating the second yarn of said other pair of yarn guides.

3,564,872

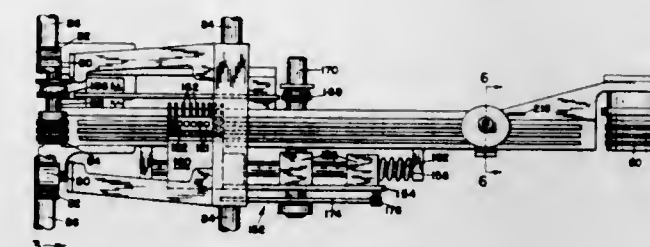
APPARATUS FOR SUPPLYING PARALLEL LENGTHS OF FIBROUS MATERIAL
Hans J. Klauel, Charlotte, N.C., assignor to Crompton & Knowles Corporation, Worcester, Mass., a corporation of Massachusetts

Filed Mar. 13, 1969, Ser. No. 806,948

Int. Cl. D04b 23/12

U.S. Cl. 66-85

14 Claims



A machine for supplying parallel lengths of fibrous strands for incorporation in a non-woven fabric. A guide carriage reciprocates between a pair of continuously moving conveyors having strand engaging hooks. The carriage lays a band of strands, first around a set of hooks of one conveyor and then a set of hooks on the other conveyor. Before each crossing of the carriage, a rake adjacent each conveyor extends each strand, relative to the conveyor, a distance of one band width from a first holding element to a second holding element upstream of the same conveyor. The carriage, rake, and conveyors are operated in timed relation so that the lengths of strands extending between conveyors will all be parallel for presentation to fabric forming means.

3,564,873

METHOD AND APPARATUS FOR SLITTING PANTY HOSE

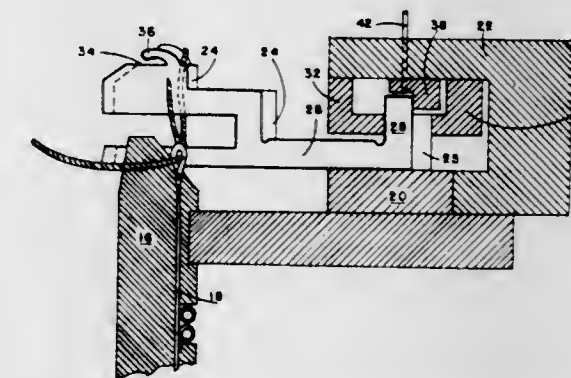
Frank T. Beane, Concord, N.C., assignor of fifty-one percent to Ralph B. Jones, Greensboro, N.C., and nine percent to Textile Metals & Plastics, Inc., Greensboro, N.C., a corporation of North Carolina

Filed July 30, 1968, Ser. No. 748,720

Int. Cl. D04b 15/06

U.S. Cl. 66-107

9 Claims



This invention is directed to the manufacture of panty hosiery for ladies, and more particularly to an improved method and apparatus whereby a portion of each stocking is slit during the knitting process, rather than in a separate operation after the knitting is completed.

3,564,874

VACUUM FAILURE STOP MOTION DEVICE

Edward E. Knox, Rte. 6, Box 185,

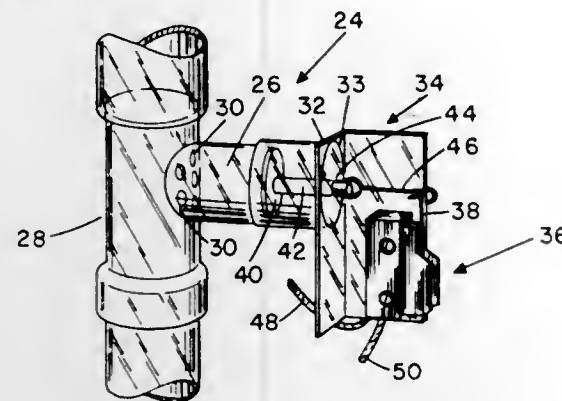
Kernersville, N.C. 27284

Filed Feb. 27, 1969, Ser. No. 802,773

Int. Cl. D04b 15/88, 27/34

U.S. Cl. 66-149

7 Claims



A vacuum failure stop motion device particularly adapted for use with a vacuum take-down system associated with circular knitting machines, the device having a chamber, the bore of which is substantially perpendicular to the axis of the evacuating tube of the vacuum system. The chamber contains a moveable piston which in turn is connected to the actuating finger of a switching device so that a change in the vacuum magnitude within the evacuating tube is sensed by the piston which moves within the chamber and displaces the finger to actuate the switch and thus terminate the operation of the machine.

3,564,875

FABRIC ANTI-TWISTING DEVICE FOR CIRCULAR KNITTING MACHINES

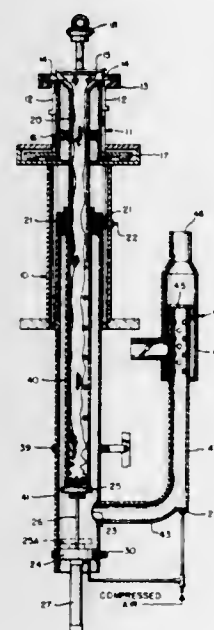
Caley A. Foreman, Grenada, Miss., assignor to U.S. Industries, Inc., New York, N.Y., a corporation of Delaware

Filed Aug. 29, 1969, Ser. No. 854,155

Int. Cl. D04b 15/88

U.S. Cl. 66-149

7 Claims



A device for minimizing the twisting of fabric produced on circular knitting machines. The device utilizes an inner perforated extension of the fabric tube through which the fabric normally passes. The extension is rotatably mounted on the fabric tube and subject to a vacuum in order to downwardly tension the fabric as it is knitted. The lower end of the fabric tube extension is closed with an openable

cover or disc which is also rotatably mounted. The rotation of the perforated fabric tube, extension, and cover at the same rate of speed as the knitting machine head avoids twisting of the knitted fabric. Means to pneumatically eject the knitted fabric are also provided.

3,564,876

MACHINE KNITTING

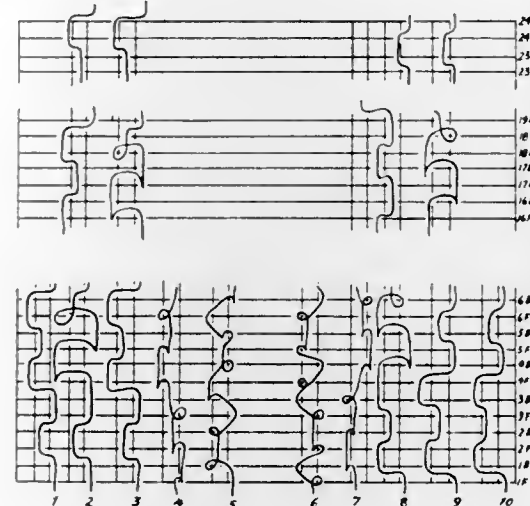
Seymour C. Titone, Birchrunville, Pa., assignor to Titone Research & Development Corporation, Burlington, N.J., a corporation of New Jersey

Filed Jan. 26, 1968, Ser. No. 700,768

Int. Cl. D04b 21/20

U.S. Cl. 66-177

5 Claims



Seamless tubular fabric is formed on a double needle-bed machine, such as a Raschel. Two connector guide bars are rendered sufficient by omitting from each bed a needle at each end of each band. Point d'esprit and other lay-in patterns are provided along with a basic hexagonal net.

3,564,877

LOCKS

Jan B. Albery, 12 Earlham St., Seven Dials, London W.C. 2, England

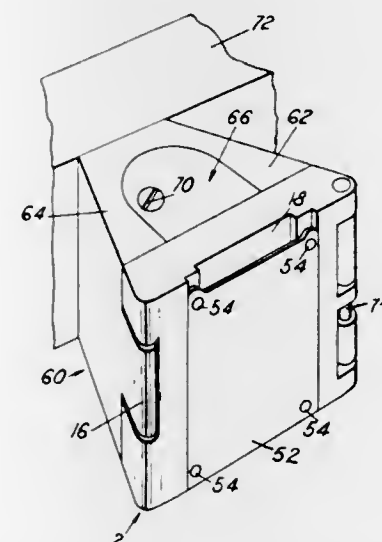
Filed Oct. 25, 1968, Ser. No. 770,618

Claims priority, application Great Britain, Sept. 11, 1968, 42,238/68, 42,239/68

Int. Cl. E05b 73/00, 73/02

U.S. Cl. 70-59

7 Claims



The umbrella lock has a pair of jaws defining an open ended slot, the jaws being spaced apart by a distance such that a portion of an umbrella above the full folded thickness of the umbrella of a gentleman's standard umbrella

can pass therebetween, but the full folded thickness is prevented from so passing through. The open end of the slot is closed by a flap or the like which is pivoted to the edge of one jaw and engages the other jaw. A lock is provided to lock the flap to the said other jaw. The lock may comprise a body having a slot for receiving a suitable key. A tongue is slidably mounted in the body and biased to an external position wherein a portion of the tongue projects from the body. The tongue has a projecting pin which extends into the path of the key in the slot, so that when the key is inserted into the slot it engages the pin, and so that further depression of the key into the slot causes movement of the pin and thus causes retraction of the tongue from its extended position.

3,564,878

TRANSMISSION LOCKING MEANS

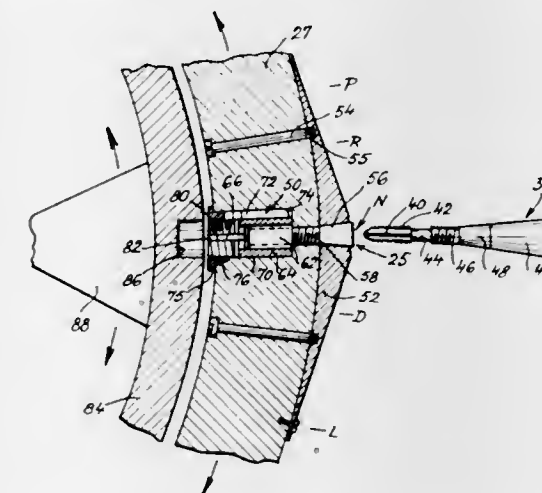
William Seatts, 60 Clarkson Ave., Apt. 3-J, Brooklyn, N.Y. 11226

Filed Jan. 22, 1969, Ser. No. 793,002

Int. Cl. B60r 25/06; E05b 35/06, 65/12

U.S. Cl. 70-204

5 Claims



A cylinder lock is installed in a rotating shifter collar on a steering post. A removable transmission shift lever or handle is provided with a key at one end which fits into the cylinder lock. The lever has a threaded section which screws into the shifter collar. The cylinder lock can be installed in a transmission console on the floor of a vehicle or in a transmission push button assembly. A dial combination lock and plug can be provided on the shifter collar to conceal and protect the cylinder lock.

3,564,879

BUSINESS MACHINE LOCKING DEVICE

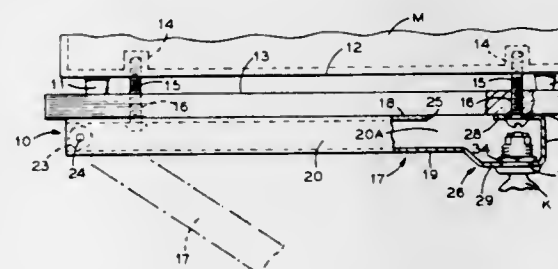
Anthony B. Bennett, 29 E. 86th St., New York, N.Y. 10028

Filed Apr. 17, 1969, Ser. No. 817,064

Int. Cl. F05b 73/00; F16b 41/00

U.S. Cl. 70-232

8 Claims



Locking devices for securing business machines, such as typewriters and the like, to a rigid base such as a desk or the like, to prevent unauthorized removal of such machines.

3,564,880

DOOR LATCH CONTROL MECHANISM

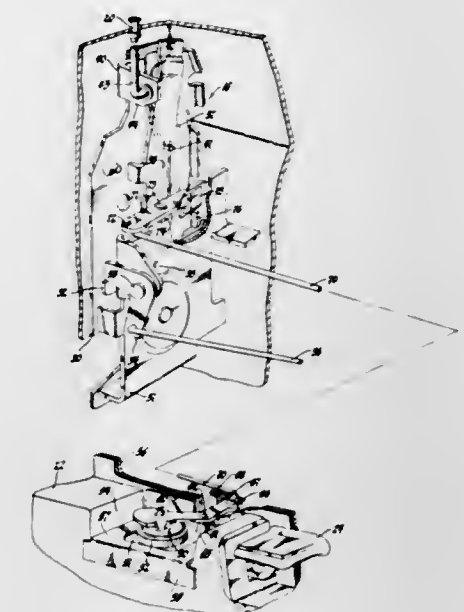
Stanley Kwasiborski, Jr., Hazel Park, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 27, 1969, Ser. No. 853,454

Int. Cl. B60r 18/04, 25/04

U.S. Cl. 70-255

5 Claims



A door latch control mechanism for use on a vehicle door provided with a conventional type closure latch having a latch bolt and detent adapted for automatic undocking and keyless locking and provided with a coupling between the detent and an outside latch operating means, the control mechanism including a pivotal cover for an ignition switch key cylinder lock assembly, the cover being connected by a linkage system to a block-out lever for moving the block-out lever into and out of blocking engagement with the coupling of the closure latch mechanism.

3,564,881

KEY RETAINER

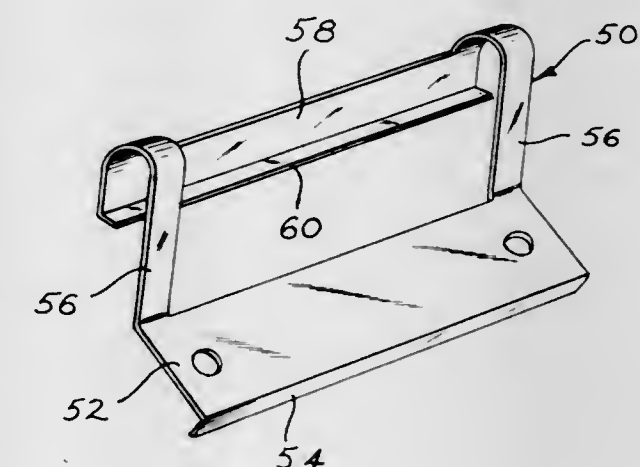
Anthony J. Burniski, Warson Woods, Mo., assignor to Prince Gardner Company, a division of Swank, Inc., St. Louis, Mo., a corporation of Delaware

Filed Sept. 23, 1968, Ser. No. 761,430

Int. Cl. A47g 29/10

U.S. Cl. 70-456

4 Claims



A key retainer including a plastic key plate having a wall which merges into a barrel provided with a trough traversed by a plurality of slits. The heads of key loops

fit into the trough while the shanks of the loops normally extend outwardly through the slits. The key loops can be removed by pressing their heads through a slot in the barrel defined by opposed deformable ribs.

3,564,882

ROLLING MILL CONTROL SYSTEM

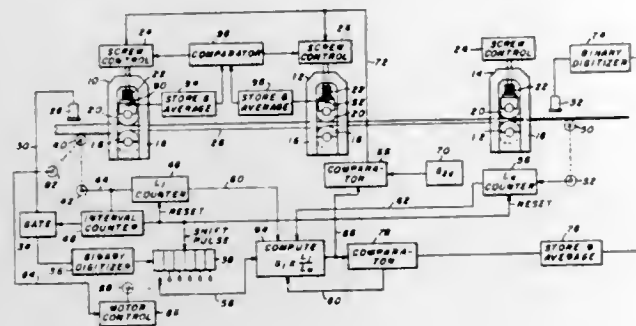
Samuel S. Harbaugh, Natrona Heights, Joseph J. Kasecky, New Kensington, and James B. Murland, Jr., Natrona Heights, Pa., assignors to Allegheny Ludlum Steel Corporation, Brackenridge, Pa., a corporation of Pennsylvania

Filed Apr. 22, 1968, Ser. No. 723,121

Int. Cl. B21b 37/12

U.S. Cl. 72—8

14 Claims



Described is a rolling mill control system for tandem rolling mills based on the constant volume principle and wherein anticipated or predicted exit gage is calculated from measured entry gage and the length of material entering and leaving the mill. This predicted exit gage is compared with desired exit gage as determined by the mill operator to generate an error correction signal to the mill screwdowns if the predicted and desired gages are not the same.

3,564,883

HYDRAULIC PRESS CONTROL

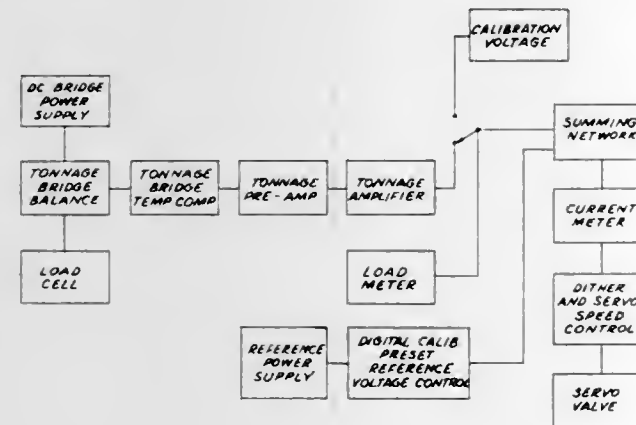
Carl W. Koors, Harrison, and John J. Erhart, Cincinnati, Ohio, assignors to The Cincinnati Shaper Company, Cincinnati, Ohio, a corporation of Ohio

Filed July 30, 1968, Ser. No. 748,841

Int. Cl. B21j 9/20

U.S. Cl. 72—8

3 Claims



A hydraulic press control having a load cell or transducer arranged to measure the true load applied by the tooling to the part being pressed. Hydraulic fluid is automatically supplied to either end of the cylinder as dictated by the load cell output, to achieve and maintain an accurate load on the part during the holding cycle, even where this load is less than the weight of the platen and die, and where the part may change dimensionally during the holding cycle.

3,564,884
DEFORMABLE DIE APPARATUS FOR TUBE DRAWING

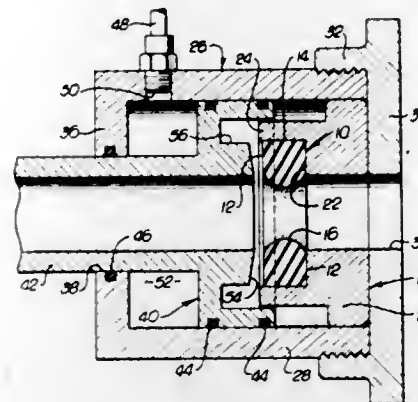
John W. Hinshaw, Garden Grove, Calif., assignor to Battelle Development Corporation, Columbus, Ohio, a corporation of Delaware

Filed Aug. 20, 1968, Ser. No. 753,907

Int. Cl. B21c 3/06

U.S. Cl. 72—57

6 Claims



Variable die apparatus for tube drawing wherein a die ring of deformable material, preferably a strong elastomer, is circumferentially confined and is caused to be deformed by force-applying means so that its inner diameter varies, said force-applying means preferably being hydraulically actuated and operating upon the deformable die ring externally in one form of the invention and internally in another form of the invention.

3,564,885

FLANGE FORMING APPARATUS

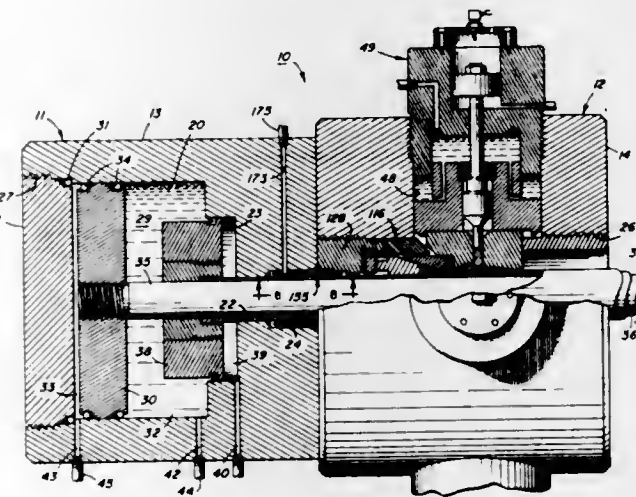
Francis Joseph Fuchs, Jr., Princeton Junction, N.J., and Duane Le Roy Kirschenman, South Fork Township, Forsyth County, N.C., assignors to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed Oct. 10, 1968, Ser. No. 766,484

Int. Cl. B21d 19/00

U.S. Cl. 72—60

17 Claims



Apparatus for forming a projection, in particular a flange, on a plastically deformable member by flaring a portion of the member and by subjecting the member to pressure sufficiently high to place the member in a plastic state, or state of increased ductility, and to cause at least a portion of the member to flow thereby forming the projection. Pressure is applied to the plastically deformable member by the exertion of mechanical pressures by a plurality of radially retractable rams and a displaceable back-up die which defines one wall of a variable size die cavity.

3,564,886

BULGING APPARATUS

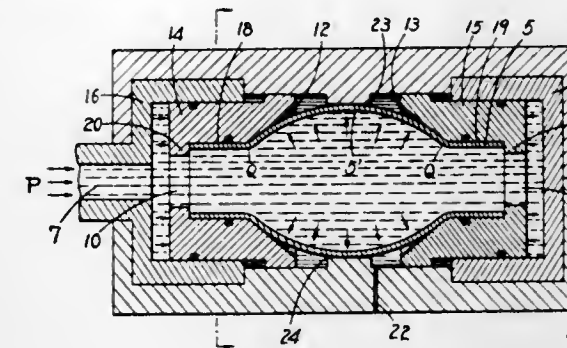
Masanobu Nakamura, 22-8 Matsubara-cho, 5-chome, Setagaya-ku, Tokyo, Japan

Filed Sept. 11, 1968, Ser. No. 759,189

Int. Cl. B21d 26/04

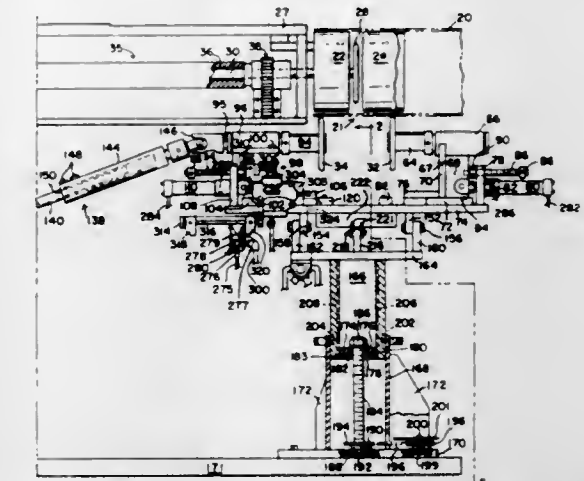
U.S. Cl. 72—62

4 Claims



An apparatus for radially bulging a tubular material by giving axial pressure from both ends of the tubular material by means of a pair of annular members which are slidably mounted in a cylindrical member of which one end is opened through which a pressure fluid is fed into the bore of the tubular material. When the pressure fluid is pumped into the bore of the tubular material, the pressure causes the tube to bulge and the annular members to move axially toward each other. Thus a single source of pressure works to bulge the tubular material as well as to reduce the length of the tube. By providing an additional annular member or members, a plurality of bulges may be formed on the tubular material.

axis to force the central portion of the selected area outwardly while the end portions of the selected area are



moved toward each other by a pair of spaced, automatically laterally displaceable outer forming rolls.

3,564,889

PYRAMID ROLL BENDING MACHINE FOR FORMING SHEET METAL

Rudolf Herburg, Hamburg-Lohbrügge, Germany, assignor to Wilhelmsburger Maschinenfabrik Hinrichs & Sohn, Geesthacht, Germany

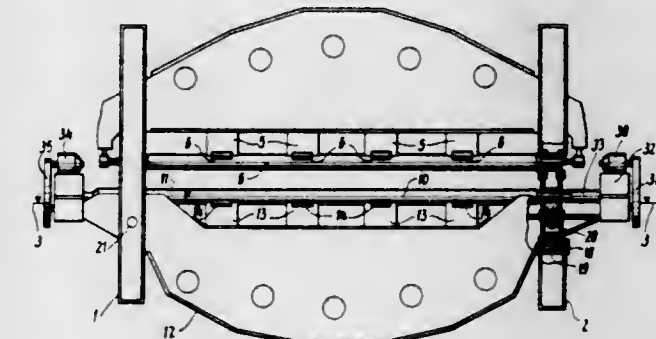
Filed Aug. 30, 1968, Ser. No. 756,629

Claims priority, application Germany, June 29, 1968, P 17 52 666.8

Int. Cl. B21d 5/14

U.S. Cl. 72—174

8 Claims



The combination comprising a bottom yoke that is movably mounted for crosswise movement with respect to the longitudinal axis of upper bending rolls in a pyramid roll bending machine is provided. Two bottom rolls and support means for the bottom rolls are mounted on the movable bottom yoke. The bottom yoke includes bearing means slidably resting on a cooperating bearing located in a frame means at each end of the bottom yoke. A screw shaft is located in the frame means for moving the bottom yoke thereby carrying any structure mounted thereon to any desired position. In more specific embodiments, drive means is mounted on the movable bottom yoke for driving the bottom rolls.

3,564,890

ATTITUDE-DISPLACEMENT INDICATOR

Patrick F. Catapano, Paramus, N.J., assignor to The Bendix Corporation, a corporation of Delaware

Continuation-in-part of application Ser. No. 665,031, Sept. 1, 1967. This application Jan. 19, 1970, Ser. No. 3,678

Int. Cl. G01c 23/00

U.S. Cl. 73—178

9 Claims

A flight instrument providing an integrated navigational display for guiding an aircraft during cruising and during runway approach and landing modes of flight. The integrated display includes the attitude of the craft with respect to the earth's horizon, the displacement of

3,564,888

CONVOLUTION FORMING METHOD AND APPARATUS

Donald Walter Miller, San Diego, Calif., assignor to International Harvester Company, San Diego, Calif., a corporation of Delaware

Filed Nov. 19, 1968, Ser. No. 776,942

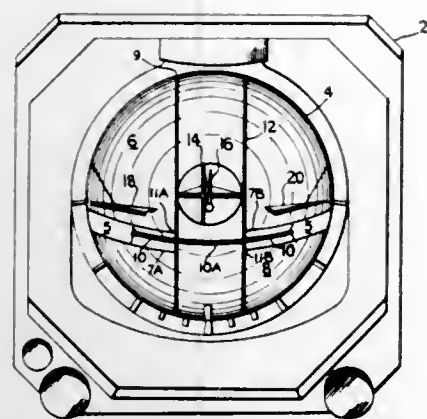
Int. Cl. B21d 15/06

U.S. Cl. 72—110

10 Claims

Method and apparatus for forming a convolution in a selected area of a tubular workpiece comprising moving an inner forming roll radially outwardly of the tubular

the craft with respect to navigational beams and the attitude steering commands necessary to guide the air-



craft along a desired flight path to intercept the navigational beams.

3,564,891 CONTINUOUS ROLLING MILLS AND/OR REPEATER ROLLING MILLS

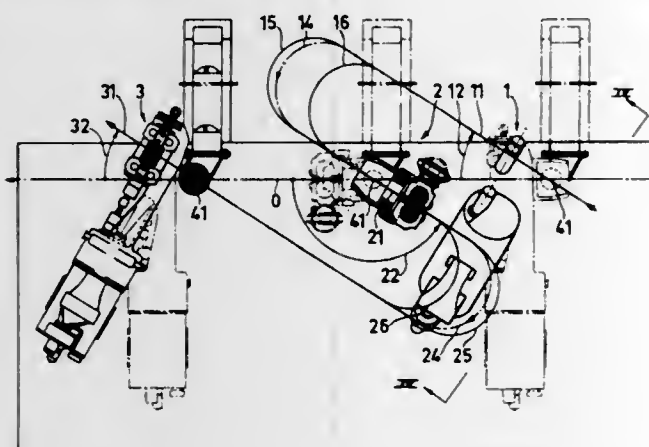
Sven Erik Malte Norlindh, Morgardshammar, Sweden, assignor to Morgardshammar Aktiebolag, Morgardshammar, Sweden, a Swedish joint-stock company
Filed June 21, 1968, Ser. No. 739,023

Claims priority, application Sweden, June 22, 1967, 8,938/67

Int. Cl. B21b 39/00

U.S. Cl. 72—231

6 Claims



The invention relates to a rolling stand unit comprising a rolling stand and driving means for continuous and/or repeater rolling mills. In order to make it possible to use the rolling stand unit for (1) continuous rolling mills, (2) repeater rolling mills, and (3) continuous and repeater rolling mills, the rolling stand unit is provided with devices for the adjustment of the pass line of the rolling stand to various side angles in relation to the main rolling direction of the rolling mill.

3,564,892 VARIABLE RADIUS BENDING FIXTURE

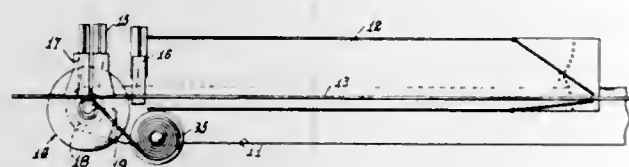
William A. Osterland, Aurora, Ill., assignor to Pines Engineering Co., Inc., Aurora, Ill., a corporation of Illinois

Filed Aug. 15, 1968, Ser. No. 752,972

Int. Cl. B21d 7/02

U.S. Cl. 72—219

10 Claims



A machine for bending lengths of tubular or rod stock about a bending die assembly wherein the bending die is

comprised of a length of chain wound about a common axis a sufficient number of times to generate the required radius of bend in the stock.

3,564,893 COMBINED CUTTING, PUNCHING AND BENDING TOOL

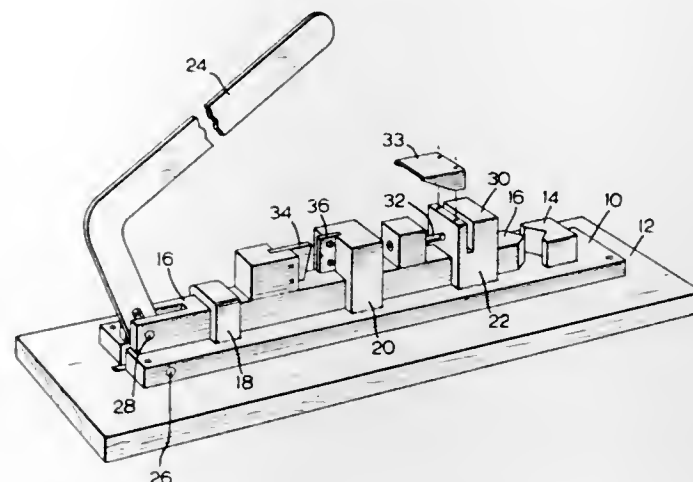
Richard E. Richards, Bramalea, Ontario, and Gary A. Selva, Toronto, Ontario, Canada, assignors to E. Selva & Sons Limited, Toronto, Ontario, Canada

Filed Feb. 5, 1968, Ser. No. 702,872

Int. Cl. B21d 28/26, 31/02, 37/00, 43/28; B26d 5/10

U.S. Cl. 72—326

1 Claim



This invention relates to a combined tool that can, in turn, cut, punch and bend a strip of metal to form a metal hanger. The punch and one of the cutting shears are mounted on the ram of the break that performs the bending operation so that a common operating handle can be provided for all operations.

3,564,894 APPARATUS AND METHOD OF FORMING TUBULAR ARTICLES

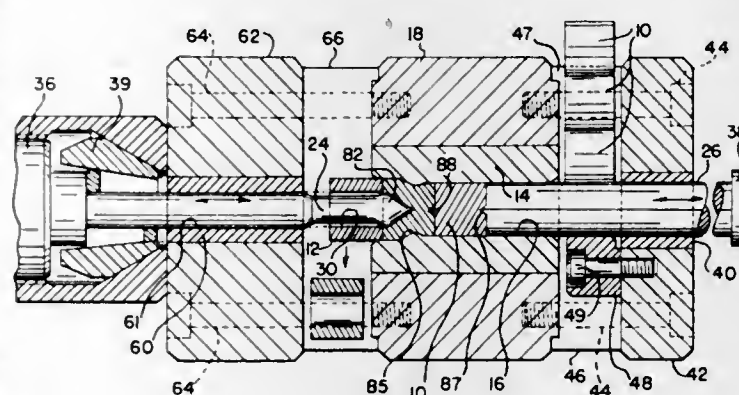
Wilfred J. Sharon, 25280 Chatworth Drive, Euclid, Ohio 44117

Filed Aug. 30, 1968, Ser. No. 756,566

Int. Cl. B21f 5/10; B21k 21/00

U.S. Cl. 72—344

20 Claims



An apparatus and method of forming tubular articles from a solid slug. A first solid slug is placed onto an open-ended die bore and forced onto a piercing punch disposed within one end of the die bore to form a tubular finished part. The slug is forced onto the piercing punch by a reciprocable forging punch disposed in the other end of the die bore. In addition to the first slug in process, there is at least one intermediate or second slug disposed in the die bore between the piercing punch and the forging punch. The second slug is partially pierced as well as radially expanded while acting as a deformable forging

punch when advancing the first slug. Direct laminar metal grain flow is effected in the transition from slug to finished part. Each slug has a cone-shaped indent on its end adjacent the forging punch, such indent being positioned on the slug longitudinal axis to effect a clean opening through the back of the slug by the piercing punch such that the piercing punch does not carry a thin skin of metal into the second slug.

3,564,895

DRAWING APPARATUS AND METHOD

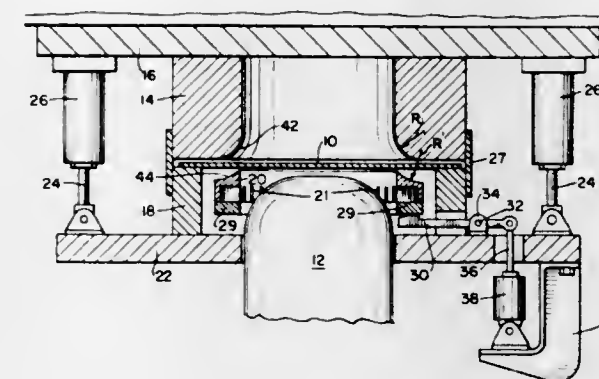
Gunther E. Pfanner, Huntington, and George A. Bohmann, New Hyde Park, N.Y., assignors to Fairchild Hiller Corporation, Farmingdale, N.Y., a corporation of Maryland

Filed Oct. 18, 1968, Ser. No. 768,826

Int. Cl. B21d 24/08

U.S. Cl. 72—351

4 Claims



Apparatus for drawing article from blanks which contain no excess material, comprises a punch, draw ring, and inner and outer pressure pads. The outer pressure pad holds the blank during the initial stage of the drawing process. The inner pressure pad is applied to the article after such initial stage and includes a pressure surface having a shape mating with the draw radius of the article formed during the process.

3,564,896

METHOD OF MAKING AXLE BEAM

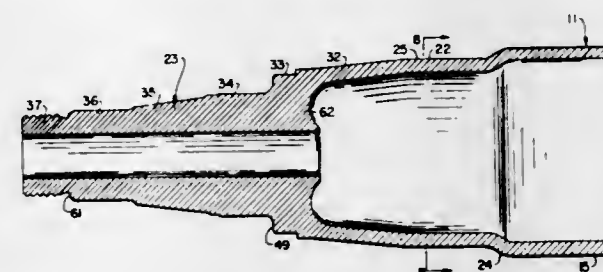
Glenn L. Clark, Grosse Pointe Farms, Mich., and William G. Hanley and John Palovcik, Kenton, Ohio, assignors to North American Rockwell Corporation, a corporation of Delaware

Original application Sept. 3, 1965, Ser. No. 484,856, now Patent No. 3,465,418, dated Sept. 9, 1969. Divided and this application Nov. 29, 1968, Ser. No. 779,820

Int. Cl. B21k 1/06

U.S. Cl. 72—370

6 Claims



A method of making a hollow metal tube into an axle beam comprises forming the end sections of the tube to provide reduced diameter thickened wall wheel bearing spindles having longitudinally spaced substantially cylindrical concentric bearing mounting regions and at the same time forming substantially cylindrical brake support mounting regions axially inwardly of and concentric with said bearing mounting regions, and displacing metal from

3,564,897 TOOL FOR MAKING QUICK ASSEMBLY COUPLING

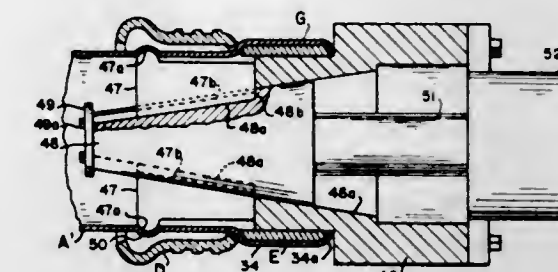
Clyde E. Rickard, Du Bois, Pa., assignor to McDowell Manufacturing Company, Millvale, Pa., a corporation of Pennsylvania

Original application Mar. 8, 1965, Ser. No. 437,709, now Patent No. 3,461,544, dated Aug. 19, 1969. Divided and this application Feb. 28, 1969, Ser. No. 803,382

Int. Cl. B21d 39/04, 39/08

U.S. Cl. 72—393

7 Claims



An expanding-out tool and method employs a mandrel for forming wall dimples in a tubular coupling member for retaining a collar nut in an operating position thereon. Also a mandrel using method is employed for expansion-shaping tubular coupling members and for securing them by expansion force application with respect to other hollow coupling parts or members.

3,564,898

SHRINK-FORMING APPARATUS WITH INTEGRAL TOOLING

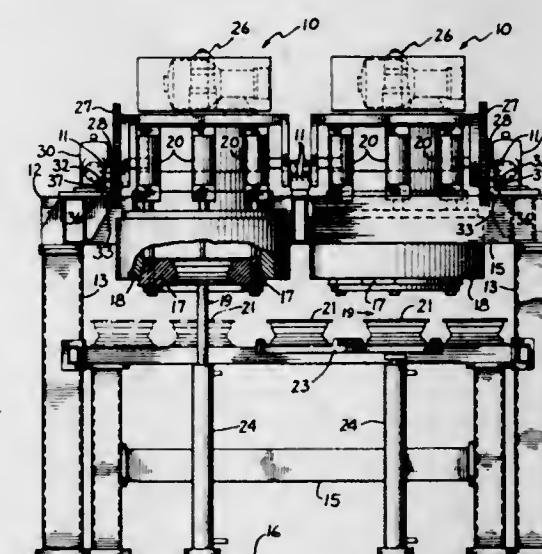
Christian H. Stettler, Northbrook, Ill., assignor to Grotnes Machine Works, Inc., Chicago, Ill., a corporation of Illinois

Filed June 14, 1968, Ser. No. 737,014

Int. Cl. B21j 9/06

U.S. Cl. 72—402

3 Claims



Apparatus for radial compression forming of metal articles is described in which a plurality of radially contractable die jaw segments in a shrink-forming head are disposed in a horizontal plane vertically above a work-piece feeding station with auxiliary tooling also being contained optionally within the head. The shrink-forming head and tooling are carried on trunnions for rotation about a horizontal axis to allow access and maintenance to the dies and tooling.

3,564,899
METHOD AND DEVICE FOR BENDING WIRE- AND BAND-SHAPED MATERIAL TO CLOSED PREFERABLY ANNULAR SHAPES, PARTICULARLY FOR AUTOMATIC BENDERS

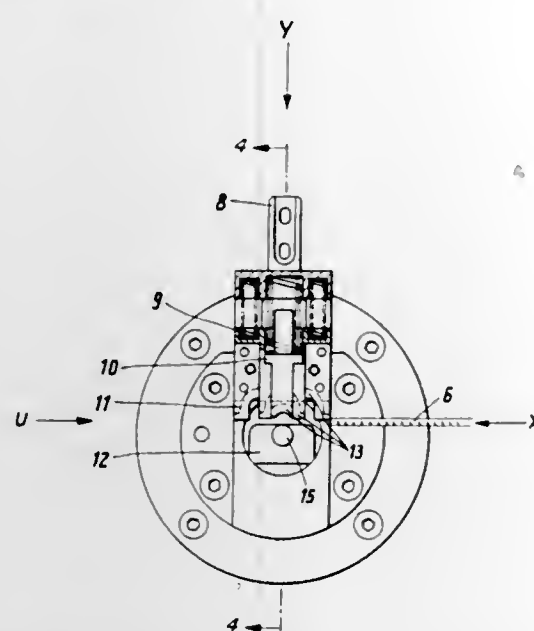
Heinz Finzer, Herderstrasse 12, Sackingen, Germany
 Filed Feb. 5, 1968, Ser. No. 702,849

Claims priority, application Germany, Feb. 9, 1967,
 F 51,471

Int. Cl. B21j 11/00

U.S. Cl. 72—404

2 Claims



A method and device for bending a wire- or a band-shaped material into a closed shape preferably an angular one. In the method the ends of the material to be bent are bent first in a quarter circle and then in the second step of the operation the central selection of the material is bent in a half circle. In the apparatus the tools all move in the same direction with central portion of the tool being separately movable to hold the material to be bent against a counter block. After the outside portions of the tool bend the quarter circles on the extremities of the material by shaping it over the block, that part of the block is withdrawn to leave a round central portion over which the remaining half circle is bent by movement of the central portion of the tool.

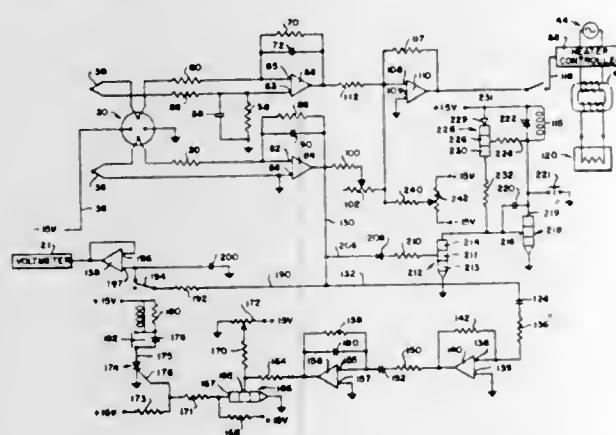
3,564,900
END-POINT ANALYZER
 Marshall L. André, Houston, William A. Riggs, Pasadena, and Charles R. Orr, Houston, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Apr. 10, 1968, Ser. No. 720,155

Int. Cl. G01n 25/08

U.S. Cl. 73—17

6 Claims



A method and apparatus for quickly determining the end-point of a distillation process by rapidly heating a

very small sample of the liquid to be distilled, measuring the sample temperature with thermocouples, finding the second derivative of the thermocouple outputs, and detecting a predetermined voltage level in the second-derivative signal.

3,564,901
SYSTEM AND TECHNIQUE FOR GAS ANALYSIS

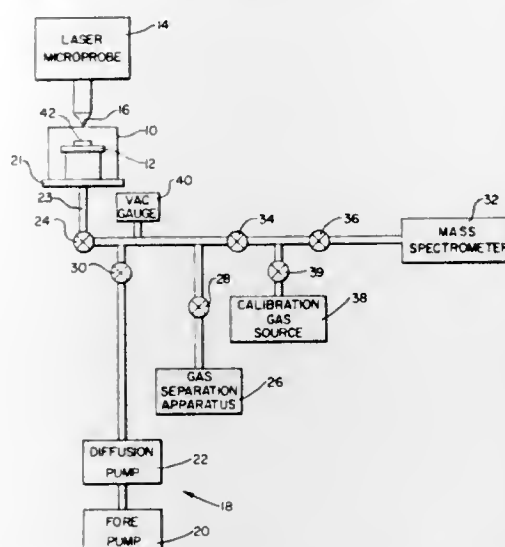
George H. Megrue, 6 Forest St.,
 Lexington, Mass. 02173

Filed Sept. 25, 1968, Ser. No. 762,602

Int. Cl. G01n 27/00

U.S. Cl. 73—19

8 Claims



A system and technique for in situ analysis of gas constituents of a volatilized material and in particular for isotopic analysis of rare gases occluded within a meteorite to determine the compositional gradient of such meteorite. A microgram quantity of material from predetermined meteoritic regions is volatilized in a high vacuum and the gases released from these regions are isotopically analyzed to determine their identity and abundance at each of the predetermined regions.

3,564,902
APPARATUS AND PROCESS FOR TESTING CIGARETTES OR THE LIKE

Uwe Heltmann, Hamburg, Germany, assignor to Haun-Werke Korber & Co., K.G., Hamburg, Germany

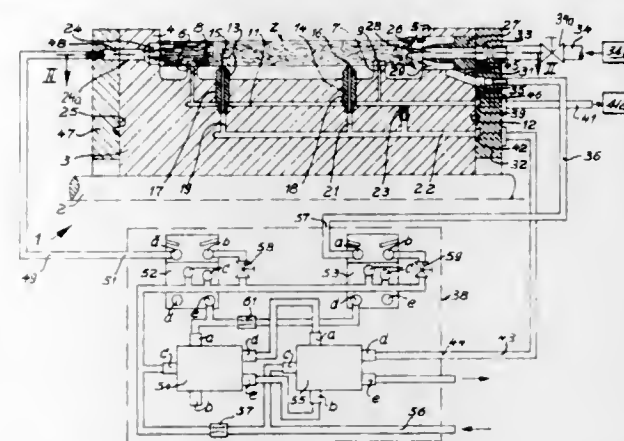
Filed Apr. 2, 1969, Ser. No. 812,653

Claims priority, application Germany, Apr. 4, 1968,
 P 17 57 142.5

Int. Cl. G01m 3/02; G01n 15/08

U.S. Cl. 73—37

26 Claims



Filter cigarettes are tested on a revolving drum provided with a set of nozzles each of which is connected with an air compressor during travel past a testing station. A first portion of the stream which issues from a nozzle is deflected by the adjacent end face of the corresponding cigarette, and the remaining second portion of

the stream passes through the cigarette. The characteristics of the deflected first portion of the stream and the characteristics of the second portion of the stream (after it has passed through the filler of the corresponding cigarette) are indicative of the condition of such cigarette. These portions of each stream are examined by a pneumatic testing unit which effects ejection of defective cigarettes from the drum.

3,564,903
BOND FAILURE DETECTION IN LAMINATED STRUCTURES USING VIBRATION RESPONSE

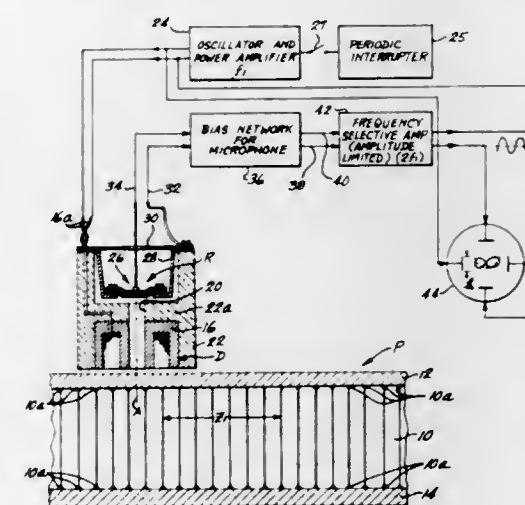
Wayne E. Woodmansee, Seattle, and Loyd W. George, Algona, Wash., assignors to The Boeing Company, Seattle, Wash., a corporation of Delaware

Filed May 20, 1968, Ser. No. 730,280

Int. Cl. G01n 29/04

U.S. Cl. 73—67.2

10 Claims



Bonding flaws in a honeycomb-core laminated structure or the like are determined by comparing phase of the panel's vibrational response to vibration-inducing periodic forces applied to the structure at substantially the same location by a driving transducer and in many cases by simultaneously measuring the amplitude of such vibration response. To compare phase, the electrical output wave from a vibration-detecting transducer is compared with an electrical reference signal, phase-related to the energizing wave for a vibration-inducing transducer. With the latter transducer of a type which vibrates the panel at twice the transducer's energization frequency the panel vibration response signal, however weak, is detected by frequency separation from extraneous energy induced in the detection circuit due to the relatively large flow of power energizing the vibration-inducing transducer in the immediate proximity to the detection transducer. Periodic interruption of transducer energization adds frequency components to the panel vibration stimulus and thereby expands the capability of a given system to provide meaningful tests of panels of widely different materials and construction.

3,564,904
ULTRASONIC HOLOGRAPHY WITH COLOR RENDITION

Byron B. Brenden, Richland, Victor I. Neeley, Kennewick, and David R. Hoegger, Richland, Wash., assignors to Holotron Corporation, Wilmington, Del., a corporation of Delaware

Continuation-in-part of application Ser. No. 667,242,
 Sept. 12, 1967. This application Dec. 18, 1967, Ser.
 No. 691,253

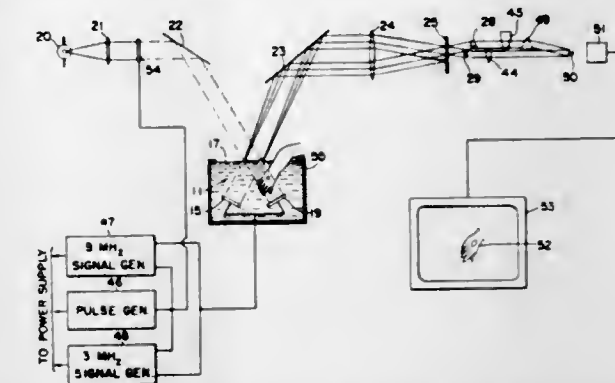
Int. Cl. G01n 29/04

U.S. Cl. 73—67.5

20 Claims

A form of ultrasonic holography in which multiple holograms are formed at the ultrasonic detector surface by utilizing ultrasonic beams of different frequencies. An image may be reconstructed with light from each holo-

gram formed by directing the light to the ultrasonic hologram and by viewing with suitable optics the diffracted images. By causing each image from each hologram to



be rendered in different color light and by bringing into register the different colored images, a multicolored image may be viewed.

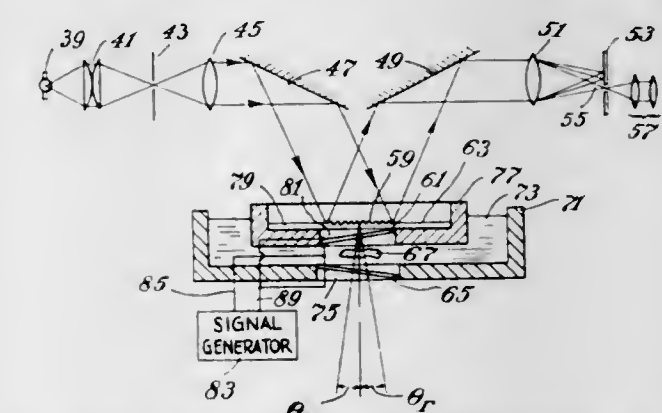
3,564,905
ULTRASONIC IMAGING TECHNIQUE
 Byron B. Brenden and David R. Hoegger, Richland, Wash., assignors to Holotron Corporation, Wilmington, Del., a corporation of Delaware

Filed Mar. 6, 1968, Ser. No. 710,893

Int. Cl. G01n 29/04

U.S. Cl. 73—67.5

18 Claims



An ultrasonic imaging method and apparatus with substantial utility in the higher ultrasonic frequency range in which an ultrasonic hologram is produced at a liquid detecting surface by the interaction of an ultrasonic object beam and an ultrasonic reference beam produced respectively by two ultrasonic transducers positioned just below the ultrasonic detecting surface and placed one on top of the other in a manner such that the ultrasonic beam produced by the lower of the two transducers passes through the upper of the transducers on its way to the detecting surface as if the upper transducer was a window. An improved vibration isolation tank for containing a thin film liquid detector is also disclosed which minimizes the image noise resulting from vibration waves in the surface of the liquid detector.

3,564,906
ARBITRARILY SHAPED MODEL SURVEY SYSTEM
 Eugene C. Naumann, Newport News, and Bruce Flagge, Yorktown, Va., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Oct. 23, 1967, Ser. No. 677,475

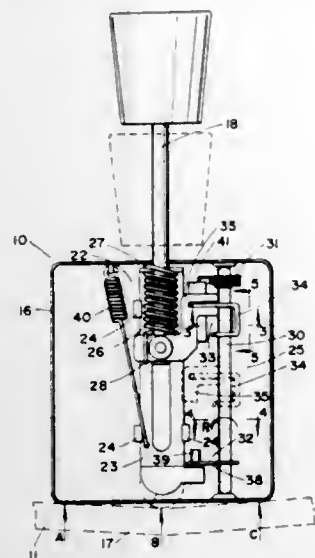
Int. Cl. G01d

U.S. Cl. 73—71.4

5 Claims

An apparatus for detecting and measuring structural deformations, either static or dynamic, of arbitrarily shaped models. The apparatus includes a subsystem using feedback control to maintain a non-contacting deformation measuring sensor a predetermined distance from the model. A comparison subsystem compares the signal from the non-contacting deformation measuring sensor with a

determining tension in a belt. A pointer is slideably mounted to the housing and is linked to the force measuring



mechanism. Linkage between the force measuring mechanism and pointer is terminated by a lost motion mechanism that is sensitive to belt tension.

3,564,914

SEQUENTIAL ACOUSTIC AND ELECTRICAL RESISTIVITY WELL-LOGGING DEVICE

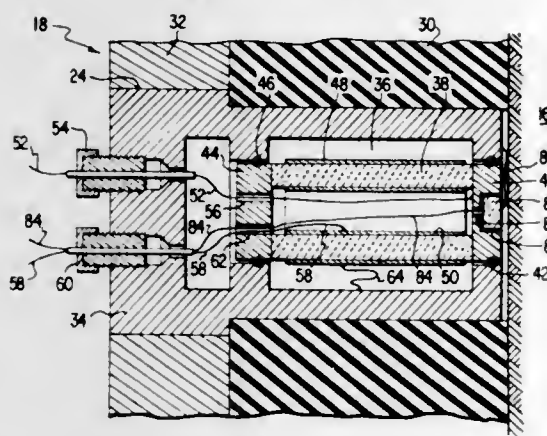
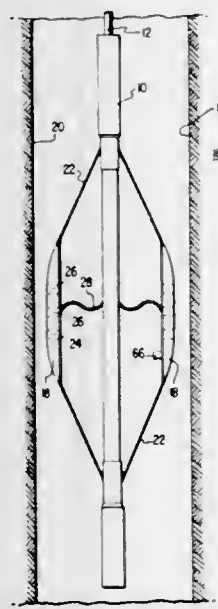
Kantilal P. Desai and Edward J. Moore, Tulsa, Okla., assignors to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware

Filed Aug. 12, 1968, Ser. No. 752,071

Int. Cl. G01v 11/00

U.S. Cl. 73-152

5 Claims



Well-logging apparatus and method utilizing a tool including a plurality of housings, each having acoustic transmitting means, acoustic receiving means, electrical

transmitting electrode means, and electrical receiving electrode means. The tool is lowered into a borehole, and the housings contact the borehole wall. The acoustic and electrical transmitting means are sequentially energized, and the signals from the acoustic and electrical receiving means are monitored.

3,564,915

CURRENT METER OR FLOW METER

Miyaji Tomota, Hiroo Yamasaki, and Yoshio Kurita, Tokyo, Japan, assignors to Kabushikikaisha Yokogawa Denki Seisakusho (Yokogawa Electric Works, Ltd.), Tokyo, Japan, a corporation of Japan

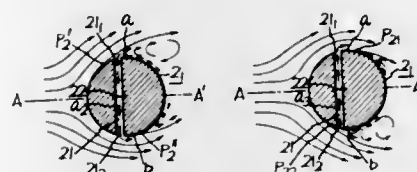
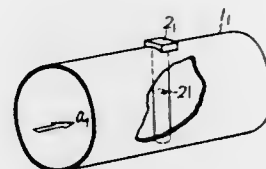
Filed Sept. 18, 1968, Ser. No. 760,604

Claims priority, application Japan, Sept. 27, 1967, 42/62,134

Int. Cl. G01f 1/00

U.S. Cl. 73-194

23 Claims



A current meter or flow meter having a rod-shaped member having bored therethrough a transverse bore for producing the Karman vortices when immersed in a fluid stream, the ports of the transverse bore opening out in the vicinity of the separation point of the boundary layers of the fluid from the rod-shaped member, and a sensing element disposed in the transverse bore for detecting the number of displacements of the fluid flowing through the transverse bore.

3,564,916

APPARATUS FOR MEASURING FLUID FLOW

Jack B. Collins, deceased, late of Isleworth, by Dorothy M. Collins and John M. Collins, executors, Isleworth, and Richard M. D. Saw, Staines, England, assignors to Gravier Colnbrook Limited, London, England, a British company

Filed June 4, 1969, Ser. No. 832,039

Claims priority, application Great Britain, June 8, 1968, 27,350/68

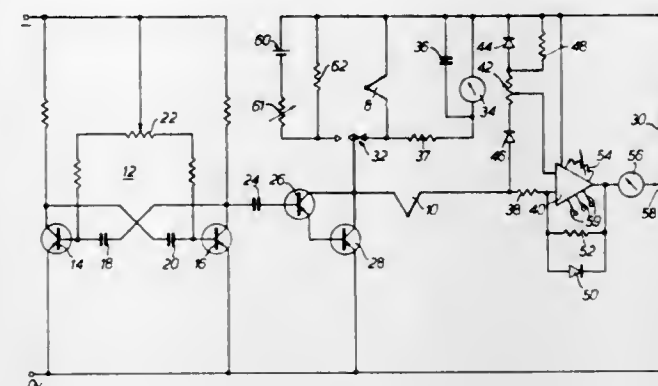
Int. Cl. G01p 5/10

U.S. Cl. 73-204

13 Claims

Fluid-flow responsive apparatus comprises two thermocouple junctions, both mounted in the fluid, connected to an amplifier input. An energizing circuit, including a series-connected switching transistor, is controlled by a variable mark/space ratio pulse generator. During on-periods of the pulse generator the energizing circuit feeds heating current through both junctions. One junction is heated to a higher temperature because the other has relatively high resistance connected to it. A diode

across the amplifier provides substantially complete negative feedback across it during the on-periods. During the off-periods, the transistor is OFF and the thermocouple E.M.F. drives the amplifier, the diode across the amplifier now being cut off. The thermocouple E.M.F. is thus dependent on the rate of loss of heat from the hotter of the two thermocouple junctions, and thus on the fluid flow. The mark/space ratio of the pulse generator is adjusted until the mean amplifier output has a predetermined value, at which time the mark/space ratio represents the rate of fluid flow.



In another embodiment, the mark/space ratio is automatically varied such that the amplifier output continuously cycles between two fixed limits, and a comparator measures the difference between the two values of the mark/space ratio necessary to achieve these two limits, the comparator output being a measure of the fluid flow rate.

3,564,917

MAXIMUM AIR SPEED INDICATOR

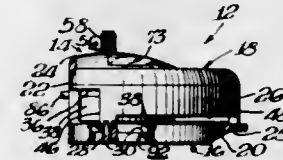
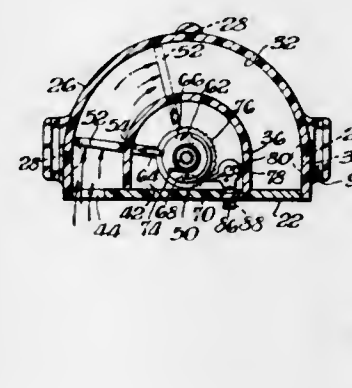
John E. Cronin and Warren H. Anderson, Newark, Del., assignors to Trimen Inc., a corporation of Delaware

Filed July 25, 1968, Ser. No. 747,569

Int. Cl. G01f 1/06

U.S. Cl. 73-228

2 Claims



Speedometer comprises case having arcuate air passageway and inner chamber with slot between passageway and chamber. Air openings on case communicate with passageway. Paddle assembly in case includes paddle blade in passageway, arm connected to paddle blade extending therefrom through slot to pivotal connection in chamber, and indicator needle connected for movement with arm paddle blade. Biasing device urges paddle assembly in direction opposite to direction of air flow through passageway. Ratchet mechanism includes teeth connected for movement with paddle assembly and pawl in releasable engagement with teeth arranged to hold paddle assembly at point of maximum swing when air flowing through passageway swings paddle blade against force of biasing device.

3,564,918

FLOWMETER

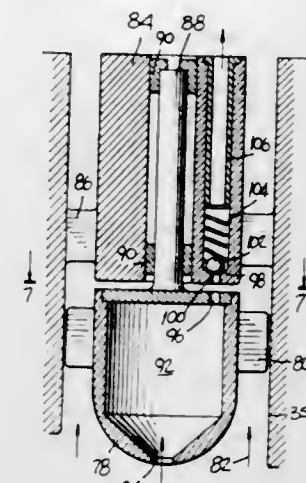
Michael A. Ziniuk, Melvindale, and Jack J. Edwards, Southfield, Mich., assignors to Atomic Power Development Associates, Inc., Detroit, Mich., a corporation of New York

Filed Dec. 27, 1967, Ser. No. 693,909

Int. Cl. G01f 1/10

U.S. Cl. 73-231

6 Claims



A flowmeter including a turbine wheel driven by the flowing fluid, a sound generator driven by the turbine wheel for transmitting sound waves responsive to the speed of the turbine wheel, and remotely disposed sound pickup apparatus for receiving and counting the sounds emitted from the sound generator.

3,564,919

FLUID METER

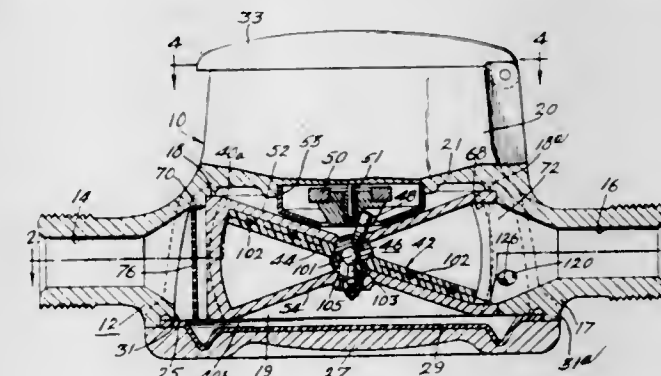
Andrew Varga, 1603 E. Cardeza St., Philadelphia, Pa. 19150

Filed Aug. 25, 1967, Ser. No. 663,265

Int. Cl. G01f 3/12

U.S. Cl. 73-258

10 Claims



A fluid meter of the positive displacement type comprising an outer casing, a measuring chamber unit defining a measuring chamber mounted in the casing, fluid inlet and outlet ports communicating with the measuring chamber and a piston assembly mounted in the measuring chamber operable to be displaced upon flow of fluid therethrough, the piston assembly being operatively connected with indicator means to indicate at least rate of fluid flow through the meter. In the illustrated form of the invention, the piston assembly comprises a nutating disc which is mounted on a small ball pivot, the piston assembly preferably having approximately the same specific gravity as the fluid being metered thereby to improve the accuracy of the meter. The fluid meter may include a compensator port providing direct communication between the inlet and outlet ports, the flow area of which may be selectively varied to provide

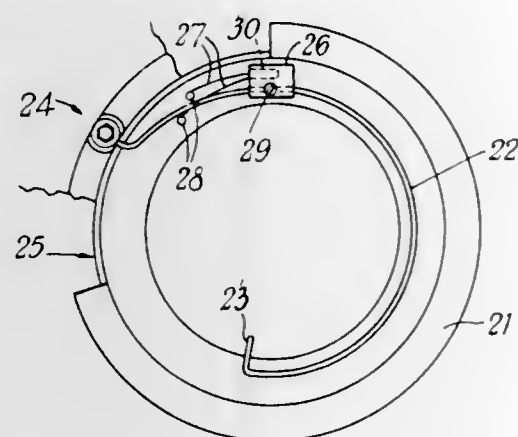
a means for accurately calibrating the meter. Other features of the invention include means for reading flow rate and total flow at a remote location. The means for remotely reading the flow rate may include a lever connected to the indicator means, a spring biased flapper adapted to be pivoted by the lever upon changes in rate of flow, a nozzle having a discharge opening confronting the flapper connected through a pneumatic line to a remote read-out for sensing pressure changes in the nozzle tip.

3,564,920

TEMPERATURE SENSING IN CENTRIFUGES
Norman Richard Harbott, Crawley, England, assignor to MSE Holdings Limited, Crawley, Sussex, England, a British company

Filed Sept. 23, 1968, Ser. No. 761,620
Claims priority, application Great Britain, Oct. 11, 1967, 46,477/67

Int. Cl. G01k 1/16, 1/14, 7/16
U.S. Cl. 73—351 7 Claims

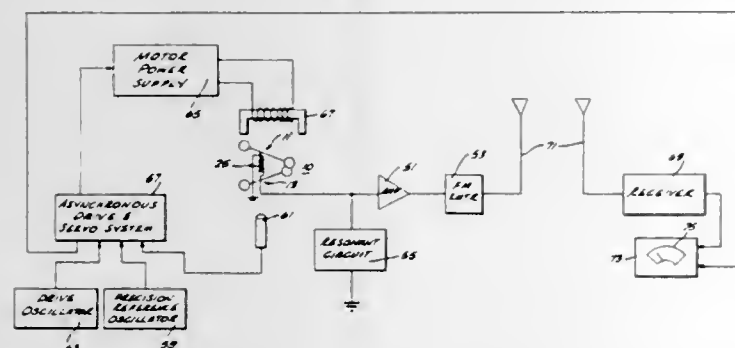


A centrifuge which has a bowl within which a rotor is carried by a shaft. A wire which is a good conductor of heat is thermally connected between the bowl and the bearing of the shaft. A temperature sensitive element coupled to the wire measures the temperature of the wire between its ends. The position of the temperature sensitive element relative to the length of the wire is adjusted so that the temperature measured will be the same as the contents of the rotor.

3,564,921

TORSIONALLY RESONANT GRAVITY GRADIENT SENSOR
Curtis C. Bell, Inglewood, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Feb. 2, 1968, Ser. No. 702,618
Int. Cl. G01r 7/00
U.S. Cl. 73—382 8 Claims



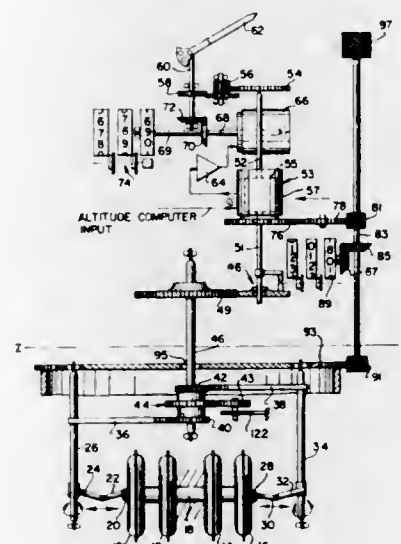
This is a torsionally resonant sensor for measuring second order gradients of gravitational fields. The sensor consists basically of two rigid mass quadrupoles oriented

perpendicularly to each other and connected at their centers by means of a torsionally flexible spring. The sensor is rotated in a gravitational field which produces torques that deflect one quadrupole with respect to the other with restraint applied by the torsion spring. The strength and direction of the gravitational force gradient is determined by measuring the amplitude and phase of the vibrations induced in the mass quadrupoles at twice the rotation frequency through the use of electronic circuitry coupled to a single transducer attached to the torsionally flexible spring.

3,564,922

DIFFERENTIAL OUTPUT FOR BAROMETRIC INSTRUMENT
Graham A. Ireland, Ottawa, Ontario, and Douglas L. McNaughton, Almonte, Ontario, Canada, assignors to Leigh Instruments Limited

Filed July 7, 1969, Ser. No. 839,727
Int. Cl. G011 7/12
U.S. Cl. 73—386 6 Claims



A barometric instrument (e.g. altimeter) having two banks of aneroid capsules each driving a segment gear each of which in turn drives one input gear of a differential unit whose planetary output drives the indicating mechanism of the instrument, the differential unit combining the mechanical outputs of the aneroid capsules and absorbing without undue stress any differences between the outputs of the two banks.

3,564,923

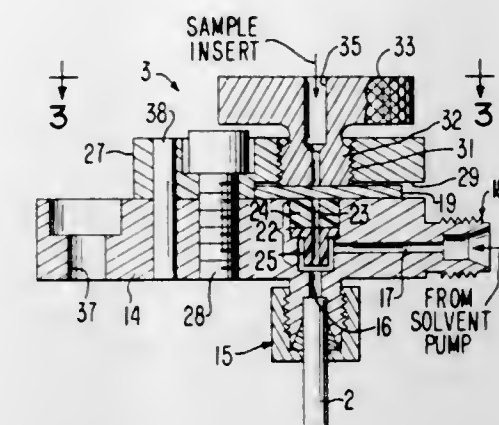
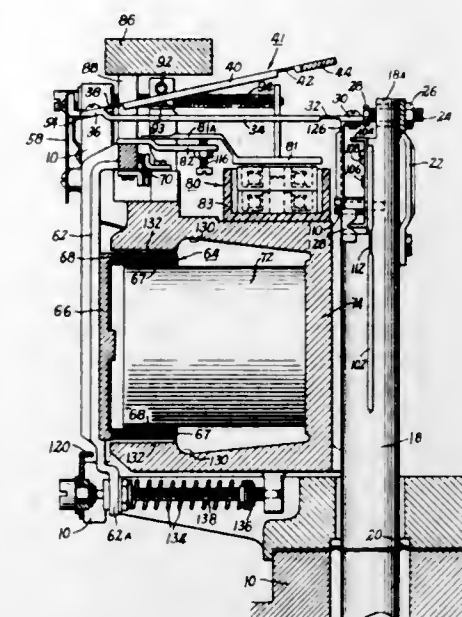
DIFFERENTIAL PRESSURE MEASURING APPARATUS
Howard W. Nudd, Jr., Foxboro, Robert J. Robinson, Lexington, and James W. Graham, Foxboro, Mass., assignors to The Foxboro Company, Foxboro, Mass. Continuation of application Ser. No. 666,422, Sept. 8, 1967. This application Jan. 12, 1970, Ser. No. 1,967

Int. Cl. G011 9/10
U.S. Cl. 73—398 19 Claims

A differential-pressure transmitter to produce a D-C output signal corresponding to a difference in input pressures, the instrument having a force-balance mechanism which is statically balanced to permit operation in any angular orientation with respect to gravity, the force-balance mechanism including a vernier range-changing structure in the form of a flexured reaction element and rotatable support element adapted to change range without altering the static balance of the instrument, large changes in range being effected by changing the number of effective turns of the motor winding; there also being provided a force bar support structure including struts pivoted at

precisely defined positions; the instrument further including a rebalance motor having a cylindrical permanent

pled to the end of the chromatographic column. The housing includes an injector passageway aligned with the column and through which a hypodermic syringe is inserted for injecting sample material into the head of the column. A blocking plate is pivotable into position for



magnet and surrounding magnetic material recessed near the motor windings to reduce leakage flux.

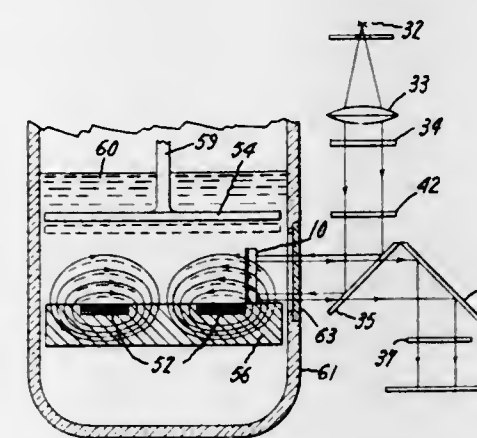
blocking the sample injector passageway, after injection of the sample, and is sealed to the housing by means of a deformable sealing ring. A screw, with internal passageway, is provided for pressing the plate into sealing engagement with the ring after insertion of the sample.

3,564,924

MAGNETO-OPTIC PRESSURE MEASURING DEVICE

Warren De Sorbo, Ballston Lake, N.Y., assignor to General Electric Company, a corporation of New York
Original application Apr. 12, 1961, Ser. No. 102,411, now Patent No. 3,413,005, dated Nov. 26, 1968. Divided and this application Aug. 15, 1968, Ser. No. 752,884

Int. Cl. G02f 1/18
U.S. Cl. 73—398 1 Claim



Non-destructive testing apparatus including a reflecting plate-like Faraday body and a source of polarized light and a light analyzer enables use of the magneto-optic effect in sensing magnetic fields including those generated by weak electric currents.

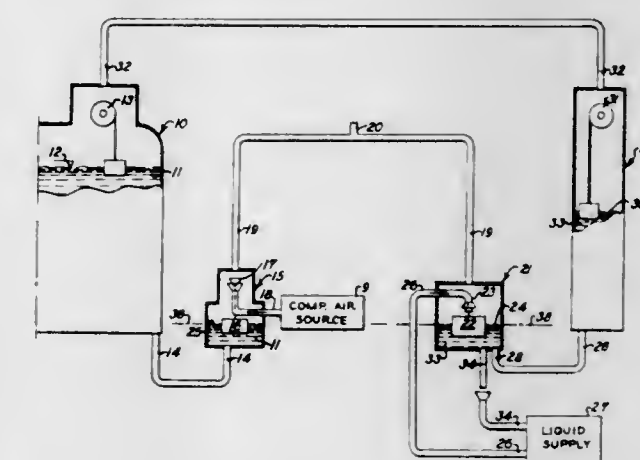
3,564,925

SAMPLE INJECTOR FOR A HIGH PRESSURE LIQUID CHROMATOGRAPH
Hubert N. Divelbiss, Napa, and Billy E. Goostree, Pleasant Hill, Calif., assignors to Varian Associates, Palo Alto, Calif., a corporation of California
Filed Aug. 18, 1969, Ser. No. 850,925

Int. Cl. G01n 1/10
U.S. Cl. 73—422 5 Claims

A sample injector for a high pressure liquid chromatograph is disclosed. The injector includes a housing cou-

The apparatus includes an initial chamber in communication with the bottom of a tank containing the liquid to be measured and provided with means for maintaining the liquid in such chamber at a constant level, a column containing a reference liquid communicating at its bottom with a second chamber provided with means to maintain the reference liquid in such second chamber at the same level as the liquid in the initial chamber, ducting connecting the top of the tank with the top of the column, and connecting the tops of the two chambers, and means for measuring the liquid surface levels in the tank and column.



3,564,927

METHOD AND APPARATUS FOR MEASURING PEAK ACCELERATION

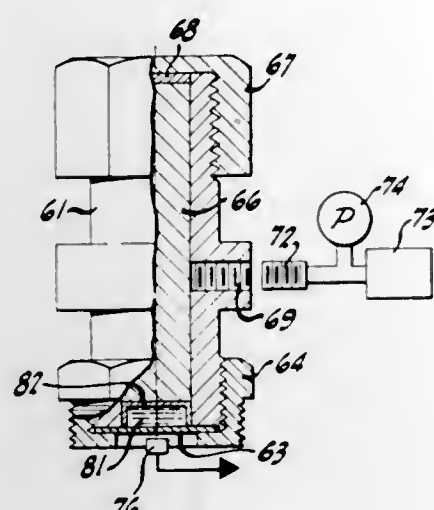
Clement A. Tatro and Harold L. Dunegan, Livermore, Calif., assignors to Harold L. Dunegan, Livermore, Calif.

Continuation-in-part of application Ser. No. 666,084, Sept. 7, 1967. This application Feb. 4, 1969, Ser. No. 796,481

Int. Cl. G01p 15/02

U.S. Cl. 73—492

3 Claims



A method of and apparatus for determining the peak or maximum acceleration experienced by a unit wherein a mass is disposed in engagement with a rigidly mounted diaphragm for plastically stressing the diaphragm by acceleration forces acting thereon through the mass and subsequently applying a force or pressure to the diaphragm while monitoring the latter for acoustic emission. Such emission commences at the peak stress previously experienced by the diaphragm and this is mathematically converted to peak acceleration.

3,564,928

HIGH SENSITIVITY ACCELEROMETER

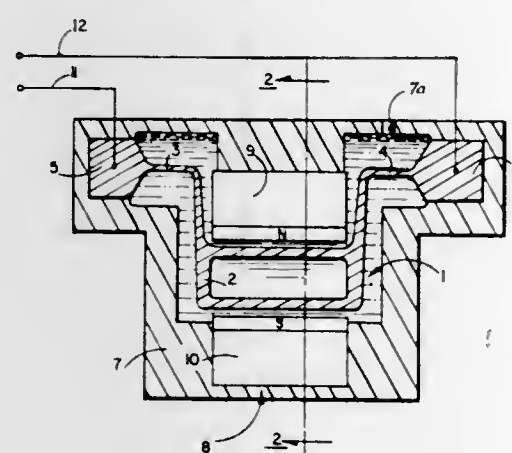
John M. Slater, Fullerton, and Doyle E. Wilcox, Hacienda Heights, Calif., assignors to North American Rockwell Corporation, a corporation of Delaware

Filed Aug. 30, 1967, Ser. No. 664,496

Int. Cl. G01p 15/08

U.S. Cl. 73—516

13 Claims



An accelerometer for extraterrestrial craft which can be tested on earth by being isolated from gravity is constructed having a movable proof mass member which is either a hollow metalized conductor loop suspended by filaments, or a hollow sphere of ferromagnetic material. In either case, the net density of the proof mass

member is such as to permit substantially complete flotation of the proof mass in water maintained at the temperature of maximum density. The proof mass is then immersed in the water so as to attenuate gravity to any desired degree. The instrument may then be tested in known ways in the laboratory, and the water removed before the accelerometer goes into service in the craft.

3,564,929

ADJUSTABLE MEANS FOR LIMITING ROTATION OF THE CONTROL SHAFT OF ELECTRIC CONTROL MEANS

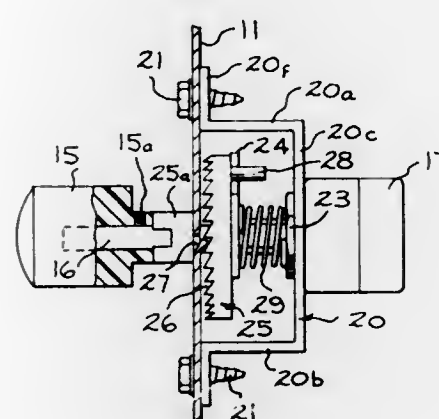
Richard J. Halstead, Chesapeake, Va., assignor to General Electric Company, a corporation of New York

Filed Sept. 2, 1969, Ser. No. 854,604

Int. Cl. F16h 35/18

U.S. Cl. 74—10.2

12 Claims



A control shaft carries an abutment which contacts an adjustable abutment to limit the extent of rotation of the control shaft. The adjustable abutment is rotatably mounted on the control shaft, has ratchet means thereon, and is spring biased toward a mounting panel having a detent engaged with the ratchet means. The adjustable abutment can be manually urged away from the detent and rotatably reset to thereby change the extent of rotation of the control shaft.

3,564,930

ARRANGEMENT FOR TUNING RECEIVERS TO THE DESIRED OPERATING FREQUENCY

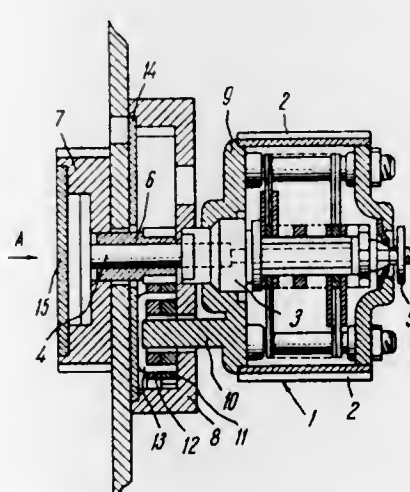
Vladimir Petrovich Titov, Ulitsa Pugacheva 64, kv. 11, and Gennady Petrovich Kurilin, Ulitsa K. Marxa 90, kv. 3, both of Sarapul, U.S.S.R.

Filed Mar. 12, 1969, Ser. No. 806,475

Int. Cl. F16h 35/18

U.S. Cl. 74—10.8

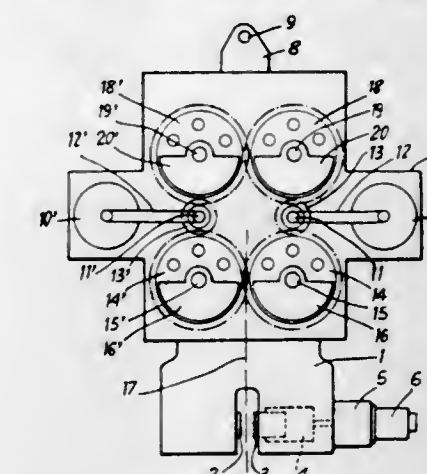
3 Claims



An apparatus is provided for tuning radio receivers to a desired operating frequency, and comprises a variable

capacitor having a shaft with a bore receiving an auxiliary shaft on which is mounted an external tooth pinion. An internal tooth gear with a slot is fixedly mounted on the shaft of the variable capacitor and a boss on a base of the capacitor passes through a slot in the gear and supports an intermediate gear which is in mesh with the pinion and the internal tooth gear.

tion), the mutual phase relationship of the sets can be altered at will without stopping rotation of the sets so



3,564,931

NUTATIONAL MOTION DAMPING MEANS FOR GYROSCOPIC APPARATUS

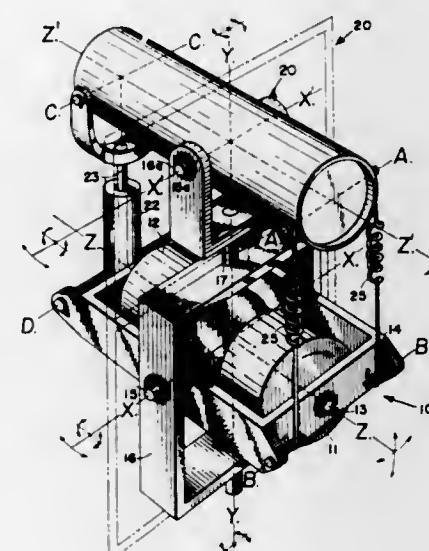
William E. Humphrey, Oakland, Calif., assignor to Optical Research and Development Corporation, Oakland, Calif., a corporation of California

Filed Sept. 4, 1968, Ser. No. 757,252

Int. Cl. G01c 19/02

U.S. Cl. 74—5.5

13 Claims



A gyroscope linkage for interconnecting a low friction balance optical device with the gyroscope having a yieldable interconnecting element connected to the gyroscope and the optical element affording high energy absorbing yieldability during torque stresses due to angular variation to the gyroscope with respect to the optical device and having a sufficient constraining bias to maintain on-axis registration of the two elements using, for example, a cylinder connected to the gyroscope and a piston connected to the optical device in which the piston is reciprocally mounted within the cylinder, spring bias in the cylinder yieldably holding the piston in a biased position, and a friction producing fluid field between the piston and the cylinder to absorb energy due to reciprocating motion of the piston relative to the cylinder.

as to thereby alter the amplitude of the conjoint net vibratory force.

3,564,933

BANDED POWER TRANSMISSION BELT

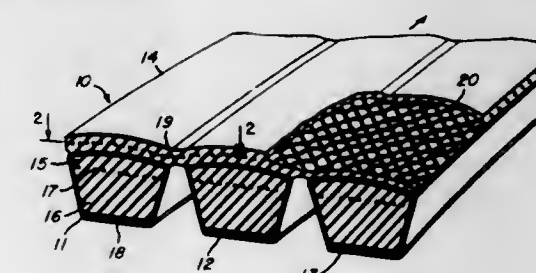
Donald E. Clinkenbeard, Springfield, Mo., assignor to Dayco Corporation, Dayton, Ohio, a corporation of Delaware

Filed July 30, 1969, Ser. No. 846,104

Int. Cl. F16g 5/16

U.S. Cl. 74—233

6 Claims



A power transmission belt with laterally spaced belt bodies which are interconnected at their radially outer surfaces by means of a band. The band is made of one or more layers of fabric embedded in an elastomer, the threads of the fabric being diagonal to the longitudinal direction of the belt.

3,564,934

LINK MECHANISM

David R. McMurtry, Filton, Bristol, England, assignor to Rolls-Royce Limited, Derby, England, a British company

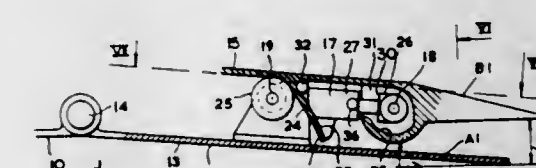
Filed July 24, 1968, Ser. No. 747,254

Claims priority, application Great Britain, July 25, 1967, 34,127/67

Int. Cl. F16h 21/44

U.S. Cl. 74—105

3 Claims



An exhaust nozzle for a gas turbine engine wherein the flow area of the nozzle is varied by flaps pivotally connected to a jet pipe and pivoted by movement of a shroud enclosing the flaps. The shroud acts on the petals through links and additionally through a cam which comes into operation when the link connection is in or near a dead centre position.

3,564,932

VIBRODRIVER SYSTEM

Jean Louis Lebel, 35 Rue Gounod, Hauts-de-Seine, St.-Cloud, France

Filed Nov. 4, 1968, Ser. No. 773,100

Claims priority, application France, Feb. 9, 1968, 139,235

Int. Cl. F16h 33/00; E21b 7/04; E02d 7/18

U.S. Cl. 74—61

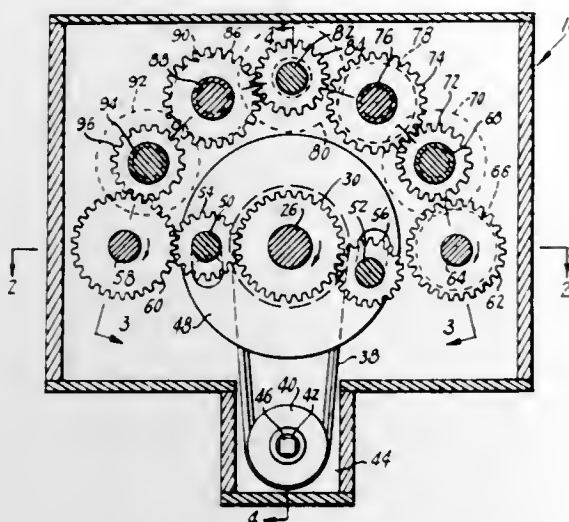
16 Claims

A vibrodriver comprising at least two sets of eccentric weights, the weights of each set being so arranged that such set generates a net vibratory force along a functional axis, the functional axes of the two sets being coincident. The sets are coupled to one another by a transmission including a continuously variable phase shifting device such as a Pecqueur epicycloidal train so that although the two sets are driven synchronously (at the same speed of rota-

3,564,935
CHANGE SPEED GEARING
 Giuseppe Vigneri, 102 Warwick St.,
 Newark, N.J. 07105
 Filed Aug. 29, 1969, Ser. No. 854,042
 Int. Cl. F16h 3/34, 57/00

U.S. Cl. 74—354

6 Claims

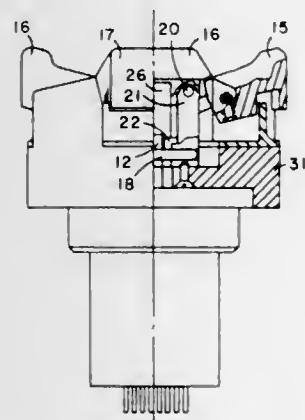


An input shaft carrying a driving gear is surrounded by a rockable plate carrying pinions engaged with said driving gear and adapted to selectively engage oppositely arranged gears forming part of a series of arcuately disposed power transmission gears whereby rocking of said rockable plate to engage one pinion with its associated gear drives the shaft of the gear at the opposite end of the train in one direction at a certain speed, and rocking the plate in the opposite direction disengages said one pinion and engages the other pinion with its associated gear to drive the shaft thereof at a different speed.

3,564,936
THUMB-OPERATED INTERLOCKED TWO AXIS, JOYSTICK ACTUATOR
 Donald D. Korell, Marion, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
 Filed Sept. 18, 1969, Ser. No. 859,061
 Int. Cl. G05g 11/00

U.S. Cl. 74—483

7 Claims

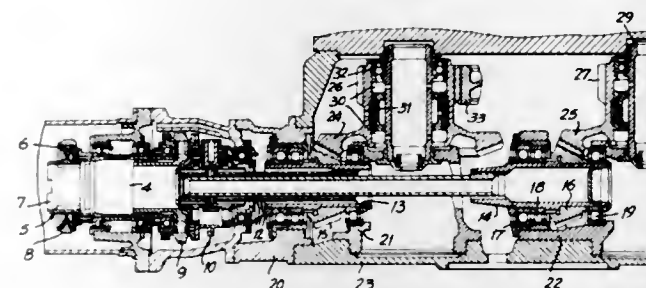


An actuator mechanism for selectively applying force to a shaft transverse of the shaft longitudinal axis and along mutually perpendicular axes. Actuating member pairs address the shaft sides along the two axes and have a transverse dimension substantially equal that of the shaft such that application of force in either direction along one of the axes by either one of the actuating member pairs provides an interlock to prevent force application along the other of the axes.

3,564,937
MECHANICAL DRIVE WITH ANGLE POWER TRANSMISSION
 Pavel Alexandrovich Soloviev, Komsomolsky prospekt 90, kv. 21; Ivan Petrovich Evich, Ul. Geroev, Khasana 32, kv. 13; Georgy Petrovich Kalashnikov, Ul. Geroev, Khasana 16, kv. 53; Lev Izrallevich Kantor, Ul. Geroev, Khasana 30, kv. 37; and Sergel Nikolaevich Zamotin, Komsomolsky prospekt 73, kv. 19, all of Perm, U.S.S.R.
 Filed Oct. 25, 1968, Ser. No. 770,660
 Int. Cl. F16h 37/06

U.S. Cl. 74—665

4 Claims

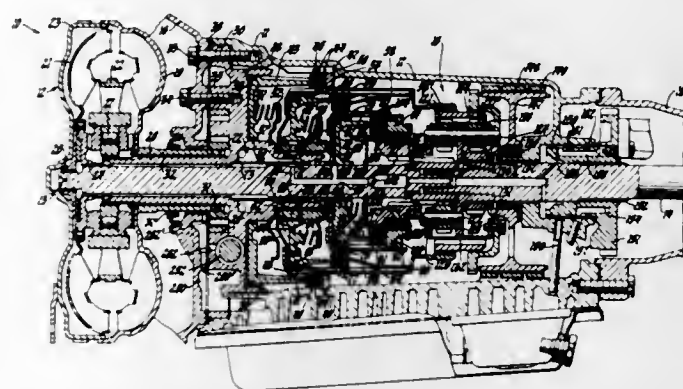


A mechanical drive with angle power transmission is provided primarily for a helicopter and comprises input shafts which are respectively connected to pairs of coaxial shafts so as to drive the coaxial shafts in rotation. The coaxial shafts in each of the pairs are located one inside the other and first bevel gear wheels are secured to the coaxial shafts. Second bevel gear wheels are each in mesh with a respective first bevel gear wheel. Spur gear wheels fixed to the second bevel wheels mesh with a center spur gear wheel, which is mounted on an output shaft. A device is mounted between each input shaft and the pair of coaxial shafts for equalizing the torques transmitted by the coaxial shafts.

3,564,938
TRANSMISSION AND CONTROL
 Gilbert K. Hause, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
 Filed Apr. 11, 1969, Ser. No. 815,422
 Int. Cl. F16h 57/10, 47/00

U.S. Cl. 74—761

25 Claims



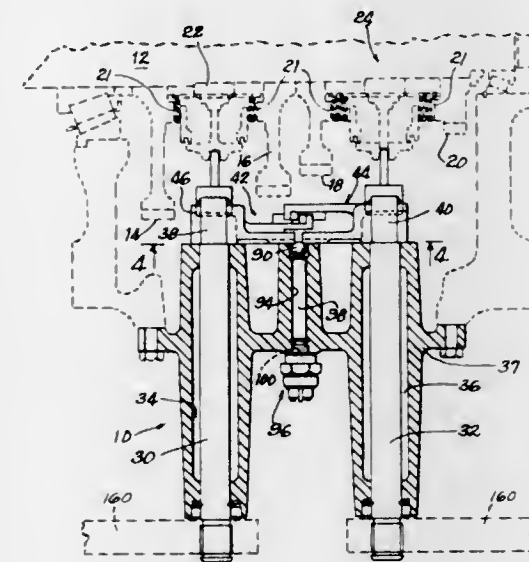
A transmission including a compound planetary gear set having an input sun gear, a reaction sun gear, a ring gear and a plurality of individual pinions mounted in a common output carrier. The pinion arrangement consists of sets of three (3) like individual pinion gears mounted for independent rotation on the common carrier, one of which meshes with the input sun gear, a second of which meshes with the first pinion and the ring gear, and the third of which meshes with the ring gear and the reaction sun gear. In one form, the carrier includes a central plate or hub member which serves to support a common pinion shaft or pin between an aligned pair of pinions, the split pinions and the central support making possible the use of a small diameter pin and,

hence, a small diameter planetary gear package. A second pinion arrangement may consist of three (3) sets of like pinions, the first of which meshes with the input sun gear, the second of which is mounted on its own pinion shaft, supported by the central hub, and meshes with the first pinion and the ring gear, while the third pinion is mounted on its own shaft and supported by the carrier central hub radially inwardly from the second pinion, while meshing with the reaction sun gear and with a radially inwardly located portion of a stepped or two-diameter ring gear. The resultant stepped split pinion arrangement produces higher low and reverse gear ratios, as well as a more favorable relationship between the two. For both pinion arrangements, low gear ratio is provided by a one-way clutch in automatic low gear, while the reaction sun gear is held. Input during second gear ratio is provided by an additional clutch connecting the ring gear to the input shaft, while reaction is provided by the reaction sun gear. In one form, for third gear ratio, the reaction sun gear is released, and both clutches drive. In another form, a third gear clutch, having parts identical to the second gear clutch, is engaged, locking up the planetary gear set to produce a direct drive and prevent the second gear clutch from being subjected to excessive turbine torque. For reverse, a reverse brake is engaged, causing the ring gear to serve as the reaction member, while the direct clutch is engaged. The engagement of the direct clutch in reverse supplements the input to the gear set through the one-way clutch and prevents freewheeling in reverse gear.

3,564,939
GEAR SHIFTING MECHANISM
 Eugene D. Taylor, Kenosha, Wis., assignor to J. I. Case Company, a corporation of Wisconsin
 Filed Aug. 18, 1969, Ser. No. 850,830
 Int. Cl. F02d 39/00; G05g 5/10, 9/00

U.S. Cl. 74—851

10 Claims



A gear shifting mechanism for a transmission and including first and second members rotatable about spaced parallel axes and extending towards each other. The members have overlapping portions which include interlock means to prevent movement of one member from a neutral to an engaged position when the other member is in an engaged position. The members also have cooperating portions which maintain an element cooperating with a switch in the engine starting circuit in a switch closing position when both members are in a neutral position and allow movement of the element to a switch opening

position when either member is moved to an engaged position. The members further include surfaces with spaced apertures which receive biased detents to maintain the members in engaged and neutral position.

3,564,940
ANISOTROPIC POLYPHASE STRUCTURE OF MONOVARIANT EUTECTIC COMPOSITION
 Earl R. Thompson and Franklin D. Lemkey, Glastonbury, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
 Filed June 5, 1968, Ser. No. 734,821
 Int. Cl. C22c 19/00

U.S. Cl. 75—134

17 Claims

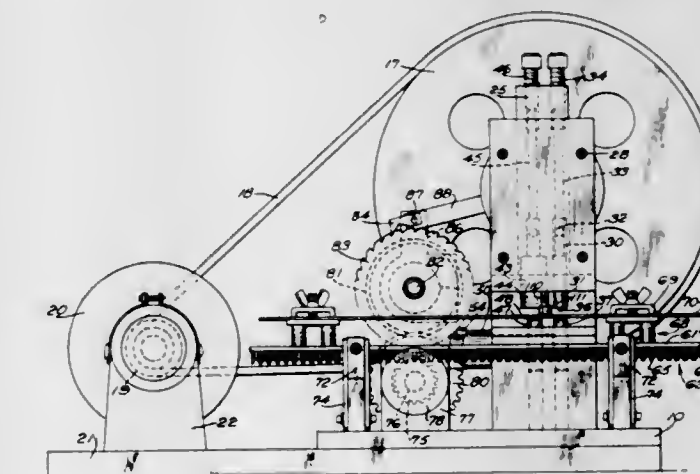


Monovariant eutectic compositions of matter are unidirectionally solidified to provide an anisotropic structure wherein one phase of a whisker or lamellar morphology in substantial alignment is embedded in a matrix phase. Included in the systems described are alloys of nickel or cobalt of monovariant ternary eutectic composition which may be solidified to form structures with high strength whiskers embedded in a nickel or cobalt-base matrix.

3,564,941
SAWTOOTH SETTING MACHINE
 Sulo A. Aljala, Attleboro, Mass., assignor to Intricate Machine & Engineering Inc., a corporation of Massachusetts
 Filed Sept. 23, 1968, Ser. No. 761,500
 Int. Cl. B23d 63/04

U.S. Cl. 76—66

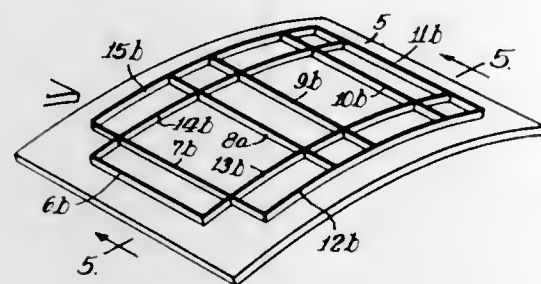
3 Claims



A machine in which a saw blade is guided and fed in a straight line in a step by step feed with an eccentric on

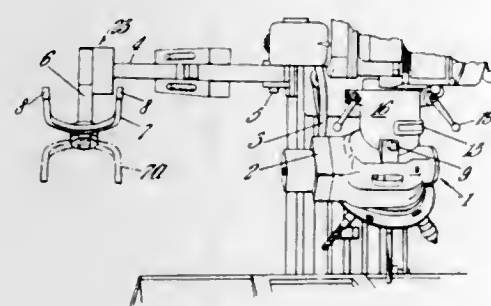
the main drive shaft for operating the feed. The feed is in two parts and may be adjusted as to the length of feed by a relative movement of the parts which are then clamped together in a desired setting. As the saw is fed in a straight line, bending tools operate to set a pair of teeth in opposite directions, one of the bending tools being movable to space it different distances from the other tool for different teeth spacings.

3,564,942
METHOD OF FABRICATING STEEL RULE DIES
Edgar H. Wolfe, Chicago, Ill., assignor to The Barrett Bindery Co., Chicago, Ill., a corporation of Illinois
Filed May 6, 1969, Ser. No. 822,134
Int. Cl. B21k 5/20
U.S. Cl. 76—107 2 Claims



A method of fabricating a curved steel rule die having a base member of predetermined curvature conforming to and for mounting on a rotatable cylinder with steel rules mounted in recesses in the base member having their outer working edges lying at a predetermined radius from the rotational axis of the cylinder, in which the base member is initially in a flat condition and while in flat condition a pattern is applied and recesses formed in the base member according to the pattern in a manner such that when the base member is curved to the predetermined curvature and steel rules inserted into the recesses, the working edges of the steel rules lie at the aforementioned predetermined radius from the center of the rotational axis of the cylinder.

3,564,943
DRILLING MACHINE WITH TURRET HANDLING MEANS
Paul Terence Kavanagh, London, England, assignor to Kavanagh O'Moore & Company Limited, London, England, a British company
Filed Nov. 27, 1968, Ser. No. 779,342
Claims priority, application Great Britain, Aug. 26, 1968, 40,741/68
Int. Cl. B23b 39/20
U.S. Cl. 77—25 3 Claims



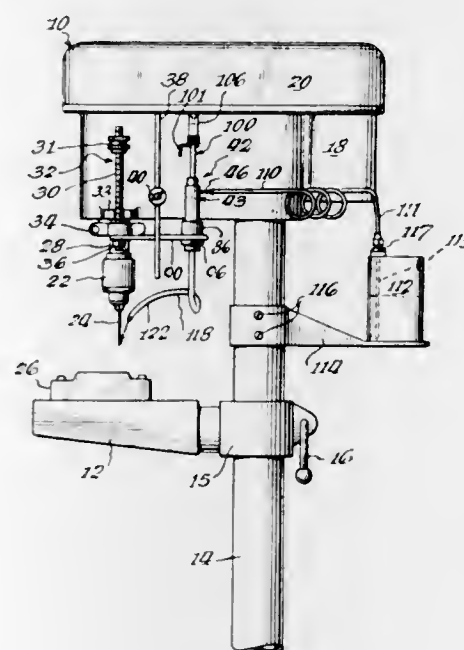
An automatically controlled drilling machine having an indexing turret provided with its own indexing means,

which is interchangeable for another such turret, or a single tool, to extend the range of tools usable upon a workpiece, as required by the programme controlling the machine. The turret, or a plurality of turrets are supportable upon a hingeable arm or other support means, so as to be movable and stored out of the way, and can be brought selectively adjacent the spindle quill assembly of the machine, for attachment thereto as and when required.

The hingeable arm, when used, may incorporate a spring for assisting in the lowering and raising of the turret during disconnection from and connection to the machine.

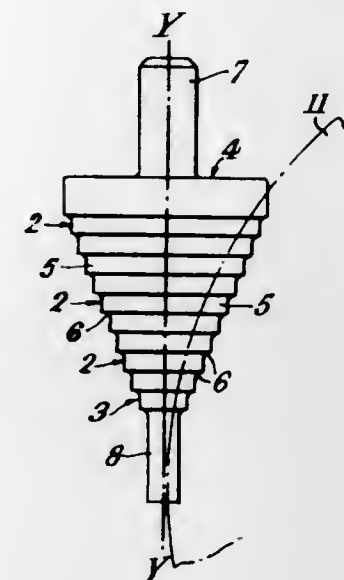
When the signals controlling the indexing turret are of the electric kind, the signals are conveyed by a flexible cable attached to the turret by plug and socket means. Where the signals are hydraulic or pneumatic, they are conveyed by a flexible pipe connected to the turret by snap-type connectors.

3,564,944
APPARATUS FOR AUTOMATICALLY APPLYING CUTTING FLUID TO A ROTATING TOOL
William G. Hill, Des Plaines, and James W. Trent III, Franklin Park, Ill., assignors to William G. Hill, Des Plaines, Ill.
Filed Feb. 3, 1969, Ser. No. 796,001
Int. Cl. B23b 47/00; F04b 11/00
U.S. Cl. 77—55 8 Claims



A pump is carried on the vertically reciprocal portion of a rotary machine and has its plunger connected to an extension protruding upward from the pump to engage a stop fixed to the machine. The bottom end of the pump has a discharge nozzle aimed at the cutting tool carried by the vertically reciprocal portion of the rotary machine. The pump chamber is connected by means of a flexible conduit to a remote reservoir. A pair of spaced check valves in the pump control the intake of cutting fluid from the reservoir and the discharge through the nozzle. The discharge stroke is executed at the end of the upward movement of the vertically reciprocal portion of the rotary machine when the extension engages the stop. Fluid is thus discharged to the cutting tool immediately before its use. Thereafter as the reciprocal portion of the rotary machine is moved downward, during the first portion of its stroke when the pressure of the extension upon the stop is relieved, the spring means in the pump moves the plunger in a direction to draw fluid into the pump chamber and retain the same there ready for the next discharge stroke. The pump cylinder with both valves is constructed as a unitary assembly providing many advantages.

3,564,945
DRILL
Harry Edwin Bradley, Tooting, London, England, assignor to Barworth Flockton Limited, Ecclesfield, near Sheffield, Yorkshire, England, a British company
Filed Oct. 2, 1968, Ser. No. 764,431
Claims priority, application Great Britain, Oct. 10, 1967, 46,235/67, 46,236/67
Int. Cl. B23b 51/08
U.S. Cl. 77—65 7 Claims

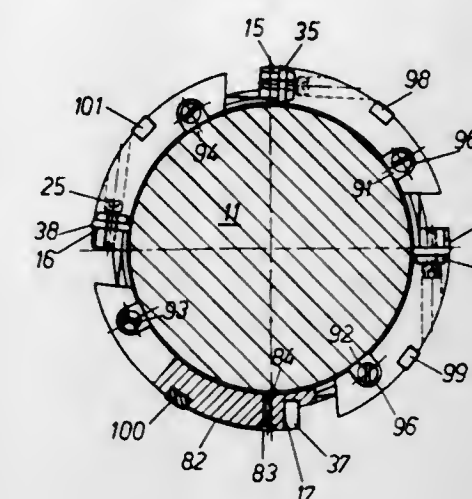


A unitary cutting drill designed for cutting a plurality of different sized holes comprising a frusto-conical bit having its inclined surface formed of a series of steps which progressively increase in diameter from the small diameter end to the base thereof. The inclined surface is relieved of material to form a cutting edge for each step of the series.

3,564,946
CORE BORER
Alfred Küser, Rieden, Nussbaumen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland, a joint-stock company
Filed June 3, 1969, Ser. No. 829,980
Claims priority, application Switzerland, June 5, 1968, 8,307/68
Int. Cl. B23b 51/04, 51/06
U.S. Cl. 77—68 6 Claims

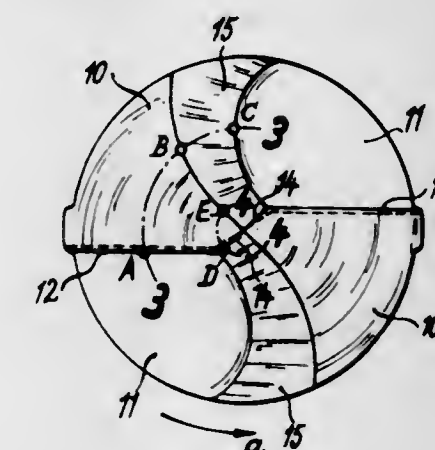
A core drill structure includes a hollow drill shaft at the end of which an annular tool head is located. The end face of the tool head carries a plurality of circumferentially spaced cutting plates the edges of which serve to drill an annular hole leaving a central core which is accommodated within the hollow drill shaft as the hole deepens. To prevent damage to the drill head in the event of breakage of the cutting edge on one or more of the cutting plates, two sets of combined stop and brake means are provided for the head. One set is constituted by a plurality of circumferentially spaced brake shoes secured to the end face of the drill head where the drilling action takes place, and which project radially inward for a slight distance beyond the inner periphery of the annular drill head and are engageable with the periphery of the core only as the diameter of the latter increases upon breakage of one or more cutting edges. The other set is constituted by a plurality of circumferentially spaced strips set into grooves in the outer surface of the drill head and which run parallel with the drill axis. These strips project radially outward for a slight distance beyond the outer periphery of the annular drill head and are en-

gageable with the periphery of the drill hole only as the diameter of the latter decreases upon breakage of one or more cutting edges. The two sets of combined stop and brake means serve to prevent contact as between



either the inner or outer periphery of the annular drill head and the surface of the core or drill hole, respectively, and they also impose a frictional braking force on the rotating drill head which can be used as a signal for cutting off the driving power to the drill shaft.

3,564,947
TWIST DRILLS
Karl Stephan Maier, Weinbrennerstrasse 20, Karlsruhe, Baden, Germany
Application Apr. 26, 1967, Ser. No. 634,007, which is a continuation of application Ser. No. 338,103, Jan. 16, 1964. Divided and this application May 17, 1968, Ser. No. 738,366
Int. Cl. B23b 51/02
U.S. Cl. 77—70 3 Claims



A twist drill providing a good centering action and comprising at least two cutting lips which are connected together by centering lips, in which the cutting lips are followed, in the direction of rotation of the drill, by a main land of the drill and by a further ground surface of greater rake than the main land. Each centering lip dividing the main land following one cutting lip from the further ground surface following the opposite cutting lip, and each centering lip being undercut by the respective further ground surface which it meets and thus being provided with a positive cutting angle.

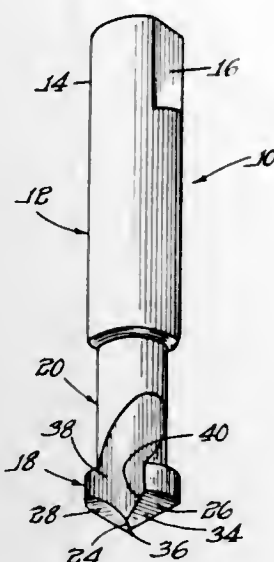
**3,564,948
DRILL**

Henry Pomernacki, Northbrook, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill., a corporation of Delaware

Filed Dec. 6, 1968, Ser. No. 781,741
Int. Cl. B23b 51/02

U.S. Cl. 77—70

15 Claims



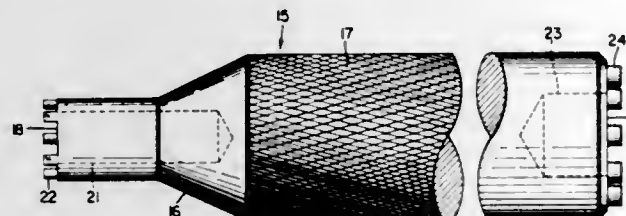
The invention relates to a double flute drill having angularly disposed oppositely positioned slots serving as flutes on a drilling end or tip, a reduced shank portion, and a second shank portion for cooperation with a tool for rotating the drill. The aim of the invention is to provide a drill capable of being used for a series of operations and which is inexpensive enough to be disposed of rather than being resharpened.

**3,564,949
APPARATUS FOR ADJUSTING THE WINDAGE AND ELEVATION DIALS OF A MARK-16 RIFLE OR THE LIKE**

Ernest J. Hedrick, Staatsburg, N.Y. 12580
Filed Sept. 18, 1968, Ser. No. 760,400
Int. Cl. B25b 13/48

U.S. Cl. 81—3

4 Claims



The windage and elevation dials of the M-16 rifle are mounted on the rear and front sights respectively of the rifle and each is formed as a circular dial having a central projection surrounded by circumferentially-spaced openings. Adjustment is made by engaging an opening and rotating the dial. However, each of the dials also has a lock pin extending through one of its openings to restrain the rotation and this pin first must be depressed before adjustment can be made. The present tool is an elongate rod having each of its end walls provided with a central bore to receive the outwardly projecting portions of the dials and also having circumferentially-spaced pins disposed around the central bores for engaging the openings

on the dials. The pins are spaced and sized to insertably mate with the openings and, in use, one or the other ends of the tool are mated with the windage or elevation dials to simultaneously depress the lock pin of the dial and permit the rotary adjustment. A medially-disposed knurled section facilitates rotation of the tool.

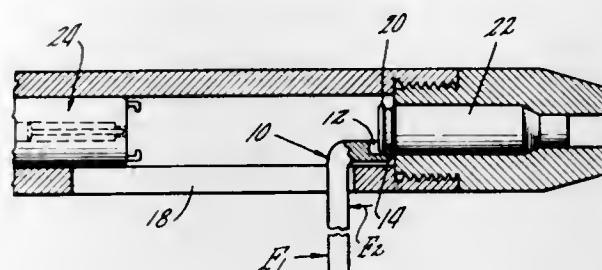
**3,564,950
CARTRIDGE CASE EXTRACTOR TOOL**

John K. Jorczak, Springfield, Mass., and David A. Behrendt, Bristol, Conn., assignors to Colt's Inc., Hartford, Conn., a corporation of Arizona

Filed Sept. 6, 1968, Ser. No. 758,065
Int. Cl. B25b 27/02

U.S. Cl. 81—3.05

1 Claim



Tool designed to fit through shell ejection window of an M-16 auto-loading rifle to engage the rim of a spent cartridge and to cause extraction of the spent cartridge upon application of a prying moment to the tool.

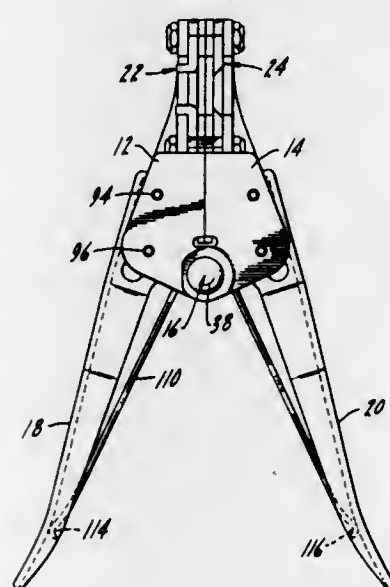
**3,564,951
WIRE STRIPPER**

Irving R. Metcalf, St. Charles, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill., a corporation of Delaware

Filed Mar. 13, 1968, Ser. No. 712,682
Int. Cl. H02g 1/12

U.S. Cl. 81—9.5

24 Claims



A wire stripper capable of being made of stamped parts and of reduced size with a device to prevent fraying or nicking wires. The wire stripper may be manually operated, in the form of a hand-held unit, and uses a phantom center actuating arrangement with a single spring arrangement for blade opening and handle return.

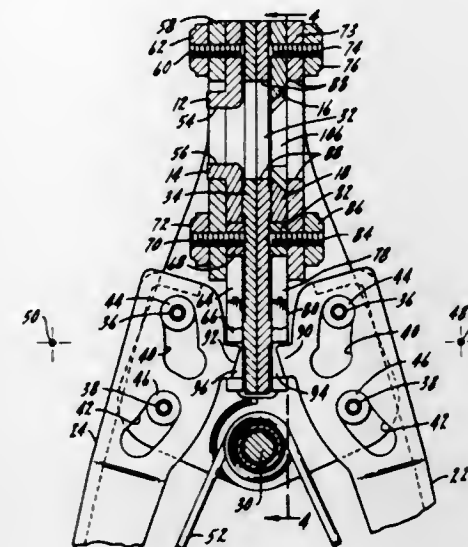
**3,564,952
WIRE STRIPPER**

Irving R. Metcalf, St. Charles, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill., a corporation of Delaware

Filed July 22, 1968, Ser. No. 746,635
Int. Cl. H02g 1/12

U.S. Cl. 81—9.5

8 Claims



A wire stripper device having a pair of blades movable to cut and then strip insulation from wires. A guiding device formed on one of the blades functions to assure alignment of the teeth or cutting channels so that the wires are not damaged or nicked.

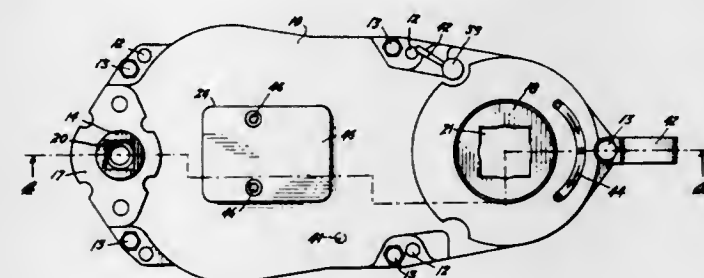
**3,564,953
LATERAL EXTENSION DEVICES FOR SOCKET WRENCHES**

Edward T. Able, Denver, Colo., assignor to B. K. Sweeney Manufacturing Co., Denver, Colo., a corporation of Colorado

Filed Feb. 26, 1969, Ser. No. 803,127
Int. Cl. B25b 17/00, 13/46

U.S. Cl. 81—57.3

9 Claims



A relatively flat, horizontally-elongated housing having oppositely and axially aligned, vertically positioned, rotatable wrench sockets adjacent its one extremity and oppositely and axially aligned, vertically positioned, rotatable nut sockets adjacent its other extremity, said housing enclosing means for rotating said aligned nut sockets in consequence of rotation of said wrench sockets.

**3,564,954
EASY RELEASE DEVICE FOR A SOCKET WRENCH**

Gabriel M. La Pointe, Worcester, Mass., assignor to Parker Mfg. Company, Worcester, Mass., a corporation of Massachusetts

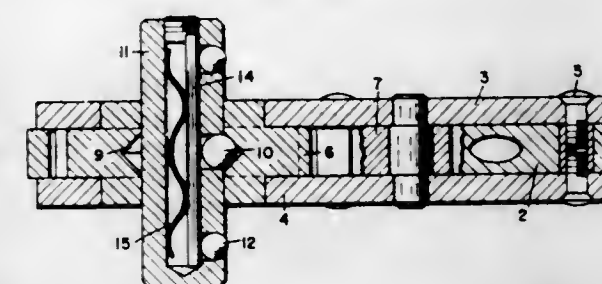
Filed Feb. 13, 1969, Ser. No. 798,898
Int. Cl. B25b 13/46

U.S. Cl. 81—61

6 Claims

This invention relates to a push button release snap-on drive square for a ratchet operated socket wrench that

projects from opposite sides of the wrench to permit sockets, screwdrivers, hand-operated knobs or the like to be detachably mounted on opposite sides of the wrench for



alternate use. The socket is detached from the drive square by pressing the drive square in a direction parallel to the axis of the socket.

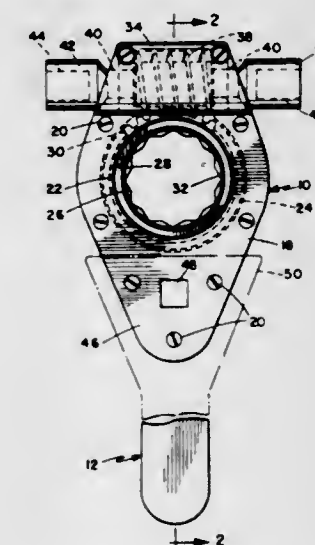
**3,564,955
HIGH TORQUE WRENCH ASSEMBLY**

Clarence F. Batchelder, 773 N. Mollison, El Cajon, Calif. 92021

Filed Feb. 5, 1969, Ser. No. 796,868
Int. Cl. B25b 17/00

U.S. Cl. 81—57.29

8 Claims



The wrench assembly is for very high torque applications and uses a worm type mechanism adapted to be power driven. The body of the wrench has a socket to receive a locking bar or stabilizing bar to hold the wrench against rotation, and the wrench body may be unitary or a hinged opening type. A special extension driving element, which fits into the wrench, incorporates a special torsion type torque indicator particularly suited to the high torque range of the wrench.

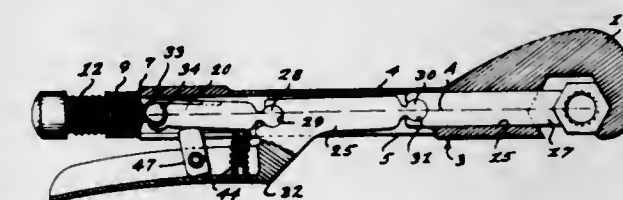
**3,564,956
LOCKING PLIER WRENCH**

Bernard Landen, Rte. 1, Box 54A, Highway 85-87, Fountain, Colo. 80817

Filed Feb. 21, 1968, Ser. No. 707,138
Int. Cl. B25b 13/12, 13/16

U.S. Cl. 81—126

2 Claims



An articulated link operated wrench having a fixed and slideable jaw wherein the center line of the wrench body

is substantially coincident with the longitudinal center line of the linkages and the slideable jaw and wherein an extension of the center line bisects the interspace between the fixed and slideable jaw.

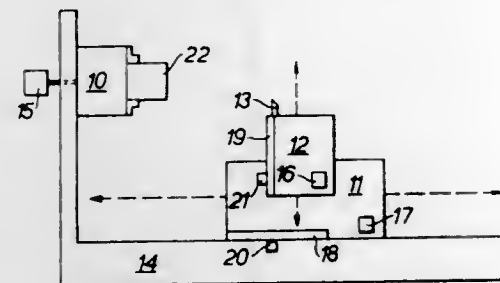
3,564,957

CONTROL SYSTEMS FOR MACHINE TOOLS
Zsigmond Markgraf, Warwick, England, assignor to Wickman Machine Tool Sales Limited, Coventry, England
Filed June 14, 1968, Ser. No. 737,037
Claims priority, application Great Britain, June 26, 1967, 29,336/67

Int. Cl. B23b 7/14

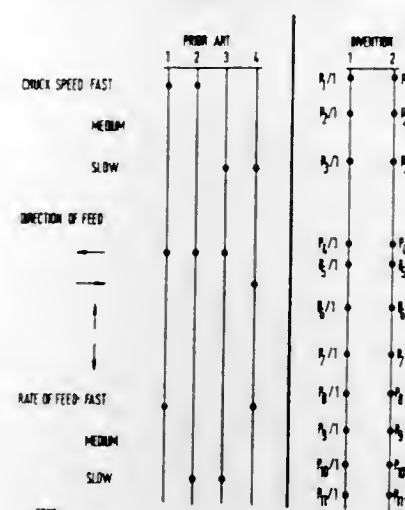
U.S. Cl. 82-2

6 Claims



A plug board control system for a machine tool, including a plug board having a plurality of columns with each column having a plurality of plug sockets. A group of plug sockets of one column together with the corre-

sponding plug sockets in the other columns when containing plugs cause operation of part of the machine tool in a particular way by way of control means respectively and switch means is provided to scan the group of plug sockets of one column in turn. The switch means serves



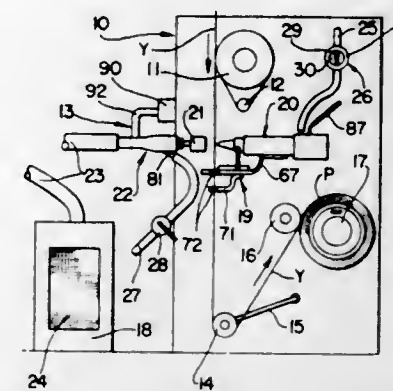
to complete an electric supply circuit to the control means when the plug socket associated therewith contains a plug, said switch means being arranged to stop scanning the plug sockets when it reaches a plug socket containing a plug to continue scanning upon receipt of a signal from the machine tool that an operation has been completed.

3,564,958

YARN HANDLING APPARATUS
Hans H. Richter, Warwick, R.I., assignor to Leesona Corporation, Warwick, R.I.
Original application July 17, 1967, Ser. No. 653,767, now Patent No. 3,452,910, dated July 1, 1969. Divided and this application Feb. 12, 1969, Ser. No. 798,607
Int. Cl. B65h 29/24

U.S. Cl. 83-100

7 Claims



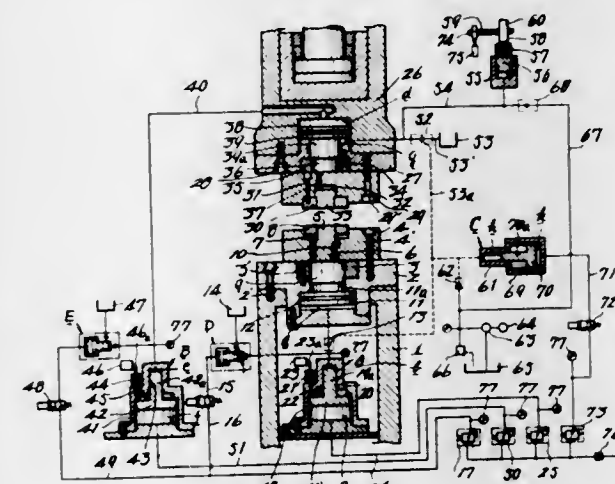
Apparatus for handling a strand of yarn continuously advancing at high speed through a winding machine. The strand is cut and an injector plunger and jet divert the strand into an aspirator which passes the strand to a disposal container. An aspirator for handling strandular materials such as yarn constructed to provide a vortex encircled by a high speed laminar fluid stream which substantially increases the capacity of the aspirator for controlling the strandular material which has been directed into the aspirator.

3,564,959

FINE BLANKING PRESS
Suguru Harada, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Aida Fekkoshu, Kanagawa-ken, Japan
Filed Nov. 29, 1968, Ser. No. 780,051
Int. Cl. B26d 7/18

U.S. Cl. 83-124

7 Claims



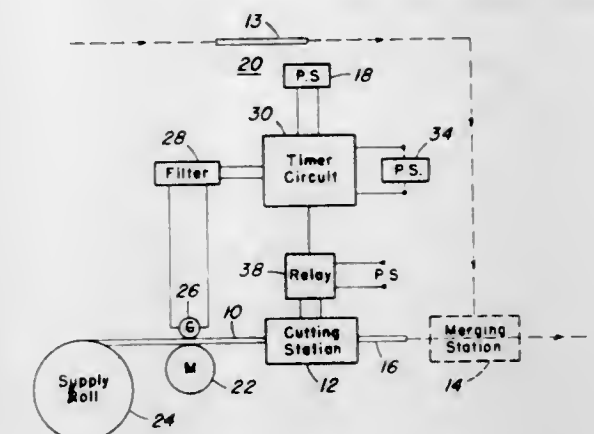
A fine blanking press comprising a punch holder mounted on the bolster of said press; a blank holder loosely fit in said punch holder encircling a punch; a first cylinder provided in said bolster; a first piston for indirectly supporting said blank holder; a first booster for supplying oil pressure to said first cylinder; a die holder mounted in the slide of said press for supporting a die; a counter blank holder received in said die; a second piston fit in a second cylinder provided in said slide for indirectly applying oil pressure to said counter blank holder; a second booster for supplying oil pressure to a chamber above said second piston; and means for controlling and maintaining oil pressure within a chamber below said second piston.

3,564,960

AUTOMATIC COPY MACHINE COPY PAPER LENGTH ERROR COMPENSATING SYSTEM
Edwin D. Foulks, Lisle, N.Y., assignor to GAF Corporation, New York, N.Y.
Filed Apr. 18, 1969, Ser. No. 817,452
Int. Cl. B26d 5/34

U.S. Cl. 83-203

5 Claims



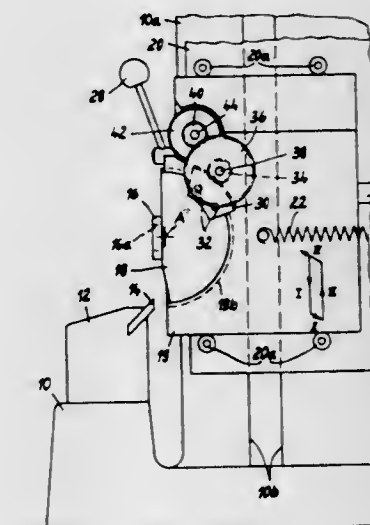
As an original moves forward, a trailing edge sensor sends an initial cutting signal to a super-precise electronic timer having a capacitor that has already received a voltage generated by the actual speed of advance of the end portion of a strip of copy paper, so that when a regulated voltage is applied to the capacitor, the charging interval of the capacitor is controlled, so that any tendency for lengths to be cut too short or too long is corrected automatically when the capacitor discharges and thereby produces an actual cutting signal for operating a cutter to sever the strip. In the case of "flying" cuts, the strip speed voltage assists, and in the case of strip "standstill" cuts, such voltage "bucks" the charging current of the regulated voltage.

3,564,961

MICROTOME PREPARATION HOLDER
Rolf Burkhardt, Munchen-Pasing, Germany, assignor to Compur-Werk Gesellschaft mit beschränkter Haftung & Co., Munich, Germany
Filed Mar. 13, 1969, Ser. No. 806,933
Claims priority, application Germany, Mar. 20, 1968, C17274
Int. Cl. B26d 7/06

U.S. Cl. 83-412

3 Claims



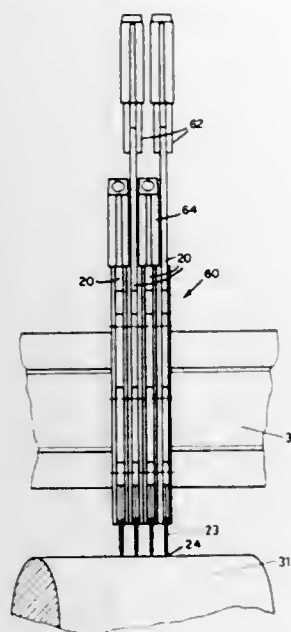
A microtome arrangement wherein a preparation holder is movable by means of a slide arrangement with respect to a cutting knife is provided wherein the position of the preparation holder relative to the cutting plane of the knife is adjustable. The preparation holder is formed as a segment of a

disc and is received in a reciprocally shaped recess in the slide, the preparation holder being pivotable about an axis perpendicular to the path of movement of the slide and in close proximity to the cutting plane of the knife.

3,564,962

KNIFE HOLDER ASSEMBLY

Peter Wingen, Overath, Germany, assignor to Dienes Werke für Maschinenteile G.m.b.H., Overath, Germany
Filed Apr. 25, 1969, Ser. No. 818,844
Claims priority, application Germany, Apr. 25, 1968, P 17 61 256.5
Int. Cl. B23d 19/06; B26d 1/22
U.S. Cl. 83—506

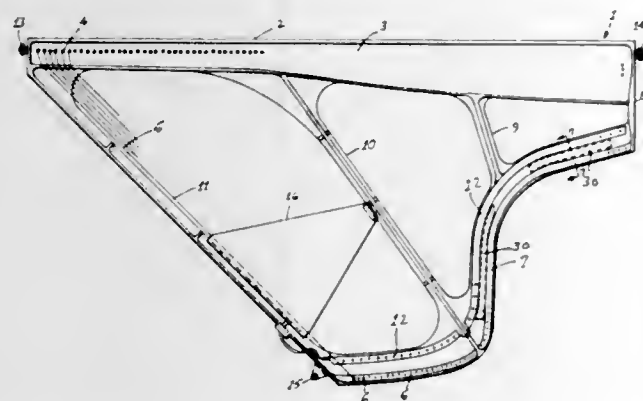


An assembly of holders for the knives of pressure or squeeze-acting roller cutting machines for longitudinally cutting webs, particularly of a strong material such as cellulose and cotton wool, includes individual flat knife-holder assemblies having fluid pressure operated movable piston elements which are coupled to the knife through individual mounting elements having forked legs. The forked leg mounting elements are arranged to slide between casing plates. The assembly of knives is such that alternate knife holders or extensions thereof extend between the plates of the next adjacent knife assemblies. In this manner, the pressure casings for the reciprocal piston member which is connected to the forked knife mounting elements are alternately arranged at different mounting levels so that the whole assembly may be compressed within a small space to facilitate the close spacing of the knife elements.

3,564,963

DAMPING MEANS FOR STRING PLATE

Daniel Martin, Cincinnati, and John L. Stein, Hamilton, Ohio, assignors to D. H. Baldwin Company, Cincinnati, Ohio
Filed Feb. 6, 1969, Ser. No. 797,072
Int. Cl. G10c 3/08, 3/00
U.S. Cl. 84—188



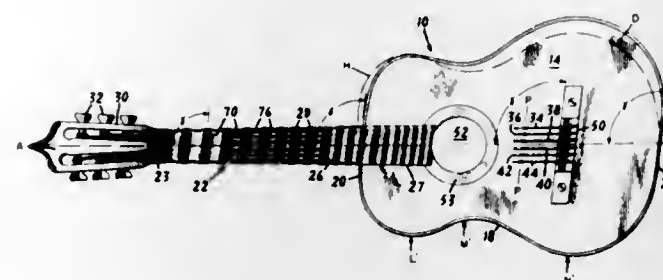
A simple, lightweight, and inexpensive damping device for damping out the undesirable ringing modes of shock-excited

metal structures having connecting braces, such as the string plates of pianos and other stringed instruments, the damping device having opposing fittings containing damping masses in the form of lead bars positioned to contact the opposing bracing members, the metallic bars being cushioned in the fittings by a pliable material, such as dead rubber, the fittings being interconnected either by a metallic plate or by an axially adjustable connecting rod.

3,564,964

STRINGED MUSICAL INSTRUMENT IMPROVEMENTS

Raymond M. Veres, 1145 E. 35th St., Brooklyn, N.Y.
Original application Dec. 8, 1967, Ser. No. 689,154, now Patent No. 3,481,238, dated Dec. 2, 1969. Divided and this application Oct. 22, 1969, Ser. No. 871,234
Int. Cl. G10d 3/00
U.S. Cl. 84—291

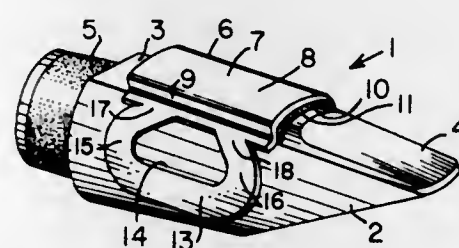


A guitar in which the fretboard extends rearwardly of the neck across a portion of the top of the guitar body and is secured to the top wall of the body at only two locations to thus allow maximum utilization of the body top wall as an amplification surface increasing amplification surface area up to 33 percent greater than that of conventional guitars. Additionally, the amplification surface of the guitar body at the treble side is made greater than that of the bass side without giving the body an obvious nonsymmetrical appearance and achieved by arranging the guitar nut, frets, bridge and body front and rear walls at an angle of 97°, with the longitudinal centerline of the guitar neck as measured clockwise from the centerline. The guitar neck assembly is provided with concave fluted surfaces along its top and sides intermediate succeeding frets to diminish the obstruction met by the guitarist when fingering the guitar strings during playing.

3,564,965

LIGATURE FOR REED MUSICAL INSTRUMENT

James A. Carlini, 5659 Autumcrest S.W., Canton, Ohio, and Daniel W. Shetler, 413 Hower St. N.E., North Canton, Ohio
Filed Feb. 3, 1969, Ser. No. 796,104
Int. Cl. G10d 9/02
U.S. Cl. 84—383

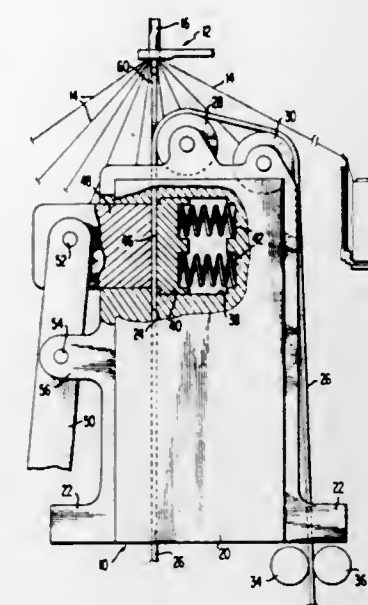


A ligature for attaching a reed to the mouthpiece of a reed instrument such as a clarinet, saxophone, or the like. The ligature has a reed retaining portion with a rubber cushioning pad on the inner surface which bears against the reed and resiliently holds it against the mouthpiece. A pair of resilient integral clips extend from each lateral side of the reed retaining portion and partially encircle the mouthpiece. The ligature may be slid longitudinally along the mouthpiece for removal or replacement thereon.

3,564,966

APPARATUS FOR INTRODUCING INSERTS IN TUBULAR BRAIDED ARTICLES

Truman W. Powell, P.O. Box 535, Zephyrhills, Fla.
Original application Mar. 26, 1968, Ser. No. 716,039, now Patent No. 3,486,409, dated Dec. 30, 1969. Divided and this application Mar. 3, 1969, Ser. No. 803,916
Int. Cl. D04c 3/40
U.S. Cl. 87—29

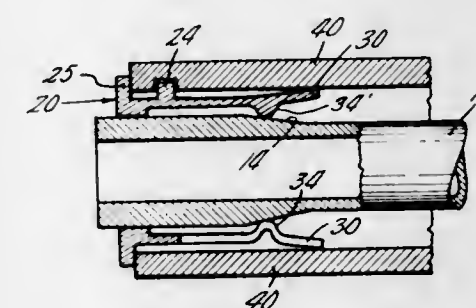


A length of tubular braid having an insert in its interior to provide a locally enlarged portion in the braid. The enlargement may be used as a centering device, as in a shoelace, or as a gripping means, as in a rope.

3,564,967

PISTOL BARREL POSITIONING MEANS

Paul A. La Violette, North Haven, and Ralph C. Kennedy, Wapping, Conn., assignors to Colt's Inc., Hartford, Conn.
Filed Sept. 9, 1968, Ser. No. 758,223
Int. Cl. F41c 5/06
U.S. Cl. 89—163

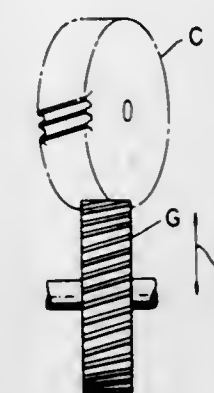


An improved muzzle bushing and cam means for use in a firearm of the type in which relative motion occurs between the barrel and slide members. The bushing has a plurality of integral resilient fingers, each having at least one longitudinally curved surface thereon. The bushing and cam means are affixed to the slide members and barrel respectively such that motion between said barrel and slide members causes similar movement between said bushing and cam means, permitting the cam means to flex the resilient fingers. The fingers are radially interposed between the barrel and slide members such that each time said members return to battery position, the cam means cause the fingers to wedge the barrel and slide members into the same relative position.

3,564,968

METHOD OF SHAVING GEARS

David W. Daniel, Birmingham, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif.
Original application Aug. 8, 1966, Ser. No. 570,967, now Patent No. 3,451,111, dated June 24, 1969. Divided and this application Jan. 31, 1969, Ser. No. 795,494
Int. Cl. B23f 19/06
U.S. Cl. 90—1.6

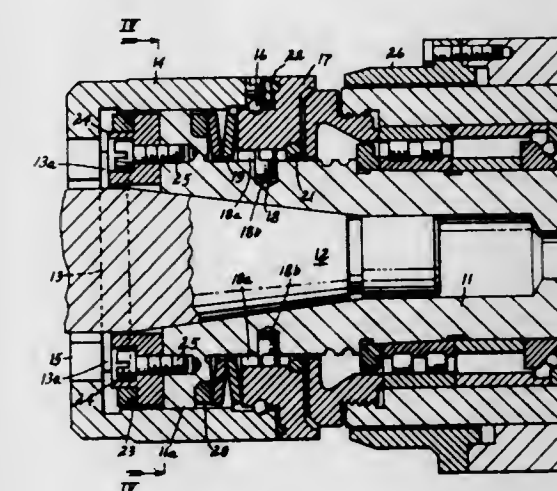


Method of shaving gears with a gearlike cutter having teeth gashed parallel to the plane of rotation with the gashes having sidewalls intersecting the flanks to provide substantially equal obtuse included angle cutting edges at opposite sides of each gash, rotating the cutter and gear in mesh at crossed axes in a single direction of rotation, and providing a relative depth feed between the gear and cutter parallel to a line perpendicular to the axes of the gear and cutter while preventing relative lateral movement therebetween, in which the profile at the coast side of the cutter teeth is lower than at the drive side thereof.

3,564,969

QUICK TOOL-CHANGE HEADSTOCK

Rudolf J. A. Kimmelaar, Vlaardingen, Netherlands, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio
Filed Apr. 18, 1969, Ser. No. 817,412
Int. Cl. B23c 1/00; B23b 31/10
U.S. Cl. 90—11



A quick tool-change headstock having a tensioning ring having lips which interact with the flange of the toolholder, a second ring which interacts on the one hand with the end of the toolholder that is situated opposite the head of the tensioning ring and on the other hand with a stop ring mounted on the housing, and cup springs fitted between the second ring and the flange of the spindle-end.

3,564,970

METAL WORKING MACHINE OR THE LIKE HAVING ADJUSTABLE BEARING ASSEMBLIES BETWEEN RELATIVELY MOVABLE PARTS

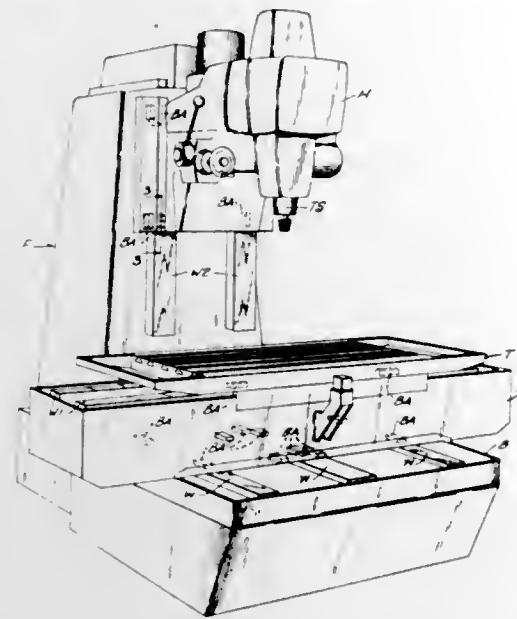
Charles A. Larsen, Union Grove, Wis., assignor to Gorton Machine Corporation, Racine, Wis.

Filed Apr. 11, 1969, Ser. No. 815,455

Int. Cl. B23c 1/00; F16c 29/06

U.S. Cl. 90-14

8 Claims



A machine having relatively movable parts with antifriction bearing assemblies located between the moving parts. The antifriction bearing assemblies are adjustably mounted by double wedge means whereby the proper amount of preload on the bearing assemblies can be readily obtained. In addition to the double wedge adjustment, the bearing assemblies can also be mounted so as to rock or tilt, within limits, to then thereby adapt themselves to the relatively moving parts to accommodate any misalignment and to facilitate assembly of the relatively movable parts.

3,564,971

ARRANGEMENT FOR KEEPING TRANSVERSE BEAM OF PORTAL TYPE MILLING MACHINE IN PARALLEL DISPLACEMENT WITH ITSELF

Hans O. Wagner, Dusseldorf, and Gerd Traugott, Buderich, Germany, assignors to Schless Aktiengesellschaft, Dusseldorf, Germany

Filed May 29, 1969, Ser. No. 828,852

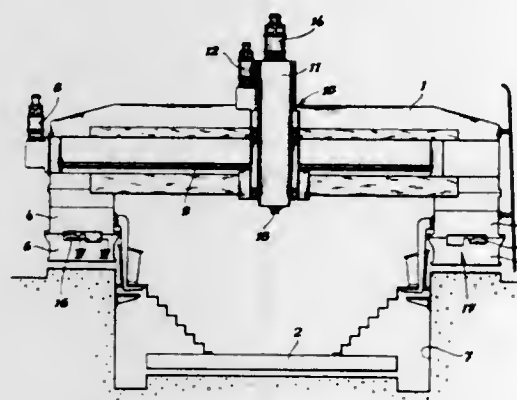
Claims priority, application Germany, May 31, 1968,

P 17 52 475.3

Int. Cl. B23c 1/12

U.S. Cl. 90-16

8 Claims



Portal milling machine, or the like, having a transverse beam with support carriages at the ends supported on parallel rails. Drive means are provided for driving the carriages on their respective rails and includes a common drive member and respective drive trains leading to each carriage. A measuring carriage nontiltably supported on one rail

cooperates with the adjacent support carriage to develop a signal when the support carriages tilt on their rails due to lack of synchronization. The signals thus developed are employed for adjusting one of the drive trains to adjust the relative position of the support carriages thereby to eliminate the tilting thereof on the rails.

3,564,972

MACHINE TOOLS

Donald Firth, Glasgow; Sinclair Upton Cunningham, and Ronald Graham McIntyre, Glasgow, Scotland, assignors to National Research Development Corporation, London, England

Filed Mar. 20, 1968, Ser. No. 714,504

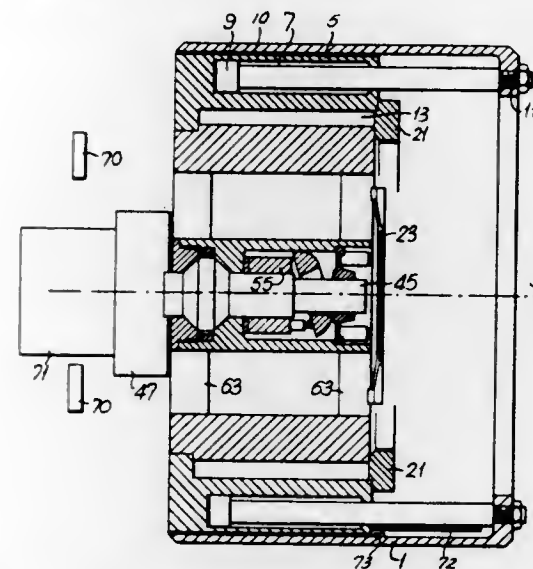
Claims priority, application Great Britain, Mar. 28, 1967,

14110/67

Int. Cl. B23c 1/14; B23b 7/06

U.S. Cl. 90-20

9 Claims



A machine tool has a work holder mounted on a transverse slide carried by a fully rotatable member which is also axially adjustable. A range of fixed tools are located at intervals round the work holder.

3,564,973

POT BROACHING MACHINE HAVING WORK CLAMPING MEANS

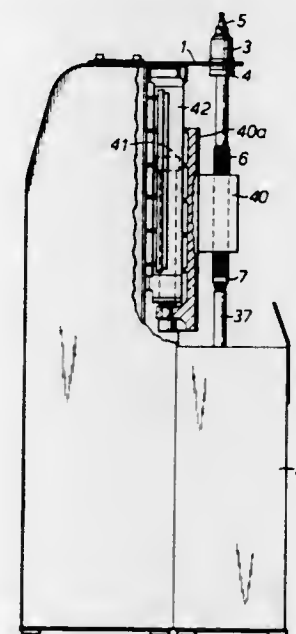
Ronald Leonard Archibald, Bushey, and Reginald Arthur Haygreen, London, England, assignors to Staveley Machine Tools Limited

Filed June 17, 1969, Ser. No. 834,082

Int. Cl. B23d 41/06

U.S. Cl. 90-88

5 Claims



A machine for broaching the periphery of a gear or other centrally apertured component in one vertical stroke of an

internally contoured broaching tool, in which the component is seated upon the upper end of a vertical supporting member which is movable axially to clamp the component against the lower end of a vertical locating member and is rotatable about its axis to lock the supporting and locating members together through the aperture in the component during the working stroke of the tool.

3,564,974

PRESSURE-FLUID SYSTEMS

Reginald Hector Painter, Ripley, England, assignor to Gullick Limited, Wigan, England

Filed Feb. 26, 1969, Ser. No. 802,507

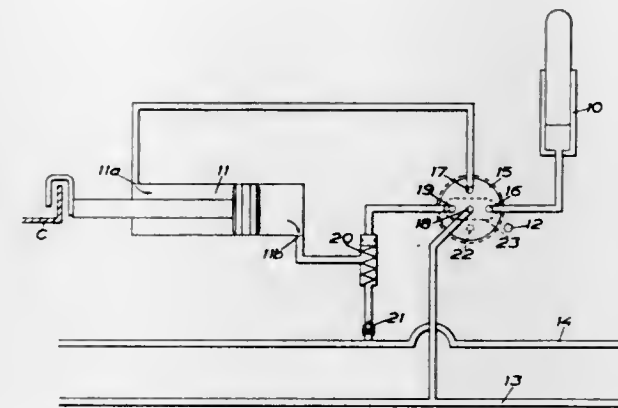
Claims priority, application Great Britain, Mar. 22, 1968,

13950/68

Int. Cl. F15b 1/16

U.S. Cl. 91-413

9 Claims



The invention is a pressure-fluid system, comprising at least two pressure-fluid-operated devices, in which means is provided whereby when said devices are exhausting simultaneously the exhaust from one is prevented from affecting the desired operation of the other. One particular application of the invention is to self-advancing or walking mine roof supports in which the two pressure-fluid-operated devices are respectively the leg or prop means and the advancing ram of the support. The invention is particularly applicable where both pressure-fluid-operated devices are controlled from a single selection or control valve.

3,564,975

POWER STEERING GEAR

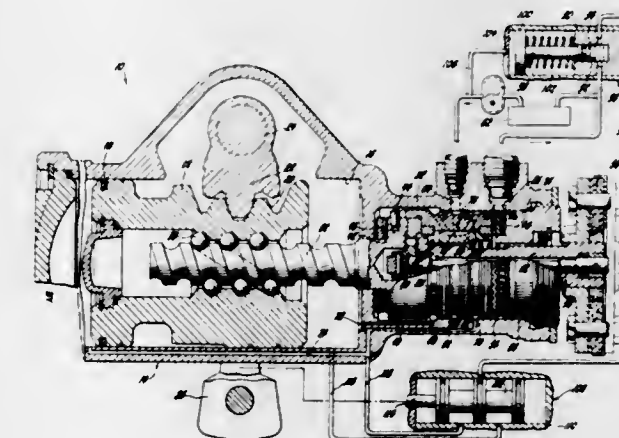
James H. Moran, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 20, 1968, Ser. No. 777,296

Int. Cl. F15b 11/08, 13/04

U.S. Cl. 91-442

3 Claims



A fluid power steering gear unit for automotive vehicles of the type generally including a double-acting fluid servomotor for assisting reduction gear mechanism of the unit in turning the vehicle dirigible wheels and controlled by a four-way

valve for selectively pressurizing either side of the servomotor piston while communicating the other side thereof to fluid sump, is further provided with a bleed valve and a slave valve for assisting the control valve in quickly relieving the pressurized side of the servomotor of pressure fluid upon completion of the desired fluid assist to thereby permit the quick return of the steering gear unit from any power actuated offcenter position back to its neutral or centered condition.

3,564,976

RADIAL PISTON TYPE HYDRAULIC MOTOR

Arthur Frederick Allen, Littleover, Derby, England, assignor to Rolls-Royce Limited, Derby, England

Filed Apr. 7, 1969, Ser. No. 813,903

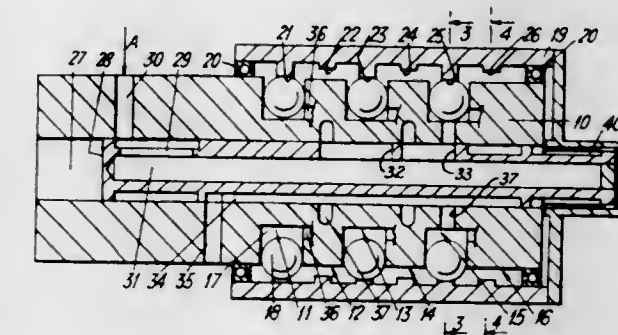
Claims priority, application Great Britain, Apr. 5, 1968,

16381/68

Int. Cl. F011 33/02

U.S. Cl. 91-492

8 Claims



A radial-piston type hydraulic motor having a cylinder housing with at least two rows of cylinder bores with pistons in each bore, the cylinder housing being provided with a central axially extending fluid flow and return passage and interconnected fluid passages communicating with the central passage and arranged to permit substantially simultaneous flow of fluid to and from the at least two rows of cylinder bores. A valve member provided in said central passage and axially movable is arranged to control the flow and return of fluid to the at least two rows of cylinder bores.

3,564,977

TORQUELESS COMPRESSION SEAL

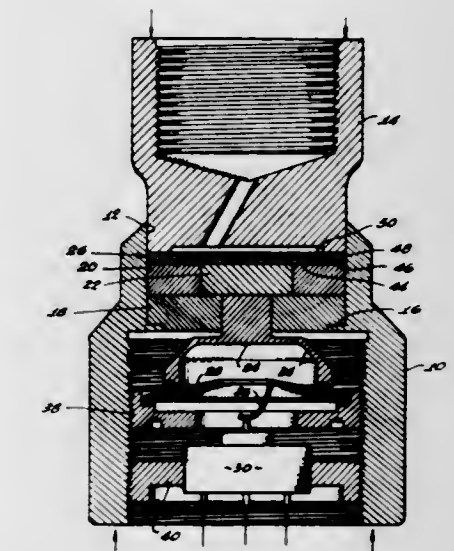
Allen Van Cleve Davis, 5600 Alta Canyon, La Canada, Calif.

Filed Apr. 1, 1968, Ser. No. 717,817

Int. Cl. F01b 19/00

U.S. Cl. 92-101

8 Claims



Plastic film in disc form is seated on a support in an opening of equal diameter in a metal body. A second metal body

extending into the opening has an annular end rib abutting the film near its periphery. The two metal bodies are welded by parent metal, such welding being effected while the bodies are axially pressed together, and which upon solidifying holds the bodies drawn together. A fluid-tight mechanical seal is thus formed between the plastic film and the parts between which it is sandwiched.

3,564,978

PISTON AND CONNECTING ROD

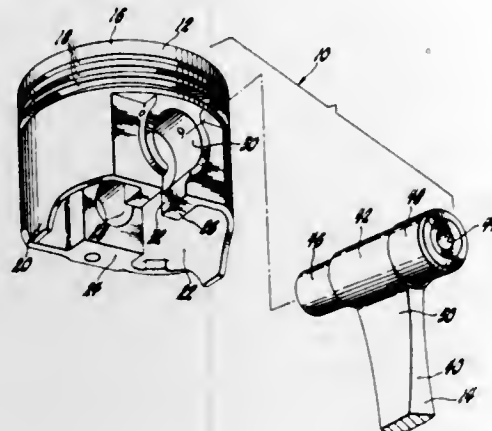
John L. Flitz, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 3, 1968, Ser. No. 780,654

Int. Cl. F16j 1/14

U.S. Cl. 92-187

2 Claims



A preferred embodiment provides a connecting rod integrally formed in a tee shape with the crossbar portion acting as a piston pin and having journals machined on its ends. The leg portion of the rod is made narrow adjacent the piston pin portion so that it may pass through the slotted boss of an aluminum piston to permit assembly of the piston and connecting rod. The piston pin journal associated with the slotted boss is made larger than the other to provide for ease of assembly as well as to offset the reduction in bearing area caused by the slotting of the boss.

3,564,979

BOTTOM CLOSING APPARATUS FOR CLOSING THE BOTTOM FLAPS OF PAPER BAGS AND THE LIKE

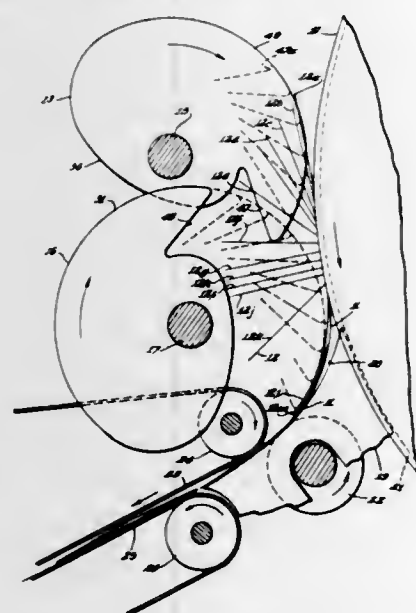
Herbert H. Weber, Sheboygan, Wis., assignor to H. G. Weber and Company, Inc., Kiel, Wis.

Filed Aug. 27, 1968, Ser. No. 755,674

Int. Cl. B31b 1/00

U.S. Cl. 93-27

8 Claims



Apparatus for folding the trailing bottom flap of a paper bag over the bottom of the bag into a closed position in cooperation with a power driven bag forming drum of a paper bag making machine having a bag blank releasably clamped thereto. The bottom closing apparatus includes a series of coaxial and circumferentially spaced bottom closing discs rotatably mounted in radially outwardly spaced relation

with respect to the periphery of the bag forming drum, to rotatably move in the same direction about axes spaced radially of the surface of the drum into interdigitating relation with respect to each other. The bottom closing discs each travel at a higher rate of speed than the speed of rotation of the drum and have flap closing fingers extending closely adjacent the periphery of the drum to accommodate a first set of fingers to get behind and lift the trailing bottom flap of the bag into an upward position to accommodate the second series of fingers to overtake the bottom flap when in a straight upward position and fold it downwardly over the previously folded trailing bottom flap of the bag into a closed position.

3,564,980

CONTAINER SET-UP APPARATUS

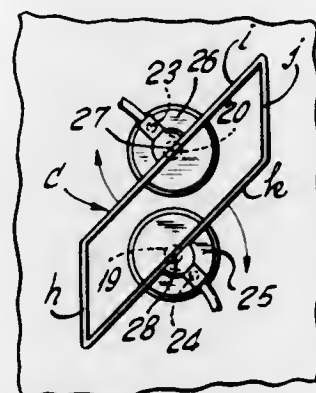
John Donald Winters, 2187 Braemar Road, Oakland, Calif.

Filed Nov. 21, 1968, Ser. No. 777,625

Int. Cl. B31b 1/80, 49/02, 1/06

U.S. Cl. 93-53

27 Claims



A suction head sets up knockeddown flat folded cartons to an erected rectangular outline, the head including a pair of suction grippers carried on fixedly spaced, parallel, rotary axes. The grippers, upon taking suction engagement with opposed walls of a collapsed carton, are rotated unidirectionally about these axes to open the carton, the carton side walls or panels moving away from one another without the grippers being moved away from each other in the opening of the carton.

3,564,981

APPARATUS FOR PRODUCING BOX COMPONENTS

Heinrich Olswald, Otterfing; Fritz Van Endert, Dusseldorf-Oberkassel; Knut Lelonek, Starnberg; Otto Czerweny Von Arland, and Otwin Schaffer, Munich, Germany, assignors to said Van Endert; said Lelonek; said Olswald; said Schaffer and assignors to said Von Arland

Filed May 1, 1968, Ser. No. 725,879

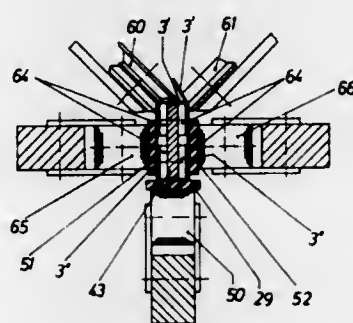
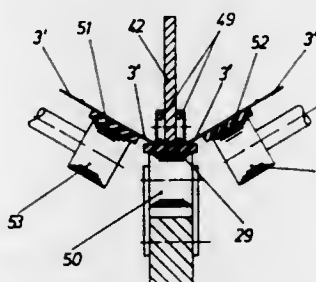
Claims priority, application Germany, May 3, 1967,

1,561,398

Int. Cl. B31b 1/28, 1/62; B31c 1/00

U.S. Cl. 93-81

4 Claims



Flat, stiff blanks for match box sleeves are withdrawn from a stack in a magazine by a belt and transferred to a shaping

bar about which they are draped by a system of belts and rollers. Edges of the blank are covered with adhesive prior to draping and glued to each other.

3,564,982

ENVELOPE FOLDING MACHINE

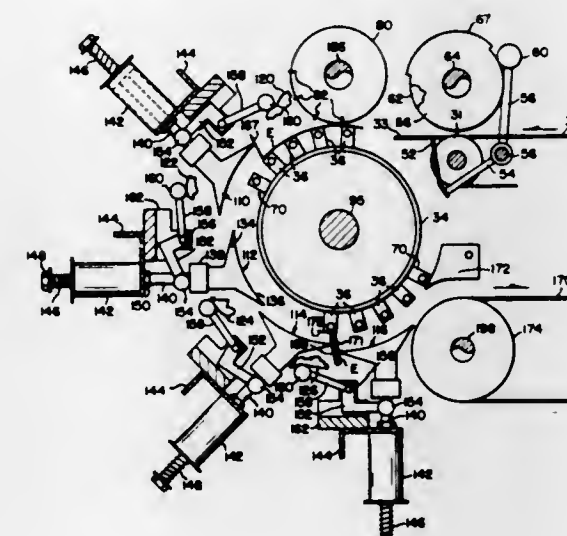
Gerald A. Taylor, Bergen, and George F. Wadleigh, Brighton, N.Y., assignors to Rochester Envelope Company, Rochester, N.Y.

Filed Feb. 19, 1969, Ser. No. 800,378

Int. Cl. B31f 1/00

U.S. Cl. 93-84

19 Claims



An envelope, which is to be folded, is delivered off an endless belt to a set of gripping bars disposed around the periphery of a rotating drum. The gripping bars carry the envelope under a rotating scoring roller which scores the envelope along as many lines, spaced longitudinally of the envelope, as there are folds to be made in the envelope. As the drum revolves, successive portions of the envelope are released by the gripping bars, so that these successive portions bend away from the body of the envelope along the score lines by their inherent resiliency. As each successive portion of the envelope is released, a paddle is advanced toward the drum to engage the released portion and bend it down onto the yet-unreleased part of the envelope to effect a fold. There are as many paddles or deflectors disposed about the drum as there are folds to be made in the envelope. Thus as the drum rotates the envelope is folded into the desired small compass.

3,564,983

MACHINE FOR ASSEMBLING AND ATTACHING A TAG TO AN ARTICLE

James J. Grimm, and Daniel Becker, Columbus, Ohio, assignors to Natmar, Inc., Cincinnati, Ohio

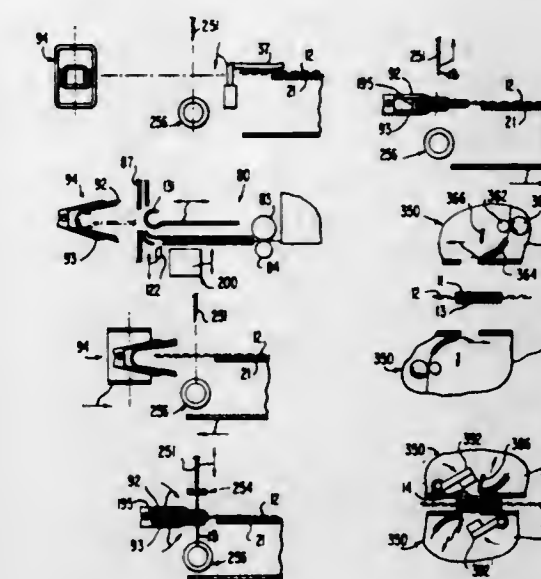
Filed Feb. 3, 1969, Ser. No. 796,047

Int. Cl. B31d 1/02; B65c 7/00; B65h 61/18

U.S. Cl. 93-88

30 Claims

A marking tag is secured to an article, such as a garment, by a non-damaging fine wire sandwiched between layers of backup material and cover material. Facilities are provided for folding a backup layer of sheet material over the edge of the article with portions of the layer on each side of the article. A hollow needle housing the fine wire is then passed through the backup layer and article therebetween and the needle is removed leaving the wire in the article. Facilities are provided for then bending the wire parallel to the article on each side so that the ends of the wire extend generally toward the edge of the article. A cover layer having a surface of heat sealable adhesive is then superposed and adhered over the backup layer on each side of the article to enclose and anchor the ends of the wire therebetween. The tag is



end of the wire, whereupon on continued pulling, the freed end of the wire is withdrawn from the article.

3,564,984

HIGHWAY MARKER

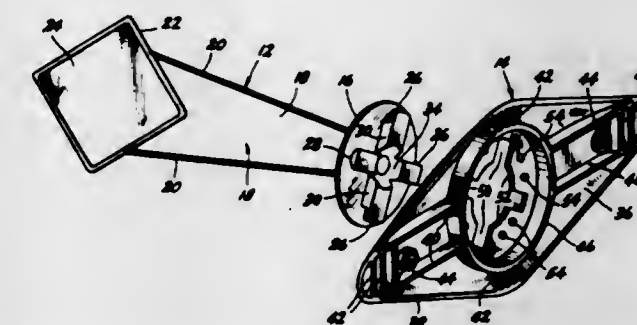
Robert C. Alexander, 16608 Elm Drive, Hopkins, Minn.

Filed Feb. 18, 1969, Ser. No. 800,196

Int. Cl. E01c 23/16

U.S. Cl. 94-1.5

8 Claims



A highway marker comprises a delineator unit and a base unit. The base unit is adhesively secured to a flat surface along the highway so as to indicate the side of the road, thereby serving as a guide for a motorists and maintenance workers. The delineator unit is separable from the base unit and replacement is easily achieved if necessary.

3,564,985

PAVEMENT RESTORATION APPARATUS

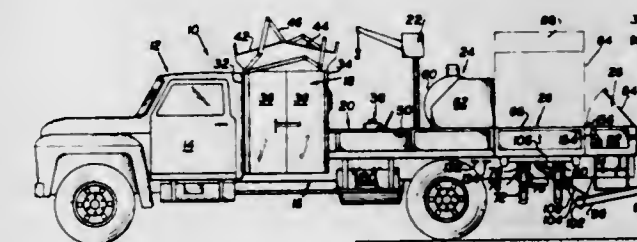
Anton H. Heller, Levittown, N.Y., assignor to Poweray Infrared Corporation, Farmingdale, N.Y.

Filed Apr. 28, 1969, Ser. No. 819,564

Int. Cl. E01c 19/00

U.S. Cl. 94-39

15 Claims



A pavement restoration apparatus having a cooperating arrangement of interrelated structures mounted on and as part

of a mobile vehicle for use in the making of pavement repairs and restoration. In the apparatus hereof, these structures include propane or other gas-fueled heaters having a common fuel source located at an optimum fueling distance relative to the heaters and yet adequately spaced therefrom to obviate inadvertent ignition. Additionally, the clearance necessary for isolating the fuel source is used to advantage for conveniently locating other structures of the apparatus, all to the end of providing a complete, self-contained pavement repair and restoration apparatus.

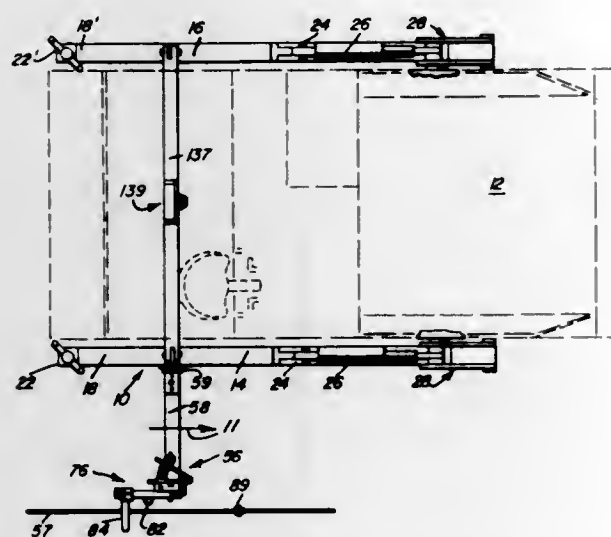
3,564,986

AUTOMATIC SCREED CONTROL FOR ASPHALT PAVERS

Luther B. Burgin, R.R. 3 Box 384, Poplar Bluff, Mo. 63901
Filed Oct. 4, 1968, Ser. No. 765,174
Int. Cl. E01c 19/48

U.S. Cl. 94-46

16 Claims



A paving machine having a screed control system with individually actuated leveling arms controlled by electrical control means for sensing deviations in road slope and grade from preset levels. Deviations generate error signals which energize the control circuitry for maintaining the screed at the preselected levels by movement of the leveling arms.

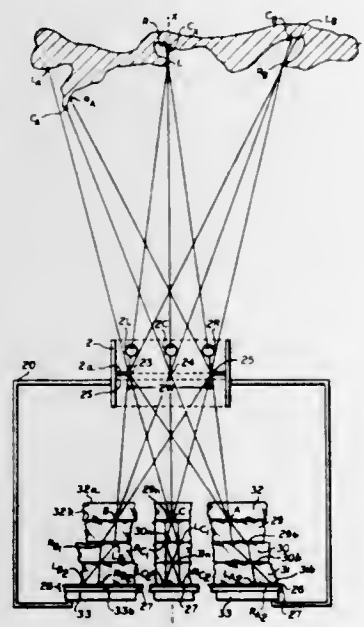
3,564,987

CAMERA CONSTRUCTION FOR 3-D PHOTOGRAPHY

Harry S. Jones, Monmouth Beach, N.J., assignor to Chrom-Tronics, Inc., New York, N.Y.
Filed June 27, 1967, Ser. No. 649,308
Int. Cl. G03b 35/00

U.S. Cl. 95-18

8 Claims



A camera construction for securing three-dimensional images in snapshot photography having a stack of at least

three multielement lens overlays disposed closely adjacent to a photosensitive film with the lens elements thereof being sized and constituted as to effect the direct deposition of normal relief images from a remotely located wide aperture lens upon said photosensitive film.

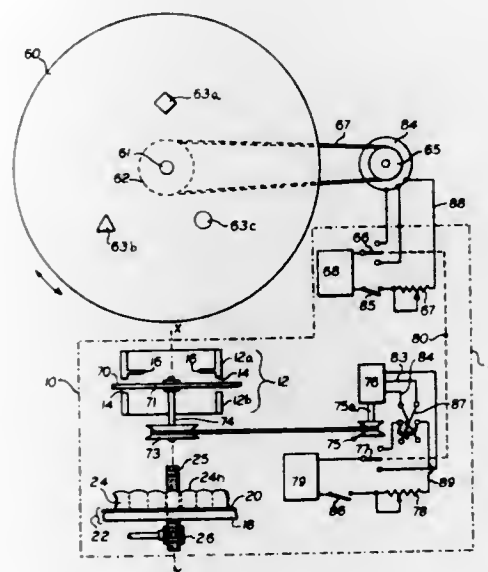
3,564,988

RELATIVE MOTION CAMERA CONSTRUCTION FOR 3-D PHOTOGRAPHY

Harry S. Jones, Monmouth Beach, N.J., assignor to Chrom-Tronics, Inc., New York, N.Y.
Filed June 27, 1967, Ser. No. 649,310
Int. Cl. G03b 35/04

U.S. Cl. 95-18

1 Claim



Method and apparatus for directly securing normal three dimensional photographic images wherein the aperture of a relatively large lens is traversed by an auxiliary scanning aperture coincident with effecting relative displacement between the subject to be photographed and the camera to effect deposition of the scanned images on a photosensitive film through a multiple-element lens overlay adjacent thereto.

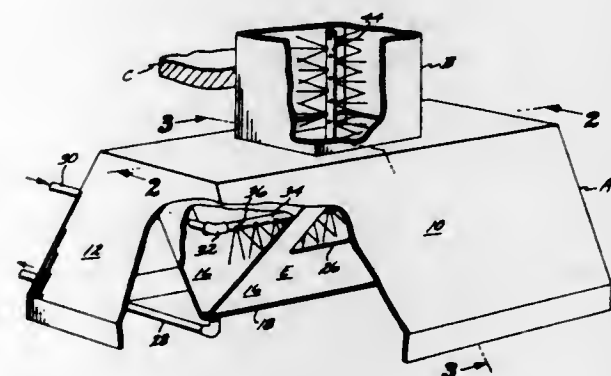
3,564,989

FIRE PREVENTION SYSTEM

Bernard J. Williams, 8131 Wenlock Circle, Huntington Beach, Calif. 92646
Filed Apr. 3, 1968, Ser. No. 718,614
Int. Cl. G08b 17/06

U.S. Cl. 98-115

1 Claim



Fire prevention system that may be installed in an existing or new hood to minimize the possibility of a grease fire therein by periodically and automatically spraying the interior of the hood with a heated aqueous detergent solution.

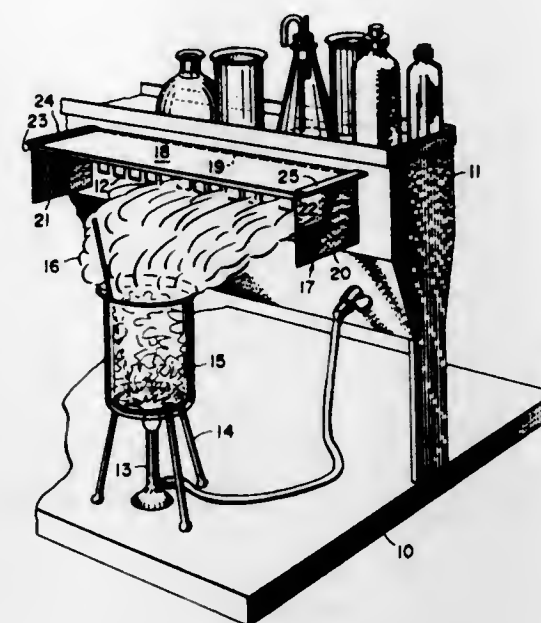
3,564,990

LABORATORY EQUIPMENT HAVING A COLLAPSIBLE CANOPY

Peter Smedes, Muskegon, Mich., assignor to E. H. Sheldon Company, Muskegon, Mich., a corporation of Michigan
Filed Mar. 19, 1969, Ser. No. 808,463
Int. Cl. F23j 11/00

U.S. Cl. 98-115

3 Claims



Laboratory equipment wherein an exhaust duct is equipped with at least one port, the port being selectively shrouded by a collapsible canopy where the wings and top are hingedly connected together and upon lifting of the top, the wings unfold into place.

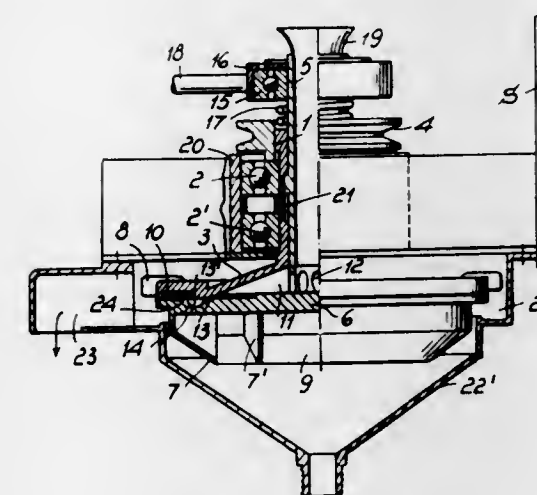
3,564,991

APPARATUS TO MAKE COFFEE CREAM BY MEANS OF CENTRIFUGATION

Ennio Longinotti, Brescia, Italy, assignor to Doglioni Majer Aldo, Milan, Italy
Filed Sept. 23, 1968, Ser. No. 763,053
Claims priority, application Italy, Sept. 30, 1967, 2802/67
Int. Cl. A47j 31/22

U.S. Cl. 99-289

15 Claims



A centrifuging apparatus for making coffee is formed of rotating wall means including an inner sleeve and an outer sleeve and attached flange members which combine to form a centrifuging chamber in communication with a coffee collection chamber by means of a narrow filtering passageway. The sleeves are axially displaceable relative to one another for opening the centrifuging chamber and discharging any used coffee deposit from the outer periphery of the chamber.

ERRATA

For Classes 99-302 and 99-358 sec:
Patent Nos. 3,565,641 and 3,565,642

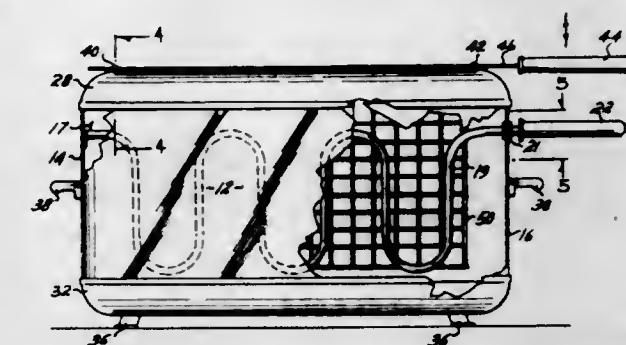
3,564,992

VERTICAL MEAT BROILER

Charles C. Sattes, 26108 Elderswood Place, Hemet, Calif.
Continuation of application Ser. No. 728,609, May 13, 1968, now abandoned. This application Oct. 27, 1969, Ser. No. 871,751
Int. Cl. A47j 37/04

U.S. Cl. 99-391

2 Claims



Apparatus for broiling meat comprising a housing having an inner surfaced removable electrical element and removable longitudinally apertured top and closed base portions; the top having supporting means for dual handled rods swingably carrying dual meat holding grids loosely connected at their bottom edges.

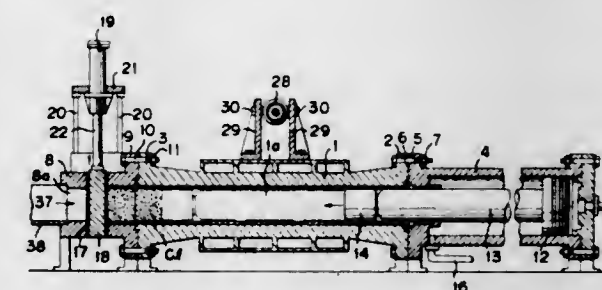
3,564,993

COMPRESSOR FOR METAL SCRAPS AND THE LIKE

Kunitoshi Tezuka, 14-3, 6-chome, Higashi-suna, Koto-Ku, Tokyo, Japan
Filed Aug. 26, 1968, Ser. No. 755,230
Claims priority, application Japan, May 30, 1968, 43/36484
Int. Cl. B30b 15/30

U.S. Cl. 100-215

4 Claims



A compressor for forming metal scraps such as chips, turnings and the like, derived from the cutting or shaving process of metals, into solid lumps which have a high specific gravity and are suitable for steel manufacturing by electric furnaces, which comprises a compression casing and an oil-pressure cylinder directly secured to said casing in the same axial direction therewith.

3,564,994

CRUSHER-FEEDER APPARATUS

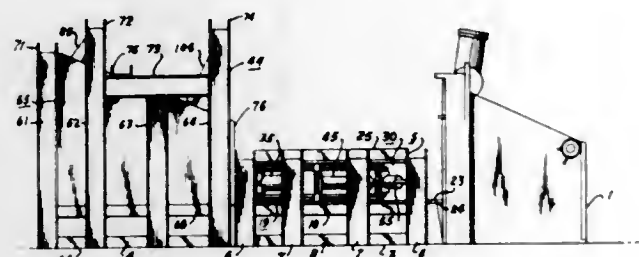
Fred E. Mosley, P.O. Box 1552, Waco, Tex.
Filed Aug. 22, 1968, Ser. No. 754,671
Int. Cl. B30b 7/00, 15/06

U.S. Cl. 100-233

4 Claims

A crusher-feeder apparatus having a bed for supporting scrap metal or other material and one or more coating jaws for crushing the scrap metal or material. Preferably, each jaw is disposed at an acute angle relative to the longitudinal axis of the bed and is adapted to undergo ovoidal or substantially elliptical movement for feeding scrap metal or other material

rearwardly of the apparatus during simultaneous crushing of the scrap metal or material, hydraulic cylinders being provided for imparting such movement to the jaw. A single jaw



may coact with a supporting bed, a pair of jaws may coact with each other or a single jaw apparatus may be used conjointly with a dual jaw apparatus.

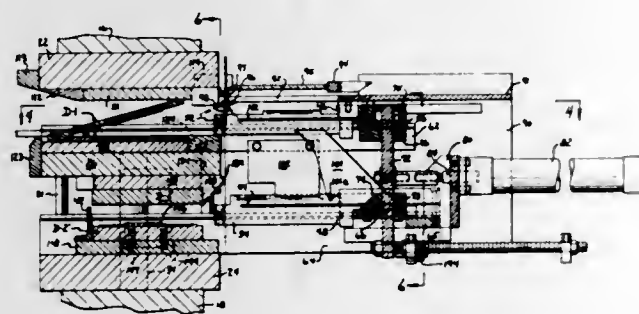
3,564,995

RECIPROCATING PRESS AND WORK FEED MECHANISM THEREFOR

Gilbert Rodli; Robert Glenn Corbin, Huntingdon, Pa.; Walter N. Nelson, and Maynard C. Nelson, Rockford, Ill., assignors to John R. Wald Company, Inc., Huntingdon, Pa.
Filed Apr. 15, 1968, Ser. No. 721,504
Int. Cl. B41k 3/00; B65h 5/16

U.S. Cl. 101-3

17 Claims



Three bolsters are positioned between the ram and bed of a press. Dies are mounted between each two bolsters and are vertically disposed to provide a two-stage press in which a single cycle of the ram operates both sets of dies. A work feed mechanism is provided for moving one workpiece from a first support laterally and downwardly to the upper dies and a second workpiece from a second support laterally and downwardly to the lower dies. The work feed mechanism also retracts the workpieces, and moves the one workpiece to the second support for subsequent feeding to the lower dies. Thus, a workpiece is sequentially fed to the two-stage press in a cascadelike feeding movement.

3,564,996

ROTARY SCREEN PRINTING CYLINDERS

Almerindo Jamie De Oliveira Barros, Lisbon, Portugal, assignor to Aljaba Limited, Manchester, Lancashire, England
Filed Jan. 17, 1968, Ser. No. 698,500
Claims priority, application Great Britain, Jan. 20, 1967, 3220/67

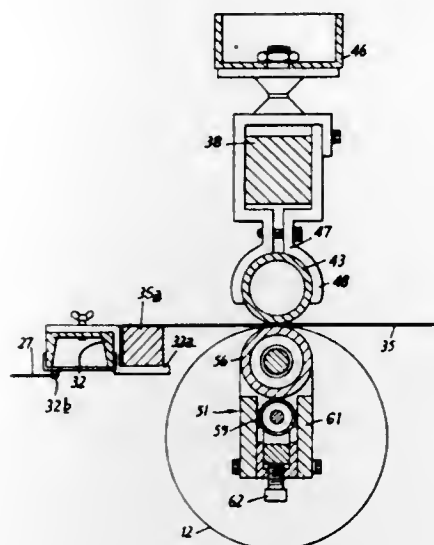
Int. Cl. B41f 17/08; B41j 27/00

U.S. Cl. 101-38

5 Claims

The invention relates to the engraving of rotary screen cylinders for use in printing fabrics and the like. The required design is first engraved as a pattern of permeable and impermeable areas on a flat screen matrix. This matrix is

mounted in contact with the cylinder and while it is moved in its plane and the cylinder rotates a blocking medium is



forced through the matrix on to the cylinder to form the required pattern thereon.

3,564,997

MACHINE FOR TREATING COLLAPSIBLE TUBES IN CONTINUOUS FLOW

Kurt G. Hinterkopf, Max-Eyth-Strasse 11, Eisingen Fils, Germany

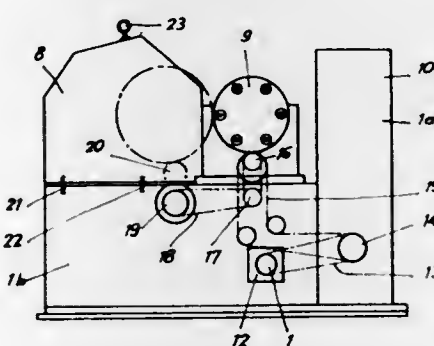
Filed Mar. 20, 1968, Ser. No. 714,723

Claims priority, application Germany, Mar. 20, 1967, H62,190

Int. Cl. B41f 17/20

U.S. Cl. 101-38

9 Claims



A machine for printing, varnishing and labelling collapsible tubes has a unit formed of two boxlike legs forming an L. The upright leg supports a work transferring device which transfers work pieces between an endless conveyor and a revolving work holding head carried by the horizontal leg cooperating with a printing, varnishing or labelling mechanism carried by the same leg. All parts of the unit are driven by a single motor. The printing devices are mounted for ready removal and replacement.

3,564,998

CHUCK FOR MANIPULATING BOTTLES IN A BOTTLE DECORATING APPARATUS

John R. Johnson, and Jack H. Myers, Toledo, Ohio, assignors to Owens-Illinois, Inc.

Filed Sept. 13, 1968, Ser. No. 759,704

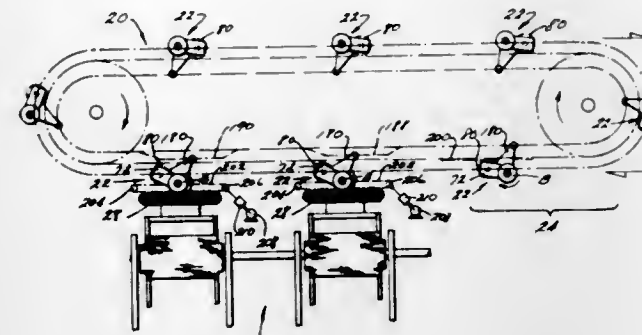
Int. Cl. B41f 17/20; B65g 47/24

U.S. Cl. 101-40

18 Claims

A bottle supporting and manipulating chuck for conveying bottles in a decorating or label applying operation. The

chuck receives bottles in random rotative orientation, rotatively orients the bottles, projects them into engagement into a flat decorating element, and rolls the bottle laterally across



the surface of the decorating element to apply a label or decoration to a preselected circumferential portion of the bottle surface.

3,564,999

PRINT ACTUATION SYSTEM EMPLOYING MAGNETICALLY ACTUATABLE HAMMERS AND MOVABLE TYPE CARRIER

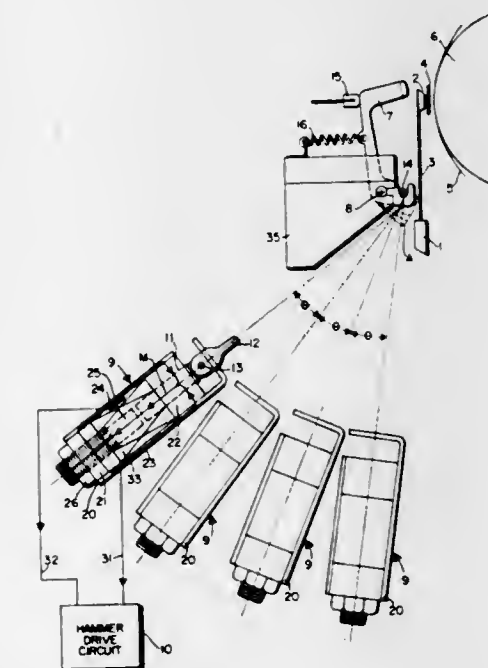
Seymour M. DePuy, and John R. Bittner, Waynesboro, Va., assignors to General Electric Company

Filed June 4, 1968, Ser. No. 734,498

Int. Cl. B41j 1/20, 9/38

U.S. Cl. 101-93

13 Claims



A print mechanism by which printable characters transported across a page may be printed by individually magnetically actuated hammers aligned along a print line. The actuation of the hammers is accomplished by banks of electrically driven solenoids wherein the solenoids in each bank are contained in a common magnet bar oriented angularly around the hammer pivot centers and providing a common magnetic return path for all of the solenoids in an associated bank and acting as beams for supporting the actuation forces of the solenoids.

3,565,000

ELECTRICALLY CONTROLLED PRINTING MACHINE EMPLOYING RECIPROCATABLE TYPE BIAS

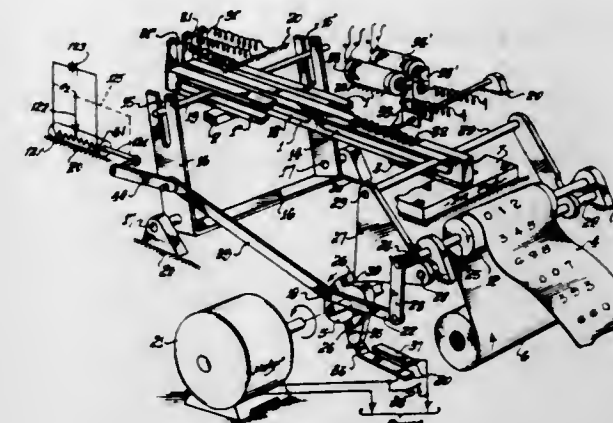
John O. Yeiser, Santa Ana, Calif., assignor to Yeiser Laboratories Inc., Costa Mesa, Calif., Enaed Electronics, Inc., Half Moon Bay, Calif., and Deane Electronics, Newport Beach, Calif., a fractional part interest to each

Filed Oct. 6, 1969, Ser. No. 863,930

Int. Cl. B41j 1/08, 5/30

U.S. Cl. 101-93

10 Claims



This device prints numbers or other characters on paper or other such material in response to digital electrical input signals. It uses linear type bars which are moved back and forth via a motor and springs, and are individually stopped at the correct characters by electrical or electromagnetic stop elements. These stops or latches are actuated via electrical comparators, which compare the electrical input signal for each type bar, typically in binary-coded-decimal code, with the electrical output of a position sensor, and stop each type bar at the proper position. Only one position sensor is needed for a plurality of type bars. A cam mechanism, in conjunction with springs, moves and raises and lowers the type bars. The type is first inked, and then the bars are moved forward and pressed onto the paper tape or other such material. This printer is particularly suited for connection to digital electrical indicating instruments, such as digital voltmeters. It is substantially simpler and cheaper to manufacture than other printers in this category.

3,565,001

ROTARY SCREEN PRINTING MACHINE

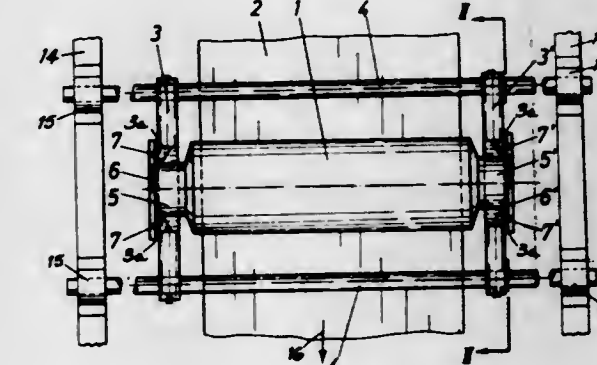
Peter Zimmer, Untere Sparchen 54, A-6330 Kufstein, Austria
Filed Feb. 12, 1968, Ser. No. 704,775

Claims priority, application Austria, Feb. 15, 1967, A1471/67

Int. Cl. B41f 13/44

U.S. Cl. 101-116

5 Claims



Support discs are arranged normal to the screen axis and on opposite end pieces of the cylindrical screen, and portions of the screen holder are disposed in the space between the axially normal support discs of the screen end pieces and the

cylindrical screen per se, whereby the support discs of the screen end pieces are rotatably supported adjacent the cylindrical screen by axial bearings carried preferably by the discs and engaging on portions of the screen holder as interposed between the axially normal support discs and the cylindrical screen. The support discs are preferably interchangeable on different screens and are preferably formed as radially projecting annular discs. Furthermore the support disc of at least one of the two screen end pieces can have outer peripheral serrations to serve as a ratio wheel and/or synchronous driving wheel of the cylindrical screen.

3,565,002

SCREEN HOLDER FOR ROTARY SCREEN PRINTING MACHINES

Walter Boehm, Kirchbichl 143, Tyrol, Austria

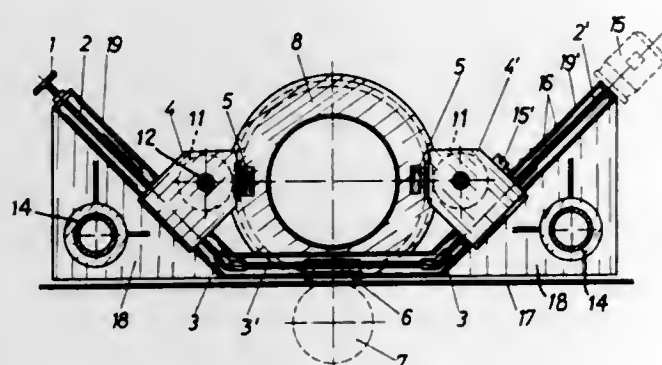
Filed Feb. 12, 1968, Ser. No. 704,776

Claims priority, application Austria, Feb. 13, 1967, A1335

Int. Cl. B41f 13/44, 13/14

U.S. Cl. 101-116

7 Claims



A screen holder for a rotary screen printing machine adjustable to various screen diameters has a pair of oblique guideways diverging from the bottom towards the top. A slide member is adjustable along each of the guideways. Elements carried by the slides are adjustable in accordance with a given screen diameter. The elements have further supporting elements for the longitudinal support and longitudinal tension of a cylindrical screen and guide elements for guiding the screen obliquely to its longitudinal direction.

3,565,003

MOUNTING MEANS FOR CYLINDRICAL SCREEN ASSEMBLIES WITH COUNTERBALANCING MEANS

Peter Zimmer, Untere Sparchen 54 A-6330, Kufstein, Austria

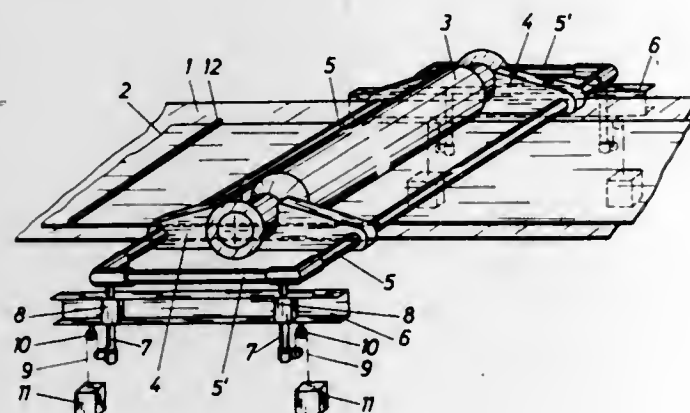
Filed Feb. 26, 1968, Ser. No. 708,204

Claims priority, application Austria, Feb. 14, 1968, A2239/67

Int. Cl. B41f 13/00, 3/46

U.S. Cl. 101-116

4 Claims



A device for mounting cylindrical screens in a rotary screen-printing machine. The cylindrical screen and its mounting device is movably arranged on the machine for movement transversely to the printing blanket defined thrust plane and has weights for counterbalancing the device.

3,565,004 DUPLICATING MACHINES WITH AUTOMATIC STENCIL DESTROYER

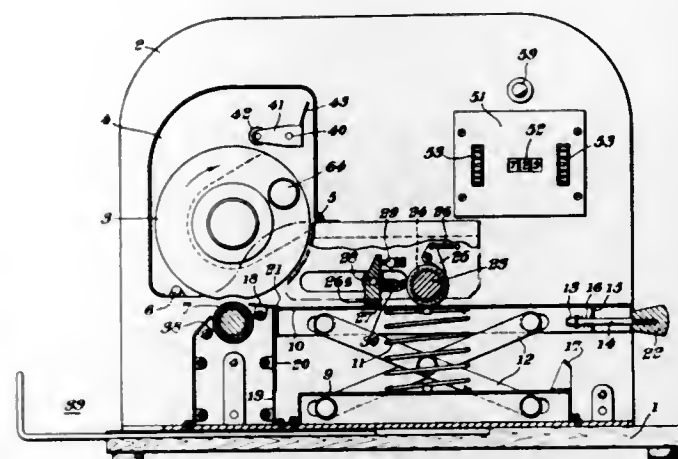
Bevan Graham Horstmann, Newbridge Works, Bath, Somerset, England

Filed May 16, 1969, Ser. No. 825,170

Int. Cl. B41l 11/08; B44b 5/00

U.S. Cl. 101-132

4 Claims



A duplicating machine having a stencil carrier movable to repeatedly carry a stencil into and out of a printing position and a counter operatively coupled to the carrier, has a stencil spoiler movable into an operative position to engage and spoil a stencil on the carrier, and a retainer controllable by the counter to hold the spoiler inoperative until the counter responds to the completion of a predetermined number of operative movements by the stencil carrier.

3,565,005

DEVICE FOR PERMANENTLY RECORDING, BY THE APPLICATION OF PRESSURE, MULTICOLORED INFORMATIVE MARKINGS

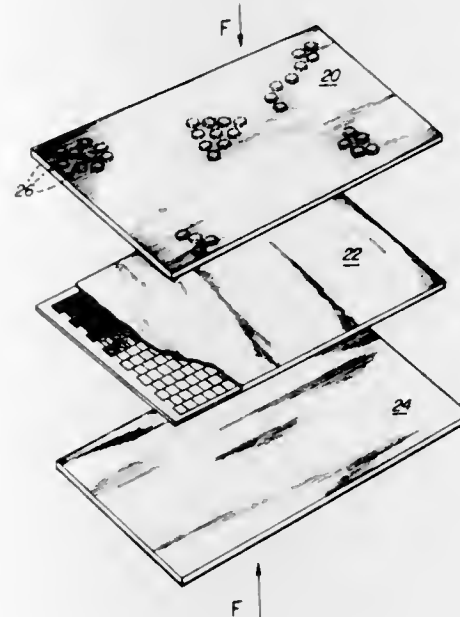
Philip H. Knott, San Francisco, Calif. (315 E. 86th St., Apt. 2N E. New York, N.Y. 10028)

Filed Apr. 23, 1968, Ser. No. 723,432

Int. Cl. B41f 5/16

U.S. Cl. 101-171

19 Claims



A device suitable for permanently recording multicolored information on a sheet merely by the application of pressure to the sheet. The sheet contains a plurality of pressure rupturable encapsulated inclusions capable of producing, upon rupture, several different colors. As localized pressure is applied to the sheet by sandwiching it between pressure-applying means and raised lands, certain of the capsules are ruptured selectively, releasing coloring agents to a surface of the

sheet so as to provide observable markings or an image of a certain design thereon. The color of the markings or image is selected by locating the lands in positions adapted to cause rupture of capsules containing materials that produce the desired colors. Other features of the invention appear in the following specification and accompanying drawings.

3,565,006

APPARATUS FOR CHANGING AND INDICATING THE ROTARY AND AXIAL POSITION OF A PRINTING MEMBER

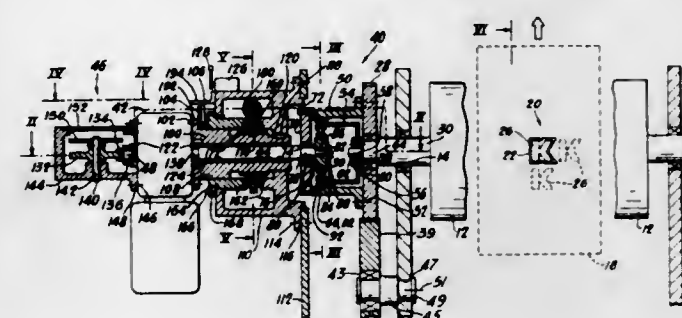
Warren A. Stewart, Monkton, Md., assignor to Koppers Company, Inc.

Filed Aug. 29, 1968, Ser. No. 769,466

Int. Cl. B41f 13/14

U.S. Cl. 101-248

7 Claims



Apparatus for dynamically positioning the angular and axial position of a printing roller and means for indicating these positions comprising a printing roller driven by a gear through a motor-driven harmonic gear drive for changing the angular phase relationship of the driving gear and the printing roller; a manually operable worm gear drive for axially shifting the printing roller relative to a reference point; a read-out dial attached to a secondary output of the harmonic gear motor drive for indicating the angular position of the printing roller relative to the roller driving gear; and a linear dial for indicating the axial position of the printing roller.

3,565,007

IMPRINTING APPARATUS

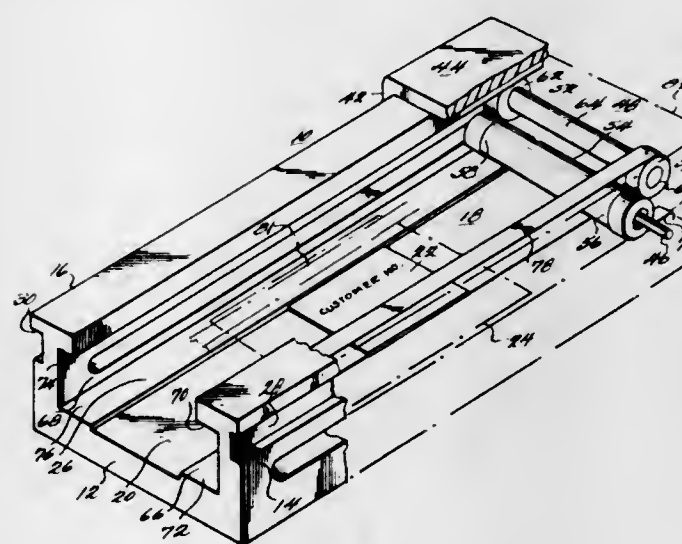
Robert M. Tyburski, Springfield, and Stephen S. Wood, Fairfax, Va., assignors to Farrington Business Machines Corporation, Springfield, Va., a corporation of Massachusetts

Filed Jan. 8, 1969, Ser. No. 790,514

Int. Cl. B41f 3/04

U.S. Cl. 101-269

10 Claims



An imprinting device is disclosed wherein the imprinter roller assembly is loosely connected to the assembly carriage, the imprinter roller being supported at each end thereof by a roller cluster. Each roller cluster is supported by a flexible

metal band, the band being fixedly connected at one end of the imprinter and adjustable connected at the other end thereof, each band being confined at the top and bottom thereof by suitable tracks disposed along the imprinter length. Each band passes over and around one of the rollers of its associated roller cluster and then around and under the other roller of its associated cluster. The corresponding rollers of each cluster are connected together by appropriate means. The points where the bands are fixedly connected to one end of the imprinter are disposed immediately above the print bed level, this end of the imprinter corresponding to the start position of the imprinter head. The print bed is provided with a recess, the depth of which is slightly greater than the card body thickness, this recess receiving the printing plate or card prior to the imprinting operation. A document or invoice is placed over the printing plate and onto the print bed. The document is held in place during the imprinting operation by the bands which are drawn over the invoice as the imprinting operation takes place. Thus, no movement of the document occurs during imprinting. The imprinting head is then returned to its initial position, a second imprinting operation occurring during this return stroke. The document remains securely in place with respect to the position in which it was held during the first imprinting stroke since the bands are withdrawn as the second imprinting operation occurs. With the head returned to its initial position, the document and printing plate can be removed.

3,565,008

PLASTIC SHOTSHELL AND METHOD

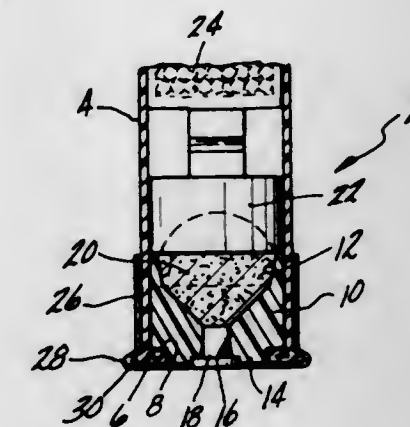
Ronald A. Gulley, Jennings; Robert J. Klein, and Vernon C. Moehlman, Florissant, Mo., assignors to Olin Mathieson Chemical Corporation

Filed June 26, 1968, Ser. No. 740,185

Int. Cl. F92b 5/30

U.S. Cl. 102-43

4 Claims



A shotshell including a plastic tube and a one-piece plastic basewad-overlay disposed in the tube, the basewad-overlay having a boss on the rear face thereof and the tube having a radially inwardly turned rear edge portion extending toward the boss, with a portion of the tube extending radially out to be captured within a flange formed on a metallic head element of the shotshell and then continuing under the basewad to mate with the boss portion.

3,565,009

AIMED QUADRANT WARHEAD

John M. Allred, Houston, Tex.; Bernard vanZyl, Altamonte Springs, and Robert L. Hoch, Orlando, Fla. assignors to The United States of America as represented by the Secretary of the Navy.

Filed Mar. 19, 1969, Ser. No. 808,707

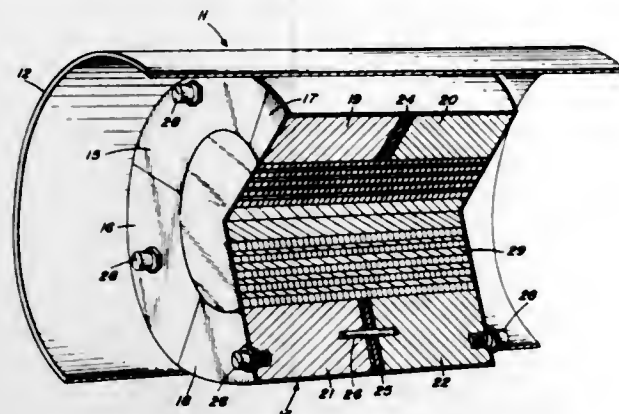
Int. Cl. F42b 3/08

U.S. Cl. 102-56

17 Claims

A cylindrical warhead having four separate explosive

quadrant sections which contain destructive fragments. Any one quadrant section can be ejected to expose the destruc-



tive fragments and the opposite quadrant section detonated to propel the fragments in a selectable direction.

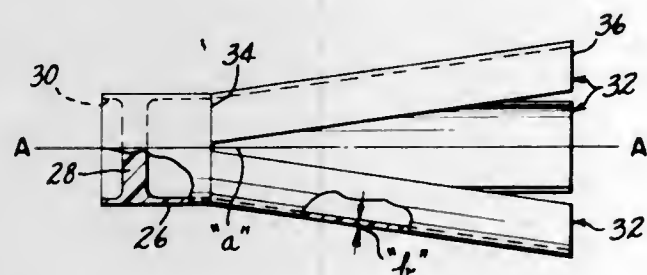
3,565,010 PLASTIC WAD COLUMN

William J. Sahlmann, Yonkers, N.Y., and Floyd E. Hendricks, Trumbull, Conn., assignors to Remington Arms Company, Inc., Bridgeport, Conn., a corporation of Delaware
Filed June 10, 1968, Ser. No. 735,838

Int. Cl. F42b 7/08

U.S. Cl. 102-95

6 Claims



A plastic wad column for an ammunition cartridge in which the elongated shot protecting segments are molded to the main body of the wad column at an angle of about 5°-45° to the longitudinal center line of the wad column. The width of the individual segments is varied to provide a plurality of slots which diverge from the rear to the front of the segments so as to provide a better fit for the wad column in the associated ammunition cartridge.

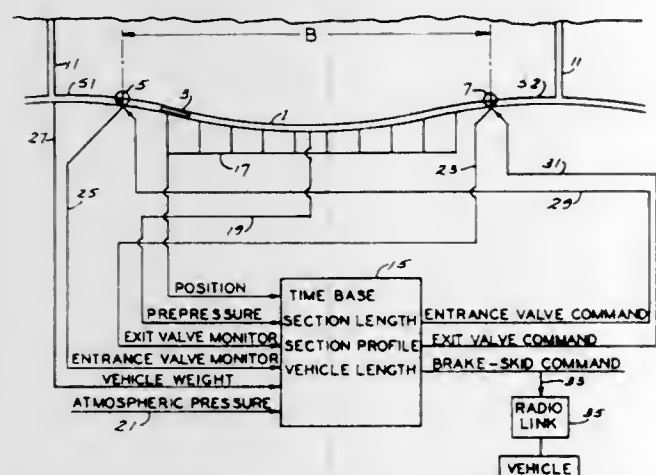
3,565,011 HIGH-SPEED GROUND TRANSPORTATION SYSTEM

Lawrence K. Edwards, 301 Santa Rita Ave., Palo Alto, Calif.
Filed May 7, 1968, Ser. No. 727,197

Int. Cl. B61b 13/10

U.S. Cl. 104-138

10 Claims



A high-speed ground transportation system comprises a duct through which a vehicle is adapted for propulsion as a

free piston. Entrance and exit valves are provided adjacent the ends of the duct and the section of the duct between the valves is preevacuated. On opening the entrance valve, air pressure forces the vehicle into the section and after the vehicle has passed the entrance valve, the latter is normally closed to trap a slug of air between the valve and the rear of the vehicle. This trapped slug of air expands to apply propulsive force to the rear of the vehicle, with attenuation of the air behind the vehicle and compression of the air ahead of the vehicle. The exit valve opens when the pressure ahead of the vehicle reaches a predetermined magnitude for passage of the vehicle through the exit valve and into a station. The present invention relates to means for assuring that the vehicle will stop in a station in the event that the entrance valve fails to close, or closes too early, or closes only partially. This is achieved by opening the exit valve and thereby repressurizing the duct ahead of the vehicle, and doing so at such a time as to match the future energy loss of the vehicle with that which is necessary to stop the vehicle in the station downstream from the exit valve.

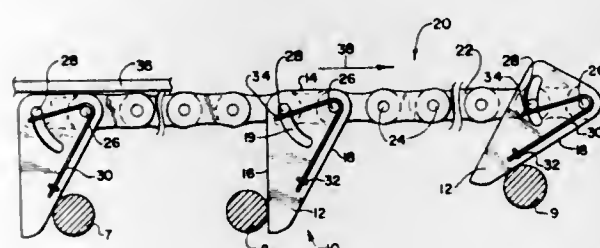
3,565,012 CONVEYOR CARRIER CONTROL SYSTEM

Richard E. Nearman, Mount Airy, Md., assignor to Eaton Yale & Towne, Inc., Cleveland, Ohio, a corporation of Ohio
Filed Oct. 21, 1968, Ser. No. 769,202

Int. Cl. B65g 17/42, 17/18

U.S. Cl. 104-172

9 Claims



A carrier retarding and selective driving device for power and free conveyor systems is described herein. The retarder has a chain which is driven parallel to a track and blocks which are spring loaded to extend from the chain toward the track to prevent free movement of the carriers along the track at speeds greater than that of blocks, to override trolleys overtaken by the blocks, and to drive trolleys when override disabling bars are positioned against backs of the blocks.

3,565,013 LATERALLY SHIFTABLE LOCK FOR SECURING CONTAINERS ON RAILWAY FLAT CARS

Boris S. Terlecky, Saint Louis County, Mo., and Leonardus F. A. Grob, Bridgeton, Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Continuation-in-part of application Ser. No. 711,373, Mar. 7, 1968. This application Mar. 28, 1968, Ser. No. 716,881

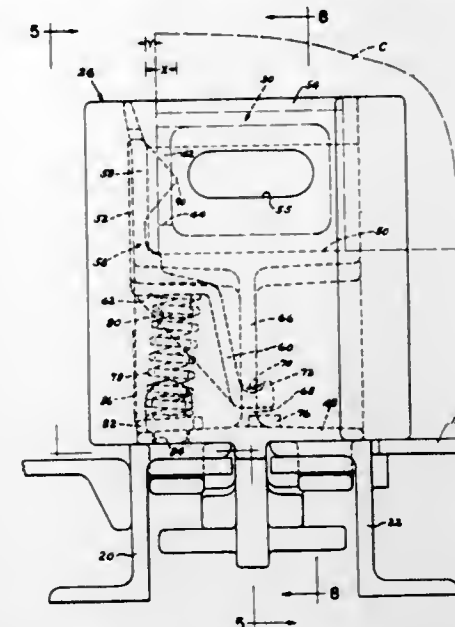
Int. Cl. B61d 45/00

U.S. Cl. 105-366

5 Claims

A releasable lock carried by a corner support for a container on a railway flat car adapted to fit within an opening within the lower corner of the container for releasably securing the container thereon. The lock automatically secures the container upon the lowering of the container onto the corner support and is released by a vertical lifting of the container from the corner support upon a predetermined force exerted by the container against the lock upon the vertical lifting of the container. Means mount the lock on the corner support

for a limited lateral or shifting movement relative to the container and the corner support to fit within various sizes of



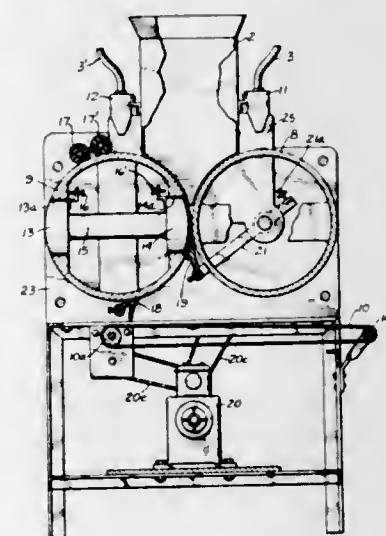
openings in the lower corner of containers thereby to accommodate containers having various sizes of openings in their lower corners.

3,565,014 AUTOMATIC TORTILLA-MAKING MACHINES

Fausto Celorio Mendoza, Cumbres de Acultzingo No. 185, Lomas De Chapultepec, Mexico City, 10, Mexico
Filed Oct. 3, 1968, Ser. No. 764,745

Int. Cl. A21c 3/00

U.S. Cl. 107-15



The invention concerns an automatic tortilla-making machine which has a hopper with two rolls therebeneath that turn in opposed directions. One of the rolls is provided with diametrically opposed pistons operating within cylinders formed in the roll to receive dough from the hopper. The piston head is formed with an outer surface corresponding to the curvature of the roll so that when the dough is received in the cylinder, the piston head can push the formed dough to the surface of the roll where it is removed from the roll by a knifelike device and drops to a conveyor. A flour spraying device is provided for each of the rolls to prevent sticking of the dough to the rollers.

3,565,015 DOUGH PRESS

Henry Jorgensen, 1225 Sheffield Ave., Dyer, Ind. 46311
Filed Jan. 6, 1969, Ser. No. 789,138

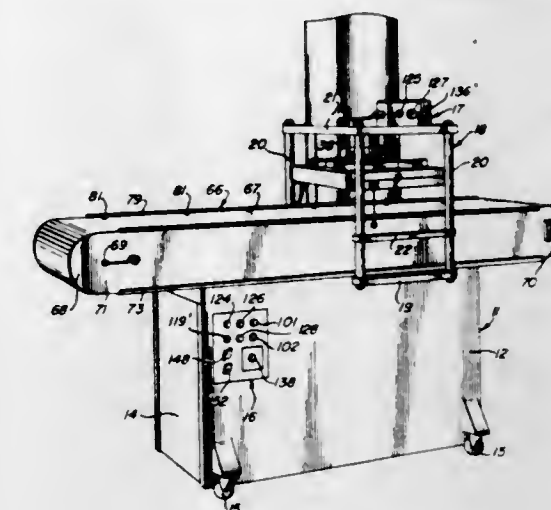
Int. Cl. A21c 9/00

U.S. Cl. 107-15

6 Claims

A dough press comprises a conveyor belt for carrying a series of pieces of dough between two horizontally disposed heated platens in vertical alignment. The upper platen is reciprocated vertically by a hydraulic system controlled by a

motor wired into one electrical circuit. A die mounted on the bottom of the upper platen engages the conveyor belt to confine the dough to a specific size and shape as it is pressed and heated by the platens. The conveyor belt is moved intermittently by a motor wired into a second electrical circuit. The



second circuit is closed by the vertical movement of the upper platen and is opened by an electric eye assembly operating through longitudinally spaced apertures in the conveyor belt. The two circuits are interlocked to prevent movement of the conveyor belt except during the upward movement of the lower platen.

3,565,016 TABLET-MAKING MACHINES

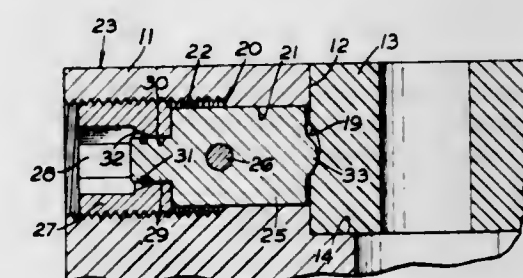
James William Christie, Liverpool, England, assignor to Manesty Machines Limited, Liverpool, England
Filed Apr. 7, 1969, Ser. No. 822,814

Claims priority, application Great Britain, Apr. 11, 1968, 17554/68

Int. Cl. B30b 11/08

U.S. Cl. 107-17

8 Claims



In a tablet-making machine comprising a die table having one or more die holes extending therethrough, each such die hole accommodating a respective generally cylindrical die into which corresponding upper and lower punches enter to compress granular or pulverulent material to form it into a tablet, locking means, for the or each die, comprises a plug accommodated in a respective locking hole extending outwards from the die hole to the edge of the die table, the locking hole opening wholly into the die hole, and screw means engageable in the locking hole for urging the plug towards and into engagement with the die, that end of the plug which faces the die being concavely curved complementarily to the outer curved surface of the die and having a rib protruding therefrom for engagement in a circumferential groove around the die.

3,565,017 STACKABLE PALLET

Alfred C. Jensen, 267 Wedgewood Drive, Eugene, Oreg.
Filed Dec. 2, 1968, Ser. No. 780,360

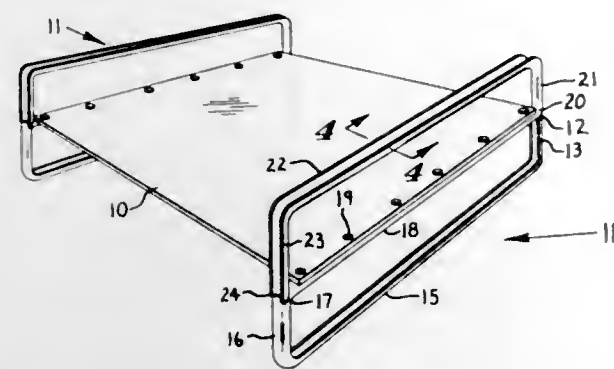
Int. Cl. B65d 19/18

U.S. Cl. 108-53

5 Claims

A pallet board is supported by two end frames of FIG. 8 configuration. Each end frame is bent from a single piece of

channel bar stock. In the lower and upper portions of the end frames, the convex side of the channel is on the under side. This provides a rounded pallet runner on the bottom and a



concave channel surface on top to interfit with the convex surface of the runner on another pallet in stacking. The pallet board is attached to intermediate portions of the end frames.

3,565,018

STORAGE RACK

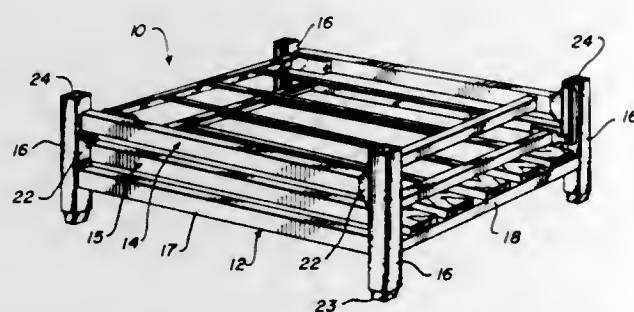
Richard S. Jay, Evanston, Ill., assignor to Jarke Corporation, Chicago, Ill., a corporation of Illinois

Filed Apr. 2, 1969, Ser. No. 812,772

Int. Cl. B65d 19/18

U.S. Cl. 108—53

3 Claims



A modular rack for storing and shipping articles of manufacture. The rack is constructed in a fashion such that its upright end frames can be folded flat atop the base platform for transporting or storing the racks, and further are releasably affixed to the base platform so that they cannot jar loose from folded position while being transported.

3,565,019

TABLE CONSTRUCTION

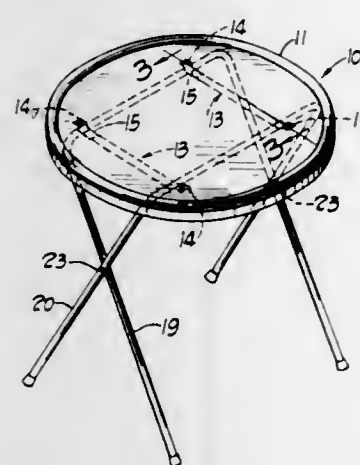
Marshall T. Bedol, Shaker Heights, Ohio, assignor to Marshallan Products, Inc., Cleveland, Ohio, a corporation of Ohio

Filed Dec. 30, 1968, Ser. No. 787,777

Int. Cl. A47b 3/02

U.S. Cl. 108—120

1 Claim

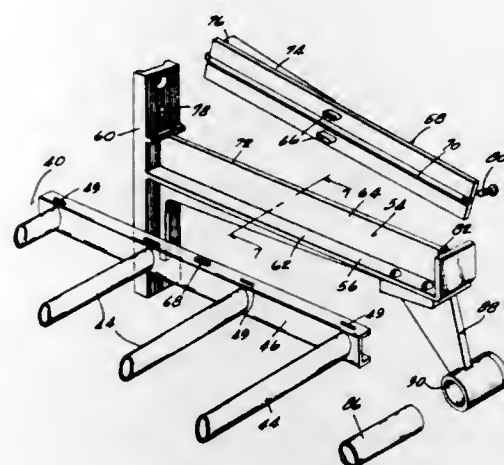


A table having two foldable leg elements, one of which frictionally slides against the underside of the table top on spaced glide-straps, between folded and erect positions.

3,565,020
COAT RACK
Robert W. Schler, and Larry F. Odar, Northbrook, Ill., assignors to Krueger Metal Products, Inc., Green Bay, Wis., a corporation of Wisconsin
Filed July 15, 1968, Ser. No. 744,856
Int. Cl. A47f 5/00

U.S. Cl. 108—152

5 Claims



Interconnected uprights have forwardly projecting arms each of which includes a shelf-supporting section and a cap section interlocking with the first section and the shelf. The shelf comprises end members resting on shelf-supporting surfaces of the arms and spaced tubes of elliptical cross section welded at their ends within correspondingly shaped openings in the end members. Fittings have portions telescoped into the respective uprights and other portions telescoped into legs, the fittings and legs having feet for supporting the uprights from the floor.

3,565,021

COMBUSTION OF MATERIALS

Mervyn Ewart Phillips Hill, Hillsmere, Okus, Swindon, Wiltshire, England

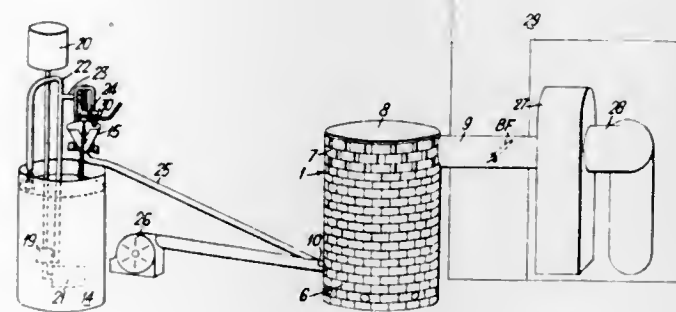
Filed Feb. 8, 1968, Ser. No. 704,094

Claims priority, application Great Britain, Feb. 9, 1967, May 2, 1967, Mar. 23, 1967, Nov. 17, 1967, 6317/67;20353/67;13657/67;52380/67

Int. Cl. F23g 5/00

U.S. Cl. 110—7

9 Claims



The invention relates to combustion apparatus particularly aimed to dispose of materials which are normally difficult to completely burn. The apparatus has a refractory structure forming the combustion chamber into which the material to be burnt is fed. The material is subject to a current of forced air.

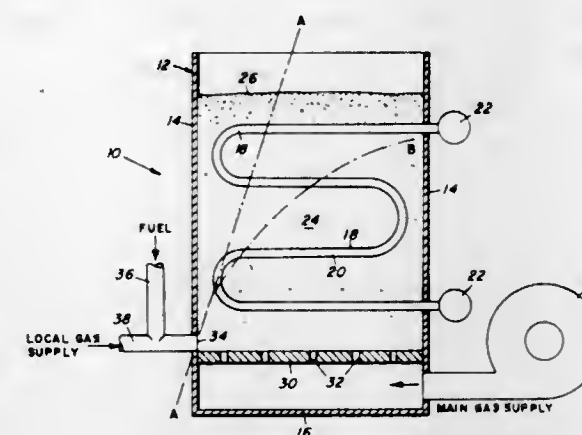
3,565,022
METHOD FOR REGULATING HEAT OUTPUT FROM AN
OXIDIZING FLUIDIZED BED
John W. Bishop, Alexandria, Va., assignor to the United States of America as represented by the Secretary of the Interior

Filed Sept. 24, 1969, Ser. No. 860,563

Int. Cl. F23d 19/02

U.S. Cl. 110—28

11 Claims



Gas is injected into a localized area in an oxidizing fluidized bed boiler to fluidize a portion of the bed. By varying the relative pressures and flow rates of the locally injected gas supply and the main fluidizing gas supply a selected portion of the bed is fluidized, while the remainder of the bed remains in a static condition. Fuel distribution and combustion are restricted to the fluidized portion of the bed, making possible a wide range of thermal output variation.

3,565,023

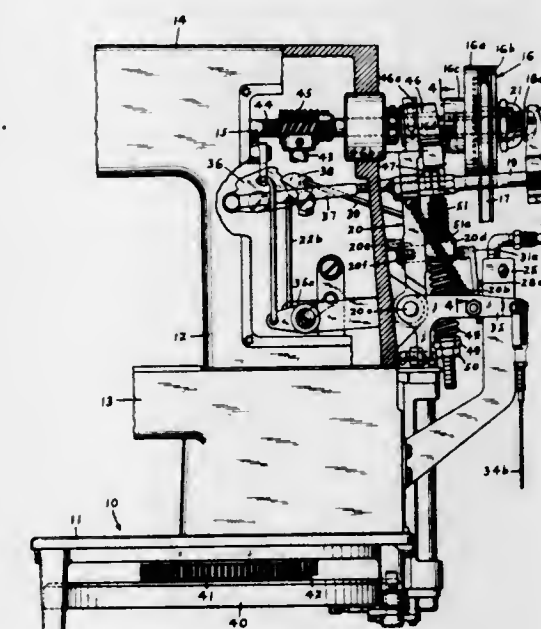
STOP MOTION MECHANISM FOR SEWING MACHINES
Richard H. Lukins, Glen Ellyn, and Abraham Zylberman, Chicago, Ill., assignors to Union Special Machine Company, Chicago, Ill.

Filed Aug. 11, 1969, Ser. No. 848,866

Int. Cl. D05b 69/20

U.S. Cl. 112—67

14 Claims



Improved mechanism for controlling the operation of a group-stitch sewing machine and for stopping the machine at the end of a cyclical operation at such a time in the revolution of its main drive shaft as to position the needle of the machine out of engagement with the work so as to enable ready removal of a stitched workpiece and the introduction of a new workpiece. The stop-motion mechanism for the sewing machine is of a character which enables operation of

the machine at a high speed in producing a group of stitches. Shock absorbing means are provided for absorbing the impact on the driven mechanism of the machine when a positive stop motion is imparted to the machine. A special motor enables driving of the machine at two different speeds, so that in the normal course of operation the machine is driven at speeds above 3,000 r.p.m., but when the machine is to be stopped the motor is converted to a slower speed, for example one-half the normal speed of operation. Power assist means, in the form of pneumatically operated devices, are provided for assisting in the performance of certain operations, such as raising work clamping means and operating a cycle starting mechanism.

3,565,024

CONTROL SYSTEM FOR CYCLICALLY OPERATED STITCHING MACHINES

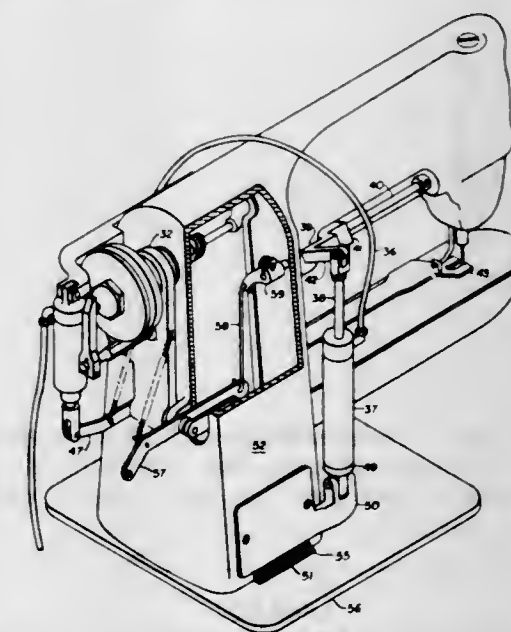
Richard E. Tice, 4022 Doris Circle, Knoxville, Tenn.

Filed June 24, 1968, Ser. No. 739,254

Int. Cl. D05b 69/20

U.S. Cl. 112—67

7 Claims



An improved demountable control system for cyclically operated stitching machines. The system interlocks the functions of (1) raising and lowering of the fabric-holding presser foot, and, (2) machine starting, with preexisting machine functions. A single-foot pedal serves for operator control.

3,565,025

STITCHED, NONWOVEN, UNITARY BLANKET-BEDSPREAD COMBINATION

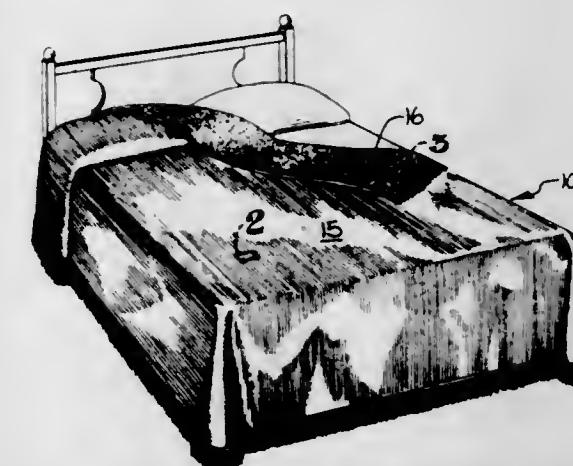
Stephen C. Owen, Sr., Cedarhurst, N.Y., assignor to Beacon Manufacturing Company

Filed Oct. 6, 1967, Ser. No. 673,374

Int. Cl. B32b 7/08

U.S. Cl. 112—420

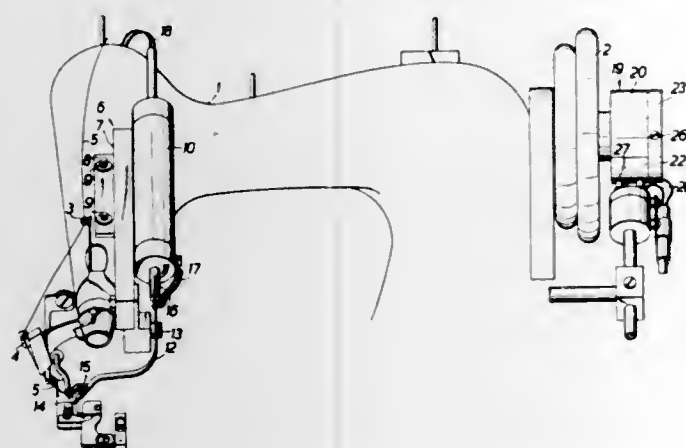
2 Claims



A stitched, nonwoven, unitary blanket-bedspread combination product comprising a self-sustaining three-dimensional

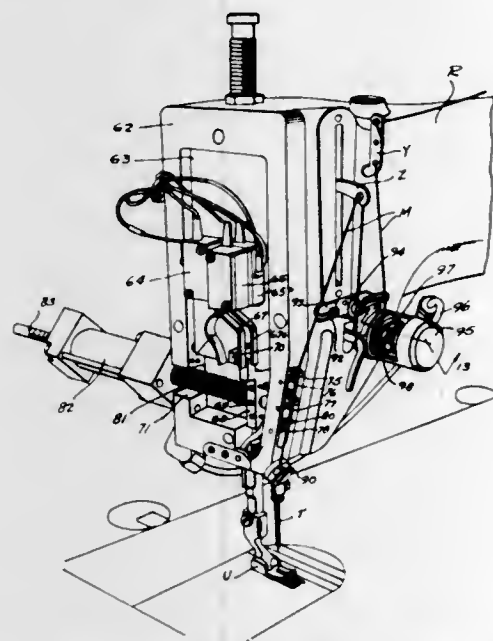
batt of nonwoven fibers stitched throughout the dimensions thereof, a decorative, stitched, unnapped surface to be utilized as the upper surface to provide bedspread characteristics and appearance, and a napped, raised fibrous surface in which no stitching is exposed to be utilized as the under surface to provide blanket characteristics and appearance.

3,565,026
THREAD CUTTER FOR AN ELECTRICALLY OPERATED SEWING MACHINE
Colin James Goosey, Northampton, England, assignor to Grosvenor Dress Company (Northampton) Limited, Northampton, England
Filed Mar. 17, 1969, Ser. No. 807,584
Int. Cl. D05b 65/02
U.S. Cl. 112-252 3 Claims



An electrically operated sewing machine is provided with a thread cutter actuated by a solenoid so that the thread is cut automatically when the machine stops after completing a sewing operation.

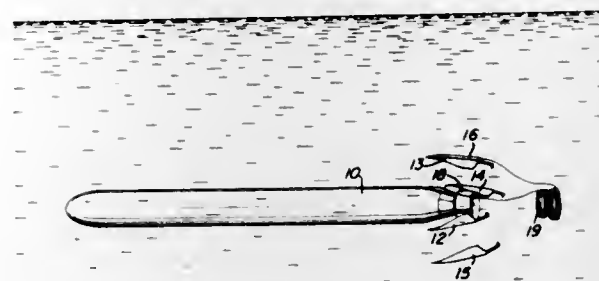
3,565,027
TENSION AND RELEASING MEANS FOR SEWING MACHINES
Robert F. Miller, Camp Hill, and Roy E. Miller, Mechanicsburg, Pa., assignors to The Reece Corporation, Waltham, Mass.
Continuation-in-part of application Ser. No. 432,721, Feb. 15, 1965, now Patent No. 3,360,002. This application Sept. 11, 1969, Ser. No. 856,965
Int. Cl. D05b 47/00
U.S. Cl. 112-255 3 Claims



The present sewing thread tension and releasing attachments are attachable to a sewing machine and operate to normally maintain a tension on the thread being fed to sewing machine needle by passing the thread between a pair of

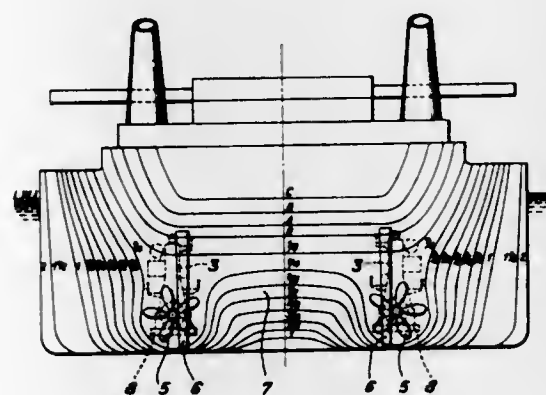
discs resiliently held together and at times pneumatic means are operated to separate said discs to release the thread whereupon further pneumatic means pull the thread towards the needle to permit the severing of the thread from a work piece.

3,565,028
STEERABLE SELF-PROPELLED SUBMERSIBLE
Dorothy B. Hancks, and Stephen F. Moran, San Diego, Calif., assignors to the United States of America, as represented by the Secretary of the Navy
Filed July 17, 1968, Ser. No. 745,633
Int. Cl. F42b 19/10; F41g 7/04, 7/06
U.S. Cl. 114-20 6 Claims



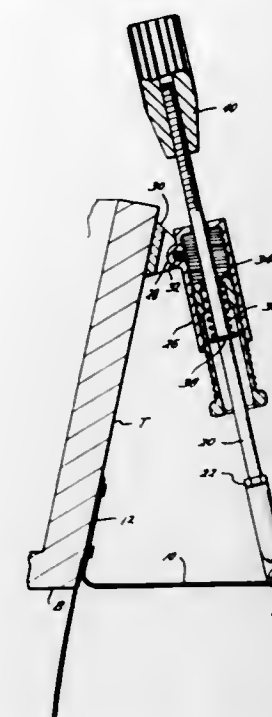
A torpedo, which can be launched conventionally from a torpedo tube trails a hydrophone on a long cable. A shroud encircling the propellers is articulated on a ball and socket joint to steer the torpedo, and to serve as a reel for carrying the long cable until after launching. Holddown fingers which keep the coiled cable in place, are scuttled a measured time after launch.

3,565,029
OCEANGOING SHIP
Jan Arie Smit, Wiesendangen, Zurich, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, a Swiss Company
Filed May 23, 1968, Ser. No. 731,516
Claims priority, application Switzerland, May 31, 1967, 7701/67
Int. Cl. B63b 1/04
U.S. Cl. 114-57 1 Claim



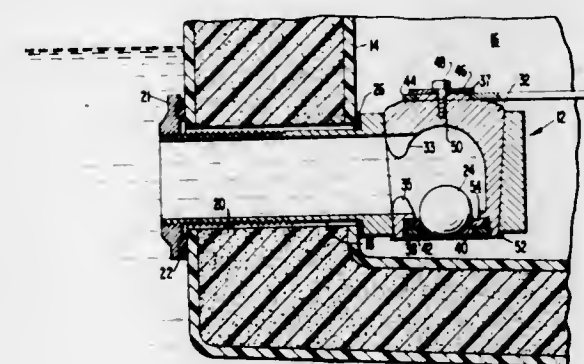
There is disclosed an oceangoing ship of multiple-screw type in which the hull includes at the stern at least two bulbs or bulges, for the accommodation each of a separate main propulsion engine driving a separate screw. A separate rudder is provided in the slipstream of each screw, but laterally displaced from the drive shaft thereof.

3,565,030
ADJUSTABLE STABILIZER FOR BOATS
Gerald J. Curtis, 8806 Glen Loch, Houston, Tex.
Filed Jan. 22, 1969, Ser. No. 793,012
Int. Cl. B63b 1/22
U.S. Cl. 114-66.5 4 Claims



A stabilizer device for boats to maintain a boat in a substantially horizontal position during forward movement of the same and to resist tilting, rolling or bobbing movements of the boat due to wave action. The stabilizer device includes platelike means attached externally to the stern of the boat to form an extension of the bottom surface thereof against which the water may exert an upward force tending to lift the stern of the boat thereby resisting the tendency for the stern to be depressed and the bow to rise when the boat moves forwardly in the water. Means is provided forming an adjustable, yieldable connection between the platelike means and boat at a location to yieldingly resist upward movement of the platelike means and to permit vertical adjustment of the same to regulate the stabilizing action of the water on the device.

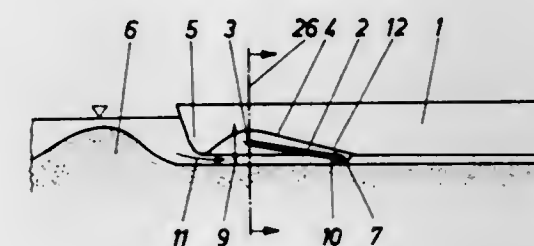
3,565,031
REMOTELY CONTROLLABLE AUTOMATIC BOAT BAILER
John L. DePersa, 17876 Brucker Road, Grand Haven, Mich.
Filed Sept. 30, 1968, Ser. No. 763,845
Int. Cl. B63b 13/00
U.S. Cl. 114-185 2 Claims



This disclosure relates to a boat bailer adapted to be remotely controlled through an external handle so that the bailer can be positioned beneath the back seat of a boat or otherwise out of view. The bailer has a housing fixed to a drain pipe extending through the boat wall. A rotatable valve

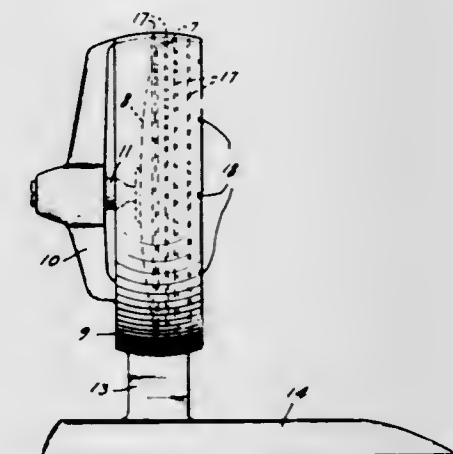
element is positioned within a vertical bore in the housing. A drain conduit, preferably with a check valve, extends through the valve member and communicates with the drain pipe through a hole in the housing. Communication between the drain pipe and the drain conduit is blocked by rotating the valve member with respect to the housing. Water drains through the drain conduit and the drain pipe from the interior of the boat when communication is established between the drain pipe and the drain conduit as the boat moves through the water.

3,565,032
PROPULSION ARRANGEMENT FOR WATERCRAFT
Heinrich Hertel, Tannenbergallee 36, 1 Berlin 19, Germany, and Klaus Affeld, Wisbadenerstrasse 85, 1 Berlin 41, Germany
Filed Feb. 7, 1969, Ser. No. 797,482
Claims priority, application Germany, Feb. 8, 1968, P 15 81 104.8
Int. Cl. B63h 1/30
U.S. Cl. 115-28 11 Claims



A marine vessel, having a concavity in the bottom of the hull, proximate to the bow, is propelled in water by the oscillatory motion of a propeller blade which is attached to the underside of the vessel and pumps water into and from the concavity. Instead of one propeller blade, a plurality of blades may be arranged side by side or in tandem.

3,565,033
REARVIEW MIRROR WITH ADJUSTMENT GUIDES
Robert J. Helle, 33 Holly Drive, Crystal Lake, Ill.
Filed Dec. 17, 1969, Ser. No. 885,681
Int. Cl. G09f 9/00
U.S. Cl. 116-124 10 Claims



A rearview mirror assembly comprises a mirror connected by universal joint means to a housing having an annular open ended portion in clearance relation about the perimeter of the mirror and within which the mirror is adjustable with respect to reference marks on the radially inwardly facing wall of said annular portion. There may also be clocklike index marks on an axially facing edge of said housing portion about said opening.

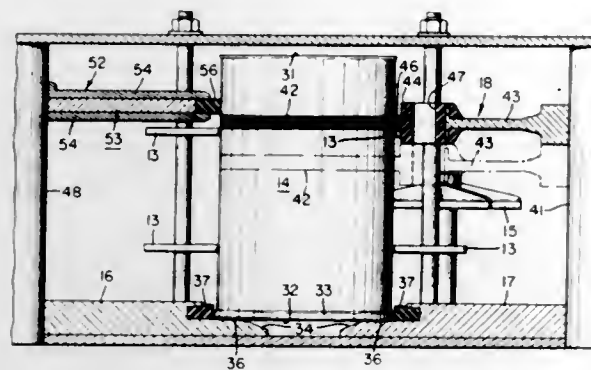
3,565,034

PROCESSING APPARATUS FOR OBJECTS

Thomas D. Birchall, and Johnnie L. Powell, Turlock, Calif.,
assignors to Mandrel Industries, Inc., Houston, Tex.
Filed Oct. 25, 1968, Ser. No. 770,509
Int. Cl. B05c 1/02

U.S. Cl. 118-2

16 Claims U.S. Cl. 118-67



Cylindrical cans each with one closed and one open end are metered one by one between a pair of differentially corotating driving wheels having resilient rims that grasp each can by the closed end and spin it against a rotating printing wheel so as to imprint a band of ink completely around the can; and the can is then discharged downwardly onto a ramp guide on which it rolls in the direction of spin, away from and out of the apparatus. The ramp guide includes levers activated by the can to inhibit metering of the cans into the apparatus if there is a stoppage and backing up of the can flow; and to meter a predetermined amount of ink to the printing wheel on passage of each can, so that just the right amount of ink is printed on, regardless of the rate of flow of the cans.

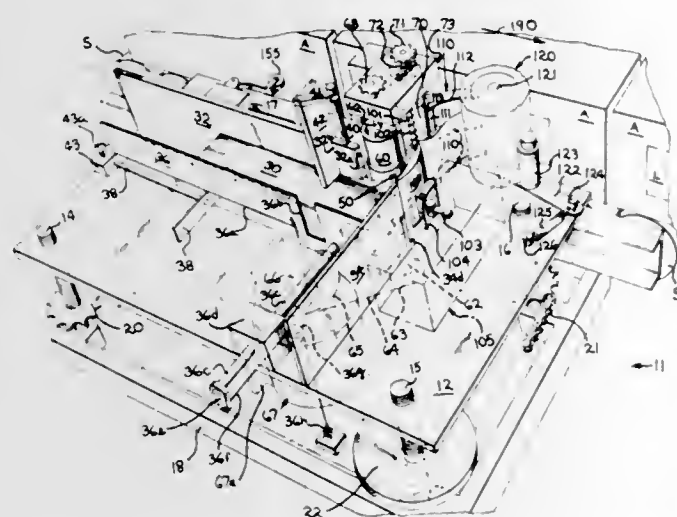
3,565,035

LABEL COATING APPARATUS

Billy Burgess; John H. Burgess, Sylvania, Ohio; Larry C. Gess, Samaria, Mich., and Robert P. Snyder, Sylvania, Ohio, assignors to Advance Products, Inc., Sylvania, Ohio
Filed Nov. 22, 1967, Ser. No. 684,980
Int. Cl. B05c 11/12, 1/02

U.S. Cl. 118-62

26 Claims



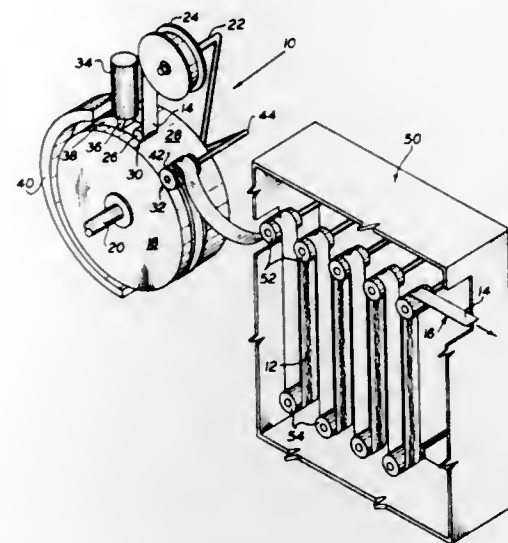
A labeling apparatus adapted to store a given supply of labels, deliver said labels sequentially past a glue applicator and thence to an application station; the apparatus including a reservoir arrangement for the labels, pneumatic means for removal of labels, one at a time, a transfer roller and a glue applicator; all controlled to operate in the manner intended.

3,565,036

STRIP MATERIAL WITH ELASTOMERIC DEPOSIT

Marvin Becker, 276 Newton Turnpike, Wilton, and Harold M. Belmuth, 8 Highwood Lane, Westport, Conn. 06880
Filed Aug. 11, 1969, Ser. No. 849,042
Int. Cl. B05c 11/02

7 Claims



Apparatus for confining a material strip in a partial wrap about a rotating drum between an initial contact point and a takeoff point and, between these points, having appropriate means for depositing and partially curing a strip of elastomeric material on the material strip. An engraved takeoff roller is located at the takeoff point to simultaneously mold a gripping pattern or configuration in the surface of the elastomeric deposit and also divert the strip from continued movement along with the rotating drum.

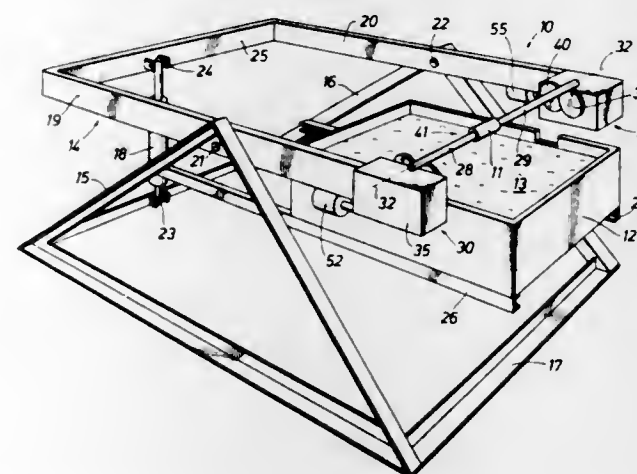
3,565,037

COATING APPARATUS

Walter W. Walling, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed June 9, 1969, Ser. No. 836,688
Int. Cl. B05c 3/02

U.S. Cl. 118-425

12 Claims



The invention disclosed herein is directed to new and improved apparatus for uniformly coating heated articles in a liquid bath or a fluidized bed of a fluent coating material. In each of the several disclosed embodiments, first and second pairs of rotatively driven rollers are spaced along selected parallel axes and adapted for selectively rotating an assemblage including one or more articles to be coated about a third parallel axis which, preferably, is a major axis of symmetry of the articles. After being heated, the assemblage is disposed on the apparatus and rotated as the apparatus at least partially immerses the rotating articles into the coating composition for a sufficient period of time to uniformly coat their exposed surfaces.

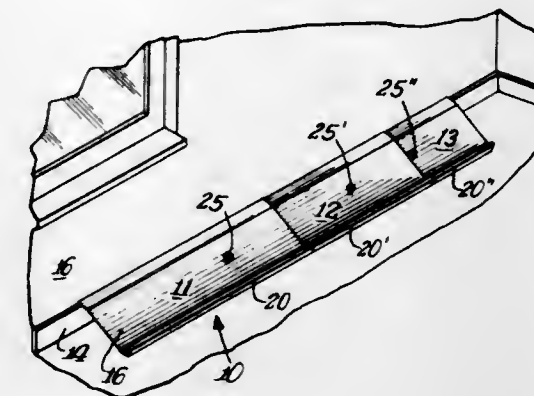
3,565,038

PAINT MASKING TOOL

John D. Van Barriger, 33 South Stalop, Aurora, Ill.
Filed May 27, 1969, Ser. No. 828,204
Int. Cl. B05c 11/16

U.S. Cl. 118-504

5 Claims



A tool for masking a molding while painting the associated wall portion having two or more interfitting panels adapted to be slid towards or away from each other to selectively vary the total length of the tool in order to mask different lengths of the molding. Each panel consisting of a one piece, elongated structure with two flange portions extending transversely away from the opposite edges of its rectangular center section. One flange being adapted to rest on the top of the molding and the other flange section being adapted to rest on the floor. To receive and hold two of the panels together in an interfitting relationship, the lower flange portion includes a semienclosed trackway along its length which receives in a telescopic manner a similar smaller semienclosed trackway of the other panel.

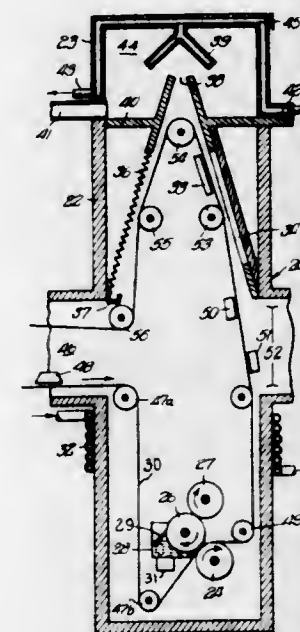
3,565,039

PRINTING AND COATING APPARATUS

Robert K. Remer, Evanston, Ill., assignor to Inca Inks, Inc., Evanston, Ill.
Continuation of application Ser. No. 455,936, May 14, 1965, now abandoned. This application June 25, 1969, Ser. No. 840,591

Int. Cl. B05c 11/16
U.S. Cl. 118-643

6 Claims



An apparatus for coating web and object surfaces wherein a formulation including a coating component dispersed in a

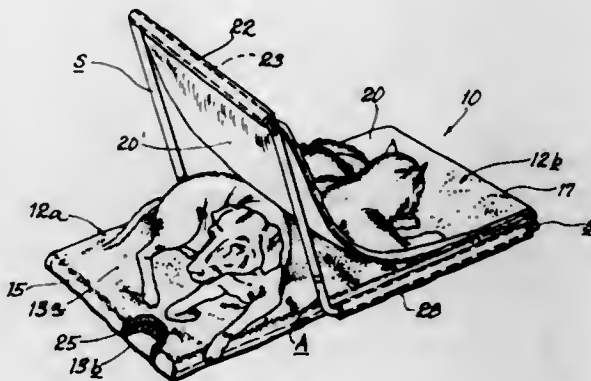
3,565,040

PET PAD

Harold J. Pohl, Washington, Mo., assignor to Kellwood Company, St. Louis, Mo.
Filed Mar. 18, 1968, Ser. No. 713,600
Int. Cl. A01k 1/00

U.S. Cl. 119-1

4 Claims



A bed for a small four-legged pet, comprising an elongated fabric base portion adapted to be disposed on a flat surface, a flexible fabric secured to an end of the base and extending partly thereover, and a rigid frame attached to the sides of the base and extending upwardly and rearwardly therefrom and having a cross piece attached to the free end of the flexible member to support the latter, so as to provide a bedding area on the flexible member and also on the base. The frame is preferably of telescopic tubing to permit convenient packing for mail-order shipment.

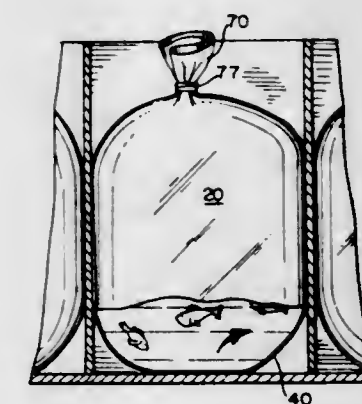
3,565,041

METHOD OF CARRYING AND STORING LIVE FISH

Aleck G. Brooks, P.O. Box 84, Ardsley, N.Y. 10502
Filed Aug. 20, 1968, Ser. No. 753,982
Int. Cl. A1k 63/00

U.S. Cl. 119-3

4 Claims



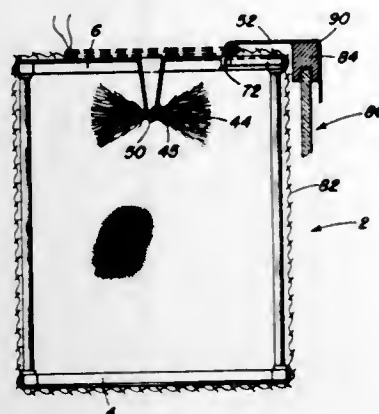
A method of carrying and storing live fish which comprises maintaining said live fish in water maintained in a bag containing air and having bag sidewalls and a bag bottom, said sidewalls and said bag bottom forming an angle at their junction greater than 90°.

3,565,042 BREEDING DEVICE

Allan H. Willinger, New Rochelle, N.Y., assignor to Metaframe Corporation, Hawthorne, Calif.
Filed Aug. 26, 1968, Ser. No. 755,291
Int. Cl. A01k 61/00

U.S. Cl. 119-3

9 Claims



In a breeding device including a frame adapted to hold a foraminous material the improvement which comprises holding means integral with the frame adapted to hold a strand of artificial breeding grass and mounting means for the frame.

In a breeding device including a frame adapted to hold a foraminous material, said frame adapted to be mounted on a side of an aquarium, the improvement which comprises at least one inwardly extending tab member integral with the upper surface of said frame adaptable to hold a deformable mounting means for mounting said breeding device in stationary position against a side of an aquarium and to simultaneously allow the netting to form a jump-proof baffle on all four sides of the top opening.

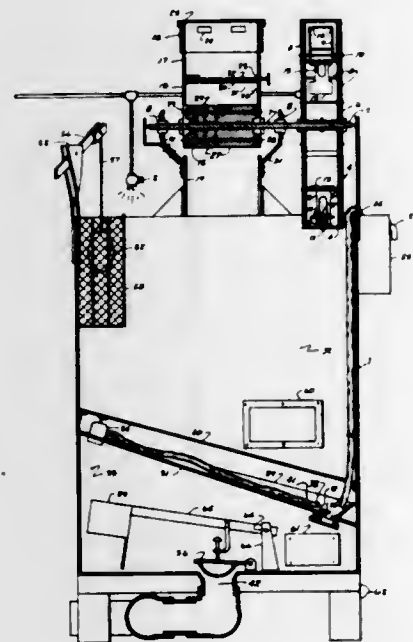
3,565,043 FISH-GROWING AQUARIUM

William Jeter Carmouche, 353 Stanford Ave., East Baton Rouge, La.

Filed June 2, 1969, Ser. No. 829,667
Int. Cl. A01k 63/00

U.S. Cl. 119-3

3 Claims



A aquarium device for successful and economical growing of a concentrated number of fish from fry and fingerlings to maturity in a minimum of space, consisting of an upper fish habitat compartment, with a water-supply spray, and a lower control compartment separated by a slanted partition to guide waste matter and pollutants through an adjustable flow hole into the lower compartment. The water discharged

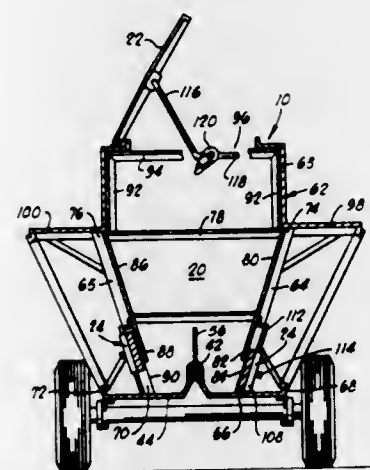
into the lower compartment rises and presses the air in the lower compartment through an adjustable air control valve connected to an extension which releases air bubbles into the water of the upper compartment to aerate the water and to create a circulation which releases carbon dioxide into the atmosphere and which encourages contaminants to settle. A screen above the partition prevents the escape of fish through the discharge opening and does not permit them to disperse the contaminants which have settled. After the lower compartment is filled, the water is discharged automatically and fresh air enters. A valve is then closed and the process is continued. The adjustable air valve contains the conventional one-way flow feature which stops the downward flow of water. The adjustable flow hole includes a conventional pressure valve feature, which reduces the flow of water when the float controlled discharge outlet is opened to flush lower compartment. Safety features assure the continual removal of waste matter. A feeder is activated and controlled by the falling water supplying the aquarium. A conventional air pump can be used to aerate in emergencies. A conventional shallow pan, not shown, should be suspended submerged in water of upper aquarium compartment for feeding mash to small fry when they are being grown.

3,565,044 PORTABLE CATTLE FEEDER

Leonard D. Sorrels, P.O. Box 868, El Reno, Okla.
Filed Feb. 11, 1969, Ser. No. 798,328
Int. Cl. A01k 5/00

U.S. Cl. 119-53

4 Claims



An improved portable livestock feeder having a hinged top loading door with means for automatically locking said door in an open position, and having slidable side unloading doors for unloading said feed by gravity. Means for locking said side unloading doors in selected positions are provided whereby the rate at which the feed is unloaded from said feeder may be controlled and means are provided for agitating the feed within the feeder while it is being unloaded.

3,565,045 LIQUID HANDLING AND DISPENSING APPARATUS

William C. Knox Jr., 46 Des Moines Way South, Seattle, Wash. 98148

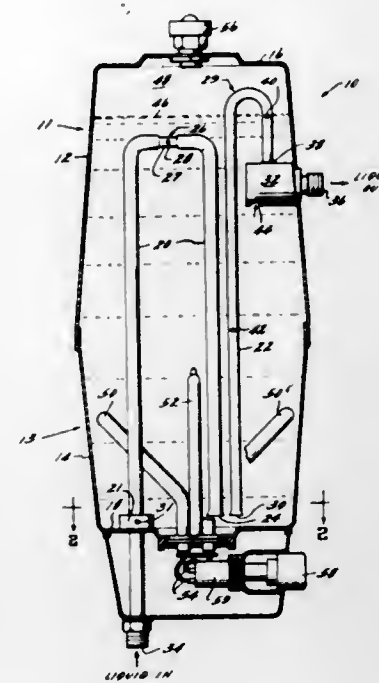
Filed June 2, 1969, Ser. No. 835,292
Int. Cl. F22b 5/00

U.S. Cl. 122-13

4 Claims

A tank of the type including an entrapped air cushion and for receiving, heating and dispensing heated liquid is improved through the combination of two cooperating liquid carrying conduits enclosed within the tank. A first of such conduits provides for preheating of incoming liquid and discharge into a lower portion of the tank. The second conduit, which draws cooler liquid from the lower portion of the tank for discharge into a mixing chamber, includes a vent in its location in the upper portion of the tank to control the

liquid level in the tank. The mixing chamber receives cooler liquid from the second conduit and communicates with the



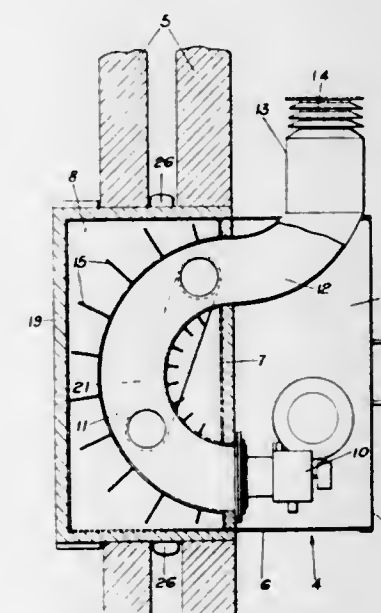
3,565,046 DOMESTIC TYPE BOILERS

John Charles William O'Brien, Gracedieu Road, Watford, County Waterford, Ireland

Filed May 5, 1969, Ser. No. 821,583
Int. Cl. F22b 7/02

U.S. Cl. 122-156

9 Claims



The invention relates to a domestic type boiler, particularly an oil-fired boiler, consisting of a boiler section and an extension section, the latter including a burner and ancillary equipment, in which the boiler section is located within the dwelling house and the extension section located external to the dwelling house.

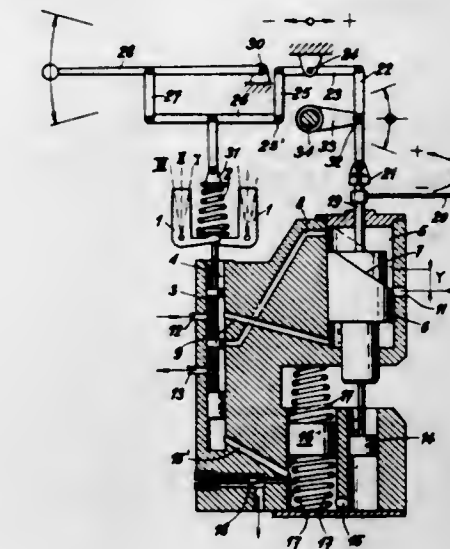
3,565,047 SYSTEMS FOR CONTROLLING COMPRESSION IGNITION ENGINES

Antonin Bulvas, Minice Kralup, Czechoslovakia, assignor to CKD Praha oborovy podnik, Prague, Czechoslovakia
Filed July 1, 1968, Ser. No. 742,971

Claims priority, application Czechoslovakia, July 1, 1967, Oct. 31, 1967, June 5, 1968, 4853/67; 7690/67; 4167/68
Int. Cl. F02d 1/12

U.S. Cl. 123-140

6 Claims



upper portion of the tank to receive heated liquid, discharging a mixture of the two through a liquid discharge means.

In a combined hydraulic and mechanical system for controlling compression ignition engines, a piston means which has a central axis is provided at its exterior with a control surface inclined with respect to this axis. A cylinder means houses the piston means to form a servocontrol therewith, and a wall of the cylinder means is formed with an overflow bore to be covered and uncovered by the piston means. A manually operable speed control means is connected by a linkage means to the piston means while freeing the latter for rotary movement about its axis. A slide valve means communicates with opposed sides of the piston means in the cylinder means to control the flow of fluid pressure thereto, and a governor means which is also connected to the linkage means is operatively connected with the slide valve means to control the latter. The linkage means is also connected with a metering means which meters the amount of fuel delivered to the engine.

3,565,048 ARRANGEMENT FOR THE CONTROLLED ELECTRONIC IGNITION OF INTERNAL COMBUSTION ENGINES

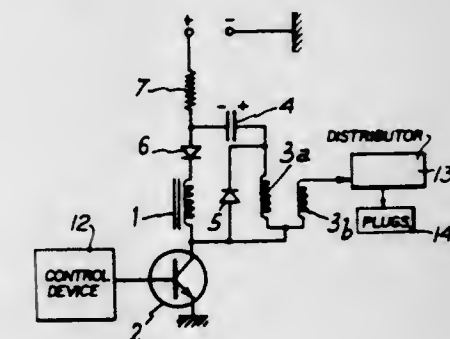
Louis Monpetit, L'Etang-la-Ville, France, assignor to Societe Des Procèdes Modernes D'Injection Sopromi, Les Mureaux, France

Filed Oct. 3, 1968, Ser. No. 764,767

Claims priority, application France, Oct. 6, 1967, 123611
Int. Cl. F02p 3/06

U.S. Cl. 123-148

6 Claims



In an internal combustion engine, an electronic system comprising an ignition coil adapted to energize the sparking plugs upon application of an electric pulse on a semiconduc-

tive member, said system including an oscillating system controlled by said semiconductive member and constituted by an induction coil and a condenser together with two diodes adapted to prevent the discharge of the latter. The semiconductive member is constituted by a transistor or a thyristor incorporated with said circuit so that the ignition-controlling pulses reaching said transistor or thyristor allow the condenser to discharge into the primary of the ignition coil and to thereby release the ignition. The induction coil can possibly control the injection of fuel in which case two semiconductive members are used which control respectively injection and ignition.

3,565,049

INTERNAL COMBUSTION ENGINE

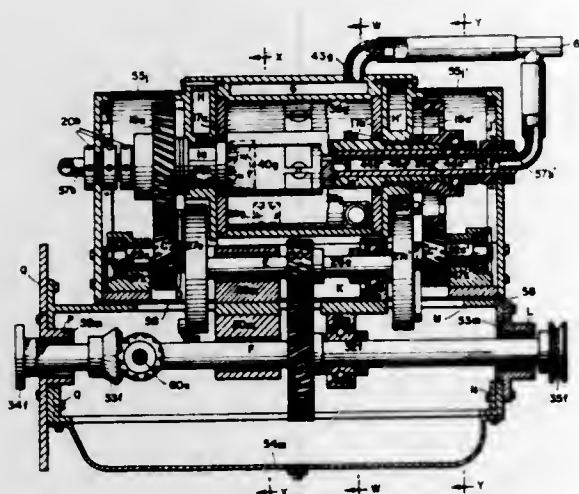
Jordan V. Bauer, 1001 Grand Avenue, Keokuk, Iowa 52632

Filed Aug. 11, 1969, Ser. No. 849,077

Int. Cl. F02b 53/06

U.S. Cl. 123-8.13

8 Claims



A rotary engine is provided with means for introducing straight air and an ignitable fuel mixture into the spaces between the rotor vanes in a stratified condition. Special means for sealing the vane rotors, special change of motion means, and special cooling means are also provided.

3,565,050

RECOIL TYPE OF INTERNAL COMBUSTION ENGINE STARTER

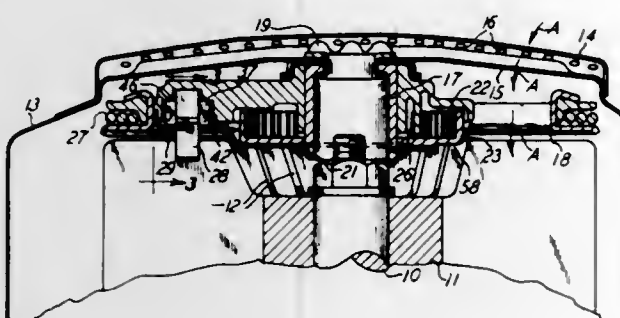
Paul J. Clymer, and Neill C. Woelffer, Racine, Wis., assignors to Jacobsen Manufacturing Company, Racine, Wis.

Filed May 16, 1969, Ser. No. 825,240

Int. Cl. F02n 1/00

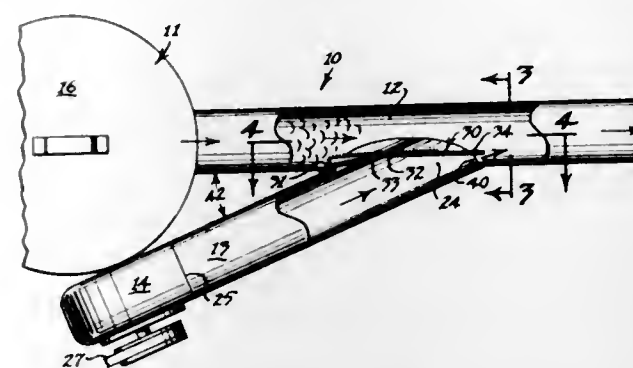
U.S. Cl. 123-185

16 Claims



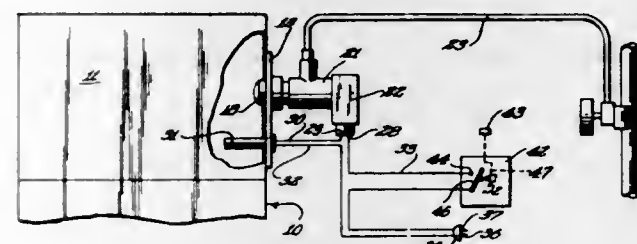
A recoil type of internal combustion engine starter having a rope-pull type of pulley and a recoil spring. A pawl is pivotally mounted on the pulley to extend therefrom and engage a member on the engine shaft for starting the engine. A lever is movable relative to the pulley and engages the pawl to extend the pawl from the pulley in the starting action, and the lever permits the pawl to be retracted, irrespective of the position of the lever. The lever also serves to hold the pawl in the retracted position so that it will not become inadvertently engaged with the member on the engine shaft.

3,565,051
MEAT SMOKING APPARATUS
Joseph R. Swift, Nashville, Tenn., assignor to P.T. Holloway, Fayetteville, Tenn.
Filed Dec. 12, 1968, Ser. No. 783,215
Int. Cl. A23b 1/04
U.S. Cl. 126-59.5 3 Claims



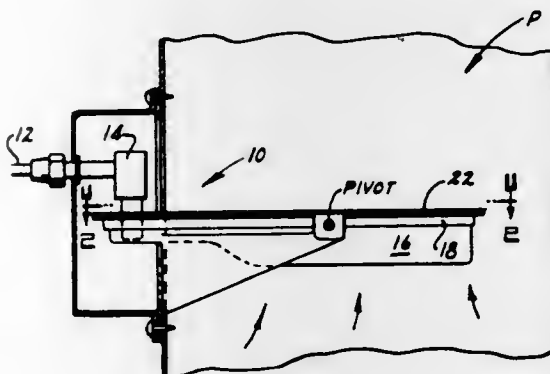
A meat smoking apparatus including a smoke generator, a smoke duct for conveying smoke from the generator to a smokehouse, an air duct connected to the smoke duct at an acute angle, and a blower in the air duct for blowing air from the air duct into the smoke duct in the direction of the smokehouse.

3,565,052
THERMAL CONTROLLED WATER SPRAY HUMIDIFIER
Keith L. Wallace, Marion, Iowa, assignor to Norand Corporation, Cedar Rapids, Iowa
Filed Oct. 15, 1968, Ser. No. 767,655
Int. Cl. F24f 3/14
U.S. Cl. 126-113 2 Claims



A water spray humidifier for use in furnace heating systems, is disclosed. Water is sprayed into the heating system in response to temperature changes in the distribution chambers of the heating system. The humidifier is very simple and requires few parts because it is not connected to the fuel supply or electrical system of the furnace.

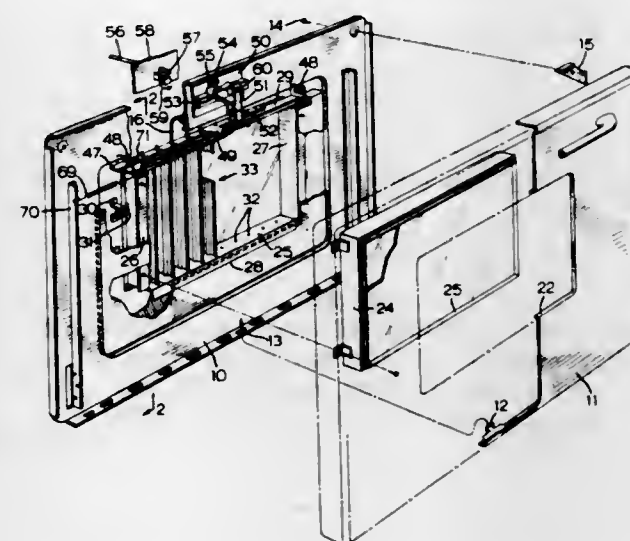
3,565,053
EXPENDABLE HUMIDIFIER TRAY
Lawrence W. Hamilton, 1479 Schafer Drive, Flint, Mich.
Filed Dec. 2, 1968, Ser. No. 780,384
Int. Cl. F24f 3/14
U.S. Cl. 126-113 2 Claims



This invention is directed to humidifiers of commercial manufacture which are placed in the plenum chamber of a

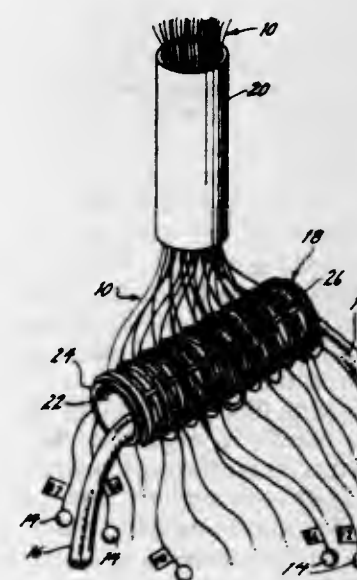
warm air furnace, with the emphasis on the quick and easy removal of the evaporator pan when it becomes caked with mineral deposits which result from the evaporation of water, without benefit of removal or total disassembly of the humidifier from the furnace.

3,565,054
SHUTTERED OVEN-DOOR WINDOW
David Gibbons Smith, Toronto, Ontario, and Helmut Ludwig Hagenbuck, Downsview, Ontario, Canada, assignors to Moffats, Limited, Weston, Ontario, Canada, a company
Filed Feb. 3, 1969, Ser. No. 796,023
Claims priority, application Great Britain, Feb. 7, 1968, 6028/68
Int. Cl. F24c 15/04
U.S. Cl. 126-197 3 Claims



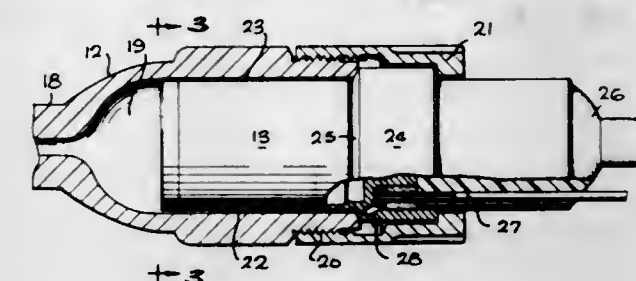
A door for a self-cleaning oven is provided with a window which is closed when the door is locked for self-cleaning of the oven, thereby preventing heat losses through the window during self-cleaning. The window closing means comprises a series of rotatable flat plates, movable from a mutually parallel disposition, in which the window is open, to a disposition in which they are all disposed in the same plane parallel to that of the window, thereby obstructing the window, operable in response to movement of the door locking mechanism.

3,565,055
ELECTRODE HOLDER
Marie D. Amoroso, 477 Brookfield Road, Drexel Hill, Pa.
Filed Dec. 23, 1968, Ser. No. 785,915
Int. Cl. A61b 5/04
U.S. Cl. 128-2.1 1 Claim



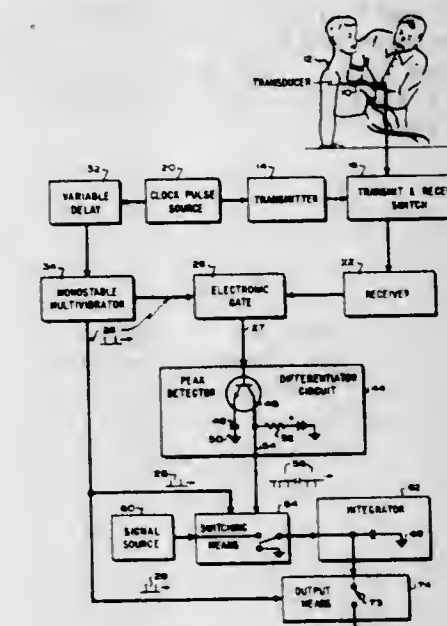
A device for holding electrode wires in position on the head of the patient including a cylinder having a mesh friction jacket partially around the circumference thereof which holds the electrode wires movably between same and said cylinder and a sliding hollow cylinder that contains the electrode wires therethrough.

3,565,056
BODY FLUID PRESSURE MEASURING APPARATUS
Louis D. Statham, Los Angeles County, Calif., assignor to Statham Instruments, Inc., Los Angeles, Calif.
Filed Feb. 29, 1968, Ser. No. 709,422
Int. Cl. A61b 5/02
U.S. Cl. 128-2 7 Claims



A needle or catheter is received within a region of the body at which fluid pressure is to be measured. At its external end, the needle/catheter is connected to a chamber which also includes a strain-gage sensor. A saline solution is supplied to the chamber and internal parts of the needle/catheter during pressure measurement via a conduit passing through parts of the strain-gage sensor assembly. The conduit terminates at a special orifice and channel on the surface wall of the sensor assembly to provide a perfusing of the chamber and inner parts of the needle/catheter at a very slow rate and with negligible back pressure.

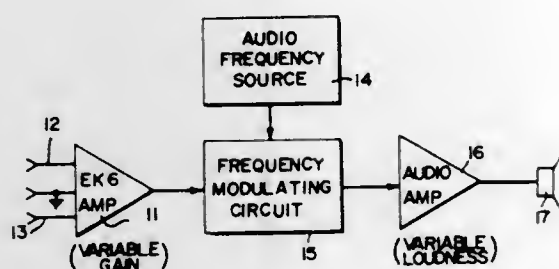
3,565,057
SIGNAL ANALYZING APPARATUS FOR AN ULTRASONIC SCANNING SYSTEM
John T. Hart, Newtonville, Mass., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Dec. 6, 1968, Ser. No. 781,727
Int. Cl. A61b 5/10, 5/02; G01n 23/20
U.S. Cl. 128-2.05 1 Claim



Ultrasonic scanning apparatus for analyzing a group of echo signals occurring over a period of time to provide an output signal related to the time location of the echo signal of relatively greatest amplitude within the period is disclosed. The group of echo signals are supplied to a peak detector and differentiator circuit which supplies an intermediate signal to reset an integrator whenever the amplitude of any

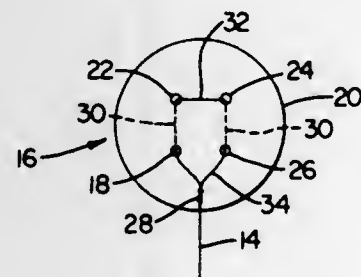
echo signal exceeds the amplitude of all previous echoes within the period. The amplitude of the signal stored on the integrator at the end of the period is thus proportional to the time between the echo signal of greatest amplitude and the end of the period.

3,565,058
MONITORING APPARATUS WITH AUDIO OUTPUT
FREQUENCY RESPONSIVE TO EKG SIGNAL
AMPLITUDE
 Peter B. Mansfield, Needham, Mass. (Massachusetts General Hospital Boston, Mass. 02114)
 Filed Oct. 4, 1967, Ser. No. 672,784
 Int. Cl. A61b 5/04
 U.S. Cl. 128-2.06 4 Claims



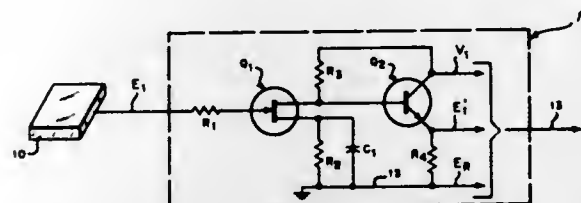
An electrocardiograph tone output signal is provided so that the audible frequency of the tone is representative of the amplitude of the EKG signal. The EKG signal is sensed by conventional electrodes, amplified and then modulates the frequency of an audible signal centered about 1,500 cycles so that a positive EKG signal increases the frequency of the audio signal. This frequency-modulated tone is reproduced by a loudspeaker so that the medical personnel may concentrate their eyes on the operation or other medical procedure while continuously monitoring the EKG with their ears. A typical unit provides a frequency deviation of from 100 to 8,000 cycles.

3,565,059
BIOLOGICAL ELECTRODE AND METHOD OF MAKING SAME
 Ray L. Hauser, and Marlin S. Liles, Boulder, Colo., assignors to Hauser Research and Engineering Co., Boulder, Colo.
 Filed June 7, 1968, Ser. No. 735,394
 Int. Cl. A61b 5/04; A61n 00/00; H01 9/00
 U.S. Cl. 128-2.06 11 Claims



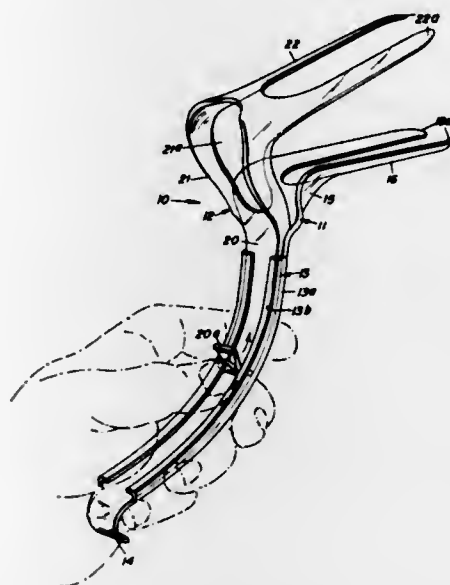
Electrode for application to the skin of the human anatomy for use with electromedical devices, such as electrocardiograph apparatus, which employs a normally dry electroconductive material, which, when wetted with a solvent, has adhesive properties for maintaining it firmly affixed to the skin. The electroconductive material is also bonded to a lead wire, minimizing electrical resistance between them in contradistinction to juncture contact between metallic electrical conductors.

3,565,060
BIOPOTENTIAL SENSOR EMPLOYING INTEGRATED CIRCUITRY
 William C. Sipple, Lansdale, Pa., assignor to The United States of America as represented by the Secretary of the Navy
 Filed Aug. 21, 1968, Ser. No. 754,310
 Int. Cl. A61b 5/04
 U.S. Cl. 128-2.06 4 Claims



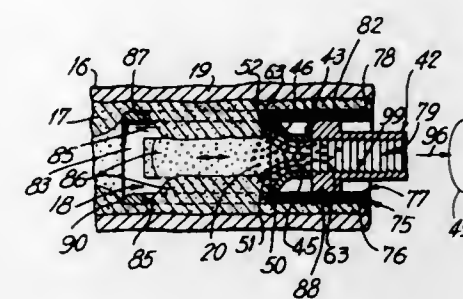
An electrocardiograph having pasteless sensor electrodes formed to directly contact the skin and thereby transfer biopotentials while maintaining a very high signal-to-noise ratio. The active electrodes are contiguously affixed to integrated circuit chips of operational amplifiers for maintaining a very low impedance to the measuring and recording instrument.

3,565,061
FREE SLIDING BIVALVE VAGINAL SPECULUM
 Verne J. Reynolds, 148 E. Jefferson, Boise, Idaho
 Filed Apr. 30, 1969, Ser. No. 820,384
 Int. Cl. A61b 1/30, 1/32; A61m 29/00
 U.S. Cl. 128-20 5 Claims



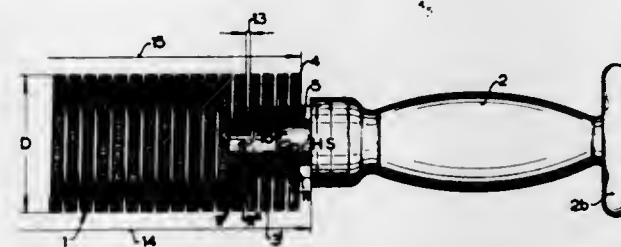
There are two cooperating members, a lower member and an upper member, both made of suitable plastic material. The lower member has a concave upwardly facing arcuate handle portion of a radius of about 4 inches. At its upper end is an integral shank of about twice the width of the handle and concave in cross section with the concave portion facing upwardly and projecting on out from the end of the shank portion in an arcuate right angle. This projecting end portion is a tongue portion that is bifurcated and also concave and facing upwardly. The handle of the lower member has sides that extend up and inwardly and form a channel within which is slidably received the handle of a correspondingly shaped upper member having like parts except that the shank at the upper end of the handle is longer and has an elongated relatively large aperture therethrough providing a view and access for preparation instruments and between the spaced apart tongues. The upper member shank is concave facing downwardly as is its bifurcated projecting tongue. The lower member handle has an integral downwardly extending finger engaging abutment at its lower end. The upper member handle has an integral curved upwardly thumb engaging abutment at its lower end.

3,565,062
ULTRASONIC METHOD AND APPARATUS FOR
REMOVING CHOLESTEROL AND OTHER DEPOSITS
FROM BLOOD VESSELS AND THE LIKE
 Arthur Kuris, Riverdale, N.Y., assignor to Ultrasonic Systems Inc., Plainview, N.Y.
 Filed June 13, 1968, Ser. No. 736,653
 Int. Cl. A61h 23/00; A61b 17/00
 U.S. Cl. 128-24 54 Claims



The method and apparatus of the invention relates to the removal of foreign deposits of material from vessels of living human beings, such as cholesterol from blood vessels, by means of accelerations of vibratory forces in the ultrasonic frequency range without causing any disruption or damage to the surrounding walls of the vessels. The layer of material is removed from the inner surface of a vessel of a human in vivo by supporting a portion of the wall of the vessel and inserting in the vessel a tool member having an output surface that is vibrated to provide peak accelerations of at least 1,000 g's, as the output surface of the vibrated tool member is placed in contact with the material at substantially the supported wall portion so as to transmit the mechanical vibrations thereto for a time sufficient to effect disintegration of the contacted material, and at the same time effecting relative movement of the tool member relative to the vessel so as to progressively contact, disintegrate, and thereby remove the layer of material from the vessel.

3,565,063
MASSAGING BRUSH
 Hans Wessel, 5225 Wildbergerhutte, Bezirk Cologne, Germany
 Filed Feb. 7, 1969, Ser. No. 797,607
 Claims priority, application Germany, Mar. 27, 1968, P 17 66 046.7
 Int. Cl. A61h 15/00
 U.S. Cl. 128-57 10 Claims

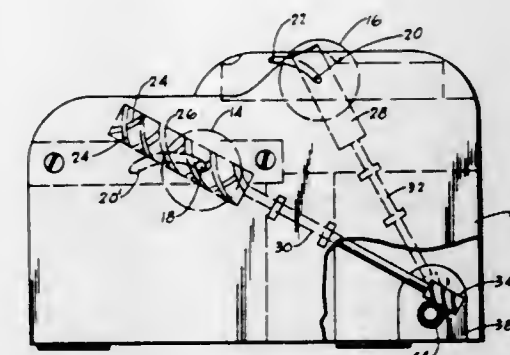


A massaging brush having a flexible core spanning a pair of hand grips. The tufts of bristles extend continuously along a U-section helically wound channel member rotatable on the flexible core.

3,565,064
FLAT ARCH CORRECTOR AND FOOT EXERCISER
 Martin L. Ryerson, 581 Warner Ave., Logan, Ohio
 Filed May 5, 1969, Ser. No. 821,735
 Int. Cl. A61h 15/00
 U.S. Cl. 128-57 5 Claims

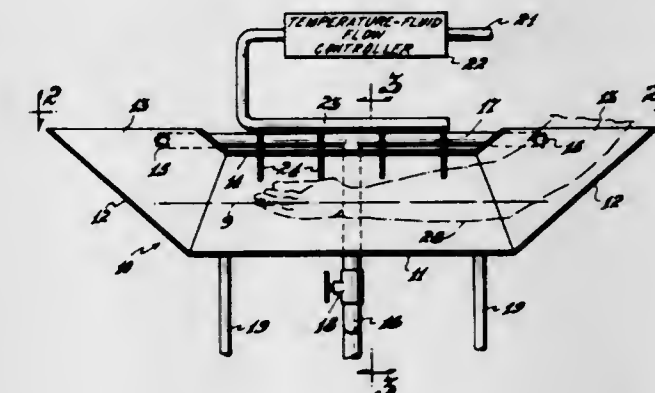
A machine for correcting flat arches and exercising the feet employing an electric motor rotating a pair of spaced

parallel rollers. A foot is held with the heel in place and the remainder extending transversely between the rollers. A



mechanism guides the rollers, while rotating, to move up and down the corresponding surfaces of the foot.

3,565,065
HYDROTHERAPY TANK
 Ernest R. Biggs, Jr., 3759 Chevington Road, Ohio, and George D. Busenburg, 2678 Valley View Drive, Columbus, Ohio
 Filed Sept. 20, 1968, Ser. No. 761,173
 Int. Cl. A61h 9/00
 U.S. Cl. 128-66 5 Claims



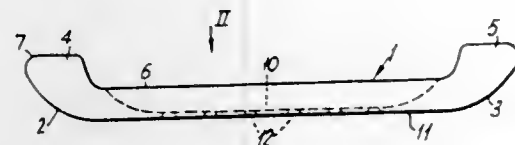
A hydrotherapy tank particularly adapted for the treating of the forearm and hand. The hydrotherapy tank preferably comprises a horizontally positioned cylindrical tank shell having a circulation section and an arm access section, the arm access section defining an arm access port positioned in a plane above the top of the circulation section, and at least two water nozzles mounted inside the tank shell adjacent an inner wall section to discharge water substantially tangential to that inner wall section, the nozzles being evenly spaced along the major axis of the circulation section.

3,565,066
SURGICAL IMPLANT DEVICES FOR CORRECTING SCOLIOtic CURVES
 Robert Roaf, Liverpool, and Brian Rowlinson, Lowton, near Warrington, England, assignors to National Research Development Corporation, London, England
 Filed Sept. 20, 1968, Ser. No. 761,134
 Claims priority, application Great Britain, Sept. 29, 1967, 44527/67
 Int. Cl. A61f 5/01
 U.S. Cl. 128-69 6 Claims

An implant for correcting scoliotic, kyphotic and lordotic curves comprising a rigid member bearing at its ends on ver-

tebrae adjacent but not included in the curve, and bridging the concave side of the curve. Threaded connecting members having hooks for engagement with vertebrae in the curve extend through apertures in the rigid bridge member and are

form a closed circuit rebreathing system. The components of the system are encased in a compact package form in a con-



connected to the rigid bridge member by nuts at the side of the rigid member remote from the vertebrae. Turning the nuts causes displaced vertebrae to be drawn towards the rigid member.

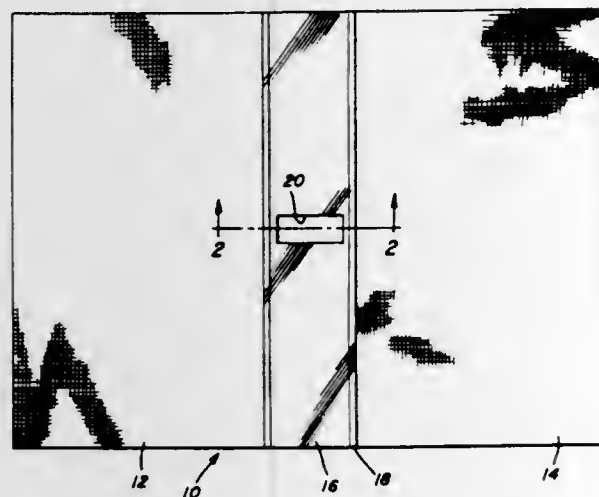
3,565,067 LAPAROTOMY SHEET WITH PLASTIC REINFORCEMENT

Robert T. Bayer, Asheville, N.C., and Robert M. Woronoff, Atlanta, Ga., assignors to Mars Manufacturing Company, Inc., Asheville, N.C.

Filed Sept. 23, 1968, Ser. No. 761,776
Int. Cl. A61f 13/00

U.S. Cl. 128-132

7 Claims



A surgical sheet or drape in the form of a relatively large rectangular panel of nonwoven paper material having a centrally disposed strip of plastic incorporated therein to eliminate strikethrough of body fluids and foreign materials such as lint getting into a wound during a surgical operation, such as a laparotomy. An aperture is formed in the plastic sheet or panel to provide access to the area in which the operation is being conducted.

3,565,068 BREATHING APPARATUS

Allan Morris Bickford, East Aurora, N.Y., assignor to Automatic Sprinkler Corporation of America, Cleveland, Ohio

Filed Feb. 7, 1969, Ser. No. 797,631

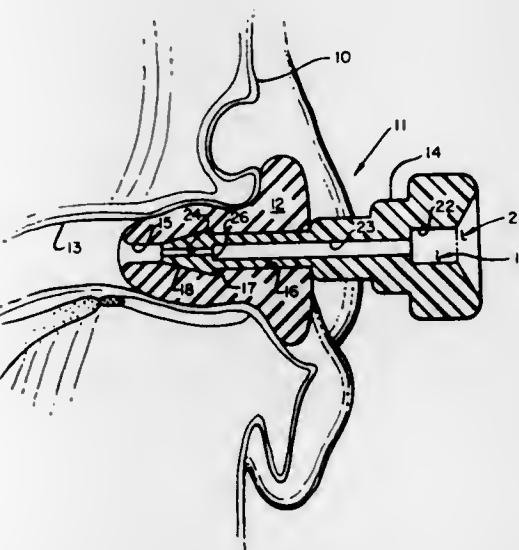
Int. Cl. A62b 7/08

U.S. Cl. 128-142

9 Claims

A self-contained emergency breathing apparatus comprising a chemical oxygen generator having an expandable casing, a delivery tube, a filter in the tube, a carbon dioxide absorber having a mouthbit, and a hood for covering the head of the user and enclosing the carbon dioxide absorber to

An acoustical filter device characterized by a filter element serving to screen out substantially all noise about a predetermined level while permitting sound below such level to pass therethrough without deleterious loss. The filter is preferably carried in a support body adapted to be inserted in the outer ear canal of the human ear and to form-fit the respective left-hand and right-hand ear canals. An acoustical filter passage is defined through the support body in open communication with the outside surroundings through which sound is screened out in the above manner.



3,565,069 ACOUSTICAL FILTER DEVICE

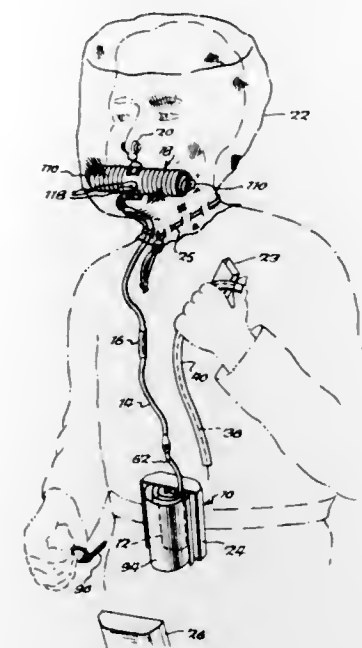
Robert Nelson Miller, 745 Teel St., Sparks, Nev. 69220

Filed Mar. 21, 1969, Ser. No. 809,080

Int. Cl. A61f 11/02

U.S. Cl. 128-152

4 Claims



tainer which can be carried by the user and readily opened in an emergency situation.

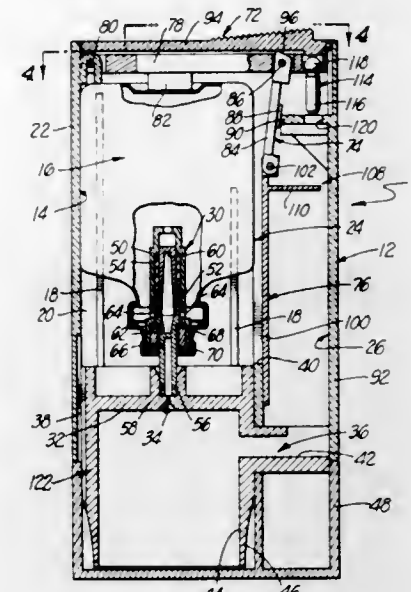
3,565,070
INHALATION ACTUABLE AEROSOL DISPENSER
Dale B. Hanson, Thousand Oaks; Glenn R. Payton, Northridge; Carl L. Stearns, Granada Hills; Charles G. Thiel, Chatsworth, and James A. Tolley, Los Angeles, Calif., assignors to Riker Laboratories, Inc., Northridge, Calif.

Filed Feb. 28, 1969, Ser. No. 803,312

Int. Cl. A61m 11/02, 15/00, 15/06

U.S. Cl. 128-173

9 Claims



An inhalation actuable dispenser utilizing an aerosol medicament-dispensing container equipped with a metering valve movable between an inner, charging position and an outer, discharging position, and further equipped with a spring biasing the metering valve outwardly toward its discharging position. The dispenser includes a latch for releasably retaining the metering valve in its charging position in opposition to the biasing action of the spring, and includes an inhalation responsive vane for releasing the latch so that the spring moves the metering valve to its discharging position to deliver a metered amount of medicament to a stream of air being inhaled by a patient.

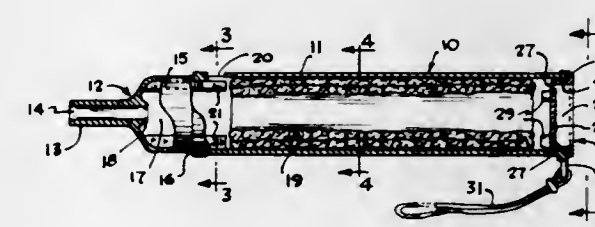
3,565,071
SELF-REGULATING THERAPEUTIC INHALER
Sanford Cobb, Lake Forest; Dean Richard Katerndahl, Wheaton, and William Emmett Murphy, Waukegan, Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Sept. 19, 1968, Ser. No. 760,930

Int. Cl. A61m 15/06

U.S. Cl. 128-201

4 Claims

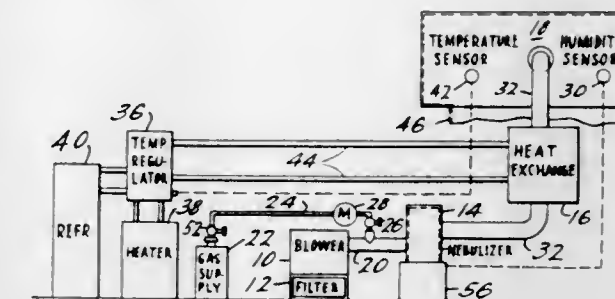


An inhaler for self-administration of a volatile drug for analgesic purposes and comprising a tubular body with a mouthpiece at one end for insertion into a patient's mouth, an absorbent material within the tubular body for holding the liquid agent and a cap on the end of the tubular body opposite the mouthpiece, the cap having openings therein arranged to provide evenly distributed charging of liquid drug.

3,565,072
ENVIRONMENTAL CONTROL APPARATUS
William D. Gauthier, Sylvania Township, Ohio, assignor to Champion Spark Plug Company, Toledo, Ohio
Filed Apr. 8, 1968, Ser. No. 719,332
Int. Cl. A61m 15/00

U.S. Cl. 128-212

4 Claims



Apparatus for supplying a controlled atmosphere to a closed chamber. An ultrasonic nebulizer generates liquid particles and the particles are dispersed in air, or in a filtered air-gas mixture, to increase its specific heat. The resulting mixture is then passed through a temperature controlled heat exchanger and into the chamber.

3,565,073
METHOD AND MEANS FOR ATTACHING A BODY APPENDAGE

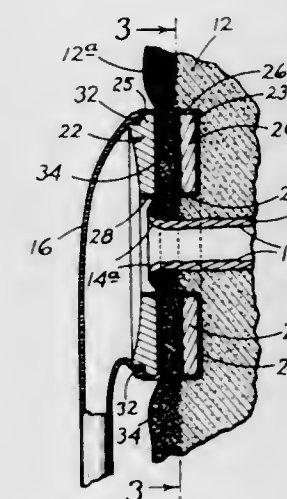
Jerry D. Giesy, Portland, Oreg., assignor to James E. Tatooles, Chicago, fractional part interest to each; George A. Raffel, Chicago, fractional part interest to each; Constantine J. Tatooles, Lincolnwood, Ill., fractional part interest to each; Thomas J. Fogarty, Portola Valley, Calif., fractional part interest to each and Jack M. Schneider, Denver, Colo., fractional part interest to each

Filed Apr. 15, 1968, Ser. No. 721,235

Int. Cl. A61f 5/44

U.S. Cl. 128-283

21 Claims



Means attaching an appendage to an animal body comprising a stiff backing element embedded beneath the skin with a backing surface that faces outwardly, and an exteriorly carried complementing element held against the skin presenting a bearing surface that conforms to and is backed up by the backing surface of the embedded backing element.

3,565,074
INDWELLING ARTERIAL CANNULA ASSEMBLY
Philip R. Foti, Kailua, Hawaii, assignor to Becton, Dickinson and Company, East Rutherford, N.J.
Filed Apr. 24, 1969, Ser. No. 818,979
Int. Cl. A61m 5/00

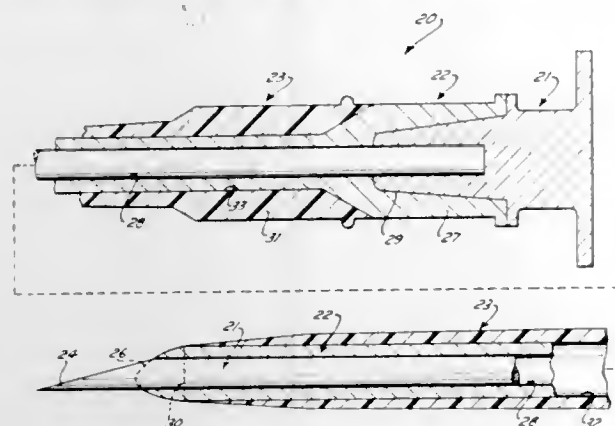
U.S. Cl. 128-214.4

10 Claims

An indwelling arterial cannula assembly includes a plastic catheter coaxially removably mounted on a blunt tipped can-

nula having a pointed stylet removably located in the bore thereof and extended beyond the blunt tip of the cannula; and a method is provided for positioning a portion of the plastic catheter of the assembly into an artery. The method includes the steps of projecting the assembly into the artery by piercing both the inner and outer walls of the artery with the point of the stylet and extending a portion of the assembly through the openings in both of the walls. Then the

provided with means for relieving suction pressure automatically in response to obstruction of the inlet to the system. The presence of an obstruction is detected in the form of an increase in vacuum pressure within the system which is sensed by a mechanical pressure transducer. The transducer in turn operates a switch which controls an electrically operated air valve adapted to introduce external or atmospheric air pressure into the system.



stylet is removed from the assembly and the remainder of the assembly is retracted until its forward tip reenters the artery and fluid from the artery flows through the cannula. The remainder of the assembly is then advanced into the lumen of the vessel to the desired position with the blunt tip of the cannula alleviating the danger of repuncture of the inner wall of the artery. Finally, the plastic catheter is slid forward while the cannula is removed therefrom which thereby locates a portion of the catheter in the desired position in the artery.

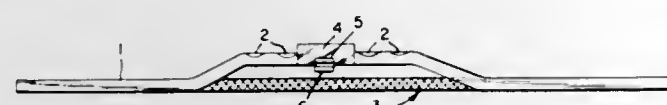
3,565,075 BANDAGE

Frederick Lonnie Jerry, 10234 Dexter Ave., Detroit, Mich. 48206

Filed May 2, 1968, Ser. No. 726,650
Int. Cl. A61f 7/02

U.S. Cl. 128-268

1 Claim

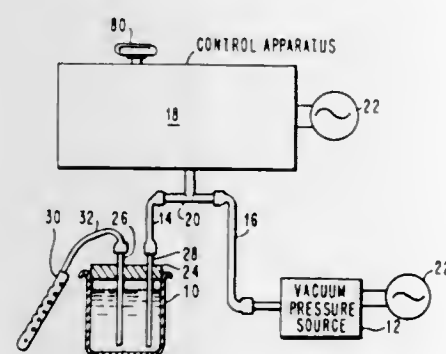


A bandage constructed of two adhesive strips having a gauze pad adhered thereto and a plastic medication container connected between said strips, the plastic container having an opening extending lengthwise in its undersurface, an adhesive band covering said opening and serving as a releasable means for opening the medication container.

**3,565,076
EVACUATOR SYSTEM AND APPARATUS**
Daniel A. Kadan, 19 Split Tree Road, Scarsdale, N.Y. 10583
Filed May 22, 1968, Ser. No. 731,040
Int. Cl. A61m 1/00

U.S. Cl. 128-278

10 Claims



A suction system, of the type employed in evacuating fluids from wounds or body cavities of medical patients, is

**3,565,077
DENSIFIED ABSORBABLE POLYGLYCOLIC ACID
SUTURE BRAID, AND METHOD FOR PREPARING SAME**
Arthur Glick, Danbury, Conn., assignor to American Cyanamid Company, Stamford, Conn.
Filed May 6, 1968, Ser. No. 726,881
Int. Cl. A61l 17/00

U.S. Cl. 128-335.5

4 Claims

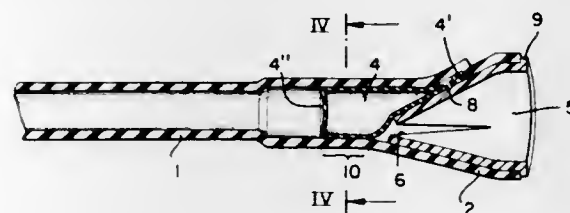


The densified polyglycolic acid suture braid is characterized by a tightly compacted braid structure, and has a void fraction of up to about 50 percent less than the void fraction of conventionally fabricated nondensified suture braids. The densified braid is prepared by subjecting a nondensified braid to a tensile force of up to about three-fourths that required to break the nondensified braid. The densified suture braid exhibits substantially enhanced in vivo strength retention compared to nondensified braids.

**3,565,078
QUICK DISCONNECT CATHETER COUPLING**
Vincent L. Vaillancourt, Livingston; Thomas Thackston, Florham Park, and John E. McGaughey, East Brunswick, N.J., assignors to C. R. Bard, Inc., Murray Hill, N.J.
Filed Apr. 25, 1969, Ser. No. 819,201
Int. Cl. A61m 25/00

U.S. Cl. 128-349

5 Claims



An assembly of elements installed in the funnel of a catheter including a piece of rubber tubing having a diameter large enough to bear against the inner wall of the funnel in combination with a relatively stiff plastic valve liner of approximately conical form when closed, split longitudinally from its apex to points near its base, the valve liner resting in the funnel entrance beside an outer flattened end of the rubber tubing, the inner end portion of the tubing bearing against the funnel wall and closing the funnel; the plastic valve liner being adapted to receive the tapered end of connector or adapter which separates the split portions of the valve and pushes aside the funnel-closing portion of the tubing.

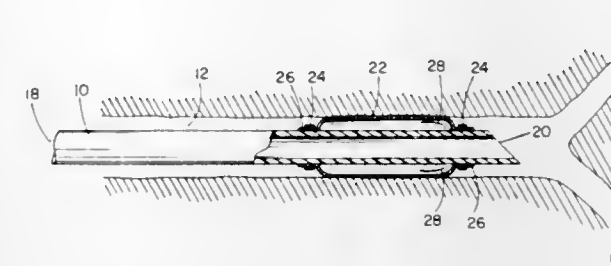
**3,565,079
SELF-INFLATING ENDOTRACHEAL TUBE**
Richard Robert Jackson, Marblehead, Mass. 01945
Continuation-in-part of application Ser. No. 427,601, Jan. 25, 1965, now abandoned. This application Apr. 9, 1968, Ser. No. 719,994
Int. Cl. A61m 25/00

U.S. Cl. 128-351

15 Claims

Endotracheal tubes with cuffs that self-inflate during inspiration and remain inflated during expiration. Shown are

distal openings on the outside of the tube into the cuff volume. Also shown is a tube having an opening through its

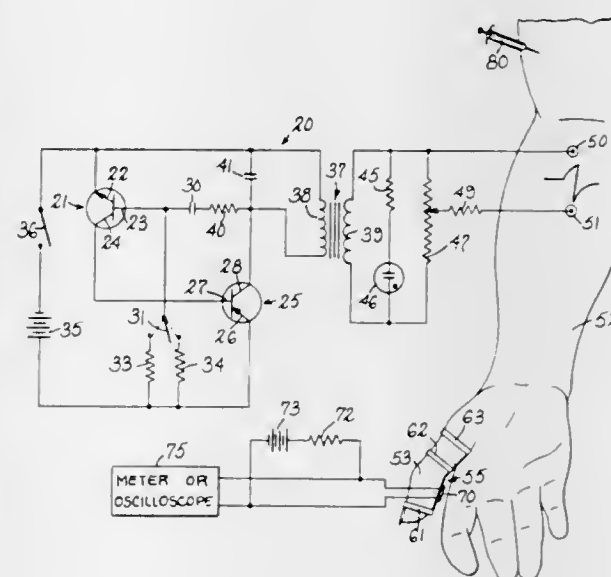


wall into the cuff volume, and a flutter valve to restrict the flow of air. The cuffs shown are substantially larger than the trachea and are of thin film material.

**3,565,080
NEUROMUSCULAR BLOCK MONITORING APPARATUS**
Walter S. Ide, Eastchester, and William H. Nickerson, Tuckahoe, N.Y., assignors to Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y.
Original application Dec. 21, 1964, Ser. No. 419,949, now Patent No. 3,364,929, dated Jan. 23, 1968. Divided and this application July 19, 1967, Ser. No. 662,249
Int. Cl. H05g 1/00

U.S. Cl. 128-422

10 Claims



A neuromuscular block monitoring device, comprising a battery, an oscillator circuit to translate the power supplied by said battery into electrical impulses and having a variable impedance and switch arranged to set the frequency at either a twitching or a tetanus frequency, a potentiometer coupled to said oscillator circuit to control the amplitude of said impulses to form an electrical signal having the effect of stimulating the ulnar nerve and/or the nerve motor point muscle junction of a limb of the body, and a pair of spaced electrodes to apply the output of the potentiometer to the ulnar nerve and/or the nerve motor point muscle junction of a limb of the body. There is also provided a splint having a strain gage mounted thereon and a display device for displaying the electrical output from said strain gage, the splint being adapted to fit on the thumb of a patient, and said strain gage responsive to the movement of the splint resulting from the application of electrical impulses to the patient.

**3,565,081
BRASSIERE TYPE SLIPS**
Dora A. Barg, 2728 N. 97th St., Milwaukee, Wis. 53222
Filed Jan. 30, 1969, Ser. No. 795,259
Int. Cl. A41c 3/08

U.S. Cl. 128-454

3 Claims

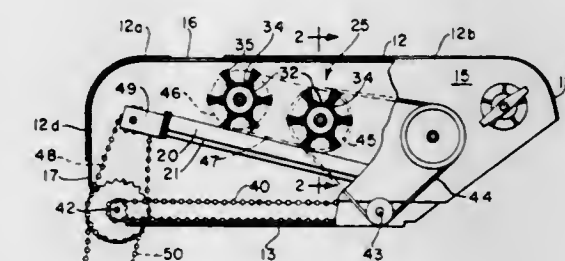


A woman's slip having concealed sealable pockets in the top brassiere portion thereof.

**3,565,082
CORN-HUSKING MECHANISM**
Glenn Dale Head, Des Moines, Iowa, assignor to Deere & Company, Moline, Ill.
Filed June 26, 1968, Ser. No. 740,324
Int. Cl. A01d 45/02

U.S. Cl. 130-5

3 Claims

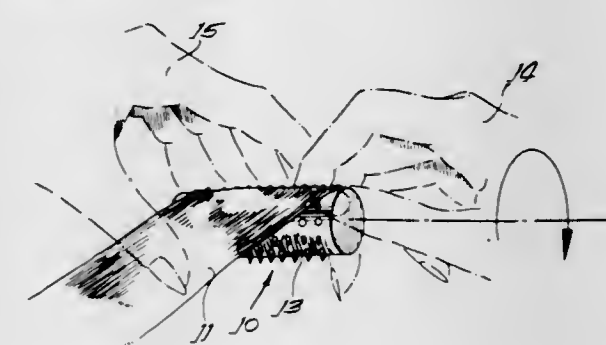


A corn-husking mechanism composed of a plurality of parallel husking rolls disposed in side-by-side relation and driven so that adjacent sides of the rolls move downwardly and engage the husks on loose ears of corn moving along the surface of the rolls. There is provided a rotary driven brush device in which the bristles of the brushes gently contact the surface of the ears and hold them against the husking rolls.

**3,565,083
METHOD FOR SETTING HAIR**
Samuel J. Popeil, Chicago, Ill., assignor to Popeil Brothers, Inc., Chicago, Ill.
Continuation of application Ser. No. 551,320, May 19, 1966, now abandoned. This application July 28, 1969, Ser. No. 850,308
Int. Cl. A45d 7/00

U.S. Cl. 132-7

1 Claim

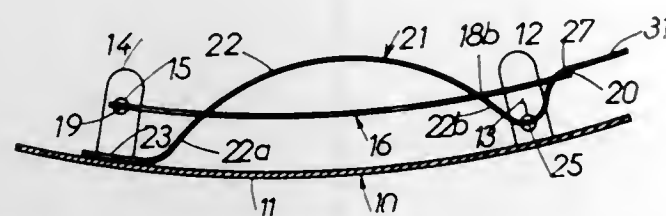


A method of setting hair in which curlers are placed in a steam chest until they reach their maximum effective

moisture content at an elevated temperature. Then the curlers are removed from the steam chest, and a strand of hair is wrapped around the moist exterior of the curler. The preferred temperature at the time of wrapping is in the range of 150° F. to 190° F. The preferred curling time is at least 2 minutes.

3,565,084 HAIR-SLIDE

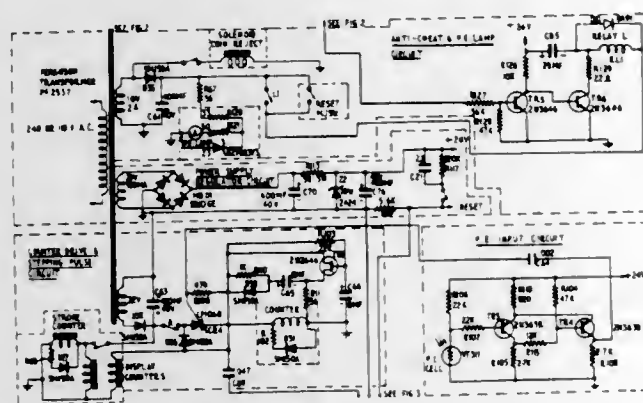
Jean Vuillard, Saint-Claude, Jura, France, assignor to Sesame, Saint-Claude, Jura, France
Filed Nov. 18, 1968, Ser. No. 776,576
Claims priority, application France, Nov. 23, 1967, 129,353
Int. Cl. A45d 8/00
U.S. Cl. 132-46 8 Claims



The invention relates to a hair-slide including a base, a flexible clasp hinged to the base at one end thereof, and a blade spring hinged to the blade at the other end thereof and adapted to lock the clasp in its closed position and to unlock it when it is pushed upon at its free end near its hinging means.

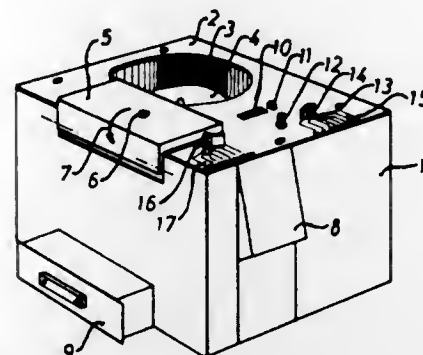
3,565,085

APPARATUS FOR COIN COUNTING AND DISPENSING
Joseph Richard Heywood, and James Victor Sheov, New South Wales, Australia, assignors to Ainsworth Consolidated Industries Pty. Limited, Rosebery New South Wales, Australia
Filed Apr. 24, 1968, Ser. No. 723,753
Int. Cl. G07d 9/00
U.S. Cl. 133-8 5 Claims



Apparatus for coin or token counting and dispensing in which coins are delivered after being counted by causing them to pass between a light source and a light sensitive device, the apparatus including an electronic control circuit such that each time the edge of a coin cuts the light beam a pulse is produced, the circuit containing timing means to control the length of the pulse so that a series of pulses of uniform length are produced even when the flow of coins or tokens is irregular, a safety device to prevent the repeated delivery of a predetermined number of coins which the apparatus is set up to deliver, a programmed S.C.R. counter for batching a predetermined number of coins or tokens and a timing device arranged to prevent the further delivery of coins or tokens after the passage of the predetermined length of time from the delivery of the first coin or token.

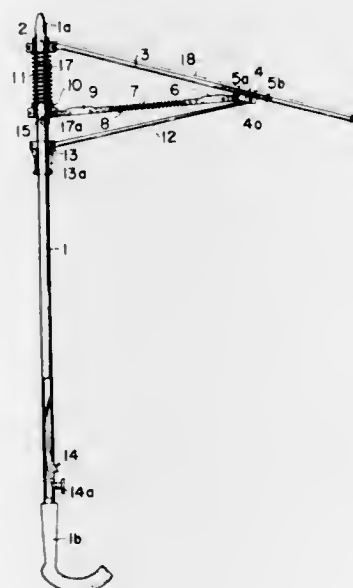
3,565,086
COIN SORTING AND COUNTING MACHINE
Gert Zimmermann, Berlin, Germany, assignor to F. Zimmermann & Co., Berlin, Germany
Filed Oct. 25, 1968, Ser. No. 770,550
Claims priority, application Germany, Nov. 4, 1967, P 15 74 176.1
Int. Cl. G07d 9/00 11 Claims



A coin sorting and counting machine is formed by a housing having a cylindrical coin receptacle with a rotating disc defining the base of the receptacle. Extending angularly outwardly from the periphery of the disc is a sorting channel which is adjustable for counting coins of various diameters and thicknesses. An adjustable conveyor belt is superposed over the edge of the disc and extends into the channel for urging coins into the channel. Coins not of a proper size for passage through the channel are deflected by the conveyor belt into a drop out opening. Within the channel beyond the drop out opening a device is arranged for counting the coins passing through the channel.

3,565,087

AUTOMATICALLY OPENABLE UMBRELLA
Choji Arai, Showa-Machi, and Yukio Sato, Tokyo, Japan, assignors to Ideal Shoji Co., Ltd., Taito-ku, Tokyo, Japan
Filed Nov. 17, 1969, Ser. No. 877,223
Claims priority, application Japan, Jan. 25, 1969, Jan. 25, 1969, Jan. 25, 1969, 44/6668;44/6669;44/6670
Int. Cl. A45b 25/16 7 Claims

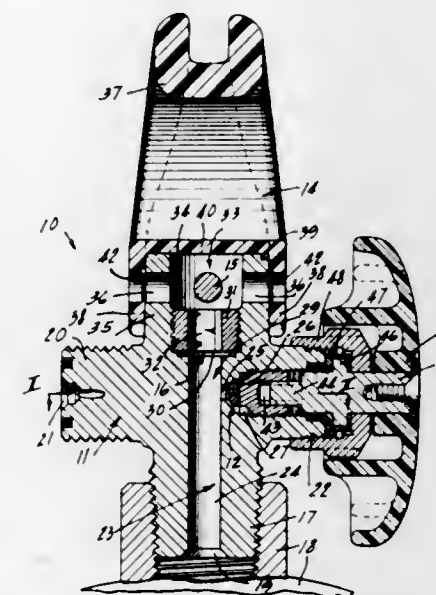


An automatically openable umbrella equipped with attachment members each being securely mounted on a rib and having a nonextensible supporting spoke pivotally attached at one end thereto and at the other end to a slidable lower ring mounted on a vertical shaft, and also with extensible pushing members each being pivotally attached at one end to said attachment member in spaced and independent relation from said supporting member and at the other end to a

slidable intermediate ring, whereby the cloth of the umbrella is always maintained taut in its opened state even when the cloth expands due to its absorption of moisture.

3,565,088 COMBINED SHUT-OFF VALVE AND HANDLE CONSTRUCTION

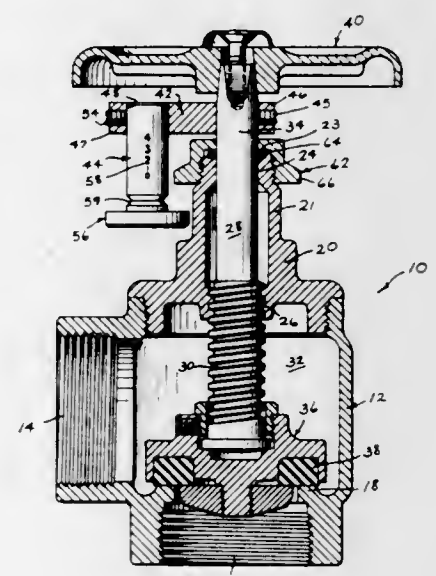
Richard T. Cornelius, Minneapolis, and Harold E. Dufresne, St. Paul, Minn., assignors to The Cornelius Company, Anoka, Minn.
Filed Oct. 26, 1967, Ser. No. 678,222
Int. Cl. A62c 23/10; F16k 17/40
U.S. Cl. 137-68 15 Claims



A valve assembly for a pressure vessel has a lower inlet, a lateral outlet, a lateral resilient control knob, and a resilient handle at its upper end, and an internal relief valve vented through the handle but sealed by the handle from exposure to the environment.

3,565,089 VALVE

William S. Thompson, Elkhart, Ind., assignor to Elkhart Brass Manufacturing Company, Inc., Elkhart, Ind.
Filed Jan. 21, 1969, Ser. No. 792,547
Int. Cl. F16k 13/04, 37/00
U.S. Cl. 137-68 10 Claims

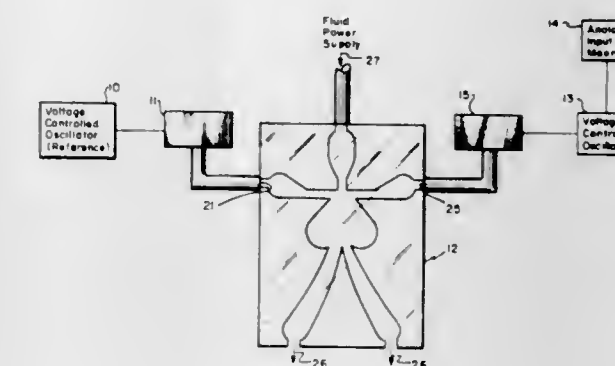


A valve having body and bonnet and including a stem shiftable longitudinally in the bonnet. A valve member is mounted to the inner end of the stem and cooperates with a valve seat in the valve body to control the flow rate through the valve. A hand grip is mounted on the outer end of the

stem. A stop member is attached to the stem between the hand grip and bonnet and includes a part which is adjustable relative to and shiftable with the stem and a part which is engageable with a stationary projection carried by the valve to limit valve opening movement of the stem.

3,565,090

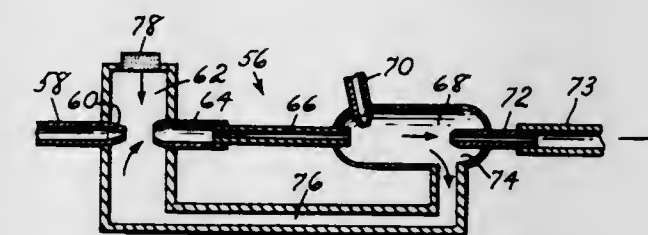
ANALOGUE ELECTRICAL-TO-FLUIDIC TRANSDUCER
William V. Miller, Los Angeles, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed Feb. 10, 1969, Ser. No. 797,939
Int. Cl. F15c 1/14, 3/00 1 Claim



A pair of bender type piezoelectric crystal drivers, one controlled by a fixed frequency oscillator and the other driven by a continuously variable controlled oscillator, are used to impress a modulated carrier on a fluid. The modulated carrier is represented as pressure variations on the fluid. Conventional fluidic techniques amplify and demodulate and frequency detect the modulating analogue signal and generate a DC output in which the amplitude or pressure varies proportionately as the analogue modulation varies.

3,565,091

FLUID PUMP AND REGULATOR
Raymond N. Auger, 456 Riverside Drive, New York, N.Y.
Continuation-in-part of application Ser. No. 606,345, Dec. 30, 1966, now abandoned. This application Jan. 24, 1969, Ser. No. 832,035
Int. Cl. F15c 1/18 17 Claims



A jet pump in combination with a fluidic device or system, the jet pump receiving a small volume of high pressure fluid and supplying a larger volume at lower pressure to the fluidic device or system, utilizing the fluid at a maximum pressure of 2 p.s.i., the pump entraining fluid from an auxiliary source to provide the increased volume. Fluid under high pressure is passed through a nozzle into an expansion chamber connected to an auxiliary fluid source. The high velocity fluid stream emanating from the nozzle draws fluid from the auxiliary source and passes through a collector to an output. A feedback may be bled off the output to operate restriction means varying the fluid available from the ambient source, or the high pressure source.

3,565,092

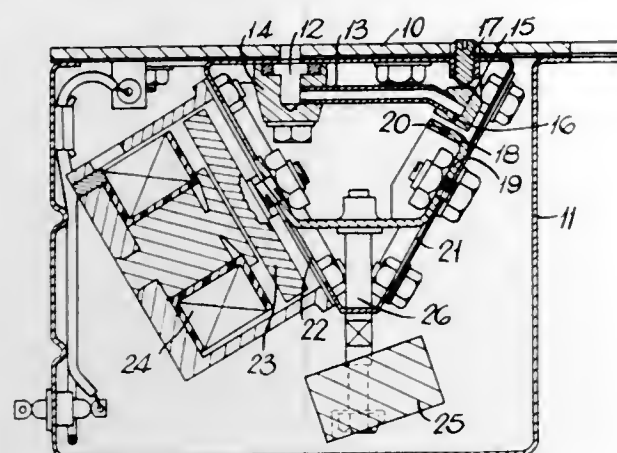
SOLENOID OPERATED VALVE WITH PLURAL DIAPHRAGM SUPPORTS

Harry Simister Bottoms, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Dec. 3, 1968, Ser. No. 780,648

Claims priority, application Great Britain, Dec. 7, 1967,
55726/67

Int. Cl. F16k 31/10
U.S. Cl. 137-83

3 Claims



A valve comprising a pair of members having adjacent surfaces in which are formed respective apertures which can be mutually aligned and moved relatively to one another to move the apertures out of alignment, one of the members having an entry passage communicating with the aperture therein, said member being mounted upon a resilient tube formed a continuation of the entry passage and having an adjusting device arranged to move the member so that the surfaces are moved towards and away from one another.

3,565,093

RATIOED PNEUMATIC REPEATER

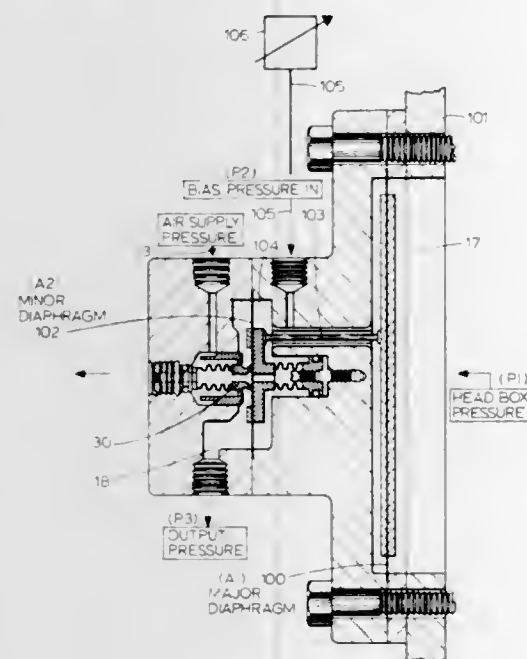
Richard W. Hatch, Jr., Foxboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Filed Mar. 14, 1969, Ser. No. 807,352

Int. Cl. F15b 5/00; G05d 16/00

U.S. Cl. 137-85

2 Claims



A diaphragm ratio capsule separates a recess within a housing into a signal pressure chamber and a repeating pressure chamber; for the condition of signal pressure lower than repeating pressure, the diaphragm ratio capsule is moved away from an exhaust valve permitting pressure in the repeating chamber to vent to atmosphere; for the condition of signal pressure higher than repeating pressure the diaphragm

ratio capsule forces the exhaust valve to move which in turn unseats a supply valve permitting the supply pressure to enter the repeating pressure chamber; thus the repeating chamber pressure follows the pressure of the signal chamber; the capsule has two different sized diaphragms for ratio function, bias pressure may be applied between the diaphragms.

3,565,094

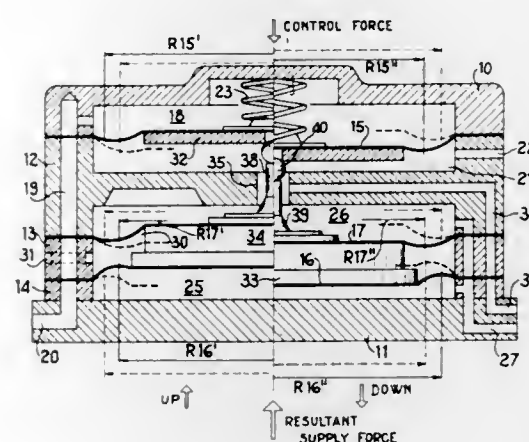
DIAPHRAGM-TYPE PNEUMATIC AMPLIFIER AND MODULATOR

Giovanni Pisoni; Giovanni Ballestriero, and Carlo Marucci, Milan, Italy, assignors to Kent-Tieghi SPA, Milan, Italy
Continuation-in-part of application Ser. No. 517,775, Dec. 30, 1965, now abandoned. This application June 24, 1969, Ser. No. 836,085

Int. Cl. F15b 5/00; G05d 16/00

U.S. Cl. 137-85

9 Claims



A pneumatic amplifier and modulator wherein a variable input signal results in an amplified and proportionally varied output. A fluid pressure is supplied in two spaced interconnected supply chambers having movable walls of different surface area and consisting of diaphragms having oppositely varying effective area and confining an externally vented space therebetween. A control chamber receives the input signal and has a third diaphragm wall connected to both said two fluid pressure oppositely urged diaphragms whereby the force exerted by a variable input pressure is balanced by the resultant force applied by supply pressure, said latter force varying as a function of stroke as said effective areas oppositely vary. Valve means are connected to said three diaphragms and designed to divide the supply output between an output signal outlet and a vent proportionally to the stroke.

3,565,095

AUTOMATIC SWITCH-OVER SYSTEM

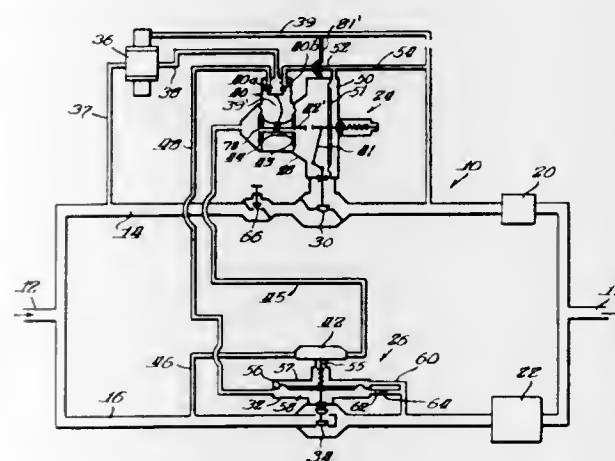
Ralph W. Zeigler, Marshalltown, Iowa, assignor to Fisher Governor Company

Filed June 19, 1968, Ser. No. 738,324

Int. Cl. G05d 7/01

U.S. Cl. 137-115

4 Claims



An automatic switchover system for switching all or part of the flow of gas or liquid from one fluid conduit to another

parallel fluid flow conduit so as to match the actual flow rate to the most desirable flow rate for each of the fluid flow conduits. A pressure regulator mechanism is provided in each of the fluid flow conduits and the regulators are controlled by loading pressure from a pilot. A three-way valve is associated with one of the pressure regulator mechanisms and impulse means is associated with the other pressure regulator mechanism. The three-way valve is adapted to direct the flow of loading pressure between the first regulator mechanism and the second regulator mechanism.

valve operable to direct water against the floating valve disc to cause immediate closure irrespective of the rate at which the shutoff valve is opened.

3,565,098

PRESSURE VISCOSITY COMPENSATING FLOW CONTROL DEVICE

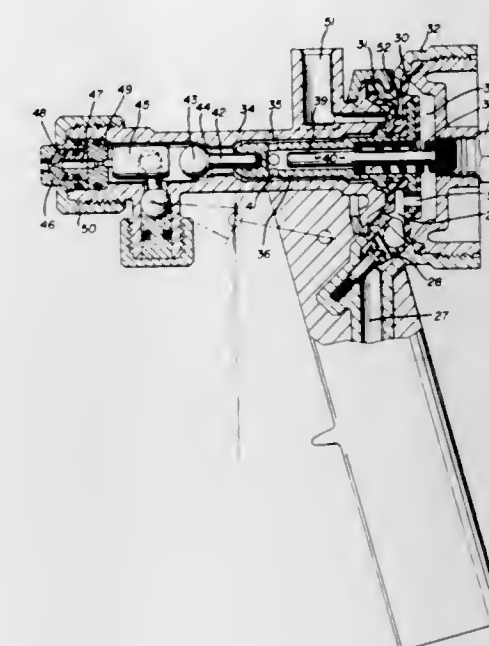
Frank Welty, 4962 Lockwood Blvd., and Raymond D. Welty, 4307 Lake Road, Youngstown, Ohio 44511

Filed Nov. 14, 1968, Ser. No. 775,846

Int. Cl. G05d 7/01

U.S. Cl. 137-240

9 Claims



3,565,096

AUTOMATIC WATER FILTER VALVE FOR AIR LINES

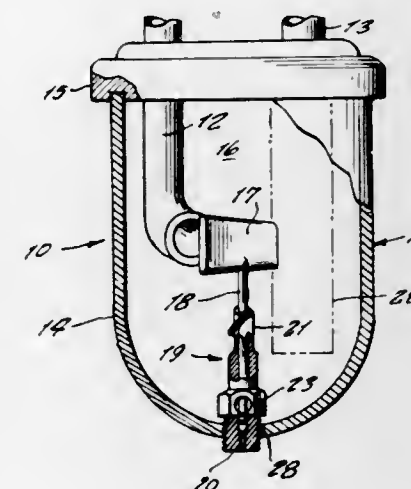
Leo A. Heintzelman, 4990 Burlingame S. W., Wyoming, Mich.

Filed Mar. 10, 1969, Ser. No. 805,588

Int. Cl. F16t 1/00

U.S. Cl. 137-204

3 Claims



A device for automatically expelling water from air lines, the device including an air paddle in front of an air intake tube, the paddle being mounted upon a needle valve stem that is vertically movable as the paddle is rotated, the valve stem having at its bottom a water exhaust orifice, and when the valve stem is lifted, the water in a bowl is allowed to flow from the bowl and into the atmosphere.

3,565,097

VACUUM RELIEF ANTIBACKFLOW AND SHUTOFF VALVE

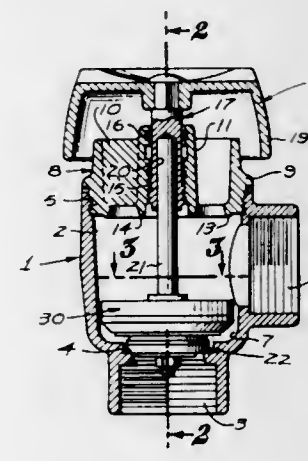
Robert B. Costa, Covina, and Ali Marandi, Azusa, Calif., assignors to Clemar Manufacturing Corp., Azusa, Calif.

Filed June 6, 1969, Ser. No. 830,957

Int. Cl. E03c 1/00; F16k 45/00

U.S. Cl. 137-218

6 Claims



A manually operated shutoff valve which includes a floating valve disc automatically operable, when open, to provide vacuum relief and, when closed, to prevent backflow, and which incorporates a flow directing ring above the shutoff

A flow control device responsive in operation to variations in pressure and viscosity of the fluid flowing therethrough utilizes a flexible diaphragm having a pressure drop orifice therein movably mounting a spool and valve element which is also biased by an adjustable tensioning means. Differential pressures on the opposite sides of the flexible diaphragm occasioned by the pressure drop orifice therein results in maintaining uniform pressure to flow ratio. An elongated restricted passageway in the spool senses changes in viscosity in the fluid flowing through the device by reason of a corresponding pressure drop along the same which results in moving the spool and valve element to hold the flow through the device as desired.

The device is described in a hand paint spray gun wherein changes in pressure and viscosity of the paint flowing through the gun occur and the flow is held by the device as desired, thus, enabling the paint gun to maintain the desired pressure on the nozzle at all times regardless of changes in paint pressure or paint viscosity.

3,565,099

REVERSIBLE CHECK VALVE

Oscar R. Huber, Half Moon Bay, Calif., assignor to John M. Young, Los Angeles, Calif.

Filed Jan. 2, 1970, Ser. No. 021

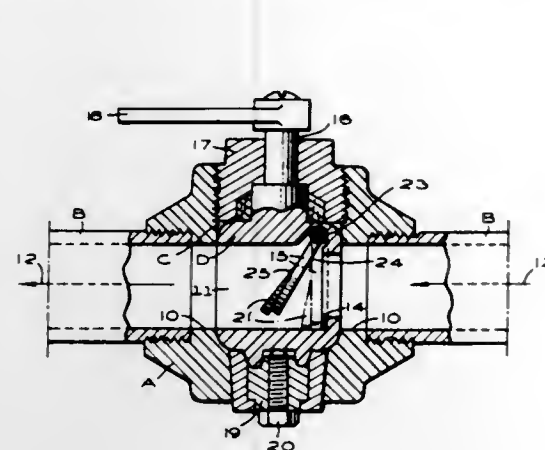
Int. Cl. F16k 15/03

U.S. Cl. 137-269.5

1 Claim

A reversible check valve wherein a valve body defines a pair of end passageways and a central chamber communicating with the latter, the chamber having a rotatable valve plug mounted therein, the plug being made with a port for conveying fluid from one end passageway to the other in either direction. The plug has a seat in its port, and a swingable check valve flap coacts with the seat when the former is seated on the latter to prevent flow of fluid in one direction, while permitting reverse flow of the fluid upon unseating of the flap. The direction of flow is determined by the selective setting of the plug in either of two positions. Moreover, a counterweight is provided on the flap and is arranged to in-

crease the surface area against which the back fluid pressure will act in urging the flap into closed position, the counter-



weight further preventing chattering of the flap and disposed to urge the flap closed by gravity.

3,565,100

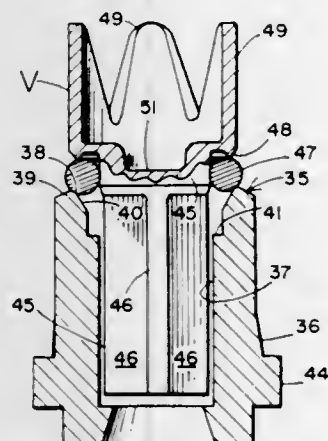
REVERSIBLE SELF-CLEANING CARTRIDGE VALVE
Robert K. Pfleger, Miami, Fla., assignor to Mec-O-Matic, Inc., Miami, Fla.

Filed Dec. 23, 1968, Ser. No. 786,239

Int. Cl. F16k 15/02, 1/44

U.S. Cl. 137-269.5

6 Claims



A reversible self-contained cartridge valve that is utilized as an inlet and outlet valve upon reversing the position of certain of the parts consisting of a hollow housing having a valve seat and a slidable valve body in the housing with a companion valve seat and O-ring positioned thereon and a spring urging the valve body into a closed position wherein the valve body operates as an inlet valve; the cartridge valve being further provided with a hollow plug having a valve seat identical to that of the housing valve seat whereupon the reversing of the valve body and spring in the housing the cartridge valve will operate as an outlet valve.

3,565,101

PNEUMATIC AMPLIFIER VALVE

Wilfred Aslan, Mahwah, N.J., and Martin Greenwood, West New York, N.Y., assignors to Alkon Products Corporation, Wayne, N.J.

Filed July 8, 1969, Ser. No. 840,003

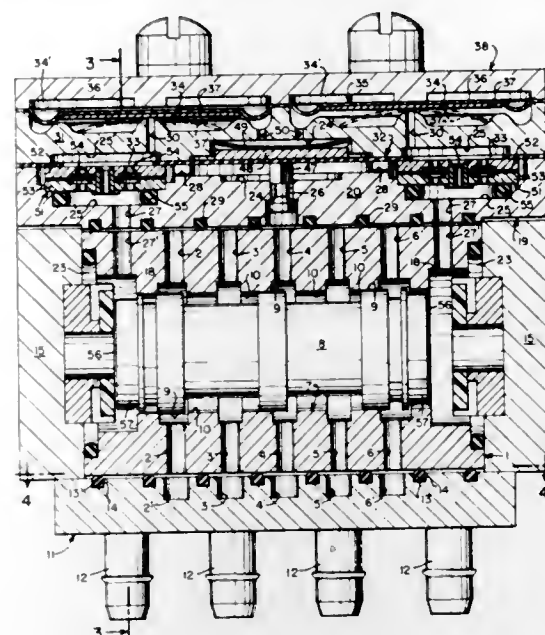
Int. Cl. F16k 11/07

U.S. Cl. 137-270

13 Claims

An actuator for a fluid valve assembly having a passageway connected to the inlet of the valve assembly, a constant pres-

sure regulator and flow restriction means disposed in the passageway, and selectively operable signal means for con-



necting the outlet of the passageway to the movable control for operating the valve.

3,565,102

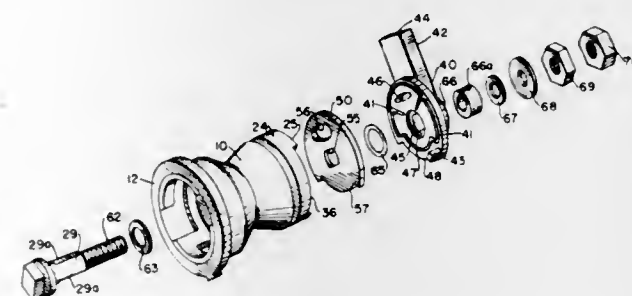
INSERT APPARATUS FOR CONVERTING VALVES
R. Ellsworth Doremus, Clifton, and Richard E. Doremus, Upper Montclair, N.J., assignors to Krouse-Doremus Foundry Co., Clifton, N.J.

Filed Sept. 20, 1967, Ser. No. 669,111

Int. Cl. F16k 43/00

U.S. Cl. 137-323

2 Claims



A method and apparatus for converting a valve used in tapping fluid from kegs from one having a tapping port on its end wall to one having an extending member with a tapping port therein and a washout passage in the end wall by removing a portion of the old valve and attaching an insert piece with the washout passage therein and a valve member having an extending portion.

3,565,103

SOCKET AND VALVE FOR CENTRAL VACUUM SYSTEM

Joseph E. Maselek, Rocky Hill, Conn., assignor to The Spencer Turbine Company, West Hartford, Conn.

Filed July 31, 1968, Ser. No. 749,201

Int. Cl. F16k 1/20; F16l 5/00

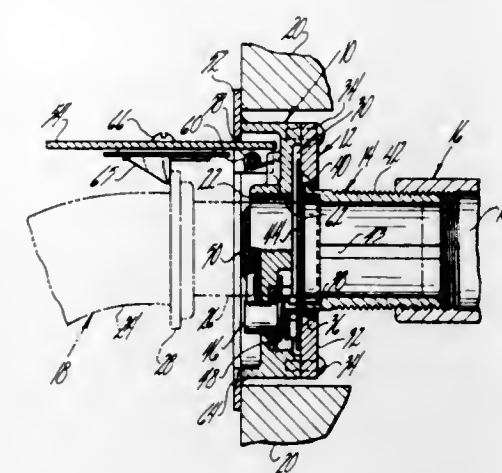
U.S. Cl. 137-360

7 Claims

A socket and valve structure for effecting connection between a service conduit, such as a flexible tube, and a central vacuum system having a conduit access opening disposed behind a wall opening.

The structure includes a socket body and a connected backplate which have registering openings. A valve shutter is disposed between the body and backplate normally to cover the plate opening, but it can be thrust aside to accommodate the service conduit. A connector to the system conduit opening is rotatably supported in the plate opening and can be ad-

justed within limits to effect connection with the system in the air pressure and further the constant air volume can be opening even though the system opening is not precisely adjusted.



aligned with the body and plate openings. A seal prevents air leakage around the connector in the plate opening even when there is no precise alignment.

3,565,104

CHOKE VALVE

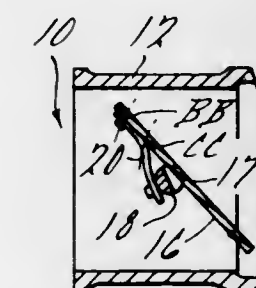
Paul H. McFadden, Dexter, Mich., assignor to The Bendix Corporation

Filed Sept. 5, 1968, Ser. No. 757,576

Int. Cl. F02m 1/02, 1/08

U.S. Cl. 137-484

4 Claims



A pressure sensitive, semiautomatic choke valve with spring mounting means to give the choke plate an axis of rotation that moves as it opens and closes in response to pressure fluctuations.

3,565,105

CONSTANT AIR VOLUME DEVICE IN AIR CONDITIONING

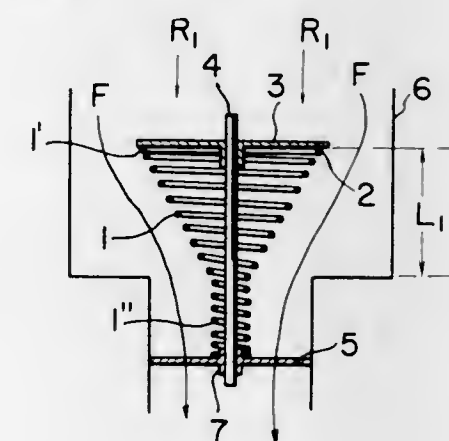
Toshiyuki Murakami, Yokohama-shi, Japan, assignor to Nippon Aircon Center Co., Ltd., Tokyo, Japan

Filed Mar. 22, 1968, Ser. No. 715,239

Int. Cl. F16k 31/12

U.S. Cl. 137-504

2 Claims



A constant air volume device for air conditioning wherein the air volume can be kept constant regardless of the change

3,565,106

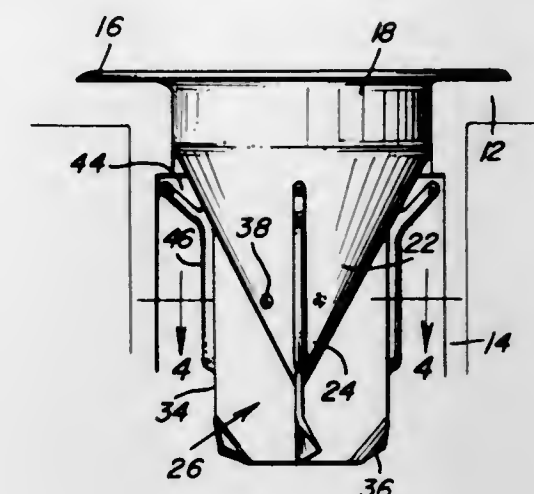
DIAPHRAGM FOR FLOOD AND SUDS CONTROL
William J. Baumbach, 4147 Wilson Blvd., Arlington, Va.

Filed Nov. 6, 1968, Ser. No. 773,887

Int. Cl. F16k 15/14

U.S. Cl. 137-513.3

5 Claims



A diaphragm-type control valve for installation in drain lines and the like to prevent backflow of water through said drain line which sometimes occurs due to floods and the like. A generally conical tubular body is provided with spiral vanes thereon reinforced with pins to prevent eversion of the diaphragm and apertures are provided at the lower portion of the diaphragm for ventilation purposes.

3,565,107

SCUPPER VALVE

Russell W. Bunch, Portland, Oreg., assignor to Dillingham Corporation, Honolulu, Hawaii, a corporation of Hawaii

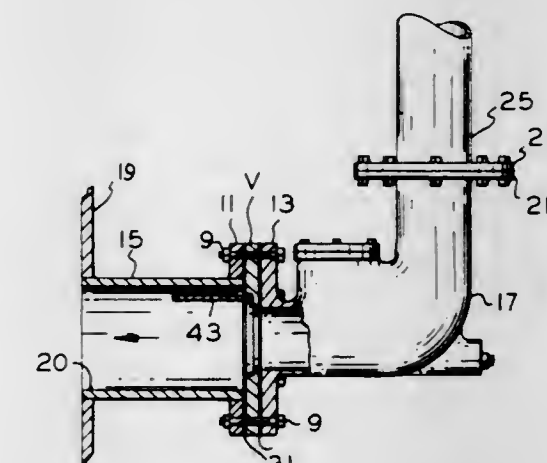
Continuation-in-part of application Ser. No. 759,486, Sept. 12, 1968, now abandoned. This application May 26, 1969,

Ser. No. 843,880

Int. Cl. F16k 15/03

U.S. Cl. 137-515.7

13 Claims



A scupper valve having a disc body formed with bolt holes to mount the body between a pair of pipe flanges. The body is recessed to accommodate a tilt disc and a pivot shaft for the tilt disc. The shaft is retained in position by the flanges between which the body is clamped.

3,565,108

FLUID VALVE

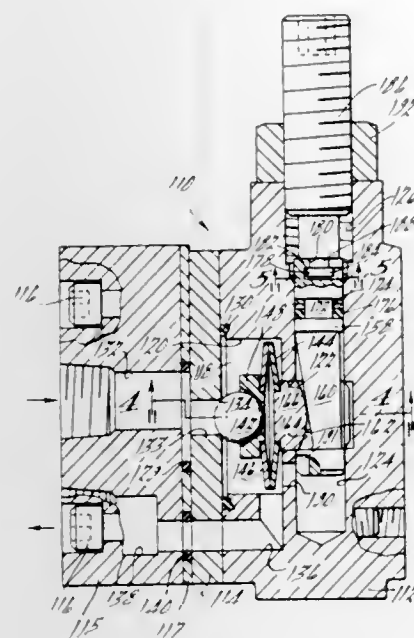
Charles E. Johnson, Ann Arbor, Mich., assignor to Double A Products Co., Manchester, Mich., a corporation of Michigan

Continuation-in-part of application Ser. No. 664,756, Aug. 31, 1967, now abandoned. This application May 26, 1969, Ser. No. 827,506

Int. Cl. F16k 15/04

U.S. Cl. 137—529

19 Claims



A relief valve having conical springs providing bias for urging a valve element against a valve seat.

3,565,109

FUEL EMISSION CONTROL SYSTEM

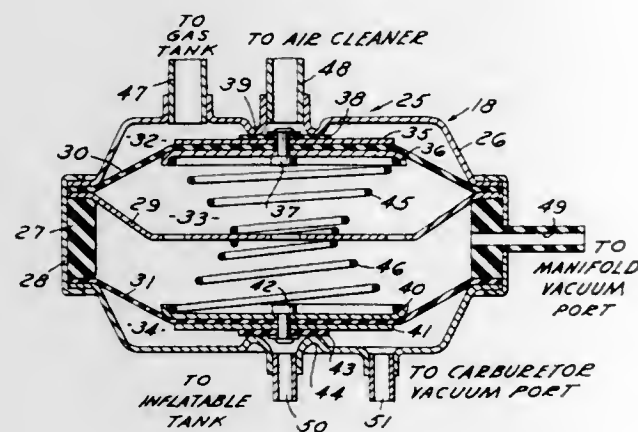
Robert K. Smith, Birmingham, Mich., assignor to F & E Manufacturing Company, Flint, Mich.

Original application Apr. 15, 1968, Ser. No. 721,430. Divided and this application Sept. 11, 1969, Ser. No. 871,032

Int. Cl. F02m 59/00

U.S. Cl. 137—595

3 Claims



A fuel emission control system comprising a gas tank and interconnecting lines with an inflatable tank and a pressure responsive valve which is operable to vent the excess pressure in the fuel tank and the inflatable tank to the atmosphere through emission absorptive material.

3,565,110

CONTROL VALVES

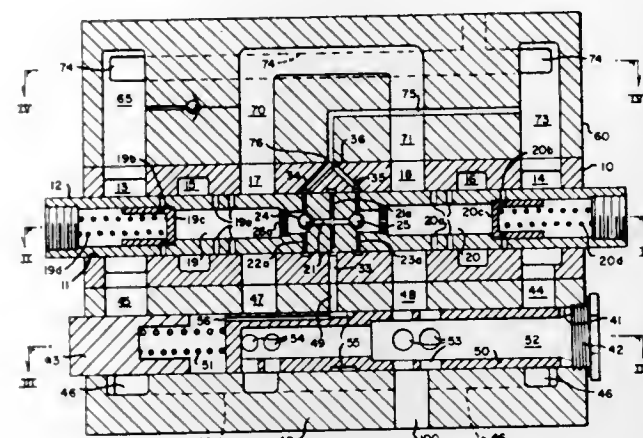
Robert F. Hodgson, Canfield, Ohio, assignor to Commercial Shearing & Stamping Company, a corporation of Ohio

Filed Aug. 4, 1969, Ser. No. 847,293

Int. Cl. F16k 11/10

U.S. Cl. 137—596.12

5 Claims



A pressure-compensated directional control valve capable of supplying a constant volume of fluid is provided having a directional control valve with inlet and outlet ports and first and second motor ports for connection to opposite sides of a fluid motor, a pressure-compensating valve having an axial bore, an inlet port connected to the inlet port of the control valve, an outlet port connected to the outlet port of the control valve, a pressure-sensing port, a valve member movable in the bore and biased to a position normally blocking the inlet from the outlet port, said valve member having opposite surfaces thereon exposed respectively to the fluid pressure at said inlet port and to fluid pressure at said pressure-sensing port acting with the biasing means and being movable in response to a fluid pressure differential between its inlet port and pressure-sensing port through the directional control valve to connect said inlet port to said outlet port for bypassing fluid from said directional control valve to thereby regulate the input flow through said directional control valve to a work port.

3,565,111

SOLENOID-ACTUATED PILOT VALVE

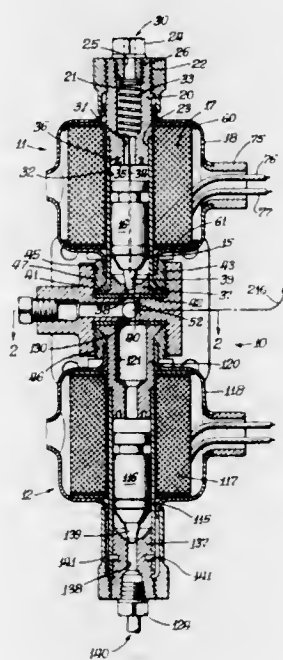
Swan A. Pearson, 1900 3rd Ave., Rock Island, Ill. 61201

Filed Feb. 20, 1969, Ser. No. 800,870

Int. Cl. F16k 11/10; 31/02

U.S. Cl. 137—596.17

17 Claims



An improved solenoid-actuated pilot valve having a valve core of magnetic material and formed with an axial central

bore and a plurality of offset radial discharge ports for rotating the core slightly each time it is raised off its seat. An improved split-shell housing for the solenoid is also provided to establish an efficient flux-return path for the magnetic field created by the solenoid.

3,565,112

MEANS FOR WATER CONDITIONING

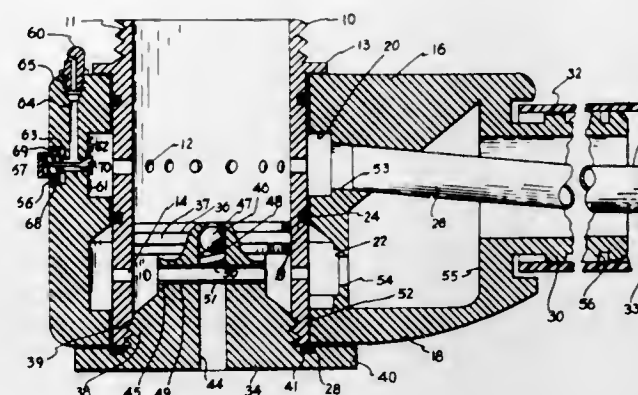
Reginal G. Sides, Orange, Calif., and Elizabeth Y. Sides, Executrix of the Estate of said Reginal Sides, deceased

Filed July 9, 1969, Ser. No. 840,149

Int. Cl. B05b 7/26

U.S. Cl. 137—599.1

10 Claims



A readily detachable and compact plumbing fixture is provided for attachment to household faucets which comprises a sleeve that attaches to the faucet and has first and second ported areas with sealing members positioned between the ported areas with a yoke member surrounding the sleeve and having first and second collecting chambers about the ported areas in the sleeve. The yoke member also has a flow-diverting conduit communicating with the first collecting chamber and a flow-returning conduit communicating with the second collecting chamber. Hoses are connected to the conduits and communicate with a water-treating or conditioning means such as a portable water softener.

3,565,113

TIMING DEVICE FOR THE CONTROL OF FLUID FLOW

John L. Power, "Moorak" Ashmore Road, Benowa via Southport, Queensland, Australia

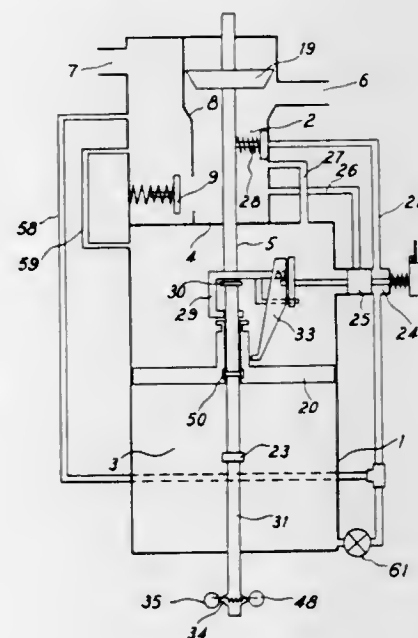
Filed Sept. 11, 1968, Ser. No. 758,993

Claims priority, application Australia, Sept. 25, 1967, 27,662

Int. Cl. F16k 31/363

U.S. Cl. 137—624.14

22 Claims



A flow control flow device having a body with an inlet and an outlet, a passageway therebetween and a shutoff valve

controlling flow in the passage between the inlet and outlet. Actuation of the valve to stop flow between the inlet and outlet is achieved through a pressure responsive piston mechanism reciprocable in a chamber and being connected through a lost motion mechanism, to the valve to close the valve after a predetermined number of reciprocations determined by a pawl and ratchet mechanism. During normal reciprocation of the piston mechanism, the valve reciprocates therewith while however remaining in an open position permitting flow between the inlet and the outlet. Fluid is supplied in and exhausted from the chamber on opposite sides of the piston mechanism through flow passages communicating with the valve passage and being alternately opened and closed by another valve attached to the shutoff valve to reciprocate therewith during normal reciprocation of the piston mechanism. Upon the conclusion of a predetermined number of reciprocations of the piston mechanism, which corresponds with the conclusion of the timing movement of the ratchet, a slide valve connected to the ratchet is released by an associated detent mechanism to prevent fluid flow into one side of the chamber while permitting fluid to flow into the other side of the chamber to actuate the piston mechanism in one direction for closing the shutoff valve. To initiate a new cycle, the slide valve mechanism is depressed and rotated to a preset position to engage the ratchet and pawl with the detent mechanism holding the ratchet and pawl engaged until the expiration of the cycle.

3,565,114

FLUIDIC PROGRAM DEVICE FOR AUTOMATIC SEQUENTIAL CONTROL

Jean-Francois Andre Rousseau, Versailles, France, assignor to U. S. Philips Corporation, New York, N.Y.

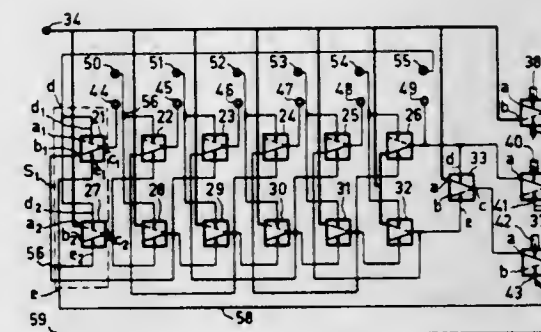
Filed Feb. 17, 1969, Ser. No. 799,619

Claims priority, application France, Feb. 16, 1968, 140,202

Int. Cl. F15b 21/02

U.S. Cl. 137—624.18

9 Claims



A fluidic programming device for controlling the sequence of a cycle having successive phases. The programming device has a plurality of command connections for communicating with a device to be controlled so that a command signal may be applied to the device being controlled so as to initiate a phase. Information connections communicate between the device being controlled and the programming device to indicate when a phase is completed. Bistable switching devices receive the information from the information connections and supply fluidic command signals through the command connections. When one command signal is delivered to initiate a phase by one of the switching devices it operates to remove the command signal which initiated the preceding phase delivered by another switching device.

3,565,115

SPOOL VALVE

Robin K. Beckett, and Allen J. Moffat, Wilmington, Ohio, assignors to Beckett-Harcum Company, Wilmington, Ohio

Filed Sept. 23, 1968, Ser. No. 761,642

Int. Cl. F16k 11/07; F16b 43/00

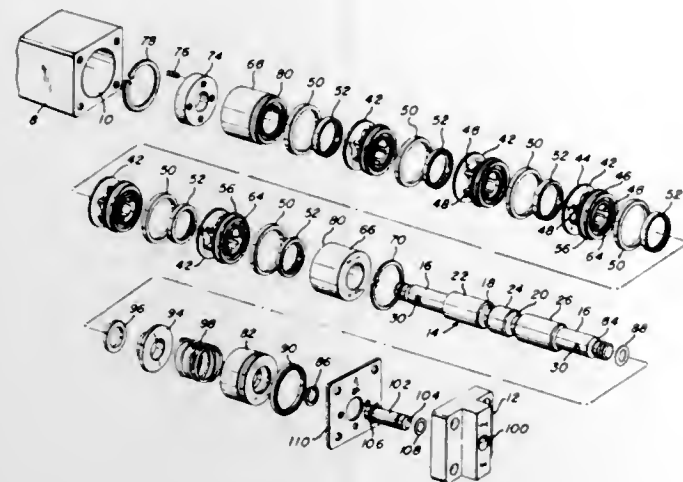
U.S. Cl. 137—625.69

29 Claims

A spool valve constructed of an inexpensive metal extrusion, with the spool chamber formed during extrusion as a straight bore of uniform diameter. The bore requires no precision machining since it does not directly support the valve spool. The spool is supported by an assembly of

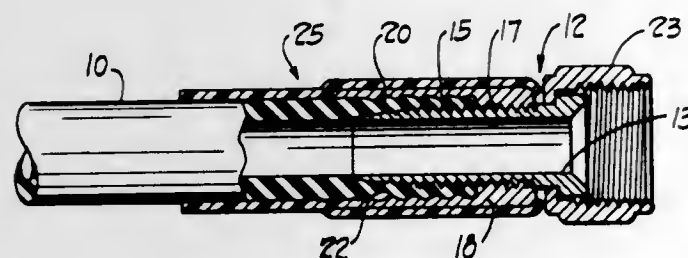
replaceable simple parts readily removable from the body bore when necessary. An improved spool is assembled from parts formed of different metals, for improving the wear

grooves varies with the diameter of the pipe and such grooves with the filler finish at a uniform depth around the pipe. O-rings of elastomeric material of uniform circumference and cross section fit the grooves and the adjacent pipe ends are forced into a flexible coupling sleeve, which



qualities and reducing manufacture cost. Novel spool chamber dividers carry effective seals and, optionally, means minimizing turbulence and resistance to flow of fluid through the valve ports.

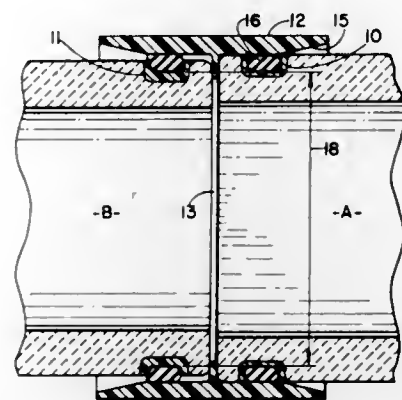
3,565,116
SAFETY HOSE AND FITTING ASSEMBLY
Harold Gabin, Lansing, Mich., assignor to White Motor Corporation, Cleveland, Ohio
Filed Sept. 12, 1968, Ser. No. 759,384
Int. Cl. F16I 11/04
U.S. Cl. 138-109 8 Claims



The disclosure has a hose assembly including a flexible hose, an end fitting assembly and a protective sleeve of heat-shrinkable plastic placed around a portion of the hose and end fitting at the joint to deter removal of the fitting from the hose, reinforce the hose adjacent the coupling and other advantages.

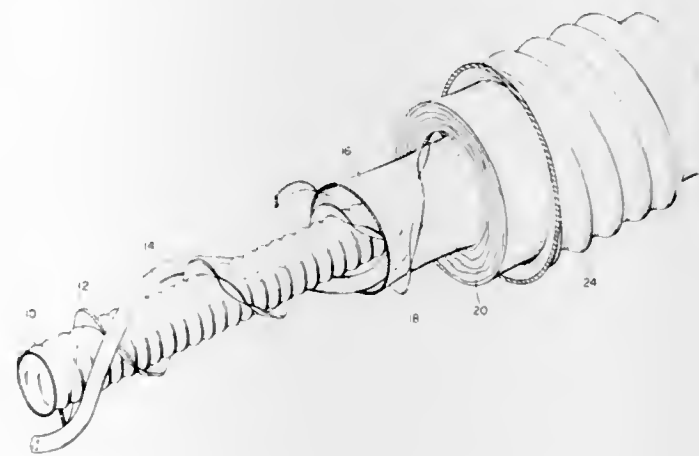
3,565,117
PLAIN END SEWER PIPE
John D. Schmunk, Findlay, Ohio, assignor to The Hancock Brick and Tile Company, Findlay, Ohio
Original application Nov. 2, 1967, Ser. No. 680,078, now Patent No. 3,502,356, dated Mar. 24, 1970. Divided and this application Aug. 7, 1969, Ser. No. 848,239
Int. Cl. F16I 21/02
U.S. Cl. 138-109 1 Claim

Ceramic plain end sewer pipes having varying diameters, circumferences and degrees of roundness are provided adjacent each end with an external annular groove, which is on constant depth in relation to the outer surface of the pipe regardless of the out-of-roundness of the pipe. The cross section of the groove is constant for all pipes. The circumference root of all grooves is made constant by means of a plastic filler. The root diameter of the plastic-containing



conforms to out-of-roundness regardless of where it occurs in the adjacent pipe ends, so that the space between the pipes and the sleeve is uniform and is occupied by the O-rings, which are equally and uniformly compressed around the pipes to effect liquid-tight seals.

3,565,118
THERMAL INSULATION FOR FLUID STORAGE CONTAINERS
Thornton Stearns, 5 Fernway St., Winchester, Mass.
Filed July 24, 1968, Ser. No. 747,284
Int. Cl. F16I 9/18
U.S. Cl. 138-112 9 Claims

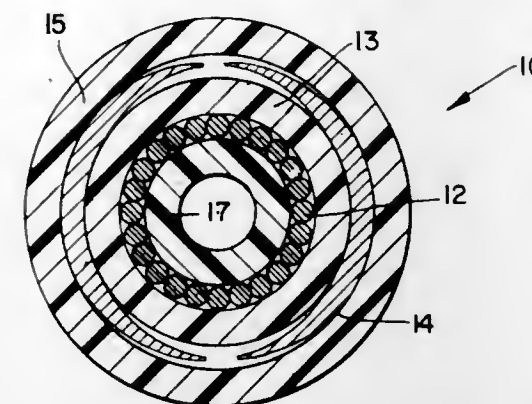


Insulation for fluid storage chambers includes a hollow vacuum-tight tube or sets of tubes surrounding the chamber and spaced from the chamber and from each other by thermal insulating spacer means, each tube, or set of tubes, being in contact with a heat-conductive layer extending circumferentially with or without helical windings and spaced convolutions, around the chamber, and separated from one another and from the chamber by thermal insulating spacer means.

3,565,119
FILAMENT WOUND REINFORCED PIPE HAVING A VINYL ESTER RESIN INNER LINING
William H. Pierpont, Jr., Wichita, and Robert E. Smith, Halstead, Kans., assignors to Koch Industries, Inc., Wichita, Kans.
Filed Oct. 25, 1968, Ser. No. 770,631
Int. Cl. F16I 11/08
U.S. Cl. 138-132 5 Claims

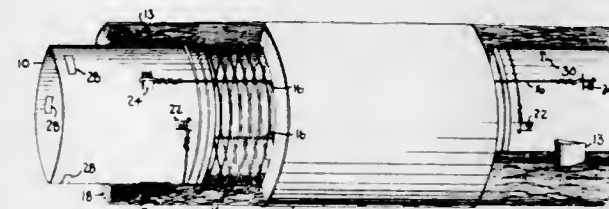
Glass reinforced plastic pipe is provided having pretensioned filamentous reinforcements imbedded in a cured resin and having an inner layer or liner of a thermosetting resin prepared from: (1) a polymerizable monomer, such as styrene; and (2) 2-hydroxy alkyl acrylate or methacrylate

dicarboxylic acid anhydride partial esters and the oxyalkylated derivatives thereof. Preferably, a release agent is incor-



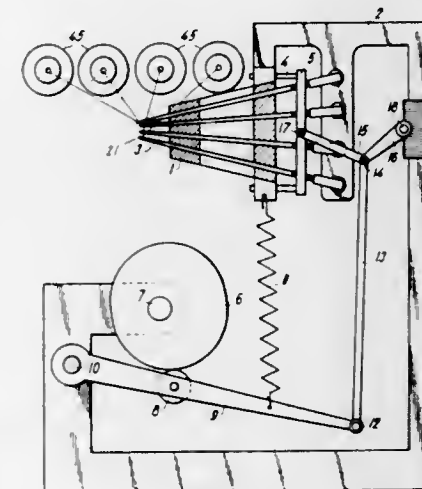
porated into the thermosetting resin composition to facilitate removal of the finished pipe from the mandrel.

3,565,120
FLEXIBLE DUCT WITH INSULATION HOLDING MEANS ON COUPLING MEMBERS
Richard J. Bennett, Pittsburgh, Pa., assignor to P P G Industries, Inc., Pittsburgh, Pa.
Filed Dec. 17, 1968, Ser. No. 784,455
Int. Cl. F16I 11/02
U.S. Cl. 138-147 9 Claims



A flexible insulated duct comprising a wire helix wrapped with insulating material encased in a fluid-impermeable sleeve and terminated with connector members having impaling lugs that penetrate the insulating material and clinch the insulating material in place with respect to the connector members.

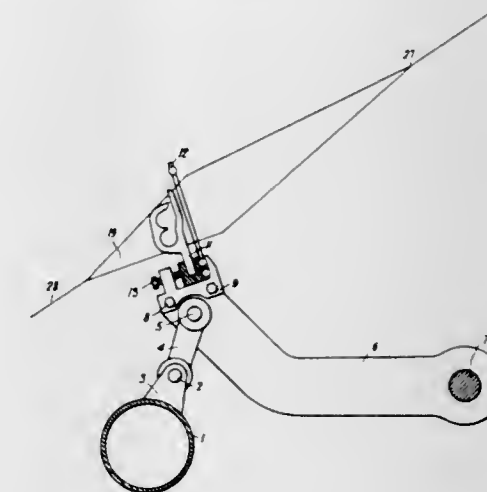
3,565,121
WEFT SELECTING AND PRESENTING APPARATUS
Vladimir Svaty, and Jiri Zlathohlavek, Liberec, Czechoslovakia, assignors to Elitex-Zavody Textilniho Strojirenstoi, Generalni Reditelstv, Liberec, Czechoslovakia
Filed June 2, 1969, Ser. No. 829,380
Claims priority, application Czechoslovakia, May 30, 1968, PV3958-68
Int. Cl. D03d 47/38
U.S. Cl. 139-122 7 Claims



Several differently colored weft threads are fed through brake means and tensioning means to a gripper shuttle in an

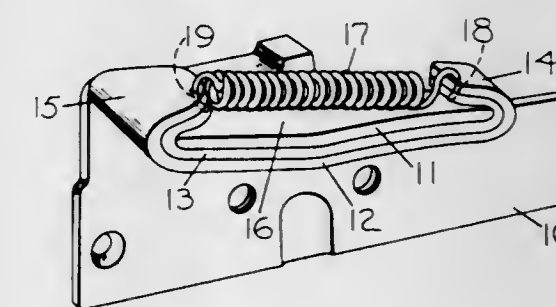
order determined by a pattern. Only the selected thread is clamped by the brake means and tensioned by the tensioning means during insertion into the gripper shuttle, and after the pick of the shuttle, while untensioned and unclamped thread is fed to the gripper shuttle during weft insertion. The non-selected threads remain untensioned and are not clamped, but slightly braked and are guided in accordance with the movement of the woven fabric.

3,565,122
COMBLIKE GUIDE MEANS FOR JET LOOMS
Milos Jansa; Karel Vystrelil, and Miroslav Kucera, Brno, Czechoslovakia, assignors to Vyzkumny a vyvojovy ustav Zavodu vseobecneho strojirenstvi, Brno, Czechoslovakia
Filed Apr. 8, 1969, Ser. No. 814,267
Claims priority, application Czechoslovakia, Apr. 10, 1968, PV2647-68
Int. Cl. D03d 47/28
U.S. Cl. 139-127 4 Claims



Comblike guide means for jet looms comprising a plurality of flat guide blades juxtaposed with respect to each other. Each guide blade has at least two contiguous openings of substantially circular shape disposed normal to the broad extent of the blade. Each blade has an exit slit for each one of the two openings. Each flat guide blade comprises conically shaped guide means for guiding the weft thread toward the shed formed by the jet loom. The juxtaposed flat guide blades are arranged in such a way with respect to each other that the openings thereof are aligned with respect to each other and form two longitudinally extending tapered passages for conducting jet air streams provided by jet air producing means respectively mounted at opposite sides of the jet loom.

3,565,123
SHUTTLE GUIDE FOR LOOMS
Michael J. Pollard, Spartanburg, S.C., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Jan. 2, 1969, Ser. No. 789,116
Int. Cl. D03d 49/52, 49/58
U.S. Cl. 139-183 2 Claims



A spring for fastening the covering material to a back box plate whereby the overlapping ends of the material are drawn

together by tension above the plate with interlocking engagement.

3,565,124 LOOM SHUTTLE

Marcel J. Dupre, Bellingham, and David G. Daubney, East Douglas, Mass., assignors to North American Rockwell Corporation, Pittsburgh, Pa.

Filed Jan. 21, 1969, Ser. No. 792,676

Int. Cl. D03j 5/00

U.S. Cl. 139—196

2 Claims



A composite loom shuttle of lightweight construction having increased sidewall rigidity for use in high-speed looms with high-pressure shuttle-box-braking forces.

3,565,125 DUAL WALL FABRIC WITH CIRCULAR CONNECTION POINTS

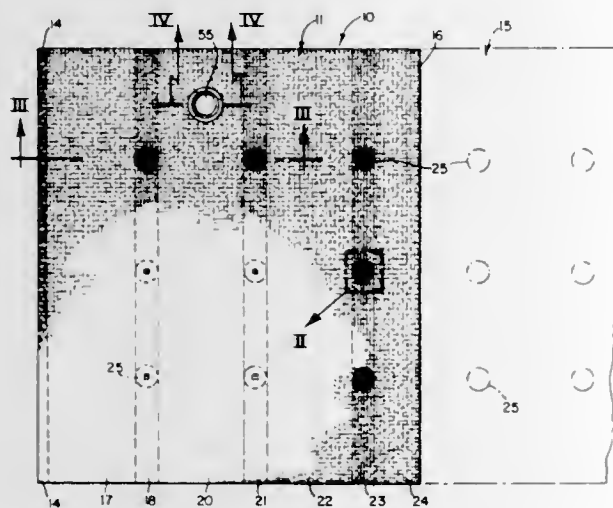
John T. Hayes, Durham, and Robert G. Currier, Roxboro, N.C., assignors to Collins and Aikman Corporation, New York, N.Y.

Filed Oct. 1, 1968, Ser. No. 764,203

Int. Cl. D03d 3/00, 11/00

U.S. Cl. 139—384

8 Claims



A dual wall fabric is provided, having integrally woven connection points, of circular configuration, the fabric being adapted to be filled with concrete or like filler material pumped between the layers. A means is provided for connecting the two layers together in such a fashion, that when concrete is pumped between the layers, a void may be provided, extending through the concrete mat formed upon setting-up of the concrete.

3,565,126 ARRANGEMENT ON A LOOM FOR MONITORING THE WEFT INSERTION MEMBER

Rudolf Schlappi, Ruti, Zurich, Switzerland, assignor to Ruti Machinery Works Ltd., Ruti, Zurich, Switzerland

Filed Jan. 21, 1969, Ser. No. 792,292

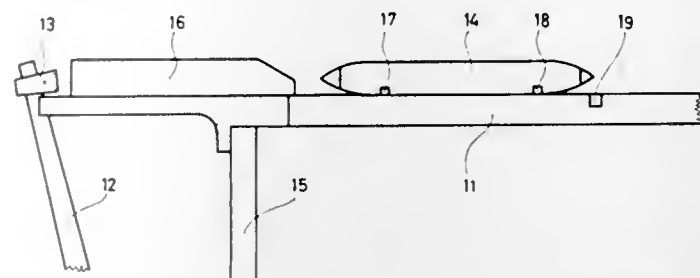
Claims priority, application Switzerland, Feb. 16, 1968,

2291/68

Int. Cl. D03d 51/40

U.S. Cl. 139—341

15 Claims



An arrangement for use in a loom for monitoring the movement of a weft insertion member, e.g., a shuttle which comprises means for producing two transit signals during movement of the shuttle through the loom, the time interval between the signals being dependent upon the speed of the shuttle, and a device actuated by these signals for performing a preset monitoring operation. This device produces an indication which occurs at the end of the completion of the preset operation, is so actuated by the signals that the first transit signal initiates the preset operation, and the second signal interrupts the preset operation, and allows the duration of the preset operation to be variable.

3,565,127 INEXTENSIBLE FILAMENTARY STRUCTURES, AND FABRICS WOVEN THEREFROM

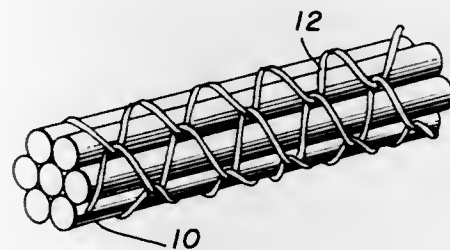
Doyle C. Nicely, Durham, and Samuel J. Davis, Chapel Hill, N.C., assignors to Monsanto Company, St. Louis, Mo.

Filed Oct. 22, 1968, Ser. No. 769,542

Int. Cl. D03d 15/00; D02g 3/16, 3/26

U.S. Cl. 139—426

2 Claims



Strands of brittle, highly inextensible filamentary materials are collimated into a bundle and wrapped or braided covering applied to form a composite yarn structure having sufficient flexibility and mechanical stability to permit the yarn to be woven as the warp of a fabric, the fill yarn being any conventional fibrous material. The inextensible filamentary materials include, among others, boron, boron carbide, silicon, silicon carbide, carbon, quartz, and similar inorganic refractory fibers which are characterized by high strength and modulus, brittleness, and inextensibility.

3,565,128 ADJUSTABLE-COLLAPSIBLE TRANSFORMER COIL WINDING FORM

Glen T. Ruff, Prairie County, Ark. (Rt. 1, Box 27, DeValls Bluff, Ark., 72041)

Filed Aug. 8, 1968, Ser. No. 751,264

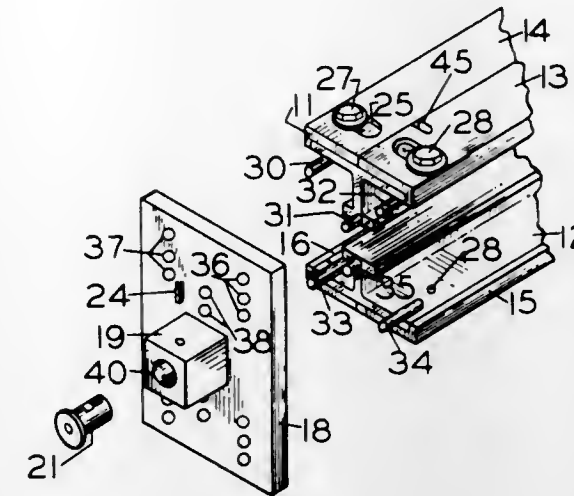
Int. Cl. B21f 3/00

U.S. Cl. 140—92.2

15 Claims

A form upon which wire coils having rectangular windows may be wound when the form is mounted for rotation

between the headstock and tailstock of a lathe. The end netting, commonly known as "chicken wire," to the roll it-plates of the form are movable endwise for collapsing the self; more specifically, it relates to apparatus which locates



form to facilitate removal from the coil window, and the form is manually adjustable to provide coil windows differing in height, width or both.

3,565,129 WIRE CRIMPER

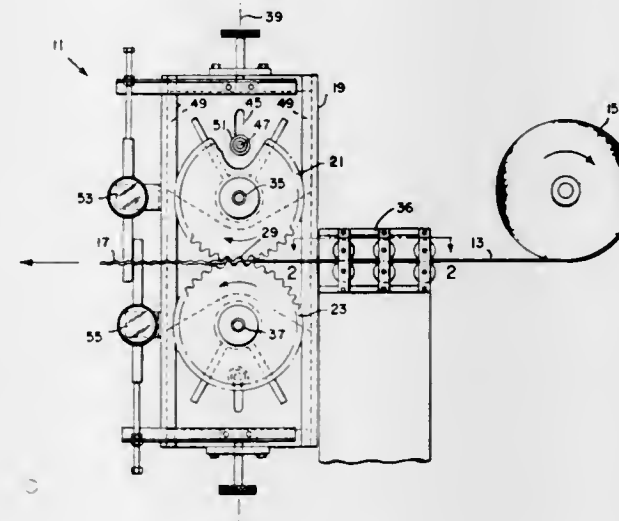
Richard H. Field, Broomall, Pa., assignor to Manganese Steel Forge Company, Philadelphia, Pa.

Filed Oct. 18, 1968, Ser. No. 768,715

Int. Cl. B21f 1/04

U.S. Cl. 140—105

10 Claims



A wire crimper for crimping uncrimped wire from a coil to obtain a straight crimped wire to be used in fabricating conveyor belts, comprising a head member, a pair of crimping wheels mounted on the head member in such a fashion that the crimping wheels are freewheeling and partly mesh in a mesh zone, said head member being rotatable about its axis, the mesh zone between the crimping wheels being on a line between the axes of the wheels and also on the rotatable axis of the head member, and mechanism for pulling the wire from the coil through the mesh zone between the wheels in order to crimp the wire.

3,565,130 AUTOMATIC BINDER FOR NETTING

Arthur E. Vick, 3 Broad Meadow Ave., Millbury, Mass.

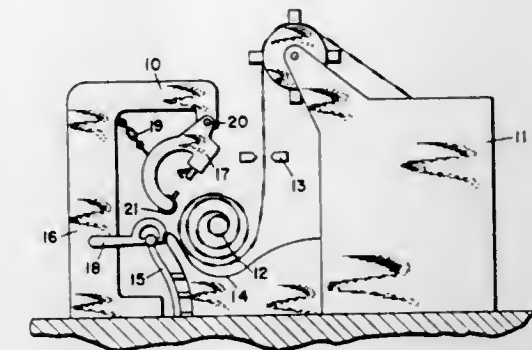
Filed Jan. 22, 1969, Ser. No. 799,544

Int. Cl. B21f 15/04, 33/00

U.S. Cl. 140—107

12 Claims

In general, this invention relates to a device which automatically binds the loose end of a roll of the metal wire



the final strands of wire and bends them back into the roll, thereby securing the free end.

3,565,131 APPARATUS FOR STRAIGHTENING AND CUTTING COILED WIRE

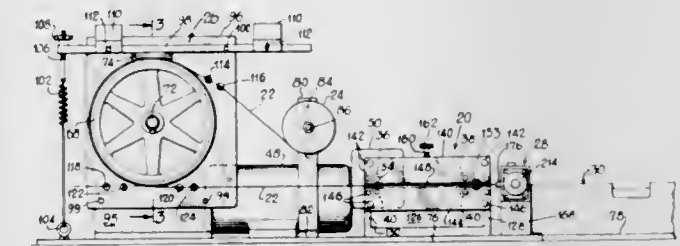
Thankmar Walter Kaestner, Bridgeport, Conn., assignor to The A. H. Nilson Machine Company, Shelton, Conn.

Filed Nov. 26, 1968, Ser. No. 779,145

Int. Cl. B21f 1/02; B26d 1/10, 5/06

U.S. Cl. 140—140

16 Claims



Wire stock is unwound from a supply reel and wrapped in an opposite angular sense about a brake wheel which is frictionally retarded. After passing several times about the brake wheel the wire enters a traction drive comprising a pair of toothed drive belts which grip the wire therebetween under adjustable pressure, with the portion of the wire between the brake wheel and the traction belts being stretched beyond its yield point to remove the curl. Upon emerging from the traction drive the wire is fed continuously into a two-sided reciprocating shear device which cuts the wire into discrete lengths.

3,565,132 APPARATUS FOR FILLING BOTTLES WITH A POWDER

Alfred Lefort, Brunoy, France, assignor to Rhone-Poulenc SA, Paris, France

Filed Feb. 20, 1969, Ser. No. 800,880

Claims priority, application France, Feb. 22, 1968, 140903

Int. Cl. B65b 43/60

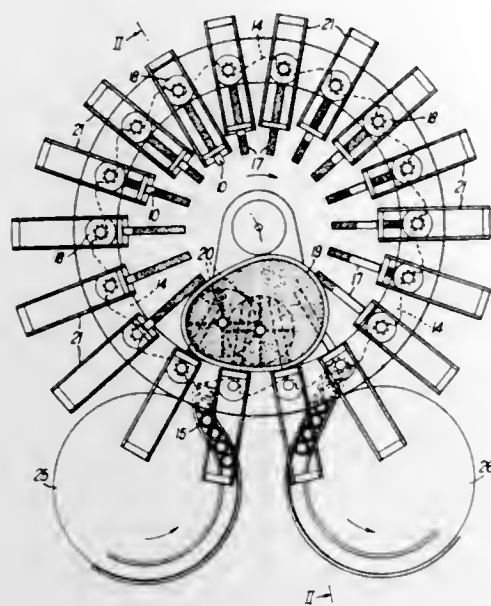
U.S. Cl. 141—147

8 Claims

The Specification describes an apparatus for filling bottles with powder, in which a turntable is formed, on its upper sur-

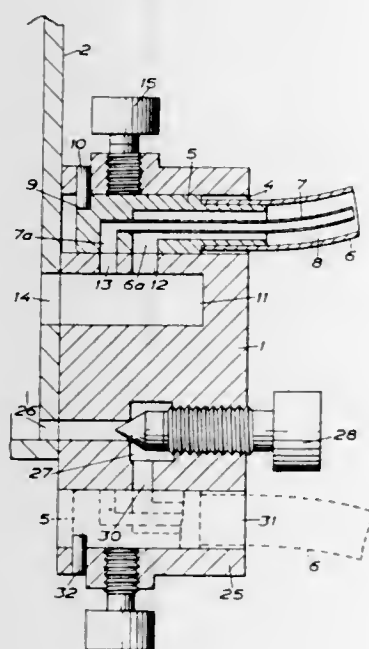
face, with a number of radial grooves, which themselves are filled with powder from an oval section reservoir above a portion of the turntable. Cams cause doctor blades as-

3,565,134
HOLDER AND GUIDE FOR POWER TOOL
Ira C. Toms, 1246 Biltmore Drive, Fort Myers, Fla. 33901
Filed Jan. 24, 1969, Ser. No. 793,655
Int. Cl. B27g 5/02
U.S. Cl. 143-6 6 Claims



sociated with each groove to rise, move inwardly, fall and then move outwardly to scrape the powder so that it falls via a funnel into a bottle moving round with the turntable.

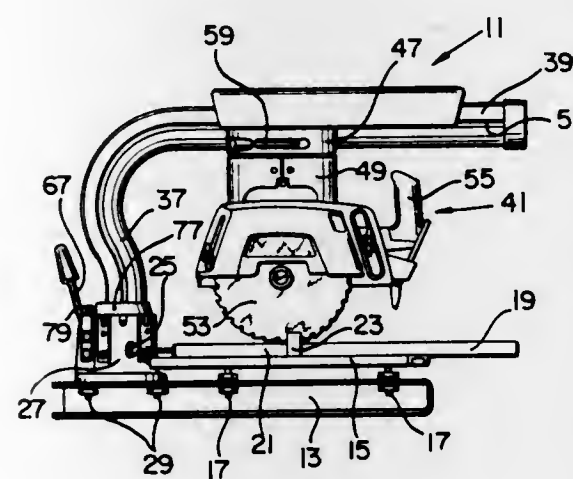
3,565,133
VOLATILE ANAESTHETIC VAPORISING APPARATUS
Wilfred Jones, Riddlesden, England, assignor to Cyprane Limited, Keighley, England
Filed Dec. 16, 1968, Ser. No. 783,949
Claims priority, application Great Britain, Jan. 5, 1968, 823/68
Int. Cl. B65b 3/06, 3/18
U.S. Cl. 141-308 4 Claims



A filling system and means for preventing the introduction of an incorrect liquid into the body of volatile anaesthetic vaporising apparatus and having complementary interengaging male and female parts of which one is on the said body and the other is on the end of a flexible liquid feed conduit attached to a filler bottle. The conduit is an air tube within a liquid passage forming tube and the said body part provides a valve controlled outlet.

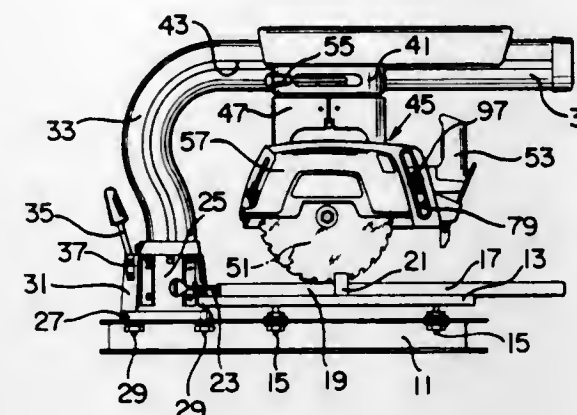
A tool carriage is slidably mounted to a rail assembly which in turn is connected to an offset radial arm. The radial arm is secured to a pivotal standard permitting the rotation of the offset radial arm about the standard axis. Adjustable clamping means are provided on the tool carriage to secure a power tool thereon.

3,565,135
MITER ADJUSTMENT FOR RADIAL-ARM SAW
Francis J. Rosenthal, Jr., Fork, and Leonard U. Alsrue, Towson, Md., assignors to The Black and Decker Manufacturing Company, Towson, Md.
Filed Apr. 11, 1969, Ser. No. 815,376
Int. Cl. B27b 5/20
U.S. Cl. 143-6 15 Claims



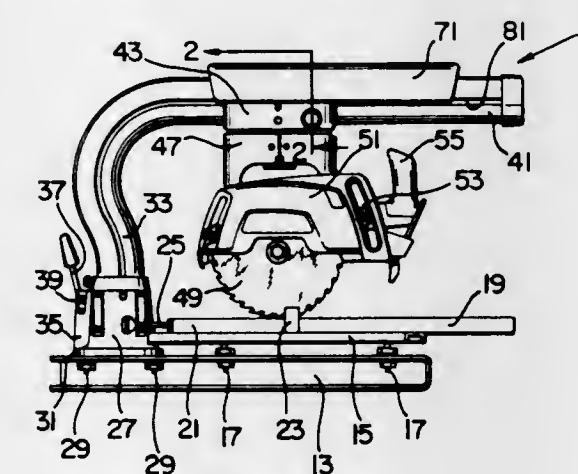
Disclosed herein is a radial-arm saw having a base with an upstanding column pivoted thereon about a vertical axis. An arm rigid with the column extends over a worktable on the base and has a circular saw suspended therefrom by means of a traveling carriage. Means is provided to accurately index the column to selected pivoted positions relative to the base, and that means provides adjustment whereby to accurately locate the index positions.

3,565,136
DEPTH OF CUT ADJUSTMENT CONSTRUCTION FOR A RADIAL-ARM SAW
Francis J. Rosenthal, Jr., Fork, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.
Filed Apr. 21, 1969, Ser. No. 817,846
Int. Cl. B27b 5/20
U.S. Cl. 143-6 13 Claims



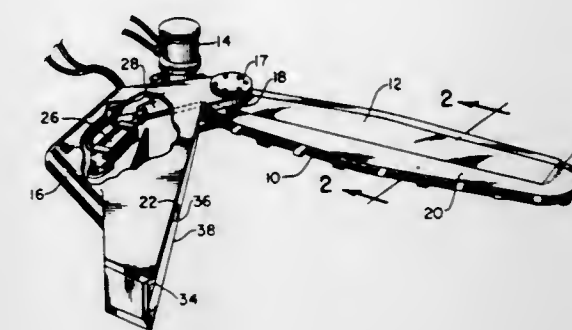
The device disclosed herein is a radial-arm saw including a base frame having a horizontal worktable thereon. A one-piece, column and radial arm is pivoted on the base frame for movement about a generally vertical axis with the arm extending over the worktable. A motor-driven circular saw is suspended from the radial arm by a carriage which allows the saw to move along the arm and cut a workpiece on the worktable. Novel means is provided whereby the elevation of the saw blade relative to the worktable may be varied to thereby change the depth of cut performed by the saw blade on the workpiece.

3,565,137
BALL TRACK CARRIAGE CONSTRUCTION
Leonard U. Alsrue, Towson, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.
Filed July 1, 1969, Ser. No. 838,121
Int. Cl. B27b 5/20
U.S. Cl. 143-6 10 Claims



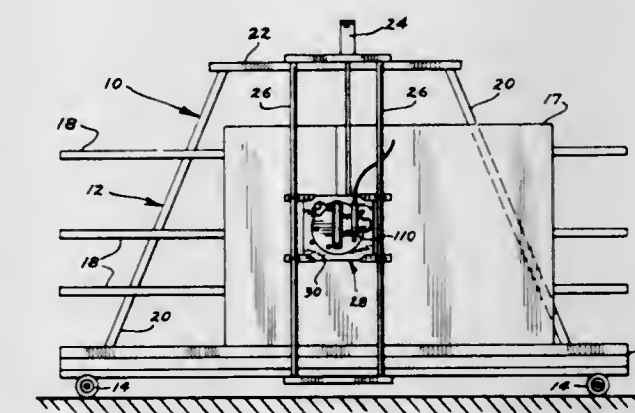
A radial-arm saw which includes a base frame having an upstanding column pivoted thereon about a generally vertical axis. An arm rigid with the column extends over a worktable and has a carriage supported thereon for movement longitudinally thereof. A motor-driven saw suspended from the carriage is adapted to cut workpieces on the worktable.

3,565,138
APPARATUS AND METHOD FOR FELLING TREES
Alva Z. Albright, Port Barre, La. (P.O. Box 762 Woodstock, Ontario, Canada)
Filed Oct. 3, 1968, Ser. No. 766,032
Int. Cl. B27b 17/08; A01g 23/08
U.S. Cl. 143-32 2 Claims



A chain saw mounted on and running around a transverse wedge-shaped cutter bar, in cutting and noncutting said cutter bar being directly hinged to a second hollow bar or anvil, and operable by a hydraulic cylinder mounted therein and operably attached theretbetween to open and close in cooperation with the cutter bar and chain saw as a pair of scissors, said hollow anvil bar being opposed to the narrow edge of the transversely wedged cutter bar, and receiving therein said narrow edge and the cutting run of the chain saw, the noncutting run being recessed into the broad edge of said cutter bar.

3,565,139
ANGULARLY SHIFTABLE SAW MOUNT
Eugene T. Olson, 13460 N. Highway 65, Rte. 4, Anoka, Minn.
Filed Aug. 6, 1968, Ser. No. 750,561
Int. Cl. B27b 5/18
U.S. Cl. 143-47 3 Claims



The saw mount comprises a base plate having a circular opening therethrough. Journaled for rotation in the opening is a turntable assembly composed of two circular discs, one disc having an inset central portion so that it abuts the other disc. In this way, a peripheral marginal portion of one disc slidably confronts one side of the base plate and a peripheral marginal portion of the other disc confronts in similar fashion the other side of said base plate. A latching mechanism is carried on the turntable having a plunger that is selectively engageable in any one of several apertures formed in the base plate so that when a power-driven hand saw is attached to the turntable, the turntable can be held in any of several adjusted angular positions. The discs constituting the turntable have aligned slots so that the circular blade of the saw can extend therethrough.

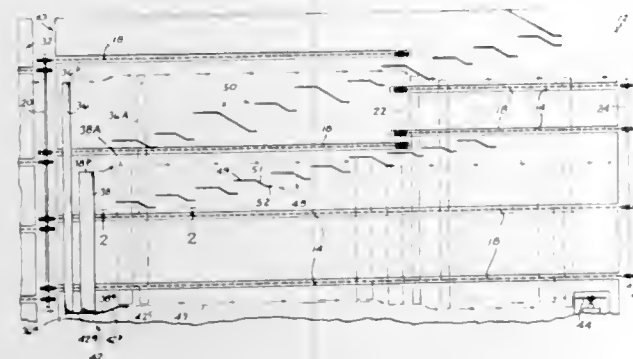
3,565,140

METHOD AND APPARATUS FOR TRIMMING BOARDS

Marvin A. Jacobsen, White City, Oreg., assignor to D.M.S. Company, White City, Oreg., a partnership
 Filed June 13, 1968, Ser. No. 736,637
 Int. Cl. B27b 5/00

U.S. Cl. 143—49

3 Claims



Board-trimming apparatus including a conveyor for moving boards along a path, with the boards extending transversely of such path, and a guide for aligning one end of each board with a reference line adjacent one side of such path. A saw for making a cut along a cutting line adjacent said one side of the path downstream from the guide is provided. Multiple indexing plates are distributed in laterally spaced relation across the path intermediate the guide and saw. Each plate is operable to select a board of a specific length range from boards of random lengths moved past the plates, and, on selecting such a board, occupies a position in the path immediately adjacent the end of the board opposite the one end aligned by the guide. Positioning means is included for shifting a board selected by an indexing plate laterally of the path into a predetermined position with respect to the indexing plate that has selected it. A terminal portion adjacent the end which has been aligned then extends across the cutting line and in the path of the saw.

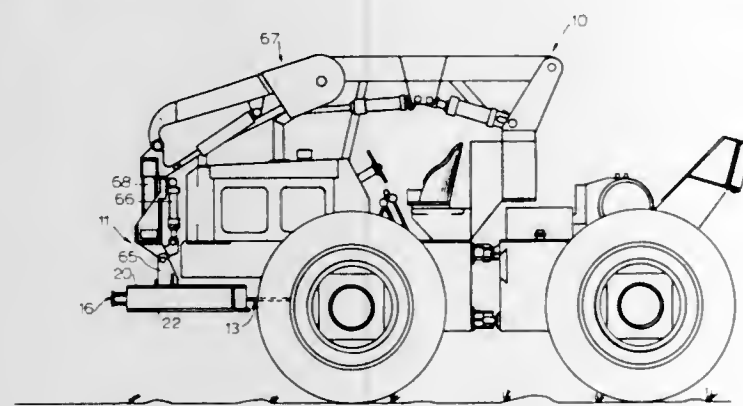
3,565,141

HYDRAULICALLY ACTUATED THREE-SHEAR BLADE SHEARING DEVICE FOR FELLING TREES

Alex J. Galis, Albany, Ga., assignor to Athey Products Corporation, Raleigh, N.C., a corporation of Illinois
 Filed Apr. 21, 1969, Ser. No. 817,847
 Int. Cl. A01g 23/02

U.S. Cl. 144—34

9 Claims



A timber-shearing apparatus for harvesting timber employs a main sliding, wedge blade which cooperates with a pair of smaller, pivotal blades all of which are remotely actuated by a common fluid cylinder and which collectively act to both center the tree and effect the shearing.

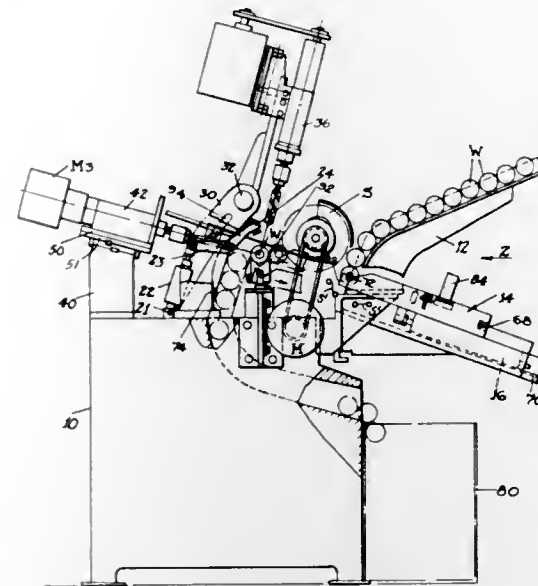
3,565,142

AUTOMATIC DRILLING MACHINE

Dexter H. Mac Queston, Winchendon, Mass., assignor to Goodspeed Machine Company, Winchendon, Mass., a corporation of Massachusetts
 Filed Apr. 29, 1969, Ser. No. 820,253
 Int. Cl. B23b 39/16; B23c 3/04

U.S. Cl. 144—112

10 Claims



An automatic drilling machine including a hopper for spindles or the like to be fed one by one into the working area; a plurality of automatic drill heads; and clamping means for the spindles to position them with reference to the drills, each drill being adjustable both as to its position of action with respect to the spindle, its angle, and the length or depth of hole to be drilled. The machine also includes cutoff saws, chucking means, and a new and improved feed device for the spindles, and control means for the operation of all the tools, said control means being dependent on the position of the spindle feed device.

3,565,143

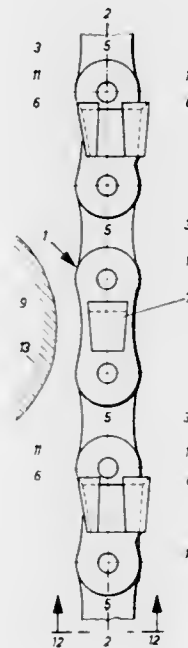
CHAIN CUTTER FOR DEBRANCHING AND/OR DEBARKING TREES

Georg Wehr, Rotenburg an der Fulda, Germany, assignor to Rotenburger Metallwerke GMBH, Rotenburg a.d. Fulda, Germany

Filed July 5, 1968, Ser. No. 742,910
 Claims priority, application Germany, July 5, 1967, R 46410
 Int. Cl. B27l

U.S. Cl. 144—208

6 Claims



A chain cutter for debarking and/or debarking trees in which the chain serves to carry cutter teeth and which lies,

during operation, at least partly on the trunk being processed. A plurality of chain plates are mounted on the chain and provided with at least three differently shaped and ground cutter teeth. The teeth are arranged along the longitudinal axis of the chain in a repeating sequence of a spaced pair of teeth and a substantially centrally located single tooth. The spaced pair of teeth project outwardly beyond the sides of the chain.

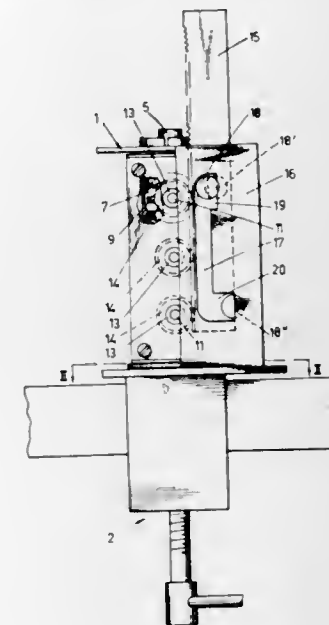
3,565,144

APPARATUS FOR CUTTING UP TUBERS

Gustaaf Gaston Annemans, Madele Fjesstraat 25, Schaerbeek, Belgium
 Filed May 9, 1968, Ser. No. 728,015
 Claims priority, application Belgium, May 11, 1967, Mar. 7, 1968, 698,334;55473
 Int. Cl. A47j 17/00

U.S. Cl. 146—106

3 Claims



An apparatus is described for cutting up tubers, more particularly potatoes into small portions to be thrown in boiling fat for cooking, which is provided with one or more cutting members, able to carry out a rotation through an angle of 360°, thus describing a surface of revolution and consequently cutting small corresponding bodies of revolution in a tuber, the cutting member or members being actuated by a rack with a reciprocal motion which meshes with a pinion fitted on the rotary shaft of the said cutting member.

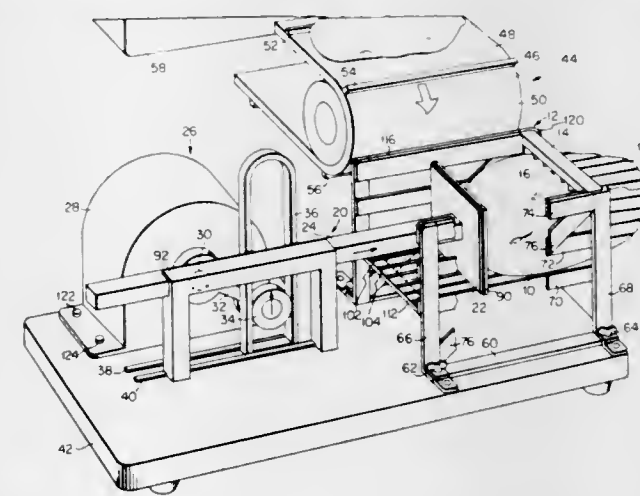
3,565,145

CUTTING APPARATUS

Herbert F. Sanders, Ben Lomond, and Everett A. Ward, San Jose, Calif., assignors to said Ward assignor to said Sanders
 Filed Mar. 14, 1968, Ser. No. 713,173
 Int. Cl. B26d 3/26

U.S. Cl. 146—169

3 Claims



A basket for holding a vegetable has a cutter mounted at one end. A reciprocating rod and piston assembly forces the

vegetable through the cutter. A motor driving the rod and piston allows automatic, timed loading of vegetables into the basket.

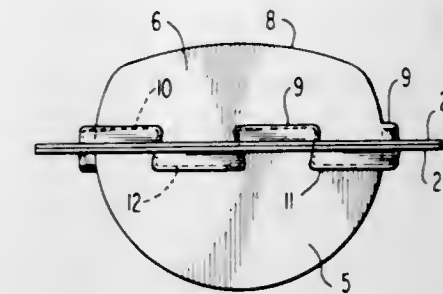
3,565,146

RECLOSABLE RECEPTACLE

Willi Arnolds, Recklinghausen, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
 Filed June 26, 1969, Ser. No. 836,714
 Claims priority, application Germany, June 26, 1968, L 47672
 Int. Cl. B65d 43/02

U.S. Cl. 150—.5

9 Claims



This invention relates to a receptacle made of rigid elastic material and comprising a container having a flange and a cover either integral therewith or separable therefrom and having at least one cavity, the zones of the container flange serving for the closure as well as the mating rim of the cover being provided with a plurality of corresponding protuberances of equal dimensions, positioned thereon similarly and substantially in the longitudinal direction of the flange of the container and the rim of the cover, formed from the planes of these margins and extending alternately upwardly and downwardly from said planes without a horizontal region of transition to said planes of the margins, and successive protuberances extending upwardly or downwardly from said marginal planes being undercut at least at the lateral surfaces opposite to each other.

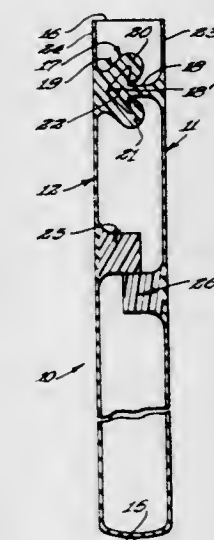
3,565,147

PLASTIC BAG HAVING REINFORCED CLOSURE

Steven Ausnit, 124 E. 61st St., New York, N.Y. 10021
 Filed Nov. 27, 1968, Ser. No. 779,383
 Int. Cl. B65d 33/02

U.S. Cl. 150—3

8 Claims



A plastic bag having formed integrally therewith cooperating male and female pressure fastenable releasable interlocking elements for selectively closing the open end of the bag and a pair of stiffener ribs also formed integrally with the bag but of a thermoplastic material more rigid than that from which the remainder of the bag is formed to provide increased lateral rigidity along the open end of the bag to prevent inadvertent separation of the interlocking elements.

3,565,148

WALLET OR SIMILAR ARTICLE

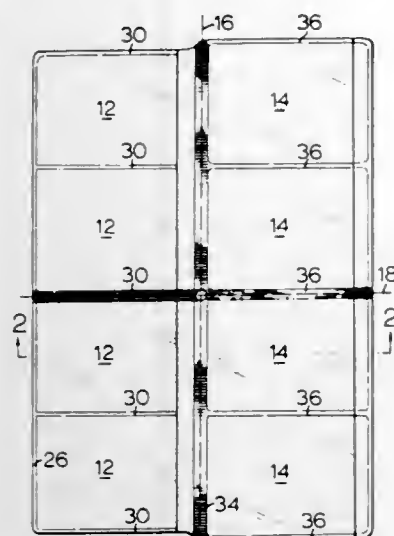
Erwin Lionel Miller, Willowdale, Ontario, Canada, assignor to Weldo Plastics (Canada) Limited, Toronto, Ontario, Canada

Filed June 30, 1969, Ser. No. 837,606

Int. Cl. A45c 11/18

U.S. Cl. 150—39

6 Claims



A wallet of thin flexible material for credit cards, photographs and the like. The wallet is formed from three panels to provide two rows of pockets separated by a longitudinal fold line. A transverse fold line extends across the middle of the wallet between adjacent pockets to allow the wallet to be folded along one of the fold lines and then along the other fold line into a convenient size for carrying in a person's pocket.

3,565,149

SPRING LOCK

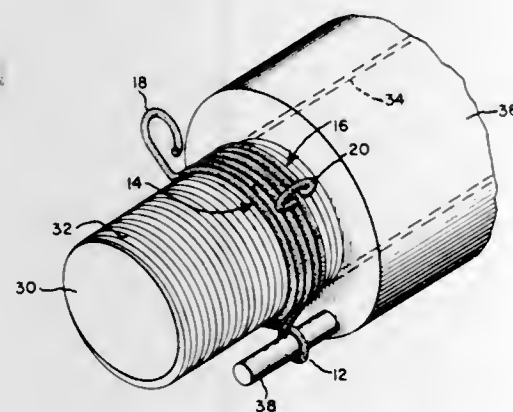
Lewis K. Wetzel, South Burlington, Vt., assignor to General Electric Company

Filed Jan. 2, 1969, Ser. No. 788,405

Int. Cl. F16b 39/20

U.S. Cl. 151—30

3 Claims



A spring lock, for restraining rotational and longitudinal movement of a first element of substantially circular cross section with respect to a second element, includes a wrap-down spring clutch having a medial annular, anchor point, and two distal, similarly wound, helical springs respectively terminating in handles.

3,565,150

TRACTION DEVICE

Harold A. Carr, 79 Melville Road, Hillsdale, N.J.

Filed Dec. 24, 1968, Ser. No. 786,587

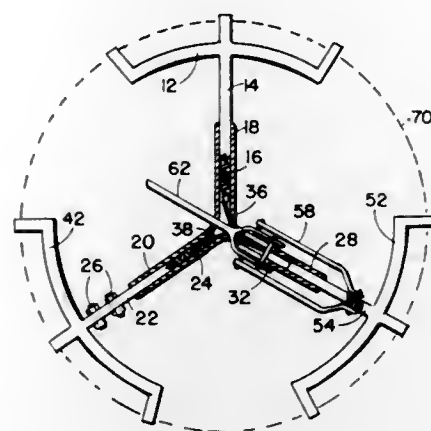
Int. Cl. B60c 27/20

U.S. Cl. 152—218

2 Claims

A tire traction device formed in three separate sections, each having a tire engaging portion and the sections being

engageable for operation. The first section is Y-shaped with the other two sections fitting respectively into two legs of the



Y. A movable member is mounted on one section and is pivotable to place all sections in tight engagement with the tire engaging portions gripping the tire.

3,565,151

PUNCTURE-SEALANT TIRE

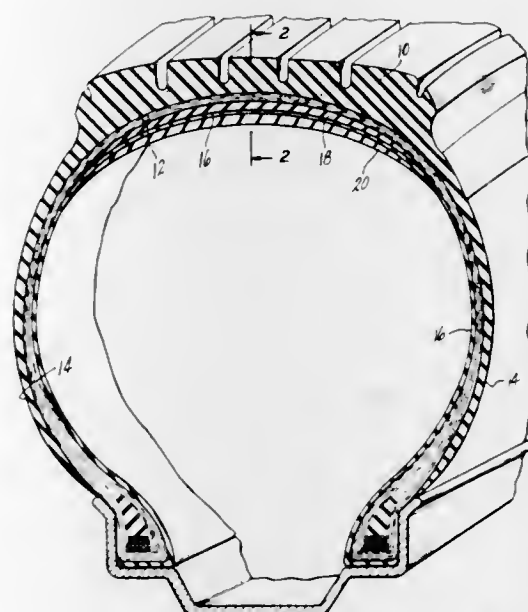
John A. Courtney, West Haven, Conn., assignor to The Armstrong Rubber Company, West Haven, Conn.

Filed Oct. 16, 1968, Ser. No. 768,086

Int. Cl. B60c 5/14

U.S. Cl. 152—347

2 Claims



A self-sealing tubeless tire in which a two-ply sealant is employed with the sealant layers separated by the inner liner of the tire.

3,565,152

FOLDABLE PARTITION

Harry Cohn, Jr., Portola Valley; Arthur W. Le Gette, Orinda, and William G. Papsco, Portola Valley, Calif., assignors to Papsco Building Products Inc.

Filed Aug. 26, 1968, Ser. No. 755,295

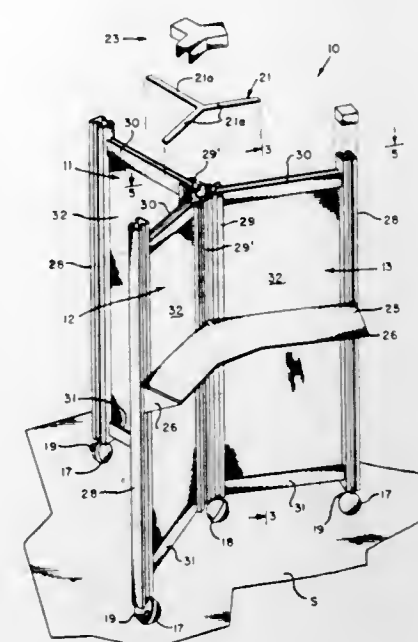
Int. Cl. A47g 05/00

U.S. Cl. 160—135

13 Claims

A three-section portable partition has identically shaped vertical posts formed with continuous slots for adjustably mounting appurtenances and also to provide a unique interlock with transverse panels for exceptional panel rigidity. The partition sections are hinged at adjacent vertically extending edges and are pivotable relative to each other about the vertical hinge axes between a fully folded storage position with the planes of the sections approximately parallel to an extended or operative position with the section planes inter-

secting at equal angles. H-shaped transverse frame members interconnect with the posts such that a one-piece key is readily insertable into and is hidden within the upwardly opening recesses of the top transverse members to lock the



sections in the operative position. Lockable casters on the outside posts provide three-point support for the unfolded partition and a fourth caster on one of the inner posts is elevated slightly above the plane of the other three to give support when the partition is folded.

3,565,153

PROTECTIVE COVER FOR GUIDE PATHS OF MACHINE TOOLS

Kurt Loos, Dreistiefenbach, and Friedrich Haschek, Hutten-tal-Weidenau, Germany, assignors to Kabelschbepp GmbH, Siegen, Germany

Filed Mar. 4, 1968, Ser. No. 710,385

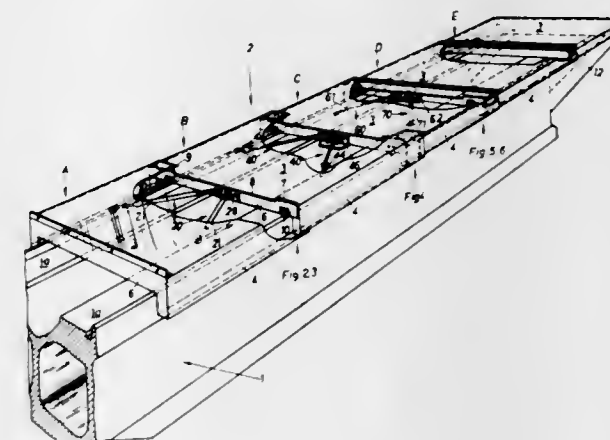
Claims priority, application Germany, Mar. 4, 1967,

K 61,593X

Int. Cl. E05d 15/06; E06b 3/46

U.S. Cl. 160—202

13 Claims



A protective cover for guide paths of machine tools, which comprises a plurality of overlapping cover sheets movable into each other telescopically, and running rollers and slide members, respectively. Each of the cover sheets are supported at the forward end wall with running rollers and slide members, respectively, on the guide path and at the rear end on the next smaller of the cover sheets. A plurality of energy accumulators produce return movement forces during movement out and movement in of the cover sheets from a center position, and are disposed between the cover sheets, and the return movement force is equal to zero in the center position and is greatest in the respective end positions upon moving-out and moving-in, respectively, of the cover sheets.

3,565,154

METHOD OF CONTINUOUSLY CASTING METALS AND APPARATUS FOR THE SAME

Tatsuo Kuratomi, 2-18, 4-chome, Hamatake, Chigasaki, Kanagawa Prefecture, Japan

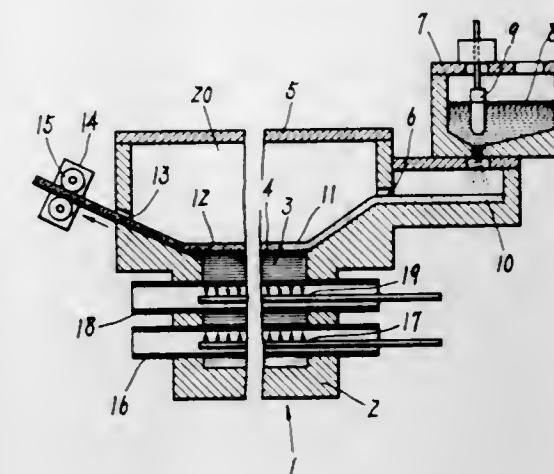
Filed Oct. 11, 1968, Ser. No. 766,899

Claims priority, application Japan, Oct. 10, 1967, June 7, 1968, 42/65713; 43/38767

Int. Cl. B22d 11/00

U.S. Cl. 164—82

2 Claims



This invention is to carry out a continuous casting by melting a metal or compound which has a specific gravity higher than the specific gravity of a metal to be continuously cast, keeping the melting temperature at a temperature lower than the melting point of the metal to be continuously cast and cooling the molten metal to be continuously cast with the melt having had the melting temperature thus regulated while floating it on the surface of said melt.

3,565,155

MOLD RECIPROCATING MECHANISM FOR CONTINUOUS CASTING MACHINES

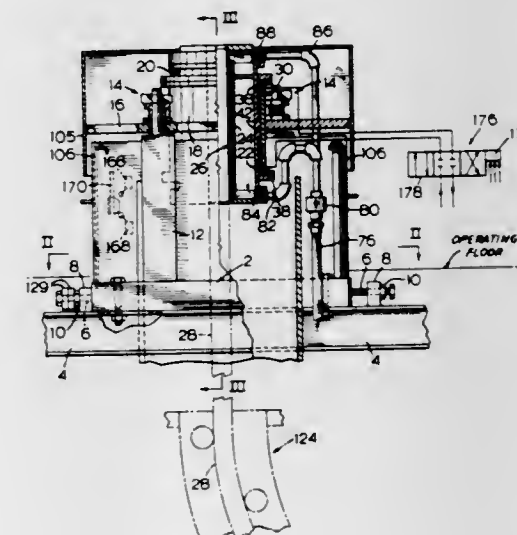
Tibor Miklos Vertesi, Whitby, Ontario, and Bruce Allan Phillips, Ajax, Ontario, Canada, assignors to Gamma Engineering Limited, Whitby, Ontario, Canada

Filed Oct. 15, 1968, Ser. No. 767,616

Int. Cl. B22d 17/32

U.S. Cl. 164—154

11 Claims



A mold reciprocating mechanism having a cylindrical piston open at both ends and containing a pour-through mold cartridge therein. A cylinder encircles the central part of the piston and is provided with pressure fluid to reciprocate the piston, and hence the mold cartridge. The piston can rotate axially in the cylinder to reduce axial misalignment of a strand, and the mold cartridge can move slightly from side to side in the piston to reduce side to side strand misalignment. The cylinder is leveled on a frame by adjusting screws, and

this also levels the mold and properly orients the axis of reciprocation. Flexible hoses conduct coolant to the piston.

3,565,156

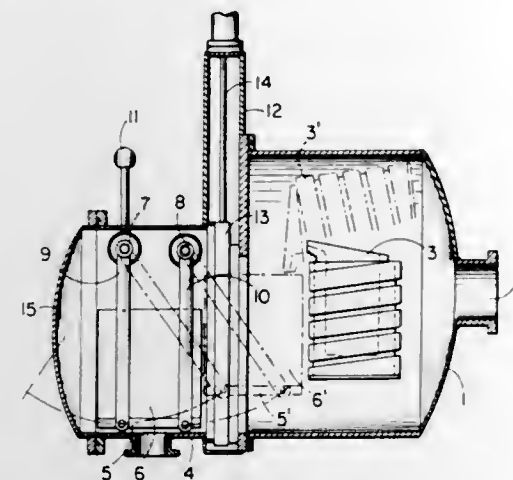
APPARATUS FOR VACUUM CASTING METAL

Helmut Vollmer, Balzers-Mals, Liechtenstein, and Albert Henzler, Balzers, Liechtenstein, assignors to Balzers Patent- und Beteiligungs Aktiengesellschaft, Balzers, Liechtenstein
Filed Apr. 23, 1969, Ser. No. 818,579

Claims priority, application Switzerland, Apr. 24, 1968, 6391/68

Int. Cl. B22d 27/16

U.S. Cl. 164-258



In apparatus for vacuum casting metal, means are provided for movably positioning a mold between a lock chamber and a vacuum or casting chamber. The means supporting the mold convey it in a rectilinear path between the two chambers and, preferably, transport the mold in the same horizontal plane between the two chambers.

3,565,157

MACHINE FOR AUTOMATICALLY CUTTING VERTICAL CASTINGS AND SWINGING AWAY THE PORTION OF THE CASTING WHICH HAS BEEN CUT OFF

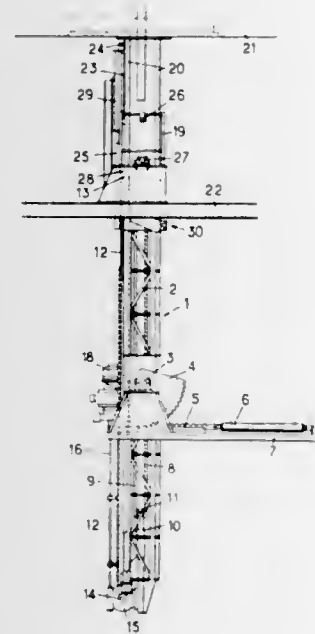
Pierre Peytavin, Aulnoye-Aymeries, and Louis Babel, Sauvigny-Les-Bois, France, assignors to Societe Civile D'Etudes De Centrifugation

Continuation-in-part of application Ser. No. 526,448, Feb. 10, 1966, now abandoned. This application Jan. 22, 1969, Ser. No. 814,487

Int. Cl. B22d 11/12

U.S. Cl. 164-263

13 Claims



A machine for automatically cutting off and swinging away sections of metallic castings as said castings are being con-

tinuously formed by a rotary vertical casting device, said machine comprising a cradle mounted to swing about a horizontal axis and adapted to receive said casting when said cradle is vertical, means for expelling said casting when said cradle is horizontal, cutting means positioned above said cradle, means causing said cutting means to travel downwardly with said cradle while said casting is being cut, and means for successively actuating said cutting means when swinging said cradle.

3,565,158

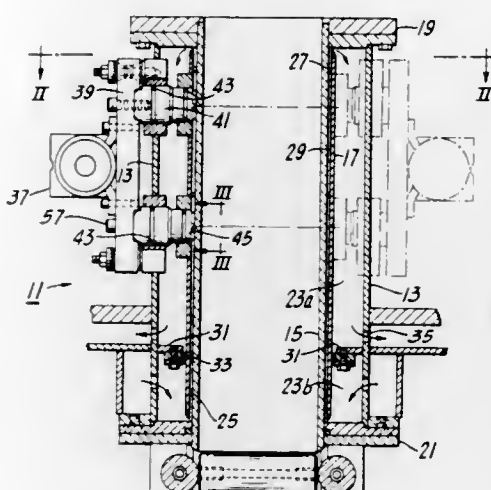
CONTINUOUS-CASTING MOLD

Joseph J. Ciochetto, Allison Park, Pa. (c/o Koppers Co. Inc., 440 College Park Drive, Monroeville, Pa. 15146)
Filed Nov. 4, 1968, Ser. No. 772,900

Int. Cl. B22d 11/00

U.S. Cl. 164-273

3 Claims



A continuous-casting mold is equipped with individual vibratory units that rapidly impact the mold wall and cause the mold wall to vibrate against the cast strand thereby improving the crystalline and surface structure of the cast strand.

3,565,159

DEVICE FOR CONTINUOUS PRODUCTION OF SHEET METAL

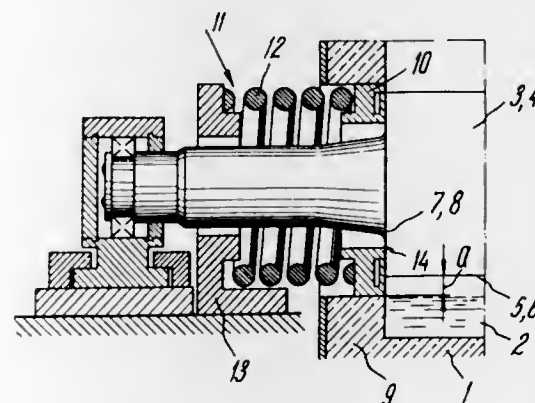
Georgy Lukich Khimich; Vitaly Maximovich Niskovskikh, and Stanislav Evgenievich Karlinsky, Sverdlovsk, U.S.S.R., assignors to Uralsky Zavod Tyazhego mashinostroenia imeni S. Ordzhonikidze, Sverdlovsk, U.S.S.R.

Filed July 31, 1968, Ser. No. 749,068

Int. Cl. B22d 11/06

U.S. Cl. 164-277

2 Claims



In a device for continuously producing metal sheet by solidifying molten metal on the outer periphery of two adjacent rolls and drawing the so solidified sheet from the nip of these two rolls, the improvement being discs located about the necks of the rolls where the roll necks project through the wall of the bath. These discs are biased towards the end face of the rolls, preferably by coil springs. Furthermore, the

contacting face of the discs extends beyond the working surface of the rolls so as to form the longitudinal edges of the solidified sheet.

3,565,160

ARC TYPE CONTINUOUS CASTING PLANT

Curt Herrmann, Kiefernweg 8, and Hans G. Baumann, Mulheimer Strasse 134, 41 Duisburg, Germany

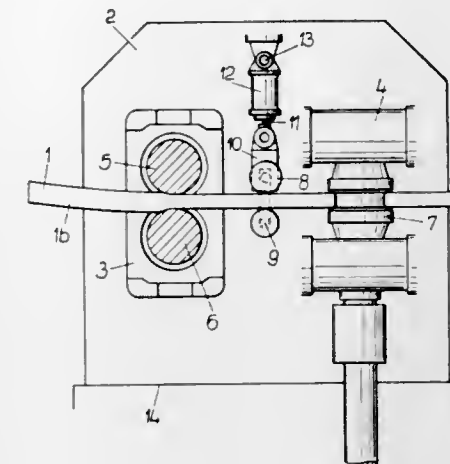
Filed Oct. 26, 1967, Ser. No. 678,391

Claims priority, application Germany, Nov. 10, 1966, D51505

Int. Cl. B22d 11/12

U.S. Cl. 164-282

10 Claims



An arc type continuous casting plant for curved strands is comprised of adjustably positionable forming rolls and a straightening machine. The straightening machine is formed of a flexibly mounted holddown roll for applying variable pressure to the strands during the straightening operation, and preferably, includes a counter roll disposed on the opposite side of the cast strand from the holddown roll. A hydraulic piston assembly may be used to mount the holddown roll for variable pressure operation. Further, the counter roll may be interconnected with and movable relative to the holddown roll for handling strands of different thickness. In an embodiment with the strand oriented horizontally the holddown roll is positioned between two pairs of forming rolls while in an arrangement with the strand positioned vertically, the forming rolls are disposed between spaced holddown or straightening rolls.

3,565,161

SHOT END ALIGNMENT FOR DIE-CASTING MACHINES

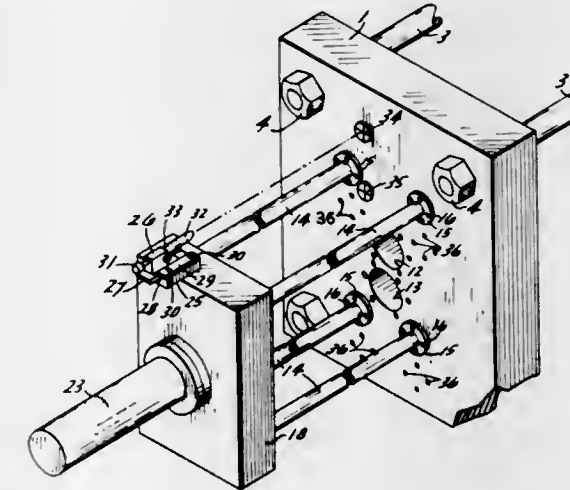
Robert J. Lindsey, Marion, Ohio, assignor to Koehring Company, Milwaukee, Wis.

Filed Apr. 28, 1967, Ser. No. 634,771

Int. Cl. B22d 17/08, 17/04

U.S. Cl. 164-312

1 Claim



A method and apparatus in which a predetermined transversely displaced reference axis is used for effecting axial

3,565,162

CASTING STATION FOR BATTERY ELEMENT FABRICATING MACHINE

John E. Farmer, Chicago, Ill., assignor to Farmer Mold and Machine Works, Inc.

Original application June 29, 1967, Ser. No. 650,119, now

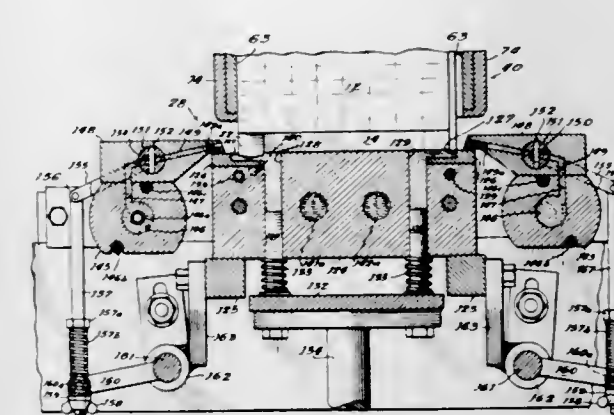
Patent No. 3,504,731, dated Apr. 7, 1970. Divided and this

application Mar. 13, 1969, Ser. No. 835,831

Int. Cl. B22d 39/00

U.S. Cl. 164-337

12 Claims



A machine for assembling battery plates and separators into groups by the cast-on method of forming posts and straps on the plates. The machine has a central vertically movable and rotatable column with a plurality of radially outwardly extending plate holding baskets, each of which is rotatably connected to the column and movable therewith between a loading station wherein battery plates are loaded with the basket angularly oriented with respect to horizontal and wherein the plates are loaded with the lugs of the plates projecting upwardly therefrom; a fluxing station; a molding station wherein particular valve means are provided to permit rapid and accurate flow of molten lead into cavities for the formation of battery posts and straps on the lugs of the plate; and an unloading station.

3,565,163

FOUNDRY MOLD

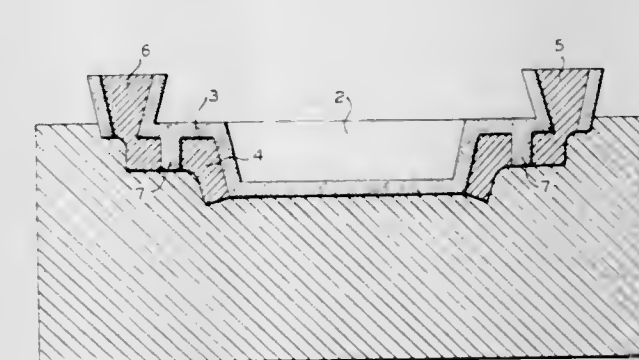
William H. Owen, Fultondale, and Joe D. Marshall, Birmingham, Ala., assignors to United States Pipe and Foundry Company, Birmingham, Ala.

Filed Mar. 5, 1968, Ser. No. 710,598

Int. Cl. B22c 9/02, 9/06

U.S. Cl. 164-342

2 Claims



The invention consists of a mold for casting molten metal into desired shapes having a drag portion which is constructed of a permanent material such as graphite and a cope portion which is constructed of a destructible material such as resin bonded sand, the necessary sprue and risers being contained in the cope portion of the mold.

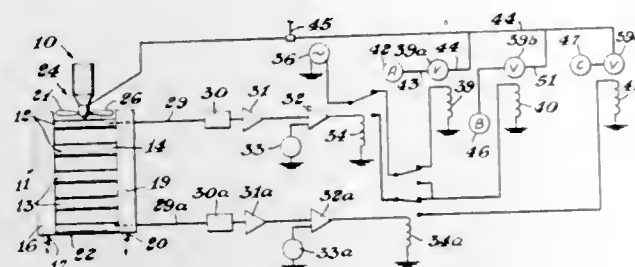
3,565,164

CONTROL OF AN AIR-COOLED HEAT EXCHANGER
Paul E. Kline, Charles E. Fahlgren, and Merlin R. Kitchen,
Midland, Mich., assignors to The Dow Chemical Company,
Midland, Mich.

Filed July 7, 1969, Ser. No. 839,316
Int. Cl. B60h 1/00

U.S. Cl. 165—1

5 Claims



An air-cooled heat exchanger provided with a reversible pitch fan is controlled against excessive temperature swing in the material being cooled by the use of temperature-sensing elements and control circuitry which set the pitch of the fan for forward flow, reverse flow or feathering.

3,565,165

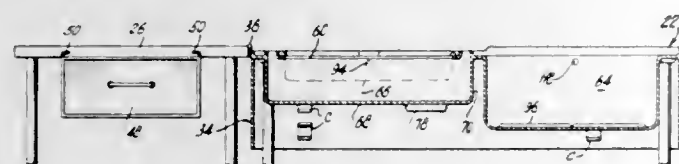
APPARATUS FOR PROCESSING PHOTOGRAPHIC SHEET MATERIAL AND THE LIKE

James A. Slavin, 365 W. End Ave., New York, N.Y. 10024
Filed June 11, 1968, Ser. No. 736,148

Int. Cl. F25b 29/00

U.S. Cl. 165—26

15 Claims



An apparatus for processing photographic sheet material, such as photographic prints or film, particularly in connection with developing and printing operations. The apparatus includes a container for holding a body of water whose temperature is to be controlled, and supply and discharge conduit means both communicate with this container for respectively supplying water thereto and for discharging water therefrom. The supply conduit means is connected with any cold water. A heating means is located in the container for heating the water therein, and one of the conduit means carries a solenoid valve. A temperature-sensing means communicates with the interior of the container for sensing the temperature therein to open the solenoid valve to supply cold tap water when the temperature of the water in the container rises above a given value and for energizing the heating means when the temperature of the water in the container falls below a given value.

3,565,166

POROUS PLATE CONDENSER-SEPARATOR

Richard G. Huebscher, Mayfield Village, and Thomas H. Hacha, Willoughby, Ohio, assignors to United Aircraft Corporation, East Hartford, Conn.

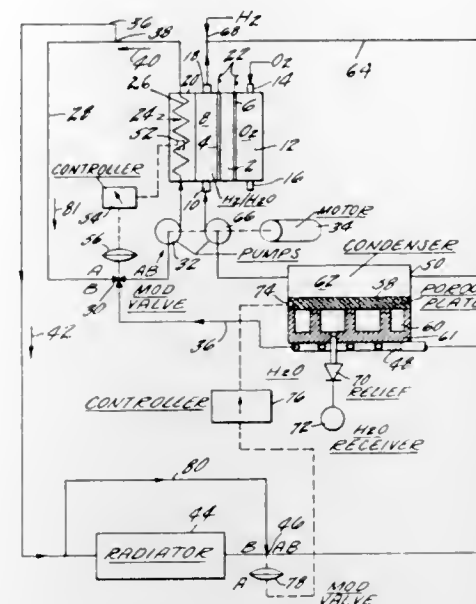
Original application Feb. 1, 1966, Ser. No. 524,275, now Patent No. 3,455,743, dated July 15, 1969. Divided and this application June 28, 1968, Ser. No. 816,846
Int. Cl. G05d 23/13; F28b 01/02

U.S. Cl. 165—35

2 Claims

A porous plate condenser-separator is disclosed providing means of removing water vapor from a fuel cell anode effluent stream. Water vapor condenses on a porous plate and is forced through the plate by virtue of an applied pressure differential. The condensed or liquified water escapes

through a relief valve into a reservoir container. This device is useful in a zero gravity environment since water vapor con-



denses on the porous plate surface and is forced through the plate by gas pressure.

3,565,167

ELECTRICAL MACHINE PROVIDED WITH A COOLING DEVICE

Hans Eder, Zurich, Switzerland, assignor to Contraves AG, Zurich, Switzerland

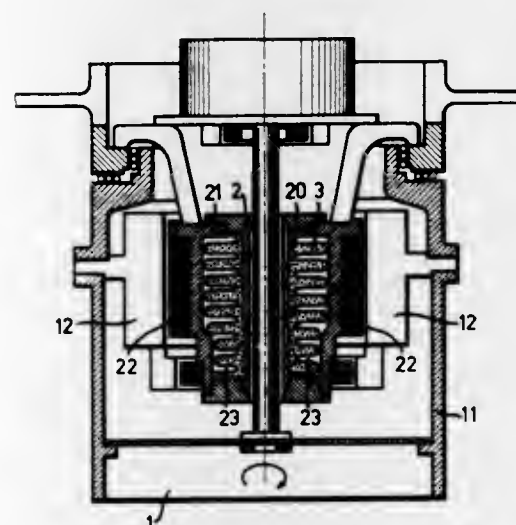
Filed Jan. 22, 1969, Ser. No. 793,064

Claims priority, application Switzerland, Feb. 2, 1968, 1626/68

Int. Cl. F24h 3/00

U.S. Cl. 165—47

7 Claims



There is disclosed a cooling device for electrical equipment, especially an electrical machine, wherein the cooling action is derived due to the effect of the heat required for changing the phase of a cooling agent. The cooling device incorporates means defining at least one hollow compartment provided at least at one machine portion which tends to rise in temperature or heat up. A solid fusible or meltable cooling agent is provided for this hollow compartment, this solid meltable cooling agent possessing a melting point which is above a predetermined operating temperature and beneath a permissible maximum temperature of the electrical machine.

3,565,168

CONE DRYER

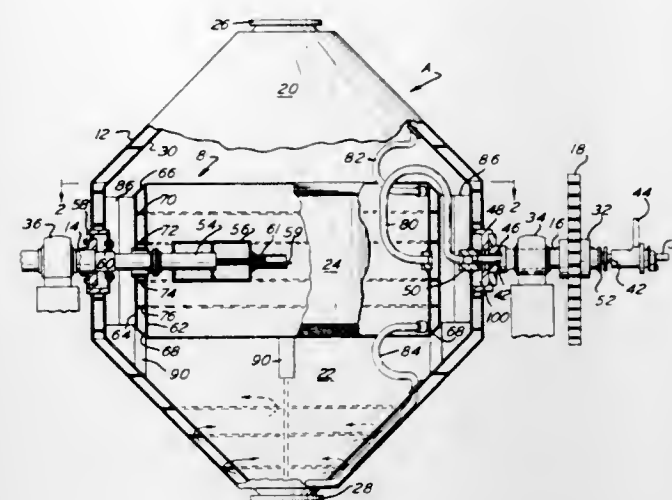
Harold R. Powell, King of Prussia; Daniel P. Sweeney, and Warner C. Haas, Philadelphia, Pa., assignors to Pennwalt Corporation

Filed Apr. 1, 1969, Ser. No. 812,111

Int. Cl. F26b 11/04; F28d 11/08

U.S. Cl. 165—88

4 Claims



A cone dryer having an extended surface heat transfer platen in the form of an annular cylindrical jacket suspended in concentrically spaced disposition from the inner walls of the dryer. The increased heat transfer area supplements the original dryer contact surface while the cylindrical annulus impedes the fall of product material so as to provide superior blending action and quicker drying times.

3,565,169

FORMATION-SAMPLING APPARATUS

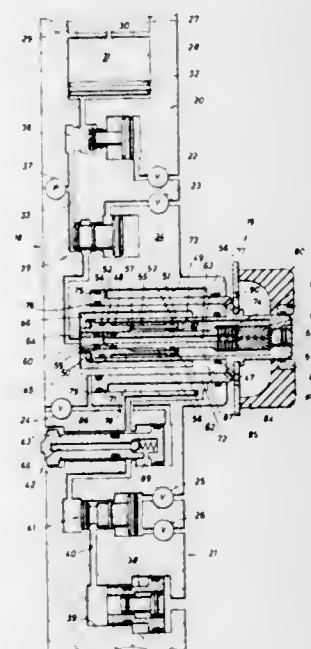
William T. Bell, Houston, Tex., assignor to Schlumberger Technology Corporation, N.Y.

Filed Apr. 2, 1969, Ser. No. 812,729

Int. Cl. E21b 49/00

U.S. Cl. 166—100

13 Claims



In each of the several embodiments of the new and improved fluid-sampling apparatus disclosed herein, sample-admitting means adapted to be selectively advanced therefrom include a sealing pad uniquely arranged around the forward end of a tubular sampling member so that, upon contacting a borehole wall, the wall-engaging face of the sealing pad will effect firm sealing engagement therewith. Thereafter, continued advancement of the sample-admitting means will longitudinally compress the sealing pad rearwardly in relation to the sampling member to enable the forward end of the tubu-

lar member to penetrate at least the layer of mudcake lining the surface of the borehole wall. Means are further provided for urging the sealing pad against the borehole wall to insure that the projected forward end of the sampling member is isolated from borehole fluids.

3,565,170

CONTROL APPARATUS FOR WELL TOOLS

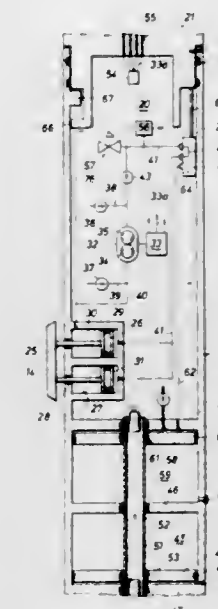
Harold J. Urbanosky, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Dec. 12, 1969, Ser. No. 884,531

Int. Cl. E21b 33/12, 23/00

U.S. Cl. 166—212

15 Claims



The invention disclosed herein is directed to new and improved control apparatus for selectively operating pressure-actuated well tools. In particular, different embodiments are disclosed of control apparatus for well completion tools and especially adapted for repetitively operating at extreme pressure differentials typically experienced in well bores to selectively extend and retract wall-engaging members on the tools.

3,565,171

METHOD FOR PRODUCING SHALE OIL FROM A SUBTERRANEAN OIL SHALE FORMATION

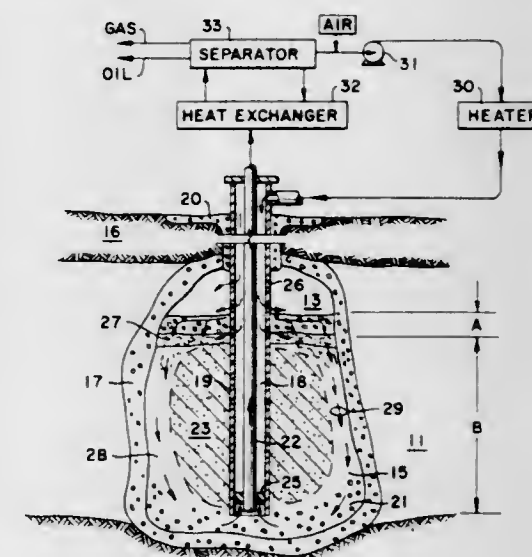
Philip J. Closmann, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed Oct. 23, 1968, Ser. No. 769,906

Int. Cl. E21b

U.S. Cl. 166—247

16 Claims



A method for producing shale oil from a subterranean oil shale formation wherein a chimney of fragmented oil shale is

formed in the formation by exploding a relatively high energy explosive device therein, the chimney having a substantially void space formed at the top thereof. A liquid is flowed through the voids formed between the oil shale fragments, the liquid being adapted to selectively bypass small voids and plug larger voids formed between the fragments at least in the substantially vertical central portion of the chimney. Hydrocarbons at substantially the top of the chimney are ignited and a combustion supporting fluid is flowed into the chimney at substantially the top thereof, thereby advancing a combustion front down the chimney to substantially the bottom thereof. The fluid flow path of the fluid supporting the combustion tends to be substantially confined to the vertical outlying portions of the chimney and the untreated small voids within the chimney until the heat from the combustion front thermally mobilizes the liquid plugging the larger voids thus decomposing the plugging liquid thereby pyrolyzing substantially all of the fragmented oil shale along a substantially horizontal level within the chimney without the combustion front bypassing the portions of the fragmented oil shale adjacent to the small voids as the combustion front proceeds down the chimney.

3,565,172

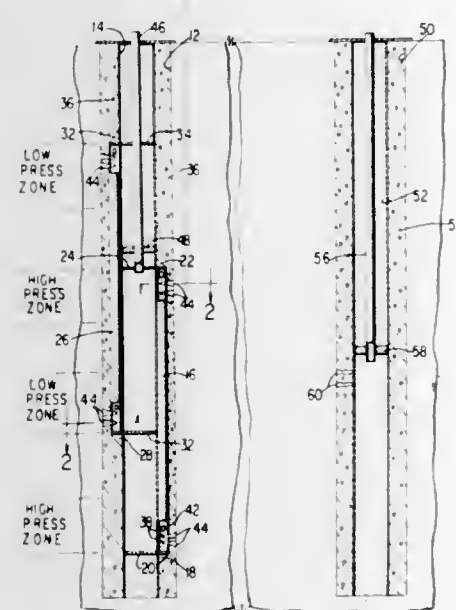
METHOD OF PRODUCING CRUDE OIL

Charles E. Cole, Bartlesville, Okla., and Terry L. Ramsey, Dallas, Tex., assignors to Cities Service Oil Company
Filed Apr. 10, 1969, Ser. No. 815,072

Int. Cl. E21b 43/14

U.S. Cl. 166—250

7 Claims



A method for efficiently producing hydrocarbons such as petroleum and similar fluids from an underground reservoir having several separated and different hydrocarbon bearing formations or zones in stratified sequence is disclosed herein. The method comprises boring a generally vertical hole through the zones, placing casing in the wellbore, mounting one or more vertical communications tubes alongside the outside of the casing between the zones to be placed in communication, the tubes having vertically spaced perforating devices and extending between all the zones having similar producing characteristics. The casing and the communications tubes are cemented in place in the well hole, and then the communications tube and the adjacent zones are perforated by the perforating device adjacent the similarly characterized producing zones.

3,565,173

METHODS OF SELECTIVELY IMPROVING THE FLUID COMMUNICATION OF EARTH FORMATIONS

Maynard L. Anderson, Dallas, Tex., assignor to Mobil Oil Corporation

Filed Sept. 17, 1969, Ser. No. 858,620

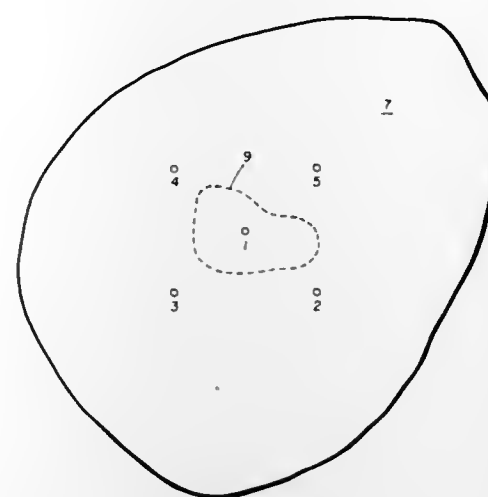
Int. Cl. E21b 43/26

U.S. Cl. 166—252

10 Claims

This specification discloses methods of selectively improving poor fluid communication regions of an earth formation

penetrated by a pattern of injection and production wells. Liquid is injected through an injection well into the regions of permeability providing fluid communication intermediate said injection and production wells. Flow is restricted from the production wells having good fluid communication with



the injection well while leaving open or unrestricted the production wells having poor fluid communication with the injection well. A fluid explosive is injected through the injection well into the regions of permeability providing poor fluid communication in the direction of the open production well. Thereafter the fluid explosive is detonated.

3,565,174

METHOD OF IN SITU COMBUSTION WITH INTERMITTENT INJECTION OF VOLATILE LIQUID

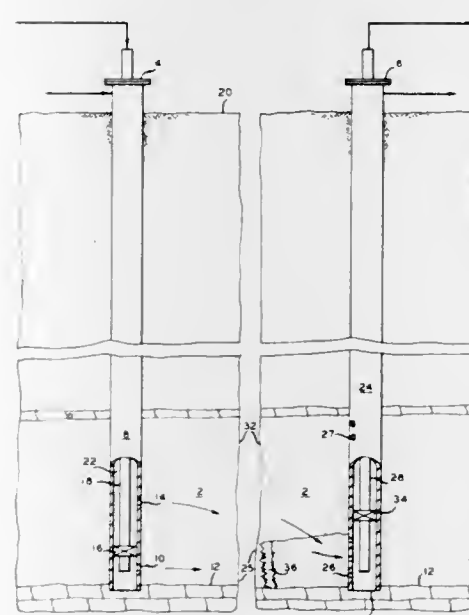
Harry W. Parker, and Robert F. Meldau, Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Oct. 27, 1969, Ser. No. 869,472

Int. Cl. E21b 43/24

U.S. Cl. 166—261

6 Claims



A method of repeatedly heating the formation by alternately conducting in situ combustion in the lower portion of the formation and injecting a volatile hydrocarbon liquid into the heated zone to increase heat transfer and dilute the inplace hydrocarbons. Inert gas may be injected into the upper portion of the formation during combustion, and accumulated gases produced through upper perforations of the production well.

3,565,175

METHOD FOR REDUCING GRAVITY SEGREGATION OF AN AQUEOUS FLOODING FLUID

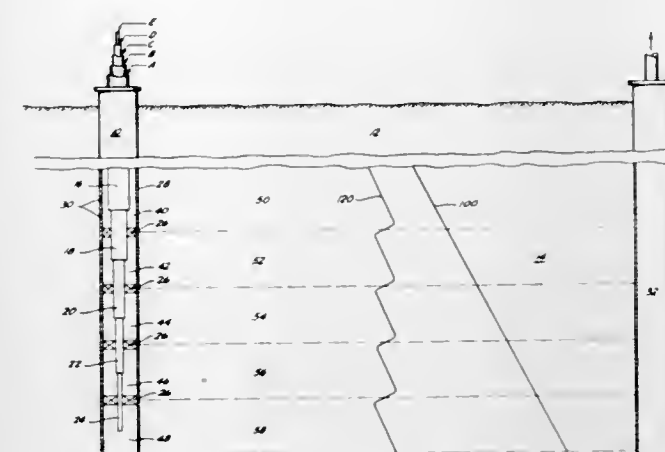
James W. Wilson, Brea, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed Oct. 16, 1969, Ser. No. 867,032

Int. Cl. E21b 43/22

U.S. Cl. 166—269

26 Claims



Gravity segregation of an aqueous flooding fluid injected into a permeable subterranean reservoir containing lower density fluids is reduced by adjusting the viscosity of the aqueous flooding fluid injected into progressively lower levels of the reservoir so as to decrease the mobility of the fluid injected into each of the progressively lower levels sufficiently to offset the additional pressure exerted at the lower levels by the higher density aqueous flooding fluid tending to drive the aqueous fluids through the reservoir, whereby a substantially uniform vertical flood front is maintained. The viscosity of the fluid injected at each level may be continuously or incrementally decreased during injection.

3,565,176

CONSOLIDATION OF EARTH FORMATION USING EPOXY-MODIFIED RESINS

Clifford V. Wittenwyler, 1841 Arbor Lane, Union, N.J. 07083

Filed Sept. 8, 1969, Ser. No. 856,184

Int. Cl. E21b 33/138, 43/20, 43/24

U.S. Cl. 166—270

5 Claims

A method of consolidating an unconsolidated earth formation in order to improve subsequent oil recovery by means of a fluid drive, comprising treating the formation with (1) a liquid hydrocarbon preflush, (2) a resinous solution containing an epoxy resin forming material, an amine curing agent, an organic ester of a pentavalent phosphorus compound coupling agent and, if desired, optimally adding a silane, said additives being dispersed or dissolved in a liquid solvent and (3) and optimally if desired using an overflush comprising of a hydrocarbon liquid.

3,565,177

THERMAL WELL LINER REMOVAL METHOD AND APPARATUS

Stanley O. Hutchison, Bakersfield, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Apr. 2, 1969, Ser. No. 812,677

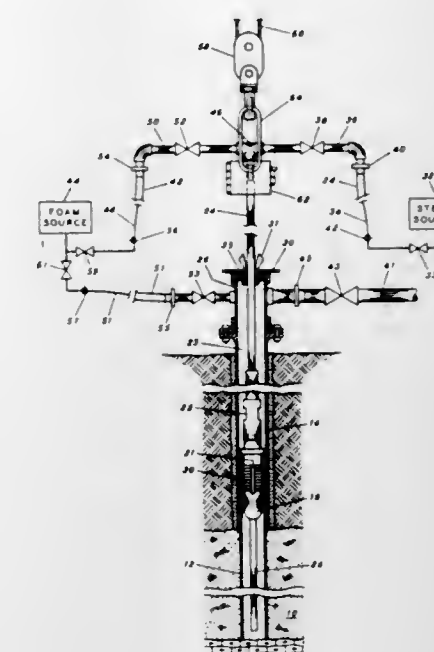
Int. Cl. E21b 31/02, 41/00

U.S. Cl. 166—301

7 Claims

The disclosure relates to removing heat expansible well liners from a well by contacting the liner with circulating hot

fluid to uniformly increase the temperature of the liner and



to assist in freeing the liner from the earth while simultaneously pulling the liner from the well.

3,565,178

PEANUT DIGGER AND SHAKER

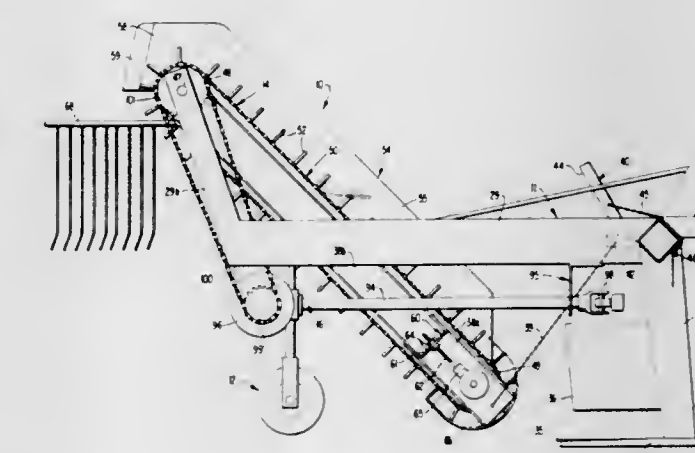
Carroll J. Whitfield, 6309 Birling Drive, Columbus, Ga.

Filed Jan. 17, 1969, Ser. No. 791,904

Int. Cl. A01d 17/08

U.S. Cl. 171—45

5 Claims



A peanut vine digger and shaker comprising a pair of crop elevating rattlers positioned in side-by-side relationship and supported by a framework, and rattler drive means positioned generally between the rattlers and arranged to drive the rattlers from the power source of a tractor or the like. A pair of plows are connected to the framework ahead of each of the rattlers, and a pair of coulters are positioned between and ahead of the rattlers for cutting the vines just before the vines are plowed from the ground and shaken by the rattlers.

3,565,179

SOD-TRIMMING DEVICE FOR SPRINKLER HEADS

Alvin E. Paliani, 1353 W. Houston, Fullerton, Calif. 92633

Filed June 14, 1968, Ser. No. 738,733

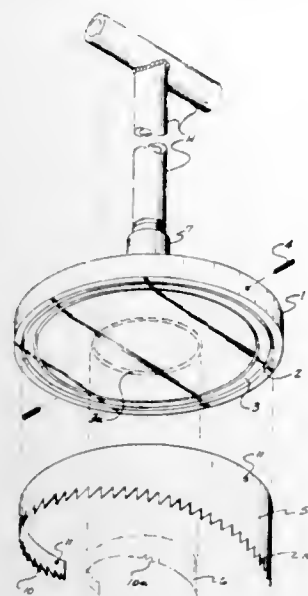
Int. Cl. A01b 45/04

U.S. Cl. 172—19

1 Claim

A sod-trimming device for sprinkler heads, having a disc-shaped holder with a handle attached to the top center thereof and one or more generally circular cutter blades tapered in height and formed with sawtoothed lower edges,

the upper edges being secured in one of a plurality of spaced concentric reentrant grooves so that the sod may be trimmed



around the sprinkler head when one of the blades encircles the head and rotation is imparted to the holder.

3,565,180

PLOW CONSTRUCTION

Loren G. Arnold, Rock Island, and Orey W. Oerman, Moline, Ill., assignors to Deere & Company, Moline, Ill.

Filed Aug. 26, 1965, Ser. No. 482,824

Int. Cl. A01b 61/04

U.S. Cl. 172-265

16 Claims



A plow construction in which the portion of the plow standard carrying the plow bottom may swing upwardly and rearwardly upon encountering an obstruction, there being a fluid cylinder mounted between the plow frame and the upper end of the standard operable to reset the plow standard after the obstruction is passed. A hydraulic line interconnects the fluid cylinder to a tractor-mounted variable displacement pump which maintains the fluid under pressure. A relief valve in the line permits fluid to be dumped into a reservoir when an obstruction is encountered.

3,565,181

BLADE ATTACHMENT APPARATUS

Ernest E. Bahm and Robert H. Kucera, both of Rte. 2, Ashland, Nebr. 68002

Filed May 1, 1968, Ser. No. 725,806

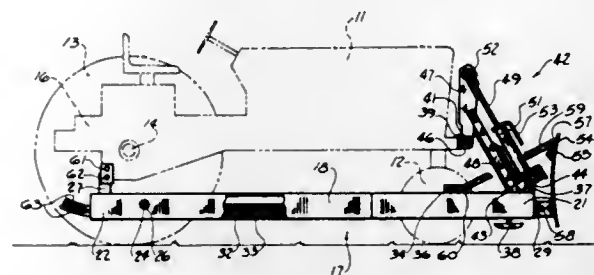
Int. Cl. A01b 63/108; E02f 3/76

U.S. Cl. 172-491

6 Claims

This invention pertains to a tractor blade attachment apparatus comprising a frame pivotally secured on one end to

the pivot holes of the conventional hitch assembly disposed on the rear of the frame of a tractor and with the front end of the frame disposed in front of the forward end of the tractor, wherein the front end of the frame is adapted to hold a blade or the like. Pivotally secured between the front end of the frame and the front end of the tractor is a hydraulic mechanism for only raising and lowering the blade. The frame includes a V-shaped element, which in conjunction with the longitudinal members of the frame transfers the



stresses, caused during the operation of the blade, to the hitch assembly of the tractor. The frame of hollow beam construction contains the hydraulic lines which are fluidly interconnected between the tractor hydraulic control system and the hydraulic mechanism. Skid members are adjustably mounted on the frame members for positioning the blade relative to the ground and adjustable members are interconnected between the blade and frame for varying the pitch of the blade.

3,565,182

ADJUSTABLE FEED-THROUGH RIPPER TIP

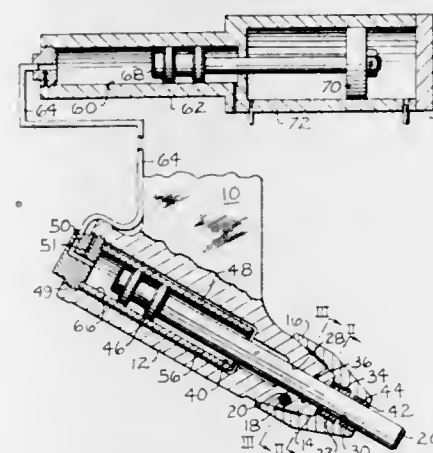
Max J. Teasdale, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 13, 1969, Ser. No. 806,822

Int. Cl. A01b 65/00, 13/08; E02f 9/28

U.S. Cl. 172-664

5 Claims



An adjustable feed-through ripper tip, in which the tip can be advanced by pressurized fluid in a hydraulic cylinder which is removably mounted in the lower portion of the ripper shank.

3,565,183

IMPACT TOOL

Murray L. Jayne, 520 N. Michigan Ave., Chicago, Ill. 60611

Filed Dec. 13, 1968, Ser. No. 783,611

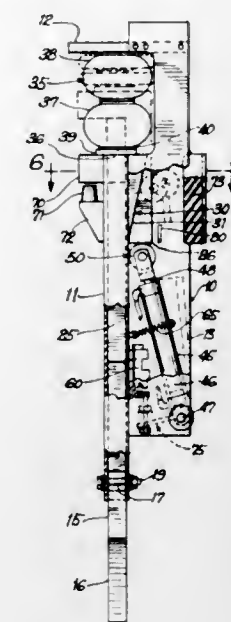
Int. Cl. B25d 9/04

U.S. Cl. 173-13

13 Claims

An impact tool for loosening and breaking homogeneous material such as compacted or frozen earth, black top and concrete. The tool is adapted to be mounted on the boom of a backhoe or the like, and it is powered by the hydraulic system of the apparatus on which it is mounted or by a separate system. A tool element, such as a hardened point, in integral with or mounted on an anvil arranged for limited longitudinal movement in a housing. A hammer coacting with the anvil is energized by a spring, preferably a pneu-

matic spring. A hydraulic cylinder moves the hammer against the spring, and when the spring is compressed in desired amount, the piston rod of the cylinder is cammed away from the hammer, thereby permitting the spring to drive the hammer with great force against the anvil. The tool is arranged so that operation thereof occurs only when the tool element or point is positioned against the work and the



movable anvil has an inward relation with its housing, thereby providing a "dead man" control feature. In basic form the tool has a single hammer and a single cylinder.

Modifications of the basic tool contemplate a double cylinder, single hammer device which increases the frequency of operation by a factor of two, and a double cylinder, double hammer device which in effect is the combination of two single hammer, single cylinder devices in a single tool.

3,565,184

MOBILE ROCK DRILL RIG

Sven Herbert Gustafsson, Alvsjo, and Gunnar Lagerstrom, Ektorp, Sweden, assignors to Atlas Copco Aktiebolag, Nacka, Sweden

Filed May 28, 1969, Ser. No. 830,585

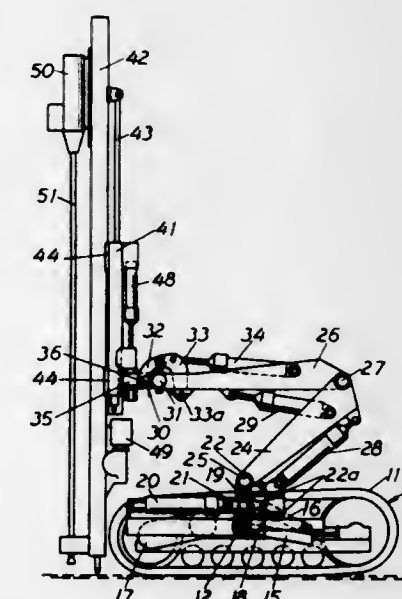
Claims priority, application Great Britain, May 30, 1968,

26007/68

Int. Cl. E21c 11/02

U.S. Cl. 173-28

10 Claims



A drill rig is provided which comprises a foldable two-part boom structure mounted with one end at a mobile chassis for lateral and vertical swinging thereon. A feed bar for a rock drill is mounted at the outer end of the boom structure for universally pivoting thereon.

SLIDE SUPPORTED ROCK DRILL

Carl Gosta Bernhard Ekwall, Nacka, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Dec. 3, 1968, Ser. No. 780,709

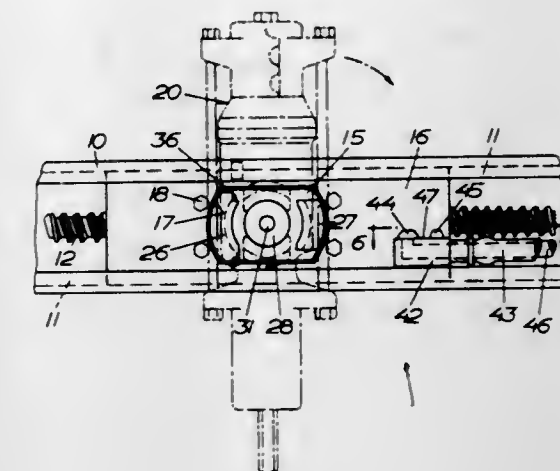
Claims priority, application Sweden, Dec. 7, 1967,

16794/1967

Int. Cl. E21c 5/02, 7/10

U.S. Cl. 173-57

11 Claims



Bayonet lock elements for a rock drill on the slide of a feed shell are disposed in a plane substantially parallel with the rock drill guide means of the shell and constitute together with corresponding bayonet lock elements on the rock drill a quick release coupling through the medium of which the rock drill is coupled to the slide with the axis thereof parallel with said guide means. Passage connecting means for connecting supply conduits for compressed air and water to the rock drill may be interconnected automatically simultaneously with the bayonet lock elements when the rock drill is coupled to the slide.

3,565,186

PNEUMATIC PERCUSSIVE TOOL HAVING A FLUIDIC CONTROL VALVE

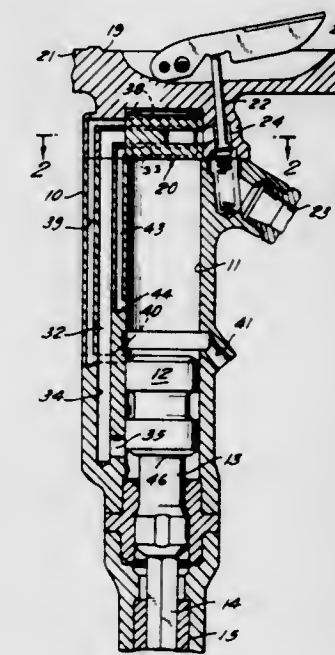
Paul Blodeau, Utica, N.Y., assignor to Chicago Pneumatic Tool Company, New York, N.Y.

Filed Aug. 15, 1969, Ser. No. 850,422

Int. Cl. B23b 45/00

U.S. Cl. 173-135

8 Claims



A pneumatically powered percussive tool having a piston hammer which is pneumatically reciprocable to pound an anvil against a work steel. Live air is fed to the piston cylinder through a fluidic valve unit. The valve unit has passages connected with opposite ends of the piston cylinder;

it has no moving parts. Live inlet air entering a reaction chamber of the valve unit is initially directed to one end of the cylinder and thereafter is caused by jet airstreams created by reciprocation of the piston to be applied alternately to opposite ends of the piston cylinder.

3,565,187

GRIPPING DEVICE

Nils Gunnar Jonsson, Jakobsberg, and John Arne Lagerstedt, Skarholmen, Sweden, assignors to Atlas Copco Aktiebolag, Nacka, Sweden

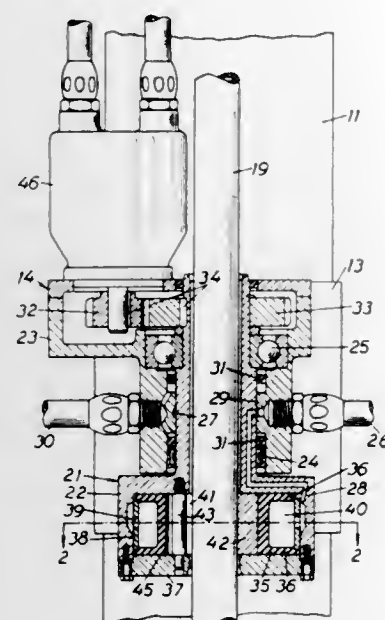
Filed Sept. 18, 1969, Ser. No. 859,153

Claims priority, application Sweden, Oct. 4, 1968, 13475/68

Int. Cl. E21c 5/00; B23q 5/00

U.S. Cl. 173-152

8 Claims



A gripping device, which is a part of a rock drill, is arranged to grip a drill string. It has a housing in which a number of gripping jaws are disposed around the drill string. In the housing but outside the jaws, a sleeve is clamped as a seal so that a pressure chamber is formed between the sleeve and the housing. When the pressure chamber is pressurized, the sleeve forces the jaws to grip the drill string.

3,565,188

PERFORATING MEANS FOR SAND CONTROL

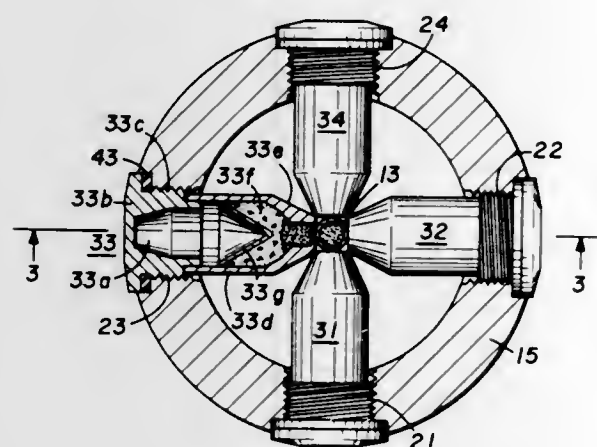
John R. Hakala, Fort Worth, Tex., assignor to Harrison Jet Guns, Ltd., Houston, Tex.

Filed June 7, 1965, Ser. No. 461,941

Int. Cl. E21b 43/117

U.S. Cl. 175-4.6

5 Claims



1. A perforating gun which comprises:

a. a gun barrel provided with a plurality of sets of explosion

ports in the wall thereof, with the ports of each set being oriented substantially on a plane which is perpendicular to the axis of the barrel;

b. a fuse extending through said barrel;

c. a closure member for each of said ports adapted to engage the walls of the explosion port; and

d. a tubular casing supported by each said closure member, each said casing of diameter smaller than the diameter of said ports and having a cone-shaped end opposite said closure member with length as to extend from said closure member to a location adjacent to the center of said barrel, with said casings forming a structure automatically to position said fuse at the center of said barrel, each said casing including a conical metallic liner and a quantity of an explosive having an inner surface conforming with said metallic liner the apex of which is pointed away from said closure member.

3,565,189

APPARATUS FOR MONITORING AND CONTROLLING A TOOL IN A BOREHOLE

Herbert J. Hart, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Original application June 29, 1967, Ser. No. 649,978. Divided

and this application Dec. 31, 1968, Ser. No. 802,710

Int. Cl. E21b 9/34, 49/06

U.S. Cl. 175-24

5 Claims



The particular embodiment described herein as illustrative of one embodiment of the invention is directed to control circuitry for a selectively-operable hydraulic system employed for moving a wall-engaging member on a well tool into and out of contact with a well bore wall. To insure that the wall-engaging member is retained in contact with a well bore wall with sufficient force, the control circuitry is uniquely arranged to reactivate the hydraulic system whenever the output pressure thereof decreases below a predetermined level.

3,565,190

AUGER-TYPE BORING MACHINES

Morindo Ishii, Tokyo, Japan, assignor to Sanwa Kizai Kabushiki-kaisha, Tokyo, Japan

Filed Mar. 6, 1969, Ser. No. 804,906

Claims priority, application Japan, Mar. 7, 1968, 43/14351

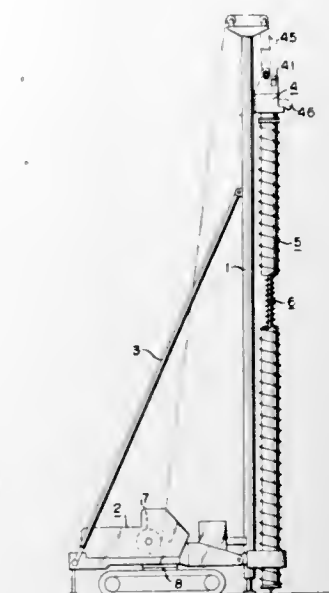
Int. Cl. E21b 3/02, 17/00

U.S. Cl. 175-171

12 Claims

Auger-type boring machines for drilling cylindrical holes in order to make pile foundations in the earth, comprising a double auger consisting of an outside auger and an inside

auger, with oppositely twisted threads the latter being drill fluid through gaps in the lower end of a shoe at the bottom of the drill pipe to underream under the shoe. The cylinder



efficiently to produce holes of large diameters, by rotating the augers in opposite directions.

3,565,191

HYDRAULIC JET DRILLS

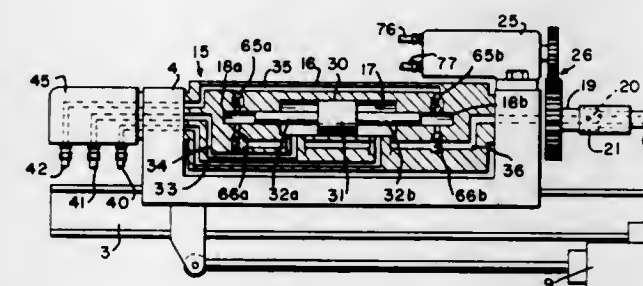
John T. Bowen, Princeton, N.J., assignor to Ingersoll-Rand Company, New York, N.Y.

Filed May 27, 1969, Ser. No. 828,215

Int. Cl. E21b 21/00, 7/18

U.S. Cl. 175-207

10 Claims



A rock-drilling apparatus which employs the principle of a high-pressure hydraulic jet to drill the hole. A double-acting intensifier is rotatably mounted on a frame and is adapted to have a hollow drill pipe connected thereto. The intensifier continuously supplies high-pressure fluid to the bottom of the hole for boring the hole. A swivel provides a connection for fluid pressure conduits to permit hydraulic fluid to be conducted to the intensifier.

3,565,192

EARTH BORING MECHANISM AND COORDINATED PILOT HOLE DRILLING AND CORING MECHANISMS

Frank W. McLarty, 337 S. Edgefield Ave., Dallas, Tex. 75208

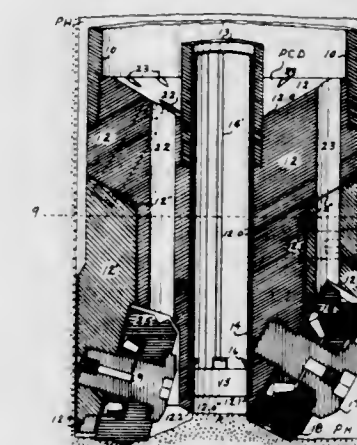
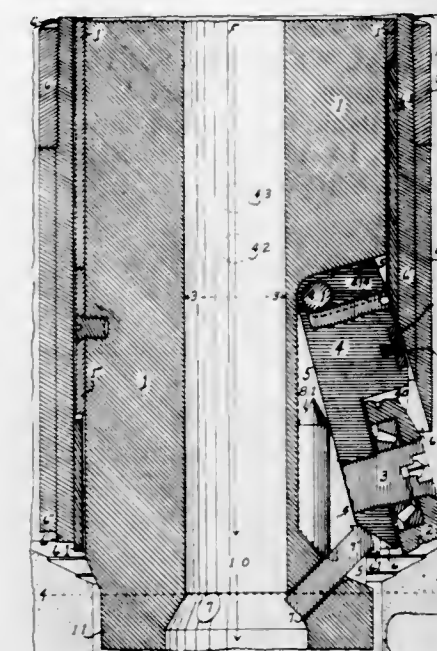
Filed Aug. 27, 1968, Ser. No. 755,471

Int. Cl. E21b 9/18, 9/32, 9/36

U.S. Cl. 175-246

12 Claims

A cylindrical member is lowerable through a drill pipe and latched thereto. Cutters carried on arms hinged to slots in the cylindrical member move outwardly under pressure of the



driical member has a pilot bit at its lower end and a core barrel in its bore. Roller or diamond cutters may be used.

3,565,193

ELECTRICAL WEIGHER USING VIBRATING STRINGS

Walter Wirth, Uitikon (Zurich), Switzerland, assignor to August Sauter KG, Ebingen Wurttemberg, Germany

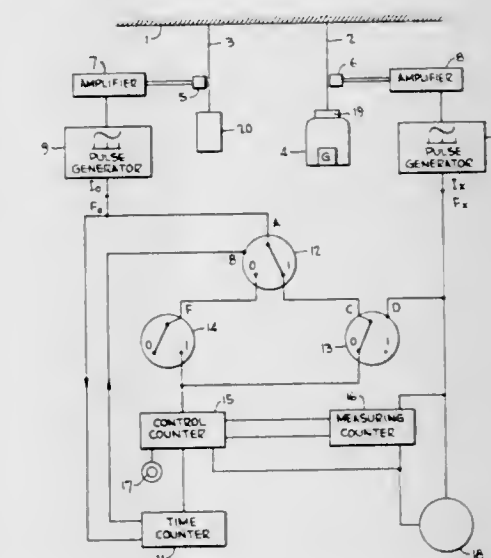
Filed Jan. 3, 1969, Ser. No. 788,844

Claims priority, application Switzerland, Jan. 8, 1968, 170/68

Int. Cl. G01g 3/16, 23/365, 23/37

U.S. Cl. 177-1

13 Claims



The specification describes a weighing apparatus using a vibrating string whose tension depends on the weight to be

weighed. Electronic counters are used for deriving the weight from the frequency of vibration.

3,565,194

DIGITAL WEIGHING SYSTEM

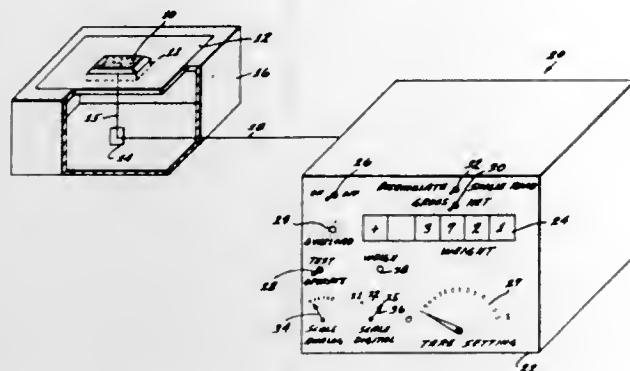
Charles E. Engle, Tustin, and Robert E. Reinert, Orange, Calif., assignors to Dana Laboratories, Inc.

Filed Apr. 14, 1969, Ser. No. 815,928

Int. Cl. G01g 3/14, 19/52, 23/16

U.S. Cl. 177-50

9 Claims



A system is disclosed for providing digital indications of the gross or net weights of a load (or accumulated loads), as sensed by electrical load cells. The load cells are energized from a source of reference potential to provide an output signal that is converted to a digital form by a ratioed ramp voltmeter operating in cooperation with a digital counter. The ramp voltmeter is driven by reference potential to provide improved accuracy. An active multipole filter is provided for filtering the signal from the load cell structure to eliminate spurious components thereof created by vibration and the like. The system also incorporates, analogue and digital scaling, flexibility in the use of tare, and a test conversion facility.

3,565,195

ELECTRICAL WEIGHING APPARATUS USING CAPACITIVE FLEXIBLE MAT

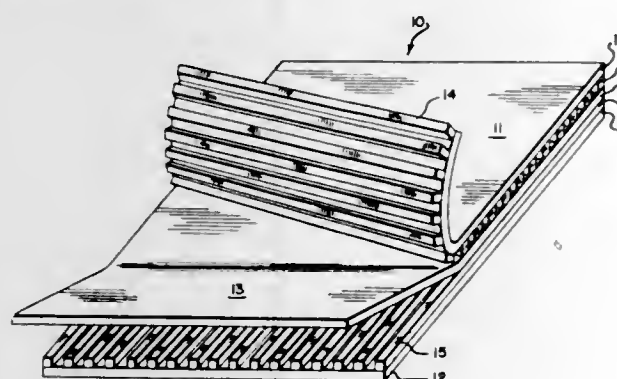
Robert P. Miller, Spring Valley, N.Y.; Marvin Miller, Teaneck, N.J., and Stephen P. Bailey, Mahopac, N.Y., assignors to Sibany Manufacturing Corporation, Riverside, Conn.

Filed Apr. 16, 1969, Ser. No. 816,692

Int. Cl. G01g 3/12, 21/22

U.S. Cl. 177-210

11 Claims



Weighing apparatus is disclosed comprising electronic circuitry and a weighing mat adapted to be loaded by a force to be measured. The mat is composed of layers of electrically conductive elastomeric material separated by strips of dielectric elastomeric material to form an electrical capacitor whose capacitance varies linearly with the application of a load to the mat. The particular arrangement of the dielectric strips in the preferred embodiment serves to extend the effective linear range of capacitive variation of the mat. Electronic circuitry is also provided to measure the variation of capacitance of the mat when the mat is loaded and to give an indication corresponding to the magnitude of the load.

3,565,196 MOBILE ELECTRICAL WEIGHING PLATFORM

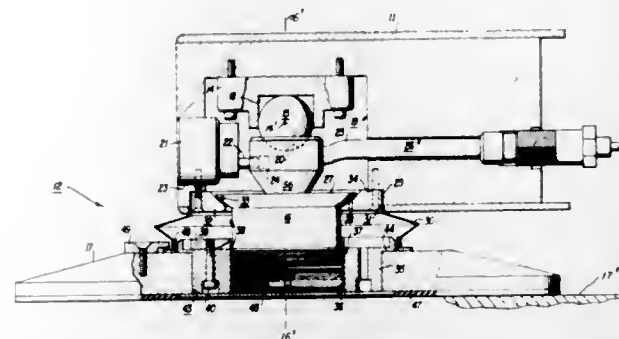
Eric Laimins, Belmont, and Charles Kadlec, Acton, Mass., assignors to B L H Electronics, Inc., Waltham, Mass.

Filed June 6, 1969, Ser. No. 831,146

Int. Cl. G01g 3/14

U.S. Cl. 177-211

7 Claims



A mobile electrical weighing platform or scale is suspended for precision measurements of loads by way of a plurality of shear-type load cells which are in purely ball-and-socket engagement with the platform during operation, and which are in entrapped and protected relations to the platform to prevent accidental separation or damage to electrical connections during transport, heightwise adjustment, and self-leveling installation.

3,565,197

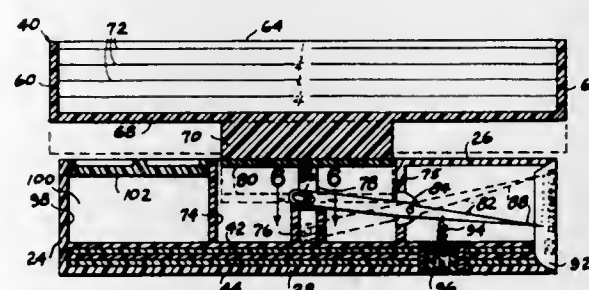
WEIGHT CONTROL GUIDE

William L. Carter, 2801 S. Air Depot, Midwest City, Okla. Continuation-in-part of application Ser. No. 544,949, Apr. 25, 1966, now Patent No. 3,433,406, dated Mar. 18, 1969, Continuation-in-part of application Ser. No. 714,314, Mar. 19, 1968, now Patent No. 3,433,407, dated Mar. 18, 1969. This application Dec. 11, 1968, Ser. No. 782,883

Int. Cl. G01g 3/00, 21/18

U.S. Cl. 177-230

5 Claims



A rectangular housing journals interconnected pairs of axles having elongated flexible strips with data printed thereon connected with and windable from one axle to the other by means of control wheels projecting through a partition wall in the housing. Openings in the wall visibly expose data on the sheets as the latter is moved. A battery operated lamp is periodically lighted to expose other data on one sheet. Manually movable dials, journaled by the partition wall record quantities of daily allowable foods consumed by the user. A scale mounted within the housing records the weight of food to be consumed when placed within a measuring container normally partially surrounding and supported by the rearward portion of the housing.

3,565,198

STEERING, DRIVING AND SINGLE TRACK SUPPORT SYSTEMS FOR VEHICLES

Victor H. Ames, Midlothian, Ill., assignor to Whiting Corporation

Filed June 26, 1967, Ser. No. 648,656

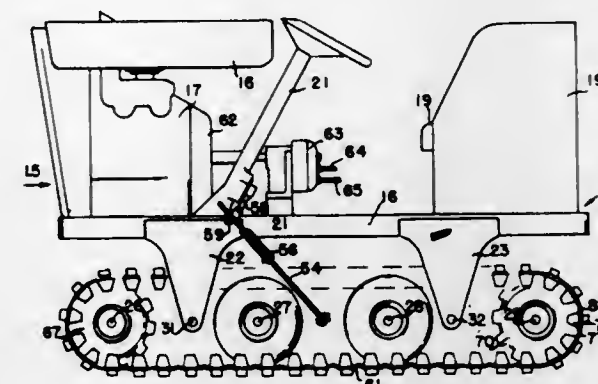
Int. Cl. B62d 11/22

U.S. Cl. 180-9.44

21 Claims

A track vehicle having low ground pressure characteristics through use of a single full width track in which the track is

laterally bendable with respect to the longitudinal axis of the vehicle whereby the cleats of the track are disposed along the true path of the vehicle to minimize sideways movements of the track elements and consequent soil shear forces to facilitate the making of vehicle turns. Distinctive linkage elements are incorporated to interconnect track support and drive elements of the vehicle for maintaining a relatively constant track length at the central axis of the track. Various



track drive, steering and engaging elements are used to beneficially utilize the novel kinematic and operative features of the vehicle support, track and track driving elements of the disclosed combination. The invention includes a track made up of separate link or shoe elements that are formed for cooperative interaction to distribute localized ground reaction forces by bridging action irrespective of whether said shoe or cleat elements are in extended or contracted relationship.

3,565,199

SPEED CONTROL FOR CARTS

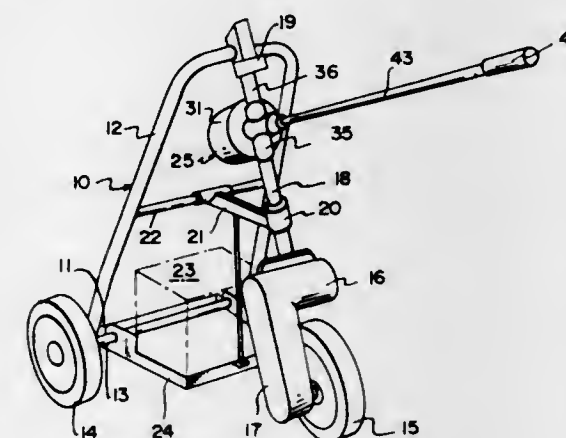
Robert J. Mlstarz, Northbrook, Ill., assignor to Chicago Stainless Equipment Corporation

Filed Jan. 17, 1969, Ser. No. 792,041

Int. Cl. B62d 51/04

U.S. Cl. 180-19

5 Claims



A motor-driven wheeled cart such as a golf cart having a drive motor which may be battery operated, a projecting guide handle to be grasped by an operator in guiding the cart in a desired path, a switch for turning the motor on and off, a variable speed control for controlling the speed of the motor and thereby the speed of the cart with the handle being movable in one direction to operate the on-off switch and movable in another direction to operate the speed control.

3,565,200

ARTICULATED VEHICLE DRIVE

Robert L. Stewert, St. Joseph, and Eugene F. Hand, Stevensville, Mich., assignors to Clark Equipment Company

Filed Dec. 16, 1968, Ser. No. 783,931

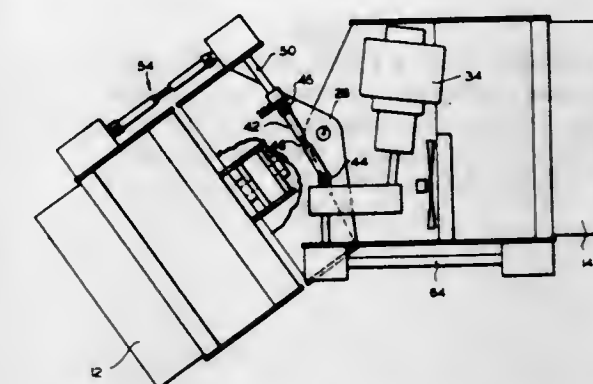
Int. Cl. B60k 17/34; B62d 9/00

U.S. Cl. 180-51

3 Claims

A drive arrangement for an articulated vehicle having two parts interconnected by a coupling structure which provides

for pivoting about both vertically disposed and horizontally disposed axes. An engine is mounted on one part of the vehicle. A shaft driven by the engine extends in transversely disposed relation adjacent the vertically disposed axis, such shaft including a universal joint and a slip joint therein. A



first mechanism along one side of the vehicle and connected to the shaft drives ground engaging propelling means on the other part of the vehicle, and a second mechanism along the other side of the vehicle and connected to the engine drives the ground engaging propelling means on the one part of the vehicle.

3,565,201

CRYOGENIC FUEL SYSTEM FOR LAND VEHICLE POWER PLANT

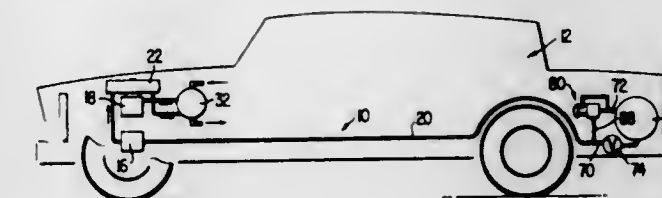
Robert E. Petsinger, Upper St. Clair, Pa., assignor to LNG Services, Pittsburgh, Pa.

Filed Feb. 7, 1969, Ser. No. 797,633

Int. Cl. B60k 15/02

U.S. Cl. 108-54

4 Claims



Apparatus and a method for delivering a cryogenic fuel to the power plant of a land vehicle.

3,565,202

CONTROL SYSTEM FOR ELECTRIC VEHICLE DRIVE

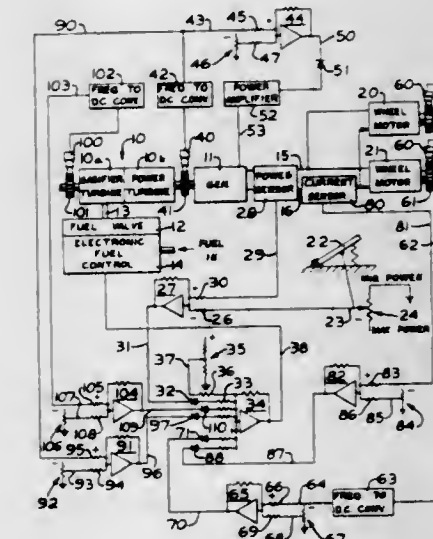
Duane E. Evans and Daniel C. Lenkaitis, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 20, 1968, Ser. No. 785,671

Int. Cl. B601 11/04

U.S. Cl. 180-65

10 Claims



To meet the special control problems arising in electric drive vehicle wherein a split shaft gas turbine engine drives a

generator through its power turbine, a control system employs a closed loop to control the horsepower output of the engine proportional to a demand signal input and an independent, second closed loop to control the generator field excitation as a function of generator speed error.

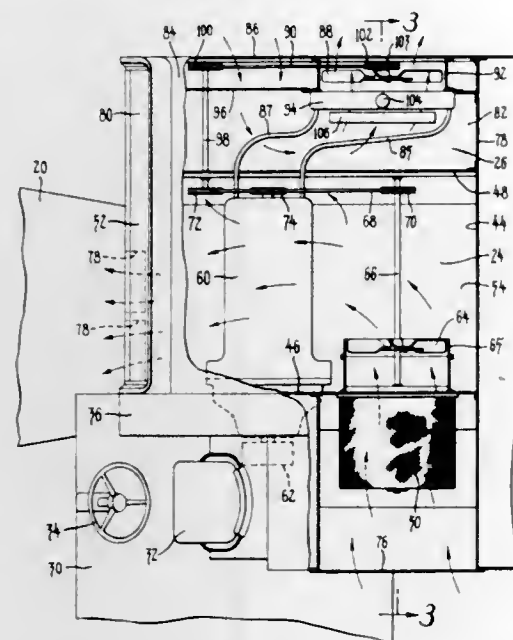
3,565,203

COMBINE ENGINE COOLING ARRANGEMENT

Robert Ashton, Islington, Ontario, and Wilbert D. Weber, Nashville, Ontario, Canada, assignors to Massey-Ferguson Industries Limited, Toronto, Ontario, Canada
Filed Dec. 4, 1968, Ser. No. 781,172
Int. Cl. B60k 11/04

U.S. Cl. 180-68

8 Claims



A grain-harvesting apparatus with an engine enclosed in an engine compartment and a radiator for cooling the engine in a radiator compartment. A fan pulls filtered air into the engine compartment creating a positive pressure in the compartment thereby keeping dust and chaff out and cooling the compartment. Another fan pulls air into the radiator compartment through screen sections of the compartment walls, through the radiator and exhausts the hot air away from the operator's platform.

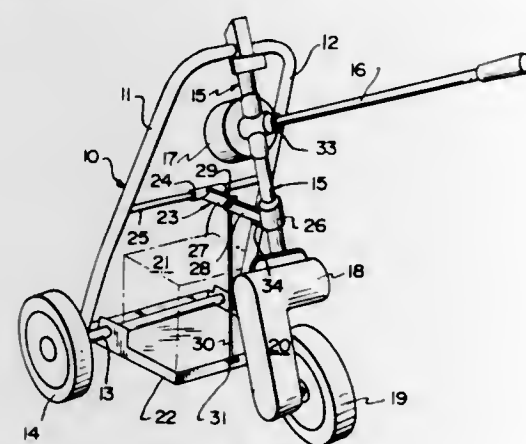
3,565,204

COLLAPSIBLE CART

Robert J. Mistarz, Northbrook, Ill., assignor to Chicago Stainless Equipment Corporation
Filed Jan. 17, 1969, Ser. No. 791,935
Int. Cl. B60l 11/18

U.S. Cl. 180-68.5

6 Claims



A wheeled battery-powered collapsible cart comprising a frame and a support means for the battery in which there is provided collapsible holding means such as a hinged bar forming a part of the frame for retaining the frame in erected position but collapsible in combination the cart in combination with means interconnecting the support means for the bat-

tery and the collapsible holding means so that the mass and particularly the weight of the battery holds the cart against collapsing.

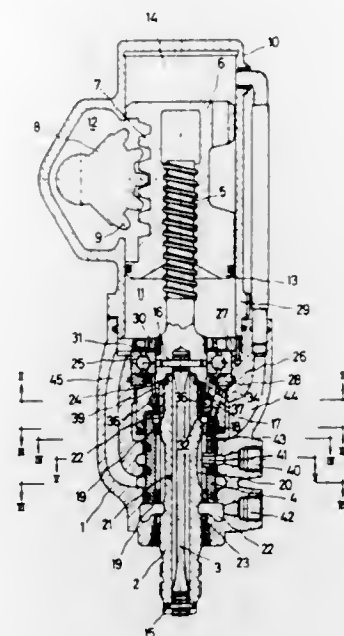
3,565,205

HYDRAULIC REACTION SERVO-STEERING DEVICE

Fermin Pages Planas, Camellas 27, Barcelona, Spain
Filed Nov. 19, 1968, Ser. No. 777,047
Int. Cl. B62d 5/08

U.S. Cl. 180-79.2

8 Claims



A hydraulic reaction device for servo-steering of an automobile utilizing hydraulic pressure to supplement the manual steering. A steering shaft and steering spindle cooperate with a distributing valve to provide the desired metering of hydraulic fluid to a double-sided piston. The necessary steering shaft reaction to give the operator the appropriate feel for controlling the vehicle is provided by a pair of opposite acting reaction pistons. The pistons are designed with a notch in their center and have a length much greater than the diameter of the pistons to prevent any possibility of jamming that is associated with smaller length pistons.

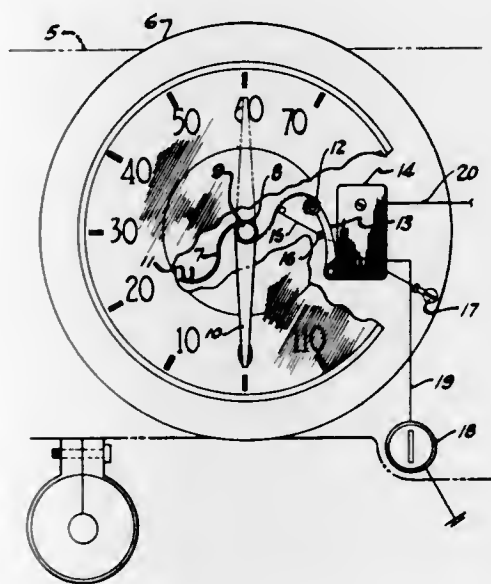
3,565,206

SAFETY DEVICE FOR UNAUTHORIZED USE OF AUTOMOTIVE VEHICLES AND THE LIKE

Basil J. Managhan, 769 Main St., Jackson Apt., Room 506, Worcester, Mass.
Filed July 9, 1969, Ser. No. 840,228
Int. Cl. B60r 25/04

U.S. Cl. 180-110

4 Claims



This invention consists of a hard S-shaped spring having one end suitably secured to the rotating shaft of the speed in-

dicating arm of a speedometer. The other or free end of the aforesaid S-shaped spring is provided with a U-shaped member adapted to engage a roller that is located on the outer end of the arm of an electric switch that is connected into the electric ignition system of an automotive vehicle. The engagement of the outer end of the S-shaped spring takes place when the vehicle has reached a predetermined speed and the shaft of the speedometer has rotated to a predetermined position. A spring-loaded pushbutton is used to activate a swing arm that will reset the safety device by pressing against the aforesaid S-shaped spring, as will hereinafter be described.

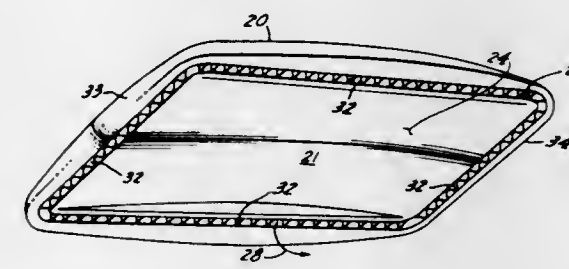
3,565,207

GROUND EFFECT MACHINE

Scott C. Rethorst, 1661 Lombardy Road, Pasadena, Calif.
Continuation-in-part of application Ser. No. 440,665, Mar. 1, 1965, abandoned, which is a continuation of Ser. No. 839,870, abandoned. This application Dec. 9, 1966, Ser. No. 600,657
Int. Cl. B60v 1/02, 1/14

U.S. Cl. 180-120

9 Claims



1. A vehicle adapted to translate in proximity to the earth's surface having in combination:

a. a faired streamlined body having a leading edge and a trailing edge, and being disposed about a cambered mean line extending from said leading edge to said trailing edge, the bottom of said body having a slope in said leading edge not exceeding 10° and forming a diffuser section to provide a pressure difference between upper and lower surface of said body during translation of said body thereby producing aerodynamic lift;

b. means along the sides of said body and defining two downwardly directed slots to produce downwardly directed jets; and

c. means for delivering air to said slot defining means both during hovering and translation, to discharge air through said slots thereby producing downwardly extending air jet curtains at the sides of said body and of said diffuser section permitting lift producing flow into said diffuser section from said leading edge and to be discharged from underneath said trailing edge.

3,565,208

RETRACTABLE SILENCING SHIELD FOR JET ENGINE NOZZLE

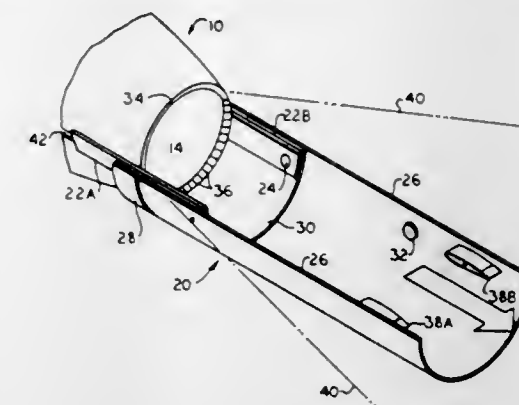
Victor Millman and Remo Tontini, San Diego, Calif., assignors to Rohr Corporation, Chula Vista, Calif.
Filed Feb. 2, 1970, Ser. No. 007,772
Int. Cl. F01n 1/00; B64d 33/06

U.S. Cl. 181-33

4 Claims

Support means carried by an aircraft jet engine housing has pivots at its aft end and is slidable axially of the housing between forward stowed position and aft deployed position, said pivots being located adjacent exit of engine nozzle in latter position. Elongate shield is mounted on the pivots to swing vertically about an axis transverse to longitudinal axis of housing, and is preferably trough-shaped to surround jet-stream discharged from the nozzle and reflect noise upward.

Aft end of shield is supported or forced up in flight by aerodynamic reacting vanes mounted on inner side of said aft



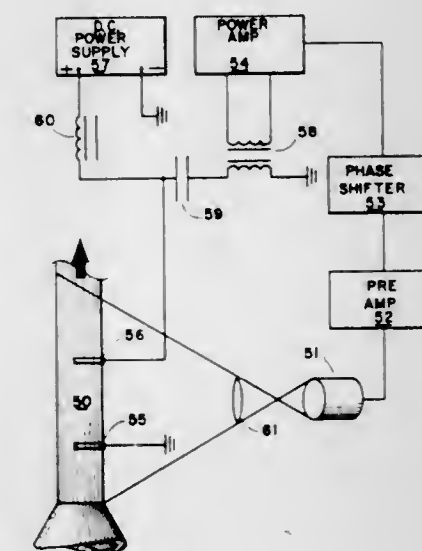
3,565,209

METHOD AND APPARATUS FOR GENERATING AN ACOUSTIC OUTPUT FROM AN IONIZED GAS STREAM

Wayne R. Babcock, Los Altos, and Alfredo G. Cattaneo, Los Altos Hills, Calif., assignors to United Aircraft Corporation, East Hartford, Conn.
Continuation-in-part of application Ser. No. 675,487, Oct. 16, 1967. This application Feb. 28, 1968, Ser. No. 709,141
Int. Cl. F01n 1/06

U.S. Cl. 181-35

5 Claims



An ionized gas stream is passed across spaced electrodes. A DC bias is maintained between the electrodes, and the intensity of the bias current is modulated in a predetermined manner. Acoustic waves corresponding in frequency to the frequency of the modulation of the bias current are generated by the gas stream. The invention is useful in a wide variety of applications ranging from entertainment to the testing and control of rocket motors and the suppression of noise produced by ionized gas streams such as those issuing from burners, furnaces and engines, for example.

3,565,210

GRATING STRUCTURE

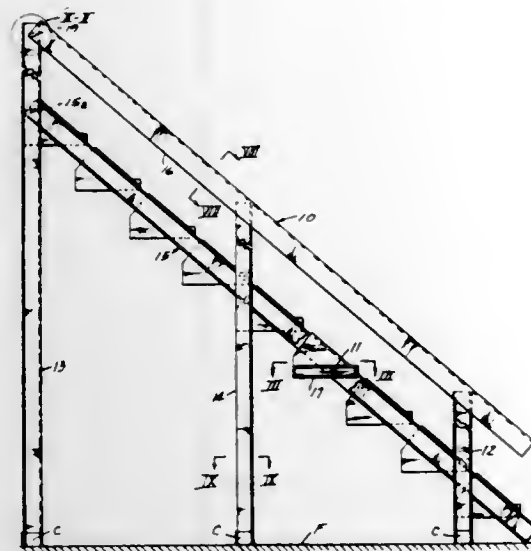
Robert J. Evans, Aurora, Ill., assignor to Aurora Equipment Company, Aurora, Ill.
Filed Dec. 3, 1968, Ser. No. 780,780
Int. Cl. E06c 7/18, 1/38

U.S. Cl. 182-106

16 Claims

A grating structure having a plurality of regularly staggered parallel disposed elliptically-shaped openings defining substantially uninterrupted ribs therebetween increasing the structural strength and load bearing capabilities of the grat-

ing structure. A plurality of perforated traction nubs are disposed in a single file along the ribs to define center lines along which cuts, bends, etc. are suitably made without producing jagged peripheral edges requiring end caps or the



like and preventing slippage on the grating structure. Individual dish-shaped clamp means nest within certain of the elliptically-shaped openings for joining the same with other structural members.

3,565,211

EXTENSION LADDER RUNG LOCK

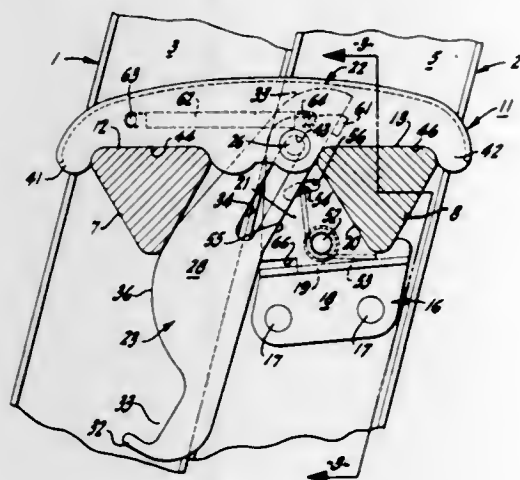
Edward H. Le Blanc, Redwood City, Calif., assignor to Larson Manufacturing, Inc., Santa Clara, Calif.

Filed Nov. 24, 1969, Ser. No. 879,035

Int. Cl. E06c 7/06

U.S. Cl. 182-211

15 Claims



A retractable rung lock for an extension ladder in which a pivotal lock body is normally positioned to engage simultaneously adjacent rungs on relatively movable ladder sections. To permit selective extension and retraction of the ladder sections a camming latch is operatively engaged with the lock body. The latch is longitudinally and pivotally movable on a mounting bracket to effect retraction of the lock body during extension or retraction of the ladder sections. The latch member and lock body are normally spring urged to their respective extended positions.

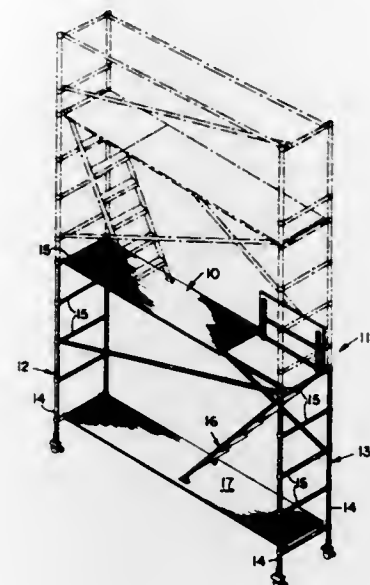
3,565,212
COMBINATION BEAM SUPPORT AND LATCH MEANS FOR WALK-THROUGH PLATFORM
Wallace J. S. Johnson, Berkeley, Calif., assignor to Up-Right, Inc., Berkeley, Calif.

Filed Nov. 14, 1969, Ser. No. 876,633

Int. Cl. E04g 5/08

U.S. Cl. 182-222

4 Claims



A platform, for scaffold use, having fixed and hinged flooring members mounted on a pair of beam supports, and in which the hinged flooring member carries a rigid latch member that wedges the beam supports apart as the hinged flooring member is closed and then allows the beam supports to spring back into gripped engagement with the latch member.

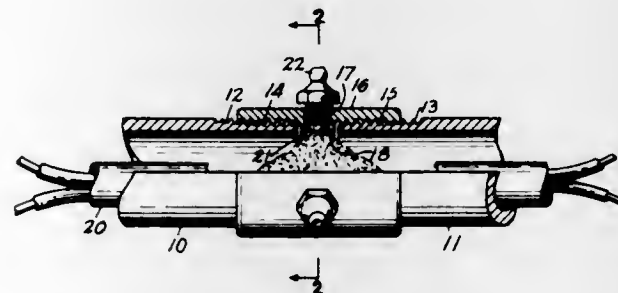
3,565,213
LUBRICATING MEANS AND METHOD FOR ELECTRICAL WIRING CONDUITS
Morton Heller, 1935 Shore Parkway, Brooklyn, N.Y.

Filed Dec. 26, 1968, Ser. No. 786,880

Int. Cl. F01m 11/04

U.S. Cl. 184-15

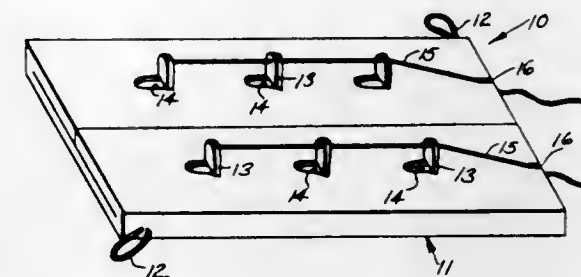
13 Claims



Electrical wire or cable in a conduit having coupled relatively short pipe sections is lubricated through a temporary lubricant supplying fitting while pulling the wiring into and through the conduit. The fitting is screwed into an opening in each coupling or pipe section, which opening communicates with the interior of the conduit. Special greaselike lubricant is injected into the conduit through the fittings to assure adequate lubrication of the entire length of the conduit even though numerous pull boxes, ordinarily provided, are eliminated. After the lubrication of the conduit, the fittings are replaced by plugs.

3,565,214
LIQUID ABSORBING MAT
James W. Koonce, Sr., 1511 Wayne St., Alexandria, La.
Filed June 18, 1968, Ser. No. 737,882
Int. Cl. F16n 31/00; B32b 3/10
U.S. Cl. 184-106

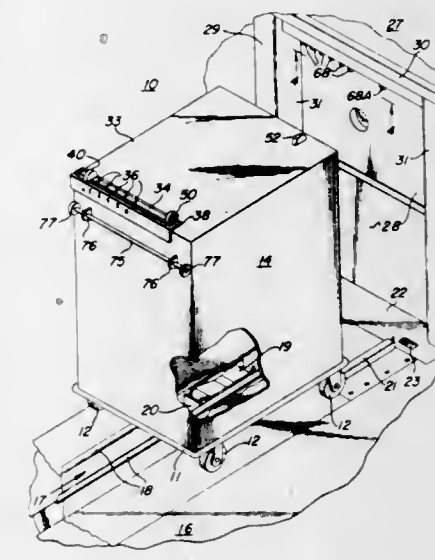
4 Claims



A dryport for garages and carports made of felt having foldable tongues and drawstrings serving as wicks which will enable liquid absorbed by the mat to effectively accelerate evaporation.

3,565,215
FLOOR SELECTOR SYSTEM
Nicholas R. Guilbert, Jr., Glenside, Pa., and Louis P. Metz, Philadelphia, Pa., assignors to Guilbert, Incorporated, Philadelphia, Pa., a corporation of Pennsylvania
Filed Apr. 1, 1969, Ser. No. 811,961
Int. Cl. B66b 9/00
U.S. Cl. 187-1

8 Claims



A selector system for use with dumbwaiter or elevator lift equipment whereby a linearly movable adjustable cam member and a fixed cam member are provided on a portable device such as a cart for engagement with switch members on an elevator lift shaftway frame to provide signals to the elevator lift car equipment for controlling the pick up and delivery of the cart to a specific floor as determined by the position of the movable cam member, or to provide an additional call signal for other purposes as desired.

3,565,216
CABLE-PROPELLED VEHICLE-INCLINED TRACK SYSTEM
Theodore E. Gohlke, 13301 Kilbourne, Detroit, Mich.

Filed Oct. 18, 1968, Ser. No. 768,700

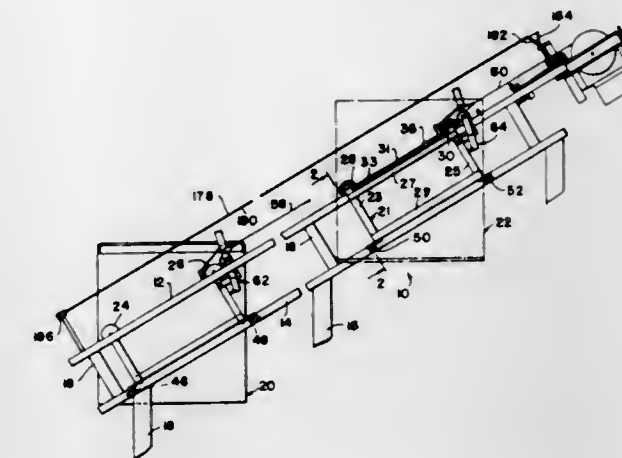
Int. Cl. B66b 7/02, 5/12

U.S. Cl. 187-12

14 Claims

The system comprises an inclined track mounted on a hill or other inclined surface. A carriage is movable on the track. Power means are provided for moving the carriage up and down the incline. Brake means are provided on the carriage to automatically lock the carriage to the track in the event of failure of the power means. Control switch means are provided

vided to automatically stop the carriage at the end of its run. The control switch means may be selectively operated by a passenger in the carriage. Safety switch means are provided to stop the carriage at the end of the incline in the event of a

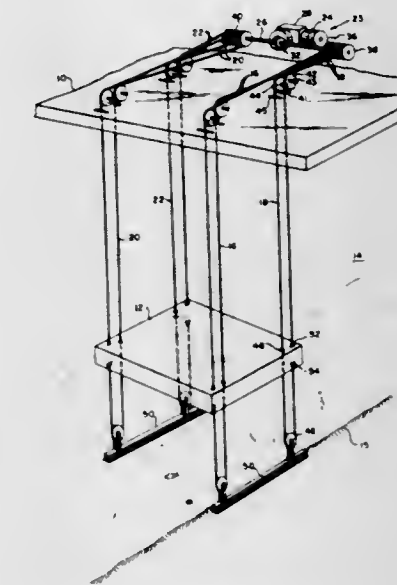


failure of the control switch means. The carriage is mounted on the track so as to be always in an upright position whereby the passenger does not have to assume an inclined posture.

3,565,217
OFFSHORE ELEVATOR IMPROVEMENTS
Donald L. St. Louis, Anchorage, Alaska, assignor to Alaska Elevator Corporation, Anchorage, Alaska, a corporation of Alaska
Filed Oct. 10, 1968, Ser. No. 766,473
Int. Cl. B66b 11/04

U.S. Cl. 187-27

2 Claims



An offshore elevator structure including an elevator lift guidingly raised and lowered by a drive assembly including a system of cables and capable of floating on the water while maintaining the cables in a substantially taut condition.

3,565,218
HYDRODYNAMIC DECELERATOR
Kurt Franke, Bergen-Eckheim, Germany, assignor to Alfred Feves GmbH, Frankfurt Main, Germany, a corporation of Germany
Filed Dec. 18, 1968, Ser. No. 784,866

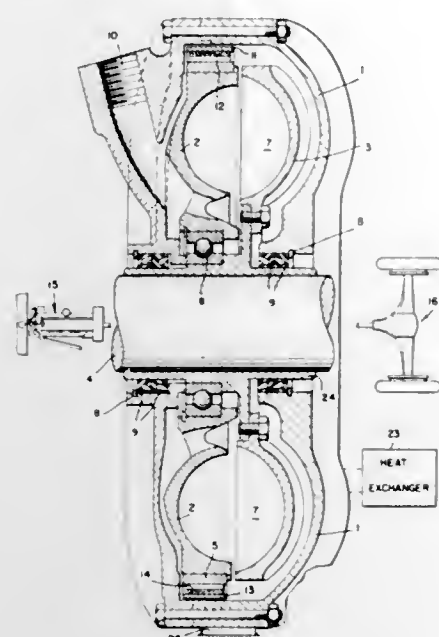
Claims priority, application Germany, Jan. 12, 1968, T35677
Int. Cl. F16d 57/00

U.S. Cl. 188-90

1 Claim

A hydrodynamic or hydrokinetic decelerator for a rotatable shaft has a rotor mounted on the shaft and a stator facing

it and forming a fluid-circulating pump with it. This axially immobile stator is selectively decoupled from and coupled with the housing of the decelerator to be made stationary in



the latter case, to allow braking action to take place, or rotates freely with the rotor when no braking is desired to minimize frictional power losses in the decelerator.

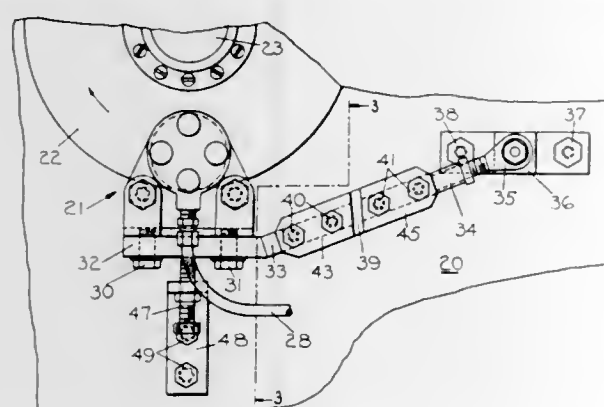
3,565,219

FLEXIBLE MOUNT FOR A LOOM LETOFF BRAKE
John H. Nydam, Whitinsville, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa., a corporation of Delaware

Filed Jan. 2, 1969, Ser. No. 789,109
Int. Cl. F16d 65/02, 55/10

U.S. Cl. 188—206

6 Claims



A mounting device for supporting a caliper-type brake assembly in operative position with a rotating disc on a loom which includes relative to the plane of the disc provisions for radially adjusting the assembly and in addition flexibility to permit lateral movement of the latter in a plane parallel to the axis of the disc as well as pivotable movement thereof about said axis.

3,565,220

A TRANSMISSION NEUTRALIZER OPERATED BY SERVICE AND PARKING BRAKES

Edward J. Lammers; George E. Schubert, and Thomas F. Teter, Aurora, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

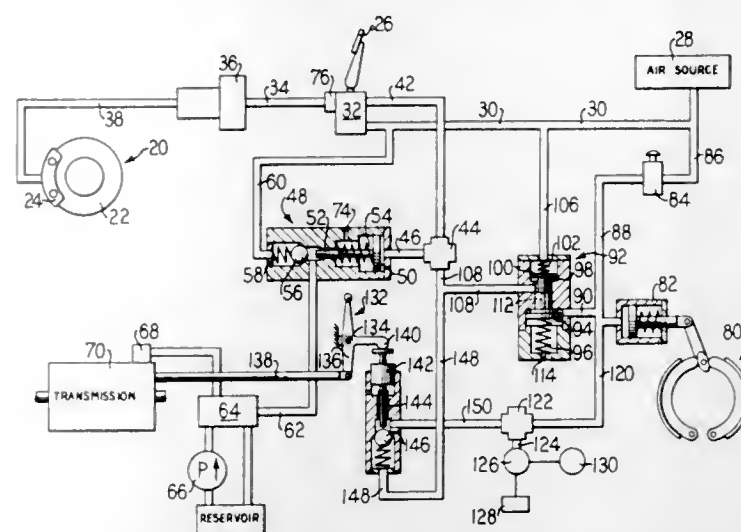
Filed Sept. 2, 1969, Ser. No. 854,713
Int. Cl. F16h 57/10

U.S. Cl. 192—4

4 Claims

A control system for a vehicle having air-actuated service brakes, air-actuated parking brakes and a hydraulically actuated power transmission is provided with a common interconnection between both sets of brakes and the transmission

so that the transmission may be quickly neutralized when either set of brakes is applied. The system also includes a



warning means associated with the parking brakes and means for allowing the operator of the vehicle to override the warning means.

3,565,221

REVERSIBLE SWING CLUTCH

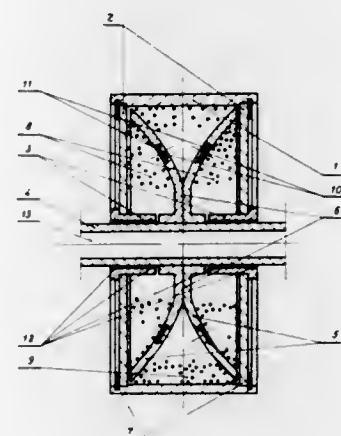
Esref I. Halilovic, Dimitrija Tucovica 141, Belgrade, Yugoslavia

Filed Apr. 14, 1969, Ser. No. 815,890
Claims priority, application Yugoslavia, Apr. 15, 1968, 862/68

Int. Cl. F16d 37/00

U.S. Cl. 192—58

3 Claims



Reversible swing clutch for transmission of limited turning moment from the driving to the driven side of the clutch, and vice versa which enables unloading of the driving side at the start and gradually loading at the swing of the driven parts and which prevents overloading the driving sides at the static and dynamic turning moments. A cylindrical casing having an internal cylindrical cavity has covers closing the cavity. Fixed bearings for the covers are provided at the centers thereof. A freely rotating shaft is located within the bearings and plate discs are fixed to the shaft having their bottoms mutually pressing in clutch symmetry. The free surfaces of the plate discs are turned towards the side covers. Means prevent axial shifting of the covers. Small-grained material is located between the discs and covers.

3,565,222

CLUTCH

Kenji Kimoto, 3-28, 2-chome, Hatabucho, Shimonoseki Yamaguchi Prefecture, Japan

Filed Oct. 23, 1968, Ser. No. 769,986
Claims priority, application Japan, Nov. 2, 1967, July 13, 1968, July 13, 1968, 42/70788; 43/49198; 43/49199

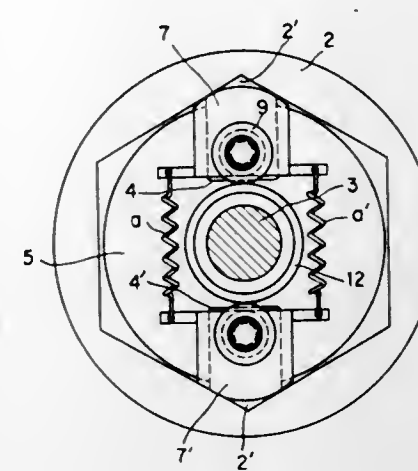
Int. Cl. F16d 11/06, 13/14

U.S. Cl. 192—71

9 Claims

A clutch comprising a casing having a plurality of depressions in its inner surface, a shaft rotatable with respect to the

casing, a plurality of members carried by the shaft for radial movement between a position engaging said depressions and medium usually molded about the weights and which medium is sufficiently resilient so that the weights will radially ex-



a position clear of said depressions, and means for moving said members between said positions.

3,565,223

RESILIENT LINING FOR MAGNETIC CLUTCH

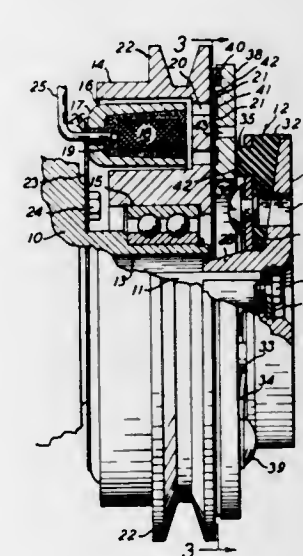
William C. Pierce, Dallas, Tex., assignor to Pitts Industries, Inc., Dallas, Tex.

Filed June 9, 1969, Ser. No. 831,429

Int. Cl. F16d 27/07

U.S. Cl. 192—84

3 Claims



A magnetic clutch including a driven rotor having a drive pulley therearound and an armature assembly including a spring-mounted armature disc positioned to frictionally engage a face of the rotor. The primary feature of the invention is a resilient lining in and slightly projecting from the face of the armature disc and located around the pole faces. In operation the rotor face and the armature face are in metal-to-metal contact but the resilient lining prevents or reduces noise on impact. In a preferred form of the invention the armature assembly includes a circular resilient cushion on which a spring supporting plate and the armature disc are mounted.

3,565,224

CENTRIFUGAL CLUTCH

William Argereu, Hickory Drive, Pole 4, North Scituate, R.I.

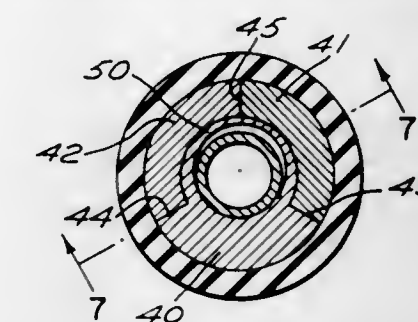
Filed Oct. 25, 1968, Ser. No. 770,661

Int. Cl. F16d 43/18

U.S. Cl. 192—105

6 Claims

A centrifugal clutch having weights embedded in a resilient



pand the resilient medium under the influence of centrifugal force into engagement with the surface to be driven.

3,565,225

FRUIT DECELERATING CHUTE

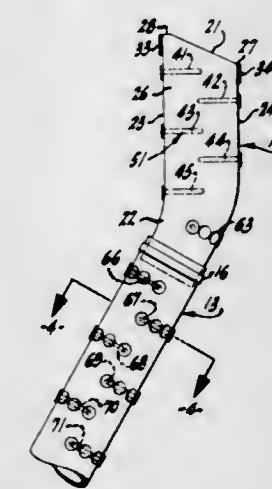
George W. Fay, 208 Ricardo Road, Mill Valley, Calif.

Filed Nov. 15, 1968, Ser. No. 776,173

Int. Cl. B65g 11/10, 11/20

U.S. Cl. 193—7

3 Claims



A moderately flexible tube several feet in length includes inner walls of resilient material. Rubber fingers are arranged radially within the tube in alternating, staggered tiers, each tier being approximately semicircular in plan. Fruit introduced into a funnel member at the upper end of the tube, the funnel also including fingers, descends through the tube in a cushioned, cascading, back-and-forth path, emerging from the bottom of the tube undamaged.

3,565,226

SPIRAL CHUTE

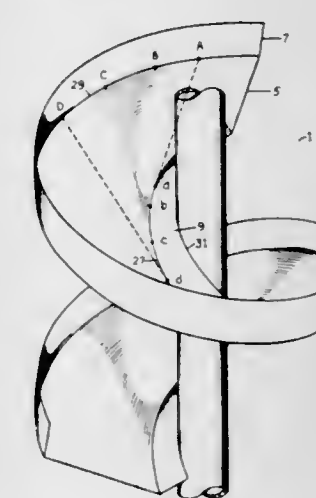
Donald M. Winchester, 11709 Sahara Way, Dallas, Tex.

Original application Jan. 14, 1966, Ser. No. 520,615, now abandoned. Divided and this application Apr. 15, 1968, Ser. No. 810,390

Int. Cl. B65g 11/06

U.S. Cl. 193—12

2 Claims

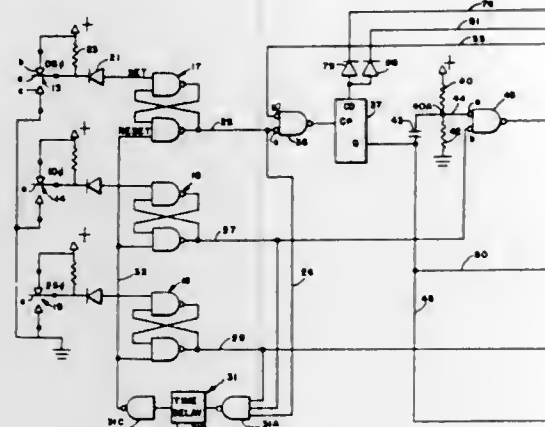


A chute having a central support, an inner wall attached to said central support in helical relation therewith a slide at-

taches along the outer edge of said inner wall, and an outer wall attached along the outer edge of the slide. The angles formed between the inner wall and the slide and the outer wall are at least 90°.

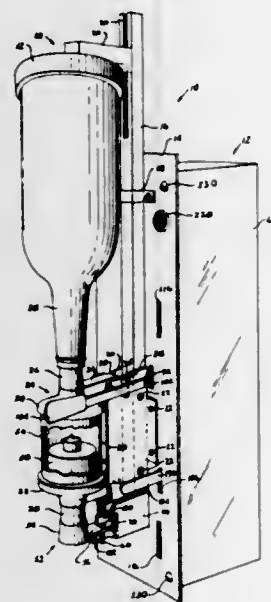
to permit operation of the dispensing device can be adjustably preselected.

3,565,227
COIN COUNTING AND REGISTERING CIRCUIT
Nicholas P. Flevaris, Chicago, Ill., assignor to Polytechnic Data Corporation
Filed Mar. 26, 1969, Ser. No. 810,558
Int. Cl. G07f 5/10
U.S. Cl. 194—9
10 Claims



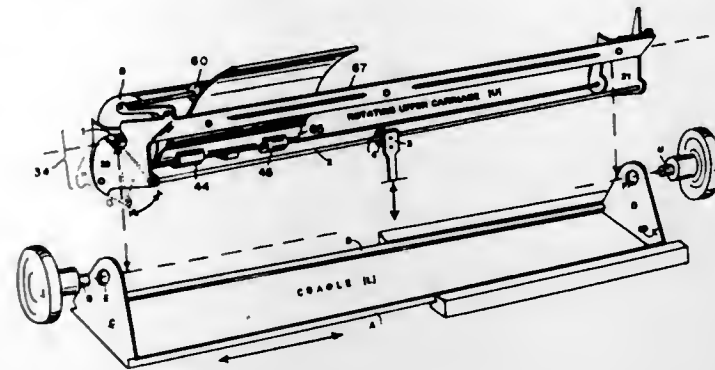
A coin counting and registering circuit is disclosed which accumulates inputs representing the insertion or introduction of coins of different denominations to indicate that a selected total has been accumulated.

3,565,228
COIN-OPERATED DISPENSING DEVICE
James F. Young, 2225 Germantown St., Dayton, Ohio
Filed May 10, 1968, Ser. No. 728,287
Int. Cl. G07f 13/00
U.S. Cl. 194—13
7 Claims



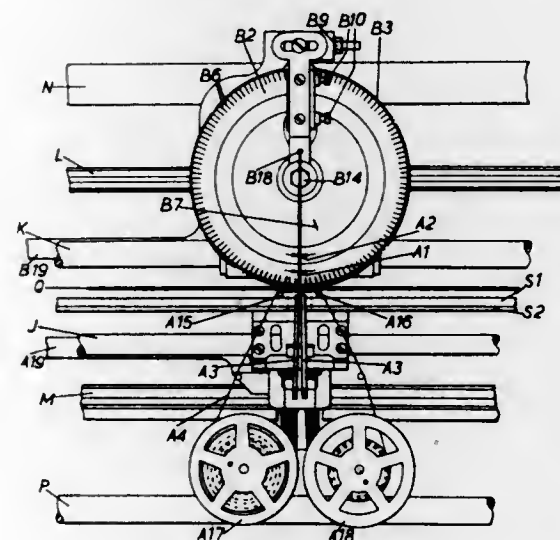
Measured quantities of the liquid content of a bottle are dispensed by manipulation of a dispensing device which is controlled by a coin-operated mechanism. The bottle and the dispensing valve arrangement therefor are removably mounted on the front face of a support member. All of the coin-controlled mechanism is mounted on the opposite face of the support member with the levers controlling the operation of the dispensing valve mechanism projecting through slots in the support member. The number of coins required

3,565,229
LINE SPACING MEANS FOR MUSIC TYPEWRITERS
Armando Dal Molin, Oyster Bay, N.Y., assignor to Music Reprographics, Ltd., Oyster Bay, N.Y.
Filed June 17, 1968, Ser. No. 737,716
Int. Cl. B41j 3/34
U.S. Cl. 197—8
9 Claims



A typewriter for printing music, having a finger-operated keyboard for selecting at least 21 pitch lines on the paper. The pitch lines are selected by rotating the paper holding carriage around the paper cylinder's (platen) axis, while keeping the platen and the paper carried by it stationary in relation to said paper-holding carriage. Each pitch key has an adjustable stop and locking arm adapted to accurately position the rotatable carriage. A specially designed font of printing characters for said typewriter comprises all the 26 letters of the alphabet, 8 numerals, 4 punctuation marks and 46 characters of music notation to enable said typewriter to be used separately or simultaneously for text as well as music typing.

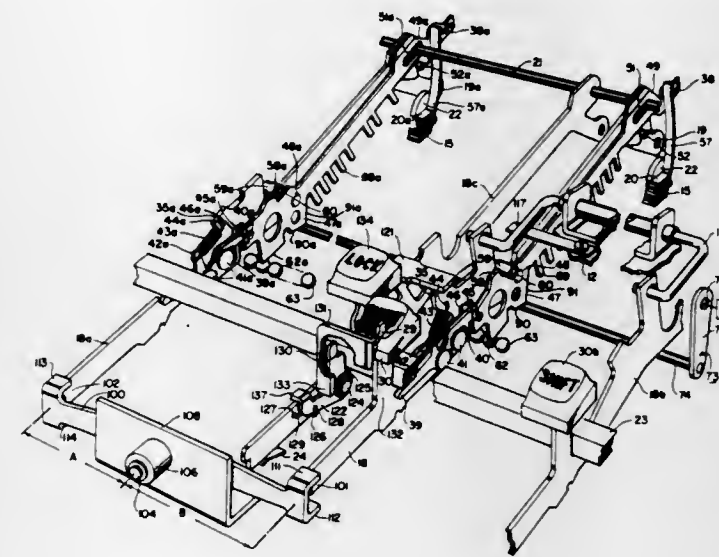
3,565,230
PRINTING MECHANISM WITH MOVABLE TYPE WHEEL AND HAMMER CARRIAGES
Harold George Webberley, Warrington, Surrey, Richard Zbigniew Marlow, London, England, and Karel Jan Staller, Rutherford, N.J., assignors to Creed & Company Limited, Hollingbury, Brighton, Sussex, England
Filed Apr. 19, 1968, Ser. No. 722,757
Claims priority, application Great Britain, May 5, 1967, 20921/67
Int. Cl. B41j 1/50
U.S. Cl. 197—49
4 Claims



A printing element in the form of a continuously rotating type wheel and an associated operating element in the form of a printing hammer are disposed on opposite sides of a

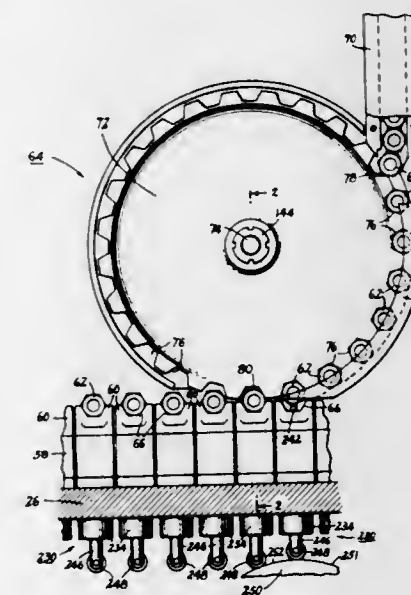
record medium, means are provided for causing said hammer to cooperate with said type wheel to print a selected character on said medium, and said elements move synchronously in a direction parallel to the printing of successive characters.

3,565,231
KEY SHIFT MECHANISM
Hugh St. Lawrence Dannatt, Rochester, N.Y., assignor to The Singer Company
Filed Nov. 1, 1967, Ser. No. 679,754
Int. Cl. B41j 25/24
U.S. Cl. 197—71
6 Claims



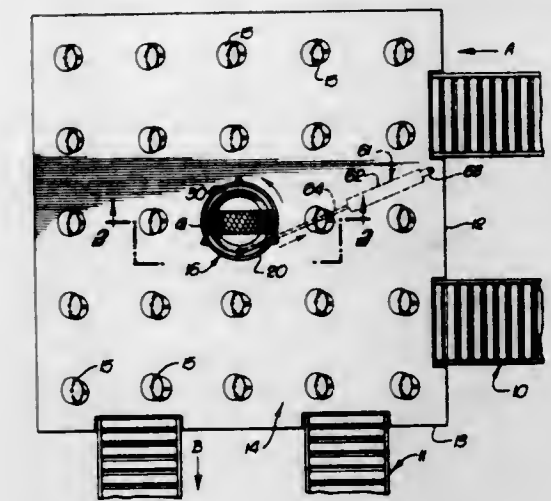
A key shift mechanism for a typewriter keyboard wherein a rocker arm causes two key levers to actuate shift and unshift functions in opposite phase upon actuation of only one of the key levers.

3,565,232
ARTICLE FEEDING MECHANISM
James W. Cadwallader, Lansdale, Pa., assignor to Standard Pressed Steel Co., Jenkintown, Pa.
Filed July 22, 1968, Ser. No. 746,636
Int. Cl. B65g 37/00, 47/04
U.S. Cl. 198—25
5 Claims



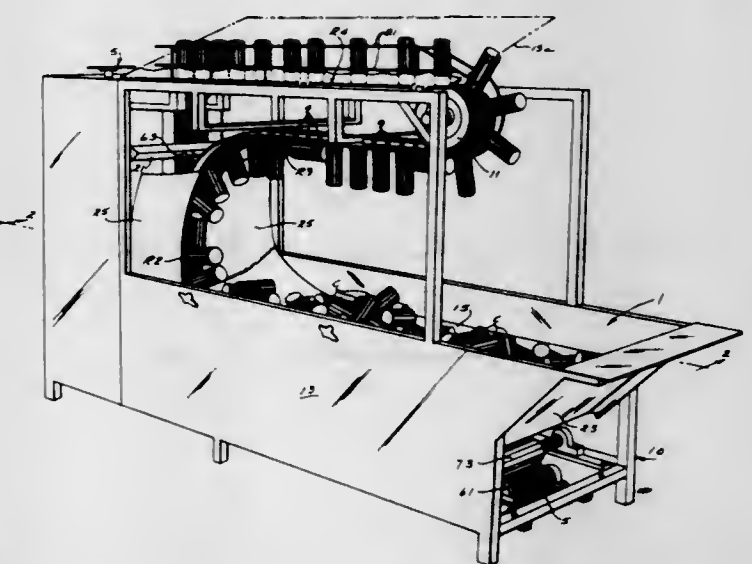
A rotatably mounted transfer wheel having article holding indentations around its perimeter is positioned to pick up an article, such as a nut, from a stack and, as the wheel rotates, uninterruptedly transport the nuts to a continuously moving nut receiving member where the nuts are then deposited serially.

3,565,233
POWER DRIVEN DIRECTIONALLY CONTROLLABLE TRANSFER WHEEL AND SYSTEM
Ronald C. Hlaman, Lynwood, Calif., assignor to Western Gear Corporation, Lynwood, Calif.
Filed Sept. 18, 1968, Ser. No. 760,622
Int. Cl. B65g 47/22
U.S. Cl. 198—31
7 Claims



Power driven wheel with traction surface suitably mounted in conjunction with a transfer platform for movement of baggage or freight containers, including boxes and pallets, the wheel disposed on an axis generally parallel to the surface of the platform and projecting into a horizontal plane sufficiently high above the platform to frictionally engage the bottom of the container, for propulsion of same, the mounting providing for directional adjustment of the wheel on a vertical axis to change the direction of propulsion of the container. Preferably the mounting embodies means to lower the wheel to disengage it from a container when a power failure occurs and propulsion is accomplished manually, or when a directional change is being made. The term "wheel" is used in a generic sense, and includes any suitable structure rotatable on an axis, and embodying peripheral means for frictionally engaging the object to be moved.

3,565,234
APPARATUS FOR UNSCRAMBLING CANS WITH FERROMAGNETIC BOTTOMS
Troy W. Birdsong, St. Louis, Mo., assignor to Elbie B. Birdsong, fractional part interest to each and Ronald W. Birdsong, St. Louis County, Mo., fractional part interest to each
Filed Oct. 14, 1968, Ser. No. 767,290
Int. Cl. B23q 7/04; B65g 17/46, 47/24
U.S. Cl. 198—33
10 Claims



A can unscrambler for unscrambling and feeding cans which have ferromagnetic bottoms and nonmagnetic sides to

a delivery station in erect condition. The unscrambler comprises a bin for holding a jumbled supply of cans and a driven endless belt conveyor with reaches running along the bottom of the bin, curving upward out of the bin, extending back over the bin to a magnetic roll, extending overhead from the latter to the delivery station, and returning to the bin. Magnets are provided adjacent the belt reaches on the side of the belt opposite from the cans for magnetically attracting the can bottoms against the belt so that they are delivered by the belt to the delivery station in erect condition.

3,565,235

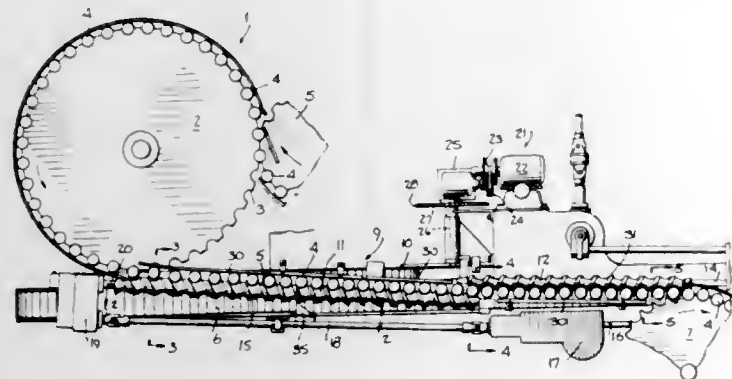
CONVEYOR TRANSFER APPARATUS

Warren M. Brown, Lancaster, and Cecil P. Roberts, Carroll, Ohio, assignors to Anchor Hocking Corporation, Lancaster, Ohio

Filed Sept. 27, 1968, Ser. No. 763,200
Int. Cl. B65g 47/26

U.S. Cl. 198—34

5 Claims



An auxiliary conveyor device for transferring articles such as filled containers from a first machine or conveyor to a second machine or conveyor where the first and second machines or conveyors are operating at differing speeds. The auxiliary transfer means includes a third or auxiliary supporting conveyor positioned between the first and second conveyors and a helicoid with jar engaging flights. The helicoid is angularly aligned above the three conveyors to engage the moving articles and to control their speed and spacing as the articles are moved from the first conveyor to the second over the intermediate conveyor under control of the helicoid.

3,565,236

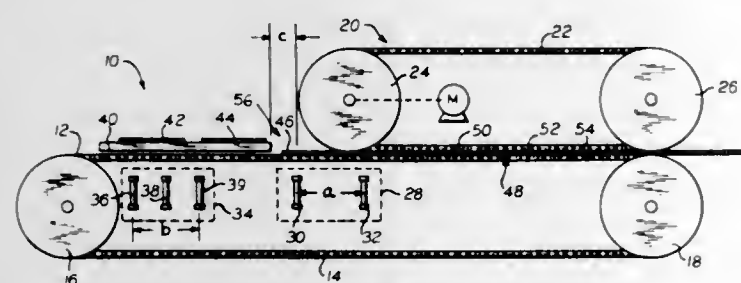
FEEDER FOR VENEER CROWDER

Ronald W. Southworth, Redding, Calif., and Elmer H. Jacobson, Grant's Pass, Oreg., assignors to U.S. Plywood-Champion Papers Inc.

Filed Oct. 21, 1968, Ser. No. 769,206
Int. Cl. B65g 47/26

U.S. Cl. 198—34

14 Claims



An apparatus and method for feeding and for joining wood sections to form a wide sheet material is provided. The feeder apparatus, which is used in conjunction with a veneer crowder device, includes means to detect the wood sections both at the beginning of the conveyor which carries them to the crowder and at the crowder itself. If the wood sections are too close together when entering the crowder or have a

width dimension greater than a predetermined value, means are actuated by one detector to stop the advance of the other wood sections on the conveyor until the entrance to the crowder is cleared. When a larger gap than desired is present between wood sections placed on the conveyor, such is detected and the conveyor is stopped until the gap is overcome. In this manner, minimum and maximum spacing between wood sections is regulated.

3,565,237

FEEDING ROD-SHAPED ARTICLES INTO BINS

Mauritz L. Strydom, Stellenbosch, Republic of South Africa, assignor to Tobacco Research and Development Institute Limited, Zug, Switzerland

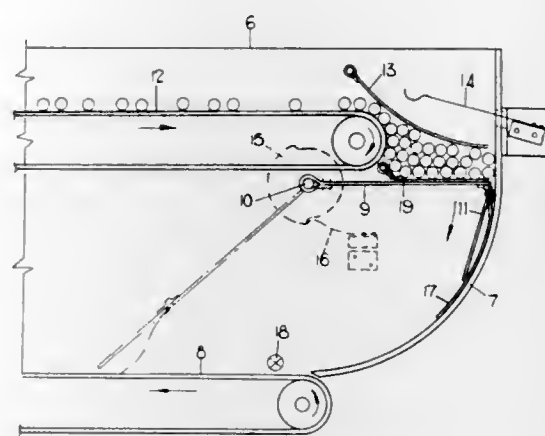
Filed Apr. 1, 1969, Ser. No. 812,063

Claims priority, application Republic of South Africa, Apr. 9, 1968, 68/2256

Int. Cl. B65g 47/00, 47/18

U.S. Cl. 198—44

8 Claims



The invention deals with means to prime a bin with rod-shaped articles such as filter rods and cigarettes. The articles are fed at one end of the bin between an arm and an overlying curtain which maintains the orientation of the articles. The articles between these two elements press on a switch which causes the arm to swing through the bin in a step-by-step operation. Eventually when the volume of articles is such that they can form a heap on their own, the arm becomes inoperative and an endless conveyor in the base of the bin is caused to move in response to the switch.

3,565,238

VARIABLE-VELOCITY CONVEYOR

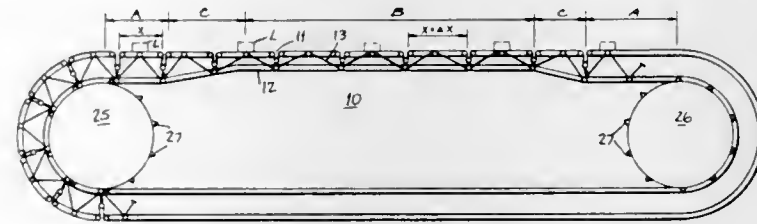
Basil J. Candela, 454 Westchester Ave., Yonkers, N.Y.

Filed May 6, 1968, Ser. No. 726,878

Int. Cl. B65b 9/12; B65g 21/12

U.S. Cl. 198—110

23 Claims



The conveyor is of a continuous type and has tracks which cause the conveying mechanism which has the capability of varying its horizontal length to accelerate or decelerate in passing through the transition zones. The belt is payed out or withdrawn during movement in the transition zones to compensate for the difference in speed between adjacent repeating sections so that a continuous floor is maintained. The conveyor can be laid out in only a horizontal plane or can also be laid out with escalator sections as well as horizontal sections to change elevation as function demands.

3,565,239

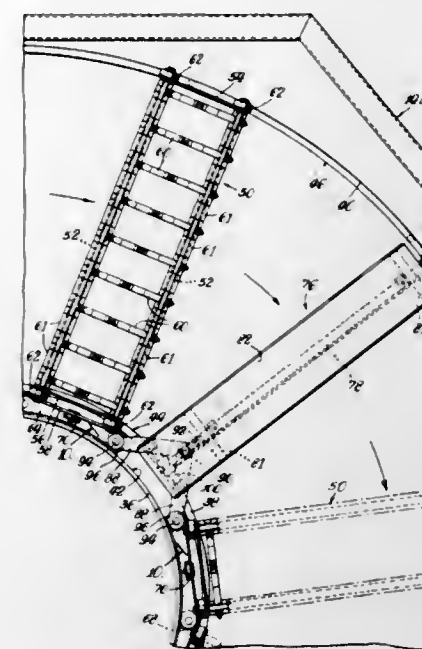
DISHWASHING MACHINES

Howard O. Holloway, River Grove, Anthony Trotto, Bellwood, John G. Walker, River Grove, and Casimer Janiszewski, Chicago, Ill., assignors to G. S. Blakeslee & Co., Cicero, Ill.

Filed May 15, 1968, Ser. No. 729,316

Int. Cl. B65g 15/02, 17/06, 17/42

U.S. Cl. 198—131



A dishwashing machine with continuous horizontal conveyor means including a series of interconnected sections which present upper supporting surfaces in a single unobstructed horizontal plane whereby a rack or the like may be positioned anywhere along the conveyor, and which have depressed supporting portions for receiving directly therein articles to be washed.

3,565,240

CONVEYOR CARRIER APPARATUS

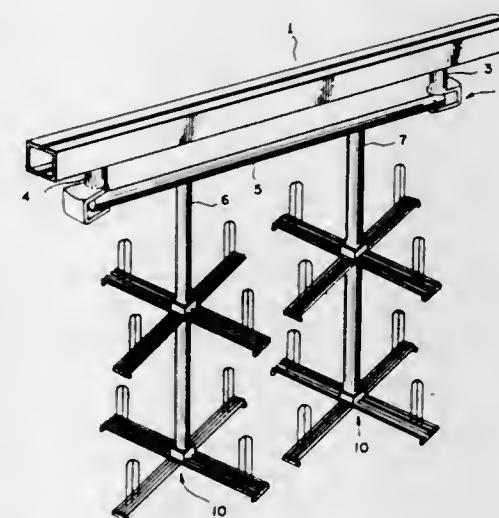
Richard E. Nearman, Mount Airy, Md., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Oct. 21, 1968, Ser. No. 769,201

Int. Cl. B61b 3/00; B65g 17/20; F04g 17/18

U.S. Cl. 198—177

15 Claims



Carrier apparatus having vertical shafts with horizontal pins extending through the shafts and having carrier devices with central collars for surrounding portions of the shaft and horizontal extensions extending outwardly from the collar with vertical extensions near remote ends for receiving spools are described herein. Collars of carrier devices are rectangular and have stops welded within two diagonally opposite angles so that the stops rest against the pin means when they

are aligned and so that the device may be moved over the shaft past the pin means when the device is lifted and turned 90° to align the other diagonal angles of the collar with pin means.

3,565,241

WALKING BEAM TRANSFER APPARATUS

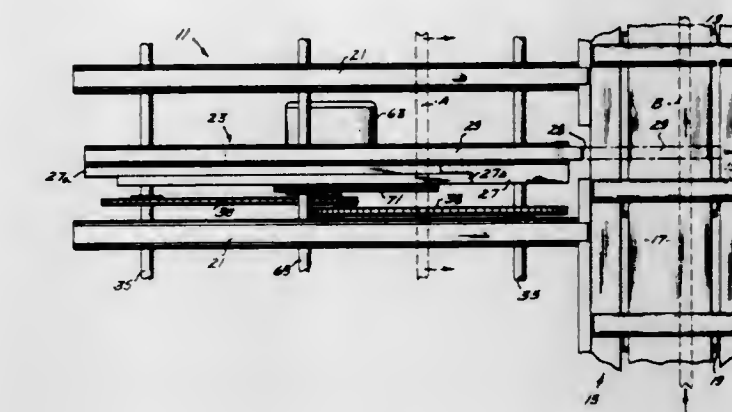
Russell L. Race, Greenville, and Donald E. Brown, Belding, Mich., assignors to Clark Automation, Incorporated, Belding, Mich.

Filed Oct. 7, 1968, Ser. No. 765,392

Int. Cl. B65g 25/04

U.S. Cl. 198—219

9 Claims



A transfer apparatus of the kind using walking beam structures in which traveling articles are moved intermittently in stepwise fashion from a first station toward a second station. The stepping or walking beam is devised in two sections: a first principal liftover element of the beam, and a second leading portion thereof which is extensible from the first main portion. The entire combination of both elements is herein styled a "composite" walking beam. During the walking or liftover operation, transferring articles walk toward the extensible member of the walking beam upon which they are collected and are ultimately bunched together if a sufficiently large number of such articles are so collected. The extension member of the beam structure is adapted to be selectively rapidly advanced or extended from the leading end of the beam apparatus in a relatively rapid fashion so that the extensible beam executes a rapid forward traverse. For this reason, the extensible portion is alternately referred to as a traverse beam or traverse element, and it is linked to control means which automatically initiate the forward traverse at a predetermined point in the walking cycle of the composite liftover beam. The traverse is initiated at such time as a desired number of articles have been collected for quick traverse, en masse, to the object station. The central feature of the structure is the absence of continuous interdigitation of the composite walking beam members with the leaves or fingers of an object table or station. Rather, in the instant disclosure, the composite beam step transfers articles from a source station to a point somewhat short of the object station and then, at predetermined or selected time intervals, groups of articles are darted forwards on the above-mentioned rapid traverse elements, for transfer of the entire article group onto the object station. Then the rapid traverse element is equally rapidly retracted and the normal walkover motion of the composite beam resumes until a collection of objects is again accumulated for a group transfer.

3,565,242

GARMENT-SHIPPING CARTON

Ernest Konkoli, 4800 E. 131 St., Cleveland, Ohio 44106

Filed Oct. 29, 1968, Ser. No. 771,556

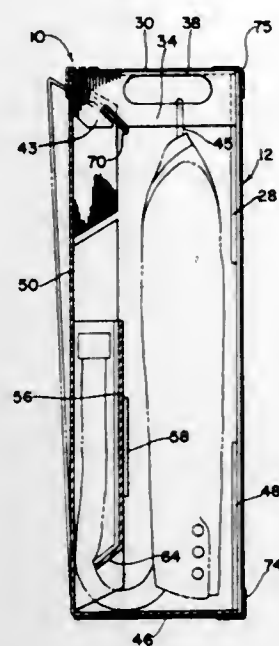
Int. Cl. B65d 85/18

U.S. Cl. 206—7

5 Claims

A garment-shipping carton having a rear wall, sides, a top and bottom. A flap which depends from inside of the top has an aperture therein for supporting hangers. A front wall is pivotably secured along its bottom edge to the carton and has a pair of securing flaps at its side. The securing flaps interlock to hold the lower sections of suspended garments which

are longer than the carton between themselves and the inside of the front wall. A hook under the top interlocks with an



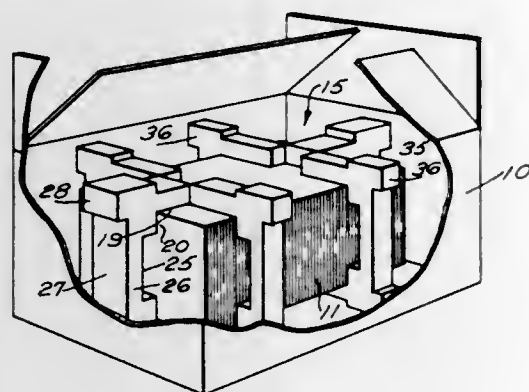
aperture on a snap lock flap pivotably mounted along the top edge of the front wall.

3,565,243 CUSHIONING MEMBER FOR PACKING AN ARTICLE IN A CONTAINER

Harry Freeman, Slatersville, R.I., assignor to Tainer Tech Corp.

Filed Jan. 14, 1969, Ser. No. 790,908
Int. Cl. B29d 27/00; B65d 5/50, 85/30
U.S. Cl. 206-46

7 Claims



A cushion for an article in a container comprising a plurality of U-shaped or apertured sections which are hinged together by an integral hinge, the cushion consisting essentially of foamed plastic such as polyethylene with a hinged portion of the foamed plastic compacted into a linear form.

3,565,244 FOLDABLE CONTAINER

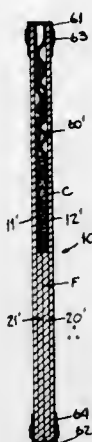
Harold Donavon Wakefield, Houston, Tex., assignor to The Coca-Cola Company, New York, N.Y.
Original application, Ser. No. 730,757, now Patent No. 3,517,875, dated June 30, 1970. Divided and this application Oct. 16, 1969, Ser. No. 871,075
Int. Cl. B65d 85/70

U.S. Cl. 206-46

3 Claims

A foldable and unfoldable container for dispensing liquid, powdered, solid or semisolid products to a user capable of flat storage in folded state with consequent space saving prior to use and including generally parallel side and end panels all joined together end to end with transverse scoring between adjacent panels to facilitate ready manipulative movement of the panels into an unfolded open container forming condition

for reception of dispensed products. The respective panels along their bottom edges are also provided with depending flaps likewise with scoring along said bottom edges, the flaps being interleaved to be normally between the folded together panels and unfold automatically to a transverse position when the panels are manipulated to open container forming position to form a closed bottom for the opened container and being so shaped as to interlock at such time to retain the container in open condition. A collapsible leakproof liner



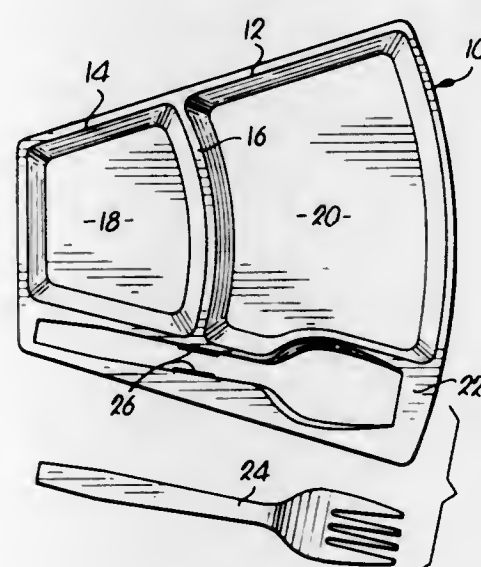
also may be included which in the folded condition of the panels will be in collapsed state that will expand upon opening of the container to permit leakproof retention of liquid or semiliquid contents introduced into the opened container through its open top and also permit condition and retention of additives for mixing with and conditioning the contents of the container for use if such are in the form of powdered or liquid concentrates to condition the latter directly for use without requiring transfer of such concentrates to a second container.

3,565,245 COMBINATION FOOD CONTAINER AND UTENSIL

William H. Asher, 2222 W. 73rd St., Prairie Village, Kans.
Filed Nov. 21, 1968, Ser. No. 777,693
Int. Cl. B65d

U.S. Cl. 206-47

3 Claims



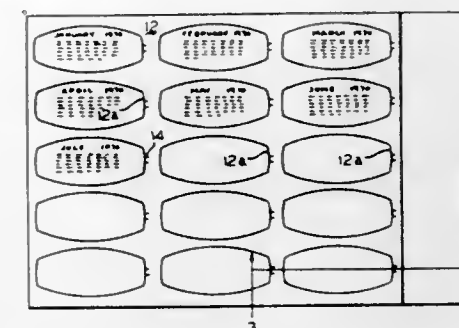
An article constructed of sheet material shaped to present a food-containing portion and including a panel formed to include an eating utensil. The utensil is outlined by slits in the material and tabs of material integral with the utensil and the sheet material releasably hold the utensil to the panel.

3,565,246 MULTICALENDAR COMBINATION

Vincent Anderson, Chicago, Ill., assignor to Chicago Etching Corporation, Chicago, Ill.

Filed Oct. 2, 1969, Ser. No. 863,145
Int. Cl. G09d 3/04; B65d 83/00
U.S. Cl. 206-56

5 Claims



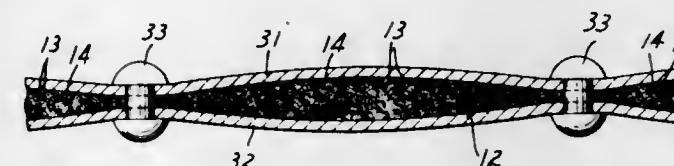
A Multi-Calendar Combination includes plurality of calendars of different months removably attached to one planar surface and held in alignment therewith until selective removal is desired. The calendars are held by hinge means that can be severed easily.

3,565,247 PRESSURE-SENSITIVE ADHESIVE TAPE PRODUCT

Wilfred R. Brochman, Oakdale, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Oct. 21, 1968, Ser. No. 769,188
Int. Cl. B65d 65/00

U.S. Cl. 206-59

12 Claims



A pressure-sensitive adhesive tape product, in which a multiplicity of microscopic closed cells are distributed throughout the adhesive layer, displays high conformability, excellent shock resistance, and high "wet grab." Inclusion of blowing, nucleating and reinforcing agents facilitates the controlled formation of cells and improves handling qualities. If desired, the pressure-sensitive adhesive can be foamed after application of the tape to a substrate.

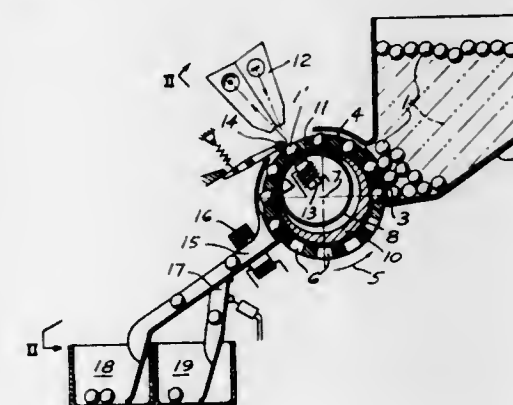
3,565,248 APPARATUS FOR PHOTOELECTRIC INSPECTION OF BALLS

Sebastian Messerschmidt, 5 Altstadtstrasse, Schweinfurt, Germany

Filed May 1, 1968, Ser. No. 725,659
Claims priority, application Germany, May 11, 1969, M73940
Int. Cl. B07c 5/342

U.S. Cl. 209-73

11 Claims



Apparatus for photoelectric inspection of balls in which the balls are fed from a hopper to holes in a rotatable

cylinder. The rotatable cylinder is indexed to carry the balls past scanning stations at which they are inspected by detectors. An eccentrically mounted driving cylinder located within the rotatable cylinder engages the balls at the scanning stations. The driving cylinder is rotated and axially reciprocated to apply to the balls two-directional motion. In a modification the driving cylinder is replaced by an endless belt which extends parallel to the axis of the rotatable cylinder and also has lateral reciprocatory motion applied to it.

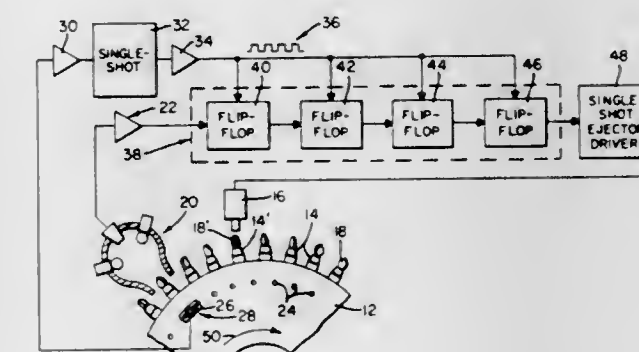
3,565,249 SOLID STATE ELECTRONIC MEMORY SYSTEM FOR SORTING MACHINES

Elias H. Coddington, Houston, Tex., assignor to Mandrel Industries, Inc., Houston, Tex.

Filed Mar. 7, 1969, Ser. No. 805,283
Int. Cl. B07c 5/342

U.S. Cl. 209-74

10 Claims



A pickup head generates an output pulse for each ferrule and thus each product being sorted by a sorting machine. The train of pulses are fed to a shift register, whereby sensing a bad product causes the shift register to count down at a rate determined by the series of pulses. An ejector is triggered to eject the bad product when it is carried in register with an associated ejector.

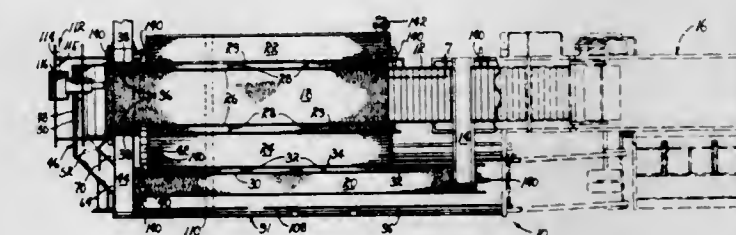
3,565,250 PORTABLE SORTING MACHINE AND SORTING METHOD

Ross Borba and Peter C. Kercher, Riverdale, and Carl W. Ruegg, and Ralph W. Starr, Selma, Calif., assignors to Ross Borba and Peter C. Kercher, Riverdale, Calif., fractional part interest to each

Filed Aug. 6, 1968, Ser. No. 750,731
Int. Cl. B07c 7/04

U.S. Cl. 209-125

13 Claims



A portable sorting and loading method and machine for use in sorting or culling useable from unuseable discrete articles of fragile agricultural produce and loading the useable produce in containers, characterized by a plurality of driven produce sorting tables for conveying articles of produce past sorting stations, and a water-bath receiver, conveying and container loading apparatus, whereby discrete articles of agricultural produce may be conveyed past a sorting station

and subsequently loaded into containers in a water-bath environment thus substantially to reduce produce loss after incurred as a result of handling inflicted damage.

3,565,251

PLASTIC INTERNAL SCREEN

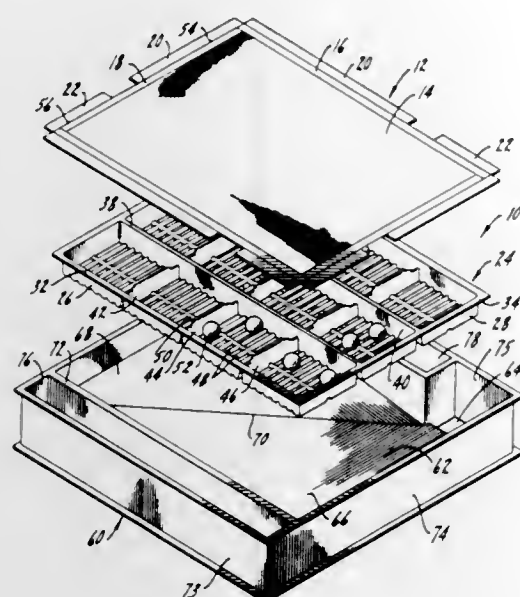
Charles S. Pennington, Lombard, Ill., assignor to Blaw Knox Company, Pittsburgh, Pa.

Filed Dec. 30, 1968, Ser. No. 787,866

Int. Cl. B07b 1/46, 1/50

U.S. Cl. 209—323

4 Claims



A sieve assembly for a sifter consisting, in addition to the usual sieve cloth, of only a unitary, one-piece carrier connectable to the sieve cloth, said carrier functioning as a container for the sieve cleaning means whereby the conventional sieve frame and spacer are eliminated.

3,565,252

OIL WATER SEPARATION SYSTEM FOR TANKERS

James J. Sheehy, Rockville Centre, N.Y., and Peter A. Sait, Surbiton, England, assignors to Esso Research and Engineering Company

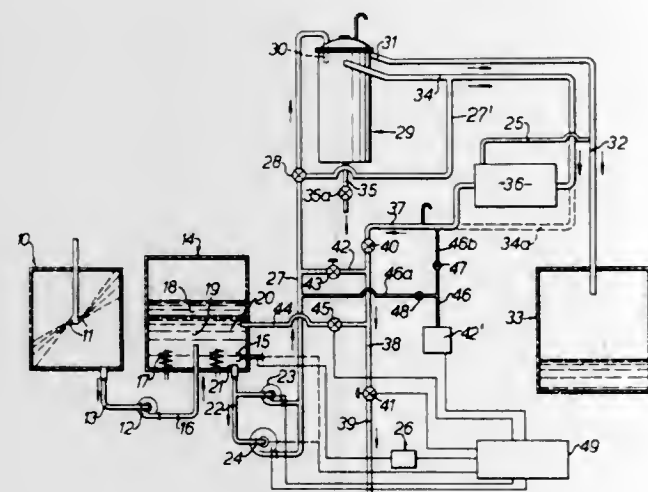
Filed Feb. 6, 1969, Ser. No. 797,216

Claims priority, application Great Britain, Feb. 9, 1968, 6,576

Int. Cl. B01d 21/10

U.S. Cl. 210—104

5 Claims



In a system for handling tank washings for oil tankers, means for separating oil from water are provided to assure that water passing overboard will not have present therein oil in excess of a predetermined concentration.

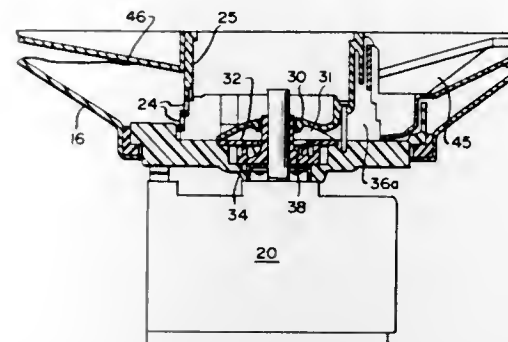
3,565,253
DISHWASHER
Ival G. Dutcher, Stevensville, Mich., assignor to Whirlpool Corporation

Filed May 27, 1969, Ser. No. 828,219

Int. Cl. B01d 29/42

U.S. Cl. 210—167

6 Claims



A dishwasher operable through dishwashing and liquid drain portions of the operating cycle having a liquid drain pump that is rotated with the liquid circulation system in one direction during the washing portion of the cycle and in the opposite direction during the drain portion with at least one access passage to the drain pump through which liquid is drawn into the pump regardless of the direction of rotation thereof so that a solids collecting means in the path of flow to this one passage collects solids whether the dishwasher is operating in the dishwashing portion or the drain portion of the operating cycle.

3,565,254

APPARATUS FOR CONFINING A SLICK AND COLLECTING OIL THEREFROM

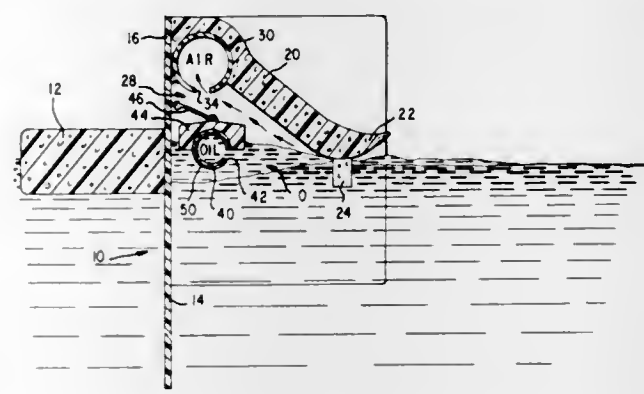
John P. Latimer, Newport News, Va., assignor to Deepsea Ventures, Inc., Newport News, Va.

Filed Sept. 11, 1969, Ser. No. 856,945

Int. Cl. E02b 15/04

U.S. Cl. 210—170

19 Claims



Buoyancy means is connected with a body means for retaining the body means in operative position in a body of water. A foot portion extends from the upper part of the body means and extends at an angle downwardly therefrom to define a space between the body means, the foot portion and the surface of the body of water. An air suction means is provided for reducing the pressure in said space and extends lengthwise of the boom. Means for collecting oil is also supported in said space and extends lengthwise of the boom for collecting oil within the space.

3,565,255

APPARATUS FOR COMPOSTING WASTE

Sigvard Nordgard, 41 Becksjudavagen, Nacka, Sweden

Filed Apr. 7, 1969, Ser. No. 814,038

Claims priority, application Sweden, Apr. 22, 1968, 5361/68

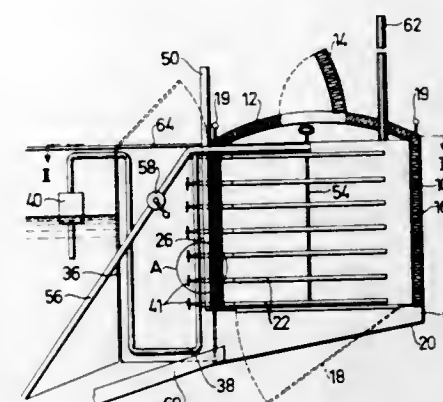
Int. Cl. C02c 1/12

U.S. Cl. 210—220

2 Claims

An apparatus for composting waste, especially kitchen waste providing a plurality of conduits disposed internal to a

container storing waste, each conduit lying in a horizontal plane, each at a different level. Each of the conduits is provided with an inlet means for selectively permitting the introduction of either air or water into the respective conduit



so as to enable concentration of air or water at selected levels within the container to speed the moldering process. The invention further provides vibrating means connected to each of the conduits for imparting vibratory motion to the conduits for compacting the waste in the container.

3,565,256

ULTRAFILTRATION CELL

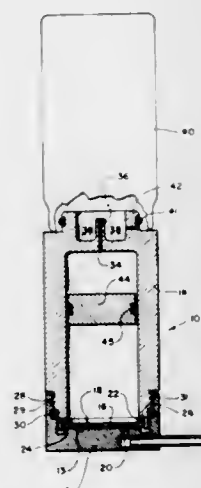
Herbert H. Loeffler, Arlington, Mass., assignor to Amicon Corporation, Lexington, Mass.

Filed Mar. 24, 1969, Ser. No. 809,785

Int. Cl. B01d 31/00

U.S. Cl. 210—321

5 Claims



An ultrafiltration apparatus comprising a reservoir for receiving materials to be ultrafiltered, a self-contained auto-controlling, gas-pressurizing means to pressurize said reservoir, a removable base member to allow easy filling and cleaning of the apparatus, and a free piston mounted in the reservoir forming a barrier between the pressurizing gas and material being processed and also forming a valve effective against leakage when the reservoir is being filled from the bottom.

3,565,257

FLOATING BARRIER FOR WATER POLLUTANTS

Cesare Cavalieri, p. le Comune, Sulzano, Brescia, Italy

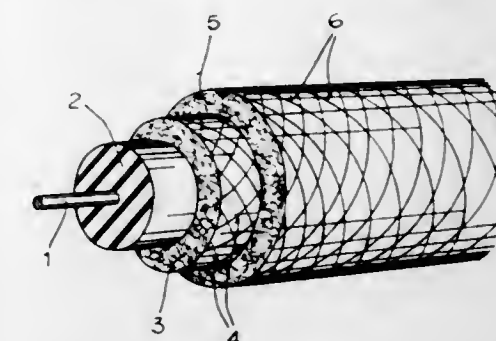
Filed Dec. 5, 1969, Ser. No. 870,409

Int. Cl. E02b 15/04

U.S. Cl. 210—242

3 Claims

The barrier for arresting, confining and absorbing water pollutants in suspension therein, such as tankers, discharged fluids, consists of a preferably cylindrical body containing a central propylene fiber rope surrounded in succession by a layer of polystyrene (blocks or granules), a layer of a mixture of propylene staples or waste and polystyrene granules, con-



barrier is floating so as to keep about one-half of its volume above the surface of the water.

3,565,258

PARALLEL FLOW HEMODIALYZER

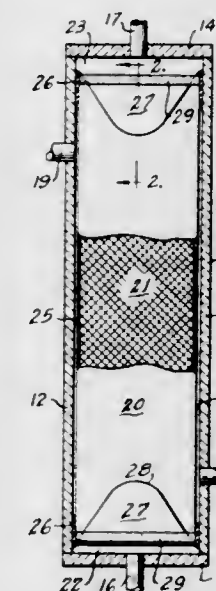
Ardis R. Lavender, North Riverside, and Finley W. Markley, Naperville, Ill., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed June 6, 1969, Ser. No. 830,969

Int. Cl. B01d 31/00

U.S. Cl. 210—321

3 Claims



A hemodialyzer with semipermeable membrane tubes arranged in parallel. The tubes lead to dialysate manifolds at either ends of the tubes which are sealed from blood manifolds one on each side of the tubes by epoxy resin surrounding each cellophane tube. The tubes are closely packed with dialysate flowing through them and blood flowing around them. Tube supports within the tubes provide flow paths for both the dialysate and the blood while flaps on the outside of each tube prevent peel stress due to blood flow from destroying the epoxy bonds.

3,565,259

PROCESS FOR THE MANUFACTURE OF POROUS MEMBRANES

Otto Meyer-Berge, Idstein, Taunus, and Ursula Heyse, Bad Soden, Taunus, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

No Drawing. Filed Jan. 24, 1969, Ser. No. 793,899

Claims priority, application Germany, Jan. 26, 1969, 1,611,108

Int. Cl. B01d 39/16

U.S. Cl. 210—500

11 Claims

This invention relates to an improvement in a process for the manufacture of porous membranes, and to the membranes so produced. In the process, porous membranes having an oriented capillary structure are produced by diffusion of multivalent cations into polyelectrolyte sols, and the improvement comprises dehydrating, on porous supports, layers of the capillary gel obtained, and then drying them.

3,565,260

SALES DISPLAY RACK FOR BOXED ARTICLES AND THE LIKE

Edward M. Stewart, Highland Park, Ill., assignor to Cart-O-Sel Corporation, Inc., Highland Park, Ill.
Filed Feb. 25, 1969, Ser. No. 801,954
Int. Cl. E05b 73/00

U.S. Cl. 211-4

10 Claims



A sales display rack comprises a rack leaf having a pair of hingedly connected frame sections arranged for normal closed face-to-face confronting relation and adapted to be swung apart to open relation. Pockets in the sections support a plurality of articles substantially exposed for sales inspection in the closed relation of the sections but retain the articles against removal from the leaf until the sections are swung open. A stand may be provided for mounting the rack leaf in a position to facilitate inspection of articles supported thereby as a wing together with other of the leaves upon a turntable or carousel arrangement. For securing the sections against unauthorized opening a latch with a key operated lock may be provided.

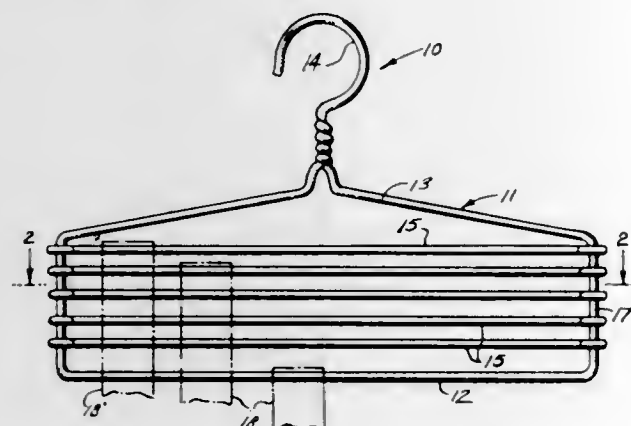
3,565,261

HOME AND TRAVELERS TIE HOLDER

Albino B. Recla, Las Vegas, Nev. (559 Plaza Serena, Ontario, Calif., 91762)
Filed May 23, 1969, Ser. No. 827,347
Int. Cl. A47f 5/08

U.S. Cl. 211-119

1 Claim



A device for hanging ties consisting of a wire body portion having a hook for engaging a rod or the like. The frame of said device includes a plurality of elongated cross bar members for supporting a multiple number of ties.

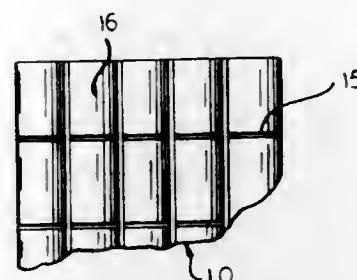
3,565,262

PLEATED SHEET ARTICLE HOLDER

Alphonse Sosalla, 3824 S. Bombay Ave., St. Francis, Wis.
Filed Jan. 17, 1969, Ser. No. 792,094
Int. Cl. B65d 1/34; G09f 7/08

U.S. Cl. 211-120

3 Claims



Sheets of plastic material are formed with pleats therein having slots laterally disposed across the pleats to isolate selected sections thereof. When the sheets are subject to compression transverse to the pleats, the pleats are forced against each other so that articles may frictionally be held therebetween.

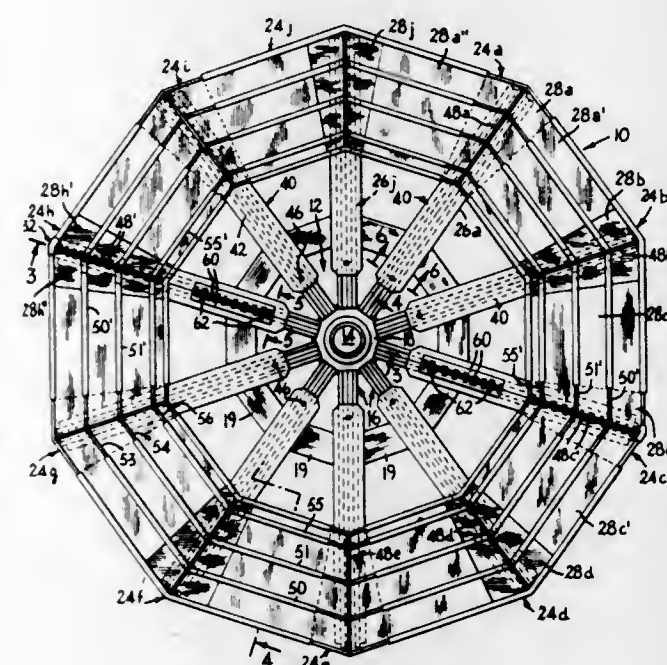
3,565,263

ADJUSTABLE ROTARY FILE

George Wassell, Westport, Conn., assignor to Barry Wright Corporation
Continuation-in-part of application Ser. No. 713,927, Mar. 18, 1968, now abandoned. This application Dec. 5, 1969, Ser. No. 882,520
Int. Cl. A47f 3/14

U.S. Cl. 211-131

37 Claims



An adjustable file of the type used to file cards, books, and other materials for ready access and adapted to be rotated about a vertical axis comprising a frame having radial members and a continuous file tray structure carried by the frame and constituted by a plurality of separate tray sections disposed adjacent each other and interconnected for adjustment of their dimensions in directions transverse to the radial frame members. Each tray section includes a base for supporting the materials, a portion of which overlaps the base of an adjacent tray section. The size of the tray is adjustable over a substantial range of sizes by moving the tray sections conjointly inwardly or outwardly, relative to the axis of rotation of the file, thereby changing the extent of overlap between the tray section bases and consequently the circumferential dimension of the overall tray structure.

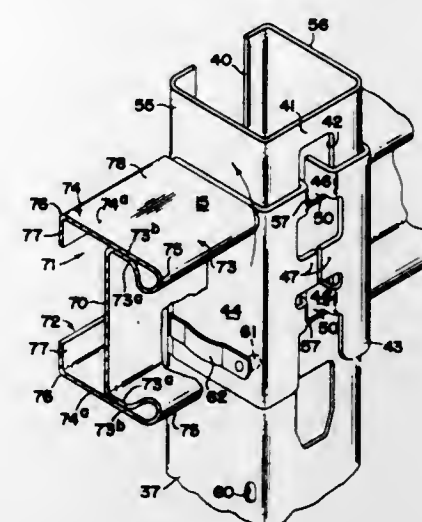
3,565,264

PALLET RACK EQUIPPED WITH SHEET METAL STRUCTURAL MEMBER

William T. Guiher, Youngstown, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio
Filed Apr. 16, 1968, Ser. No. 726,641
Int. Cl. A47f 5/10

U.S. Cl. 211-177

16 Claims



A pallet rack with cold formed pallet supporting beams constructed such that when pallets are positioned on the rack controlled twisting of the beams occurs until load and reaction forces are in equilibrium.

The disclosure also includes an improved nonsymmetrical cold formed beam having a web located according to the load to be supported, whether symmetrically or nonsymmetrically applied, such that the beam does not twist under load, or, as in the pallet rack, may have limited controlled twisting. The beam as used in the pallet rack is constructed such that the shear center of the beam lies along a line in or adjacent the web portion.

3,565,265

RAILWAY CAR

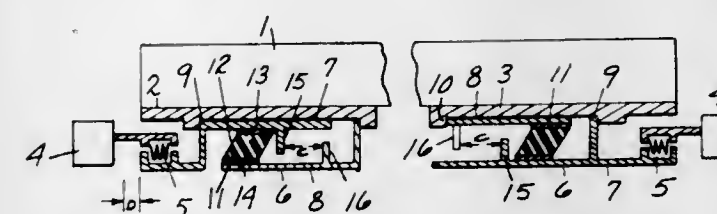
David G. Thomas, Erie, Pa., assignor to Lord Corporation, Erie, Pa.

Filed Aug. 14, 1968, Ser. No. 752,548

Int. Cl. B61g 9/12

U.S. Cl. 213-8

5 Claims



An end of car draft and cushion unit having a coupler connected to the sill through draft gear alone for draft forces and through draft gear in series with shear mountings for buff forces. The shear mountings are preloaded between stops on the sill to resist buff forces.

3,565,266

LUMBER BREAKDOWN HOIST

Jack M. Buss, Lenoir, N.C., assignor to Buss Automation Incorporated, Lenoir, N.C.

Filed Sept. 17, 1968, Ser. No. 760,140

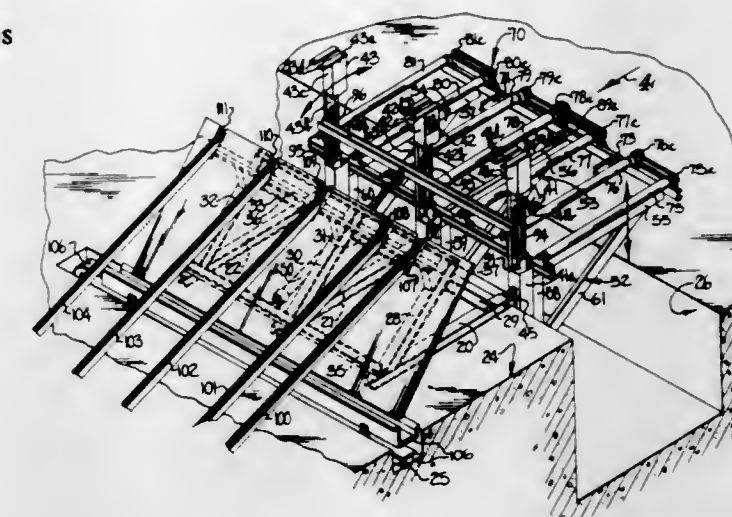
Int. Cl. B65g 59/02

U.S. Cl. 214-8.5

8 Claims

Apparatus for receiving elongate articles stacked in superposed layers, such as boards and hack sticks laid up in cross-directed layers to form a lumber hack, and for segregating the elongate articles into groups by layers, the apparatus in-

cluding platform means for supporting a stack of articles which is vertically movable independently of inclining movement of an upright frame means on which the platform means is mounted, so that a stack of elongate articles may be



loaded onto the apparatus with the platform means at any required vertical position and thereafter be moved vertically and tilted in such a manner as to slide the uppermost layers of articles therefrom.

3,565,267

CONVEYING AND STORAGE APPARATUS

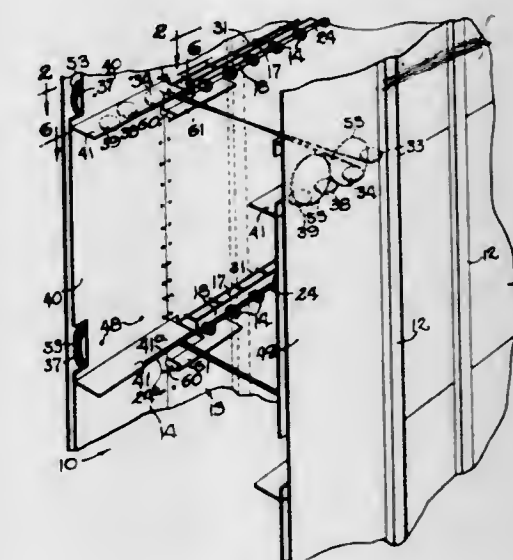
Wallace H. Jerome and Melvin J. Jensen, Barron, Wis.; said Jensen assignor to said Jerome

Filed Dec. 6, 1967, Ser. No. 688,612

Int. Cl. B65g 1/06

U.S. Cl. 214-16.4

12 Claims



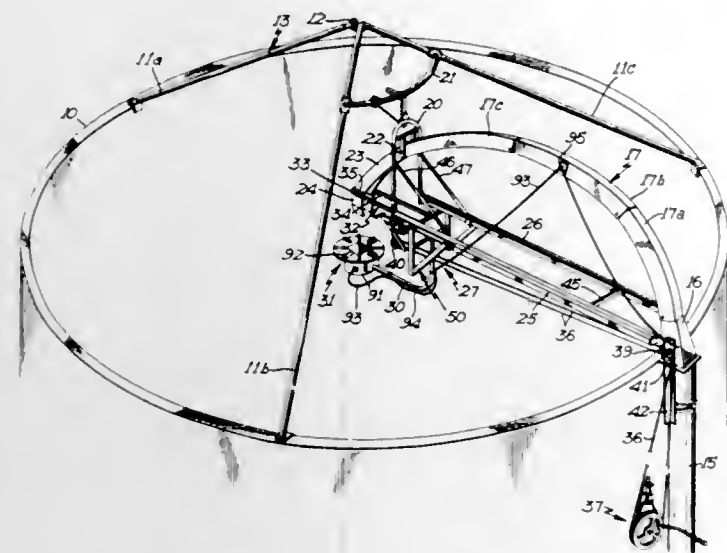
An article storage apparatus having one or more elongated lanes defined between rows of vertical posts with pairs of horizontal side rails vertically spaced in each lane and fastened to the posts. On each rail is a row of load rollers having central peripheral grooves receiving the active runs of a cable conveyor comprising an endless cable trained around supporting pulleys located at both ends of each rail. The pulleys are disposed outside the rails, and guide wheels in out-of-the-way positions lead the cable outwardly onto the pulleys, back inwardly into the lane, and, at one end, cause the cable to cross over so that one endless cable forms both active runs for positive correlation of movement. The pulleys for adjacent lanes are mounted side by side in the walls between the lanes, and are provided with coaxial gears exposed at the ends of each wall for driving engagement with pinions on a forklift truck for loading and operating the conveyors. The forklift has an auxiliary belt conveyor for assisting the cable conveyor, and a latch is provided to anchor the truck in place.

3,565,268

SUPPORT APPARATUS FOR DISTRIBUTOR MEANS
 Floyd E. Buschbom, Long Lake, and Glen D. Hansen, Maple Plain, Minn., assignors to Van Dale Corporation, Long Lake, Minn., a corporation of Minnesota
 Filed June 2, 1969, Ser. No. 829,275
 Int. Cl. B65g 65/32

U.S. Cl. 214-17

28 Claims



Support means mounted at the top of a tower silo for supporting a silage distributor and including a pair of rails extending generally radially inward from one edge of the silo to a position short of the center of the silo and with this inner end supported from a tripod which is mounted on top of the silo. A gooseneck or guide means is fixed directly above the rails and extends inwardly to a position approximately equal to the inner end of the rail. Hinged to this inner end of the fixed guide means is a collapsible portion which can be extended to a position approximately at the center of the silo or collapsed to a position short of the center of the silo. A carriage is movable back and forth on the rails and has an arm on which a silage distributor is mounted. Movement of the carriage on the rails to a position where the distributor is positioned at the center of the silo causes movement of the collapsible portion of the guide means to its extended position where it is latched, allowing the carriage to be moved in a direction away from the center of the silo and out of the trajectory of material being put into the silo, allowing the center to be filled, while the collapsible portion remains extended. A trip apparatus is provided whereby movement of the carriage to a predetermined position near the wall of the silo results in unlatching of the collapsible guide means permitting it to collapse. When the carriage is retracted towards the wall of the silo and the collapsible guide means is collapsed, there is sufficient room so that a silo unloader suspended from the tripod, at the center of the silo, can be moved past the inner end of the rail and the guide means. When the carriage is moved back to the wall, the arm which carries the distributor can be rotated to a position where the distributor also is disposed at the wall for easy servicing and removal.

3,565,269

PIPE LAYING EQUIPMENT

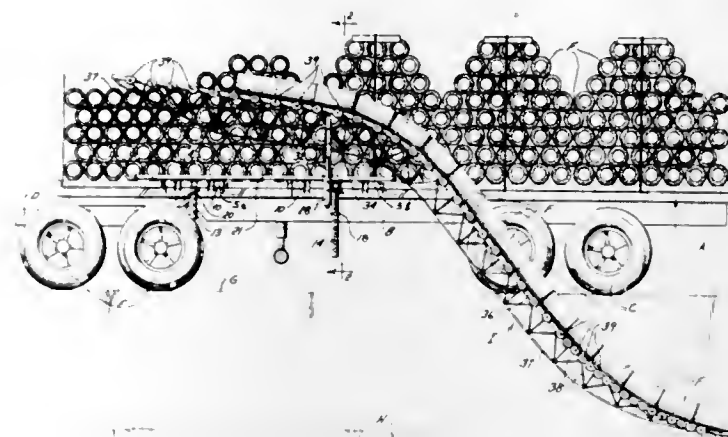
Melvin S. Martin, Martindale, Pa.
 Filed Feb. 17, 1969, Ser. No. 799,876
 Int. Cl. B65g 13/00

U.S. Cl. 214-85

2 Claims

Pipe-laying equipment comprising supporting structure arranged for convenient mounting on and removal from a truck adapted to carry sections of pipe to be laid, the supporting structure providing for support of a feed device for delivering pipe sections in end to end relation in a ditch in which the

pipeline is to be laid, the supporting structure further providing for the support of a platform for one or more attendants



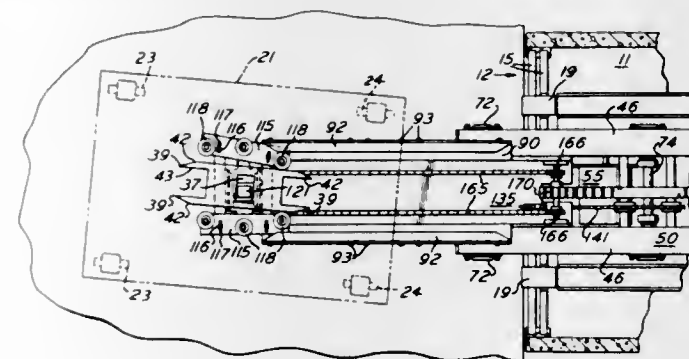
3,565,270

COUPLING FOR CARTS

Nicholas R. Guilbert, Jr., Glenside, and Louis P. Metz, Philadelphia, Pa., assignors to Guilbert Incorporated, Philadelphia, Pa.
 Filed Feb. 13, 1968, Ser. No. 705,034
 Int. Cl. B65g 47/00

U.S. Cl. 214-95

8 Claims



A coupling for carts that may be engaged with an angularly disposed cart, which returns the cart to a straight line and guides it onto and off a dumbwaiter car.

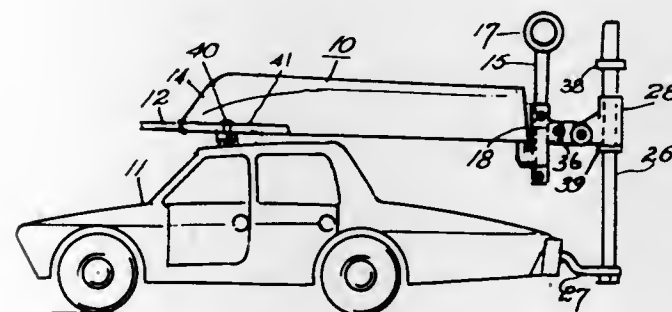
3,565,271

STRUCTURE FOR INVERTING A BOAT FOR LOADING ON AN AUTOMOBILE

Wesley A. Deck, 30 N. Columbine Ave., Lombard, Ill.
 Filed Nov. 4, 1969, Ser. No. 873,941
 Int. Cl. B60r 9/00

U.S. Cl. 214-450

5 Claims



My structure permits inverting a boat by one person for loading onto or unloading from the top of an automobile. In my structure a bow pin is attached to the bow of the boat and

rotates in the yoke of a bipod supported on the ground. The transom or other end of my boat has a removably attached unit with dolly struts and wheels and a rotatable clevis. A trailer hitch attached to the rear of the automobile supports a vertical mast on which is rotatably and slidably mounted a guide having an integral tang. The tang is inserted into the clevis. The boat is cradled and adapted to be inverted between the bow pin and yoke on one end and the clevis and tang on the other end. The boat is adapted to be pivoted and raised or lowered on the mast for loading and unloading on top of the automobile.

3,565,272

BALE STACKER

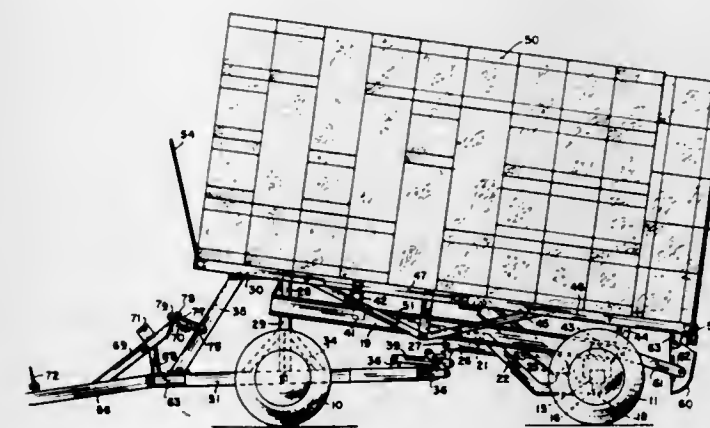
Gerhard E. Schettler and Emery Schettler, McLean, Saskatchewan, and Peter B. Anderson, Southey, Saskatchewan, Canada

Filed Feb. 24, 1969, Ser. No. 801,580

Int. Cl. B60p 1/16

U.S. Cl. 214-501

4 Claims



A trailer stacker for a tractor-drawn baler wherein a platform is mounted on wheels to receive bales from the baler for manual stack building on the platform; a ram operated by the hydraulic system of the tractor for elevating the platform and depositing the built stack on the ground; feet carried by the rear part of the platform for contact with the ground in the stack-depositing operation to take the weight of the stack and platform, and prevent stack tipping or ground movement; said stack adapted to be deposited on runners carried by the platform for withdrawal from under the deposited stack, when the stacker is drawn ahead in the stack depositing position; a pivoted hitch between the baler and the stacker for accommodating the movements of the two machines over uneven ground; and means for locking the hitch against said accommodating movements and locking the steering of the stacker, for elevation of the front wheels thereof clear of the ground when the baler is removed and said hitch is directly connected to the drawbar of the tractor, for relift of deposited stacks and their removal to another location.

3,565,273

LIFT TRUCK CONSTRUCTION

Erich Hahn, Reutlingen, Germany, assignor to Firma Ernst Wagner Apparatebau, Reutlingen, Germany

Filed Mar. 26, 1969, Ser. No. 810,549

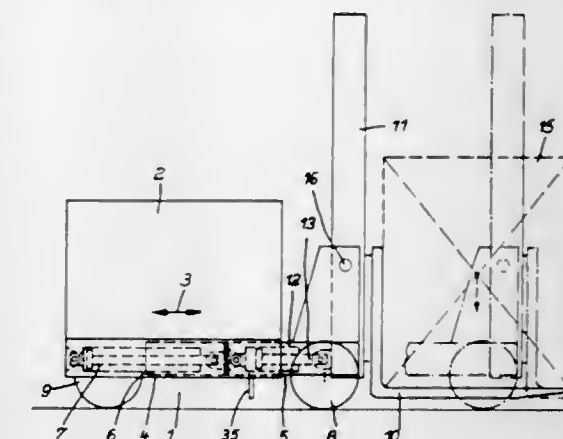
Claims priority, application Austria, Apr. 18, 1968, 8A3788/68

Int. Cl. B66f 17/00

U.S. Cl. 214-674

13 Claims

A lift truck includes a wheeled vehicle having divided longitudinal frames which may be extended or retracted for adjusting the longitudinal spacing between the front and rear wheels. A forklift carried by the vehicle is arranged to actuate a sensing device such as a dynamometer to measure the load to be lifted and the dynamometer is connected to a



retracting the wheel chassis in accordance with the value of the load to be lifted.

3,565,274

CLOSURE AND SEALING ASSEMBLY FOR BOTTLES

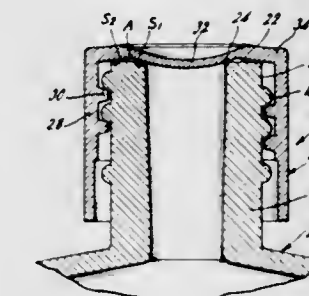
Emil Davidson, Scarsdale, N.Y., assignor to Guild Molders, Inc., Elmsford, N.Y., a corporation of New York

Filed Mar. 19, 1969, Ser. No. 808,448

Int. Cl. B65d 23/00, 53/00, 41/04

U.S. Cl. 215-40

9 Claims



A closure for a bottle of the type including an externally threaded neck having an inner neck wall defining a neck opening and a top wall meeting the inner neck wall at a neck junction which closure includes a sealing assembly including a semispherical member suspended over said neck opening by a radially extending suspension flange such that the sealing member is capable of accommodating to irregularities along the circumferential extent of the neck junction. Upon threading of the closure to its closed position on the neck of the bottle, the resulting pressure against the sealing assembly forms an inner seal between the sealing member and the neck of the bottle near the neck junction and an outer seal between the suspending flange for the sealing member and the top wall.

3,565,275

HYDROGEN EMBRITTLEMENTPROOF VESSEL OF LAYER

Yoshimitsu Uto and Yasuhiro Iwasaki, Hiroshima-shi, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 29, 1967, Ser. No. 671,829

Claims priority, application Japan, Oct. 6, 1966, 41/65789

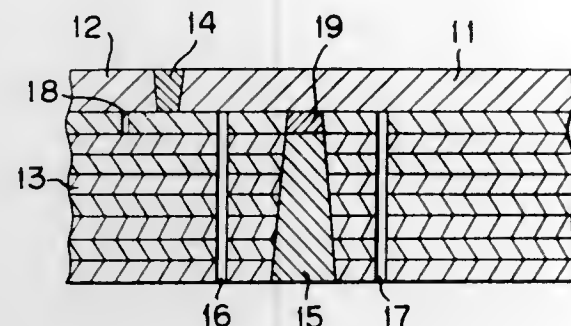
Int. Cl. B65d 7/42, 25/00; F17c 1/10

U.S. Cl. 220-3

3 Claims

A multilayered pressure vessel for handling hydrogen gas wherein the inner layer of the vessel is formed of a material resistant to hydrogen embrittlement. Individual sections of the inner layer and of the outer layers are welded together at circular joints. The welded joint for the inner layer is formed of a material which is resistant to hydrogen embrittlement, however, the weld material joining the outer layers is not resistant to hydrogen embrittlement. In constructing the vessel

the welded joints securing the outer layers are displaced from and are out of contact with the welded joint securing the individual sections of the inner layer. Additionally, outlet holes extend from the outer surface of the vessel through each of the outer layers to the outer surface of the inner layer. The outlet holes are located in the area adjacent the welded joint securing the individual sections of the outer layers. Where the inner layer is secured to the outer layers as the final step in constructing the pressure vessel, a hole is bored through the innermost of the outer layers extending from the outer surface of the inner layer to the inner surface of the next



outer layer. Further, where a solid flange member is secured at one or both ends of the vessel the welded joint securing the flange to the inner layer and the welded joint securing the flange to the outer layers are spaced from one another so that they are not in contact and outlet holes are provided in the region of the welded joint securing the flange to the outer layers. In the outlet holes hydrogen gas at the interface between the inner layer and the innermost of the outer layers is prevented from diffusing into the deposited metal and the outer layers of the vessel are protected from failures due to hydrogen embrittlement.

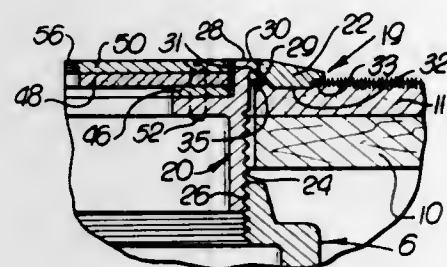
3,565,276

ADJUSTING RING FOR ELECTRICAL FLOOR BOXES
James O'Brien, and Richard A. Besso, Palos Verdes Peninsula, Calif., assignors to Norris Industries, Inc., Los Angeles, Calif.

Filed Sept. 27, 1968, Ser. No. 763,209
Int. Cl. H02g 3/12, 3/14

U.S. Cl. 220-3.3

2 Claims



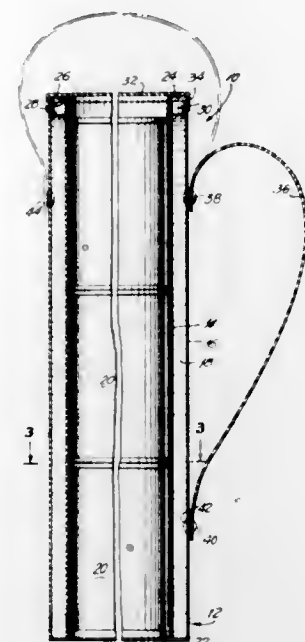
A two-piece adjusting ring for use with a standard electrical floor box which latter includes a threaded handhole in the top, the adjusting ring including a threaded section or collar rotatable with respect to the box to couple them together at the situs of the installation of the box, and a separate flange adapted to overlie a floor surface or covering closely adjacent the collar and adapted to remain rotationally stationary while the collar is being advanced, the collar and flange being provided with mutually engaging smooth surfaces whereby the collar imparts a thrust upon the flange without rotating the latter.

3,565,277
CONTAINER FOR BEVERAGE CANS

Sidney Sewitch, 13 High St., Perth Amboy, N.J. 08861
Filed Nov. 27, 1968, Ser. No. 779,480
Int. Cl. B65d 7/22

U.S. Cl. 220-10

5 Claims



A container for beverage cans and the like. The container has a hollow circumferentially continuous sidewall means which from top to bottom has a dimension sufficiently great to accommodate a plurality of cans stacked one upon the other. A bottom wall extends across and is connected with the sidewall means to support the cans surrounded by the latter, and a cover is releasably carried by the sidewall means at its top end for releasably covering the interior space where the cans are accommodated. The sidewall means includes inner and outer walls defining between themselves and a hollow chamber for accommodating a medium which may be used for chilling cans within the container, and the space between the inner and outer walls is closed at the bottom by the bottom wall while at the top an endless strip extends along and is fixed with the top edges of the inner and outer wall to close the interior space therebetween.

3,565,278

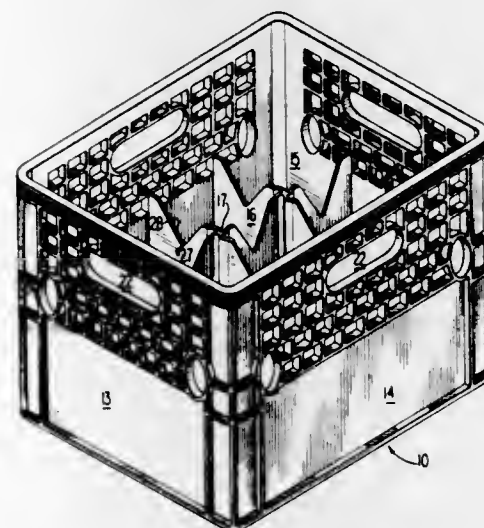
PARTITION PANEL STRUCTURE FOR MOLDED PLASTIC CRATE

Houston Rehrig, Pasadena, Calif. (4291 Bandini Blvd., Los Angeles, Calif. 90023)

Filed Jan. 24, 1969, Ser. No. 793,721
Int. Cl. B65d 1/24, 25/14

U.S. Cl. 220-21

12 Claims



A molded plastic material-handling crate partitioned by intersecting integrally molded panels within the crate which are

corrugated along the panel intersections to accommodate material and a sleeve of a stiff, mechanically strong material open at both ends which surrounds the above hollow body. differential shrinkage of the crate and panels following removal from the forming mold.

3,565,279

FLOATING ROOF TANK SEAL MEANS

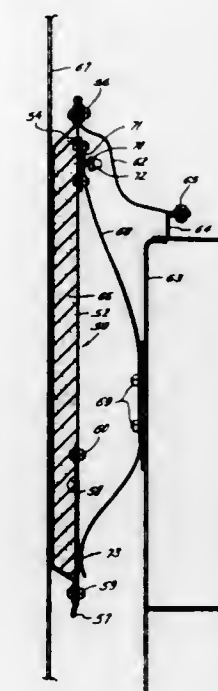
William E. Joor, II, Houston, Tex., assignor to U.S. Industries, Inc., Houston, Tex.

Filed Oct. 29, 1968, Ser. No. 771,588

Int. Cl. B65d 87/18

U.S. Cl. 220-26

3 Claims



A seal for a floating roof tank comprising a multiplicity of independent shoes arranged circumferentially about the tank shell and supported and biased against the shell by spring straps secured to the roof and extending therefrom radially outwardly and upwardly and downwardly therefrom and pivotally secured to the upper portions of the shoes. Flexible seal curtain means traverse the space between the upper portions of the shoes and the roof. The shoes, preferably, embody resilient, relatively thin pads in flexible envelopes which bear against the tank shell to accommodate irregularities therein.

3,565,280

PACKAGING CONTAINERS

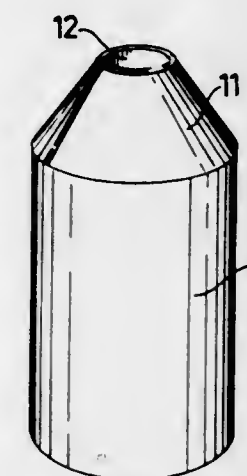
Gad Anders Rausing, Lund, Sweden, assignor to Sobrefina S.A., Fribourg, Switzerland

Filed Mar. 19, 1969, Ser. No. 808,397

Claims priority, application Sweden, Apr. 9, 1968, 4758/68
Int. Cl. B65d 25/14

U.S. Cl. 220-63

1 Claim



This invention is concerned with a packaging container comprising an inner thin-walled hollow body of plastic

3,565,281
CONTAINER

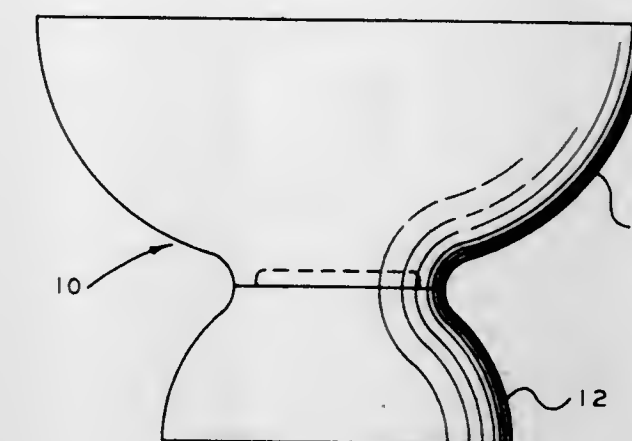
Stafford D. Collic, Kansas City, Mo., assignor to Phillips Petroleum Company

Filed Dec. 11, 1968, Ser. No. 782,895

Int. Cl. B65d 7/42

U.S. Cl. 220-69

4 Claims



A container is formed of a generally bowl-shaped receptacle which is open at the top. The bottom of the receptacle is provided with a depending shoulder having a recess in the inner surface thereof. A base is secured to the receptacle by means of locking arms which engage the recess in the shoulder. The top portion of the base is sufficiently flexible to permit the two sections of the container to be snapped together when assembled.

3,565,282

CASSETTE STORAGE MAGAZINE

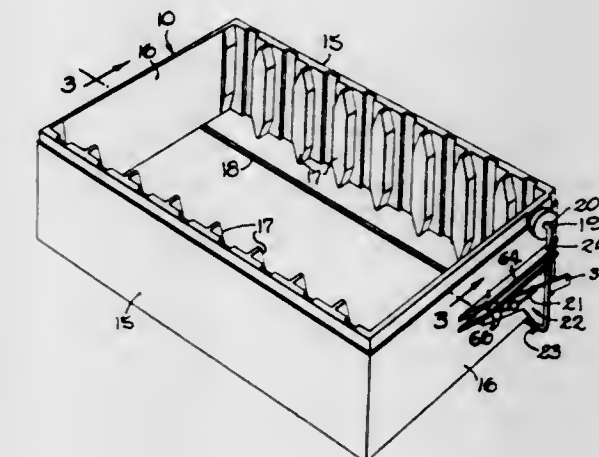
Theophil Clement Jozef Lodewijk Staar, Kraainem, Belgium, assignor to S.A. Staar, Brussels, Belgium

Filed July 1, 1968, Ser. No. 741,465

Claims priority, application Belgium, Dec. 19, 1967, 52,355
Int. Cl. G07f 11/00

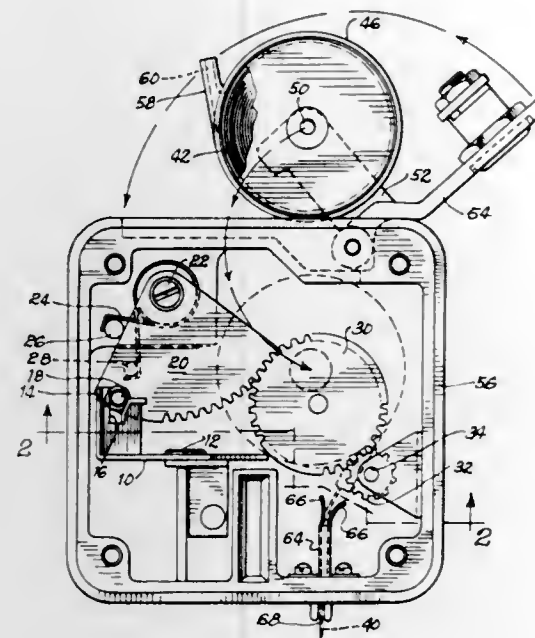
U.S. Cl. 221-83

6 Claims



A bottomless, removable magazine tray for loading cassettes in a player-recorder, provided with a longitudinal rod normally held by a latch along the open bottom of the tray for retaining the cassettes when the tray is removed from the player-recorder, the latch being released as an incident to placing the tray in its carriage on the player-recorder to permit the rod to be retracted for transfer of cassettes from the tray.

3,565,283
TOKEN DISPENSING CONSTRUCTION FOR PARKING METERS
 Rinaldo Sciacero, Arlington Heights, and George G. Dominick, Hoffman Estates, Ill., assignors to Duncan Industries, Inc., Elk Grove Village, Ill.
 Filed Dec. 17, 1968, Ser. No. 784,379
 Int. Cl. B65h 1/00
 U.S. Cl. 221-197 7 Claims

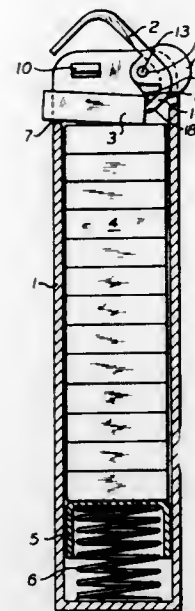


A token dispensing construction wherein tokens in the form of tickets are provided in a roll whereby tickets can be dispensed one or more at a time through the use of driving means which direct the tickets through an opening in the meter housing. The driving means for achieving the dispensing action are directly connected to the time-setting mechanisms of the meter whereby the ticket dispensing is dependent upon the time-setting operation. In one form of the invention, the ticket-dispensing drive means are set during the time-setting operation with the actual dispensing movement occurring during return movement of the time-setting elements so that the ticket dispensing-drive is independent of the force and rate of movement applied by an individual manually operating the meter.

3,565,284
POCKET ARTICLE CONTAINER WITH COVER CONTROLLED EJECTOR
 Ignaz Hinterreiter, Linz, Austria, assignor to Firma Bonum-Werk Gesellschaft M.B.H. Linz-Wigscheide, Austria
 Filed Nov. 29, 1968, Ser. No. 779,921
 Claims priority, application Austria, Nov. 30, 1967, A10,828/67; A10,829/67
 Int. Cl. B65h 1/08
 U.S. Cl. 221-229 9 Claims

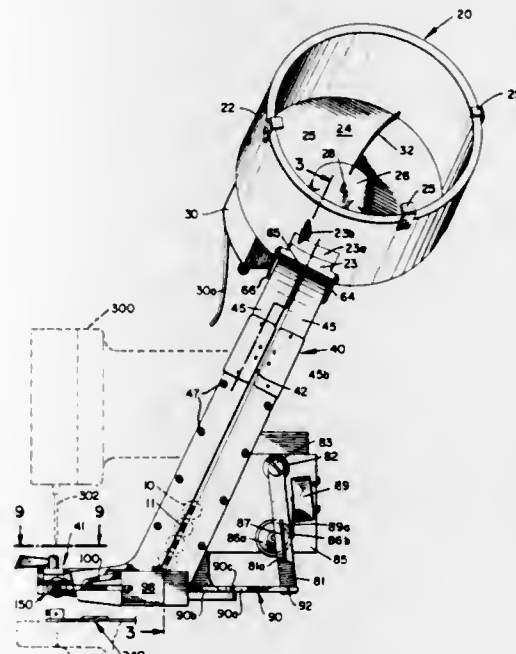
A pocket container for reception and individual removal of filling goods consisting of tablets, candies, or the like, piled up in the container, which comprises a container member constituting a geometrical cylinder defining and surrounding a chamber for filling goods within the container member and having an opening for removal of filling goods and a follower spring pushes the filling goods in direction of the opening. A drop cover is disposed on top of the container member and includes means for sliding the uppermost of the filling goods from the opening upon lifting the drop cover. The drop cover is mounted about a geometrical swinging axis projecting through the geometrical cylinder, the geometrical swinging axis being disposed perpendicular to the axial direction of the geometrical cylinder. The drop cover has on its inside an abutment face between the swinging axis and a wall opposite from the opening, and the abutment face is adapted to engage the uppermost of the filling goods by the pressure of the

follower spring in case the drop cover is in its closed or extensively closed position, and the pressure exerted on the



abutment face tends to urge the drop cover into its closed position.

3,565,285
BUTTON FEEDING MACHINE
 Floyd Asnes, Little Neck, N.Y., assignor to Alfa Industries Inc., Little Neck, N.Y.
 Filed Dec. 22, 1967, Ser. No. 692,909
 Int. Cl. B65g 59/00
 U.S. Cl. 221-267 7 Claims

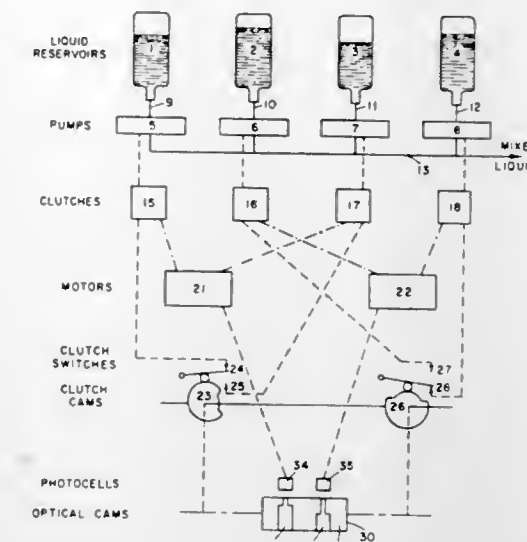


A button-feeding machine for sequentially feeding buttons located in a hopper through a chute to a holder in which the buttons are held in proper position for attachment to a cloth article by a sewing needle. The buttons are supplied in bulk to a hopper where they are oriented and aligned in a chute and then positively fed from the chute to the holder, one at a time by a ram arm whose actuation is controlled by a machine operator.

3,565,286
LIQUID PROGRAMMING AND PUMPING APPARATUS
 Allen Latham, Jr., Jamaica Plain, Mass., assignor to Cryogenic Technology, Inc., Waltham, Mass.
 Filed Oct. 18, 1968, Ser. No. 768,692
 Int. Cl. B67d 5/14; F04b 23/06, 45/06
 U.S. Cl. 222-4 16 Claims

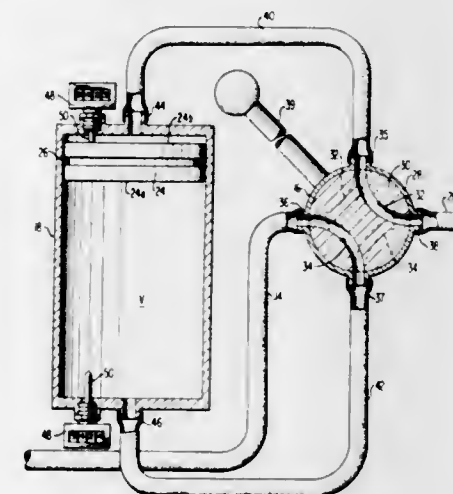
A liquid programming and pumping apparatus for delivering a liquid mixture, the flow rate and composition of which

may be continuously varied in accordance with a predetermined protocol. Liquid reservoirs deliver liquid to a mixing manifold through flexible tubings which pass through roller pumps, the speeds of which are automatically adjusted by programmed optical cams which control the amount of radi-



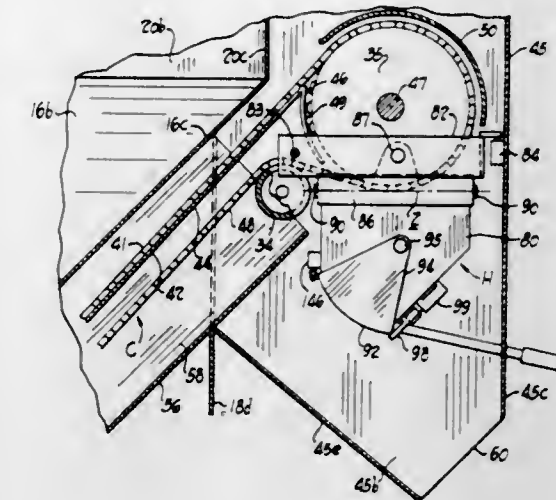
ant energy reaching detectors, the output of which are electrical signals controlling variable speed pump drive motors. The apparatus is particularly well-suited for integration with a centrifuge used in glycerolization and deglycerolization of red blood cells.

3,565,287
BEVERAGE DISPENSING AND MEASURING UNIT
 Mack S. Johnston, Rolling Hills, Calif., assignor to Johnston Enterprises, Inc., Kalispell, Mont.
 Filed Sept. 12, 1968, Ser. No. 759,352
 Int. Cl. B67d 5/18
 U.S. Cl. 222-26 1 Claim



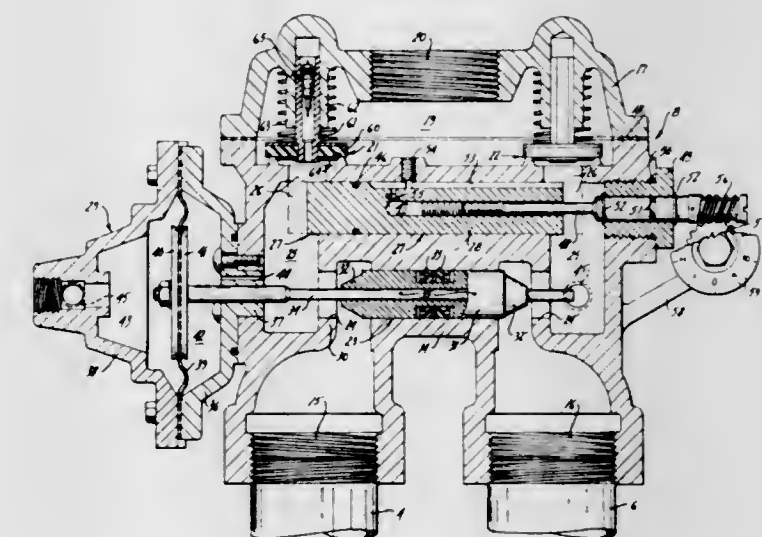
The dispensing unit has a cylindrical container carrying a free-floating piston movable between opposite ends of the container. A four-way, two-position valve communicates with a beverage source under pressure, a beverage dispensing faucet and a pair of conduits which connect at opposite ends of the container. When the valve is shifted to one position, beverage flows from the beverage source through the valve into one end of the container and displaces the piston toward the opposite end of the container to drive the beverage from the container through the valve to the faucet. When the valve is shifted to the other position, beverage flows through the valve into the opposite end of the container to displace the piston back to its original position and discharge beverage from the container through the valve to the faucet.

3,565,288
METHOD AND APPARATUS FOR DISTRIBUTING BULK MATERIAL SUCH AS CEMENT
 Harry Norman Shute, 550 S. 23rd St., Richmond, Ind. 47374
 Filed June 27, 1968, Ser. No. 740,678
 Int. Cl. B67d 5/08
 U.S. Cl. 222-55 20 Claims



A wheeled vehicle for storing and dispensing pulverized or granular material such as fertilizer, grain, etc., and more particularly cement, especially mortar cement, at a place where the material is to be used, such as, a residence or a construction site and the like, and which dispenses the material in portions of predetermined size or amounts.

3,565,289
SELF-PROPORTIONING FLUID DISPENSING APPARATUS
 Charles D. Erickson, Erie, Pa., assignor to A. O. Smith Corporation, Milwaukee, Wis.
 Filed Sept. 26, 1968, Ser. No. 762,890
 Int. Cl. B67d 5/56; G05d 11/02
 U.S. Cl. 222-57 7 Claims



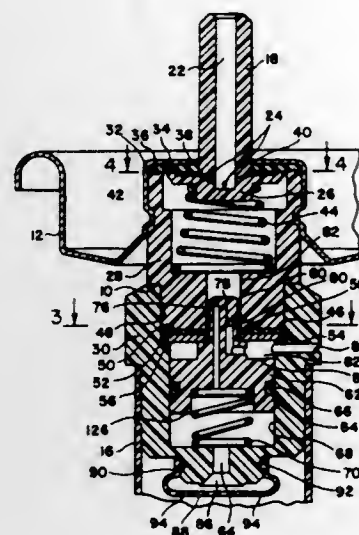
This disclosure relates to gasoline dispensing including an intermediate grade pump interconnected to both the premium grade storage tank and the regular grade storage tank through a blending valve. The blending valve includes a pair of flow passageways. A common throttling valve inversely varies the flow through the two passageways. A manual control valve is provided to adjustably and inversely set the cross-sectional areas of the flow passageways. The throttle valve is connected to a hydraulic diaphragm actuator having pressure chambers to the opposite sides of a movable diaphragm. Signal pressure lines connect the passageways between the two valves to corresponding pressure chambers to position the diaphragm and throttling valve to establish equal pressures in the passageways.

3,565,290

SHUTOFF VALVE MEANS FOR TWO PRESSURIZED SOURCES RESPONSIVE TO FAILURE OF ONE SOURCE
Sam Prussin, Los Angeles, Calif., and Jimmie L. Mason, Hacienda Heights, Calif., assignors to Dart Industries Inc.
Filed Nov. 25, 1968, Ser. No. 778,451
Int. Cl. B67d 5/32

U.S. Cl. 222-57

11 Claims



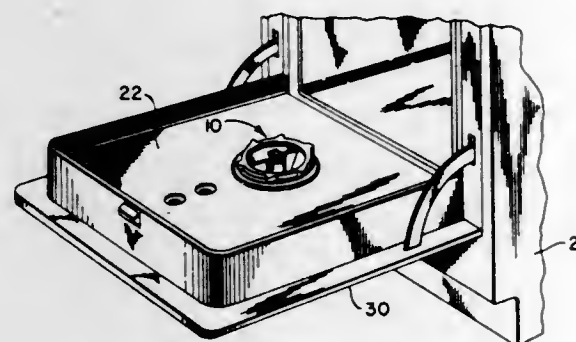
An automatic shutoff valve for use with aerosol products containers, wherein two separate sources of fluid under pressure may be dispensed in a mixture; the valve of the invention comprising automatic shutoff means in response to a depletion of flow and/or pressure from one source which causes the flow of fluid from another source in the container means to be shut off to thereby prevent dispensation of any fluid from the valve, when one of the fluid sources is depleted.

3,565,291

CLEANSING AGENT DISPENSER
Gerard Grandclement, Cap, France, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Oct. 28, 1968, Ser. No. 771,139
Claims priority, application France, Oct. 26, 1967, 126013
Int. Cl. B67d 5/06

U.S. Cl. 222-76

5 Claims



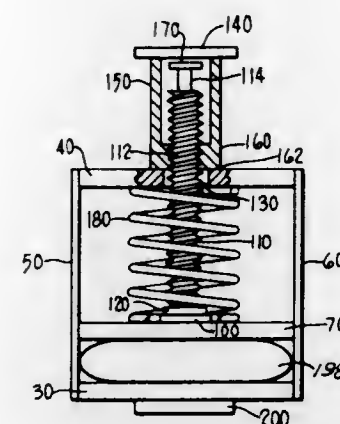
A dispenser for detergents or the like to be used in dish or clothes washing machines. The dispenser includes a housing having preferably a pair of cavities therein for retaining detergent, with a cover overlying one of the cavities. Detergent from the exposed cavity is utilized in the first wash cycle and detergent from the covered cavity is released for the second wash cycle. The cover is held in this initial position by a tensioned torsion spring. A solenoid device coupled to a member around which the cover pivots serves to release the torsion spring in response to a signal from the washer timer-programmer. Rotation of the cover to expose the initially covered cavity is effected by the spring energy.

3,565,292

BLOOD-PROFUSING APPARATUS
Walter J. Jinotti, Middlesex General Hospital, New Brunswick, N.J.
Filed Mar. 3, 1969, Ser. No. 803,856
Int. Cl. B65d 35/28

U.S. Cl. 222-103

9 Claims



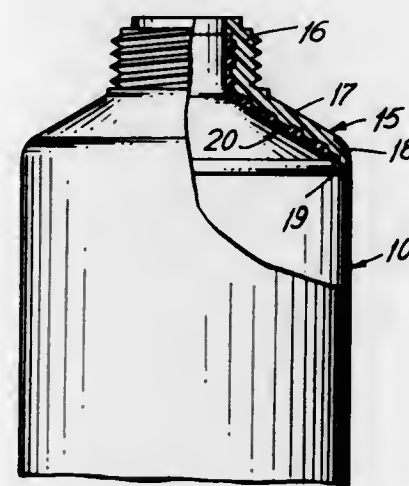
Apparatus for holding a blood bag and causing the blood to be fed comprising an open boxlike member having a wall and a movable piston inside the boxlike member in operative relation with the wall. Mechanical means is secured to the piston to retract it from the wall and thus to provide a space in which a blood bag can be positioned and held in place by the piston. Retraction of the piston puts it under spring pressure which causes it to apply pressure to the blood bag and thus to force blood out of the bag gradually and constantly until the bag is empty.

3,565,293

COLLAPSIBLE TUBE
Robert Stephen Schultz, Middlesex County, N.J., assignor to American Can Company, New York, N.Y.
Filed Mar. 20, 1968, Ser. No. 714,471
Int. Cl. B65d 35/12, 35/14

U.S. Cl. 222-107

11 Claims



A collapsible tube construction having a thermoplastic headpiece united to a preformed body, with improved barrier means associated with the headpiece whereby product permeation and oxygen absorption through the headpiece are minimized.

3,565,294

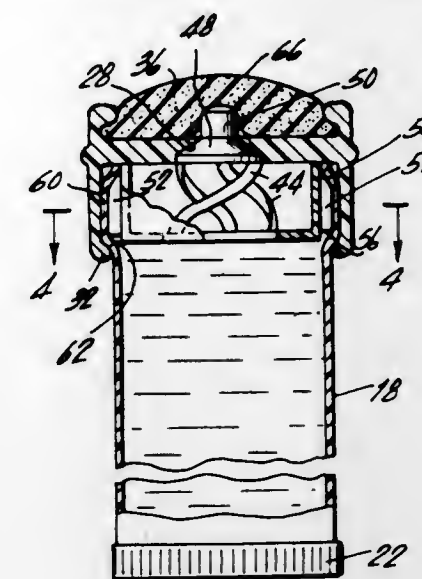
APPLICATOR AND CONTAINER HAVING CAM-LOCKING MEANS
Gilbert Schwartzman, 20 Wilmet Circle, Scarsdale, N.Y.
Filed June 24, 1968, Ser. No. 739,252
Int. Cl. B65d 35/54

U.S. Cl. 222-107

1 Claim

An applicator for use in combination with a squeezable tube and a retaining ring which carries a foamed plastic

cover. An opening is formed in the ring defining a valve seat. Integrally formed with the retaining ring is a projecting portion so that a valve assembly can be force fitted into the con-



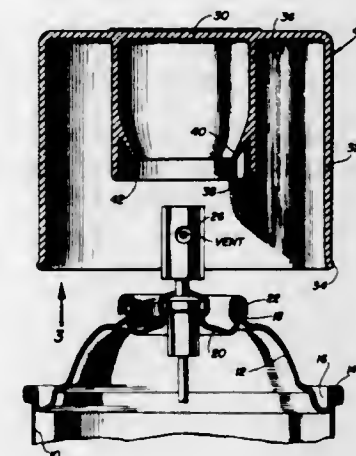
tainer so that the projecting portion holds the tube and valve assembly in place. The valve assembly is integrally formed with annularly spaced cam members which are lockingly engaged by the projecting portion.

3,565,295

OVERCAP WITH TWO-SURFACE CUP SEAL
Ross L. Doyle, Ramsey, N.J., assignor to Sterling Drug Inc., New York, N.Y.
Filed Nov. 20, 1968, Ser. No. 777,383
Int. Cl. B65d 51/18

U.S. Cl. 222-182

1 Claim



An overcap for aerosols comprising a one-piece double shell construction, one shell having a rim for removably engaging the periphery of the aerosol container, and a second concentric inner shell having a double rim engaging both the outer and inner aspect of the valve cup for the aerosol.

3,565,296

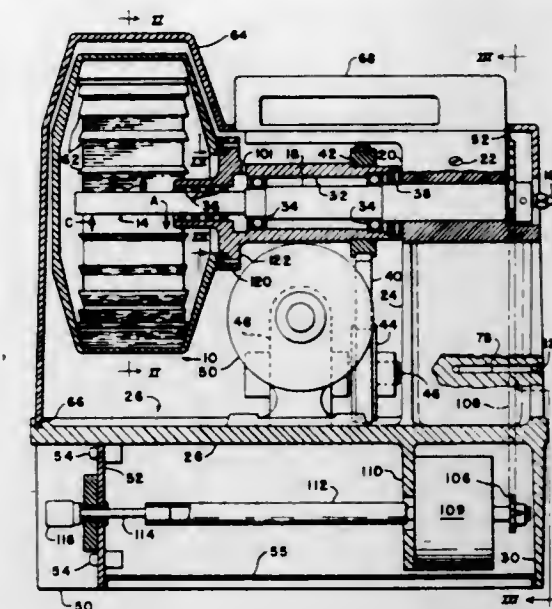
POWER FEEDER MECHANISM HAVING MEANS FOR MOVING POWDER TO A GAS CARRIER
Stephen G. Brush, Thompson, Conn., Harold Gruen, Framingham, John D. Peterson, North Grafton, and Charles H. Piltzecker, Westboro, Mass., assignors to Avco Corporation, Cincinnati, Ohio
Filed Nov. 4, 1968, Ser. No. 773,235
Int. Cl. B67d 5/54

U.S. Cl. 222-193

18 Claims

The disclosure shows a feeder for powdered metals, or the like, which are used in flame-spraying systems. Powdered metal is placed in a rotating, sealed drum. Pressurized gas is fed through a carburetor into the drum. A metered amount

of material is entrained in gas entering an upwardly facing port. The entrained powder is carried through the carburetor to a conduit which conveys it to a plasma-type flame-spraying applicator. Gas enters the carburetor upstream of the metering port, through a downwardly opening, compensating port. This compensating gas supplements the flow of gas



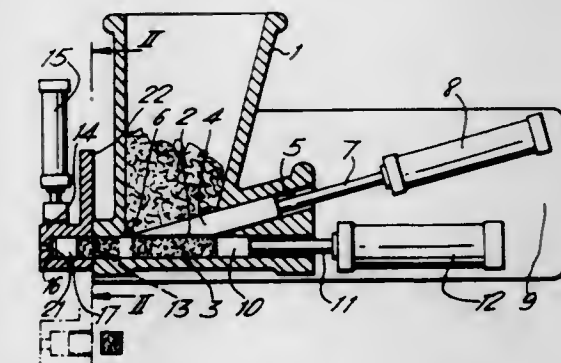
which carries the entrained powder through the carburetor after it enters the metering port. A central tube in the carburetor defines, in part, both the metering and compensating port. This tube is rotated to simultaneously change the feed rate of the powdered material and adjust the flow of supplemental gas to insure that powdered metal will flow uniformly at all feed rates.

3,565,297

PROCESS AND APPARATUS FOR FEEDING FOODSTUFFS
Gerardus Bladt, Hendrik Jozef Kleintjens, and Robert Ernest Carl Herbert Tiepen, Zevenaar, Netherlands, assignors to Lever Brothers Company, New York, N.Y.
Filed May 22, 1969, Ser. No. 826,851
Int. Cl. G01f 11/00

U.S. Cl. 222-263

6 Claims



Apparatus for forming volumetrically divided portions of a foodstuff, particularly a foodstuff having a fibrous texture in which the foodstuff feeds from a hopper to a supply channel via an opening closable by a wedge shaped slide with a minimum of damage to the foodstuff, the foodstuff being compressed in the supply channel by a piston into a bar, the bar being pressed into measuring chambers forming an extension of the supply channel to subdivide the bar into portions.

3,565,298

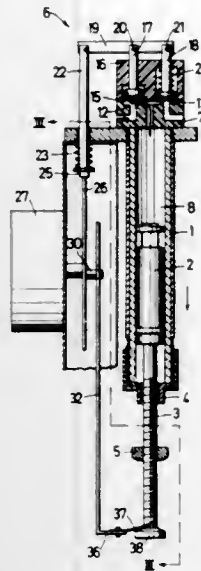
LIQUID-DISPENSING DEVICE
Lars Erik Ohlin, Stockholm, Sweden, and Gosta Carlsson, Drabantvagen 8, Lidings, Sweden
Filed Jan. 8, 1969, Ser. No. 789,892
Claims priority, application Sweden, Jan. 12, 1968, 403/1968
Int. Cl. G01f 11/06, 11/30, 11/42

U.S. Cl. 222-309

11 Claims

A device for repeatedly dispensing a predetermined quantity of liquid. A reciprocating piston pump has poppet-type

intake and delivery valves which are actuated by the drive mechanism of the pump piston to open and close intake and delivery passages in synchronism with the pump strokes. An impermeate flexible diaphragm is interposed between the valve poppets and the valve seats to prevent the liquid from contacting the valve poppets. The piston drive mechanism in-



cludes a variable first lost-motion connection providing for an abrupt discontinuance of the pump strokes and a second lost-motion connection providing for a rest period of the pump piston at the end of the delivery stroke to permit the intake and delivery valves to be opened and closed with no flow taking place in the intake and delivery passages.

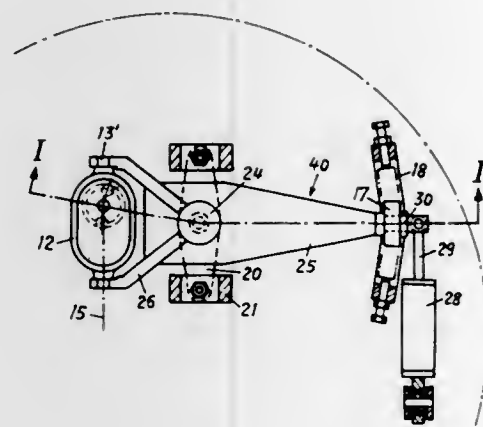
3,565,299

CLOSURE DEVICE FOR THE BOTTOM OUTLET OPENING OF A CASTING LADLE

Hans Bieri, Oberrick, Switzerland, assignor to Metacon AG, Zollikon, Switzerland
Filed June 16, 1969, Ser. No. 833,573
Claims priority, application Switzerland, June 18, 1968, 9031/68
Int. Cl. B67d 5/06

U.S. Cl. 222-504

9 Claims

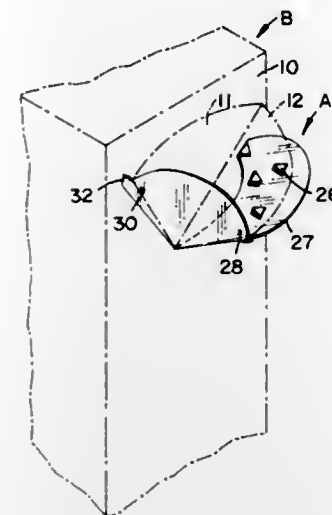


A closure device for the bottom outlet opening in casting ladles is disclosed, the outlet opening having a supporting member adjacent thereto solidly connected to the casting ladle. The closure device comprises a slide plate disposed below the outlet opening and rotatable about a vertical axis. Importantly, the slide plate is hingedly mounted in such a manner that it can adjust in more than one degree of freedom to the position of the supporting member about the outlet opening. As a result thereof, the closure device can easily adjust to thermal expansions of portions of the casting ladle to maintain a reliable seal.

3,565,300
V-SHAPED, PIVOTALLY RETRACTABLE POUR SPOUT
Max R. Dietz and Gary H. Ward, Fremont, Mich., assignors to Gerber Products Company, Fremont, Mich.
Filed Sept. 30, 1968, Ser. No. 763,726
Int. Cl. B67d 3/00

U.S. Cl. 222-528

5 Claims



A V-shaped, pivotally retractable pour spout for use with a container of free-flowing substances having an aperture cut in one surface thereof to form a tab retractable into and out of the plane of the surface. The pour spout is attached to the tab along one side thereof for movement with the tab at an angle to the vertical dimension of the container so that when the spout is fully extended, it provides a V-shaped pouring trough having an apex substantially normal to the container surface.

3,565,301

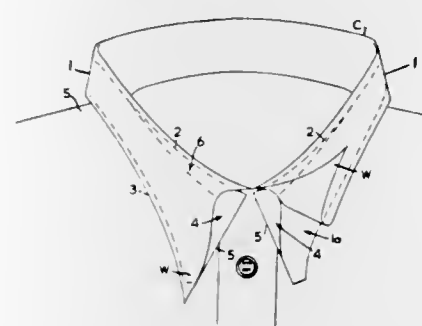
COLLAR SUPPORT

Richard S. Mosser, Breslau, Ontario, and Arnold R. Hofstetter, Kitchener, Ontario, Canada, assignors to Cluett Peabody & Co. of Canada Limited, Kitchener, Ontario, Canada

Filed June 17, 1969, Ser. No. 834,104
Claims priority, application Canada, May 7, 1969, 050,812
Int. Cl. A41b 3/06

U.S. Cl. 223-83

2 Claims



The invention relates to an angulated support for the collar of a folded shirt to inhibit the buckling, creasing or wrinkling of the collar during transit of the shirt.

3,565,302
NEEDLE

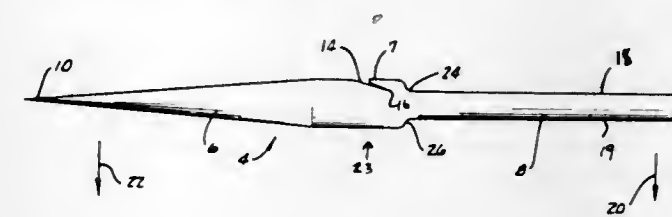
Robert S. Dyer, 4315 N. Pennsylvania St., Indianapolis, Ind.
Filed July 8, 1969, Ser. No. 841,190
Int. Cl. D05b 85/00

U.S. Cl. 223-102

4 Claims

A needle having a point portion which is connected to a shank portion. Intermediate the shank and point portions is a hook which is adapted to receive thread. When the point and

shank portions are flexed, the jaws of the hook spread apart so as to allow easy threading. When flexural pressure is



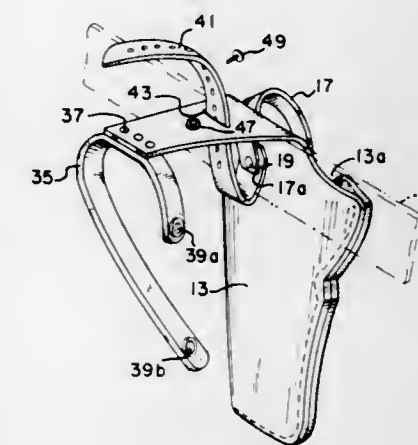
removed, the thread is biased in the hook. Opposing sides of the shank portion may be flat and knurled.

3,565,303
HOLSTER

Albert J. Kippen, Frederick, Md., assignor to J. M. Bucheimer Company, Frederick, Md.
Filed Mar. 29, 1968, Ser. No. 717,244
Int. Cl. F41c 33/02

U.S. Cl. 224-2

16 Claims



A holster is provided having an adjustable belt loop which includes a belt flap and an adjustable flexible belt strap adjustably interengageable with the flap through a slot formed in the flap. Fastening means is provided for releasably securing the belt strap in a selected position to thereby fix the adjusted belt loop size for a given belt.

3,565,304

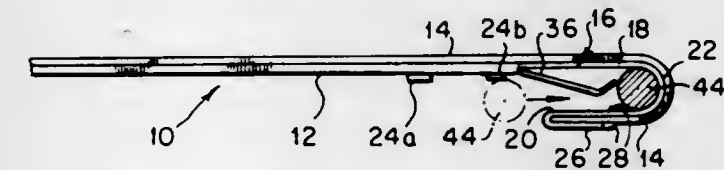
HOOK ON A WRISTBAND FOR A WRISTWATCH AND FITTING THEREOF

Harry Kalinsky, 3530 Henry Hudson Parkway, Bronx, New York, N.Y. 10463

Filed July 24, 1969, Ser. No. 851,136
Int. Cl. G04b 37/14

U.S. Cl. 224-4

13 Claims

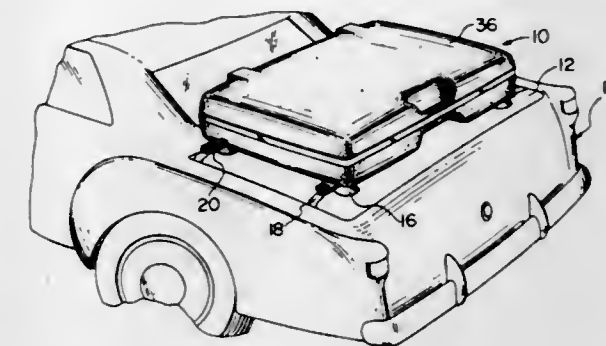


A hook-on wristband for a wristwatch formed with a two-piece fitting including a hook-shaped member which is secured by a longer leg to the inner ply of a two-ply band by means of prongs formed on the longer leg and passing through the inner ply; the outer ply of the band being longer than the inner ply and folded around the hook and engaged to the shorter leg thereof by a reentrant extension of the shorter leg which is clamped over the ply end; a spring detent member is secured between the longer hook member leg and the inner ply with a curved detent portion of the spring member disposed between the legs of the hook member.

3,565,305
CAR CARRIER MEANS
Paul Belokin, Jr., 6919 W. 43rd St., Berwyn, Ill. 60402
Filed May 27, 1969, Ser. No. 828,159
Int. Cl. B60r 9/04

U.S. Cl. 224-42.1

8 Claims



A carrier for attachment to the trunk lid or top of a car is described, characterized by molded plastic construction, inner compartmentation and a combination liner and hinged cover having a peripheral zipper closure. Means are provided to affix the carrier to a flat or curved surface of a vehicle on swivel mountings. The carrier is strong, weather proof and is mounted on the vehicle with the only access panel concealed and adjacent surface of the car so as to discourage theft. In one embodiment a molded handle is provided recessed in one edge of the carrier defining compartments on each side between the liner and the inner wall of the carrier. Access to these compartments is through separate zipper closures in the edge wall of the liner. Molded-in leg protuberances also form other compartments for small items. Once removed from the car, the carrier serves as a suit case. Other embodiments are disclosed.

3,565,306

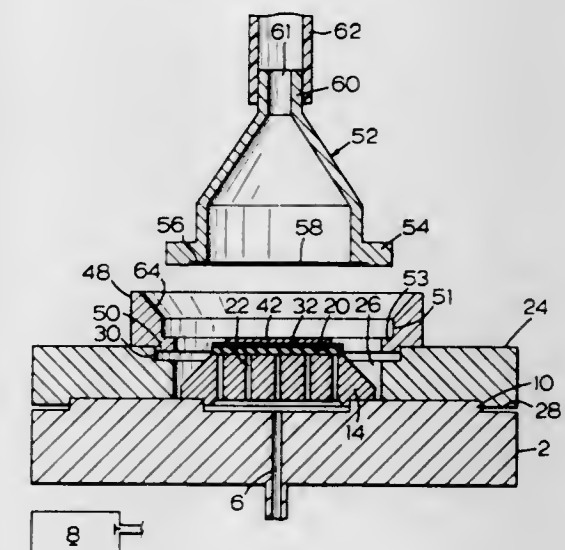
METHOD FOR DICING AND CLEANING SEMICONDUCTOR SLICES

Jacques R. St. Louis, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Apr. 28, 1969, Ser. No. 819,735
Int. Cl. B26f 3/00

U.S. Cl. 225-1

9 Claims



A scribed semiconductor slice is placed scribed side down on a perforated cleaving stage. The slice, covered with a protective plastic film, is held in place by vacuum applied through the stage, while a cleaving bar is stepped across the slice top to dice the slice. A vacuum holder then picks up the dice and moves them into a cover so that the holder and cover together form a cleaning chamber. Cleaning gas is passed through the chamber to clean the dice, and the holder then transports them back to another vacuum holder which in turn transports them to a storage container where they are deposited scribed side up.

3,565,307

DISPENSING CARTON FOR ROLLS OF SHEET MATERIAL

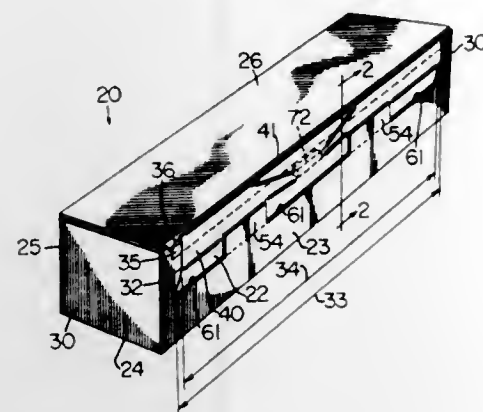
Dale O. Wiley, Chesterfield, and William J. Neuhauser, Henrico, Va., assignors to Reynolds Metals Company, Richmond, Va.

Filed Nov. 21, 1968, Ser. No. 777,615

Int. Cl. B26f 3/02

U.S. Cl. 225-47

18 Claims



A dispensing carton for a supply roll of sheet material wherein such carton has an easily shielded sheet material cutter and has means enabling easier grasping, unrolling, and severing of a terminal portion of the sheet material. The carton also has at least one flap engaging the terminal portion of the sheet material to prevent such terminal portion from moving to an inaccessible position within the carton following a dispensing operation.

3,565,308

DEVICES FOR FIBRILLATING SHEET MATERIAL

Phillip T. Slack, Drighlington, near Bradford, England, assignor to Plasticisers Limited, Drighlington, near Bradford, Yorkshire, England

Filed June 18, 1968, Ser. No. 737,886

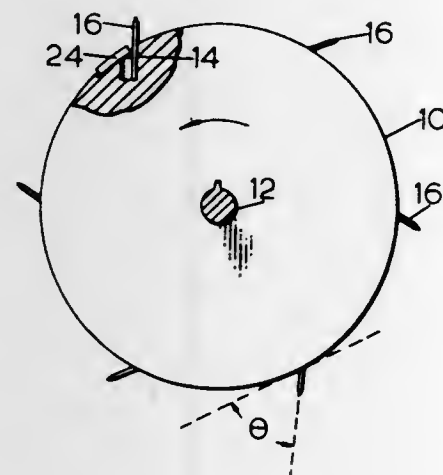
Claims priority, application Great Britain, Feb. 14, 1968,

7207/68

Int. Cl. B26f 3/00, 1/24

U.S. Cl. 225-97

4 Claims



A rotatable drum having plural cutting elements over its surface, arranged in a manner to obtain a smaller transverse spacing between adjacent slits in the fibrillated material, than in previously proposed devices. Four different types of construction of drum are proposed each allowing for the particular arrangement of cutting elements.

3,565,309

METHOD AND APPARATUS FOR SHEARING ROLLED METAL BLANKS

John Gross, Salem, Ohio, assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Original application Sept. 6, 1967, Ser. No. 665,816, now

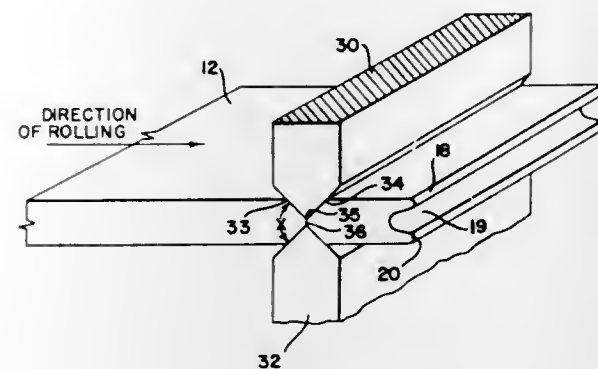
Patent No. 3,492,853, dated Feb. 3, 1970. Divided and this

application Sept. 25, 1969, Ser. No. 871,992

Int. Cl. B26f 3/00

U.S. Cl. 225-103

4 Claims



An improved method and apparatus for shearing hot rolled metal blanks in which shear blades having a particular shape are used to shear the metal blank to produce a tapering transverse edge configuration having a longitudinally extending control portion relative to the top and bottom surfaces of the blank thereby to minimize laminating of the sides in subsequent rolling operations.

3,565,310

APPARATUS FOR SELECTIVELY TRANSPORTING ELONGATED ARTICLES

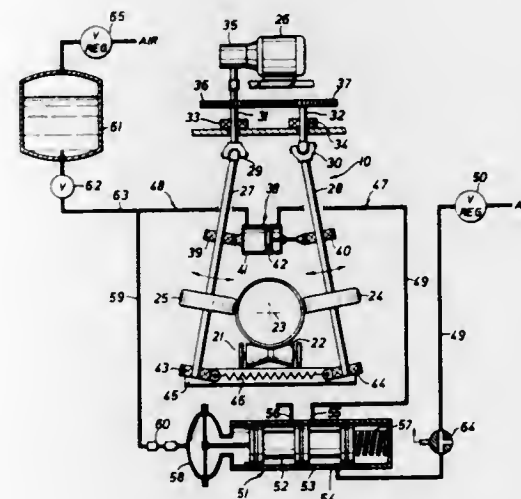
Gerald H. Hugonin, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Nov. 1, 1968, Ser. No. 772,689

Int. Cl. B65h 23/18

U.S. Cl. 226-34

14 Claims



As a preferred embodiment of the invention disclosed herein for axially transporting elongated members along a selected axis, a plurality of rollers spaced about this axis are cooperatively arranged to engage spaced exterior portions of an elongated member, such as a joint of pipe and the like. At least two of these rollers are adapted to contact opposed surfaces of the elongated member with one or both of these opposed rollers being selectively powered for frictionally driving the transported member along this selected path. At least one of the opposed rollers is adapted to move transversely in

relation to the transported member and is cooperatively associated with force-developing means operatively arranged for selectively urging the movable roller with sufficient lateral force against the transported member to secure positive traction between the transported member and the driving roller. Control means are also provided for actuating the movable roller soon after the transport member has moved into engagement with the opposed rollers so as to not hinder the movement of the transported member along the selected path.

3,565,311

STRIP-LIFTING APPARATUS WITH IMPROVED LIFTING BARS

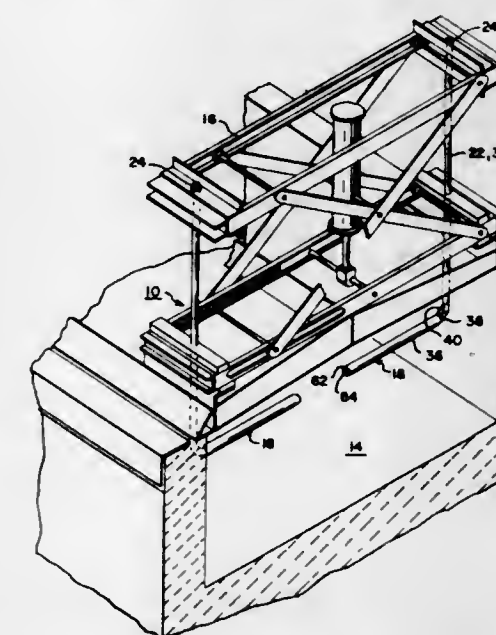
David L. Mitchell, Jr., Glenwillard, Pa.

Filed Jan. 9, 1969, Ser. No. 790,092

Int. Cl. B65h 23/26

U.S. Cl. 226-199

10 Claims



In an apparatus for lifting sheet steel strip into and out of a pickling tank, improved lifting bars formed in an L-shape and having an acid-resistant polypropylene covering surrounding a major portion of the length thereof and an acid-resistant polypropylene sleeve snugly fitted on the covering extending over the lower leg of the bar. The sleeve serves as the bearing surface for the strip and can be simply removed and replaced.

3,565,312

EXPLOSIVELY DRIVEN STUD UNIT

Robert Temple, Swissvale, and Ernest E. Temple, Murfreesville, Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.

Original application June 29, 1967, Ser. No. 649,957, now

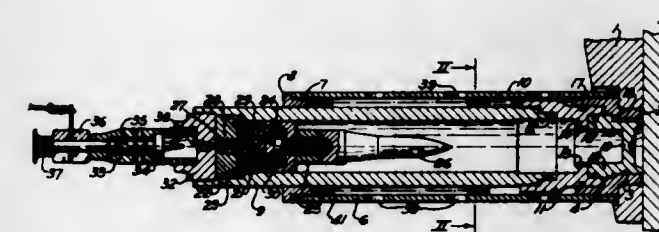
Patent No. 3,497,124, dated Feb. 24, 1970. Divided and this

application Oct. 27, 1969, Ser. No. 869,535

Int. Cl. B25c 1/12

U.S. Cl. 227-9

3 Claims



A cap, adapted to be rigidly mounted in the rear end of a driving tool barrel, is provided with an axial bore extending rearwardly therein most of the way through the cap, leaving a thin wall at the rear end of the bore. A cuplike piston has its rear end closed by the cap and is mounted on a rod, the rear

3,565,313

DEVICE FOR DRIVING ANCHORING MEMBERS CONTAINING A CARTRIDGE MAGAZINE

Hans-Dieter Seghezzi, Vaduz, Mittelfeld, Liechtenstein, and Herbert Rangger, Frastanz, Helmut, Austria, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Filed Aug. 7, 1968, Ser. No. 750,817

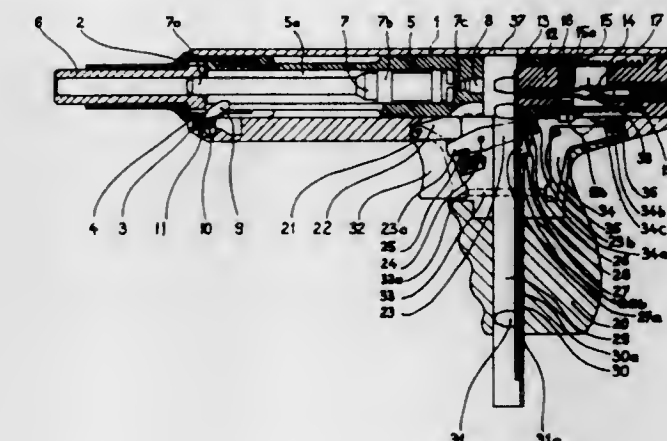
Claims priority, application Germany, Aug. 11, 1967, Jan. 9,

1968, P 16 03 841.8, P 16 03 849.6

Int. Cl. B25c 1/14

U.S. Cl. 227-10

15 Claims



A device for driving anchoring members is formed of a casing containing a barrel axially movable within the casing and having an axially extending bore. A grip member is secured to the casing and forms a duct communicating with a cartridge chamber in the rear end of the barrel. A cartridge magazine is positioned within the duct and means are arranged within the casing and the grip member for moving cartridges in the magazine into alignment with the cartridge chamber in the end of the barrel. By moving the barrel axially rearwardly the cartridges are loaded into the cartridge chamber.

3,565,314

BOX-ASSEMBLING MACHINE

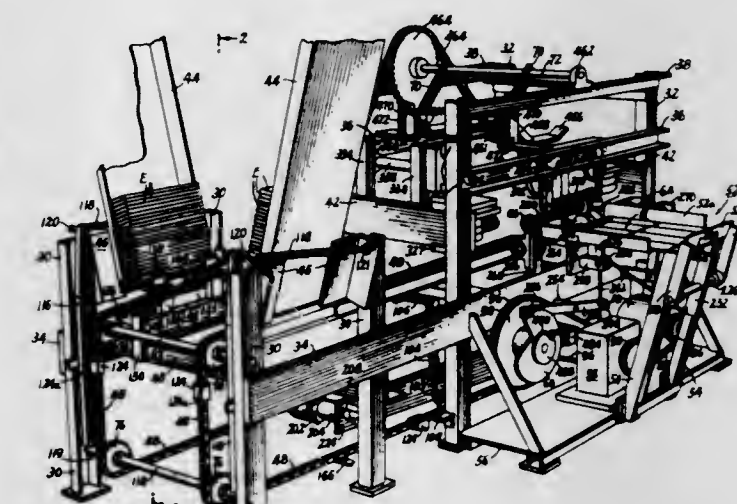
Robert B. Fitch, Montville, and Leroy M. Varga, Dover, N.J., assignors to Stapling Machines Co., Rockaway, N.J.

Filed Sept. 23, 1969, Ser. No. 860,182

Int. Cl. B27m 3/36

U.S. Cl. 227-48

11 Claims



A machine for assembling open-topped wirebound boxes of the type having solid wooden box ends with a wirebound

mat stapled to the front and rear edges thereof, including means for feeding the box ends into clamps on an elevator in its lower rest position, feeding the mat above the box ends, raising the elevator to cause the ends to engage the mat and push it past a mat-folding station then through a series of dwell positions at which staples are driven at spaced positions in each of the four corners, with means at the uppermost position to grip the completed box and support it at the bottom of a vertical stack, and with pusher means to push the top box in the stack out of the machine.

3,565,315

SPRING PIN SETTER

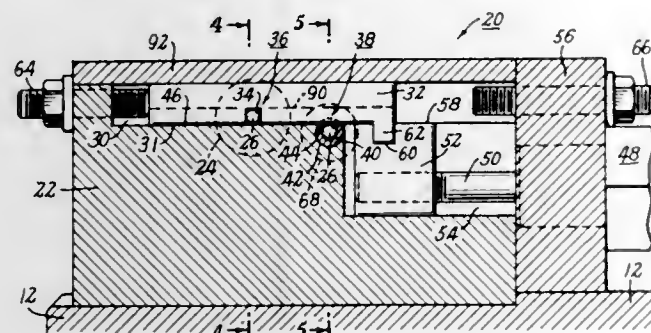
John L. Bixler, Philadelphia, Pa., assignor to Standard Pressed Steel Co., Jenkintown, Pa.

Filed Dec. 30, 1968, Ser. No. 787,799

Int. Cl. B25c 1/04

U.S. Cl. 227-116

7 Claims



An automated, high-speed spring pin setter which directs spring pins from a continuous supply of pins through a delivery tube to a reciprocating loading magazine. Pins are fed initially to the magazine at a pin load station and are carried by a slide in the reciprocating magazine to a pin feed station where a plunger drives the spring pins from the magazine into the workpiece.

3,565,316

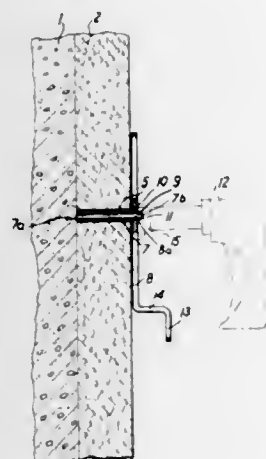
MEANS FOR DRIVING FASTENING ELEMENTS INTO SOLID MATERIAL COVERED BY A COMPRESSIBLE MATERIAL

Goesta E. Stroem, Vasterhaninge, Sweden, assignor to Hilti Aktiengesellschaft, Schaan Furstentum, Liechtenstein
Original application Oct. 18, 1967, Ser. No. 676,184, now Patent No. 3,487,533, dated Jan. 6, 1970. Divided and this application July 16, 1969, Ser. No. 864,238

Int. Cl. B25c 7/00

U.S. Cl. 227-156

7 Claims



A device for inserting fastening elements into solid material covered by a compressible material such as an insulating material, and comprised of a tubular member arranged to extend through the compressible material and having a first end in contact with the face of the solid material and a second end adapted to extend outwardly from the outer surface of the compressible material. A platelike support member hav-

ing an opening therethrough is attached to the second end of the tubular member and means for driving the fastening elements are supported on the support member aligned with the tubular element for inserting the fastening elements into the solid material. The support member is provided with a handle portion for holding it in place while the fastening elements are inserted into the solid material.

A wall construction comprising a wall of solid material having a coating of a compressible material secured to and extending from its face and a coating covering the compressible material. The coating is secured to support members attached to fastening elements which extend through the compressible material and are secured to the wall of solid material. The coating material is supported by the fastening elements secured into the wall of solid material and does not compress or otherwise damage the underlying layer of compressible material.

3,565,317

METHOD AND APPARATUS FOR APPLYING NONFERROUS OVERLAY ON STEEL OR STEEL ALLOY ARTICLES

Philip Vansteenkiste, Deerlijk, Belgium, assignor to Trefileries Leon Bekaert, PVBA, Swevegem, Belgium
Original application Dec. 23, 1966, Ser. No. 604,442, now Patent No. 3,449,821. Divided and this application Jan. 28, 1969, Ser. No. 807,157

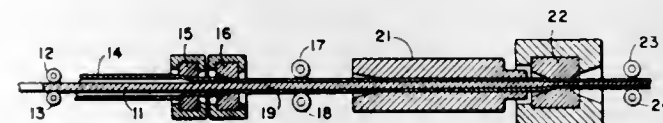
Claims priority, application Netherlands, Dec. 23, 1967,

6516868

Int. Cl. B23k 21/00; B23p 3/02

U.S. Cl. 228-3

3 Claims



A method for covering of a steel or steel alloy article, such as wire or rod; with an overlay of a nonferrous metal by a continuous cold forming process; combined with final calibration of both steel wire and thickness of overlay; and apparatus for performing of this method.

3,565,318

SOLDER APPLICATORS

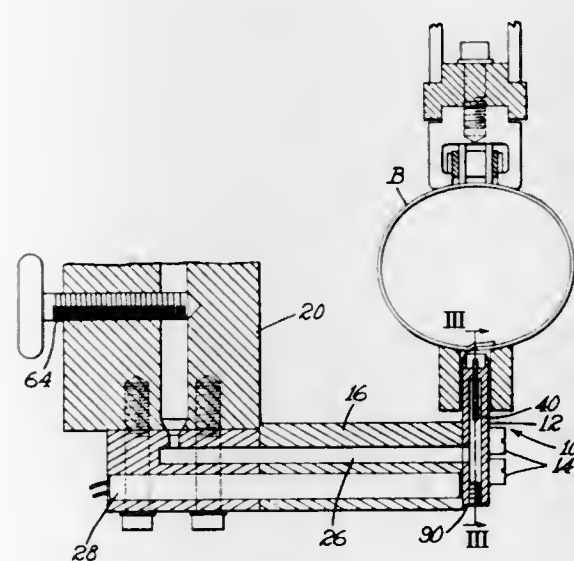
Frederick S. Sillars, Beverly, Mass., assignor to USM Corporation, Flemington, N.J.

Filed Oct. 6, 1967, Ser. No. 673,465

Int. Cl. B23k 1/08

U.S. Cl. 228-37

2 Claims



An applicator for applying solder to the side seams of moving can bodies. The applicator has a tubular pocket at its discharge portion for containing a body of solder. Means are

provided for discharging a jet of solder into the pocket to form a distorted bulbous meniscus having a nipple at its apex at the open end of the pocket. Solder is deposited in the side seams of can bodies which pass through the nipple.

3,565,319

APPARATUS FOR APPLICATION OF SOLDER TO CIRCUIT BOARDS

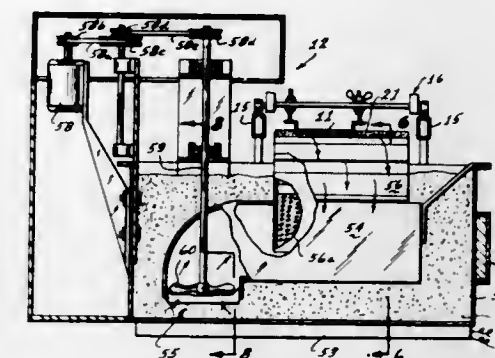
Hans Peter Eschenbrucher, Torrance, Calif., assignor to Technical Devices Company, a Division of Banner Industries, Inc., Cleveland, Ohio

Filed May 15, 1967, Ser. No. 638,283

Int. Cl. B23k 1/08

U.S. Cl. 228-37

8 Claims



A soldering apparatus comprising an outer tank for holding a supply of molten solder, an inner pressure tank and solder duct means which directs the flow of solder to avoid direct flow and any turbulence of solder in the duct inlet.

3,565,320

REFRIGERATED SHIPPING CONTAINER

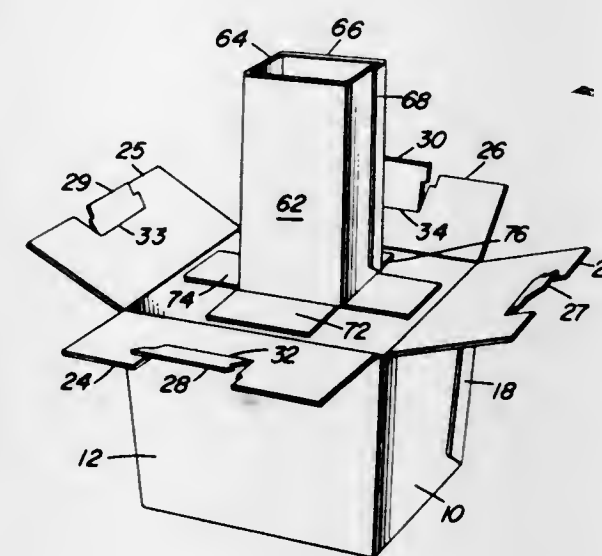
Edward L. Osborne, Kansas City, and Franklin J. Wagner, Overland Park, Kans., assignors to Westvaco Corporation

Filed Mar. 3, 1969, Ser. No. 803,828

Int. Cl. B65d 5/58; F25d 3/08

U.S. Cl. 229-14

10 Claims



A two component refrigerated shipping container is disclosed including an outer container and an inner container, said inner container being located within the outer container but isolated from the walls thereof so that the product to be shipped can be packed around the inner container and refrigerant added to the inner container, and said outer container including top closure flaps which cover the product for shipment yet leave the refrigerant filled inner container open for reicing and deicing.

3,565,321

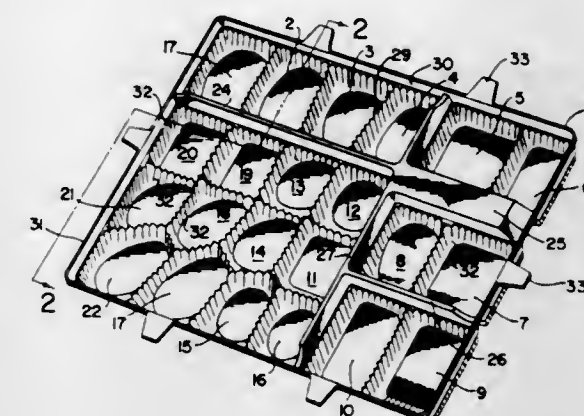
TRAY FOR DISPLAYING AND PROTECTING FRANGIBLE FOODS

Hugh R. Weiss, Montclair, N.J. c/o The Pantasote Co. of New York, Inc. 26 Jefferson St., Passaic, N.J. 07055
Filed Apr. 30, 1969, Ser. No. 820,465

Int. Cl. B65d 1/36, 3/24, 5/48

U.S. Cl. 229-15

3 Claims



A one-piece tray for displaying and packaging candy and the like in boxes. It is formed from a sheet of thermoplastic material and has cups of various configurations for receiving candy and the like. The cups are separated from each other by upstanding hollow ribs, and the tray has a vertical flange extending around the periphery thereof. In accordance with the present invention, a vertically extending flange carries a plurality of resilient, outwardly extending spaced projections of the resilient rigid thermoplastic material. When the tray is inserted in the box, the projections are flexed downwardly or upwardly against the sides of the box, exerting a transverse spring effect that stabilizes the tray in the box to absorb energy and prevent shaking of loose fitting trays against the sides of the box.

3,565,322

CARDBOARD PACKINGS

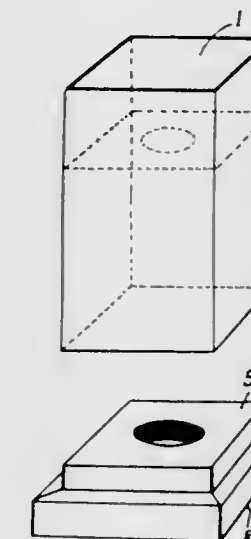
Nelly Cerf, Neuilly, France; Georges Reunis

Claims priority, application France, June 21, 1968, 156017

Int. Cl. B65d 85/00

U.S. Cl. 229-23

10 Claims



A combined cardboard packing and display pedestal for an article such as a bottle comprises a base including a recess for receiving the bottom of the article and a removable cover which rests upon the base and encloses the main body portion of the article, the cover member being provided with a top including a transverse panel including an aperture in

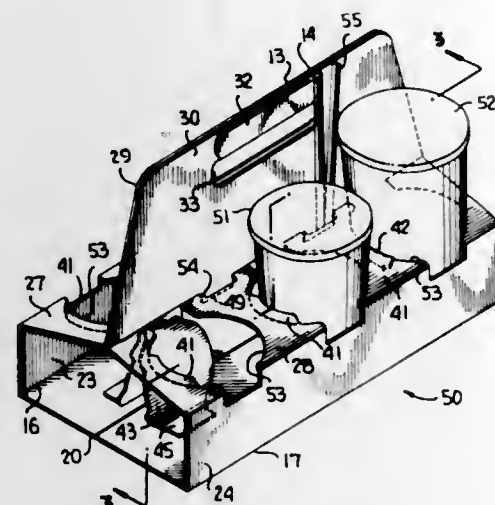
alignment with the recess in the base for receiving and supporting the upper end of the article against movement. The base and cover are erected from blanks of cardboard material and are reinforced with liners of corrugated cardboard also erected from blanks. Shims of corrugated cardboard provided with a recess are stacked within the erected base to build thickness into the base recess.

3,565,323 CUP CARRIER

James H. Katzenmeyer, Elkhart, Ind., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Mar. 25, 1969, Ser. No. 810,233
Int. Cl. B65d 5/48

U.S. Cl. 229—28

8 Claims

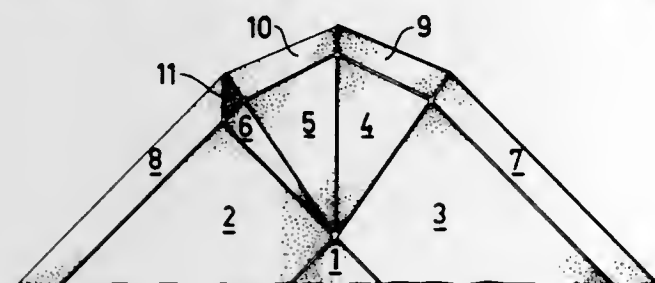


This disclosure relates to a carrier having a plurality of openings formed in the top wall thereof for receiving a plurality of drinking cups therein. A tab extends into each of the openings and is adapted to engage a container of predetermined size positioned therein. Insertion of a container of a size greater than the predetermined size will cause the tab to pivot out of the plane of the opening thereby increasing the size of the opening in order to accommodate the larger container. The carrier also includes a plurality of narrow elongated openings formed in the top wall thereof for holding a plurality of drinking straws.

3,565,324
TROUGHLIKE PACKAGE HAVING SUPPORTED CORNERS AND A PROJECTING FLANGE
Rune Gurien Alex Odenhagen, Malmo, Sweden, assignor to AB Akerlund & Rausing, Lund, Sweden
Filed Nov. 27, 1968, Ser. No. 779,560
Claims priority, application Sweden, Apr. 29, 1968, 5766/1968
Int. Cl. B65d 5/24

U.S. Cl. 229—31

8 Claims

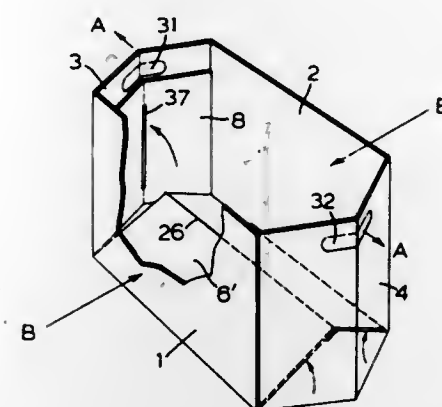


A traylike container having folded triangular corners and at least one projecting folded triangular panel for adding support to the corner construction of the container.

3,565,325
COLLAPSIBLE CARTON
Kenneth N. Pugsley, 2164 Wedgewood Road, Cooksville, Ontario, Canada
Filed Aug. 23, 1968, Ser. No. 754,910
Int. Cl. B65d 5/02, 5/36

U.S. Cl. 229—37

5 Claims

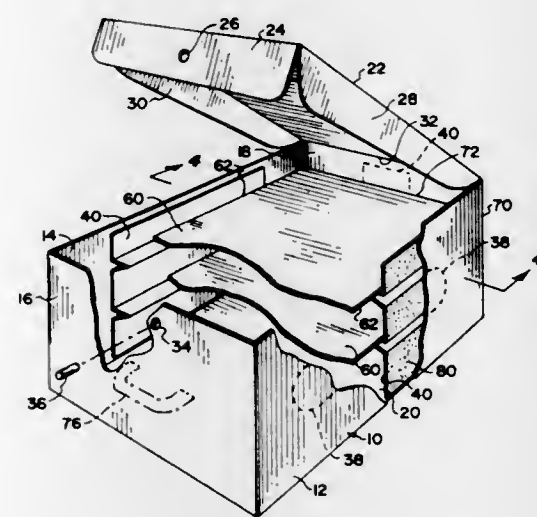


A collapsible carton which may be easily and quickly setup, has a base panel formed with an upwardly expressed medial fold line, a pair of end panels each formed with an outwardly expressed medial fold line, and a pair of pivotal flaps each formed with a medial fold line. The carton is set up by application of pressure to the ends of the carton whereby the panels and flaps are unfolded about their respective fold lines.

3,565,326
DISPOSABLE BOX
Anne E. Turkovich, 860 Hinman, Evanston, Ill.
Filed Aug. 12, 1968, Ser. No. 751,838
Int. Cl. B65d 5/48

U.S. Cl. 229—42

2 Claims

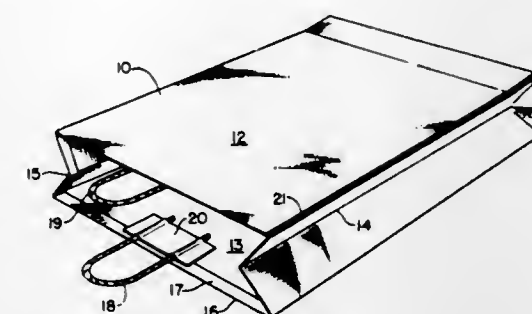


A box having separable flat cleat members adapted to be folded transversely to form an elongated supporting flange and used as a side support for the edge of a shelf member or partition within the box. The box can be in the form of a receptacle for perishable or frangible items or formed into a disposable inexpensive suitcase. In one embodiment an adhesive layer is provided between the juncture of the cleat member and the inside wall of the box. Other embodiments are disclosed.

3,565,327
TURNED-TOP SHOPPING BAG
Frederick T. Rodley, 139 W. Main St., Walden, N.Y.
Filed Oct. 10, 1968, Ser. No. 766,574
Int. Cl. B65d 33/06

U.S. Cl. 229—54

2 Claims

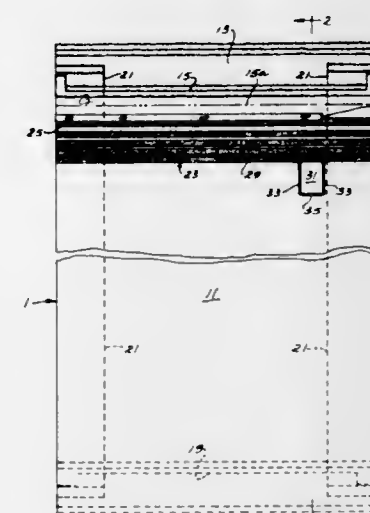


A handled shopping bag having two handles, gusseted sides, a fully turned-top edge and reinforcing patches for each of the handles.

3,565,328
MULTIWALL PINCH CLOSURE BAG WITH OPENING FEATURE
Harold D. Hudson, Hopkins, Minn., assignor to Bemis Company, Inc., Minneapolis, Minn.
Filed May 15, 1969, Ser. No. 824,842
Int. Cl. B65d 33/04, 17/00, 5/70

U.S. Cl. 229—55

8 Claims



A multiwall bag having a pinch closure provided with a tab and a tear strip for opening the bag at the closure. The tab is constituted by a portion of the outer ply of the bag defined by perforations in the outer ply, the tab extending lengthwise of the bag from the edge of the folded-over flap of the pinch closure. The tear strip extends crosswise of the bag under the flap and is adapted to be pulled to tear an opening in the closure after pulling the tab.

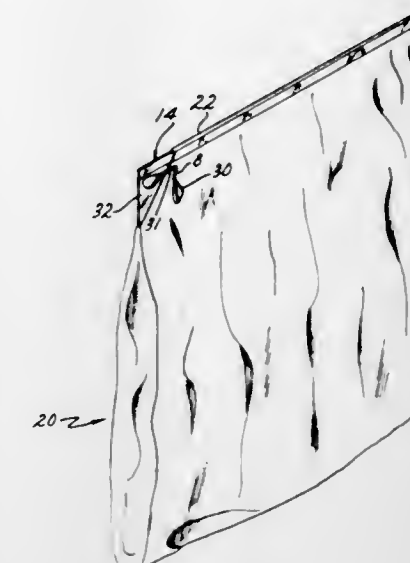
3,565,329
TEAR STRAND FOR PACKAGES
Victor K. Wagner, Jr., Longmeadow, Mass., and Charles E. Palmer, Somers, Conn., assignors to Springfield Wire, Inc., Springfield, Mass.
Filed Jan. 13, 1969, Ser. No. 790,543
Int. Cl. B65d 33/00, 27/38

U.S. Cl. 229—66

10 Claims

Package formed of sheet material and a flexible cutting

strand disposed on the package for cutting through the sheet

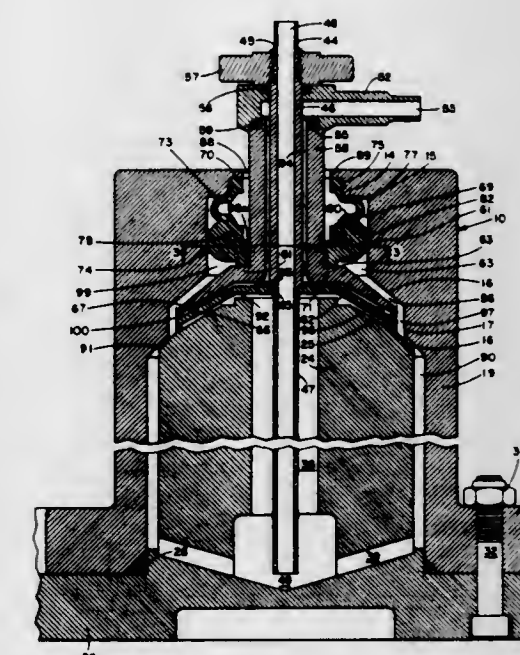


material, said strand having a soft or compactible core with a cutting filament or wire wound helically around the core.

3,565,330
ROTARY SEAL AND CENTRIFUGE INCORPORATING SAME
Allen Latham, Jr., Jamaica Plain, Mass., assignor to Cryogenic Technology, Inc., Waltham, Mass.
Continuation-in-part of application Ser. No. 611,073, Jan. 23, 1967, now Patent No. 3,409,213. This application July 11, 1968, Ser. No. 744,196
Int. Cl. B04b 7/00, 1/100

U.S. Cl. 233—21

5 Claims



A rotary seal formed of a first rigid, low friction member which contacts a moving rigid member with minimal friction to make the dynamic seal, and a second elastomeric member which provides a resilient static seal and a spring action force between the surfaces of the dynamic seal. Means are provided to overcome any static friction or momentary aberrations encountered in startup. The seal is particularly suitable for centrifuges for continuous sterile operations such as in the treating of blood.

3,565,331

METHODS OF AND APPARATUS FOR RECORDING INFORMATION ON A TAPE-FORM RECORDING MEDIUM

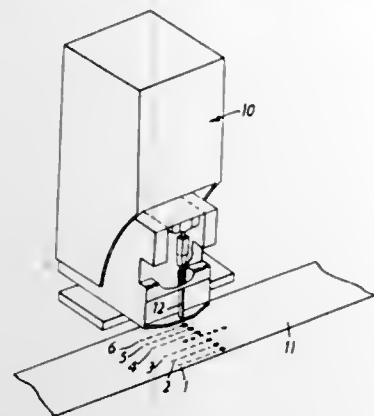
Ronald Campbell McIntosh, St. Albans, and Hayden Victor Purdy, London, England, assignors to Purdy & McIntosh (Electronic Developments) Limited, London, England
Filed Jan. 31, 1968, Ser. No. 702,041

Claims priority, application Great Britain, Feb. 6, 1967, 5642/67

Int. Cl. G06k 1/00, 1/04, 15/00

U.S. Cl. 234-4

5 Claims



The invention provides apparatus for amending code signals on a tape form record medium, for example punched paper tape. The apparatus reads information already recorded on the record medium, recognizes places where amendment is required and makes the necessary amendment. The invention is also concerned with a combined reading and recording head for punched paper tape having a reading portion arranged to sense perforations in some of the channels and a tape punch to make additional perforations in the other channels.

3,565,332

DEVICE FOR RECORDING MESSAGES ON PUNCHED TAPES

Willi Kirchner, Schwebheim, and Gunter Lampert, Schweinfurt, Germany, assignors to Kugelfischer Georg Schafer & Co., Schweinfurt, Germany

Filed Mar. 4, 1969, Ser. No. 804,090

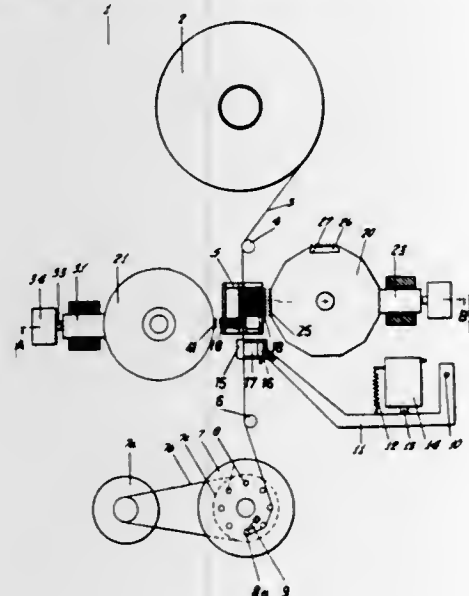
Claims priority, application Germany, Mar. 22, 1968,

1,774,030

Int. Cl. G06k 1/00

U.S. Cl. 234-38

8 Claims



A device for punching paper tape. Messages are divided into two groups, one being indicative of constant circumstances and the other being indicative of varying circumstances, and are punched onto paper tape by means of preset coding discs.

ERRATUM

For Class 235-54 see:
Patent No. 3,566,086

3,565,333

PIN CARRIAGE

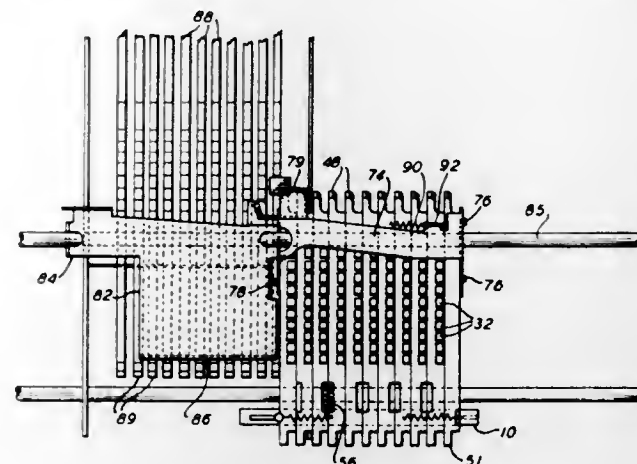
Armin O. Fischer, Cranford, N.J., assignor to Litton Business System, Inc., Orange, N.J.

Filed July 28, 1969, Ser. No. 845,208

Int. Cl. G06c 7/00

U.S. Cl. 235-60

18 Claims



A pin carriage is disclosed which is formed by securing together integral modular plastic members, each of which comprises the entire support for all the pins in an order of the pin carriage. These members are secured together by interconnecting means which are integrally formed thereon.

3,565,334

REGISTERING APPARATUS

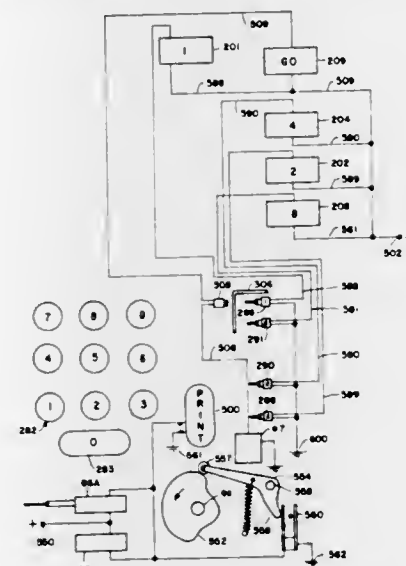
Eugene E. Reynolds, Orangeburg, S.C., assignor to SCM Corporation

Filed July 21, 1967, Ser. No. 655,116

Int. Cl. G06c 7/10, 7/02; B41i 25/00

U.S. Cl. 235-61

33 Claims



The invention relates to a mechanism for printing values entered in a keyboard or transmitted from a computer. Normally, values entered in a keyboard are entered in the decimal system of notation, and in the present case, decimal values are serially encoded into binary values and then serially decoded into a decimal storage mechanism. Thereafter, the decimal values are printed out in parallel. When binary coded decimal values are transmitted from a computer or other transmitter, the keyboard and encoder are bypassed. The binary values are directly decoded into the decimal system in series and printed out in parallel.

3,565,335

DEVICE FOR CALCULATING QUANTITATIVE COMPOSITION OF A SUBSTANCE FROM AN X-RAY SPECTROSCOPIC ANALYSIS

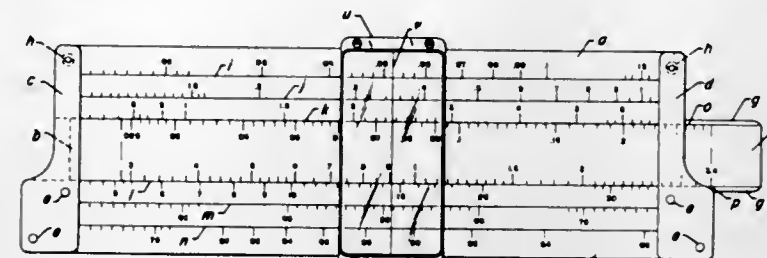
Donald L. Holden, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed June 4, 1968, Ser. No. 734,338

Int. Cl. G06g 1/02

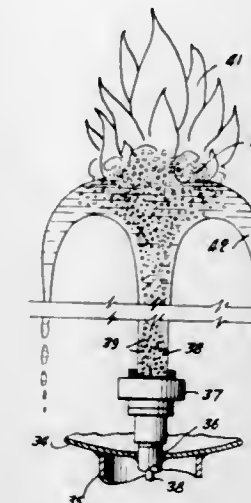
U.S. Cl. 235-70

5 Claims



Two graduated scales, relatively positionable, for making analogue computations of the quantity of a known material in a qualitatively known and quantitatively unknown composition. One scale is calibrated in weight percentages and graduated according to a mathematical function of weight percentages. A second scale is calibrated in units proportional to intensity measurements from an X-ray spectroscopic analysis, and is graduated identically with the first scale.

a special mixing chamber to cause the gas to be trapped and encapsulated in bubbles suspended in the water stream so that when the mixture of gas and water breaks over by loss of momentum and gravity the bubbles will break, releasing the



3,565,338

ANTISURGE FLOW CONTROL DEVICE FOR A DRINKING FOUNTAIN OR THE LIKE

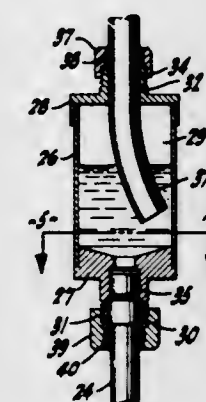
Allen C. Wright, Moraga, Calif., assignor to Haws Drinking Faucet Company, Berkeley, Calif.

Filed June 13, 1969, Ser. No. 832,928

Int. Cl. E03b 9/20

U.S. Cl. 239-24

8 Claims



A flow-control device to prevent surging of the water discharge from a drinking fountain or the like. The device is particularly useful in association with freeze-proof drinking fountains that necessarily have a relatively long supply conduit extending between the elevated discharge nozzle of the fountain and the control valve thereof which is buried within the ground at a depth below the frostline. In fountains of this type, the supply conduit is substantially drained of water following each use, thereby causing it to contain a long column of air at the initiation of each cycle of use that tends to be compressed in front of and entrained within the water flowing upwardly toward the nozzle. Such compressed and entrained air causes surging or erratic behavior of the water discharge from the fountain. The flow-control device is located along such water supply conduit and provides a relatively long chamber having an inlet communicating with the supply conduit on the valve side thereof, and an outlet through which a flow tube extends into the chamber toward adjacency with the inlet but not in direct alignment therewith. The flow tube also communicates with the supply conduit but on the nozzle side thereof. Water discharging from the inlet into the chamber tends to have trapped and entrained air removed therefrom so that the flow of water leaving the chamber via the flow tube is substantially surgeless.

3,565,337

FLAMING FOUNTAIN

Donald R. Ditto, 2606 Wilton, Dallas County, Tex. 75211

Filed Nov. 28, 1967, Ser. No. 686,184

Int. Cl. F21p 7/00

U.S. Cl. 239-18

9 Claims

A display device and method wherein natural or other combustible gas is mixed with water as water is ejected from

3,565,339

SOLID DIFFUSING MATERIAL PACKAGE

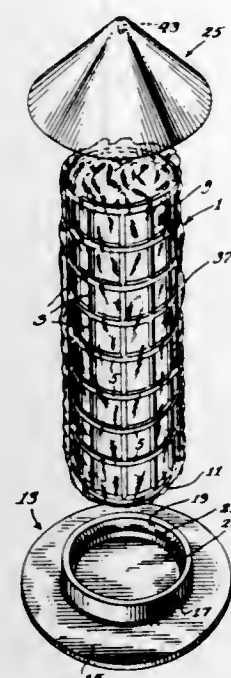
Frank J. Curran, 8101 S. Lemont Road, Downers Grove, Ill. 60515

Original application Mar. 14, 1968, Ser. No. 713,087, Patent No. 3,515,302. Divided and this application Nov. 14, 1969 Ser. No. 876,703

Int. Cl. A611 9/04

U.S. Cl. 239-60

2 Claims



A vaporizable solid mass to be used as a deodorant, insecticide, fumigant or insect repellent is packaged in a container resembling a gazebo. The container is formed of a body portion made of a plurality of vertically and horizontally disposed intersecting ribs providing spaces between the intersecting ribs through which the solid mass can vaporize. A base is friction fitted to the bottom of the body portion and a top is friction fitted to the top of the body. Both the base and the top have an annular recess immediately adjacent the surface which friction fits against the body so that when the base and top are mounted on the body the bottom and top edges of the body will slip into the recesses and assist in holding the container together. The surface of the bottom and the top which friction fits against the container may be slotted in the same direction as the ribs so as to enable the top and bottom to be mounted on the body without distorting the ribs. The top and bottom ends of the body portion surfaces may also be formed with a lip or with protuberances or beads preferably located between the ribs, if the base and top are slotted, and assist in holding the top and base fast to the body portion. The container may be made of plastic material or may be made of cardboard or metallic wire. A wrapper such as cellophane or other clear plastic may be used to enclose the solid body before it is inserted in the container; or a wrapper may be placed over the body portion with the edges wedged between the body portion and the top and bottom base respectively; or both may be used. Instead of or in addition to either or both of the foregoing, the entire package, including the container, may be enclosed in a suitable bag or wrapper which prevents any substantial vaporization before the package is opened.

3,565,340

FOLDING BOOM

Harry Mathias Meinert, Des Moines, Vernis Henry Meyer, Granger, Barbara Susan Coughenour, Carlisle, and Francis Edward Schlueter, Des Moines, Iowa, assignors to Deere & Company, Moline, Ill.

Filed June 3, 1969, Ser. No. 829,929

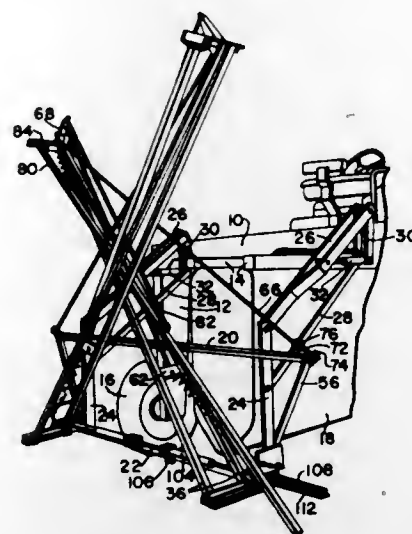
Int. Cl. B05b 1/20

U.S. Cl. 239-168

12 Claims

A sprayer boom having a hydraulic cylinder and sprocket apparatus for folding the boom through a 180°. The boom

also includes a double-folding action which permits a relatively long boom to be folded into a compact size for trans-



port, while staying within highway width limitations and maintaining a reasonable vertical clearance.

3,565,341

SPRAYING APPARATUS

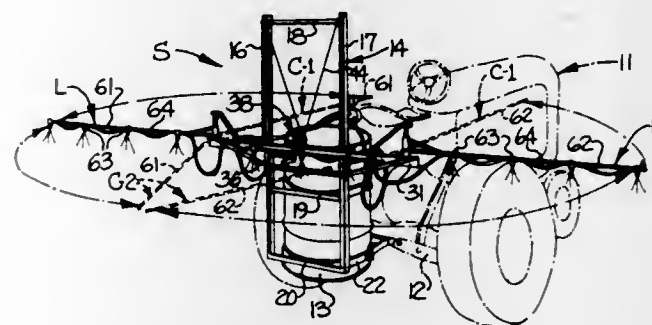
Jerome C. Burroughs, P. O. Box 776, Loris, S.C.

Filed Nov. 26, 1968, Ser. No. 779,042

Int. Cl. B05b 1/20

U.S. Cl. 239-168

9 Claims



A spraying apparatus for mounting on a vehicle such as a tractor including a transversely disposed beam mounted on a frame for vertical sliding movement having spray booms pivotally mounted on each end of the beam for movement selectively into a plurality of angular positions including a laterally extending spraying position together with means for manually moving the beam slidably on the frame and means for clamping the beam to the frame in a selected vertical position.

3,565,342

TANK-WASHING APPARATUS

James W. Orem, Red Bank, and Leonard V. Lione, Mountain-side, N.J., assignors to Butterworth System, Inc.

Filed Sept. 24, 1969, Ser. No. 863,746

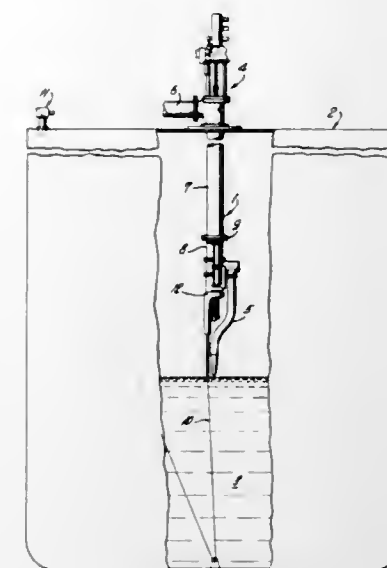
Int. Cl. B05b 3/00

U.S. Cl. 239-227

14 Claims

Apparatus concerned generally with tank-washing apparatus and is specifically concerned with an apparatus wherein the possibility of a static spark being generated is

greatly minimized. An electrical conductor is positioned from the end of the inwardly protruding conduit-nozzle which is



above the surface of the liquid, which conductor extends into the liquid.

3,565,343

INDEXING CARRIAGE FOR A BLOWER

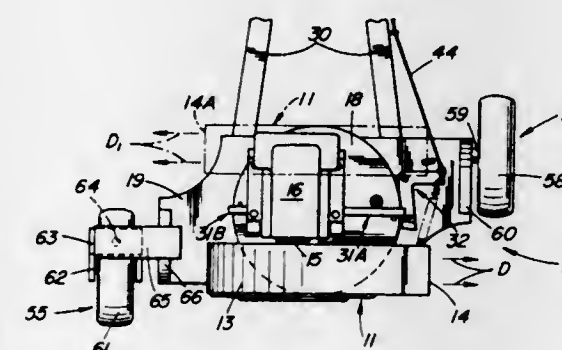
Sterling W. Alderfer, Akron, Ohio, assignor to The Steelcast Company

Filed Feb. 3, 1969, Ser. No. 795,817

Int. Cl. B05b 3/06

U.S. Cl. 239-261

6 Claims



An indexing carriage for a blower. The blower, and its power source, are mounted on a carousel that is rotatably supported on a frame. The emitting port from the blower discharges in a plane located eccentrically with respect to the rotational axis of the carousel so that the reaction force created by the discharge of air from the emitting port will tend to rotate the carousel. At least two sear means, spaced circumferentially with respect to the rotational axis of the carousel, are provided on the carousel for selective engagement by a single trip means carried on the frame. An actuating means engages and disengages the trip means from the sear means to permit the carousel to self-position the emitting port for the discharge of air in preselected directions. When employing laterally oriented discharges and the frame is supported on two wheels they may be longitudinally spaced to avoid interference with the discharge, but when so spaced it is preferable that at least one wheel be castered.

3,565,344

ELECTRIC SPRAYER

Hisao Takei, Nobumichi Hattori, Naoyuki Iwata, and Seiji Morita, Nitta Gun, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed June 28, 1968, Ser. No. 740,938

Claims priority, application Japan, July 1, 1967, June 31,

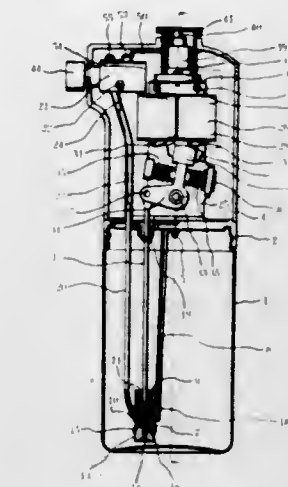
1967, July 26, 1967, Oct. 2, 1967,

56636/67;56350/67;64,551/67;83963/67

Int. Cl. B05b 9/04

U.S. Cl. 239-332

1 Claim



In an electric sprayer, a valve system is provided in the liquid path between an opening of an electric pump and a jet of a nozzle. The valve system is connected to the on/off switch of the electric pump so as to keep the system closed when the switch is off (i.e., when the sprayer is not in use), to prevent leakage of spraying liquid from the nozzle jet due to the increased pressure within the container when the atmospheric temperature rises or when the sprayer is inverted.

3,565,345

PRODUCTION OF AN ARTICLE OF HIGH PURITY METAL OXIDE

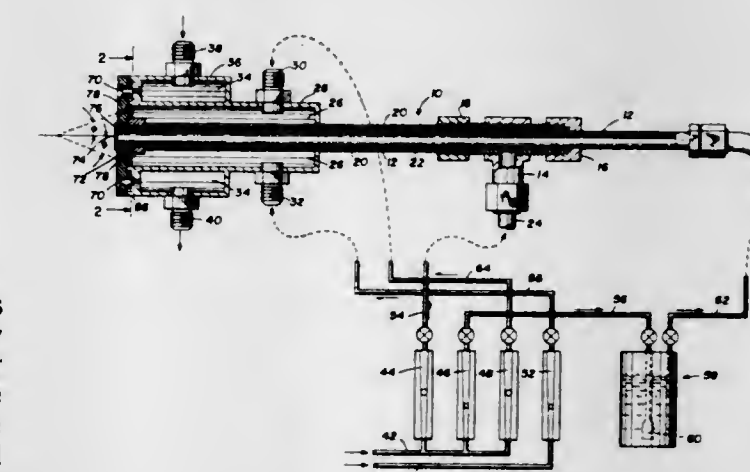
Herbert John Moltzan, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed July 11, 1968, Ser. No. 744,153

Int. Cl. F23d 1/16

U.S. Cl. 239-422

10 Claims



A torch is provided for decomposing a volatile metal chloride by hydrolysis to directly form an oxide article on a mandrel. The torch includes a nozzle which provides an output jet stream of vaporized metal chloride. Sheath openings in the nozzle provide a supply of gas which is relatively inert with respect to the gaseous metal chloride for preventing reaction immediately adjacent the nozzle face. A plurality of slanted nozzle openings are provided in the nozzle for directing angled streams of combustible gas through the sheath

stream at a selected region for reaction with the jet stream of gaseous metal chloride. When the gas streams are ignited, a torch flame is provided which may be directly impinged upon a mandrel in order to directly form an oxide article of high purity thereon.

3,565,346

METHOD AND APPARATUS FOR FORMING AN ARTICLE OF HIGH PURITY METAL OXIDE

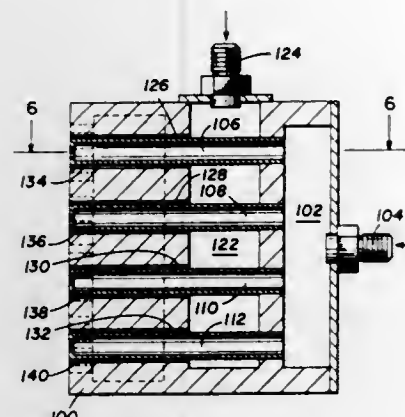
Michael A. Carrell, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed July 11, 1968, Ser. No. 744,188

Int. Cl. F23d 11/16

U.S. Cl. 239-422

12 Claims



A torch flame resulting from the combustion of gaseous silicon tetrachloride and a mixture of hydrogen and oxygen is directed upon a mandrel in order to form a high purity silica article thereon. The torch includes a nozzle aperture for providing an output jet stream of silicon tetrachloride entrained in a carrier gas. A sheath of oxygen containing gases is streamed about the jet stream of silicon tetrachloride in order to prevent reaction immediately adjacent the face of the torch nozzle with a stream of combustible gas provided about the sheath of gas. When the torch is ignited, the resulting flame is directly applied to the mandrel wherein a layer of high purity silica is deposited thereon due to the vapor phase hydrolysis of the silicon tetrachloride.

3,565,347

SECTIONAL SPRINKLING DEVICE

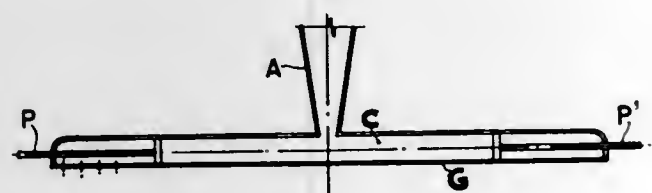
Claude Denninger, Chemin des Greffieres, (69) St. Cyr-au-mt. d'or, and Maurice Confino, "Les Bageardes," (69) Chazay-d'Arergues, France

Filed July 23, 1968, Ser. No. 746,892

Int. Cl. B05b 1/14

U.S. Cl. 239-556

3 Claims



A sectional sprinkling head specifically for distribution of liquid pesticides and fertilizers having an elongated body with a coupling for connection to a source of fluid supply and a grating having sprinkling openings, the grating being removably secured to the body and the sprinkler having its effective length adjustable by means of opposed plungerlike piston plugs.

3,565,348

FLUID-ENERGY MILL AND PROCESS

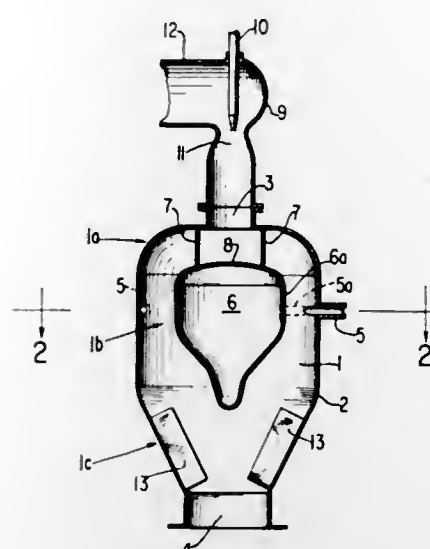
Theodore Dickerson and Robert Haines Havard, Monroe, and Claude Vernon Myers, Franklin, La., assignors to Cities Service Company

Filed Dec. 29, 1967, Ser. No. 694,648

Int. Cl. B02c 19/06

U.S. Cl. 241-5

26 Claims



The kinetic energy of high-velocity jets of a gaseous fluid is employed to violently agitate and swirl solid particles. A gaseous fluid is introduced into the mill as plural jets, having supersonic velocity, which are directed at an angle around a circular section of the grinding chamber. Particulated solid is entrained within the jets to form a fluid mass which is swirled within the circular section of the chamber to effect attrition of the particles. The particles are attrited to smaller size by violent impact and shear resulting from rapidly moving particles striking one another while also striking stationary grinding surfaces within the chamber of the mill. Subsequently, the attrited particles are separated from the gaseous fluid and collected as product. The invention is especially suitable for grinding colloidal pigments in order to reduce agglomerates of the pigment particles to more discrete particles.

3,565,349

INSTALLATION FOR PULVERIZING AND DRYING CRUDE QUARRY PRODUCTS

Gerard Deynat, Chalon-sur-Saone, assignor to Societe Des Forges Et Ateliers Du Creusot, Paris, Seine

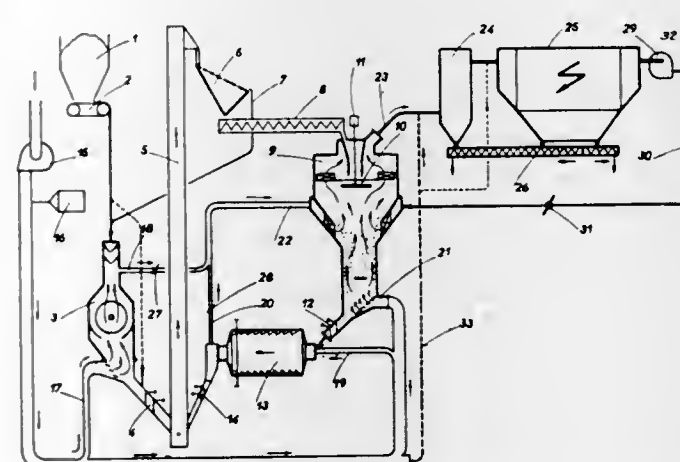
Filed Sept. 16, 1968, Ser. No. 762,181

Claims priority, application France, May 10, 1968, 151,407

Int. Cl. B02c 21/00

U.S. Cl. 241-42

3 Claims



A pulverizing and drying installation in which hot gas is supplied in parallel to a breaking machine, a separator and a crusher, the gases from the breaking machine and the crusher being sent to the separator whence a single gas flow charged with pulverulent material is sent to a filter.

3,565,350

COMMUNUTING APPARATUS

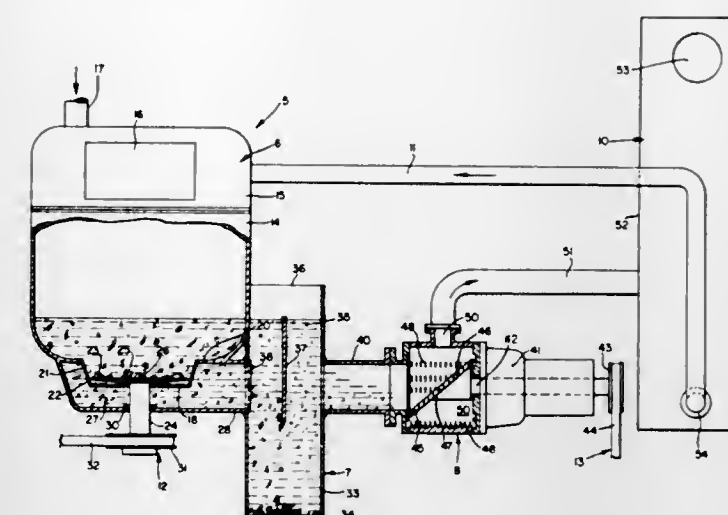
William H. Combs, Wayne, Sam N. Craig, Devon, and Ellis R. Warner, Jr., West Chester, Pa., assignors to Wascon Systems, Inc., Hatboro, Pa.

Filed May 20, 1968, Ser. No. 730,331

Int. Cl. B02c 13/00; 18/00, 21/00

U.S. Cl. 241-43

11 Claims



A two stage comminuting apparatus is provided for preparing waste solids for disposal. The apparatus contemplates a wet pulping of solids for the purpose of reducing the solids to a predetermined size, such pulping being effected by an abrading type nonjamming pulper. The pulped solids then may be fed to a positive grinder, after passing through a sump or other type of trap for selecting nongrindables therefrom. The positive grinder further reduces in size those particles which have been metered to size in the pulping stage.

3,565,351

IMPACTOR

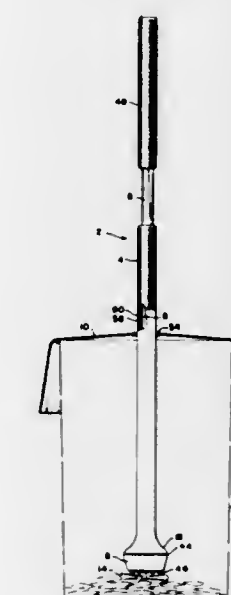
Thorvald S. Ross, Jr., Lincoln, Mass. (Smith's Point, Manchester, Mass. 01944)

Continuation-in-part of application Ser. No. 702,437, Feb. 1, 1968, now abandoned. This application Nov. 14, 1968, Ser. No. 784,505

Int. Cl. B02c 19/12

U.S. Cl. 241-99

11 Claims



The invention is an impact tool for compacting trash such as empty cans, bottles, cardboard and paper. It also has other uses such as compacting soil, driving spikes, chopping, edge trimming for lawns, etc. The tool consists of a tubular handle of lightweight material in which is slidably held a driver com-

3,565,352

BALL MILL LINER HAVING BRICKS WITH WEAR INDICATORS

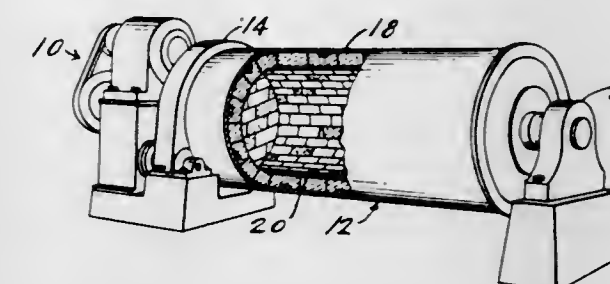
Robert F. Rea, Bloomfield Township, Mich., assignor to Champion Spark Plug Company, Toledo, Ohio

Filed Feb. 7, 1969, Ser. No. 797,604

Int. Cl. B02c 17/22

U.S. Cl. 241-182

7 Claims



A ball mill has a lining of bricks, selected ones of which have colored inserts extending toward the faces of the brick from the backs thereof for a distance of one-eighth to one-third the thicknesses of the bricks. When the bricks wear to the point of possibly failing, the colored inserts are readily visible to show that the liner requires replacement. Preferably the colored inserts are of the same refractory material as the bricks themselves and have a coloring material added thereto. This minimizes contamination of the material being ball milled.

3,565,353

GYRATORY CRUSHER WITH PROTECTIVE FEED GUIDE ELEMENTS

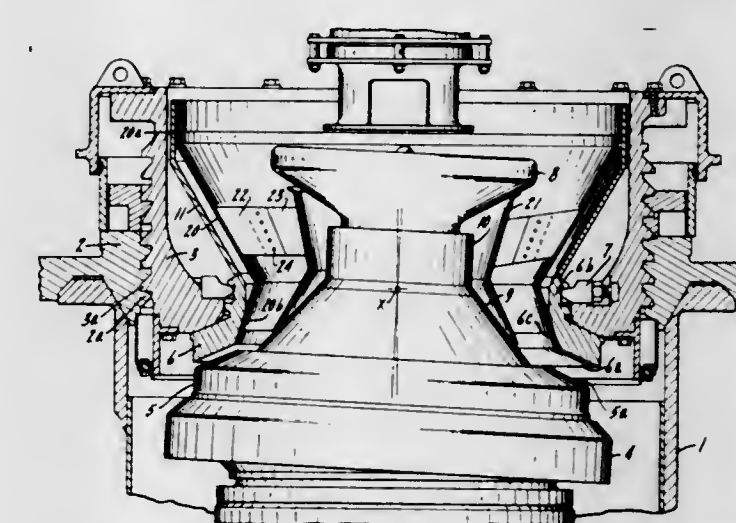
Howard W. Adam, Hales Corners, Wis., assignor to Nordberg Manufacturing Company, Milwaukee, Wis.

Filed Oct. 30, 1968, Ser. No. 771,745

Int. Cl. B02c 2/04

U.S. Cl. 241-207

10 Claims



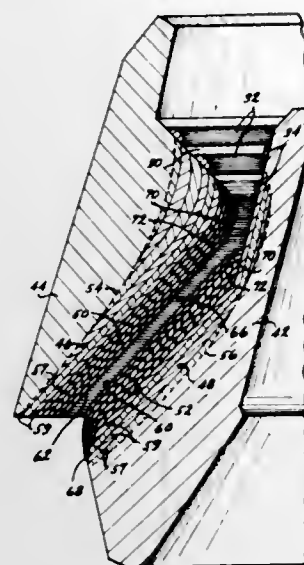
Protective feed guide elements for bowl liners and mantles, or parts thereof, as used in crushers in which a crushing head is gyrated within a surrounding and overhanging bowl. The protective elements include inner and outer preferably flexible guide members, which direct the material to the crushing cavity while preventing wear-causing contact between the particles and upper portions of the bowl and mantle, or positioning members therefor.

3,565,354

GYRATORY CRUSHER MANTLE-BOWL STRUCTURE
Donald Royce Gittings, Fremont, Calif., assignor to Stoodly Company

Filed Sept. 11, 1968, Ser. No. 759,051
Int. Cl. B02c 2/06

U.S. Cl. 241-209



Particularly formed telescopically mating conical elements (mantle and bowl) are disclosed for use in a cone type gyratory crusher as employed for reducing hard rock ore. Each of the conical elements includes a substantial crushing section of essentially linear taper, which has a hard metal surface layer (over 12 percent chromium and over 2.5 percent carbon) of at least 7/16-inch thickness. The two mating hard surfaces of the crusher elements (in offset concentric relationship) define an open truncated cone therebetween of variably gyrating thickness, the limits of which are substantially uniform. Above the open truncated cone, the mating elements define an enlarged, open feeding throat from which ore or other solid pieces are fed for crushing by the gyrating motion of the interior mantle element against the exterior bowl element. The relatively thick hard metal surface layers in cooperation with the linear shape of the conical crushing passage provides extended use periods for the crusher (wear being primarily abrasive) and effective crushing production.

3,565,355

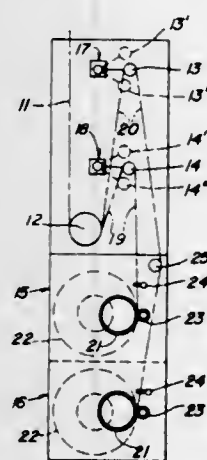
THREAD LOOP CONTROLLED WINDING DEVICE

Heinz Schippers and Erich Lenk, Remscheid-Lennep, and Wolfgang Weber, Wuppertal, Germany, assignors to Bar-mag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany

Filed Feb. 28, 1969, Ser. No. 803,197
Claims priority, application Germany, Mar. 2, 1968, B74,863
Int. Cl. B65h 54/00

U.S. Cl. 242-18

4 Claims



Filament or thread-winding apparatus embodying superposed decks of winding units or heads with individual speed

controls, and individual filament feed thereto from overhead via thread loops across dancer arms respectively functioning as speed control sensors for said winding units.

3,565,356

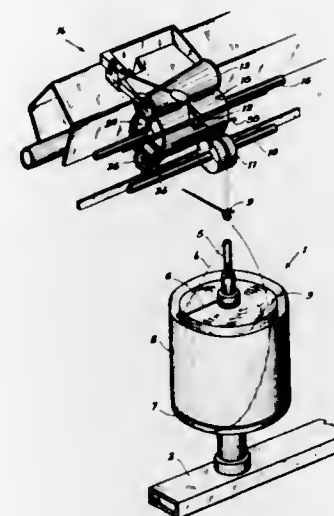
FRICTION ROLLER FOR DRIVING WINDING-UP BOBBINS AT THE CIRCUMFERENCE THEREOF

Lothar Marbacher, Krefeld, Gustav Franzen, Neersen Bezirk, Ulrich Lossa, Krefeld, Jan Gutowski, Neersen Bezirk, Dusseldorf, and Willy Heimes, Krefeld, Germany, assignors to Palitex Project-Company GmbH, Krefeld, Germany

Filed Mar. 3, 1969, Ser. No. 803,720
Claims priority, application Germany, Mar. 2, 1968, Aug. 16, 1968, P 17 10,118; P 17 74 696
Int. Cl. B65h 54/02, 63/02

U.S. Cl. 242-18

20 Claims



A friction roller structure for driving winding-up bobbins at the circumference thereof which includes a roller body normally frictionally coupled by a helical spring to a drive shaft, and means by which the frictional coupling connection between said roller body and said drive shaft may be interrupted by changing the coil diameter of said helical spring.

3,565,357

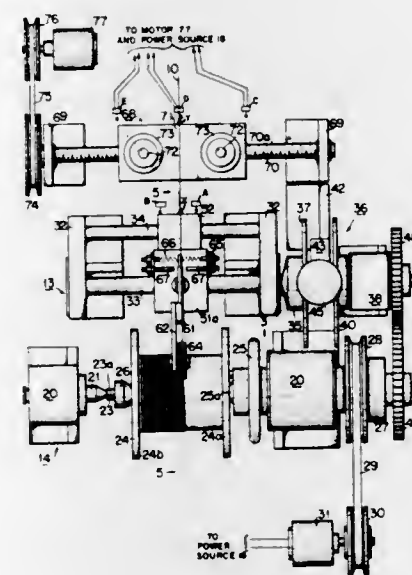
FINE WIRE WINDING DEVICE

Takashi Noguchi, Sagami-hara-shi, and Tadakazu Chida, Tokyo, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Jan. 28, 1969, Ser. No. 794,721
Claims priority, application Japan, Jan. 31, 1968, 43/5448
Int. Cl. B65h 54/00

U.S. Cl. 242-25

5 Claims



In the fine wire winding device of this invention, wire is wound by a spool with a constant tension. A guide pulley for

feeding the length of wire to a spool is arranged to follow a wire winding point on the spool with a space and move in parallel with said point with a predetermined inclination, in such a manner that the wire to be wound forms a predetermined angle with respect to the wire already wound by the spool. Control means is also provided for mechanically reversing the direction of movement of the guide pulley when the wire winding point approaches the ends of the spool, so that the guide pulley may reciprocate to effect the wire winding operation in the reverse direction.

3,565,358

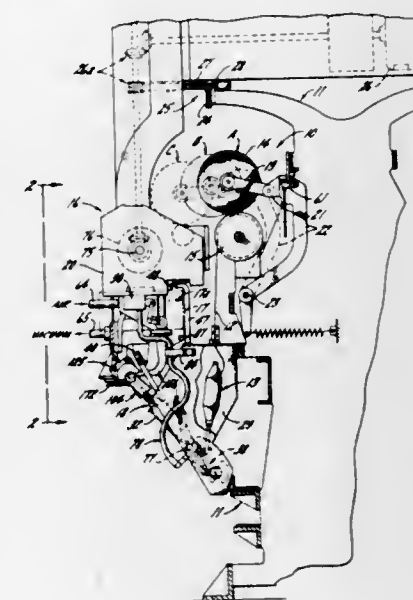
MULTIPLE WINDER WITH AUTOMATIC RESERVE THREAD POSITIONING

Curtis S. Repka, Rockford, Ill., assignor to Barber-Colman Company, Rockford, Ill.

Filed Apr. 4, 1969, Ser. No. 813,668
Int. Cl. B65h 54/22

U.S. Cl. 242-35.6

39 Claims



A thread winding machine of the type having a plurality of winding units and a servicing or tying unit movable along the winding units to tie a reserve thread to the thread extending from the package being wound and to resume the winding operation. A mechanism movable with the tying unit causes a thread tucked in the reserve bobbin core to be blown out of the core. A gripper receives the thread at a point spaced from the bobbin, and a swingable arm picks up the thread extending to the gripper, forms a loop in the thread and positions one leg of the loop in the upper hang-up clamp of the winding unit.

3,565,359

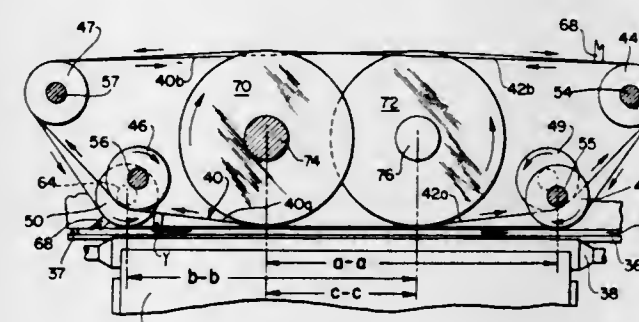
WINDING MACHINE

William V. Goodhue, North Kingstown, R.I., assignor to Leeson Corporation, Warwick, R.I.

Filed Mar. 10, 1969, Ser. No. 805,397
Int. Cl. B65h 54/28

U.S. Cl. 242-43

5 Claims



A winding machine incorporating yarn traversing mechanism having a pair of oppositely moving belt spans,

each provided with yarn engaging guides for moving the yarn along a traversal path in a controlled manner to wind a package of yarn, the yarn being transferred from one guide to another at each end of the path adjacent each package end. The traversal path of each of the spans is regulated so that the oppositely moving spans run parallel to the axis of the package in the zone corresponding to the axial midsection of the package. In the zones corresponding to the end sections of the package the oppositely moving belt spans run in paths diverging from said parallel paths. Stabilizing pulleys are provided to track the oppositely moving belt spans and thereby preclude vibrations being introduced into the yarn during its traversal.

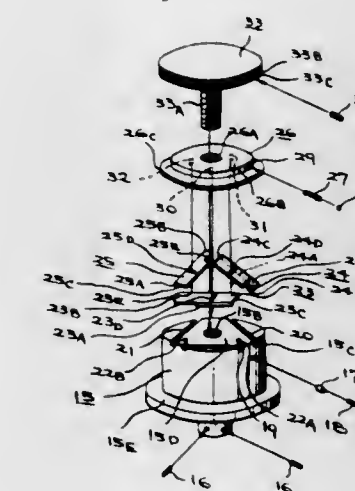
3,565,360
REEL DEVICE

Junichi Ura, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama City, Japan

Filed Apr. 28, 1969, Ser. No. 819,841
Claims priority, application Japan, Apr. 30, 1968, 43/28,522
Int. Cl. B65h 17/02

U.S. Cl. 242-68.3

9 Claims



A reel device can be moved outwardly to press against the reel and secure the same in place by merely rotating a rotary means in one direction. When the reel is to be removed, the reel securing means can be moved inwardly by rotating the rotary means in the opposite direction. This reel device permits the reel to be readily mounted and removed, and it holds the reel positively in place to prevent vibration while it is rotating.

3,565,361

CLOTH ROLL SUPPORTING MEANS FOR CLOTH SPREADING MACHINES

Edward M. Merrill, 986 W. Shelley Road, North Bellmore, N.Y.

Original application Aug. 18, 1967, Ser. No. 665,666, now Patent No. 3,495,817, dated Feb. 17, 1970. Divided and this application July 18, 1969, Ser. No. 842,963
Int. Cl. B65h 75/24

U.S. Cl. 242-72

1 Claim

A cloth roll supporting bar for use with cloth spreading machines having an adjustable effective outer diameter, to permit simplified engagement with a cloth roll.

3,565,362

REVERSIBLE CARTRIDGE SPOOL STRUCTURE

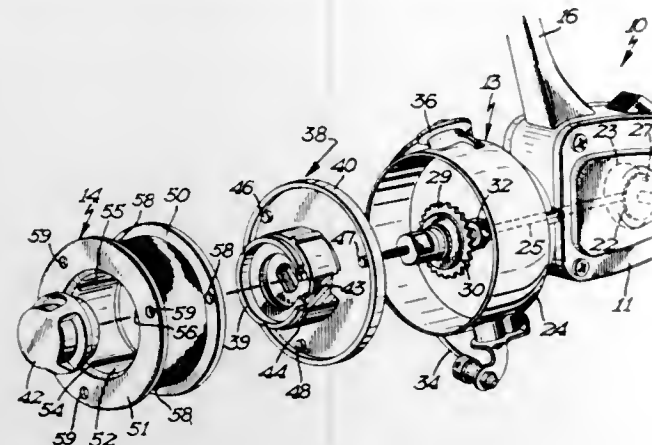
Larry L. Lillard and James T. Rumbaugh, Spirit Lake, Iowa, assignors to Berkley & Company, Inc., Spirit Lake, Iowa
Continuation-in-part of application Ser. No. 778,913, Nov. 1, 1968, which is a continuation-in-part of application Ser. No. 727,832, May 9, 1968, now abandoned. This application May 1, 1969, Ser. No. 820,859

Int. Cl. A01k 89/00; B65h 75/14
U.S. Cl. 242-84.21

6 Claims

A fishing line receiving spool for use in combination with a fishing line spool flanged mounting hub, the spool having an

axial core of generally cylindrical configuration with a pair of end flanges secured to opposite ends thereof, the inner surface of the spool core having at least one key means for engaging the surface of a spool receiving hub, said key means having an axis disposed parallel to the axis of said core, each of said spool flanges having at least one bore formed therethrough and disposed at a point radially inwardly from

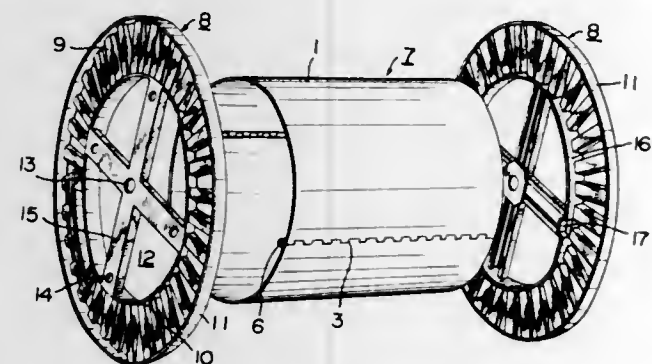


the outer spool flange periphery. This structure permits the line spool to be received on a flanged mounting hub in either axial direction, thus permitting use in connection with spooling or reeling systems operating in either clockwise or counterclockwise rotation. In addition, the spool flanges are smoothly radiused in order to provide a proper winding surface for the line retained on the spool.

3,565,363 TAKEDOWN REEL

Toru Mizuguchi and Yoshiaki Suzuki, Yokohama, Japan, assignors to The Furukawa Electric Company Limited; Toko Kogyo Kabushiki Kaisha Chuyoda-Ku and Ota-Ku, Tokyo, Japan

Filed June 17, 1968, Ser. No. 737,534
Claims priority, application Japan, June 20, 1967, 42/52,296
Int. Cl. B65h 75/22
U.S. Cl. 242-115 10 Claims

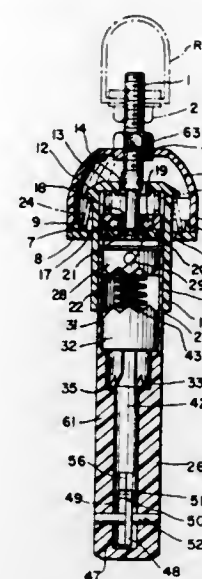


A takedown reel having a pair of drum-forming resilient plates hinged together at opposite ends thereof and a pair of flanges. The drum-forming plates can be shaped into a cylindrical form against the resiliency thereof, so that the flanges can be detachably secured thereto by a separate fastening means.

**3,565,364
BOBBIN HANGER FOR SPINNING MACHINES**
Kiyoshi Numata, Toyonaka-shi, Osaka-fu, Japan, assignor to Naniwa Machinery Industry Co., Ltd., Higashiyodogawa-ku, Osaka-shi, Japan
Filed Feb. 3, 1969, Ser. No. 795,989
Claims priority, application Japan, Oct. 3, 1968, 43/86753
Int. Cl. B65h 49/02; D03j 5/08
U.S. Cl. 242-130.2 6 Claims

An improved bobbin hanger for supporting bobbins of various diameters, having a clutch mechanism to operate

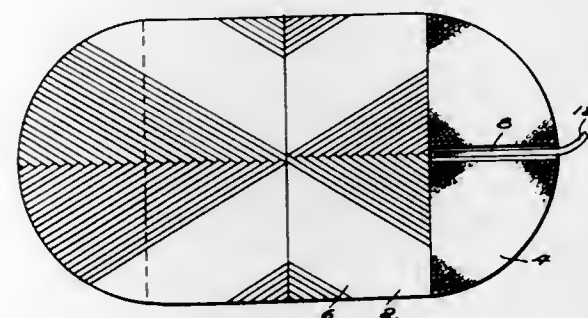
movable paws which engage the shoulders of the bobbin. A



compression spring is also provided to control the speed of rotation of the bobbin.

**3,565,365
PACKAGE OF FLEXIBLE MATERIAL FOR TWISTLESS
PAYOUT AND METHOD OF PRODUCING THE SAME**
James W. Newman, Scarsdale, N.Y., assignor to Windings, Inc.

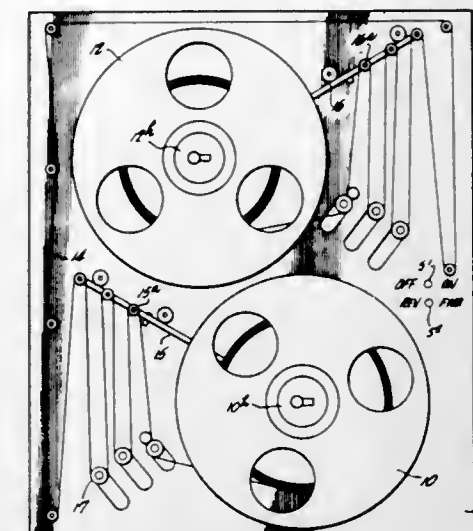
Filed Apr. 28, 1969, Ser. No. 819,630
Int. Cl. B65h 55/02
U.S. Cl. 242-163 4 Claims



A flexible material is wound with a universal wind into a package of generally spherical shape having an axial opening therethrough, by winding the material on the mandrel with a guide which moves along the face of the package being formed on the mandrel, the stroke of the guide being gradually reduced as the package is built up. The package has a radial hole built into it during the winding. The package is then compressed axially of the opening left by the removal of the spindle into an elongated package of substantially circular cross section in the plane of compression. The compression is so oriented that the opening is positioned in one of the ends of the oval shaped packages, and the inner end of the mandrel is let out through this opening.

In order to prevent collapse of the package during shipment and to allow the use of a small mandrel, a flexible material of substantially greater cross section than the material to be packaged is wound on the mandrel during the first stages, and the end of the material to form the package is attached to this strip and the package is then wound. The end of the larger material is brought out through the opening and this material is removed when payout of the package is desired.

**3,565,366
TAPE TRANSPORT CONTROL SYSTEM**
William G. Campbell, Jr., Los Angeles, Calif., assignor to Ex-Cell-O Corporation, Detroit, Mich.
Filed Nov. 1, 1968, Ser. No. 772,779
Int. Cl. B65h 59/38, 63/02; G11b 15/32
U.S. Cl. 242-190 7 Claims



A control circuit for a reel-to-reel tape transport system for controlling the transfer of tape between the reels. The control circuit includes sensing the demand of tape during a tape transfer operation and providing an electrical signal representative of the demand. The demand signal is compared with a feedback signal representative of the speed of the drive for one of the driven reels and providing a control signal corresponding thereto. This control signal is then combined with a reference signal of a preselected frequency to provide a speed control signal that is applied to the drive control to control the speed in accordance with the sensed parameters.

**3,565,367
TAPE CARTRIDGES**
Kozo Yamamoto, Hirakata-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 20, 1968, Ser. No. 785,610
Claims priority, application Japan, Feb. 28, 1967, Dec. 28, 1967, Dec. 28, 1968, 43/74; 43/133; 43/141
43/13592
Int. Cl. G11b 23/04
U.S. Cl. 242-199 2 Claims



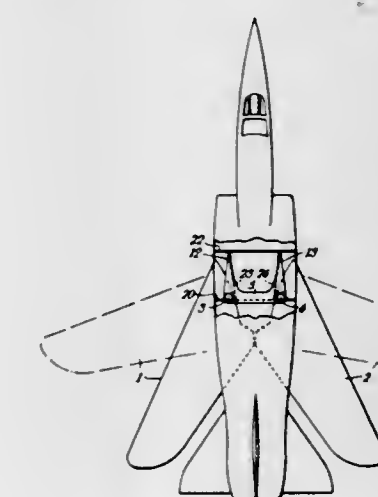
A tape cartridge wherein a portion of a cartridge casing is made transparent and sheets each having a printed surface on one side thereof are disposed in the casing on both sides of a tape accommodated in said casing with the printed surface thereof facing the transparent portion of the casing, whereby the tape is prevented from contacting the inner surface of the casing and therefore forwarded smoothly, and at the same time the label of the cartridge is indicated through the transparent portion of the cartridge casing.

**3,565,368
SOLAR ENERGY BALLOON**
Melville Byron, 13530 Woodcroft Ave., Edmonton, Alberta, Canada
Filed June 30, 1969, Ser. No. 837,616
Int. Cl. B64l 1/40 1 Claim



A balloon of thin plastic film with a transparent upper portion and an opaque light-reflecting lower portion. The lower portion is shaped to reflect sunlight, which enters the balloon through the transparent upper portion, towards a heat absorbent material supported within the balloon. The temperature of the heat absorbent material rises and tends to heat the surrounding entrapped air within the balloon.

**3,565,369
AIRCRAFT HAVING VARIABLE SWEEP-BACK WINGS**
Cyril A.C. Barton, Penwortham near Preston, and Bevan Ridehalgh, Hambleton near Blackpool, England, assignors to British Aircraft Corporation (Operating) Limited, London, England
Filed Apr. 18, 1968, Ser. No. 722,344
Int. Cl. B64c 3/40 3 Claims



An aircraft whose wings can move about pivots secured to the fuselage structure for varying the angle of sweepback, wherein the wings are mounted on respective pivots secured in a common subframe member which is detachable from the main fuselage structure. The subframe member also carries an actuation jack for moving the wings about their pivots. The subframe member is attached to the main fuselage structure by means of attachment lugs incorporating eccentrically mounted joints. The arrangement enables the wing pivots to be made more accessible for maintenance. Further, the wings, their pivots and subframe member form a subassembly which can be set up and adjusted remote from the fuselage, thus facilitating manufacture.

3,565,370

AUTOMATIC FLIGHT CONTROL SYSTEM

Waldemar Moller, Heiligenberg, Baden, Germany, assignor to Fluggeratewerk Bodensee GmbH, Bodensee, Germany

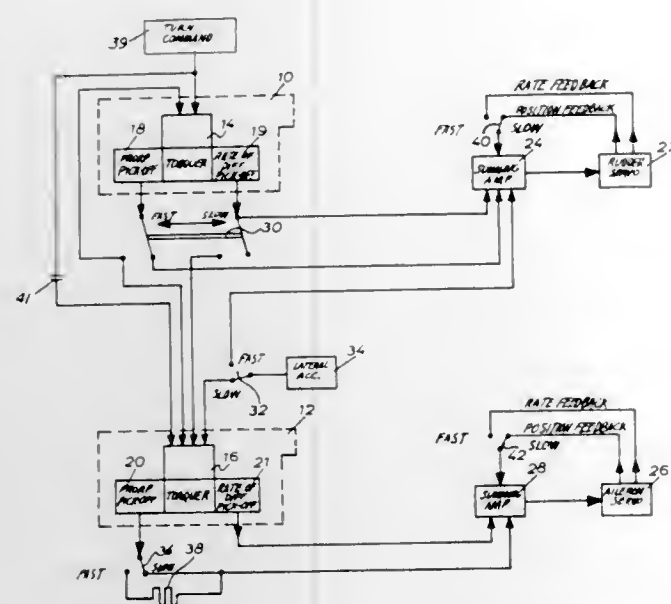
Filed July 5, 1968, Ser. No. 742,593

Claims priority, application Germany, July 25, 1967, F53051

Int. Cl. B64c 13/18

U.S. Cl. 244-77

3 Claims



An aircraft flight control arrangement includes means for actuating a control surface in accordance with a signal representative of the combination of an attitude error signal and a control surface positional signal at relatively low control surface efficiency and with a signal representative of the combination of the attitude error signal and a control surface rate of change signal at relatively high control surface efficiency.

3,565,371

CATENARY KEEL FLEXIBLE WING GLIDER

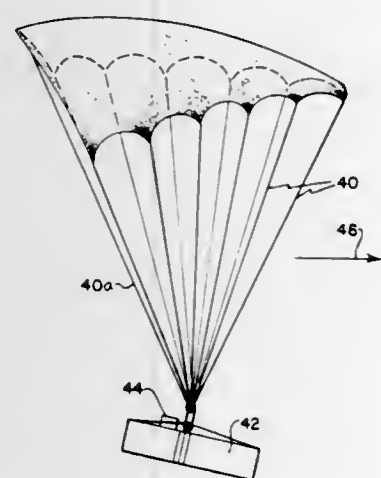
Herbert Q. Bair, Tallmadge, and Fred R. Nebiker, Akron, Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Feb. 28, 1968, Ser. No. 708,926

Int. Cl. B64d 17/22

U.S. Cl. 244-138

3 Claims



The invention provides for the addition of catenary keels to a flexible wing glider. The catenary in the keel is designed to uniformly transfer payload weight to the wing to supply stiffness to the canopy itself and to effectively eliminate the stress concentrations of individual rigging line attachments. The catenary keel also serves as a stabilizer for air passage thus providing lateral stability in the yaw direction, plus increases lifting characteristics by smoothing the aerodynamic configuration of the flexible wing in flight without sacrificing its simplicity, minimum weight, and maximum reliability.

3,565,372

HYDRAULICALLY CONTROLLED ARTICULATED CHAIN SAW MOUNTING ARM STRUCTURE

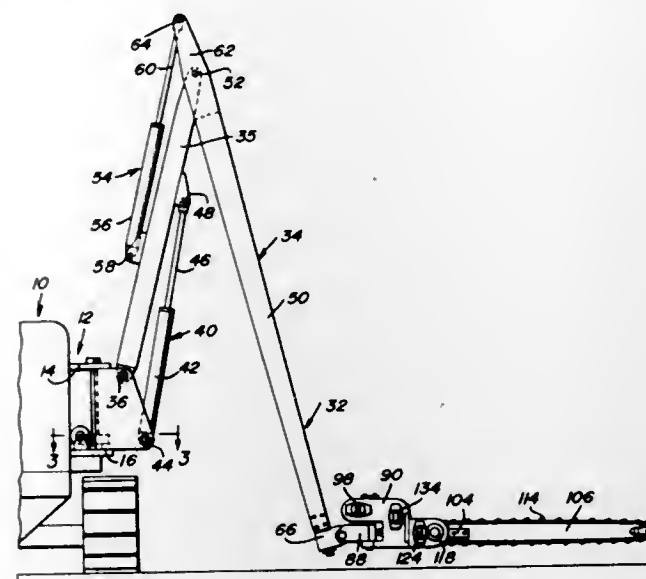
Delmar Lee Jones and Robert Malcolm Jones, Terre Haute, Ind., assignors to Jones Tool & Machine, Inc.

Filed Apr. 23, 1968, Ser. No. 723,368

Int. Cl. F16m 11/04

U.S. Cl. 248-2

3 Claims



A chain saw mounting arm structure for supporting a chain saw from a ground vehicle and including a base support boom having one end supported from an associated vehicle for swinging about both horizontal and vertical axes and a second support boom pivotally supported at one end to the free end of the base support boom for angular displacement about an axis extending transversely of the base support boom and the second support boom, the chain saw mounting arm structure also including a support arm member carried by the free end of the second support boom from which an associated chain saw is supported for angular adjustment about three right angularly disposed axes relative to the support member.

3,565,373

ENGINE MOUNT ASSEMBLY

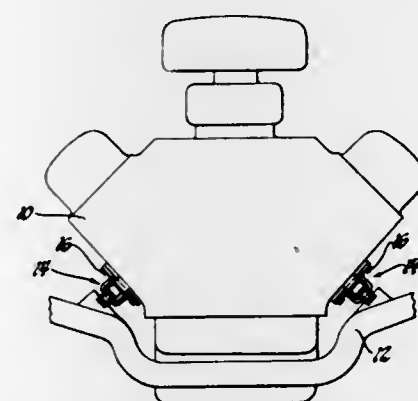
William A. Frye, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 29, 1969, Ser. No. 872,195

Int. Cl. F16f 15/00

U.S. Cl. 248-9

7 Claims



An engine mount assembly for supporting a vehicle engine on the cross member of a vehicle frame comprising two interlocking support members, one of which includes a rubber support sandwiched between a primary engine mounting bracket and a support bracket, and the other member includes a secondary engine mounting bracket having rubber roll stops and fore and aft compression pads bonded thereto, the latter being compressed between the two support members in the assembled position, this structure permitting the use of a different rubber compound for the fore and aft pads and roll stops than that used for the support sandwiched portion of the other support member.

3,565,374

ANTIVIBRATION MOUNTING

Ronald Jones, Derby, England, assignor to Rolls-Royce Limited, Derby, England

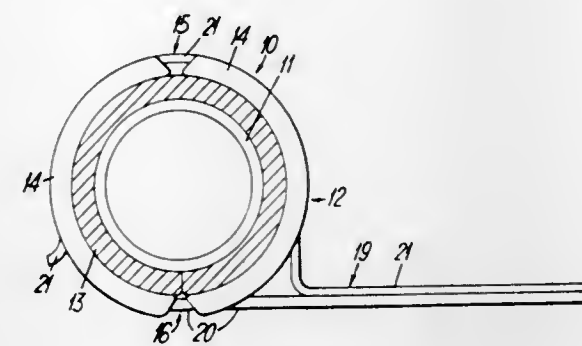
Filed Nov. 21, 1968, Ser. No. 777,802

Claims priority, application Great Britain, Dec. 1, 1967, Apr. 22, 1968, 54871; 18922

Int. Cl. F16l 3/08

U.S. Cl. 248-54

8 Claims



An antivibration mounting comprises two or more part-annular housing members which have a lining of vibration damping metallic material. A hinge-connection is formed between two adjacent members by welding them to the lining. The hinge may be opened to receive a pipe and then closed around the pipe by a resilient clip.

3,565,375

PLASTIC PIPE HANGER

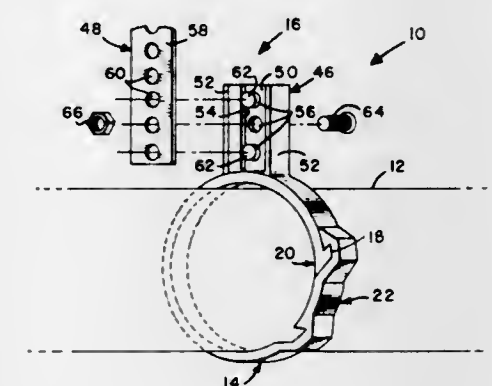
Billy W. Babb, Campbell, Calif., assignor to Robert R. Walker, Jr., San Jose, Calif.

Filed Apr. 3, 1969, Ser. No. 813,142

Int. Cl. F16l 3/14, 9/12

U.S. Cl. 248-59

6 Claims



A pipe hanger, constructed of a collar formed with an interstice and being bendable between a plurality of positions for engaging pipes of a plurality of sizes, respectively, the collar also being bendable between each pipe-engaging position and corresponding pipe-releasing position. Means are provided for releasably securing the collar in each pipe-engaging position. Means are further provided for suspending the collar from a support structure.

3,565,376

TUBING SUPPORT

Homer J. Viers, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 4, 1969, Ser. No. 847,247

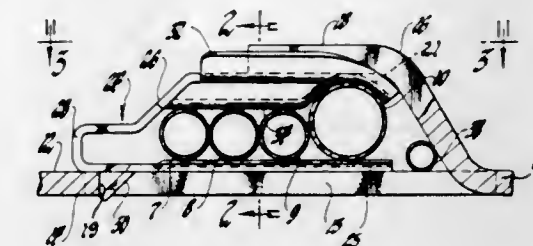
Int. Cl. F16l 3/22

U.S. Cl. 248-68

10 Claims

An arrangement for supporting tubing and the like on a base such as a vehicle frame includes a spring clip which is

slid into place between the frame and a tongue struck out from the frame, the clip, frame and tongue defining a closed



loop around the tubing. The clip has flanges which locate it laterally with respect to the tongue and a spur which engages the frame to hold it inserted.

3,565,377

DESK CONSTRUCTION

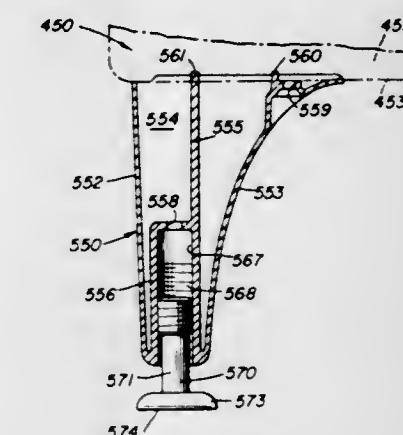
Kenneth D. Schreyer, Doylestown, Pa., assignor to Lyon Metal Products, Incorporated, Aurora, Ill.

Continuation of application Ser. No. 635,939, Apr. 5, 1967, now abandoned, which is a division of application Ser. No. 503,157, Oct. 23, 1965, now Patent No. 3,363,955. This application Feb. 3, 1969, Ser. No. 798,259

Int. Cl. A47b 9/102

U.S. Cl. 248-188.4

7 Claims



The present invention is directed to a desk and panel and leg construction comprising a pair of spaced-apart sheet metal sidewalls joined by sheet metal end walls and a bottom wall, a body of rigid cellular construction disposed between the sidewalls, layers of adhesive disposed between the inner surfaces of the sidewalls and the body of cellular construction, a pair of mounting channels respectively disposed adjacent to the sidewalls and extending from adjacent to the bottom wall upwardly and beyond the upper edges of the sidewalls, the mounting channels carrying structure thereon for connection to a desk top, a U-shaped support bracket disposed in the lower portion of the end panel and having openings therein in alignment with openings in the bottom wall to mount a leg on the underside of the end panel, the leg being of generally hollow construction and having a foot thereon adjustable with respect thereto.

3,565,378

FURNITURE FOOT OR SUPPORT STRUCTURE

Sigvard Bror Anders Svenson, Box 120, 560 10 Skillingaryd, Sweden

Filed Dec. 13, 1968, Ser. No. 783,610

Claims priority, application Sweden, Dec. 22, 1967, 17740/1967

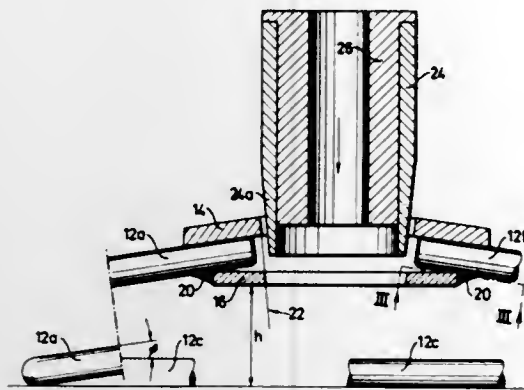
Int. Cl. F16m 11/20

U.S. Cl. 248-188.7

2 Claims

A detachable and stackable furniture support structure comprising a ring of sectorlike elements having a peripheral portion and two radial spokelike portions which meet in a central hub. The hub consists of two plates with the ends of

the spokelike portions being fixedly secured theretwix. The hub is positioned at an elevation slightly above the plane of the peripheral portions of the sectorlike elements for permitting stacking of the foot structures. The hub preferably



has a conical opening therethrough formed with a self-locking taper for permitting a bushing to be securely seated therein, which bushing rotatably accommodates a support pin which extends downwardly from an article of furniture.

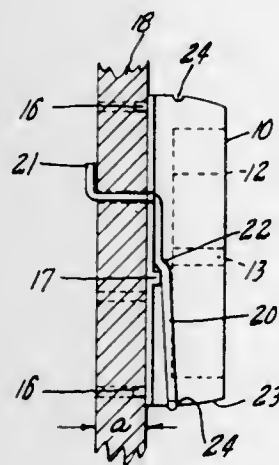
3,565,379

PEG BOARD BRACKET CLAMPING DEVICE
Joseph A. A. Messier, East Montpelier, Vt. (Box 190, Barre, Vt. 05641)

Filed Dec. 16, 1968, Ser. No. 783,802
Int. Cl. A47f 5/00

U.S. Cl. 248-223

3 Claims



This patent discloses a clamping block which makes a rigid intermediate element between an apertured panel and a variety of article holding brackets. The block clamps to the panel, and the brackets are held by the block. The unit can be readily detached and located elsewhere on the panel.

3,565,380

FRAME STRUCTURE
Robert J. Langren, Alameda, Calif., assignor to Gilbert Hyde Chick Company, Oakland, Calif.

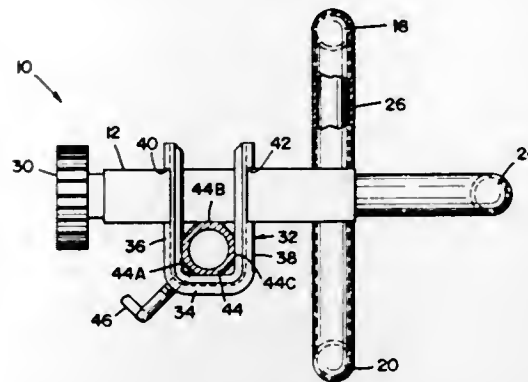
Filed Apr. 9, 1969, Ser. No. 814,640
Int. Cl. A47b 96/06

U.S. Cl. 248-229

7 Claims

A frame structure including an elongated bar having clamping legs adapted to clamp between them an elongated member perpendicular to the bar. A second bar is positioned

in generally perpendicular relation to both the first mentioned bar and the member, and means are included for forcing



ing the bars together in such a way that they are firmly positioned relative to each other with no movement therebetween when either bar is under load.

3,565,381

BRACKET STRUCTURE

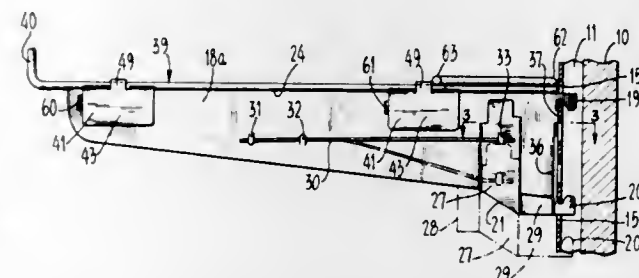
Earl J. Ollver, 555 Montague Ave., San Leandro, Calif.

Filed Oct. 21, 1968, Ser. No. 768,989

Int. Cl. A47f 5/04

U.S. Cl. 248-243

7 Claims



Shelf structure of the type used in supermarkets and other retail outlets for merchandise display. The shelf structure includes a bracket equipped with hooks at an end thereof adapted to be inserted through openings provided therefor along an upright column secured to a generally vertical support wall, and which column has a sequence of vertically spaced openings adapted to receive such hooks therein to support a shelf at selected elevations. Fasteners removably mounted upon the bracket secure such shelf thereto. The shelf extends between and is carried by a pair of spaced apart brackets respectively mounted upon a pair of such upwardly extending columns.

3,565,382

MOUNTING BRACKET FOR REMOTE CONTROL SWITCH

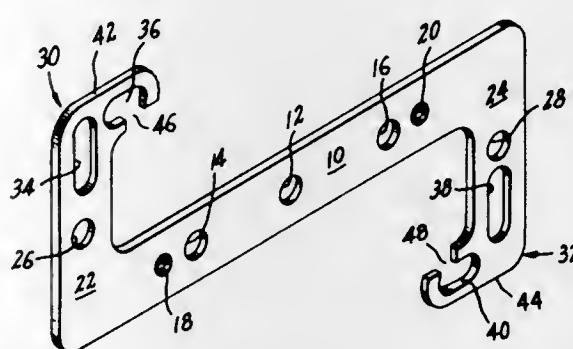
Henry A. Passarelli, Jr., Coventry, R.I., assignor to General Electric Company

Filed Sept. 6, 1968, Ser. No. 758,037

Int. Cl. H01h 9/02

U.S. Cl. 248-300

1 Claim



Low voltage remote control switching systems utilize arrays of momentary contact switches which operate at low

voltage and accordingly can be mounted either in an electric outlet box or directly onto a wall or other surface. A bracket is provided which adapts to the mounting of a manual master remote control switch either into switch boxes of various sizes as well as directly on a surface to receive the master switch.

3,565,383

WALL HANGER FOR A STRINGED INSTRUMENT

Donald C. Friede, 4839 Dorsie Drive, Sappington, Mo.
Continuation-in-part of application Ser. No. 655,019, July 21, 1967, now abandoned. This application May 27, 1968, Ser. No. 732,383

Int. Cl. A47f 5/00

U.S. Cl. 248-309

3 Claims



The wall hanger includes an upper plate provided with a pair of outstanding fingers which engage and retain the neck of the instrument to be supported, and furnish support at two spaced points in the direction of the plane of the wall. A lower plate is provided which has a rest against which the body of the instrument presses. The rest, in conjunction with the fingers, provides a support in a direction perpendicular to the plane of the wall. The lower plate is interconnected to the upper plate by a tie-member.

3,565,384

BRACKET FOR HOLDING AND CLAMPING GAS CYLINDER TYPE FIRE EXTINGUISHER TANKS

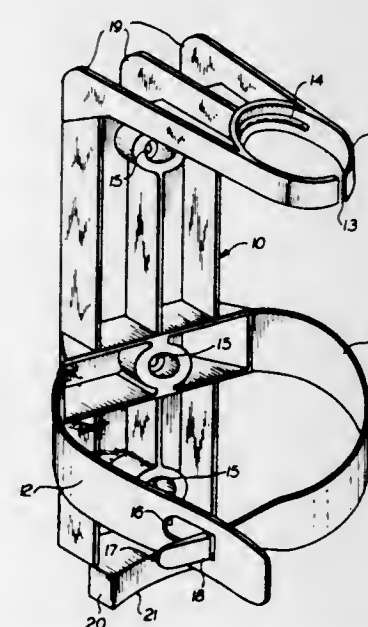
Lionel Anthony Lockwood, East Aurora, N.Y., assignor to Bernzomatic Corporation, Rochester, N.Y.

Filed Apr. 3, 1969, Ser. No. 813,049

Int. Cl. A47f 5/00

U.S. Cl. 248-312

1 Claim



A bracket for holding and clamping securely a gas cylinder tank and more particularly for holding such tanks which have

3,565,385
FLUORESCENT TUBE BOX SUSPENSION SYSTEM AND MEANS

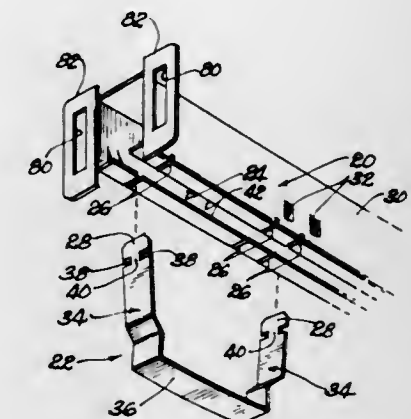
Edward F. Zurawski, Chicago, Ill., assignor to Garco Corporation

Filed Oct. 29, 1968, Ser. No. 771,482

Int. Cl. F16l 3/24

U.S. Cl. 248-343

7 Claims



A suspension system for a fluorescent tube box and the like including a slotted support member and a spring clip removably biased into keyed engagement with the support member. The spring clip embraces and straddles the box and has free ends which project into slots in the support member which ends are then spring biased within the support member to positions remote from the slots to key the clip ends and support member to prevent removal of the spring clip ends thereby to prevent removal of the spring clip and embraced box from the support member.

3,565,386

MOUNT FOR A BODY AND COUPLING UNIT THEREFOR

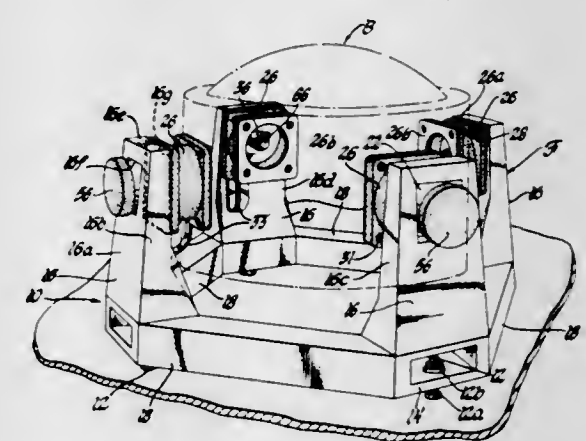
Evert J. Lemkuil, Brookfield, Joseph M. Schmerda, Oak Creek, and Glenn E. Wanttaja, Hales Corners, Wis., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 19, 1969, Ser. No. 800,677

Int. Cl. F16f 15/08; B63b 49/00

U.S. Cl. 248-358

5 Claims



A mount for a body, such as an inertial navigation unit, in relation to a support, and a coupling unit for use therein. A frame is adjustably mounted on the support and defines a plurality of support regions located in a plane normal to the axis of the frame and caging the body. A plurality of coupling units are sandwiched between each support region and the

body. Each coupling unit includes an elastomeric sleeve affixed at its ends to the support region and the body, with its axis passing substantially through the center of mass of the body. Detent units are telescoped within the elastomeric sleeves in substantially coaxial relation therewith. Each detent unit includes a sleeve affixed to the frame and a plunger received therein. Ball detent elements, including ball socket and adjacent ramp conformations, releasably secure the plunger in relation to the sleeve and effect return thereof to original position after release. Adjustable heads on the plunger adjust the preload on the elastomeric sleeves as required to provide predetermined isolation of the body from continuous vibration of the support, release of the detents under predetermined conditions of shock, and restoration of the body to initial position after shock.

3,565,387

PREFABRICATED DENTAL PATTERN HAVING ADJUSTING SLOT MEANS

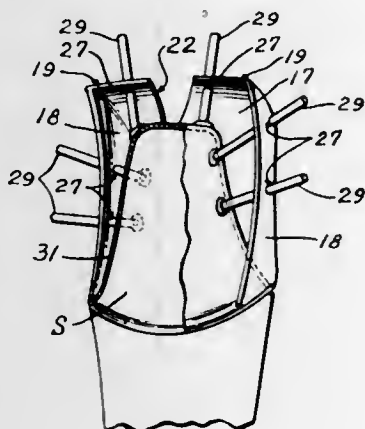
Irving Neustadter, Brooklyn; Michael C. Howard, and George Klein, North Woodmere, N.Y., assignors to Dental Innovations, Inc., New York, N.Y.

Filed Sept. 17, 1968, Ser. No. 760,238

Int. Cl. A61c 9/00, 13/00

U.S. Cl. 249-54

6 Claims



A thin pattern for a lingual frame or portion of a dental restoration is disclosed and has particular applicability to the type known as a veneer crown or veneer-type bridge. The pattern includes the lingual wall and the mesial and distal walls extending forwardly therefrom. The outer surfaces of these walls conform, or conform approximately to the surfaces of the corresponding or particular natural tooth. The pattern has slot means, preferably a single central slot, extending rearwardly from the incisal or forward edge to roughly a mid point of the pattern so that the pattern can be narrowed or widened to conform to the space between abutting teeth. The gingival portion of the pattern is rounded so as to fit or can be modified to fit on a coping or a tooth stub. The pattern is made of plastic material or a suitable metal such as gold, having sufficient softness or pliability so that it can be modified to suit the dental technician as to shape, and/or dimension and having sufficient retentivity so that the pattern remains fixed in the adjusted or modified form.

3,565,388

APPARATUS FOR THE PRODUCTION OF PLASTIC CAGES FOR ANTI-FRICTION BEARINGS

Wolfgang Katz, 722 Dauchingen, Germany

Filed Sept. 19, 1968, Ser. No. 760,794

Claims priority, application Germany, Sept. 23, 1967, P 17 04 150.8

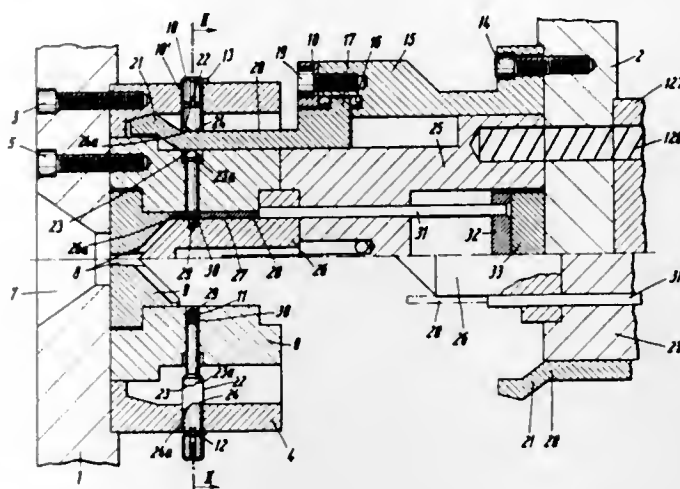
Int. Cl. B29c 1/14, 7/00, 11/00

U.S. Cl. 249-63

9 Claims

Apparatus for injection molding of elastically deformable plastic cages which are formed with sockets for rolling elements of anti-friction bearings comprises a stationary outer cylindrical mold section and an inner mold section movable into the outer mold section to define therewith a cylindrical

mold cavity. Radial mandrels are mounted in the outer mold section and have spherical portions which enter the mold cavity in response to movement of the inner mold section



into the outer mold section. The means for shifting the mandrels radially of the outer mold section comprises arms which are movable with the inner mold section and enter cam grooves provided in the adjoining mandrels.

3,565,389

ICE MOLD

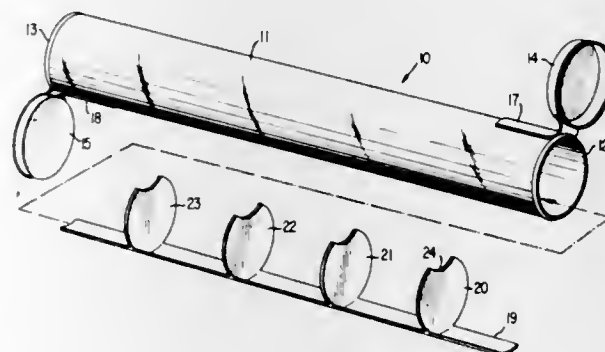
James D. Price, 6815 Hopewell Ave., Springfield, Va.

Filed Apr. 16, 1969, Ser. No. 816,591

Int. Cl. B28b 7/24

U.S. Cl. 248-121

9 Claims



A mold for ice including an elongated open-ended tubular container having cap seal means to tightly close the ends. A plurality of individual spacer members of the same shape as the cross section of the container is mounted on a flexible pull strip and defines therebetween individual ice portions which may be selectively removed from the container.

3,565,390

COLLAPSIBLE CORE FOR CONCRETE BOX GIRDER

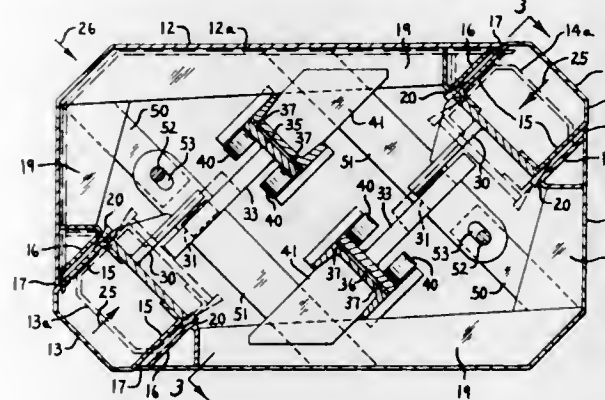
Robert W. Beasley, Newberg, Oreg., assignor to Ted Nelson Company, Portland, Oreg.

Filed Oct. 21, 1968, Ser. No. 769,157

Int. Cl. B28b 7/30

U.S. Cl. 249-180

6 Claims



The core comprises a pair of identical upper and lower members which are L-shaped in cross section and two corner

members. The two corner members are diagonally opposite each other and are retractable in two parallel approximately diagonal planes by cam followers actuated by cams on a pair of longitudinally slidable actuating strips. The girder is molded in horizontal position, the upper L-shaped core member moving down by gravity in an approximately diagonal direction perpendicular to said parallel planes when the corner members are retracted.

3,565,391

PNEUMATIC VALVE POSITIONER

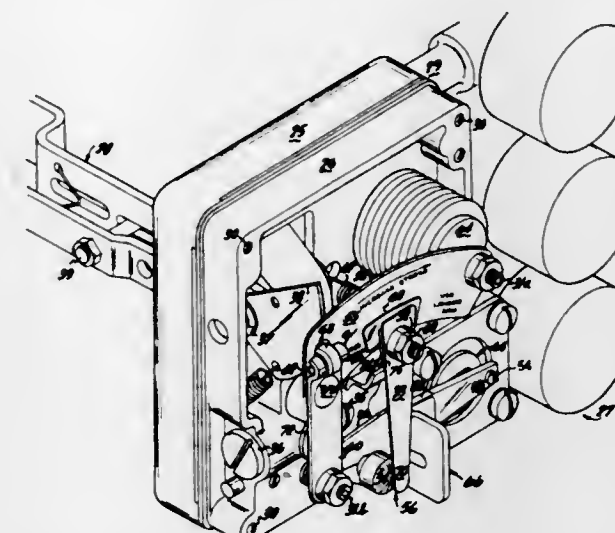
Benito C. Zannini, Cranston, R.I., assignor to International Telephone & Telegraph Corporation, New York, N.Y.

Filed Sept. 25, 1968, Ser. No. 762,495

Int. Cl. F16k 31/12

U.S. Cl. 251-28

10 Claims



A pneumatic valve positioner includes a balanced beam floating on three points, each point being able to undertake a mechanical excursion. One point moves as a function of an input signal, one as a function of a nozzle pressure signal, and one as a function of a feedback assembly. A flapper riding on the balanced beam controls the output signal by varying the back pressure behind the nozzle. When all three points are in a mechanical balance, the flapper maintains a "normal" or equilibrium back pressure behind the nozzle. If any one point moves, the flapper shifts its position and allows the back pressure to change behind the nozzle, thereby commanding a variation in the output until the feedback signal moves another point to shift the flapper back to essentially its original position to maintain equilibrium.

3,565,392

FLOW-BLOCKING DEVICE WITH RETRACTABLE SEALING MEANS

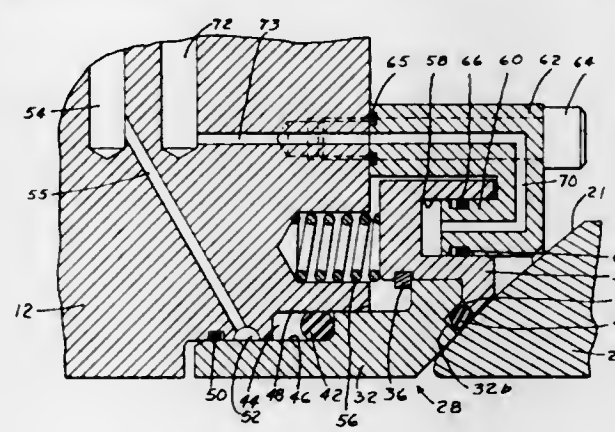
Austin U. Bryant, Walnut Creek, and Jack E. Piccardo, Oakland, Calif., assignors to Grove Valve and Regulator Company, Oakland, Calif.

Filed Apr. 28, 1969, Ser. No. 819,730

Int. Cl. F16k 25/00

U.S. Cl. 251-159

8 Claims



Retractable sealing means for flow-blocking devices, including valves, comprising an anchor member secured to the

body of the device around the seat ring assembly. Annular members on the anchor member and seat ring, respectively, are disposed in opposition to each other, and one forms an annular piston received in an annular fluid chamber formed in the other. A fluid duct extending through a housing wall opens into the chamber so that pressure fluid may be introduced to retract the seat ring from the flow-blocking device against which it seals.

3,565,393

BLADE VALVES

William John Courtney Trythall, 6 Oakville Mansions, Devonshire Road, Southampton, England

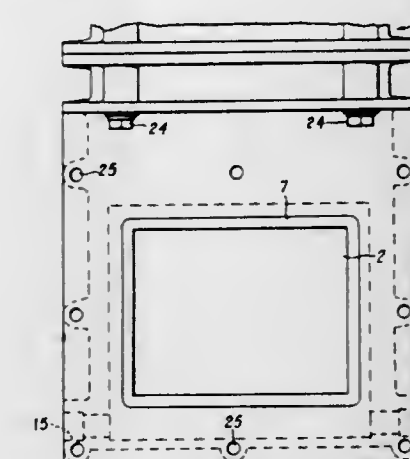
Filed Dec. 16, 1968, Ser. No. 768,996

Claims priority, application Great Britain, Oct. 4, 1967, 45124

Int. Cl. F16k 3/20

U.S. Cl. 251-712

5 Claims



A flat blade that is supported in cantilever fashion as it moves across a flow path to close said flow path, the flow path having resilient sealing means that can be expanded into contact with the two side edges of the blade after the blade has been moved to its closure setting. There is also resilient sealing means that can be expanded into contact with the leading edge of the blade after the blade has been moved to its closure setting. The blade is supported in cantilever fashion at one end by providing said end of the blade with a plurality of pistons slidable in a cylinder.

3,565,394

BUTTERFLY VALVE

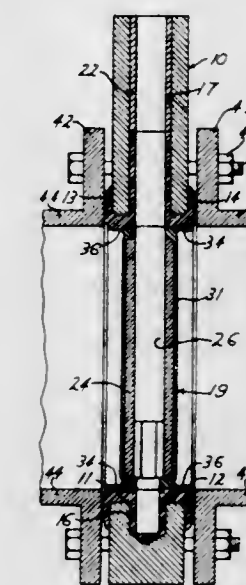
George W. Smith, Conroe, Tex., assignor to Texas Valve Specialty, Inc.

Filed Dec. 4, 1968, Ser. No. 781,065

Int. Cl. F16k 1/226

U.S. Cl. 251-306

10 Claims



A butterfly valve having annular flow passage and seat with disc mounted on shaft for rotation therein. Disc has lip seal

at its periphery with outwardly facing convex seal surface surrounding shaft and engaging inwardly facing concave seal surface on seat with seal surfaces being in shape of segment of sphere struck on substantially same radius as radius of annular seat.

3,565,395

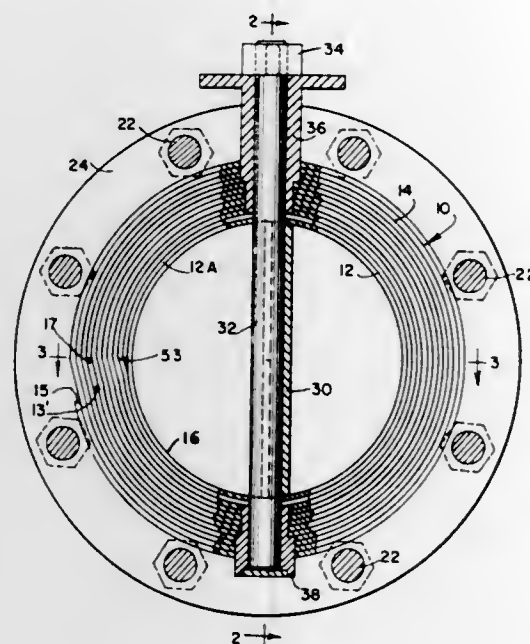
COILED VALVE BODY AND METHOD OF MAKING THE SAME

George E. Hansen, Elmwood Park, Ill., assignor to Crane Co., Chicago, Ill.

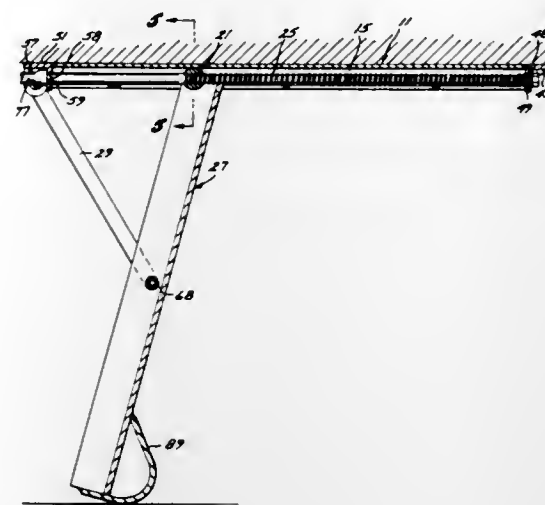
Filed Aug. 6, 1969, Ser. No. 847,919
Int. Cl. F16k 1/22; B21d 53/00

U.S. Cl. 251-306

14 Claims



screw may be rotated to drive the trunnion along the track and lower the leg to its supporting position and said opposed



flanges will retain the trunnion to restrain the screw against bending as the leg is loaded.

3,565,397

JACKING DEVICE FOR MOTOR VEHICLES

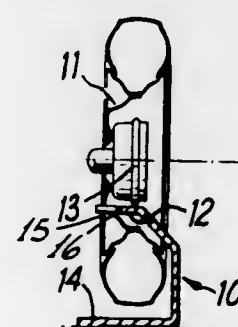
David G. Judge, 604 Stretford Road, Old Trafford, Manchester 16, England

Filed Nov. 9, 1967, Ser. No. 681,770
Claims priority, application Great Britain, Dec. 17, 1966, 56592/66

Int. Cl. B66f 3/00

U.S. Cl. 254-94

6 Claims



A vehicle jack requiring no manual exertion is of the one piece, C-shaped "crutch" type having an upper limb for supporting the brake drum, an upstanding web greater in height than the distance from the brake drum to the ground and a lower limb resting on the ground. The upper limb is concave to fit the drum, the lower limb is flat to prevent topple of the vehicle and the device is free of bolt, strap, clamp or other connection to the wheel which require removal to remove the tire or wheel. Relatively wide tongue means on the jack slidably fits a relatively wide ventilation slot in the wheel as the only driving connection to assure the jack turning into position raising the vehicle.

3,565,398

PNEUMATIC BAG JACK

James D. Floria, Westport, Conn., and James Sidles, West Richfield, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

Filed Dec. 23, 1968, Ser. No. 786,313

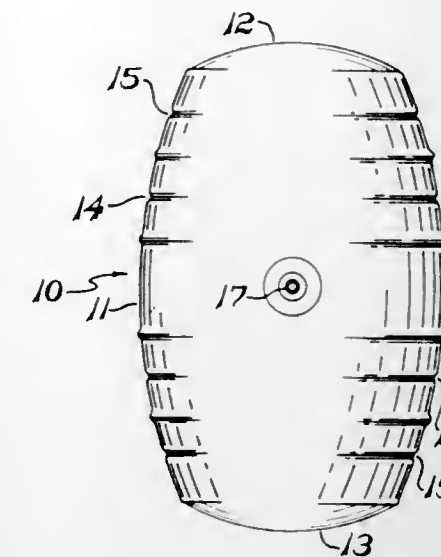
Int. Cl. B66f 3/24

U.S. Cl. 254-93

3 Claims

A pneumatic bag jack suitable for use in changing tires of

automobiles consisting of a cylindrical bag of impervious flexible material of a diameter several times its axial length



and with annular corrugations in the flat end faces immediately inside the periphery.

3,565,399

FLOOR BOX ADJUSTING JACK

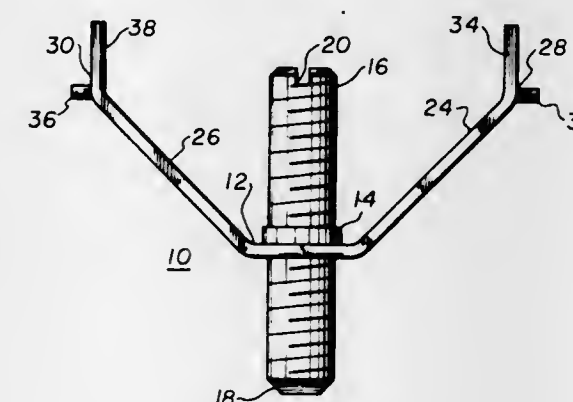
William E. Kelly, Bradley Beach, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Aug. 9, 1968, Ser. No. 751,443

Int. Cl. B66f 3/36

U.S. Cl. 254-100

5 Claims



The disclosure is directed to a floor box adjusting jack which can be employed to position a floor box with respect to a floor line in order to properly position, with respect to that floor line, a floor box cover plate. The jack of the invention is comprised of a base member having a threaded aperture therethrough through which is passed a threaded rod such that when the rod is rotated in contact with a subsurface below the floor line the base member will be raised, or lowered, in accordance with the direction of turning of the rod. Coupled to the base member are a plurality of upwardly extending arms each terminating in a floor box receiving cavity. The floor box receiving cavities are positioned adjacent the lower ends of a floor box. By initially positioning the threaded rod with respect to the subsurface the floor box may be raised, tilted, or raised and tilted, in order to properly align its top surface with the floor line. After the jack has been employed to properly position the floor box the floor box will be locked in place and the jack may then be removed through the floor box to be used with other floor box devices or left in the box as a support.

3,565,400

APPARATUS FOR RAISING AND LOWERING A HEAVY WEIGHT

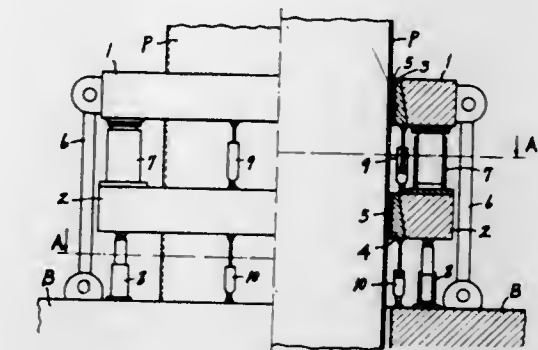
Ietoshi Yamura, Tokyo, and Kazuo Sugano, Sokashi, Japan, assignors to Mitsui Shipbuilding and Engineering Co., Ltd., Tokyo, Japan

Filed Aug. 6, 1968, Ser. No. 750,597

Claims priority, application Japan, Aug. 12, 1967, 42/51752
Int. Cl. B66f 1/00

U.S. Cl. 254-106

7 Claims



Apparatus for raising and lowering a platform on an upright column comprising a pair of vertically spaced ring assemblies, each comprising an outer support ring and an inner ring which can be wedged between the support ring and the column to anchor the support ring against displacement on the column. The surfaces of engagement between the support ring and the clamping ring are tapered upwardly and hydraulic actuators are provided for displacing the rings independently of one another along the column. These actuators are connected at one end to an element in one ring assembly and are effectively connected at the other end to an element in the other ring assembly so that each element in the ring assembly is free to be displaced longitudinally of the column independently of the other element.

3,565,401

ELECTRICAL GROUNDING DEVICE

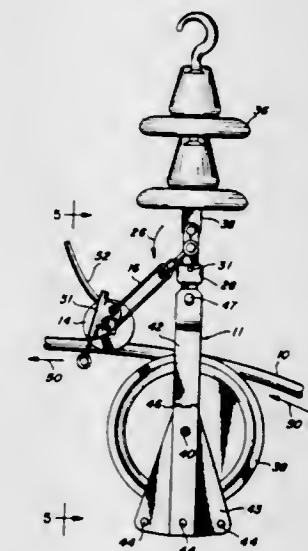
Carlos W. Green, 4601 N. 47th Drive, Phoenix, Ariz. 85031

Filed Aug. 28, 1968, Ser. No. 755,896

Int. Cl. E21c 29/16

U.S. Cl. 254-134.3

10 Claims



An apparatus for grounding electrical conductor during stringing operations. The apparatus comprises a spring loaded grounding roller secured to a stringing block. Spring loading of the grounding roller toward the stringing sheave mounted in the block maintains electrical contact between the grounding roller and the conductor.

3,565,402

PROXIMITY SENSING DEVICE

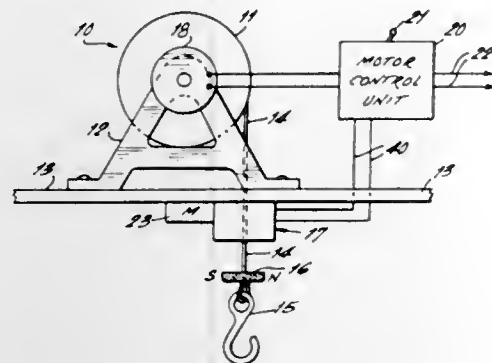
Ernest A. Linke, Maplewood, N.J., assignor to Breeze Corporation, Inc., Union, N.J.

Filed July 17, 1969, Ser. No. 842,565

Int. Cl. B66d 1/48

U.S. Cl. 254-173

10 Claims



A magnetic sensing device is described which employs a rotating coil and core in a stationary limit position for sensing the proximity of a permanent magnet secured to the object to be sensed. The coil is connected to an amplifier circuit which may discriminate between frequency ranges and which is adapted to actuate a relay when the coil voltage is greater than a predetermined value.

3,565,403

CONTINUOUS MIXER

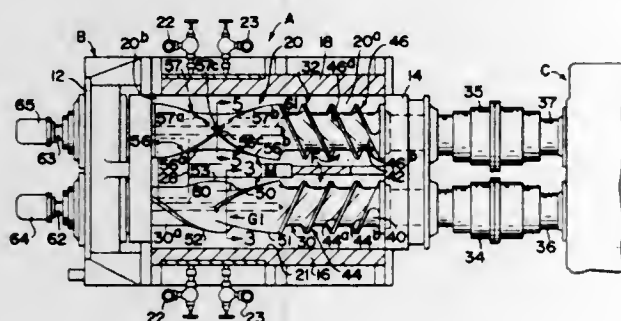
James T. Matsuoka, Brecksville, Ohio, assignor to Intercole Automation, Inc., Cleveland, Ohio

Filed Sept. 5, 1968, Ser. No. 758,195

Int. Cl. B01f 7/08; B29b 1/10

U.S. Cl. 259-6

10 Claims



A continuous mixer of the type used to mix rubber, plastic and the like, having two rotors each with a mixing portion and an adjacent screw-type feeding portion, the mixing portion of one of the rotors having two blades each with blade portions that twist in opposite directions and the other rotor having four blades arranged in pairs, one pair adjacent each opposite end of the mixing portion, the blades of each pair twisting in opposite directions from those of the other and terminating centrally of the mixing portion.

3,565,404

DEVICE FOR MIXING FLUIDS

Norman C. Reid, Minneapolis, and Albert F. Gallistel, Wayzata, Minn., assignors to Pako Corporation, Minneapolis, Minn.

Filed Oct. 15, 1968, Ser. No. 767,625

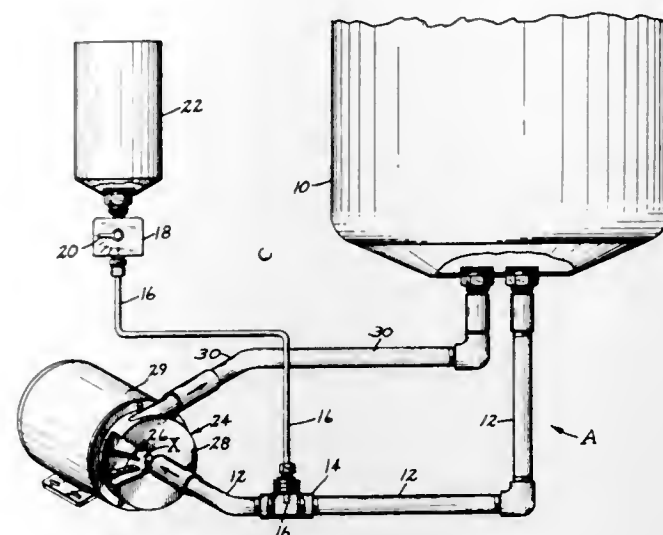
Int. Cl. B01f 5/12

U.S. Cl. 259-95

2 Claims

A container for containing a first fluid having conduit means leading from and to said container in a loop with the container together with a pump interposed in the conduit means for moving a fluid through the container means and the conduit means and means for creating an increase in the fluid velocity of the fluid moved through the conduit means with a resultant lower pressure area thereby creating an in-

ducement area followed by an area of high turbulence further including means for subjecting a second fluid to the induc-



ment area to introduce the second fluid into the first fluid and subject the mixture to the area of high turbulence.

3,565,405

TURBULENT FLOW CARBONATOR

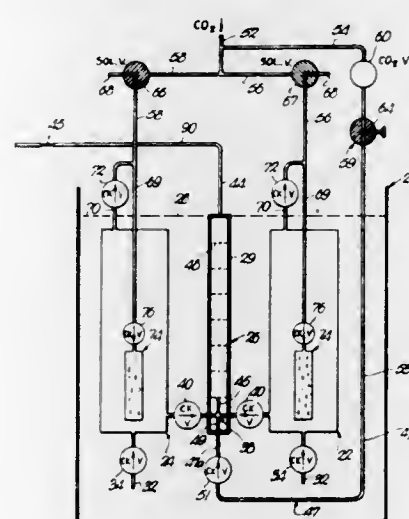
Stewart L. Black, Lee's Summit, Mo., assignor to The Vendo Company, Kansas City, Mo.

Filed Nov. 7, 1968, Ser. No. 774,054

Int. Cl. B01f 3/04

U.S. Cl. 261-35

13 Claims



Apparatus for furnishing carbonated water of either high or low carbonation. A liquid container is immersed in the liquid content of a supply tank and a tubular turbulator is interposed in a carbonated liquid-dispensing line leading from the container. Carbon dioxide supply and control structure includes mechanism for directing carbon dioxide under pressure into the container to force liquid therein to the dispensing line and through the turbulator. The liquid in the container absorbs some of the carbon dioxide to provide a liquid outflow of low carbonation. Additional, selectively operable mechanism permits carbon dioxide to also be injected into the turbulator to further carbonate the liquid flowing therethrough and thus permit delivery of a highly carbonated liquid from the dispensing line.

3,565,406

SPACE HEATER

Paul Wollner, North Bergen, N.J., assignor to Aeroil Products Company, Inc., So. Hackensack, N.J.

Filed Apr. 29, 1969, Ser. No. 820,244

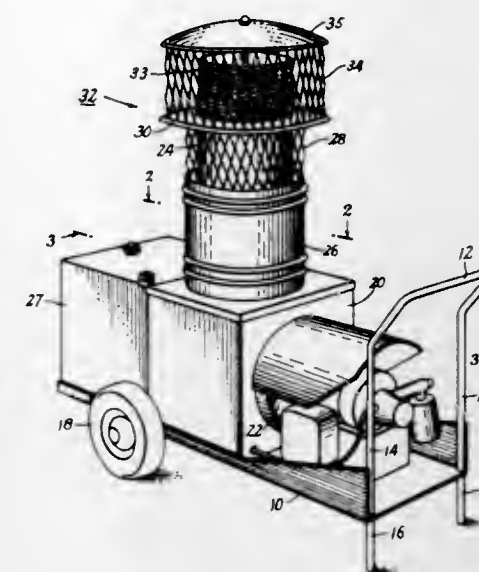
Int. Cl. F23i 15/04

U.S. Cl. 263-20

6 Claims

The application discloses a space heater into which air is introduced through a static air duct from which it is passed

into a combustion chamber having means at its base for imparting rotary turbulence to the air and fuel mixture within the chamber. The hot products of combustion are then caused to pass from the combustion chamber into a radiation heater atop the chamber. Provision is also made to cause the static air rising from the duct to take a separate path into a



convection heater section enveloping the combustion chamber. Intermediate the combustion chamber and the radiation heater as a component of the convection heater are deflection means for causing the convection air currents to travel generally outwardly and downwardly in the vicinity of the space heater.

3,565,407

METHOD AND APPARATUS FOR PREHEATING SCRAP

Kurt Schermer and Herold Jew, Benoni, Republic of South Africa, assignors to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Germany

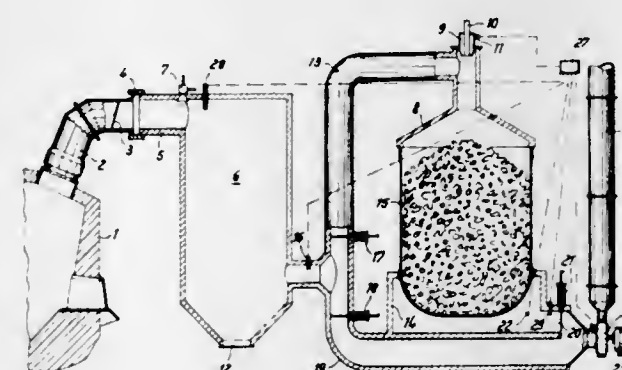
Filed Oct. 21, 1968, Ser. No. 769,132

Claims priority, application South Africa, Oct. 23, 1967, 67/6338

Int. Cl. F27b 19/00

U.S. Cl. 263-27

11 Claims



Method for preheating scrap to be charged into an electric arc furnace for melting and apparatus for performing such method. Fumes from the furnace are drawn off together with sensible and chemical heat contained therein. The fumes are then passed through a quantity of scrap prior to being charged into said furnace as a consequence of which the heat in the fumes is utilized to preheat the scrap. Various control means and sensing means are used in conjunction with the apparatus in order to maintain the pressure and temperature of the fumes at desired levels.

3,565,408

PRODUCTION OF ALUMINA FROM ALUMINUM HYDROXIDE

Lothar Reh, Bergen-Enkheim, and Karlheinz Rosenthal, Neu-Isenburg, Germany, assignors to Metallgesellschaft AG and Vereinigte Aluminium-Werke AG

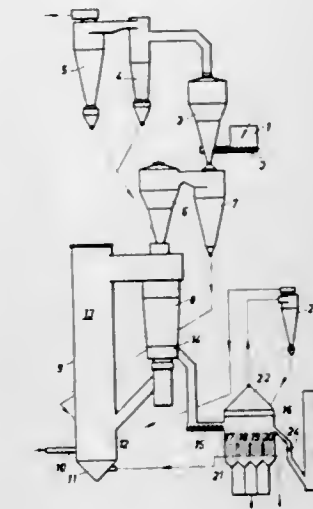
Filed June 3, 1968, Ser. No. 733,891

Claims priority, application Germany, June 16, 1967, M-74403

Int. Cl. F27b 15/00

U.S. Cl. 263-52

5 Claims



Aluminum hydroxide is first dehydrated in a suspension-type heat exchanger system by hot gas coming from a fluidized bed furnace with material recycling and then introduced into the fluidized bed. Hot alumina taken from the fluidized bed is used in a heat exchanger to preheat fresh air which is used as the fluidizing gas for the fluidized bed. Another portion of air is also heated in the heat exchanger and is introduced into the fluidized bed as secondary air.

3,565,409

HEAT-TREATING APPARATUS

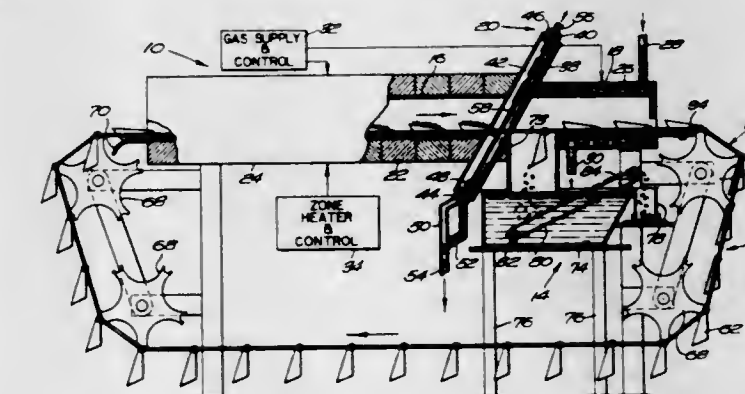
Jacob Howard Beck, Waban, Mass., assignor to BTU Engineering Corporation, Waltham, Mass.

Filed Apr. 12, 1968, Ser. No. 720,803

Int. Cl. C21d 1/62

U.S. Cl. 266-4

9 Claims



A furnace for precision heat treatment of materials which permits selective liquid or gas quenching and substantially prevents undesired transitional cooling between heating and quenching phases. The furnace includes a muffle having adjacent zones of individually controllable temperature and gas environments, adjacent zones being separated by a barrier operative to maintain effective temperature and gas isolation as required. Transported by an endless conveyor, the materials being heat treated remain at elevated furnace temperatures for a preselected time, thereafter, depending on the presence or absence of a removable furnace section, the materials enter a chilled continuation of the furnace muffle or are dropped instantaneously into an appropriate liquid quench.

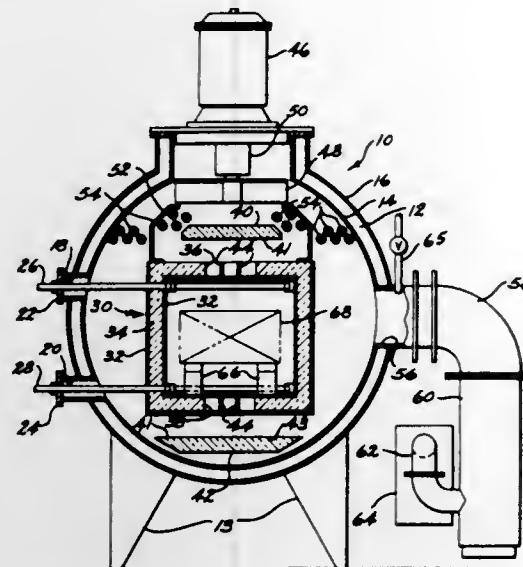
3,565,410

VACUUM FURNACE

George E. Scherff, Bowling Green, Ohio, assignor to Midland-Ross Corporation, Toledo, Ohio
Filed Sept. 6, 1968, Ser. No. 757,850
Int. Cl. C21d 1/00

U.S. Cl. 266—5

3 Claims



This invention relates to a vacuum furnace of the type wherein a gas is circulated during the cooling portion of the heat treat cycle. The heat treat chamber of the furnace is provided with shields having reflective surfaces disposed within the passageways that allow ingress and egress of the cooling gas. The reflective shields are so disposed that heat is reflected back into the heating chamber during the heating portion of the cycle, but there is no obstruction of the circulation of the furnace atmosphere during the cooling portion of the cycle.

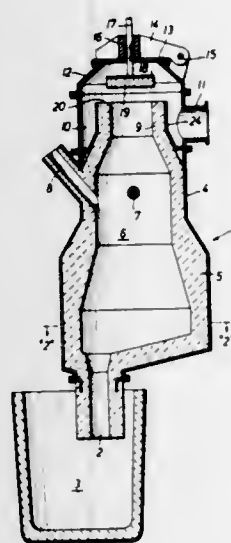
3,565,411

VACUUM VESSEL FOR DEGASSING MOLTEN METALS

Gerhard Grossmann, Krefeld, and Gernot Zahs, Dortmund-Aplerbeck, Germany, assignors to Hoesch Aktiengesellschaft, Dortmund, Germany
Filed Apr. 25, 1968, Ser. No. 724,013
Claims priority, application Germany, Apr. 28, 1967, Nov. 2, 1967, K 62 160; H 64 341
Int. Cl. C21c 7/10

U.S. Cl. 266—34

8 Claims



A vacuum vessel for degassing molten metals of the conventional kind comprising a steel jacket lined with refractory material with an intake pipe at its lower end for dipping into the melt to be degassed and a connection for connecting the vessel to a source of vacuum, is improved by providing a passage in the top of the vessel through which the vacuum

connection communicates with the vessel, the passage being shaped so that it changes the direction of flow of gas from the vessel to the vacuum connection through at least 180°. Preferably the refractory lining merges at the top of the vessel into a neck which is surrounded by an annular chamber closed at the top by a cupola. The neck and the annular chamber form the passage and the vacuum connection communicates with one side of the annular chamber.

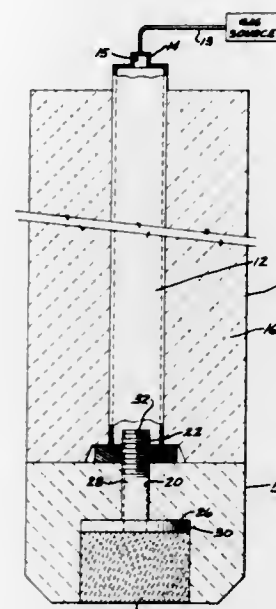
3,565,412

DEVICE FOR STIRRING MOLTEN METAL

Daniel E. Monlot, Pittsburgh, Pa., assignor to Dresser Industries, Inc., Dallas, Tex.
Filed Dec. 3, 1968, Ser. No. 780,665
Int. Cl. F27d 3/16; C21c 5/34

U.S. Cl. 266—34

2 Claims



A device, similar to a stopper-rod and stopper head assembly, for immersion in molten metal to provide gaseous agitation thereof.

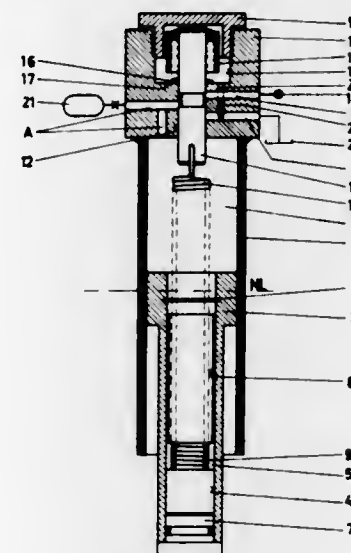
3,565,413

HYDROPNEUMATIC RESILIENT SUSPENSION CYLINDER

Guenter Strauff, Hanoverweg 26, Kaarst 4044, Germany
Filed Nov. 5, 1968, Ser. No. 773,575
Claims priority, application Germany, Dec. 13, 1967, P 16 30 747.4
Int. Cl. F16f 9/10

U.S. Cl. 267—64

3 Claims



A hydropneumatic resilient suspension cylinder for vehicles adapted to be arranged between the wheel supporting

means and the vehicle body for stabilizing the height of the vehicle body independently of the load variations on the vehicle by means of a level control device located within the cylinder housing and which independently of the height of the car body above the wheel supporting means connects the pressure space of the cylinder with either a pressure source or with a drain.

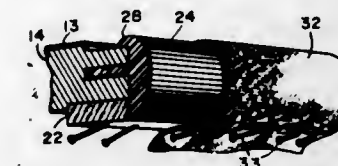
3,565,414

TABLE

Arthur W. Carlson, Muskegon, Mich., assignor to E. H. Sheldon & Company, Muskegon, Mich.
Filed Dec. 23, 1968, Ser. No. 786,136
Int. Cl. D05b 9/00

U.S. Cl. 269—16

4 Claims



A table particularly adapted for sewing use includes a relatively flat upper surface and a perimetrically extending trough adjacent the outer edge thereof. The outer wall of the trough is provided by a molding strip which covers the outer edge of the table and which includes an inwardly extending stem portion received by a slot provided in the table edge. An elongated pin-receiving pad is secured to the lower surface of the table below the trough.

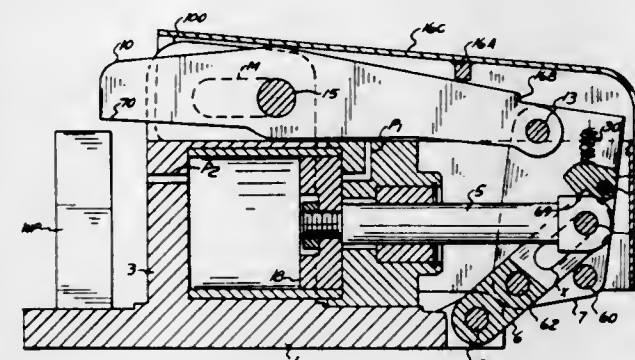
3,565,415

POWER-OPERATED BAR CLAMP

Leland F. Blatt, Grosse Pointe, Mich. (24121 Mound Road, Warren, Mich. 48091)
Filed July 5, 1968, Ser. No. 742,646
Int. Cl. B23q 3/08

U.S. Cl. 269—30

1 Claim



A workpiece clamp actuated by a power cylinder and having a lever type clamp arm and a toggle linkage connecting the piston rod of the power cylinder and such lever clamp arm, to insure locking of the parts in workpiece holding position and to provide two mechanical advantages.

3,565,416

FIXING DEVICES

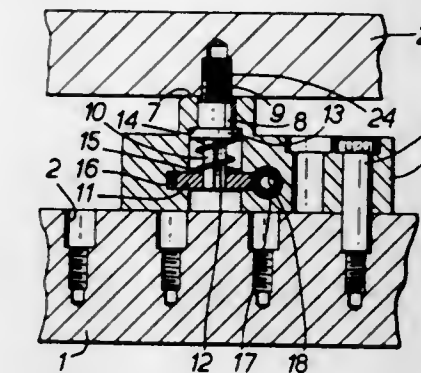
David T. N. Williamson, and Peter G. Davis, London, England, assignors to Molins Machine Company Limited
Filed Aug. 15, 1968, Ser. No. 752,965
Claims priority, application Great Britain, Aug. 22, 1967, 38,580/67
Int. Cl. B23q 3/02

U.S. Cl. 269—47

1 Claim

A device for securing a workpiece to a pallet for a machining operation, the device being operated from its side

between the workpiece and the pallet to secure and release the workpiece so that an access hole to the device through



the workpiece is unnecessary; the device may therefore engage in a blind hole in the underside of the workpiece.

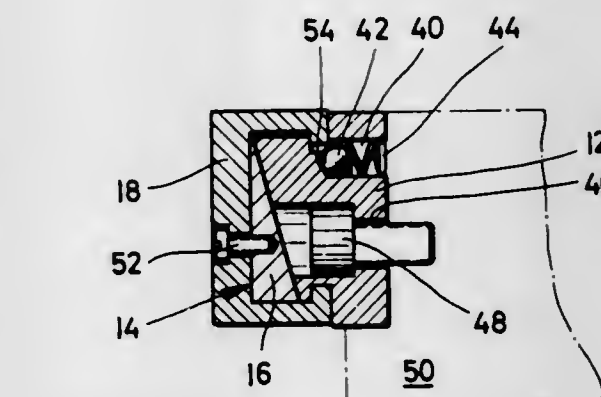
3,565,417

HOLDDOWN JAW FOR VISES

Karl Degle, Kempton, Germany, assignor to Georg Kessel KG, Werkzeugmaschinenfabrik, Kempton, Germany
Filed Aug. 22, 1968, Ser. No. 754,589
Claims priority, application Germany, Aug. 22, 1967, 1,290,896
Int. Cl. B25b 1/24, 5/16

U.S. Cl. 269—284

10 Claims



A holddown jaw is provided for vises consisting of two detachable parts one of which is provided with two portions, one of which portions has a surface matched with a surface provided on the other part. The two portions are slidingly engageable in a transverse sense and one of the parts of the front portion is detachable for the purpose of substituting other parts having different working surfaces for engaging workpieces.

3,565,418

WORKPIECE POSITIONING DEVICE

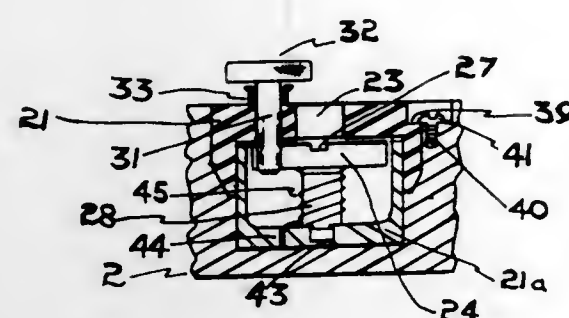
Jerold W. Arnold, 9709 Lyric Lane, Jeffersonton, Ky.
Filed Sept. 19, 1968, Ser. No. 760,801
Int. Cl. B23q 3/18

U.S. Cl. 269—317

7 Claims

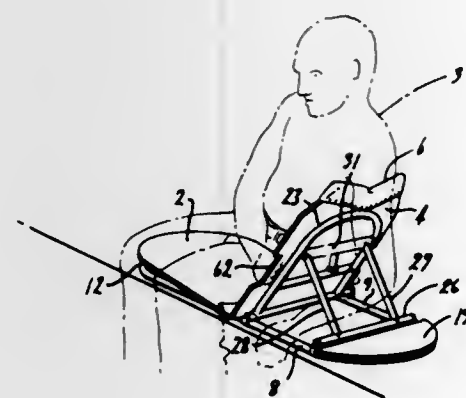
Discloses a workpiece positioning device for pushing raw materials, such as a strip stock, into contact with a fixed stop or guide rail while the stock is advancing through a die. Another use of this unit is to push a workpiece into position against a fixed stop or rail so that the part is accurately located for secondary operations. The unit comprises a housing containing a power storage member either in the form of a rotatably mounted plate or power stem tensioned against a

torque producing member such as a spring and a torque transmitting and work engaging protuberance which is movable into abutting relation to a workpiece so as to transmit torque from said power storage member to said workpiece.



3,565,419
TORSO TILT BOARD
Charles D. Allard, 1620 Hickory Ave., San Leandro; Eugene R. Allard, 824 Fulton Ave., San Leandro; Robert Ross Newlon, 2060 East St., Hayward, Calif.; and Vernon C. Stehr, Piedmont, Calif. 94611
Filed July 3, 1968, Ser. No. 742,221
Int. Cl. A61g 15/00
U.S. Cl. 269—325

6 Claims



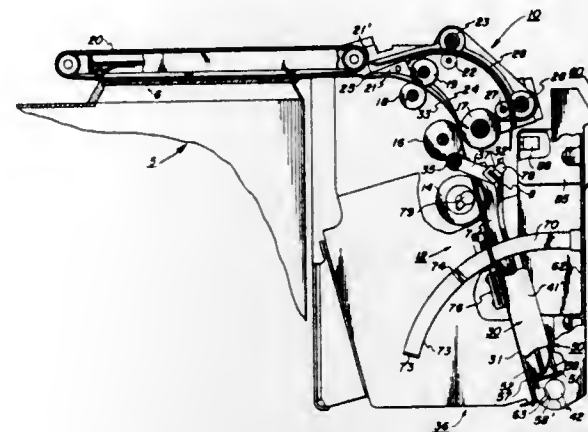
A torso tilt board consisting of a frame having a seat member mounted on the frame at an angle from the horizontal and an inclined member adjustable to varying positions including a top edge portion contoured for cradling either the arm or neck of a patient and formed with a depression in the midportion. The device being useful particularly for patients having serious injuries involving the upper extremities, chest and abdomen.

3,565,420
DOCUMENT FEEDING APPARATUS
Anthony Howard, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed May 15, 1969, Ser. No. 824,803
Int. Cl. B65h 1/02, 31/26
U.S. Cl. 271—4

10 Claims

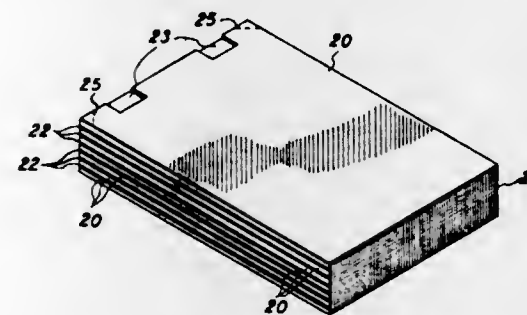
Document feeding apparatus of the type wherein documents are fed forward from a supply station to a work station and returned to the supply station for either removal or a second cycle, the apparatus incorporating a movable catch tray for holding the documents at the supply station; a separator cooperable with the catch tray to maintain documents returning to the supply station segregated from other documents awaiting feeding, at least until the supply of other

documents is used up; and a doorlike cover adapted to overlay the catch tray, and incorporating means to facilitate proper positioning of the returning documents in the catch tray.



3,565,421
FEEDING SYSTEM
Thomas B. Barker and Bruce D. MacLellan, Webster, and Casimir J. Mytych, Penfield, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Original application Dec. 1, 1966, Ser. No. 598,279. Divided and this application May 22, 1969, Ser. No. 851,114
Int. Cl. B65h 3/06, 3/16
U.S. Cl. 271—18

1 Claim



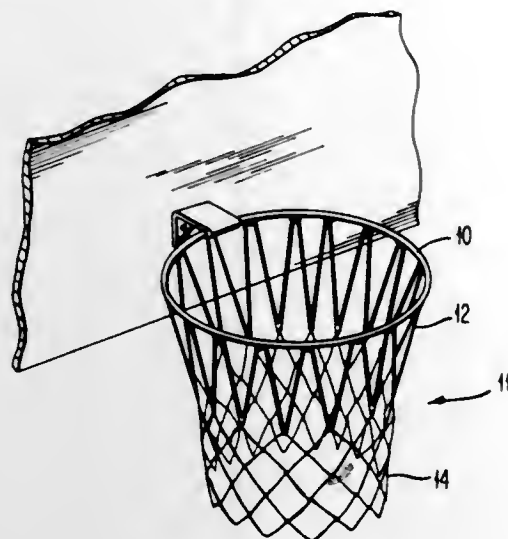
3,565,427

BASKETBALL NET ANTIWHIP DEVICELarry L. Michael, 229 W. North St., Ada, Ohio
Filed July 22, 1968, Ser. No. 746,379

Int. Cl. A63b 65/00

U.S. Cl. 273-1.5

6 Claims



The combination of a basketball net support ring and a basketball net having a lower portion formed of cord and an upper portion formed of a flexible material stiffer than the cord connected to the lower portion and to the support ring to prevent the net from whipping over said support ring when a basketball passes through said net. The upper portion is of a V-shaped configuration and provides the only connection and support between the lower cord portion and the support ring.

3,565,428

BOWLING SCORE COMPUTER INCLUDING PROGRAMMING MEANS

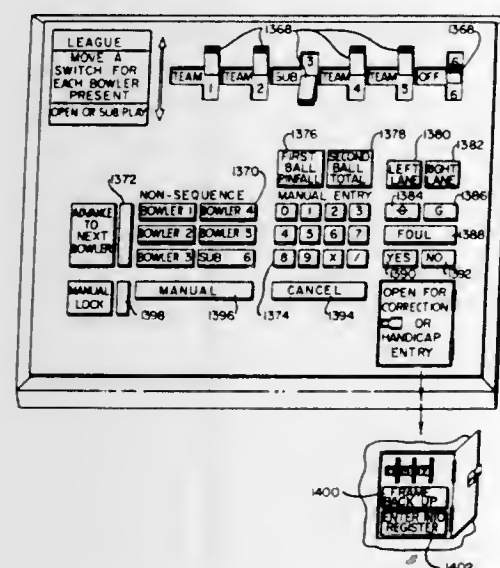
Eugene E. Reynolds, Orangeburg, S.C., assignor to Brunswick Corporation

Original application Mar. 21, 1966, Ser. No. 536,151, Patent No. 3,488,055, which is a continuation of application Ser. No. 243,525, Dec. 10, 1962. Divided and this application Mar. 14, 1969, Ser. No. 807,310

Int. Cl. A63d 5/04

U.S. Cl. 273-54

13 Claims



A bowling score computing system adapted to permit members of a bowling team to bowl simultaneously on two lanes by means of a separate computation system for each lane, a main programming means for each of the computation systems for programming the entry of pinfall information thereto irrespective of the lane at which the pinfall information originates and an auxiliary programming means as-

sociateable with either of the computation systems for programming entry of pinfall information into one of the means when members of a single team are bowling simultaneously on two lanes.

3,565,429

BOWLING BALL AND GRIPPING DEVICE THEREFOR

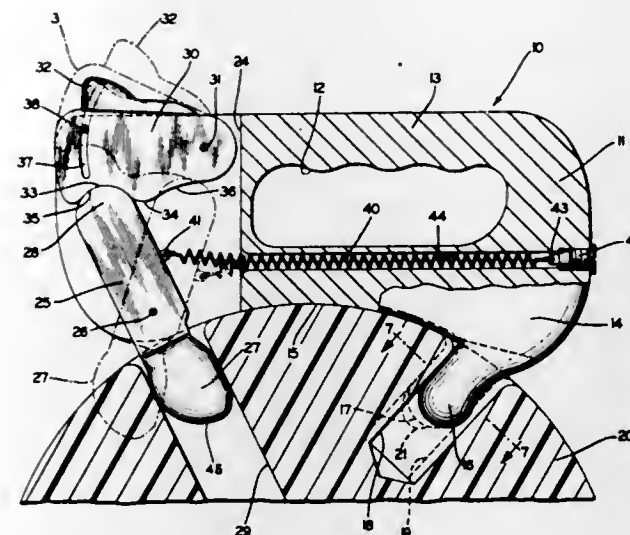
Earl E. Williams, 113 S. Queen St., Shippensburg, Pa. 17257

Filed May 8, 1968, Ser. No. 727,508

Int. Cl. A63b 43/02

U.S. Cl. 273-64

1 Claim



A hand operable bowling ball gripping device for gripping a bowling ball of conventional type which includes a handle portion and releasable ball engaging members. The ball engaging portion includes two finger gripping members which are adapted to engage the finger holes of a conventional bowling ball and a movable thumb hole engaging member which in the engaging position permits gripping the ball and which is movable to an open position to release the ball. The thumb engaging member is held in position by trigger means operated by the thumb of the bowler which is released to disengage the ball from the gripping device. The trigger means and thumb hole engaging member include cooperating cam surfaces to retain the thumb hole engaging member in the thumb hole while pressure is exerted upon the trigger means, and spring means are also included to urge the thumb hole engaging member in a normally open position. The finger gripping members may also be provided with guide means in the form of a flange cooperable with a groove in a finger hole to control the direction of roll of the released ball.

3,565,430

DRAG STRIP RACE GAME

John W. McRoskey, Los Angeles, Calif., assignor to Republic Tool & Manufacturing Corporation

Filed Aug. 22, 1968, Ser. No. 754,664

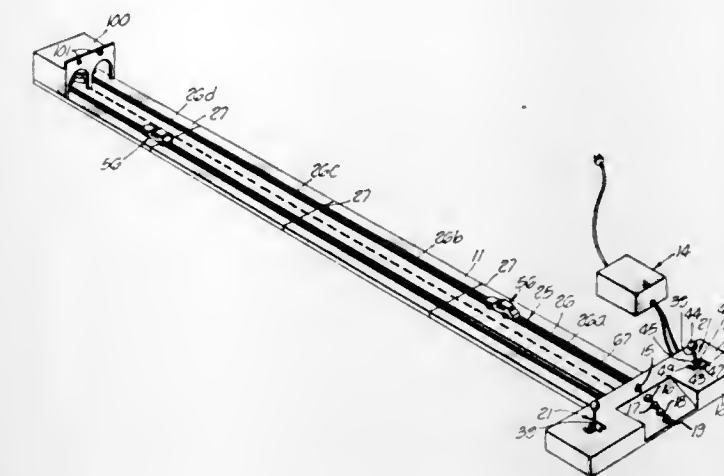
Int. Cl. A63f 9/14; A63h 30/02

U.S. Cl. 273-86

1 Claim

A drag strip race game in which a pair of contestants race miniature cars against each other, including tracks for each car, each track being divided into four sections and each section of each track being energized by electrical circuits. Associated with each track and for each contestant is a simulated gear shift, including an operating switch having a movable switch element or gear shift stick for selectively closing an electric circuit to each one of the track sections, whereby by moving the gear shift stick through positions representing gears one to four of a transmission, may successively energize the track sections and propel the car along the track from starting position to finish position. Starting means are pro-

vided for starting the drag race and for preventing false starts, win indicating means are provided for indicating the



winner of the race and reversing means is provided for returning the cars to starting position.

3,565,431

MINIATURE SIMULATED BASEBALL GAME

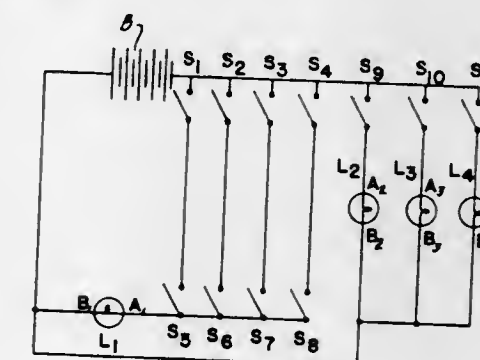
George R. Senter, 8807 Helke Road, Vandalia, Ohio

Filed July 12, 1968, Ser. No. 744,549

Int. Cl. A63f 7/06

U.S. Cl. 273-93

1 Claim



A miniature simulated baseball game including a board having a configuration of a baseball field thereon and a series of switches. Four switches are located at the pitcher position, four at the batter position and lights are located at the base positions. Two players compete, one as pitcher and one as batter, operating their respective switches. The respective switches are arranged in pairs in an electrical circuit in such manner that when the proper pair is actuated a light is lit to indicate a matched pair. The batter can then spin a pointer properly marked to indicate various base hits, etc.

3,565,432

METHODS AND APPARATUS FOR A CHANCE CONTROLLED CATAPULT GAME

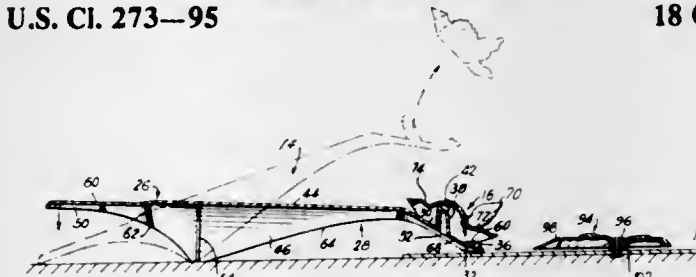
Lawrence L. Reiner, 1 Hickory Lane, Woodbury, Nassau County, N.Y.

Filed Sept. 20, 1968, Ser. No. 761,121

Int. Cl. A63b 67/00

U.S. Cl. 273-95

18 Claims



Game apparatus comprising a plurality of animal representations, teeter-totter-type levers for launching the representa-

tions into the air, netlike structures for catching the representations and spinner for controlling the sequence of play together with a method of game play utilizing such apparatus.

3,565,433

PADDLE TOY

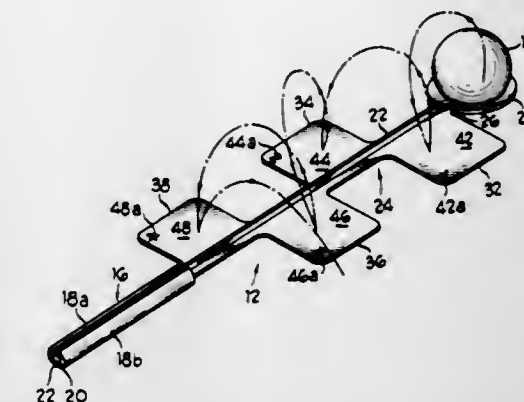
Jeffrey D. Breslow, Evanston, Ill., assignor to Marvin Glass & Associates

Filed June 2, 1969, Ser. No. 829,568

Int. Cl. A63b 65/12

U.S. Cl. 273-96

11 Claims



A toy of the type employing a paddle instrument and a ball instrument, characterized by the provision of alternate staggered offset striking surfaces on the paddle for engagement with the ball extending in a zigzag pattern away from a ball receiving area, successful employment of the toy requiring sequential advancement of the ball in a zigzag or staggered fashion by bouncing the same on said alternate staggered striking surfaces.

3,565,434

BOOMERANG WITH ADJUSTABLE-PITCH BLADES

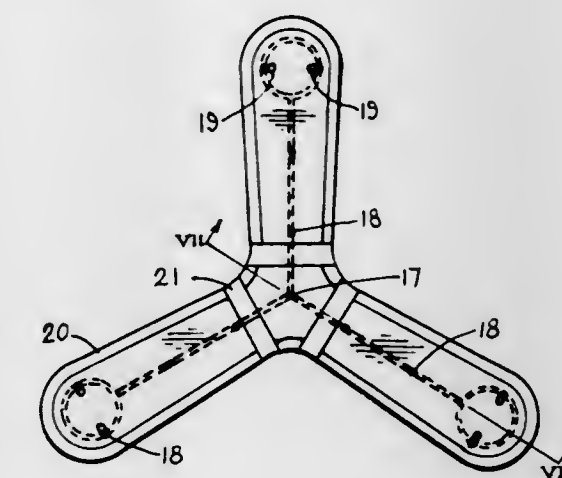
James F. Liston, 866 Hare Ave., Ottawa 13, Ontario, Canada

Continuation-in-part of application Ser. No. 497,019, Oct. 18, 1965, now Patent No. 3,467,385. This application July 10, 1969, Ser. No. 840,654

Int. Cl. A63b 65/08

U.S. Cl. 273-106

3 Claims



A malleable wire is moulded in the plastic blades of a boomerang along the neutral axis thereof. Twisting of the blades to exceed the yield point of the wire enables adjustment of the relative tilt of the blades. The blade ends are formed with weight-receiving pockets.

3,565,435

DRUG DISPENSING HUNTING ARROW

Fred B. Bear, Lake St., Grayling, Mich.

Filed Nov. 25, 1968, Ser. No. 778,547

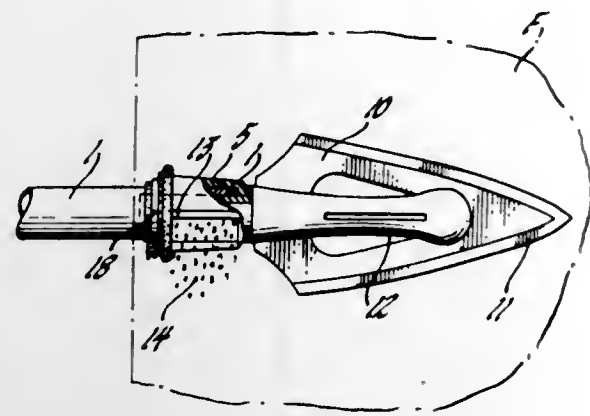
Int. Cl. F41b 5/02; A61m 5/00

U.S. Cl. 273-106.5

8 Claims

A hunting arrow having means located between the head and shaft for the automatic dispensing of a tranquilizing com-

position upon entry of the forward part of the arrow into the flesh of game. A flexible sheath is stripped back by the flesh



to expose the composition to the animal tissue thus ensuring a humane kill.

3,565,436

STRATEGY-TYPE MILITARY GAME

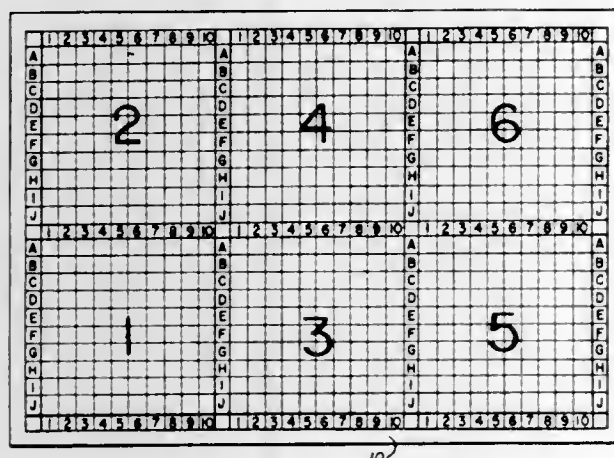
Arthur Opmeer, 2112 Zion Road, Grand Junction, Colo.

Filed Oct. 14, 1968, Ser. No. 767,089

Int. Cl. A63f 3/00

U.S. Cl. 273-130

5 Claims



A divided playing board having its divisions numbered from 1 to 6, differently colored playing pieces representing ships of different types, individual boards on which said pieces are disposed, shields for concealing said boards, a die for selecting one of said board divisions, and identical marker cubes having faces of the same colors as the colors of said pieces.

3,565,437

DISCOUNT STORE BOARD GAME APPARATUS

Tibb N. Mitchell, Hollis, N.Y. (112-23 201st St., New York, N.Y. 11412)

Filed Feb. 12, 1968, Ser. No. 704,696

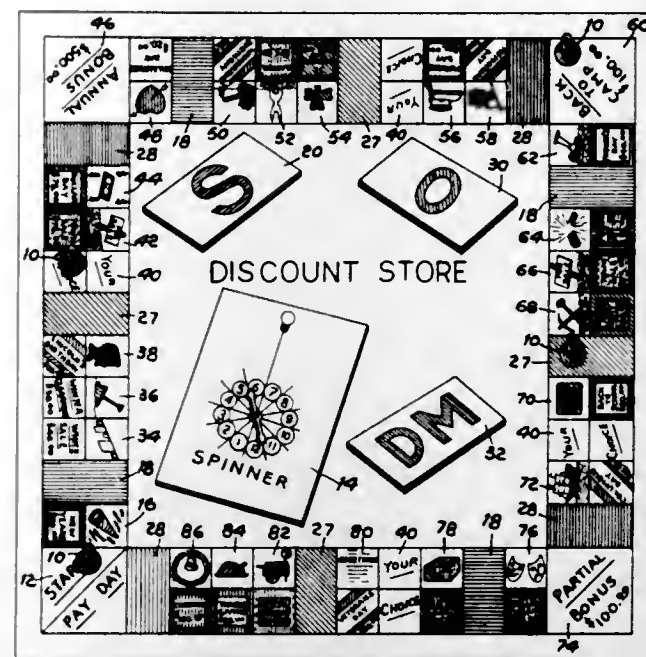
Int. Cl. A63f 3/02

U.S. Cl. 273-134

7 Claims

A game board and appurtenances represent various aspects of the retail merchandise or discount store business including special sale days, commissions and management opportunities. The apparatus includes markers to indicate each player and peg and rack boards to record and display the players' managerial position advancement. Chance means provide the number of spaces for movement of the markers

along the game board. The spaces indicate particular monetary awards, which may be associated with specified sales days, or the selection of a card from different stacks which provide various awards, penalties and advanced managerial positions. A further group of store window display cards are



issued which correspond with different sales day spaces on the game board. Particular combinations of display cards have specified monetary awards. The player accumulating the most money in a given time or reaching the position of President is considered the winner.

3,565,438

SPACE GAME WITH PIECE AND DISTANCE DETERMINING CHANCE MEANS

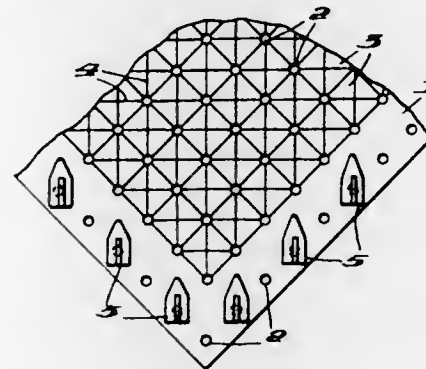
Glenn Bischof, 2811 Wyndham, Orlando, Fla. 32808

Filed Nov. 18, 1968, Ser. No. 776,613

Int. Cl. A63f 3/04

U.S. Cl. 273-134

6 Claims



A game utilizing game pieces simulating space ships and movable by chance, relative to a playing surface having holes therein in regular rows, which holes are to receive and hold the game pieces. The pieces of each player's group are divided into red, white and blue subgroups. A color die and a number die indicate respectively the piece to be moved and the number of spaces. The pieces are so dimensioned that they touch when in adjacent holes and pointing toward each other.

3,565,439

DOUBLE CROSSWORD GAME APPARATUS

Robert L. Krouse and Lillian N. Krouse, 168-09 33rd Ave., Flushing, N.Y. 11358

Filed Feb. 28, 1968, Ser. No. 709,129

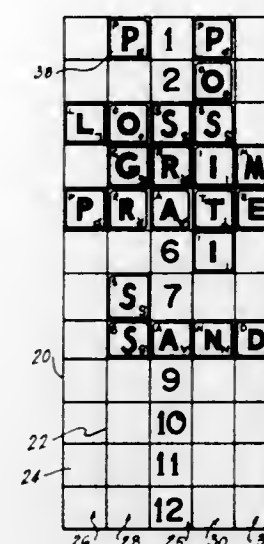
Int. Cl. A63f 3/00

U.S. Cl. 273-135

1 Claim

A card game is disclosed in which two decks of cards are assigned to two opposing teams. Each card has a letter of the

alphabet printed thereon. The cards are to be applied to a game board which has boxes outlined in a rectangular pattern so that words can be spelled out lengthwise and crosswise of the board. A numbered spinner is used to indicate the number of letters in words which the opposing teams must



spell out on the game board by using their own lettered cards, said spinner having a dial divided into segments of progressively smaller size and numbered from 5 to 12, respectively. Trays are provided to hold discarded or unusable cards during a round of play.

3,565,440

GRAB BAG GAME APPARATUS

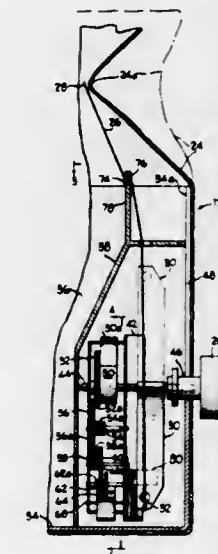
Marvin I. Glass, Chicago, Denise C. Gardner, Evanston, and Peter Aleksa, Chicago, Ill., assignors to Marvin Glass & Associates

Filed Aug. 19, 1968, Ser. No. 753,426

Int. Cl. A63f 9/00

U.S. Cl. 273-148

5 Claims



A game of the grab bag-type characterized by the provision of a timer mechanism operably associated with the bag throat to close the same after a given period of time.

3,565,441

TOY AMUSEMENT BANK

Teruo Matsumoto, 3-24-17, Tsurumaki, Setagaya-ku, Tokyo, Japan

Filed Apr. 24, 1970, Ser. No. 31,665

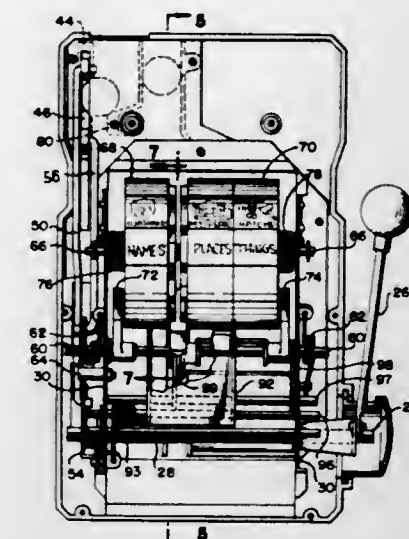
Int. Cl. A63h 33/00

U.S. Cl. 273-143

7 Claims

A toy amusement bank incorporates two rotatable wheels, one wheel having a single row of indicia around its periphery

and the other wheel having two similar rows of indicia. The wheels are aligned to display a horizontal row of indicia in a window located in the face of the bank. Attached to the bank is a handle for actuating a mechanism which causes the indicia wheels to spin. A coin is inserted into the savings bank and eventually is trapped between leverage elements until the handle is pulled down, at which time force is translated via



the coin to the spinning mechanism. As the wheels begin spinning, the coin is deposited in a storage compartment within the bank. A pushbutton located on the front of the bank actuates, independently of the previously described system for spinning the wheels, a sensing mechanism for abruptly halting rotation of the wheels and dispensing coins that have been accumulated in accordance with preselected combinations of indicia framed within the bank window.

3,565,442

PYRAMID PUZZLE

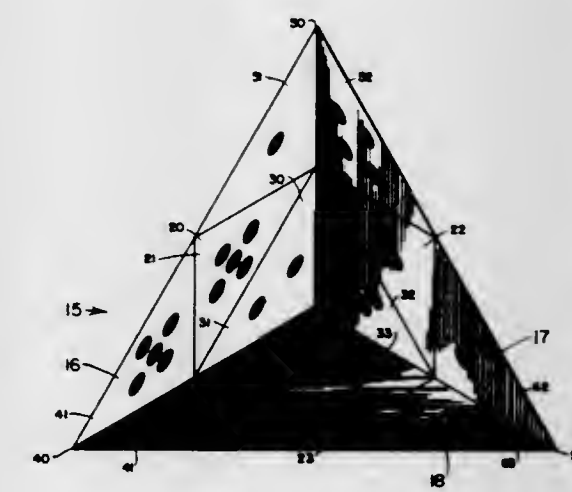
Burton L. Klein, 301 E. 47th St., New York, N.Y. 10017

Filed Mar. 14, 1969, Ser. No. 807,200

Int. Cl. A63f 9/12

U.S. Cl. 273-157

4 Claims



A three-sided pyramid is assembled from an octahedron and four smaller pyramids, the faces of the smaller pyramids and the octahedron having die markings thereon, the assembled pyramid in a solved configuration having the die markings on each visible face total thirteen.

3,565,443

DECORATIVE CUBE PUZZLE

Burton L. Klein, 301 E. 47th St., New York, N.Y. 10017

Filed Mar. 14, 1969, Ser. No. 807,202

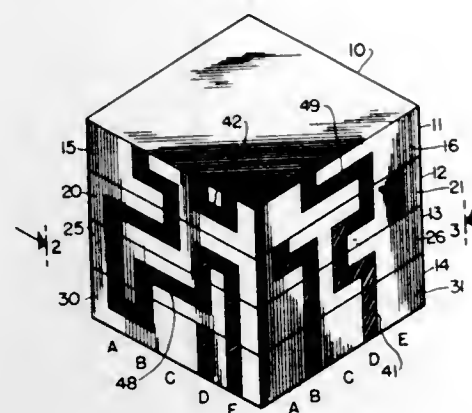
Int. Cl. A63f 9/08

U.S. Cl. 273-157

5 Claims

A cube is formed in four horizontal layers having edges which form the cube's lateral faces, the edges having portions

of mazelike paths formed thereon so that the four layers of polytetrafluoroethylene and a washer-shaped gasket of an



the cube may be assembled with a mazelike path leading from top to bottom of each lateral face of the cube.

3,565,444

TRAINING DEVICE FOR IMPROVING GOLFER'S SWING

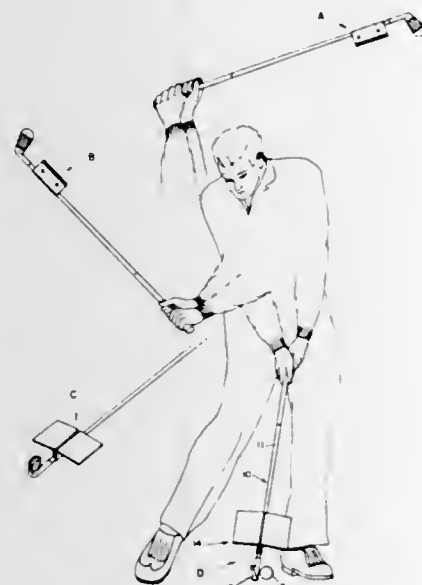
Salvatore S. La Rocca, San Rafael, Calif., assignor to Nello D. Scirocchi, San Francisco, Calif.

Filed Sept. 20, 1968, Ser. No. 761,116

Int. Cl. A63b 69/36

U.S. Cl. 273-186

12 Claims



A training device adapted for improving a golfer's swing comprises a wing-shaped member attached to the shaft of a golf club adjacent to the head thereof. The member has substantial air drag inducing surface areas formed thereon with a preselected maximum aspect ratio for initially impeding club head speed and for gradually permitting such speed to increase when the club head enters the hitting zone.

3,565,445

SEAL ARRANGEMENTS

August Hodges, New Rochelle, N.Y., assignor to Polyflon Corporation, New Rochelle, N.Y.

Filed Dec. 3, 1968, Ser. No. 780,701

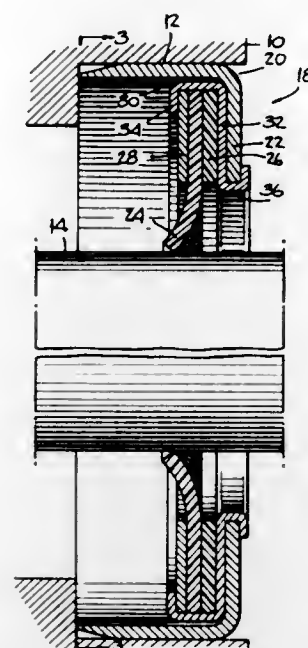
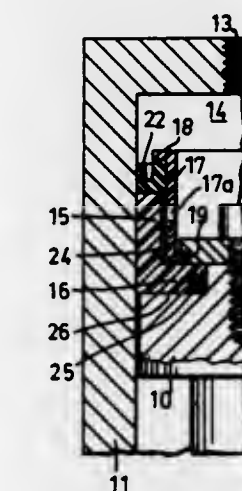
Int. Cl. F16k 41/00; F16j 15/00

U.S. Cl. 277-47

8 Claims

Fluid seals for rotating, vibrating or reciprocating shafts and made of a washer shaped sealing element of

A piston seal arrangement between a cylinder wall and a seal sleeve displaceably arranged in the cylinder, at the one end of which seal sleeve is arranged a seal ring made of elastic material and abutting the end of the sleeve and the cylinder, the seal ring being held in abutment with the end of the sleeve by means of an inner sleeve inserted in the seal sleeve and extending beyond the end of said seal sleeve and engaging around the seal ring, a gap being located between the seal sleeve and the inner sleeve which gap communicates with a pressure fluid chamber surrounded by the inner sleeve, and the seal sleeve being of such material and has such wall thickness that when a predetermined, relatively high pressure of said fluid is exceeded the seal sleeve expands radially into abutment with the cylinder wall under the influence of the pressure fluid in the chamber between the seal sleeve and the inner sleeve.



3,565,446

FLUID PRESSURE SEAL ARRANGEMENT

Carl Erik Josef Nyberg, Sylvens vag. 6, Skovde, Sweden

Filed June 5, 1968, Ser. No. 735,501

Claims priority, application Sweden, June 9, 1967, 8,161/67

Int. Cl. F16j 15/00; B65d 53/00; F16l 19/00

U.S. Cl. 277-59

12 Claims

elastomeric material squeezed together by a metal plate casing.

3,565,447

STERN TUBE SEAL

Joachim Lucy and Hans Peter Goetze, Rostock, Germany, assignors to Institut fur Schiffbau, Rostock, Germany

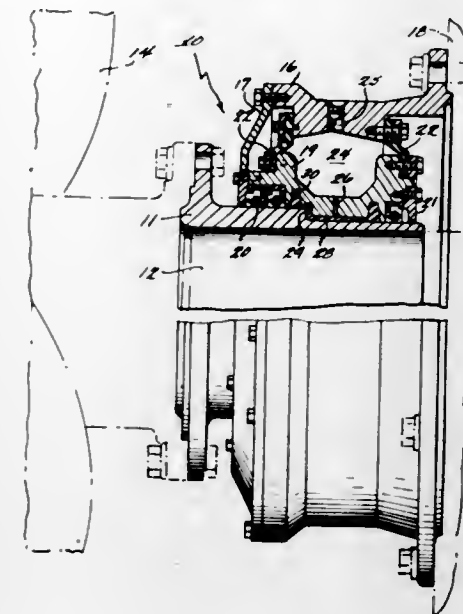
Filed July 12, 1968, Ser. No. 744,506

Claims priority, application Germany, Oct. 5, 1967, P1,531,751

Int. Cl. F16j 15/00

U.S. Cl. 277-59

4 Claims



A seal for the sea water end of oil-lubricated stern tubes. Relative axial movement between a bushing for a ship's propeller shaft and an annular seal surrounding the bushing is prevented by an axial slide bearing. The annular slide bearing includes a stop shoulder fixed to the bushing which is adapted to abut a complementary shoulder of the guide ring of the seal. A felt sealing element is located on each side of the bearing in order to prevent abrasion products generated by contact between the bushing and a plurality of shaft packing rings from entering the slide bearing. The foregoing abstract is not intended to define the scope of the invention and is only provided to permit a cursory review of the gist of the invention.

3,565,448

ADJUSTABLE SEALING AND FIXTURING DEVICE

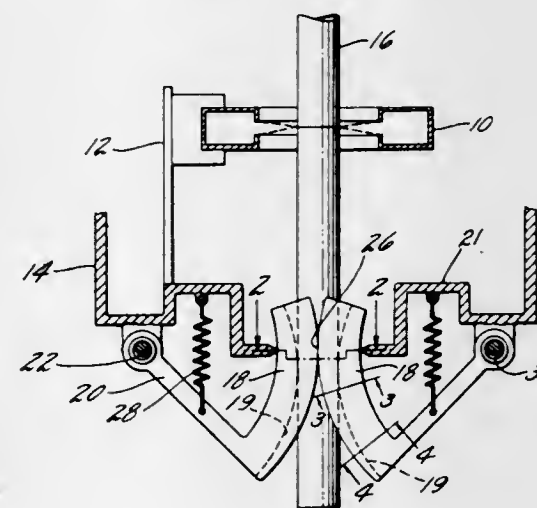
Albert W. Angelbeck, East Hartford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Apr. 18, 1969, Ser. No. 817,460

Int. Cl. F16j 15/02

U.S. Cl. 277-143

6 Claims



A fixturing and sealing mechanism for holding pipes or other workpieces of various sizes and at the same time affording a vacuum seal. Two arcuate or contoured members

are pivoted about end walls of a vacuum chamber so that the radii of the two members abut in sealing relation. Each member contains a semicircular surface aperture of decreasing radius. By rotating the two members, circular apertures of different diameters are created by the intersection of the two members, and a seal is provided in the end wall of the chamber to accommodate different size workpieces.

3,565,449

HEAD GASKET ASSEMBLY HAVING PARTS THEREIN

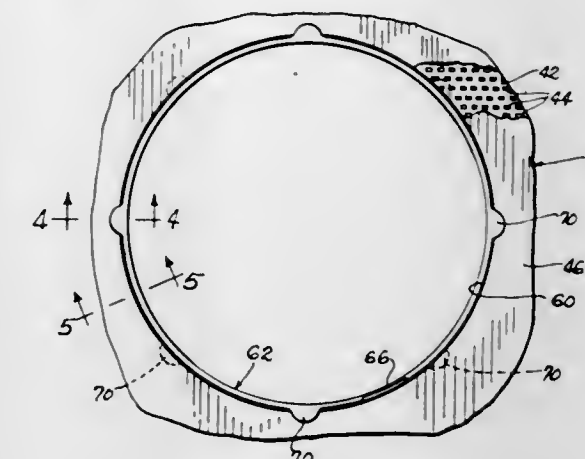
Ramon J. Ascencio, Chicago, Eugene A. Brockhaus, Oak Park, and Alvin J. Furstenburg, Chicago, Ill., assignors to Felt Products Mfg. Co.

Filed Dec. 6, 1968, Ser. No. 781,923

Int. Cl. F16j 15/12, 15/28; F02f 11/00

U.S. Cl. 277-235

9 Claims



A method of making an improved head gasket assembly and an improved head gasket assembly. A head gasket body is provided with cylinder openings. A second gasket comprising a U-shaped annulus and having a plurality of peripheral tongues is formed and positioned in a cylinder opening. The second gasket tongues project over the main gasket body to suspend and position the annulus in a spaced-apart position in the opening.

3,565,450

RELEASABLE CONNECTING DEVICE FOR A SKI

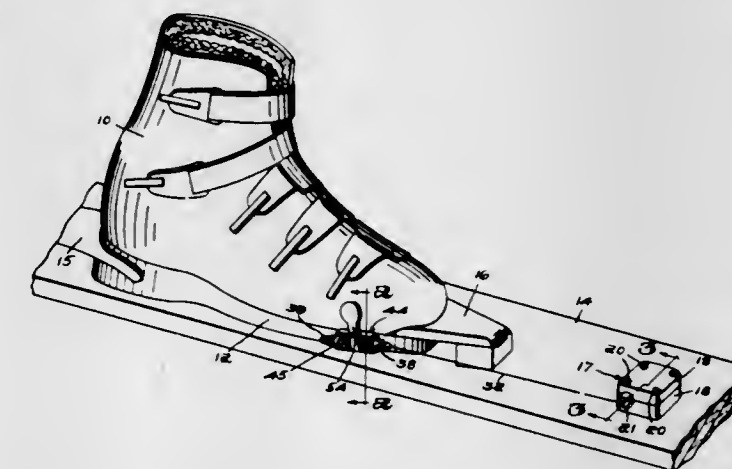
Sidney Rosenthal, 36 Southgate Park, Newton, Mass. 02165

Filed Aug. 14, 1968, Ser. No. 752,660

Int. Cl. A63c 9/00

U.S. Cl. 280-11.35

2 Claims



A leash connects a skier's boot to his ski and has a connector that is releasably held by a holding device. The latter and the connector are so formed that the leash can be released by the skier while remaining erect. A retracting device holds the leash under tension when the ski and boot are connected thereby, and automatically winds it on a spool when the connector is released.

3,565,451

SKI POLE GRIP

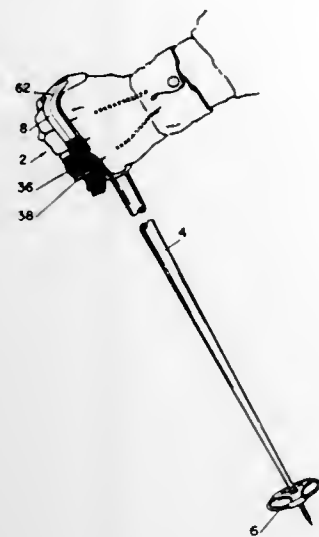
James D. Giambazi, Stow, Mass. (12 Abbott St., Cumberland, R.I. 02864)

Filed Feb. 20, 1969, Ser. No. 800,867

Int. Cl. A63c 11/22

U.S. Cl. 280-11.37

11 Claims



A ski pole grip includes a strap, or similar means, that extends across and bears on the back of the skier's fingers to hold the skier's hand to the body of the grip, thereby providing substantial aid in controlling the ski pole. Preferably, the grip also includes an enlarged top, or head, portion with a flattened lateral area against which the thumb may comfortably rest, and a pattern of circumferential sections located in the palm area of the grip and offset from the surface of the grip to aid in holding the pole. The grip is designed to be injection molded with the mold parting line running along the strap and axially dividing the grip between a finger area and a palm area, the mold including a knockout plug in the palm area having the offset circumferential sections, the plug being easily replaced to vary the palm area pattern as desired.

3,565,452
SLED

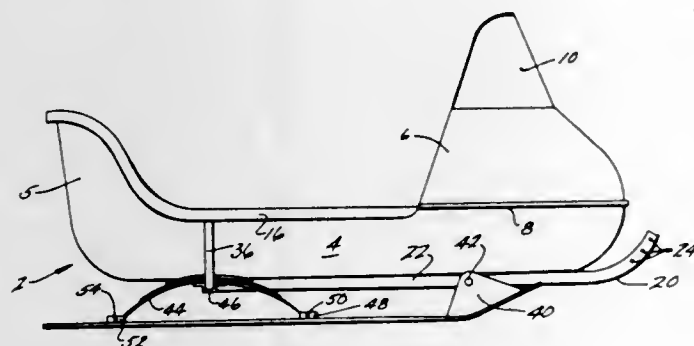
Richard L. Trumley, Charlotte, and Duane W. Lane, Holland, Mich., assignors to General Aluminum Products, Inc., Charlotte, Mich.

Continuation of application Ser. No. 667,586, Sept. 13, 1967, now abandoned. This application Jan. 15, 1970, Ser. No. 004,166

Int. Cl. B62b 13/06

U.S. Cl. 280-15

13 Claims



This disclosure relates to a sled having a two piece body with a continuous upstanding sidewall, an upstanding front portion and a back rest. The body is supported by a frame which has a central shaft curved upwardly at the front end. The central shaft contains a plurality of flanges through which the body is attached to the frame. At the back end of the central shaft a cross member is attached. The cross member extends upwardly at the ends of the body and then

horizontally below a flange at the top portion of the body sidewalls. A pair of skis are attached to the supports through a pivotable connection at one end and through a spring at the other end.

The upwardly extending portion of the central shaft has a plurality of vertically spaced holes through which a hitch can be attached. The hitch preferably contains three U-shaped members which are attached in such a manner that the hitch is rotatable about three axes.

3,565,453

WHEELBARROW

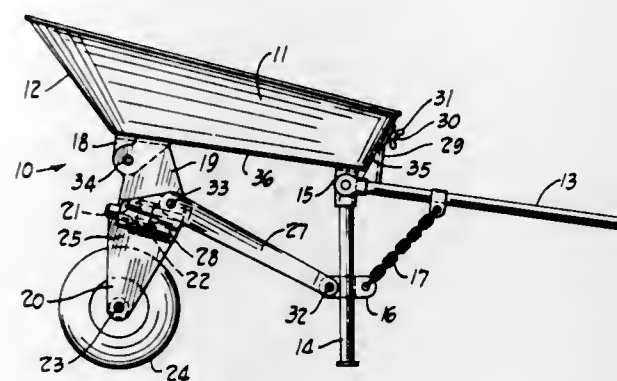
Americo Del Raso, 21858 River Oaks Drive, Rocky River, Ohio

Filed May 19, 1969, Ser. No. 825,778

Int. Cl. B62b 1/20

U.S. Cl. 280-38

1 Claim



A wheelbarrow having its wheel, legs and handles foldable against the underside thereof, for compact storage.

3,565,454

SKATEBOARD WITH INCLINED FOOT-DEPRESSIBLE LEVER

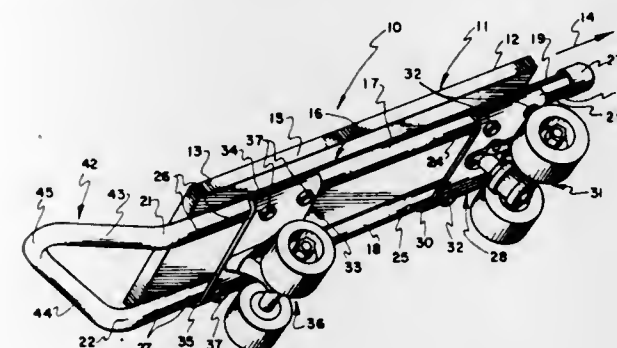
Richard Lawrence Stevenson, 1516 1/2 Amherst Ave., West Los Angeles, Calif.

Filed June 12, 1969, Ser. No. 832,559

Int. Cl. B62b 11/00

U.S. Cl. 280-87.04

13 Claims



The rear end section of a skateboard mounts an inclined lever that is sloped upwardly and rearwardly from the skateboard. In order to practice otherwise difficult spinning or pivoting maneuvers such as wheelies with much improved balance and safety, a person places his rear foot upon and depresses the lever to tilt the skateboard upwardly into a position for the desired maneuver.

3,565,455

VEHICLE STRUT TYPE SUSPENSION WITH STABILIZED TOE-IN ANGLE

James M. Kostas, 418 W. Hudson St., Peoria, Ill.

Filed Nov. 29, 1968, Ser. No. 779,724

Int. Cl. B60g 3/00

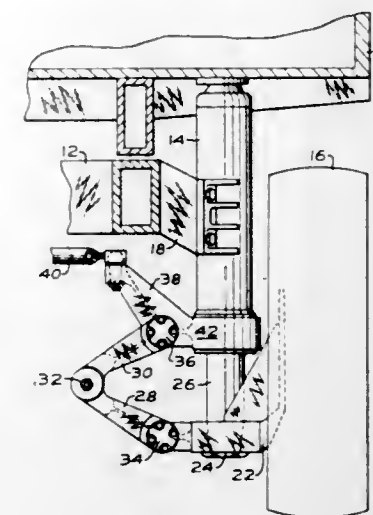
U.S. Cl. 280-96.2

1 Claim

A linkage used with vehicle wheels individually mounted on vertically adjustable struts to prevent toe-in or angular

movement of the wheels as a result of vertical extension and retraction of the strut. This is accomplished by the use of

supporting air springs substantially above the outer wheels of the dual rear wheels thus increasing the transverse stability of the rear suspension.



3,565,457

VEHICLE STABILIZING DEVICE

John W. James, Norwalk, and Richard D. Ranney, Hermosa Beach, Calif., assignors to Emdeko Distributing, Inc., Salt Lake City, Utah

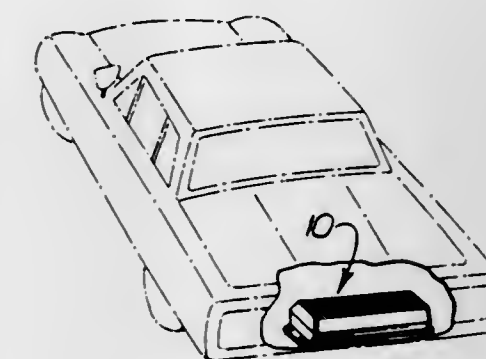
Filed June 6, 1969, Ser. No. 831,138

Int. Cl. B60r 27/00

U.S. Cl. 280-150

9 Claims

links which permit vertical movement of the wheels relative to the vehicle frame and having steering means connecting the wheels to the frame but fixed against vertical movement.



3,565,456

REAR SUSPENSION FOR VEHICLES

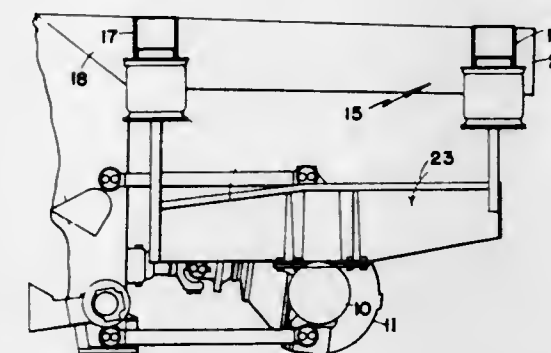
Harry Zoltok, Winnipeg, Manitoba, Canada, assignor to Motor Coach Industries Limited, Winnipeg, Manitoba, Canada

Filed Dec. 16, 1968, Ser. No. 784,018

Int. Cl. B60g 25/00

U.S. Cl. 280-106.5

8 Claims



A subframe is provided between the rear axle assembly and the rear end of the vehicle body having outrigger ends

A vehicle stabilizing device comprising a weight member counteracting lateral or sidewise force components acting upon a vehicle and restrained against response to forces other than lateral acting upon the vehicle, such restraint means providing a novel mounting for the weight member and including top and bottom sets of shouldered roller members. The device includes a novel assembly of a housing, weight member and mounting means therefor, the housing protectively containing the weight member therewithin for virtually maintenance-free operation.

3,565,458

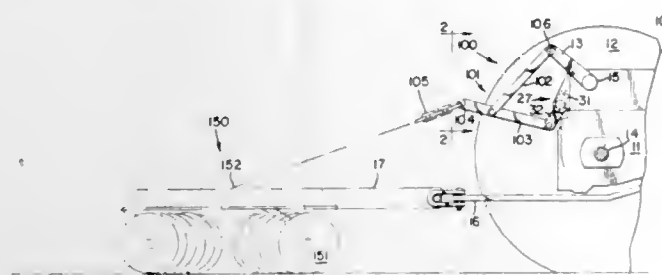
WEIGHT TRANSFER HITCH

Leonard A. Bettin, Lyons, Ill., assignor to International Harvester Company, Chicago, Ill., a corporation of Delaware

Filed June 3, 1968, Ser. No. 733,984
Int. Cl. B62d 53/00

U.S. Cl. 280—405

8 Claims



A weight transfer apparatus for transferring weight from an attached trail behind device to a tractor having draft control means including power lift means and draft sensing means for transmitting a signal to the power lift means to operate the latter in response to actuation of the draft sensing means, the apparatus including a tension member and lifting member interconnected between the trailing device and the draft sensing means.

3,565,459

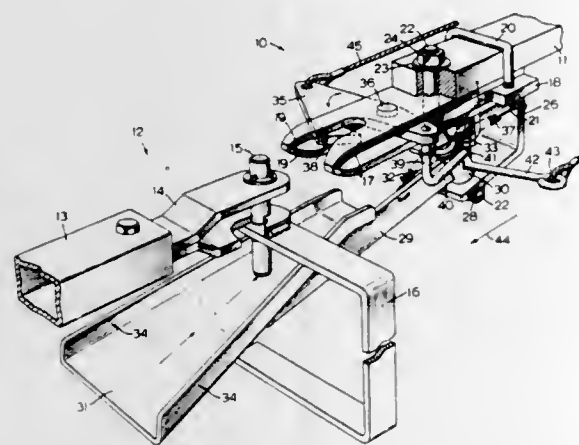
AUTOMATIC HITCH

Kenneth W. Reid, R.R. 2, Norval, Ontario, Canada

Filed Apr. 17, 1969, Ser. No. 817,029
Int. Cl. B60d 1/04

U.S. Cl. 280—477

8 Claims



An automatic hitch for connecting a tractor and trailer comprises a pole guide unit and a jaw unit which are latched together by mutual engagement thereof; a pole guide member for guiding the pole unit into the jaw unit is movable between operative and inoperative positions and is latched in its operative position; entry of the pole unit into the jaw unit unlatches the pole guide member and permits it to move to its inoperative position.

3,565,460

SYSTEM FOR CONTROL OF BOUNCE IN TRACTOR-TRAILER COMBINATIONS

Harvey A. Knell, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of California

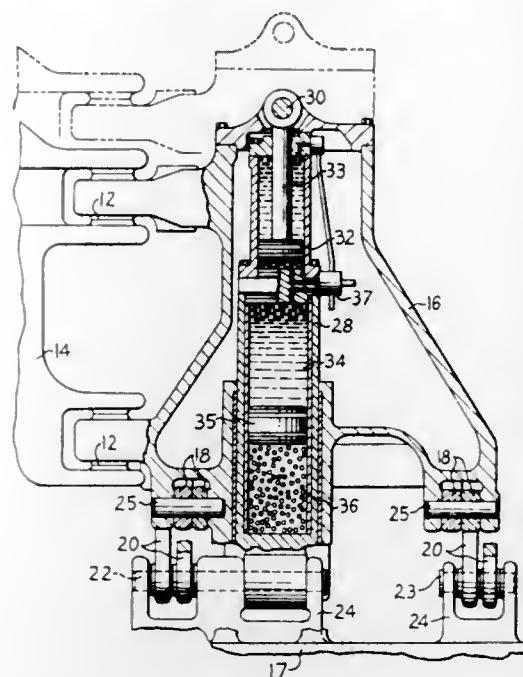
Filed Dec. 23, 1968, Ser. No. 786,022
Int. Cl. B60d 1/00

U.S. Cl. 280—483

9 Claims

A hitch for a tractor-trailer unit with scissors-type linkages at both the front and rear of the hitch connected by transfer tubes and a strut cushion hitch com-

prising a single cylinder-accumulator structure. Trailer movement relative to the tractor is restricted to vertical



translation and the loads imposed upon the tractor frame are equalized through the linkages.

3,565,461

TRAILER HITCH

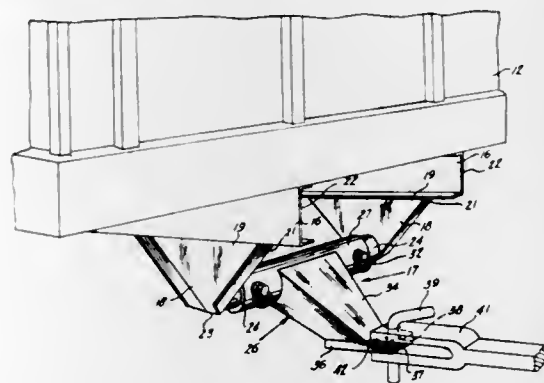
Eldon D. Jones, Lake Crystal, Minn. 56055

Filed Jan. 22, 1969, Ser. No. 793,103

Int. Cl. B60d 1/02

U.S. Cl. 280—491

1 Claim



The trailer hitch is carried in a depending relation on and between a pair of longitudinal frame members of the towing vehicle at a position adjacent the rear ends of the frame members. The hitch includes a draw bar assembly that is rotatable about an axis extended transversely of the frame members to operating and storage positions therefor. In the operating position the draw bar assembly is inclined downwardly and rearwardly from its axis of rotation to locate a draw bar, that forms a part thereof, in a horizontal rearwardly projected position. When the draw bar assembly is in the storage position it is inclined upwardly and forwardly from its axis of rotation. The draw bar assembly is positively locked against rotation in each of its rotated positions.

3,565,462

GRAPHIC OVERLAY ASSEMBLY

Gerald H. Gottlieb, 2360 Benedict Canyon Drive, Beverly Hills, Calif. 90210

Continuation-in-part of application Ser. No. 496,922, Oct. 18, 1965. This application July 15, 1969, Ser. No. 847,780

Int. Cl. B42d 1/00

U.S. Cl. 281—3

25 Claims

Graphic overlay assembly for facilitating comparison of information and featuring one or more unitary sheets

3,565,464

SWIVEL COUPLING ASSEMBLY FOR VACUUM CLEANER

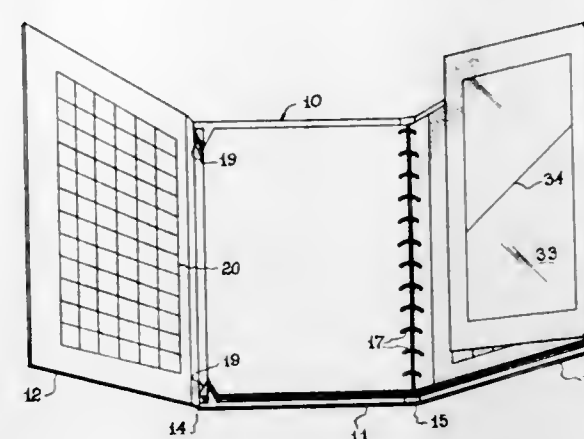
Lee A. Wolf, Cincinnati, Ohio, assignor to Haley Corporation, Cincinnati, Ohio, a corporation of Ohio

Filed Apr. 15, 1969, Ser. No. 816,252

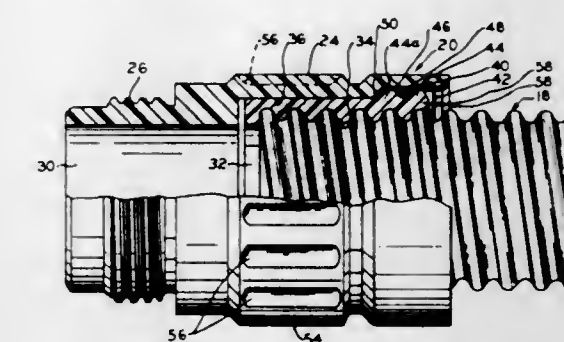
Int. Cl. A47I 9/24

U.S. Cl. 285—7

16 Claims



stored position. The binder for the overlay assemblies preferably includes a fold-out cover imprinted with a grid or other suitable reference guide positioned to underlie and register with the intelligence on the unfolded smaller half of one or more unfolded transparencies. A feature of the invention is the use of film-like transparent material suitably processed for reinforcing the film adjacent the hinge line by one of several techniques.



A swivel type coupling assembly for use with an operating member or members, such as the operating wand of a vacuum cleaner and/or the flexible vacuum cleaner hose of the vacuum cleaner, for movably coupling the operating member or members to the source of suction. The coupling assembly comprises first and second coupling members disposed in coating generally axially aligned relatively rotatably relation, and with a resilient ring type sealing member coacting between the coupling members for sealing the juncture between the members against ingress of ambient air, thus maintaining the suction efficiency of the cleaner while permitting relative rotary movement between the coupling members, thereby permitting swiveling movement of the operating member or members with respect to the suction source.

3,565,463

SECURITY SYSTEM

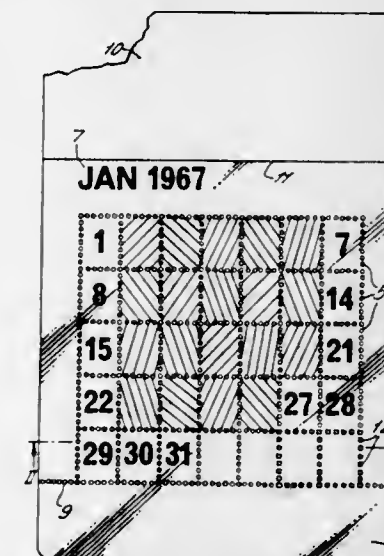
Derek Arthur Taylor, Maldenhead, England, assignor to Thomas De La Rue and Company Limited, London, England, a British company

Continuation of application Ser. No. 702,996, Feb. 5, 1968. This application Sept. 15, 1969, Ser. No. 861,220, Claims priority, application Great Britain, Feb. 7, 1967, 5,802/67; Mar. 22, 1967, 13,497/67; July 27, 1967, 34,521/67

Int. Cl. G09f 3/03

U.S. Cl. 283—10

6 Claims



A system of security which includes the use of a card having transparent areas with an adhesive layer thereon, and a stamp with markings on one face, which, when the stamp is affixed to the adhesive layer so that the markings can be seen through a transparent area, is so affected that any attempt to remove the stamp results in its alteration or damage.

3,565,465

PIPE COUPLINGS

David Alan Wemyss, Solihull, England, assignor to Ellay Enfield Tubes Limited, Maldenhead, Berkshire, England

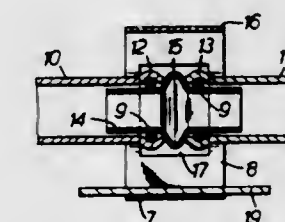
Filed Mar. 19, 1969, Ser. No. 808,433

Claims priority, application England, Mar. 19, 1968, 13,266/68

Int. Cl. F16I 35/00

U.S. Cl. 285—81

2 Claims



A pipe coupling including engaging tubular parts with an internal O-ring seal to provide a fluid tight joint when the parts are inserted one within the other and an anchorage device for locating the parts in an endwise direction and a slot or abutment to engage behind a shoulder on one or both of the parts. The anchorage is conveniently a resilient clip which can be inserted transversely over the assembled coupling.

3,565,466

MEANS TO CONNECT A CONDUIT TO A CONTAINER

Donald M. Mullings, Yardley, Pa., assignor to General Electric Company, a corporation of New York

Filed Dec. 18, 1968, Ser. No. 784,565

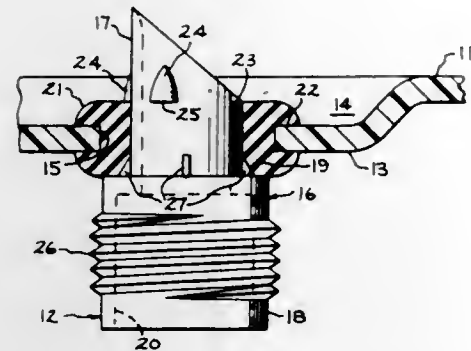
Int. Cl. F16I 5/02

U.S. Cl. 285—158

4 Claims

A connector includes a tubular element having a large diameter portion and a small diameter portion defining

a shoulder therebetween. The small diameter portion fits into a resilient grommet which in turn fits into an opening in a container. The grommet is sandwiched between projections on the small diameter portion and the shoulder. Ribs extend outwardly adjacent the shoulder to pre-



vent relative rotation between the element and the grommet. The distal end of the small diameter portion extends into the container and has an oblique cut to localize flow from the container into the element to increase velocity of the flow.

3,565,467

SPOUT CONNECTOR APPARATUS

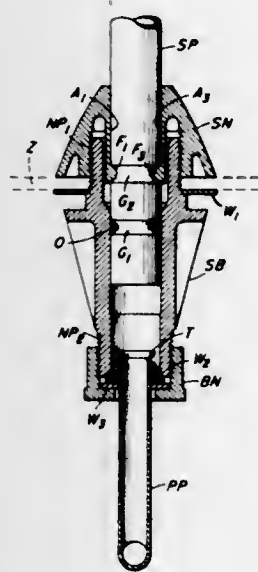
Ioakim Haldopoulos and James E. Niemann, Louisville, Ky., assignors to American Standard Inc., New York, N.Y., a corporation of Delaware

Filed Apr. 14, 1969, Ser. No. 815,982

Int. Cl. F16l 5/00

U.S. Cl. 285—161

8 Claims



Covers an improved coupling arrangement for interconnecting fluid emitting spout mechanism to a plumbing fixture, such as a sink or lavatory, after the plumbing fixture has been otherwise installed in its assigned location. The arrangement includes two inter-coupling members, i.e. a spout nut and a spout body, which are to be positioned on opposite sides of the deck of the plumbing fixture and are to be coupled to each other through the deck of the plumbing fixture so that they may not only grip the spout pipe on which the spout end may be assembled but also so that they may grip each other, and thereby prevent the spout pipe from being vertically movable with respect to the deck of the plumbing fixture, while permitting the spout pipe to be rotatable about the axis or centerline of the spout pipe. The spout nut has one or more arms with projecting fingers, and the spout pipe has a groove in its surface for receiving the projecting fingers.

3,565,468
BAND SEAL PIPE COUPLING WITH ADJUSTABLE FASTENING MEANS

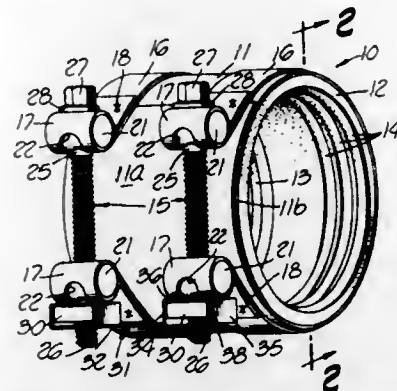
Ben B. Garrett, Whittier, Calif., assignor to Mission Clay Products Corporation, Whittier, Calif., a corporation of California

Filed Jan. 6, 1969, Ser. No. 789,196

Int. Cl. F16l 17/06

U.S. Cl. 285—373

6 Claims



A coupling and clamping device for connecting plain-end pipes in end-to-end relation, including a metal sleeve band having overlapped end extremities and means for anchoring an inner sealing sleeve therein against axial displacement, the band being compressible by flexible strap members connected at their ends by a threaded bolt and associated nut. The bolt extends through rockable plastic trunnions at the strap ends, and has a head portion with an inner transversely curved flange so as to apply clamping forces adjacent the ends of the trunnion. The bolt also has a frangible threaded end section which can be broken away after the coupling is installed. An additional feature includes a keeper bar which can be mounted over the threaded ends of the strap tightening bolts, this keeper having stops engageable with the associated nuts to retain them against turning, when the bolt is rotated. This keeper also serves to allocate the straps on the sleeve band with the proper spacing.

3,565,469

LOCK FOR CONNECTING STRUCTURAL ELEMENTS

Frederik Zwart, The Hague, Netherlands, assignor to A. De Hoop N.V., Rotterdam, Netherlands, a limited-liability company of the Netherlands

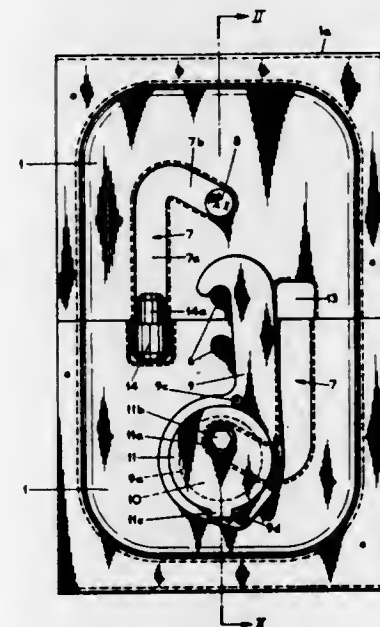
Filed Dec. 3, 1968, Ser. No. 780,842

Claims priority, application Netherlands, Dec. 6, 1967, 6716601

Int. Cl. E04c 1/30; F16b 5/00

U.S. Cl. 287—20.924

11 Claims



A lock for joining structural panels is disclosed, comprising identical open-ended housings respectively carried

in the facing edges of the panels to be joined, each housing having a transverse member adapted to be engaged by an eccentrically operated latch hook removably mounted in the other housing. An opening in each housing allows entry of a key for moving the latch hook relatively to the transverse member of the other housing, thus permitting selective engagement and disengagement of the latch hook and the cooperating transverse member. Guide means are located in each lock housing to facilitate mounting of the latch hook within the housing.

3,565,470

DEVICE FOR PROVIDING ADJUSTABLE POSITIONING OF WHEEL ON SHAFT

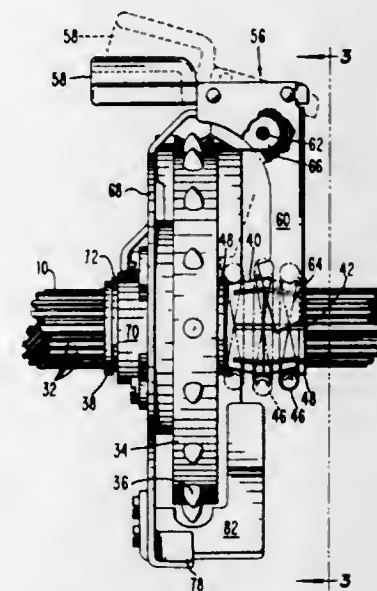
Edward A. Nicol, Farmington, and Louis R. Brown, Livonia, Mich., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Dec. 11, 1968, Ser. No. 782,993

Int. Cl. F16d 1/06

U.S. Cl. 287—52

10 Claims



A provision for releasably clamping a wheel-like member against axially slidable movement on the shaft upon which it is mounted, which includes a sleeve or collet forming an axial extension of the wheel and a garter-type spring encircling the sleeve and exerting a resilient contractual force thereon. The sleeve is flexible and responds to the presence of the spring at its outer end to clamp the wheel to the shaft and at its inner end by releasing the wheel for slidable movement along the shaft. The garter spring affects a rolling motion as it moves along the sleeve, and a camber on the sleeve provides opposite slopes of decreasing diameters which under the influence of its contractual force causes the garter spring to propel itself with a snap action to either clamping or release position once it is shifted over the high point of the camber. Means is carried by the wheel for effecting shiftable movement of the garter spring.

3,565,471

LOCKING MEANS

Sven Walter Nilsson, Savedalen, Sweden, assignor to Aktiebolaget Svenska Kullagerfabriken, Goteborg, Sweden, a corporation of Sweden

Filed May 15, 1969, Ser. No. 824,815

Claims priority, application Sweden, May 20, 1968, 6,764/68

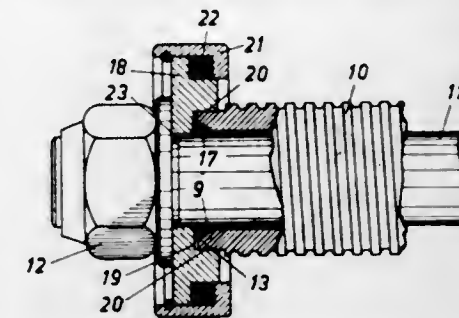
Int. Cl. F16d 1/06

U.S. Cl. 287—52.06

5 Claims

To interconnect a bar and a tubular member enclosing the same a mechanism is used, which comprises an internal expander element having mating conical surfaces and being worked by a nut rotatable on the threaded end of the bar. In order to prevent deformation of the tubu-

lar member, and also for increasing the locking function a washer is located between the bar and the tubular member. This washer has an axially directed recess, which



closely fits the cylindrical end portion of the tubular member, and within this enclosed portion the expander element works.

ERRATUM

For Class 8—21 see:
Patent No. 3,564,630

3,565,472

SCREW THREADED ASSEMBLIES

Johan Erik Patrik Sjöholm, Lund, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden, a corporation of Sweden

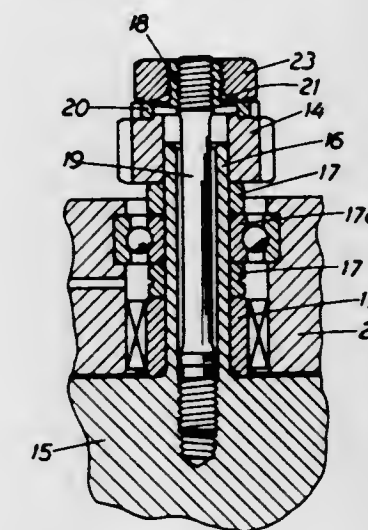
Filed Jan. 21, 1969, Ser. No. 792,666

Claims priority, application Sweden, Jan. 19, 1968, 698/68

Int. Cl. F16d 1/06

U.S. Cl. 287—53

15 Claims



An elongated member, e.g., a strain bolt, is arranged to hold two parts together, e.g., a gear to a rotor. A sleeve is carried by the bolt and a nut is threaded on the sleeve to clamp a washer between the nut and one of the parts, the washer and the sleeve being so connected that axial movement but no turning movement can occur between them. This arrangement permits tensioning of the bolt without simultaneous creation of torque in the bolt if means is provided for preventing turning of the washer during the tightening operation of the nut.

3,565,473

HOLD-DOWN CLIP FOR TILES IN SUSPENDED CEILING STRUCTURE

Michael J. Kedel, Baltimore, Md., assignor to Eastern Products Corporation, Baltimore, Md., a corporation of Maryland

Filed Oct. 8, 1968, Ser. No. 765,792

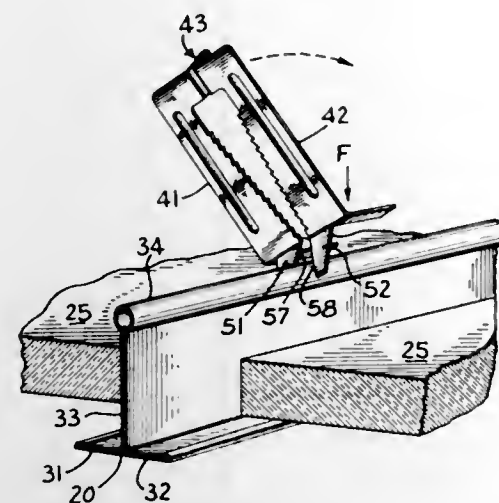
Int. Cl. E04b 5/57

U.S. Cl. 287—189.35

7 Claims

A hold-down clip for engaging the rib or bulb of the supporting members in a suspended ceiling system to hold

the ceiling tiles against dislodgement. The clip is of inverted U-shape having opposed, serrated inner edges for gripping the rib joined by a resilient bridge to develop the



necessary gripping force. Resilient feet engage the edge portion of the adjacent tiles, adjacent feet being divergent to facilitate installation.

3,565,474

EXPOSED-TYPE SUSPENSION SYSTEM

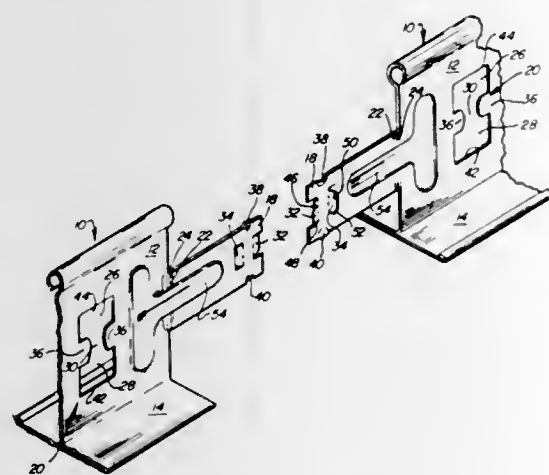
Richard William Stumbo, Jr., Minneapolis, James Edward Aysta, Stillwater, and William H. P. Tacke, North St. Paul, Minn., assignors to Conwed Corporation, St. Paul, Minn., a corporation of Delaware

Filed Feb. 14, 1969, Ser. No. 799,328

Int. Cl. F16b 7/00

U.S. Cl. 237—189.36

21 Claims



A suspension system of the exposed type has main runners each end of which is identically formed with a vertical slot therein having a centrally located restricted portion and with an extending tongue having extension tabs which will pass through said slot at the larger ends thereof and, upon vertical movement, move into position centrally of said slot where the runners are held in fixed abutting relationship by the connection between the centrally located restricted portion of the slot and the extension tabs.

3,565,475

DOOR LATCH CONSTRUCTION

George W. Foss, Van Nuys, Calif. 91350
(27361 Sierra Highway 263, Saugus, Calif.)

Filed Oct. 9, 1968, Ser. No. 766,076

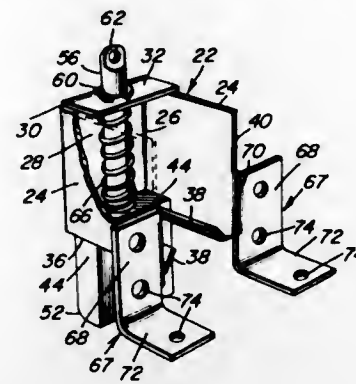
Int. Cl. E05c 1/12

U.S. Cl. 292—171

5 Claims

A latch bolt and companion housing for use on the normal bottom edge portion of an overhead garage or an

equivalent door. The preferred embodiment comprises a sheet material housing sheathing a unique spring-loaded latch bolt which can be retracted by a complemental



chain. The housing features several refinements and, more particularly, novel L-shaped locating and anchoring brackets.

3,565,476

HOOD LATCH ASSEMBLY

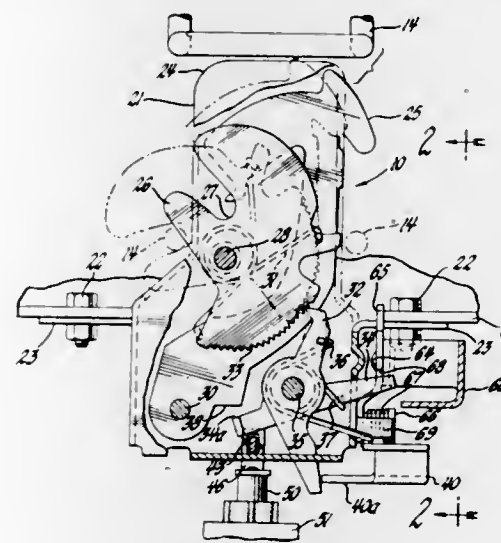
Dennis W. Berman, Sterling Heights, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 26, 1969, Ser. No. 853,081

Int. Cl. E05b 65/12; E05c 3/06

U.S. Cl. 292—201

7 Claims



A vehicle hood latch assembly having a primary latch, a secondary latch, and a hood release mechanism whereby the primary latch is unlatched by a solenoid actuated by a master control from the passenger compartment to release a catch member on the hood latch to, in turn, release the primary latch, and the secondary latch being unlatched by a release lever pulled from the front of the vehicle to allow the hood to open while simultaneously latching the catch member so that it is again ready to be released by the master control.

3,565,477

CLOSURE LATCH

Edmond R. Gionet, Warren, and Neil A. Hull, Birmingham, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed June 18, 1969, Ser. No. 834,390

Int. Cl. E05b 63/20; E05c 19/12

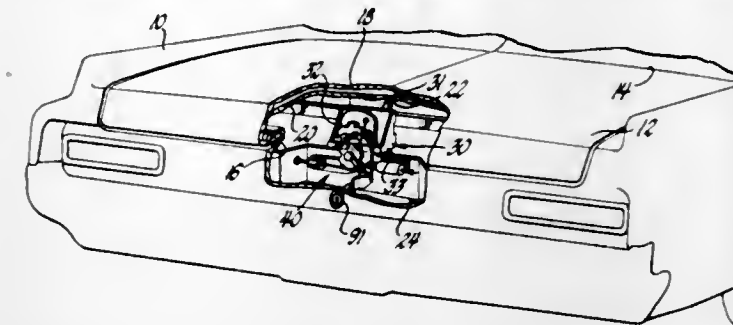
U.S. Cl. 292—336

6 Claims

A closure latch for a vehicle body or the like includes a pivotal latch bolt for engaging a fixed striker, the latch bolt being biased to a detent retained unlatched position and movable to a latched position by a power driven pin-tooth drive wheel. The latch bolt is releasably locked in the latch position by detent means engaging the pin-tooth drive wheel preventing further rotational movement of the

pin-tooth drive wheel by the power means. Unlatching is effected by disengagement of the detent means from the pin-tooth drive wheel permitting further power driven ro-

to bend over, a fixed jaw and a movable jaw at one end of the handle, the movable jaw being operated by a pull chain connected near the upper end of the handle.



tation of the pin-tooth wheel to release the latch bolt and to position the pin-tooth drive wheel for another latching cycle.

3,565,478

TRIM MEMBER AND METHOD OF FORMING SAME

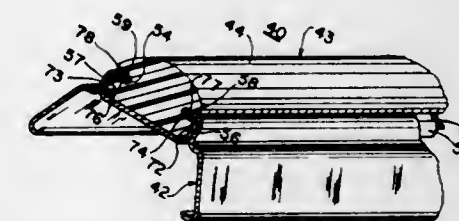
Billy George, Cincinnati, Ohio, assignor to Textron, Inc., Providence, R.I., a corporation of Rhode Island

Filed May 6, 1968, Ser. No. 726,729

Int. Cl. B60r 13/04

U.S. Cl. 293—1

1 Claim



An elongated metal strip provided with spaced lengthwise doubled flanges therein and wing members extending outwardly of the doubled flanges, is assembled with a rubber-like resilient facing by swinging the wing members outwardly to cause the doubled flanges to swing inwardly into engagement with opposite faces of the facing to attach the facing to the body with a portion of the facing exposed.

3,565,479

ROCK PICKER

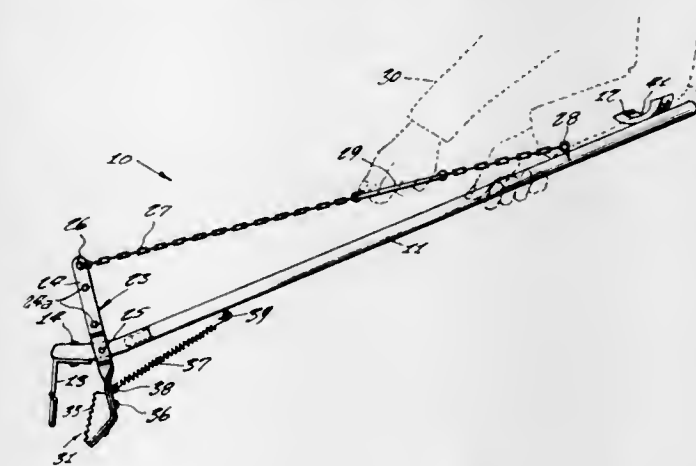
Fay S. Womack, 3607 S. Elm View Drive, Springfield, Mo. 65804

Filed Dec. 19, 1968, Ser. No. 785,297

Int. Cl. A47f 13/06

U.S. Cl. 294—19

1 Claim



A mechanical tong for use in picking up rocks, sticks, paper, walnuts or the like, the device comprising an elongated handle so as to eliminate the necessity for a person

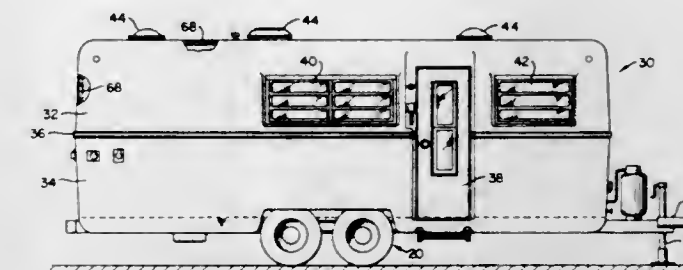
3,565,480
TRAILER CONSTRUCTION
Robert F. McCollum, Tulsa, and Gerald W. Ward, Bixby, Okla., assignors to Avco Corporation, Tulsa, Okla., a corporation of Delaware

Filed Dec. 2, 1968, Ser. No. 780,429

Int. Cl. B62d 27/00

U.S. Cl. 296—28

11 Claims



The disclosure illustrates a molded fiberglass trailer body formed from complementary upper and lower shells joined at a band extending around the trailer. The lower shell has a series of transverse and longitudinal recesses in its bottom outer side which receive a ladder-type structural frame. The recesses are dimensioned so that the outer bottom surface of the trailer is flush. The resultant ridges formed on the interior of the bottom wall are used to support flooring. The flooring and ridges form a series of cavities having a substantial surface area relative to the ridges. These cavities are coated with a layer of urethane foam to provide a highly effective insulation for the flooring. Additionally, the inner side and top walls of the shells are coated with the foamed material to substantially insulate the entire interior of the trailer. One of the cavities formed underneath the floor is also used to house a drainage system for water utilization devices, such as sink, shower and privy, positioned in the trailer.

3,565,481

BODY FRONT PANEL

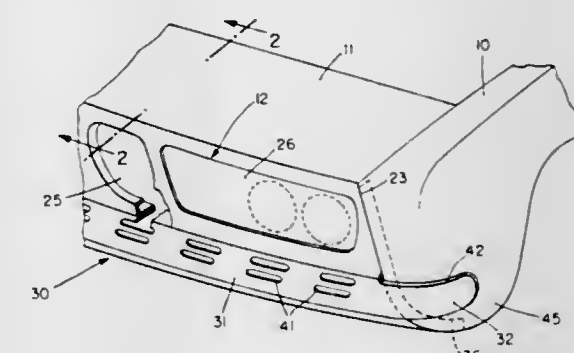
Henry W. Wessells III, Paoli, Pa., assignor to The Budd Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Dec. 11, 1968, Ser. No. 783,087

Int. Cl. B62d 25/08

U.S. Cl. 296—28

4 Claims



This application discloses a body front panel, especially for automotive passenger vehicles, providing a finished front panel connection between fenders and comprising a name-plate and grill supporting upper part or

portion and a deep-drawn nose rib lower part or portion partially overlapping the fenders behind a wrap-around bumper.

3,565,482

ADJUSTABLE CONTOUR CHAIR

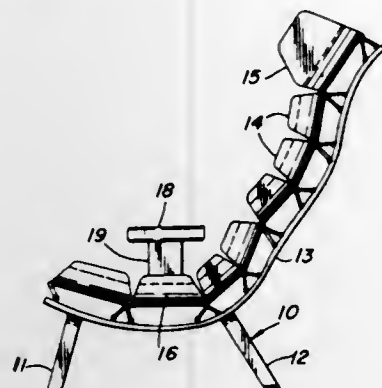
Lelf Blodde, 205 Indian Trail, Poland, Ohio 44514

Filed June 24, 1968, Ser. No. 739,451

Int. Cl. A47c 1/031

U.S. Cl. 297-284

5 Claims



A contour chair with a frame including a central guideway member disposed in a vertical plane, and also having a plurality of seat-back elements supported by links extending to members adjustably positioned along said guideway member, whereby variation in the attitude of the links with respect to the guideway results in altering the relative position of the seat-back elements.

3,565,483

SAFETY HARNESS

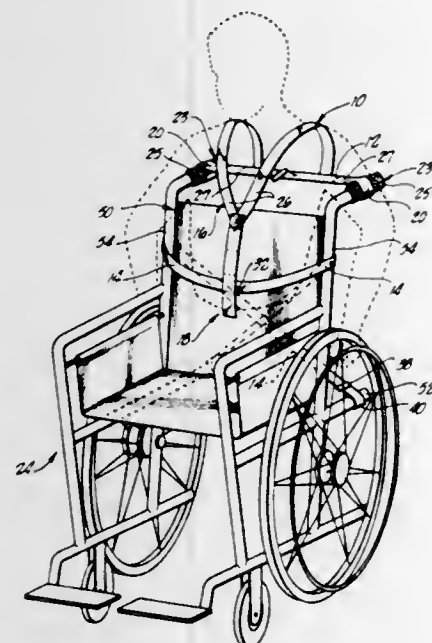
John T. Posey, 1739 Meadowbrook Road, Altadena, Calif. 91001

Continuation-in-part of application Ser. No. 688,572, Dec. 6, 1967. This application Dec. 18, 1968, Ser. No. 784,748

Int. Cl. B60r 21/10; A62b 35/00; A47d 15/00

U.S. Cl. 297-389

2 Claims



A safety harness including a V-shaped shoulder piece adapted to be placed over a patient's head and secured to a first transverse strap provided with loops at each end for connecting it to handles of a support such as a

wheel chair. The apex of the V-shaped shoulder piece is adjacent the patient's chest, and is secured to a second transverse strap extending away from the apex in opposite directions. Ends of the second transverse strap are adapted to be secured to the chair to restrain a patient in it. Velcro material is secured to the handles and the loops at each end of the first transverse strap.

3,565,484

ARM REST FOR AUTOMOBILE SEAT

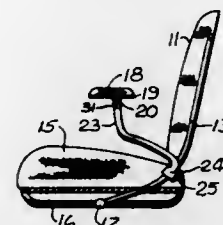
Julio A. Dargelo, 1030 W. 28th St., Hialeah, Fla. 33010

Filed Nov. 29, 1968, Ser. No. 779,753

Int. Cl. A47c 7/54

U.S. Cl. 297-417

7 Claims



A support portion includes an attaching means at one end thereof which is adapted to be clamped on a frame of a seat. The support portion extends upwardly and includes an upper end to which is pivotally interconnected an arm rest portion. This arm rest portion is adapted to swing to one side of the support portion so as to enable an adjacent seat to be pivoted forwardly.

3,565,485

INTEGRAL SEAT AND LEG SUPPORT

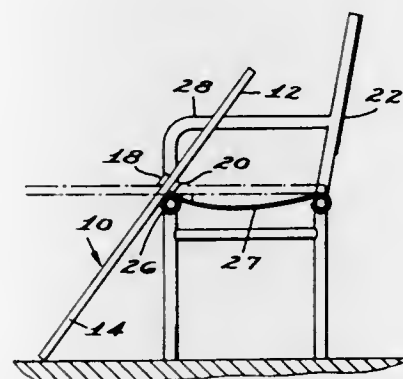
Leigh E. Eisenhauer, 3 Warren Road, Van Wert, Ohio 45891

Filed Nov. 19, 1968, Ser. No. 776,917

Int. Cl. A47c 1/037

U.S. Cl. 297-433

8 Claims



A combination seat and leg support which is preferably in the form of an elongated substantially flat board having a seat portion and a leg supporting portion extending outward from one side of the front edge of the seat portion to support one leg of a person sitting on the seat portion without interfering with the person's other leg.

3,565,486

MULTIPLE USE CHAIR

Robert M. Channon, 524 Leeridge Terrace, Glendale, Calif. 91206

Filed Nov. 15, 1968, Ser. No. 776,107

Int. Cl. A47c 7/00, 7/14

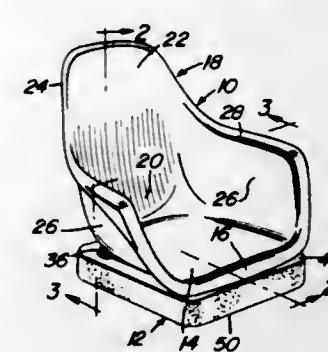
U.S. Cl. 297-445

7 Claims

A versatile contoured chair for multiple use indoors or outdoors. The bottom is provided with stubby legs sur-

rounded by radial circumferentially spaced fins. The lower ends of these legs are provided with attachable and detachable glides. Each glide embodies a friction-held cup

said material, is carried by a mandrel insertable into said hole and having means whereby it is expanded, by operation of the piston and cylinder device, so as to become



3,565,487

PLASTIC TUBING HOLDER

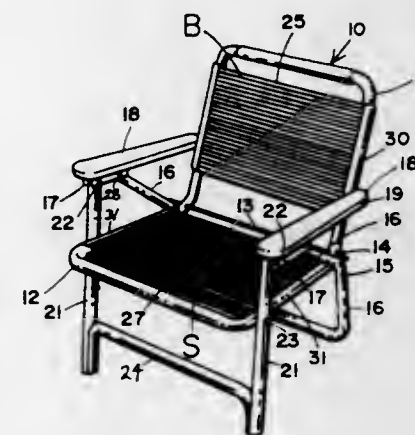
Victor Reiter, 1275 Mariola Court, Coral Gables, Fla. 33134

Filed Dec. 23, 1968, Ser. No. 786,238

Int. Cl. A47c 31/04

U.S. Cl. 297-452

1 Claim



A plastic tube holder for metallic tubular furniture wherein a single length of plastic tubing forms each of the backrest and seat consisting of an elongated member having a slightly larger than semi-circular cross section, the diameter of the elongated member being slightly smaller than the sum total of the diameter of the metal tubing forming the frame plus the thickness of the flattened plastic tubing encircling the frame to permit the elongated member to be snapped in position over the ends of the plastic tubing at the position then encircle the metal tubing. The ends of the elongated tubing being curved inwardly to engage the metal tubing and prevent the rows of spaced plastic tubing from being displaced.

3,565,488

DEVICES FOR BREAKING DOWN HARD OR ROCKY MATERIALS

Donald T. Walsh, Anderton, near Chorley, England, assignor to Wm. Park & Co. Forgemasters Limited, Wigan, Lancashire, England, a British company

Filed Jan. 17, 1969, Ser. No. 792,084

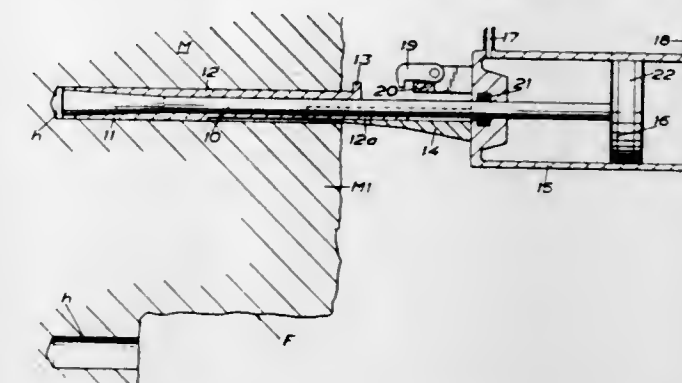
Claims priority, application Great Britain, Feb. 24, 1968, 9,067/68

Int. Cl. E21c 37/08

U.S. Cl. 299-22

5 Claims

A hydraulic piston and cylinder device for breaking hard or rocky material by driving a wedge into a hole in



3,565,489

DECORATIVE WHEEL DISC

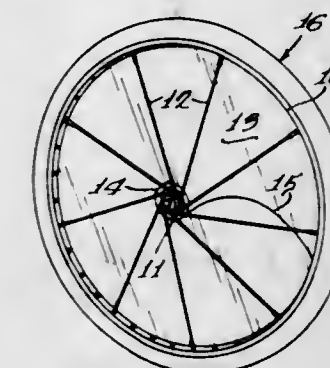
Alan B. Eiringer, Northbrook, Ill., and Julius Sirbu, East Chicago, Ind., assignors to Sales Plus, Inc., Chicago, Ill., a corporation of Illinois

Filed Dec. 5, 1968, Ser. No. 781,330

Int. Cl. B60b 7/02

U.S. Cl. 301-37

2 Claims



Decorative wheel disc, particularly adapted for bicycle wheels comprising a flexible disc formed with an annulus adapted to embrace the hub of a bicycle wheel and of a diameter adapted to substantially span the area within the rim of the wheel, said disc being formed with a radial slit extending from said annulus to its perimeter, and the combination thereof with a wheel of a bicycle. The disc is desirably formed with at least one and optionally more than one circular lines of perforation parallel to the outer perimeter whereby the area of the disc may be reduced to fit relatively smaller wheels.

3,565,490

WHEEL ASSEMBLY

Robert G. Statz, 2478 N. 66th St., Milwaukee, Wis. 53210

Continuation-in-part of application Ser. No. 720,165, Apr. 10, 1968. This application Aug. 18, 1969, Ser. No. 850,990

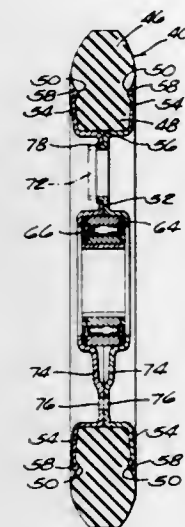
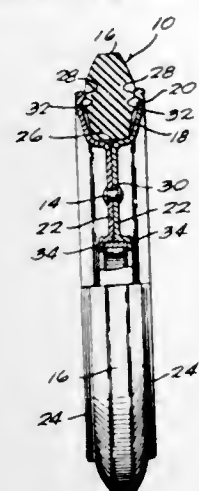
Int. Cl. B60b 3/12

U.S. Cl. 301-63

4 Claims

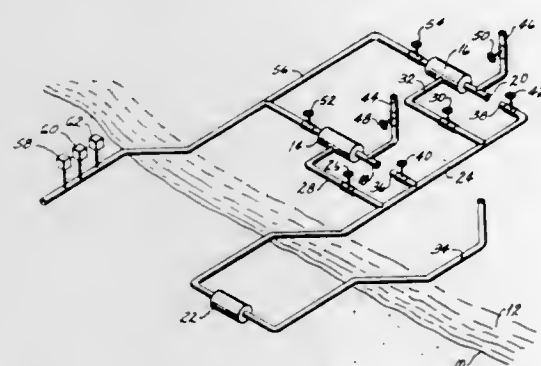
A tire member having a tread portion and a mounting rim portion, the latter portion disposed between a pair of mating wheel plate members having a central hub portion and a retaining flange portion which curves outwardly from the hub portion to form a space in which the mounting rim portion of the tire is retained. The outer edges of each flange portion are formed with a reverse curve to provide a smoothly rounded retaining nose which extends inwardly around the entire circumference of each flange. The parts are assembled by positioning the tire between the flange portions of the wheel plates and then

compressing the plates together until the hub portions move into face-to-face contact with each other. The plates are then fastened together by a riveting means



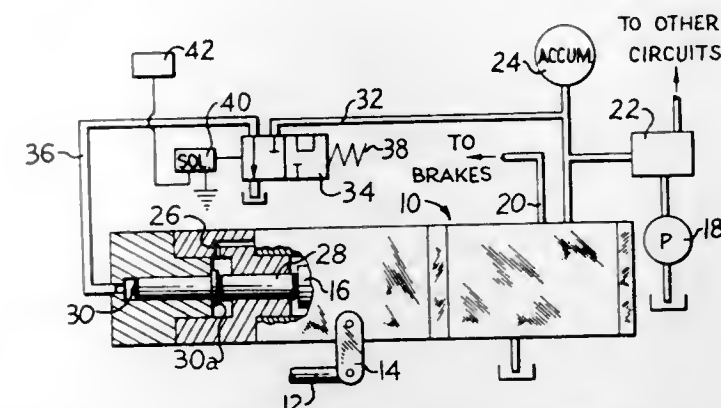
with the retaining nose portions on the rims compressing the material of the tire thus securely locking the tire between the wheel plates.

3,565,491
JET PUMP METHOD AND SYSTEM
David M. Frazier, 208 Shorecrest, Tampa, Fla. 33609
Filed Aug. 20, 1968, Ser. No. 754,005
Int. Cl. B65g 53/30
U.S. Cl. 302—14 19 Claims



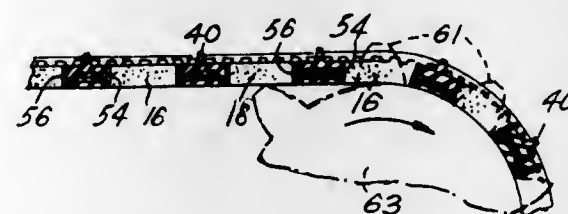
A method and system for pumping particulate solids in such application as removing submerged beach sand, and unloading dry solids from a storage container. A jet pump is submerged in the solids and upon application of high pressure primary liquid to the pump, the solids are discharged. To provide an optimum mixture of solids and liquid, a diluting liquid agitates the solids in the vicinity of the pump's intake and an additional diluting liquid is directed to the intake of the pump itself. The velocity, density and/or pressure of the pump's discharge is measured and the diluting liquid is accordingly regulated to provide a proper solid/liquid ratio at a desired discharge velocity.

3,565,492
AUTOMATIC SAFETY BRAKE SYSTEM
Thomas E. Allen and Shairyl I. Pearce, East Peoria, and Donald L. Smith, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Mar. 20, 1969, Ser. No. 808,898
Int. Cl. B60t 8/08
U.S. Cl. 303—21 5 Claims



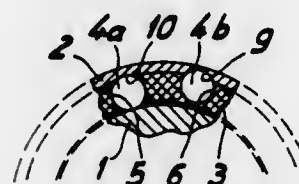
A system for preventing a vehicle from traveling at an excessively dangerous rate of speed including a hydraulic circuit triggered by a speed sensing mechanism to actuate an otherwise manual or pedal actuated brake valve.

3,565,493
TRACK FOR LIGHTWEIGHT VEHICLE
Guy-Noel Chaumont, 138 Rue Gaulin, Princeville, Quebec, Canada
Filed Aug. 23, 1968, Ser. No. 754,895
Claims priority, application Canada, July 25, 1968, 026,011
Int. Cl. B62d 55/24
U.S. Cl. 305—38 6 Claims



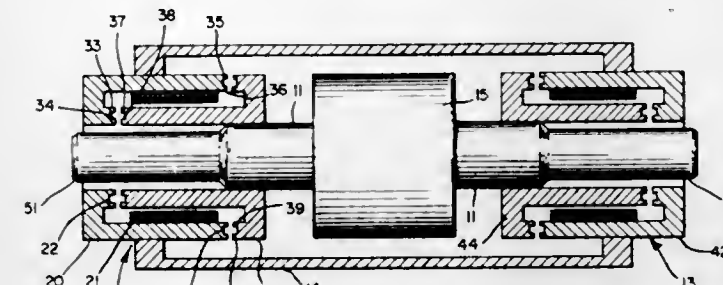
The present invention comprises a track having a tread surface and an inner peripheral surface, a pair of spaced rows of sprocket receiving holes in said track, reinforcing bars flush with said inner surface and extending laterally of said track, clips secured to said members, said clips forming the front and back surfaces of said holes.

3,565,494
CYLINDRICAL SLEEVE FOR BEARINGS
Leo Linz and Georg Schaeffler, Herzogenaurach, Germany, assignors to Industriewerk Schaeffler OHG, Herzogenaurach, Germany
Filed Jan. 7, 1969, Ser. No. 789,548
Claims priority, application Germany, Jan. 12, 1968, P 16 75 057.5; Sept. 14, 1968, P 17 77 169.6
Int. Cl. F16c 26/06
U.S. Cl. 308—6 5 Claims



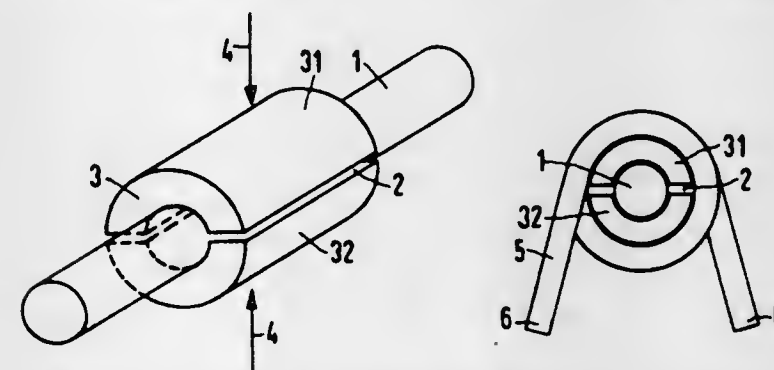
A method of producing thin-walled cylindrical sleeves adapted for use in bearings and provided with profiles and to the novel sleeves produced by the said process.

3,565,495
MAGNETIC SUSPENSION APPARATUS
Joseph Lyman, Northport, N.Y., assignor to Cambridge Thermionic Corporation, Cambridge, Mass., a corporation of Massachusetts
Filed Aug. 5, 1969, Ser. No. 847,616
Int. Cl. F16c 39/06
U.S. Cl. 308—10 7 Claims



Magnetic suspension apparatus for suspending a movable body between a pair of electromagnets exerting radial centering forces and opposed axial pulling forces in which each electromagnet comprises an inner cylindrical permeable member and an outer cylindrical permeable member coaxial therewith having an electromagnet coil situated in the space between these two cylindrical members.

3,565,496
LOW NOISE BEARING OF SYNTHETIC MATERIAL
Hans-Peter Latussek and Heinz Petrak, Nuremberg, and Martin Müller, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany, a corporation of Germany
Filed Apr. 1, 1969, Ser. No. 811,736
Claims priority, application Germany, Apr. 4, 1968, P 17 50 167.6
Int. Cl. F16c 27/00
U.S. Cl. 308—26 5 Claims

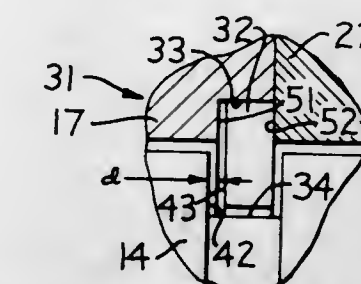
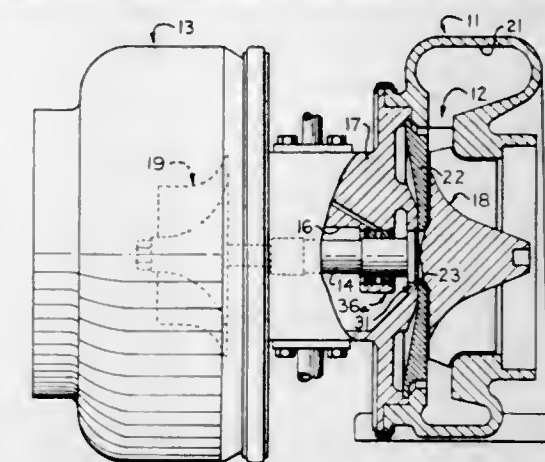


A low noise bearing of synthetic material for precision mechanical apparatus and miniature motors comprises a bearing body having an elongated continuous slot formed therethrough to divide the bearing body into bearing body portions. The bearing body portions enclose a rotary shaft and are urged against the shaft at a determined force by a spring.

3,565,497
TURBOCHARGER SEAL ASSEMBLY
Elbert H. Miller, East Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed May 23, 1969, Ser. No. 827,301
Int. Cl. F16c 1/24
U.S. Cl. 308—36.1 10 Claims

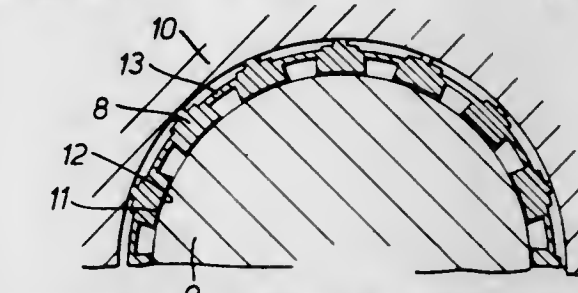
A seal assembly suitable for combination with a turbocharger having a housing defining a turbine chamber and a shaft rotatably penetrating the housing to support a turbine rotor therein. Two annular grooves are formed in the shaft and an adjacent portion of the housing in radially opposed relation with a split seal ring arranged within both of the grooves. One of the grooves is a restraining groove for limiting axial movement of the seal ring. The other groove is axially wider than the restraining groove

with means associated between the housing and shaft to limit relative axial movement therebetween and maintain



axial spacing between the seal ring and both axial sides of the other groove.

3,565,498
THRUST BEARINGS
Anthony John Leopard, Chalfont St. Peter, and Mateusz Kazimierz Bielec, London, England, assignors to The Glacier Metal Company Limited, Alpertown, Wembley, Middlesex, England
Filed Oct. 15, 1968, Ser. No. 767,721
Claims priority, application Great Britain, Oct. 16, 1967, 47,064/67
Int. Cl. F16c 17/06
U.S. Cl. 308—73 6 Claims

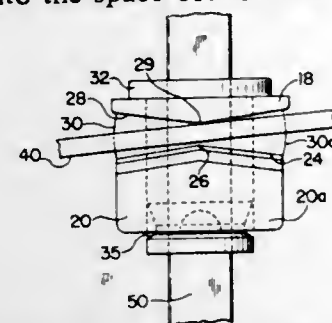


The invention is a simplified thrust or journal pad bearing, in which the pads are interconnected by members in a complete ring unit separable from the pad support surface so that the ring unit can be simply mounted against a supporting surface without having to mount each pad individually. The interconnecting members are preferably flexible.

3,565,499
HEADLAMP BUSHING
Julian V. Fisher, Carpentersville, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed Aug. 12, 1969, Ser. No. 849,405
Int. Cl. F16c 11/06
U.S. Cl. 308—237 9 Claims

An initially integral shaft or rod mounting bushing assembly to be attached to an apertured support panel and including a hollow drive pin having a shearable connection to a grommet with a head portion presenting shoulder surfaces to engage the accessible face of the panel and spaced prongs to be snapped through the panel aperture and presenting shoulder surfaces to engage the blind face of the panel; the shoulder surfaces being relatively disposed to permit relative adjustment between the panel and the bushing assembly along at least one

axis included in the plane of the panel and with spherical surfaces joining the outer edges of opposed shoulder surfaces to snug the bushing in the panel aperture in all positions of relative adjustment therebetween. The drive pin is driven into the space between the grommet prongs



to have an interlocking snap engagement with the inner ends thereof maintaining the outward spreading thereof for mounting the bushing in the panel aperture and with the drive pin receiving therethrough a shaft or rod for manipulation to operate some remotely situated mechanism, such as headlight shutters or other mechanisms.

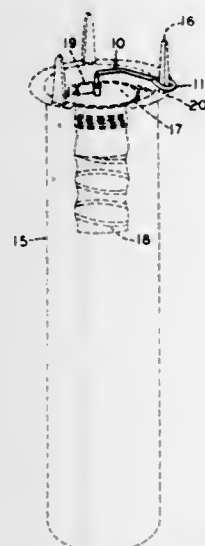
3,565,500

HOLD DOWN ROD FOR DISHES AND THE LIKE

George R. Shelley, 9630 Red Road,
South Miami, Fla. 33143
Filed May 27, 1968, Ser. No. 732,280
Int. Cl. A47f 1/00

U.S. Cl. 312-71

2 Claims



A hold down rod for preventing articles, such as dishes, which are stored in stacks and automatically dispensed, from jumping out or bouncing while being transported.

3,565,501

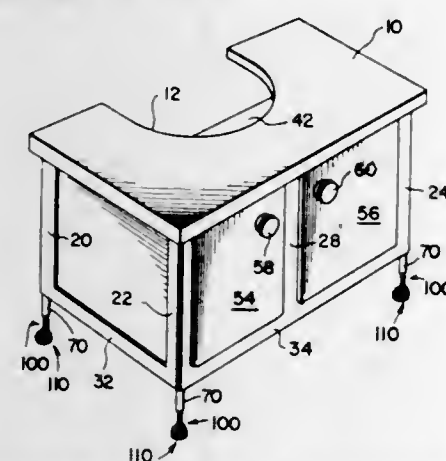
VANITY CABINET

Barney C. Bowen, 714 Windsor Lane, Martinsville, Va.
24112, and Samuel T. Bowen, 705 Lynn St., Collinsville, Va. 24078

Filed Nov. 15, 1968, Ser. No. 776,126
Int. Cl. A47b 55/00, 67/02

U.S. Cl. 312-228

10 Claims



A vanity cabinet is of hollow construction and includes doors and shelves therewithin. The cabinet includes a

top having a recess formed therein for receiving a sink. Adjustable support means includes a plurality of tubular means and associated base means. A pin is adapted to extend through a plate fixed to the cabinet and into holes in each of the tubular means for providing an adjustment of the position of the cabinet relative to the tubular means. A threaded screw means is interconnected with each base means and is threaded within the associated tubular means to provide an adjustment of the tubular means relative to the base means.

3,565,502

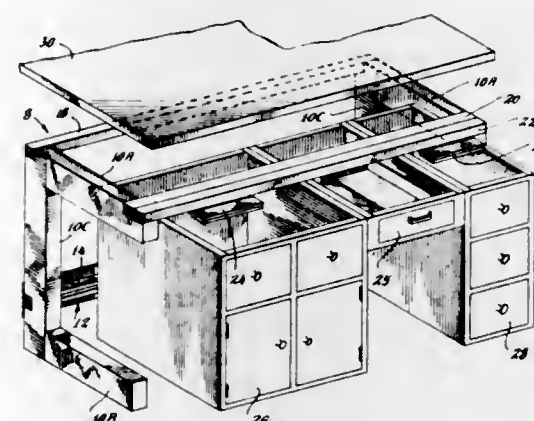
CANTILEVER MOUNTED LABORATORY EQUIPMENT MODULE SYSTEM

Stephen W. Bracy, Jackson, Walter R. Christian, Old Bridge, and Walter F. Churchill, Englewood, N.J., assignors to S. Blickman, Inc., Weehawken, N.J., a corporation of New York

Filed Apr. 16, 1969, Ser. No. 816,616
Int. Cl. A47b 43/00, 47/00

U.S. Cl. 312-257

5 Claims



A rigid C-shaped laboratory equipment support structure which provides means for cantilever support and rapidly attaching, detaching, and interchanging modules such as drawer sections, cabinets and the like.

3,565,503

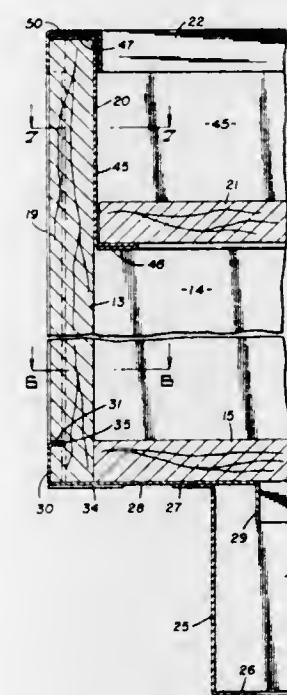
KNOCKDOWN CABINET CONSTRUCTION

Carl J. Aschinger, Dublin, and Edmund A. Weaver, Jr., Columbus, Ohio, assignors to The Columbus Show Case Company, Columbus, Ohio, a corporation of Ohio

Filed Apr. 18, 1969, Ser. No. 817,335
Int. Cl. A47b 47/00

U.S. Cl. 312-263

6 Claims



A knockdown cabinet having a lower merchandise storage compartment and an exposed top surface or area

for display of the merchandise. It is composed mainly of a base, upright panel walls, a bottom panel, corner posts, a top frame and a top panel, all made as separate members which interfit with each other in sequence and are maintained in locked rigid relationship by their tight interengagement. The cabinet can be assembled and disassembled without the use of separate fasteners and without the use of tools.

3,565,504

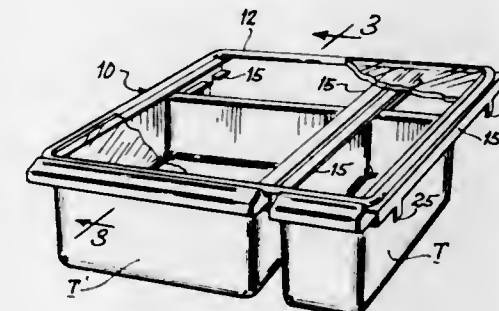
REVERSIBLE REFRIGERATOR TRAY CONSTRUCTION

James A. Brown, Elk Grove Village, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill., a corporation of New York

Filed Feb. 6, 1969, Ser. No. 797,086
Int. Cl. A47b 51/00

U.S. Cl. 312-270

4 Claims



A construction for mounting one or more trays in a refrigerator cabinet to permit rearrangement thereof, which comprises a supporting rack which may be removed from the cabinet and replaced in reverse position, whereby a tray or trays supported by the rack may be redispensed in a laterally rearranged position within the cabinet.

3,565,505

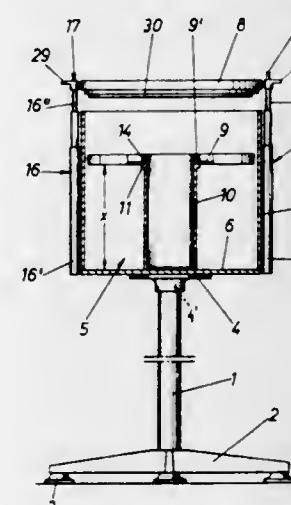
FURNITURE PIECE FORMED AS A BOX

Hans-Georg Quapp, Solingen, Germany, assignor to Bredsch & Co., Solingen-Ohligs, Germany, a corporation of Germany

Filed Jan. 21, 1969, Ser. No. 792,407
Claims priority, application Germany, Jan. 23, 1968,
P 17 53 029.9; June 25, 1968, P 17 78 985.4

Int. Cl. A47b 88/00
U.S. Cl. 312-305

7 Claims



A furniture piece formed as a box having an upper-sided closing cover and at least one displaceable inner floor face which comprises a bottom member concentrically rotatable to the latter and releasable therefrom. The floor face has a sector-shaped recess for obtaining accessibility for objects disposed below the floor face.

3,565,506

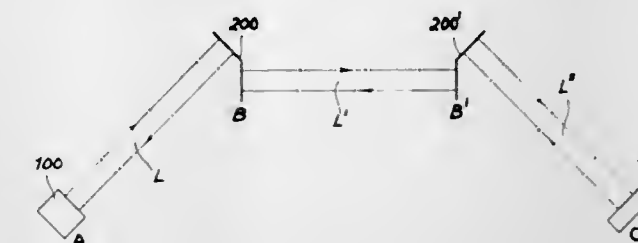
ELECTROOPTIC SYSTEM OF LENGTH MEASUREMENT

Ivan Zvetanov Ivanov and Vassil Stanimirov Stanev, Sofia, Bulgaria, assignors to Vish Inzhenerno-Stroitelno Institut, Sofia, Bulgaria, a corporation of Bulgaria

Filed July 18, 1968, Ser. No. 745,804
Int. Cl. G02b 17/00

U.S. Cl. 350-55

9 Claims



In the performance of geodetic measurements, a beam of light emitted from a point A is intercepted at a point B by a deviator including a receiving mirror, a retransmitting mirror and optical elements forming a light path through a tubular linkage between these mirrors whereby the latter may be oriented in a variety of relative positions; the retransmitted light beam may be directed toward a further deviator or a reflector at a point C or may be directly trained upon a receiver at point A.

3,565,507

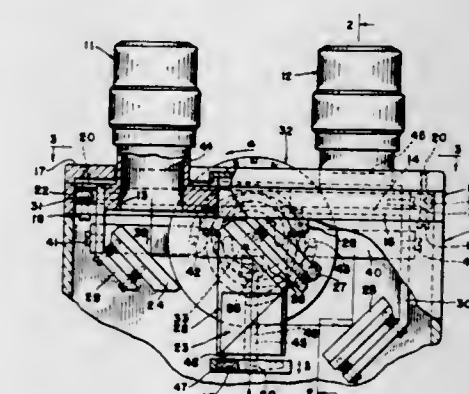
BINOCULAR BODY FOR MICROSCOPE HAVING COMPENSATION FOR OPTICAL PATH LENGTH CHANGES RESULTING FROM CHANGES OF INTERPUPILLARY DISTANCE

Theodore H. Peck, Irondequoit, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York

Filed Mar. 17, 1969, Ser. No. 807,493
Int. Cl. G02b 7/06

U.S. Cl. 350-76

6 Claims



A binocular eyepiece for a microscope wherein the change in optical path length caused by adjustment of the interpupillary distance is compensated by the movement inter alia of a telescope lens located in the entrance beam of the binocular eyepiece.

3,565,508

BIREFRINGENT POLARIZING PRISM AND BEAM-SPLITTER AND METHOD OF PRODUCING SAME

Frank J. Dumont, 442 Clay Road,
Rochester, N.Y. 14623

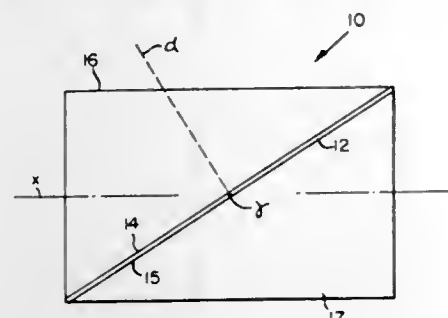
Filed Apr. 26, 1968, Ser. No. 724,542
Int. Cl. G02b 27/28

U.S. Cl. 350-157

7 Claims

A grown or freshly cleaved layer of a birefringent crystal is positioned between confronting, plane, atomistically clean surfaces of two prism substrates, said surfaces being matched to within $\lambda/10$ wave accuracy so that they are disposed in optical contact with opposite

sides of the layer, whereby the layer is secured by adhesion between the substrates to form a polarizing prism. The layer of birefringent material may be muscovite



mica; and the assembly is made in a dust-free atmosphere to prevent dust particles and the like from being interposed between the mica and glass substrates.

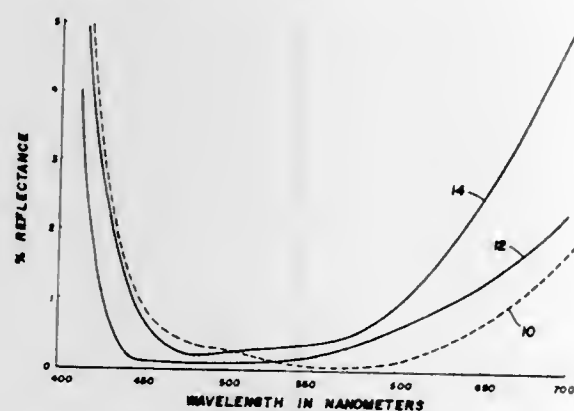
3,565,509

FOUR LAYERED ANTIREFLECTION COATINGS
Frank C. Sulzbach, Dallas, Tex., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York

Filed Mar. 27, 1969, Ser. No. 811,131
Int. Cl. G02b 1/10

U.S. Cl. 350—164

6 Claims



A multilayer antireflection coating using a combination of only two filming materials is an improvement over known coatings that require at least three filming materials. The filming materials of the coatings deposited using conventional techniques eliminating the need of an electron beam evaporation device. The $\lambda/4$ layer next to the substrate of the conventional 3-layer coating is improved upon by a one period equivalent layer.

3,565,510

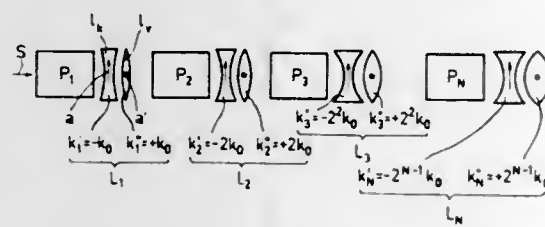
DIGITAL OPTICAL FOCAL LENGTH MODULATOR

Uwe Schmidt, Pinneberg, Germany, assignor to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed Apr. 7, 1969, Ser. No. 813,940
Claims priority, application Germany, Apr. 6, 1968, P 17 64 133.7

Int. Cl. G02b 1/08; G02f 1/24
U.S. Cl. 350—175

5 Claims



A digital focal length modulator assembly where a number of electro-optically controlled aligned stages,

digitally control the focal length of the assembly. In each stage of the assembly an electro-optically controlled polarizer digitally alters the effective focal length of a pair of birefringent lenses. The effective curvature of the lenses progressively increases along the assembly.

3,565,511

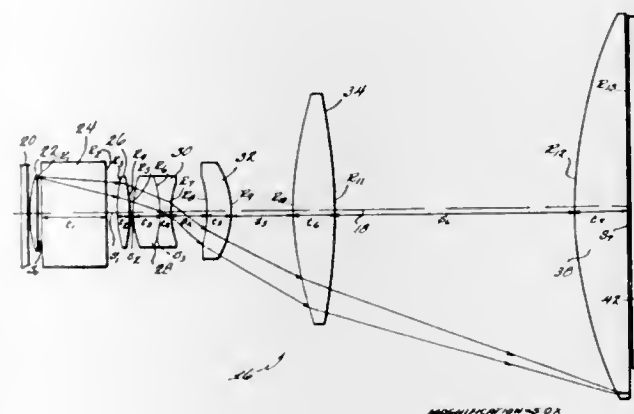
TELECENTRIC LENS SYSTEM FOR PROVIDING AN IMAGE WITH THE PRINCIPAL RAYS PARALLEL TO THE OPTICAL AXIS AND NORMAL TO THE FOCAL PLANE

Donald C. Dilworth, New Orleans, La., assignor to Bausch Optics, Inc., New Orleans, La., a corporation of Louisiana

Filed Apr. 23, 1969, Ser. No. 818,487
Int. Cl. G02b 9/64, 13/22

U.S. Cl. 350—176

7 Claims



A lens system which magnifies an incident image five times and causes the light leaving the lens system to be substantially parallel so as to permit perpendicular impingement upon a device such as a plane matrix situated at the focal plane of the lens system.

3,565,512

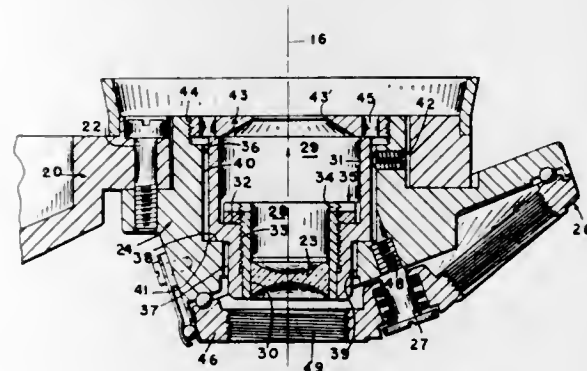
MICROSCOPE NOSEPIECE ASSEMBLY HAVING ADJUSTABLE OPTICAL COMPONENTS

Theodore H. Peck, Irondequoit, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York

Filed Apr. 29, 1969, Ser. No. 820,154
Int. Cl. G02b 7/02

U.S. Cl. 350—252

5 Claims



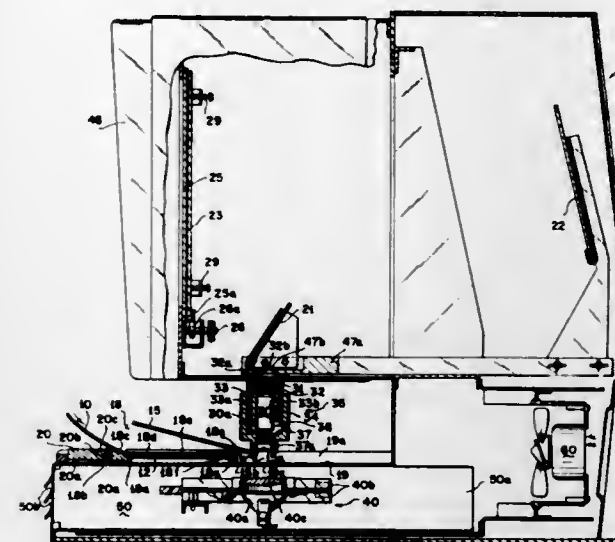
A microscope nosepiece assembly which supports an auxiliary nosepiece lens in optical alignment with an objective, said assembly including mechanism for performing lateral and axial adjustments on said lens and/or objective to obtain said alignment.

3,565,513

MICRO-IMAGE PROJECTION LENS ASSEMBLY
Hideo Akiyama, Los Angeles, and David G. Stockwell, Compton, Calif., assignors to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Original application May 31, 1966, Ser. No. 554,001, now Patent No. 3,424,524, dated Jan. 28, 1969. Divided and this application Sept. 16, 1968, Ser. No. 762,271
Int. Cl. G02b 7/02

U.S. Cl. 350—255

6 Claims



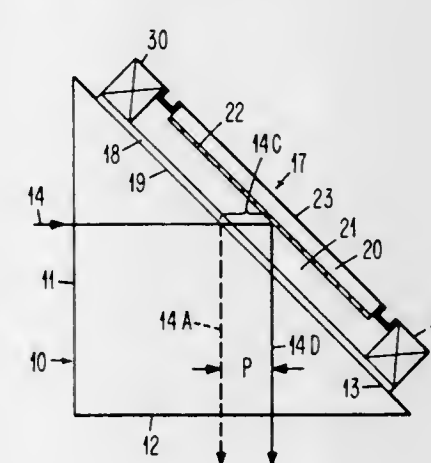
A projection lens assembly for use with a micro-image display apparatus in which an enlarged representation of any one of a plurality of micro-images contained on a transparency may be selectively projected onto a viewing screen. The projection lens assembly is comprised of a spring mounted between a fixed portion and a movable portion thereof so as to provide resilient movement therebetween. Mounted on the movable portion of the projection lens assembly is a microscope type projection lens. A bearing member having bearing surfaces to permit resilient mounting of the projection lens assembly is adjustably mounted to said movable portion at the object end of the projection lens. The bearing member is adjustable to permit varying the spacing between the projection lens and the bearing surfaces.

3,565,514

LIGHT DEFLECTOR SYSTEM
Geoffrey Bate and Anton G. Wellbrock, Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Nov. 15, 1968, Ser. No. 776,056
Int. Cl. G02f 1/28, 1/36

U.S. Cl. 350—285

7 Claims



A light deflector system is provided wherein a light beam can be quickly positioned in response to a relatively

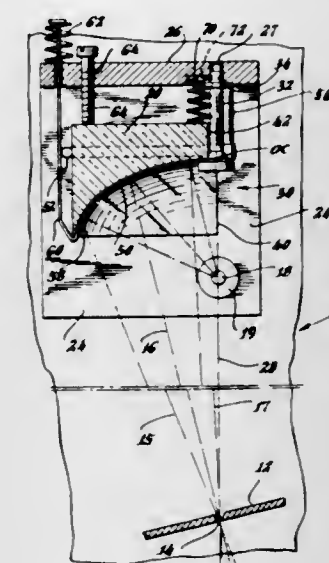
small magnetic, mechanical, or electric signal, thereby enabling the precise positioning of the beam to preselected locations.

3,565,515

MOUNTS FOR OPTICAL ELEMENTS
Charles Frederic de Mey II, West Redding, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn., a corporation of New York
Filed Dec. 12, 1967, Ser. No. 689,926
Int. Cl. G02b 5/10

U.S. Cl. 350—296

5 Claims



A mount for an optical element (for example a concave ellipsoidal mirror) includes a plug for fixing in space the optical center of the element, while allowing tilting of the element for angular adjustment. The optical element is resiliently biased against this plug, and is adjusted by a single screw each for horizontal and vertical tilt. This eliminates adjustment of the optical element not only in its own plane, but also along its optical axis for focusing.

3,565,516

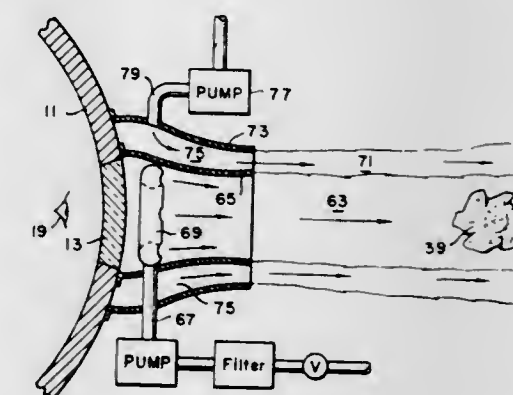
EXTENDED RANGE UNDERWATER OPTICS SYSTEM

John F. Thomas, Baltimore, and Karl H. Keller, Arnold, Md., assignors to the United States of America as represented by the Secretary of the Navy

Filed July 25, 1969, Ser. No. 844,950
Int. Cl. G02f 3/00; B01d 15/00; G03b 19/00

U.S. Cl. 350—319

20 Claims



An extended range undersea clear water viewing system conserving the clear water supply capability. Range is extended by containing flow of clear water toward viewed

object by means of solid body boundaries or by flowing turbid water boundaries, or both, and by generating vortex flow.

3,565,517

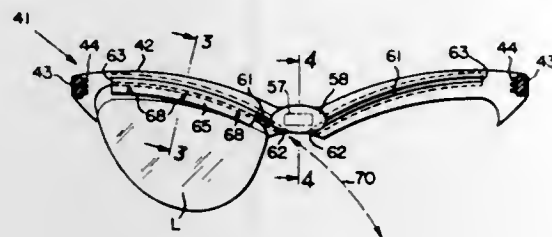
SPECTACLES HAVING READILY REMOVABLE LENSES

Manuel M. Gitlin, 68 Oakdale Drive 14623, and Chauncey F. Levy, Jr., 39 Wisner Road 14622, both of Rochester, N.Y.

Original application July 27, 1965, Ser. No. 475,288, now Patent No. 3,475,083, dated Oct. 28, 1969. Divided and this application Sept. 29, 1969, Ser. No. 861,642 Int. Cl. G02c 1/04

U.S. Cl. 351—106

4 Claims



A spectacle frame has a resilient nose pad removably secured to the rear of its front section between a pair of curved grooves formed in the back of the front section. The grooves are closed at their outer ends, and open at their inner ends adjacent opposite sides of the nose pad. A pair of lenses are suspended from the front section by two lens supporting members, having flanged portions which are removably and frictionally seated in said grooves. When the nose pad is removed, the lenses can be removed from the frame by sliding the flanged portions of the supporting members out of the open ends of the grooves.

3,565,518

AUDIO-VISUAL PRESENTATION APPARATUS

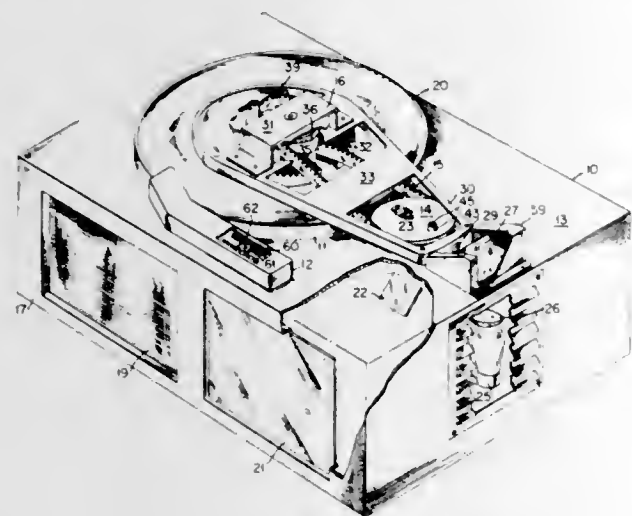
Lew W. Lessler, 25 Chadwick Road, Binghamton, N.Y. 13903

Filed Nov. 18, 1968, Ser. No. 776,711

Int. Cl. G03b 31/04

U.S. Cl. 352—32

4 Claims



A disc-sound reproducer and motion picture projector combined into one compact unit is disclosed which employs a particular disc-film cartridge for simultaneous presentation of the two mediums in synchronous relationship. The film represents the sole mechanical interconnection between the motive power of the record and the light gate

of the projector and the sound pickup has adjustment for longitudinal displacement for the purpose of synchronization correction.

3,565,519

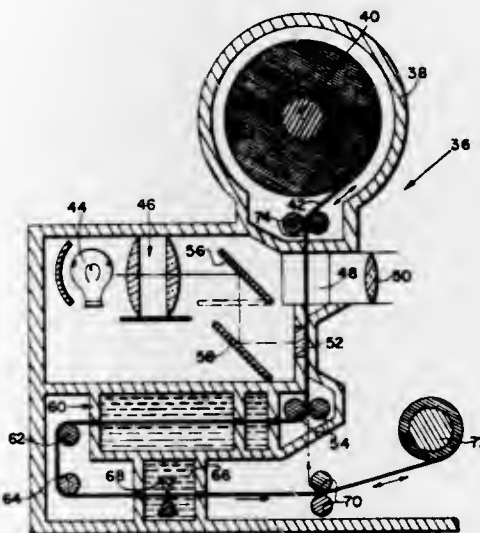
PHOTOGRAPHIC APPARATUS FOR PROCESSING AN EXPOSED PHOTOCSENSITIVE ELEMENT TO PRODUCE A VISIBLE IMAGE AND EXHIBITING THE IMAGE IN COLOR

Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

Original application July 16, 1965, Ser. No. 472,600, now Patent No. 3,455,633, dated July 15, 1969. Divided and this application Oct. 3, 1968, Ser. No. 810,049 Int. Cl. G03b 33/02, 33/16

U.S. Cl. 352—66

11 Claims



Photographic apparatus for processing and exhibiting a composite, exposed photosensitive element to produce a motion picture sequence in full color. The apparatus includes a light source and a subtractive color filter screen for exposing the photosensitive element to fog portions thereof; liquid containers and a film drive system for treating the exposed and fogged photosensitive element with a liquid reagent to form visible reversal images therein each representing a primary color complementary to one of the subtractive colors; and an optical system for transmitting light from the source through the processed photosensitive element to project the images onto a screen. Each of the visible reversal images is exhibited in light of the primary color represented thereby by a filter in the projector or by utilizing a projection screen with colored lines and registering the projected images with the appropriate lines. A system including photoelectric sensors on the screen and servos in the projector assures proper registration.

3,565,520

PROJECTOR FOR THE REPRESENTATION OF REVOLVING BODIES OF ROTATION

Horst Raff, Wolfgang Roos, and Rudl Winzer, Oberkochen, Germany, assignors to Carl Zeiss-Stiftung, doing business as Carl Zeiss, Jena, Germany (Brenz), Wurttemberg, Germany, a corporation of Germany

Filed Sept. 23, 1968, Ser. No. 761,658

Claims priority, application Germany, Sept. 23, 1967, P 15 72 905.2

Int. Cl. G02b 27/22; G03b 21/32

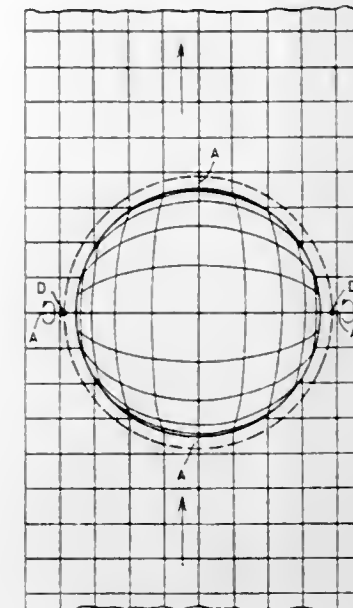
U.S. Cl. 352—86

5 Claims

A projector for the stereoscopic representation of revolving bodies of rotation, in which a continuously moving tape carrying a picture of the body of rotation made in accordance with Mercator's projection is caused to

move in a picture plane behind a projection objective producing a strong pin-cushion distortion. The conveying

coordination with the number disks, is positioned to pass a beam of light from a source through transparent indicia on the number disks to project images of such indicia on a ground glass display surface. The spiral light aperture



mechanism for the picture tape is rotated with the moving tape about the optical axis of said projection objective.

3,565,521

VARIABLE SIZE FILM FRAMING AND TRANSPORT SYSTEM

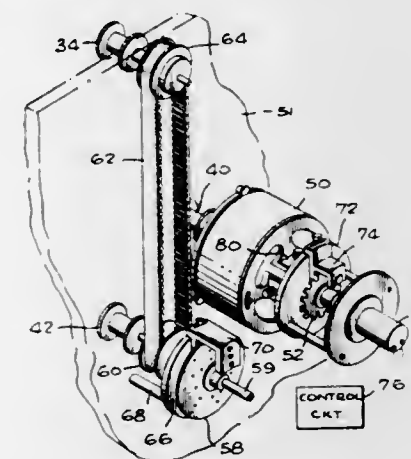
Lawrence W. Butler, 6180 Temple Hill Drive, Los Angeles, Calif. 90028, and Roger W. Banks, Costa Mesa, Calif.; said Banks assignor to said Butler

Filed Nov. 26, 1968, Ser. No. 778,942

Int. Cl. G03b 21/46, 21/48

U.S. Cl. 352—163

9 Claims



A film, having predetermined numbers of sprocket holes adjacent each film frame, is advanced by driving a sprocket wheel with a servomotor to pull the film frame by frame through a film gate. A train of motor drive pulses for each of different films is electrically generated. The train of motor drive pulses is changed and applied to the motor as the number of sprocket holes per frame changes for each of the different films.

3,565,522

ROTARY SHAFT COUNTER

Howard B. Betts, Mineola, N.Y., assignor to Vanguard Instrument Corporation, Melville, N.Y., a corporation of New York

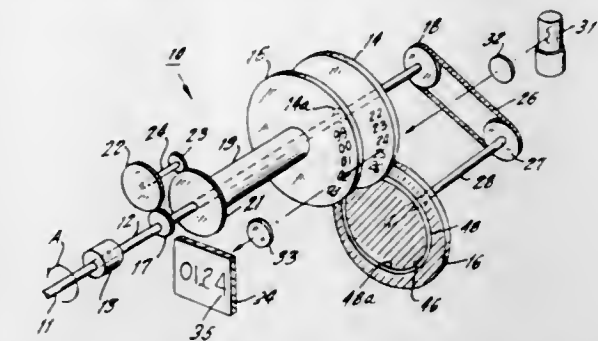
Filed Aug. 12, 1968, Ser. No. 751,863

Int. Cl. G03b 21/00

U.S. Cl. 353—41

10 Claims

A rotary shaft counter is constructed with a plurality of number disks each coupled to be continuously driven in coordination with the rotating shaft having its revolutions counted. A movable light aperture partially provided by a transparent spiral on another disk rotating in



is a single turn having slight overlapping end portions forming a crossover point for the rapid changing of the display presented by the number on the slower moving of the number disks.

3,565,523

VAPOR REPRODUCING APPARATUS

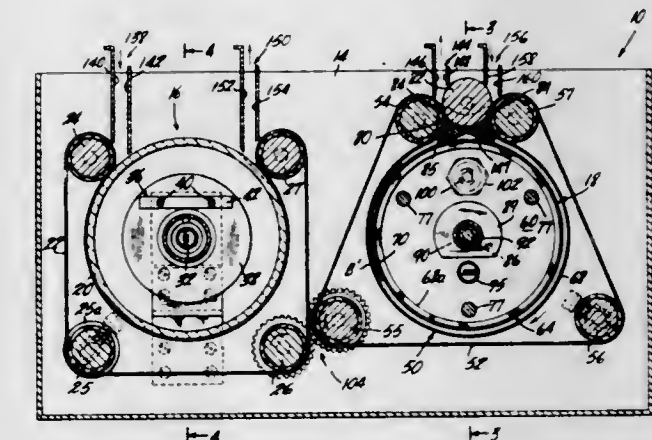
Ronald N. Davis and Hubert J. Severin, Stamford, Conn., assignors to Columbia Broadcasting System, Inc., New York, N.Y., a corporation of New York

Filed Dec. 13, 1967, Ser. No. 690,305

Int. Cl. G03b 26/30

U.S. Cl. 355—106

8 Claims



Apparatus for exposing and developing light-sensitive material from a master copy comprising an exposure unit having a source of collimated light to which the copy and material are delivered for exposure and a developer unit having a chamber containing a developing vapor to which the exposed material is delivered for development. Both the exposure and developer units include cylindrical members encompassed by belts which are driven to carry the copy or material in sheet form positioned between the cylinder and belt to exposure and developer zones of the cylinders. The units are driven in synchronism in a manner providing rapid delivery to and from a predetermined dwell time at the exposure and developer zones.

3,565,524

PHOTODRAWING HEAD WITH SYMBOLS FOR EXPOSING TO LIGHT A PHOTOCSENSITIVE DRAWING SURFACE

Wolfgang Pabst, New-Isenburg, and Peter Brembs, Heussenstamm, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany

Filed Apr. 9, 1969, Ser. No. 814,577

Claims priority, application Germany, Apr. 10, 1968, P 17 61 170.0

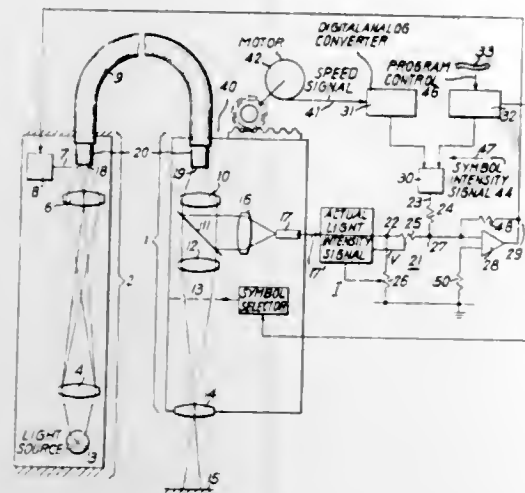
Int. Cl. G03b 27/00

U.S. Cl. 355—1

7 Claims

A photographic drawing system includes a photosensitive drawing surface, projector means for projecting symbols into the surface, and means for moving the project-

ed symbols and the surface relative to each other. The projector means include a plurality of light conducting fibers serving as an optical connector means, a first projector device for projecting light onto the inputs of all of the light fibers, a second projector device for receiving light from



the outputs of all of the optical fibers and for utilizing the light to project the symbols onto the drawing surface, and means for controlling the number of optical fibers through which light will be passed in order to thereby control the intensity of light projected onto the drawing surface.

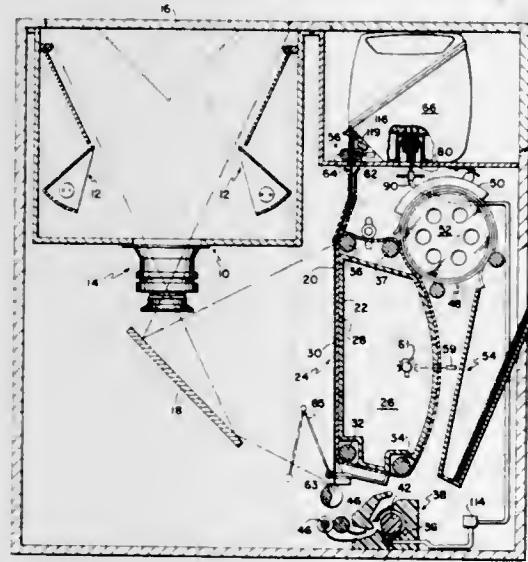
3,565,525

LIQUID DELIVERY SYSTEM FOR PHOTOGRAPHIC RECORDING APPARATUS

John R. Sharp, Quincy, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Oct. 1, 1968, Ser. No. 764,065
Int. Cl. G03d 5/02

U.S. Cl. 355-27

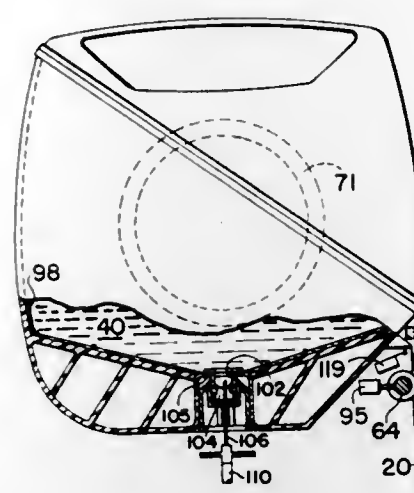
1 Claim



A document copier for exposing and processing with a liquid, successive sections of a photosensitive sheet supplied in a cassette along with a container of processing liquid. The copier includes a hollow needle for penetrating an extended section of the liquid container for withdrawing processing liquid from the container for delivery to an applicator. The needle is surrounded by a protective collar adapted to be received in a recess in the cassette and to receive the extended section of the liquid container for guiding the section into penetrating engagement with the needle.

3,565,526
CASSETTE FOR A COPYING MACHINE
Dirk A. van Gemen, Winchester, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Oct. 1, 1968, Ser. No. 764,086
Int. Cl. G03b 27/32
U.S. Cl. 355-27

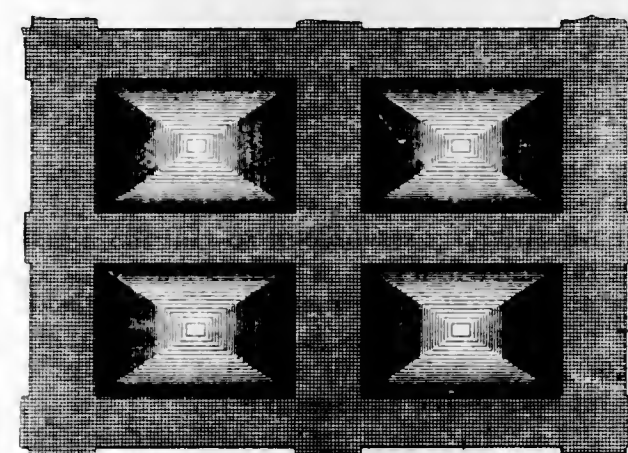
14 Claims



A cassette containing coiled sheet material for a photographic document copier includes, at the coil exit opening, protruding lips having several openings through which drive rollers on the copier contact the material to deliver it from cassette. The cassette may also include a lock to prevent the coil end from slipping back into the cassette, and a container of processing liquid.

3,565,527
CONTACT SCREEN FOR ROTOGRAVURE DIRECT PRINTING AND OFFSET PRINTING SYSTEMS
Claudio Crespi, Vitorchiano, Italy, assignor to Walter Cordaro, Rome, Italy
Continuation-in-part of application Ser. No. 737,980, June 18, 1968. This application June 16, 1969, Ser. No. 833,658
Claims priority, application Italy, July 16, 1968, 38,470/68
Int. Cl. G03f 5/00; G03b 27/76
U.S. Cl. 355-71

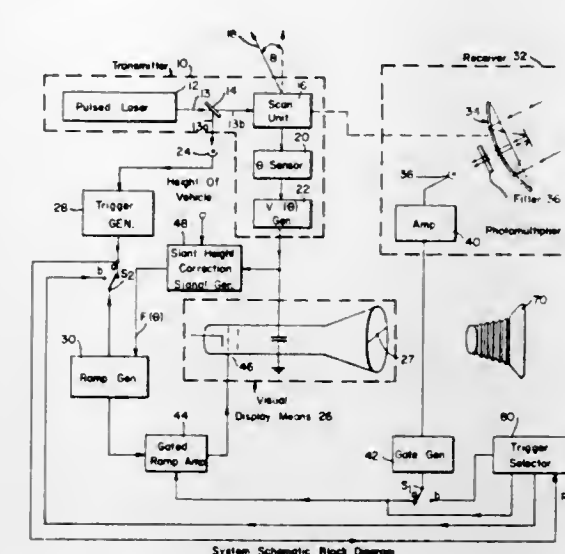
4 Claims



A contact screen for rotogravure direct printing and offset printing, both negative and positive, which has a plurality of points separated from one another by lines, and each point is made up of zones. The density gradation of each point varies progressively and differently in adjacent zones from between the center of that point and a side thereof. The lines which separate the points have at adjacent sides of a point different widths, and the number of lines in one centimeter at one side of the points is different from that at the adjacent side of the points. Preferably the point is rectangular in shape.

3,565,528
CONTOUR MAPPER DATA PRESENTATION STORAGE DEVICE
Robert S. Witte, Redondo Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Oct. 25, 1967, Ser. No. 678,071
Int. Cl. G01c 3/08
U.S. Cl. 356-5

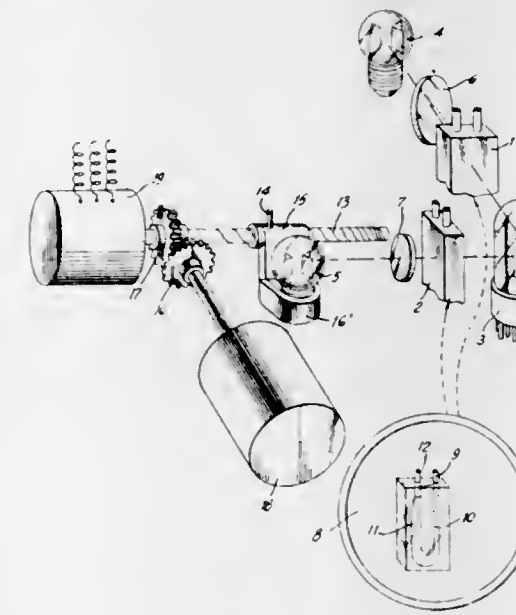
7 Claims



A pulsed laser transmitter emits a scanning laser beam. Visual display means are provided for indicating the angular position of the beam with respect to the transmitter. Circuit means responsive to the presence of a pulsed beam initiates means for providing an increasing intensity signal to the visual display means. A receiver detects echo pulses from targets and provides an output signal indicating the presence of the pulse. Gating means responsive to the receiver output signal limits the intensity displayed. The displayed pattern will then contain position and range information. The position of the pattern on the visual display means is a function of the angular position of the laser beam and the intensity of the pattern is a function of the range between the laser transmitter and a target from which the echo pulse has emanated.

3,565,529
ARTERIOVENOUS OXYGEN DIFFERENCE ANALYZER
Arthur Clifton Guyton, 234 Meadow Road, Jackson, Miss. 39206
Filed Sept. 26, 1967, Ser. No. 670,610
Int. Cl. G01n 33/16; G01j 3/46
U.S. Cl. 356-41

2 Claims

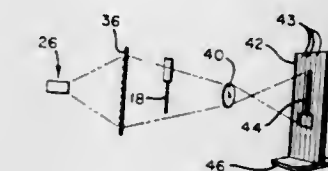


The invention comprises a device for determining the difference between the oxygen content of arterial blood

and venous blood. A photocell alternately measures light transmitted in a beam from a first light source through a venous blood sample and light transmitted in a beam from a second light source through an arterial blood sample. The intensities of the transmitted light beams are adjusted to achieve balance at the photocell, and the amount of adjustment is indicative of the oxygen difference.

3,565,530
OPTICAL MACHINE TOOL ALIGNMENT INDICATOR
Alfred G. Boissevain, Palo Alto, and Byron W. Nelson, Santa Clara, Calif., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Dec. 28, 1967, Ser. No. 694,246
Int. Cl. G01b 11/26, 11/02, 9/08
U.S. Cl. 356-154

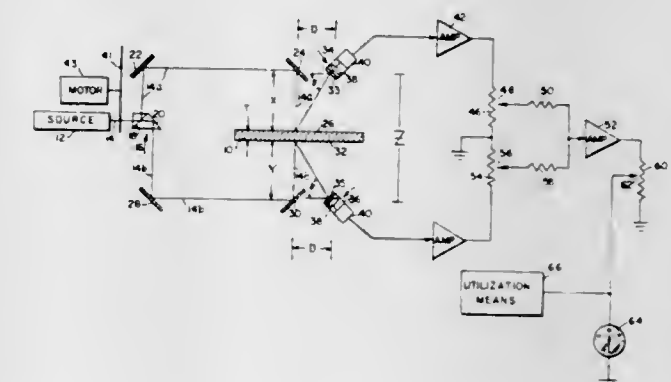
5 Claims



An optical gauging instrument for checking the alignment of a machine element such as the electrode of an electrical discharge machine, comprising a light source which provides a beam of light projected along a path to fall upon a viewing screen. The electrode is located in the path of the beam whereby an image thereof is projected on the screen. A lens, or lenses, are positioned between the light source and electrode to concentrate the beam on the electrode, and a projection lens may be positioned between the electrode and screen for producing an enlarged image on the screen. The screen preferably is movable and may be positioned at an oblique angle with the optical axis of the system for further enlargement of at least one dimension of the electrode image on the screen.

3,565,531
ELECTRO-OPTICAL THICKNESS MEASUREMENT APPARATUS
Gordon Kane, Wayland, and Jacob Schwartz, Arlington, Mass., assignors to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware
Filed Mar. 12, 1969, Ser. No. 806,630
Int. Cl. G01b 11/02
U.S. Cl. 356-156

10 Claims



Apparatus for measuring the thickness of an object without requiring any physical contact comprises two sources of radiant energy disposed at a known fixed distance from one another, one on each side of the object which is to be measured and centroid tracking receivers disposed in a fixed spatial relationship with each of the

sources. Radiant energy from the sources is directed to each side of the object to be measured and the centroid of energy reflected from each side of the object is tracked by the detector elements which produce output signals which represent the angle of arrival of the reflected energy. The detector output signals are electronically processed according to trigonometric principles such as to provide a signal representative of the thickness of the object being measured.

3,565,532

APPARATUS FOR DETERMINING THE POSITION OF AN EDGE

Knut Heitmann, Wetzlar, and Eckart Schneider, Asslar, Kreis Wetzlar, Germany, assignors to Ernst Leitz GmbH, Wetzlar, Germany

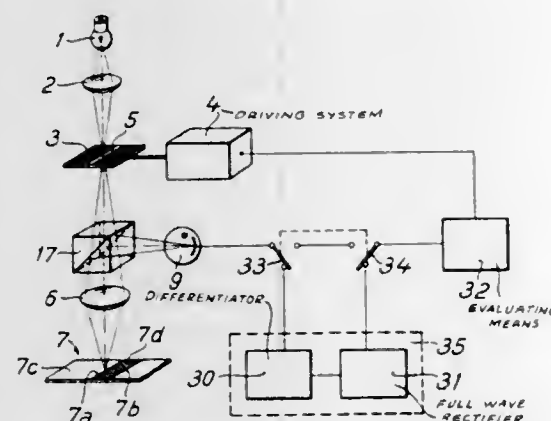
Filed June 20, 1968, Ser. No. 738,446

Claims priority, application Germany, June 24, 1967, P 16 23 764.2; June 28, 1967, P 16 23 765.3, P 16 23 766.4

Int. Cl. G01b 11/00; G01d 5/36

U.S. Cl. 356—167

8 Claims



An apparatus is disclosed which comprises a light source and means for oscillatory scanning of the edge of an object by means of a light beam which after scanning is incident on a photoelectric receiver. In a first embodiment of the invention the electric pulses generated by the receiver are supplied to a differentiating stage with full wave rectifier which is connected to a known circuit arrangement for the evaluation of electric signals obtained by the scanning of scale marks.

In a second embodiment the pulses are conducted to a differentiating stage with a resonant amplifier that is tuned to an even-number multiple of the scanning frequency. To the output terminals of that amplifier is connected a phase-sensitive rectifier which is controlled by a reference signal derived from the scanning motion. The output signals of this amplifier are then evaluated in known manner, for example by an indicating means.

In a third disclosed embodiment the pulses are conducted to a square shaper whose output is serially connected to a symmetrical shaping stage which is connected to a low-pass filter and an evaluation device, for example a comparison stage.

3,565,533

CEMENT ADDITIVE DETERMINATION

Calixto F. Garcia, Hurst, Tex., and James E. Ritter, Lafayette, La., assignors to Byron Jackson Inc., Long Beach, Calif., a corporation of Delaware

Filed Apr. 14, 1969, Ser. No. 815,763

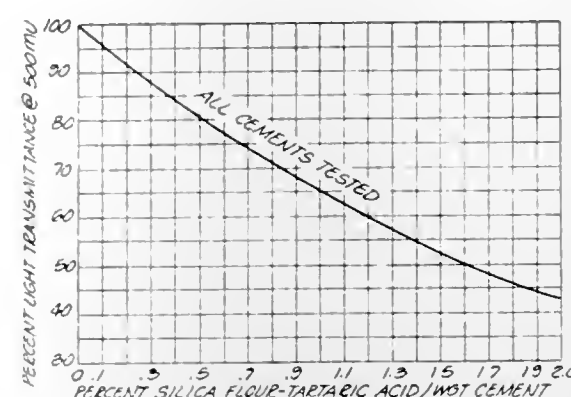
Int. Cl. G01j 3/46; G01n 33/38; B01j 7/12

U.S. Cl. 356—173

11 Claims

A method for determining the distribution of an additive in the dry ingredients of an oil well cementing composition wherein a tracer dye is blended with the additive and the additive is blended with the remainder of the cement

composition, a test sample of the total mix being then mixed with a liquid to dissolve the dye and a spectro-



photometric analysis is made to determine the percentage of the dye and thus the additive in the cement mix.

3,565,534

MICROSCOPE SYSTEM WITH INFORMATIONAL MODULAR AIDS

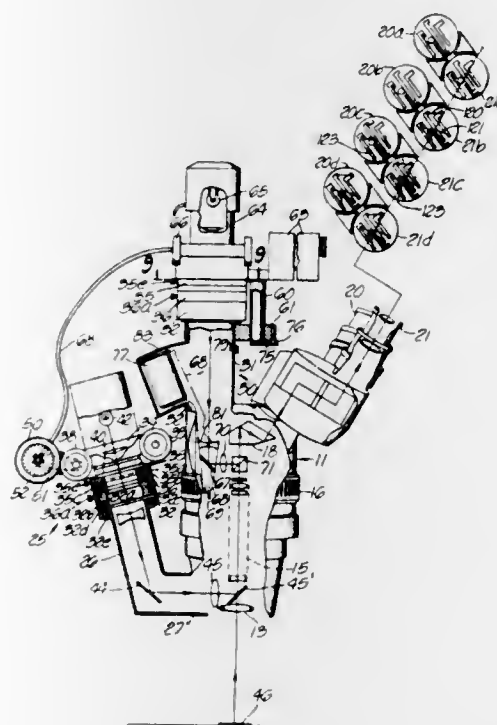
Richard J. Chaban, Northridge, Calif., assignor to McBain Instruments, Inc., Van Nuys, Calif., a corporation of California

Filed July 19, 1968, Ser. No. 746,059

Int. Cl. G02b 21/20, 23/04

U.S. Cl. 356—162

36 Claims



Microscope apparatus with instructional aids particularly useful in assembling and checking miniature and subminiature components, the apparatus employing microscope optical systems and one or more beam splitter means to introduce assembly and checking information into a selected eyepiece for simultaneous observation by the operator along with the component itself. If the equipment is being used in a complex operation the information required by the operator is preferably supplied in separate increments as the work progresses. If a zoom or other magnification changing lens system is present in the basic microscope equipment, as is desirable, one beam splitter may be located below the magnification changing system and the second beam splitter may be located above the magnification changing system to introduce information into the other eyepiece independently

of the magnification changing system. A camera accessory can be incorporated and used to make a photo record of semi or fully completed assembly operations. The auxiliaries or instructional aids usable with the invention microscope include means for introducing instrument readings into the optical system from instrumentation connected to components undergoing inspection, measurement or assembly in the main field of the equipment, as well as means for simultaneously introducing auxiliary instructional information from separate sources into one or both of eyepieces of the apparatus and including means for superimposing a representation of the component on the actual image of the component and for performing all aligning operations along X, Y and Z and theta axes as respects such supplemental information source. The invention apparatus also includes provision for varying the magnification of informational workpiece images by precisely the same ratio.

3,565,535

LINEAR DENSITOMETER

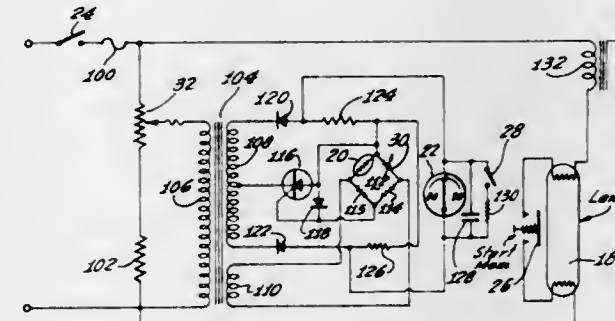
Howard L. Monell, Los Angeles, Calif., assignor to Calblochem, Los Angeles, Calif., a corporation of California

Filed Oct. 14, 1968, Ser. No. 767,332

Int. Cl. G01n 21/06, 21/34, 33/16; G01j 1/00

U.S. Cl. 356—201

11 Claims



The present invention is directed to an optical densitometer which provides a direct linear reading of optical density from a non-linear input of light intensity. The present invention uses a bridge measuring circuit including a photoresistive cell which has a non-linear characteristic to provide a first order compensation for the non-linear character of the input light intensity to the photosensitive cell and, in addition, uses a semiconductor device such as a silicon-controlled rectifier in combination with the bridge measuring circuit to control the current flowing through an output meter and with the semiconductor device, such as the silicon-controlled rectifier, providing a second order compensation so that the output indication is an extremely accurate direct linear reading of optical density.

3,565,536

APPARATUS FOR DETECTING FLAWS IN LIGHT TRANSMISSIVE TUBING INCLUDING A PLURALITY OF DIAMETRICALLY OPPOSED LIGHT SOURCES

Louis E. Wuellner and Francis J. Kittrush, Fort Wayne, Donald Holloway, Decatur, and Saleem N. Bonahoom, Fort Wayne, Ind., assignors to International Telephone and Telegraph Corporation, a corporation of Delaware

Filed Jan. 15, 1968, Ser. No. 697,657

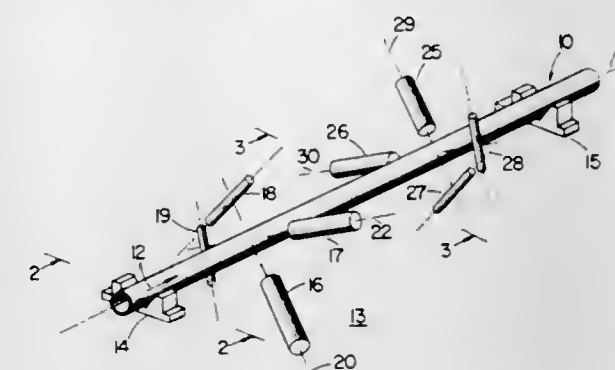
Int. Cl. G01n 21/32

U.S. Cl. 356—239

14 Claims

An apparatus for continuously detecting air lines in glass tubing which is moving in its longitudinal direction. Four image dissector camera tubes are provided, each having a light source associated therewith. Each respective camera tube and light source is disposed on a light axis extending transversely through the longitudinal axis of the glass tubing, the camera tube being disposed to view

one side of the tubing and the light source being disposed on the other side. Each camera tube has an elongated narrow aperture standing in a direction parallel with the glass tubing axis and is arranged for scanning in a direction perpendicular to the aperture. The light source is arranged completely and grossly to illuminate the glass tubing with diffuse, visible light in an area longer than the scan provided by the camera tube and wider than the width of the aperture when optically projected through the glass tubing to the light source. The first two of the



camera tubes and light sources are arranged with their respective light axes lying in a common plane and angularly displaced by ninety degrees. The other two camera tubes and light sources are disposed with their light axes in another common plane longitudinally spaced from the plane of the first two camera tubes and light sources, the light axes of the second two tubes and light sources likewise being angularly displaced by ninety degrees, each of the camera tubes being arranged to view a different quadrant of the peripheral surface of the glass tubing.

3,565,537

SPECIMEN HOLDER FOR EXAMPLE FOR TESTING THE COLOUR OF A LIQUID SUCH AS BLOOD

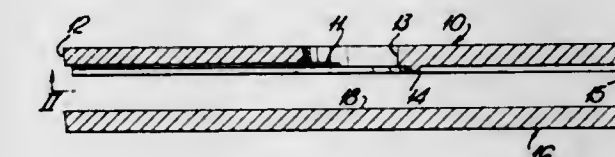
Jack Fielding, 17 Bracknell Gardens, Hampstead, London, NW. 3, England

Filed Oct. 30, 1968, Ser. No. 771,950

Int. Cl. G01n 1/10

U.S. Cl. 356—246

3 Claims



A specimen holder for use with an optical instrument. The holder includes a pair of sheets of translucent plastics material welded together in face-to-face relationship, a recess being formed in at least one of the plates to provide a thin, flat space of a closely defined constant thickness. Into this space may be drawn a liquid and the light absorbance or some other parameter may be measured. The holder is particularly suitable for use in determining the haemoglobin content of a specimen of blood.

3,565,538

SAMPLING TECHNIQUE USING OPEN HOLDER

Herbert L. Kahn, Westport, and George E. Peterson, Hamden, Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn., a corporation of New York

Filed Jan. 24, 1968, Ser. No. 700,219

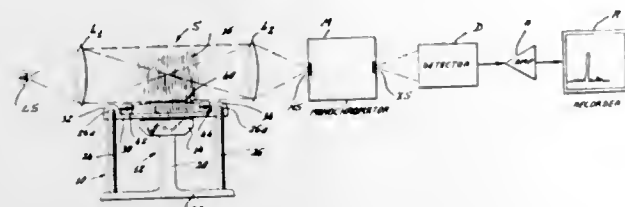
Int. Cl. G01n 1/10

U.S. Cl. 356—246

2 Claims

A sampling technique for atomic absorption spectroscopy utilizes a small quantity (e.g., one-half of a milliliter) of a sample solution. This sample is placed in a

small boat-shaped holder, dried (e.g., by being placed near but not in the flame of the spectrometer), and then placed into a conventional flame (e.g., of air-acetylene). Improvement in detection (as compared to conventional aspiration of the liquid samples slowly into the flame)



for readily atomized elements (e.g., lead, zinc, silver, mercury, selenium, arsenic, cadmium, thallium, etc.) is typically between ten and one hundred times. Extremely small sample amounts (i.e., less than 0.1 milliliter) may be analyzed with good repeatability.

3,565,539

COLLIMATED SIGHT

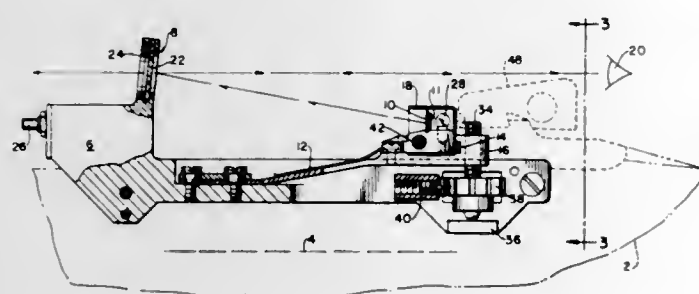
Joseph La Russa, Yonkers, N.Y., assignor to Farrand Optical Co., Inc., Bronx, N.Y., a corporation of New York

Filed June 12, 1967, Ser. No. 645,160

Int. Cl. G02b 23/10, 27/34

U.S. Cl. 356—251

3 Claims



There is disclosed a sight, for use for example on a firearm, which employs a partially reflecting concave mirror to present to the user by means of collimated light an image at infinity of an aiming pattern such as a luminous dot or circle, superimposed on the field of view as seen unaltered through the concave mirror. The aiming pattern is disposed on the focal surface of the concave mirror, and in one embodiment taken the form of a minified image, real or virtual, of an aiming pattern established elsewhere. The minified image is generated by a curved reflecting surface positioned to have its focal surface on the focal surface of the concave mirror.

3,565,540

FOUNTAIN BRUSH ASSEMBLIES

Maurice Andrews, 66—36 Yellowstone Blvd., Forest Hills, N.Y. 11375

Continuation-in-part of application Ser. No. 731,046, May 22, 1968. This application Mar. 21, 1969, Ser. No. 809,077

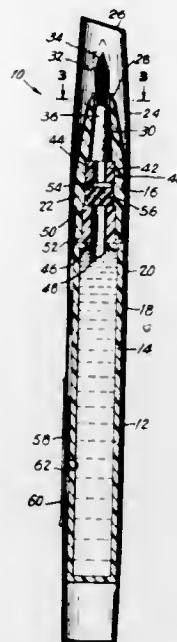
Int. Cl. A46b 11/02

U.S. Cl. 401—115

6 Claims

A fountain brush assembly wherein liquid is delivered to the bristles of a brush component to be applied to any desired surface and to be used for decorative and cosmetic purposes. A brush component includes bristles surrounded at an inner end region by a ferrule which may be tapered. An elongated tubular liquid guide has a discharge end region provided with an inner surface of the same

general taper as the tapered surface of said ferrule with the latter located within the tubular liquid guide. Although the tapered surfaces are generally of the same degree of taper, they have a non-matching relationship enabling them to define between themselves a longitudinal passage through which liquid can flow beyond the ferrule to the hair-bristles of the brush component which extend beyond the ferrule. The brush component is freely movable within the tubular liquid guide between an outer end position



where the tapered surfaces engage each other and an inner end position where the brush component is situated in the tubular liquid guide to an extent greater than when the brush component is in its outer end position. An apertured abutment means extends across the interior of the tubular liquid guide and engages the brush component to determine its inner end position. The ferrule coacts with an aperture of the abutment means to function as a valve therewith.

3,565,541

TREATING FLUID CONTAINER WITH APPLICATOR UNIT

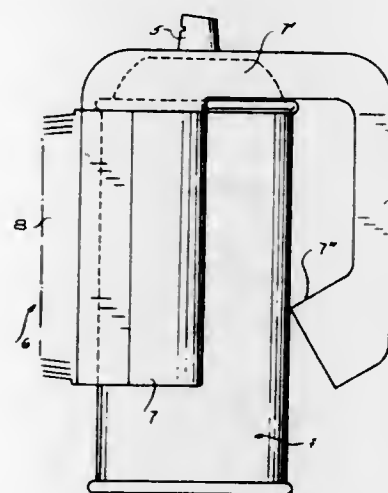
Joseph Vallis, 353 Cortleigh Blvd., Toronto, Ontario, Canada

Filed Nov. 18, 1968, Ser. No. 776,638

Int. Cl. A47i 1/08

U.S. Cl. 401—137

7 Claims



A pressurized can includes a spray nozzle operative for discharging quantities of the pressurized treating fluid contained in the can onto a surface to be treated. A brush unit is coupled with the can and includes a clamping sleeve of substantially C-shaped cross section clampingly engaging the circumferential wall of the can, and at least

one brush which is carried by the clamping sleeve and with which the treating fluid may be brushed after discharge onto the surface to be treated. The brush may be of one piece with the clamping sleeve, or it may be separable so that it may be replaced with another brush.

3,565,542

NIB DEVICE

Roger Perraud, Paris, France, assignor to Le Foyer et Cie, Paris, France, a French company

Filed Jan. 28, 1969, Ser. No. 794,590

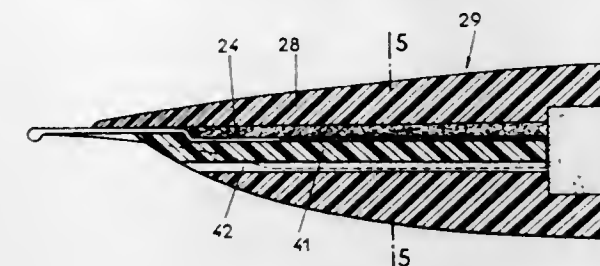
Claims priority, application France, Feb. 5, 1968,

138,696

Int. Cl. B43k 5/18

U.S. Cl. 401—223

7 Claims



A nib device for a fountain pen fed by means of a tongue of capillary material connected to the ink reservoir and located between the external face of the nib and the wall of the fountain pen section receiving the latter. The upper face of the nib is provided with a recess designed to house the tongue so that the forward portion thereof is not exposed at the atmosphere.

3,565,543

PRESSURE BALANCED STARTER ROTOR

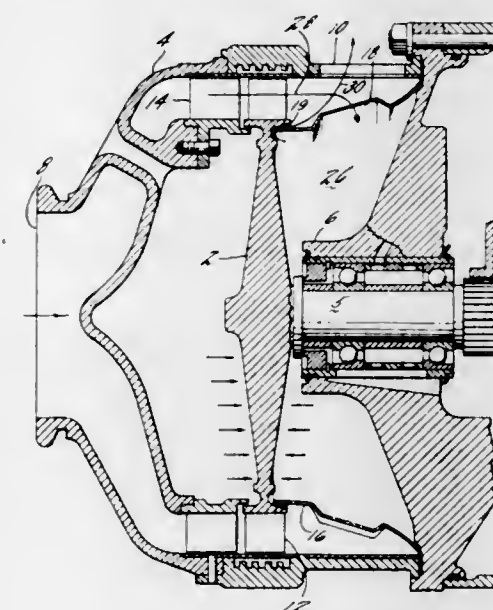
James A. Mrazek, South Glastonbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Apr. 2, 1969, Ser. No. 812,792

Int. Cl. F04d 29/66; F01d 25/12

U.S. Cl. 415—106

6 Claims



Scoops in the exhaust deflector of a gas turbine engine starter rotor are oriented so that at the free running condition of the starter rotor, the velocity head of the swirl component of the air leaving the rotor is converted into a pressure head which pressurizes the cavity on the back side of the rotor; the air is also caused to cool the rotor bearings.

3,565,544

MARINE PROPELLER

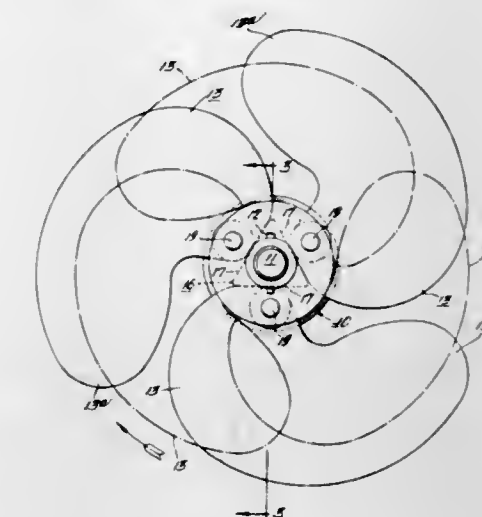
Don J. Marshall, Edgewater, Md., assignor to Goodall Semi-Metallic Hose & Mfg. Co., Philadelphia, Pa., a corporation of Pennsylvania

Filed Feb. 7, 1969, Ser. No. 797,393

Int. Cl. B63h 3/10

U.S. Cl. 416—89

13 Claims



A variable thrust marine propeller including a hub with a plurality of blades pivotally mounted on the hub for pivotal movement about axes generally parallel to the axis of rotation to the hub for movement from a nested position adjacent the hub to an extended position. The center of mass of each blade is disposed rearwardly of the pivotal axis for the blade relative to the direction of rotation of the hub so that the force of water on the blade when the blade is rotating will work against the centrifugal force on the blade due to rotation of the hub. As the blades pivot outwardly toward their extended position, both pitch and diameter of the propeller are increased.

3,565,545

COOLING OF TURBINE ROTORS IN GAS TURBINE ENGINES

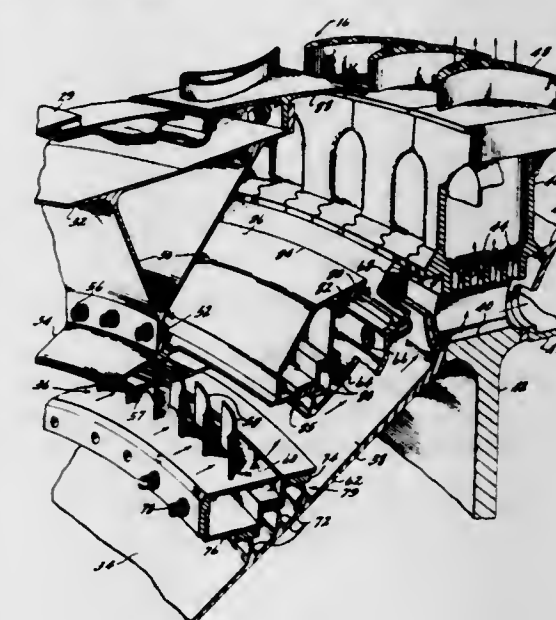
Melvin Bobo, 5629 Oakvista Drive, Cincinnati, Ohio 45227; Bruce O. Buckland, 1711 Randolph Road, Schenectady, N.Y. 12304; and Eugene E. Stoeckly, 1401 Holman View Drive, Cincinnati, Ohio 45215

Filed Jan. 29, 1969, Ser. No. 794,859

Int. Cl. F01d 5/08

U.S. Cl. 416—90

1 Claim



The disclosure shows a gas turbine engine having a compressor, combustor, and turbine sequentially arranged. A rotating, air entry chamber is formed at the base of the

tangs of turbine buckets, which project from the turbine rotor into the hot gas stream from the combustor. A relatively stationary, annular nozzle forms the entrance to this rotating chamber. Air is ducted from the discharge of the compressor to this nozzle. The nozzle is provided with vanes which accelerate the compressor discharge air into the rotating chamber which is at a lower pressure. The nozzle imparts, to the cooling air, a velocity vector having a component relative to the rotating chamber (and turbine rotor), which is generally axial. The air is reduced in static temperature, as it is accelerated through the nozzle, and energy losses are minimized due to the velocity vector of the cooling air being essentially axial relative to openings in the turbine rotor, which the air enters to flow through passageways providing an internal cooling mechanism for the turbine buckets.

3,565,546

WIND MOTOR

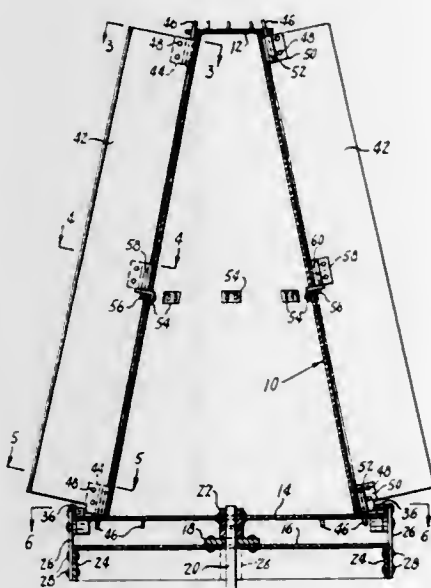
John L. Shanahan, 380 W. Main St.,
Waterbury, Conn. 06702

Filed July 31, 1969, Ser. No. 846,367

Int. Cl. F03d 3/00

U.S. Cl. 416-117

9 Claims



A hollow truncated body of circular cross section throughout its height is provided at spaced points therearound with vanes adapted to swing freely outwardly to transmit wind power to the body at one side thereof and to fold into proximity to the other side of the body to substantially eliminate the transmission of any rotational force to the body. Outward swinging movement of the vanes is limited by resilient means adapted to "give" under high wind velocities to "spill" some of the wind from the vanes and thus prevent damage to the parts. The body is adapted to transmit rotational forces to an axial power takeoff shaft at the bottom thereof.

3,565,547

TURBOMACHINE ROTOR CONSTRUCTION

Raymond E. Hansen, New Alexandria, Pa., assignor to
Carrier Corporation, Syracuse, N.Y., a corporation of
Delaware

Filed Feb. 24, 1969, Ser. No. 801,687

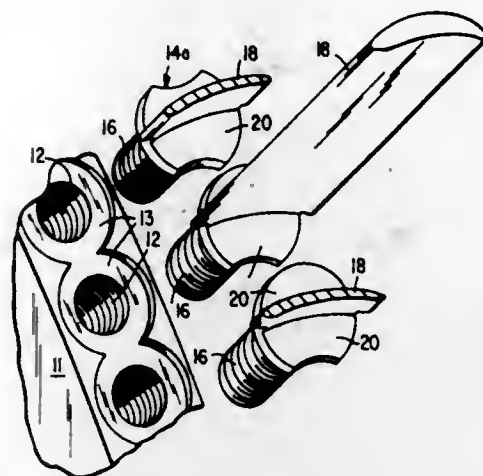
Int. Cl. F01d 5/32

U.S. Cl. 416-204

2 Claims

A rotor wheel for use in a turbomachine wherein the circumferentially arranged blades are provided with externally threaded shank portions for mating with internally threaded openings provided within the supporting disc. Intermediate portions of all but two blades have at least one peripheral section removed while one of the remain-

ing two has no removed section and the other has two shank sections removed so as to permit sequential assem-



bly of the blade in a circumferential path about the disc in a predetermined manner.

3,565,548

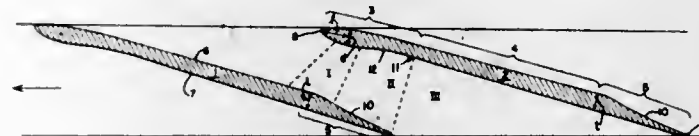
TRANSONIC BUCKETS FOR AXIAL
FLOW TURBINESJackson E. Fowler, Schenectady, and Josef Herzog, Scotia,
N.Y., assignors to General Electric Company, a corpora-
tion of New York

Filed Jan. 24, 1969, Ser. No. 793,831

Int. Cl. F01d 5/14

U.S. Cl. 416-223

5 Claims



Turbine bucket profiles for the transonic fluid flow region at the outer portions of axial flow steam turbine buckets, the profiles being characterized by substantially flat pressure and suction sides diverging toward the trailing edge over the mid-portion of the profile, the buckets overlapping one another and shaped to provide a transonic and supersonic flow region between buckets.

3,565,549

PROCESS FOR PREPARING REINFORCED
RESINOUS STRUCTURESHyman R. Lubowitz, Redondo Beach, and Robert W.
Vaughan, Manhattan Beach, Calif., assignors to TRW
Inc., Redondo Beach, Calif., a corporation of Ohio
No Drawing. Continuation-in-part of application Ser. No.
650,625, July 3, 1967. This application June 20, 1968,
Ser. No. 738,403

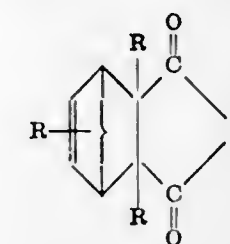
Int. Cl. C03c 25/02; C08g 20/32

U.S. Cl. 117-126

10 Claims

This invention is directed toward the process of preparing reinforced laminates of improved thermal stability which comprises impregnating a reinforcing material, e.g. glass fibers, with an effective amount of a precursor of a polyimide prepolymer i.e. polyamide-acid and subsequently subjecting the impregnated material to heat and pressure to obtain a cured, reinforced, structure. The precursors of the polyimide prepolymers used for impregnating the reinforcing materials are obtained by coreacting a polyamine e.g. an aromatic diamine and a polyanhydride

e.g. an aromatic dianhydride with a specific end-capping or terminal monoanhydride characterized by the formula:



wherein R is selected from the group consisting of a hydrogen atom and lower alkyl groups. The polyamide-acids or precursors of the prepolymers are applied as an organic solution to the reinforcing materials and converted in situ to the prepolymers by the application of heat with temperatures ranging up to about 260° C. Subsequently, the prepolymer-impregnated reinforcing materials are cured at temperatures ranging up to about 350° C. under pressures ranging up to about 1,000 p.s.i. to obtain reinforced materials impregnated with high-molecular weight polyimide resins.

3,565,550

COMPRESSOR AND PUMP COMBINATION

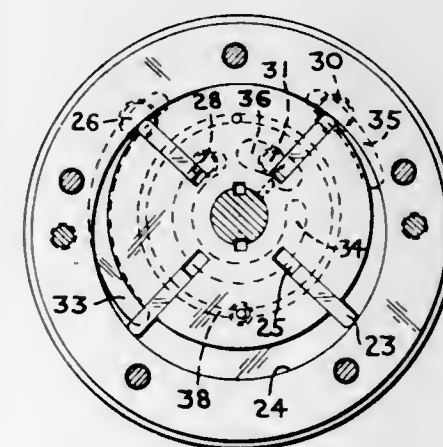
Friedrich O. Bellmer, Stanhope, N.J., assignor to Worth-
ington Corporation, Harrison, N.J., a corporation of
Delaware

Filed Dec. 10, 1968, Ser. No. 782,527

Int. Cl. F04b 23/10; F01c 19/00; F04c 27/00

U.S. Cl. 417-204

1 Claim



A sliding vane rotary device which performs simultaneously as a gas compressor and as a hydraulic pump having separate inlets and outlets for the gas being compressed and the liquid being pumped. In addition, the unit end plate has grooves formed therein communicating with the inlet and outlet ports which function as internal flow passages for the gas being compressed and the liquid being pumped.

3,565,551

THERMAL TRANSPIRATION VACUUM PUMPS

John Peter Hobson, Ottawa, Ontario, Canada, assignor
to Canadian Patents and Development Limited, Ottawa,
Ontario, Canada, a corporation of Canada

Filed July 18, 1969, Ser. No. 843,018

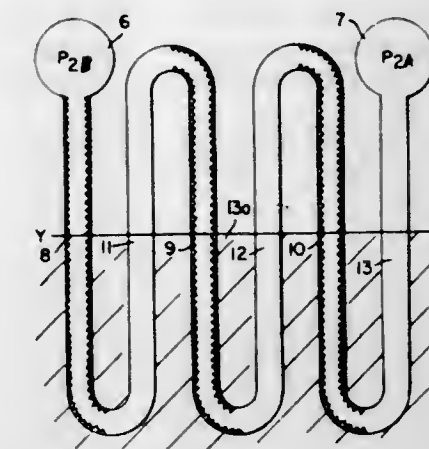
Int. Cl. F04b 19/24, 37/06

U.S. Cl. 417-207

6 Claims

A thermal transpiration vacuum pump wherein a gas to be pumped is brought into contact along a gas path,

with consecutive, gas contacting surfaces. The gas contacting surfaces are alternately atomically rough and atomically smooth, and alternate joined parts of consecutive atomically rough and smooth surfaces are maintained at a first temperature, whilst intermediate parts, disposed between the alternate parts, and comprising joined parts



of each atomically smooth and rough surfaces are maintained at a second temperature. This arrangement produces deflections of the gas molecules which are preponderantly more in one direction along the gas path than in the other direction, and so a gas pressure difference is created along the gas path.

3,565,552

ROTARY COMPRESSOR

Tuneo Mondem, Tokyo, Masao Ozu, Yokohama-shi, Ma-
koto Watanabe, and Keiji Noda, Kawasaki-shi, Japan,
assignors to Tokyo Shibaura Electric Co., Ltd., Kasa-
saki-shi, Japan, a corporation of Japan

Filed Mar. 18, 1969, Ser. No. 808,253

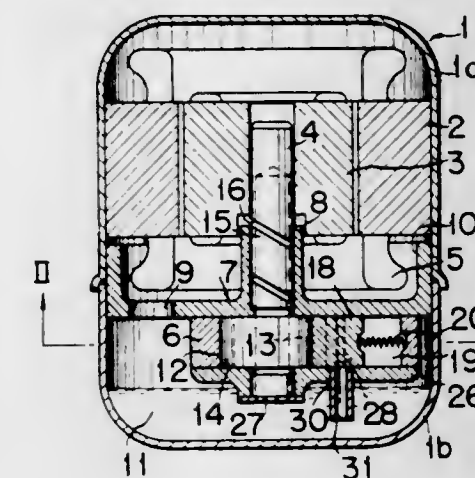
Claims priority, application Japan, Mar. 19, 1968,

43/18,433; May 30, 1968, 43/44,474

Int. Cl. F04c 29/02

U.S. Cl. 417-372

7 Claims



A rotary compressor wherein a motor and a frame carrying the rotary axle of said motor on bearings are engageably fitted in a sealed case having a lubricant reservoir integrally formed at the bottom, the bottom part of the frame is fitted with a cylinder which comprises a compression chamber having a rotor fitted to the rotary axle of the motor in such a manner that the surface of said rotor rotatably slides on the inner surface of the compression chamber, a blade sliding slot allowing a blade

to be fitted slidably therethrough, and a lubricant feeder communicating with said blade sliding slot and open to the lubricant reservoir in a state immersed in the lubricant contained therein, whereby a lubricant for the blade is fed to the blade sliding slot directly from the lubricant reservoir through the lubricant feeder.

3,565,553

HERMETIC COMPRESSOR UNIT

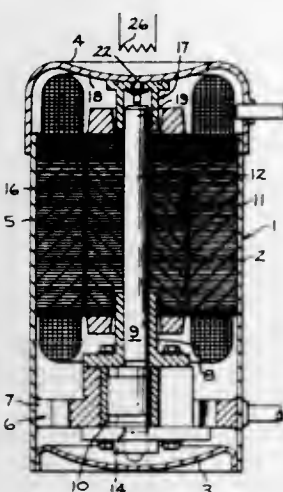
Dean C. Rinehart and Emmett G. Gardner, Louisville, Ky., assignors to General Electric Company, a corporation of New York

Filed Apr. 18, 1969, Ser. No. 817,471

Int. Cl. F04b 35/04

U.S. Cl. 417—424

5 Claims



A hermetic compressor comprising a casing containing a motor-compressor unit rigidly supported within the casing and including a shaft having an overhanging end portion carrying the motor rotor is provided with bushing means on a casing end wall for limiting lateral movement of the end of the shaft.

3,565,554

REINFORCED COMPRESSIBLE FLUID TRANSPORTING TUBE

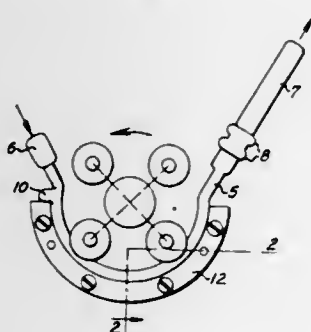
Wolf F. Muller, Southampton, N.Y., assignor to United States Catheter & Instrument Corporation, Glens Falls, N.Y., a corporation of Delaware

Filed Aug. 26, 1969, Ser. No. 855,459

Int. Cl. F04b 43/12

U.S. Cl. 417—477

5 Claims



This invention is directed to an arcuate compressible fluid transporting tube having a reinforcing rib attached on one side with a chain embedded therein and especially adapted as a part of an infusion pump having impeller rollers to drive fluid through the tube.

3,565,555

MANUAL DELIVERY PUMP

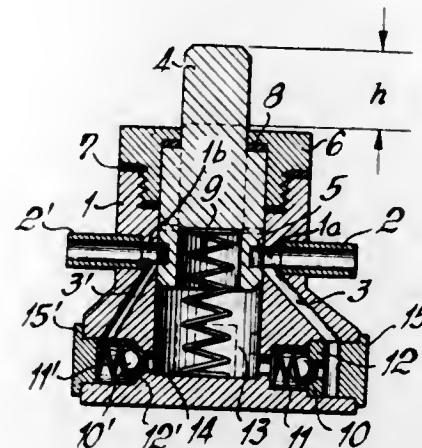
Tetsuji Akashi, Azenishi, and Takuji Isomura and Nizo Enomoto, Kariya-shi, Japan, assignors to Nippon-denso Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan

Filed Aug. 4, 1969, Ser. No. 847,056

Int. Cl. F04b 21/02

U.S. Cl. 417—568

3 Claims



In a manual delivery pump disposed in a fuel line that leads from a fuel tank to a fuel injection pump, a pump inlet and a pump outlet are connected directly through a bypass when the manual pump is not operating; said bypass is closed and said inlet is connected to said outlet through the pump work chamber of said manual delivery pump when the latter is operating.

3,565,556

ROTARY INTERNAL COMBUSTION ENGINE

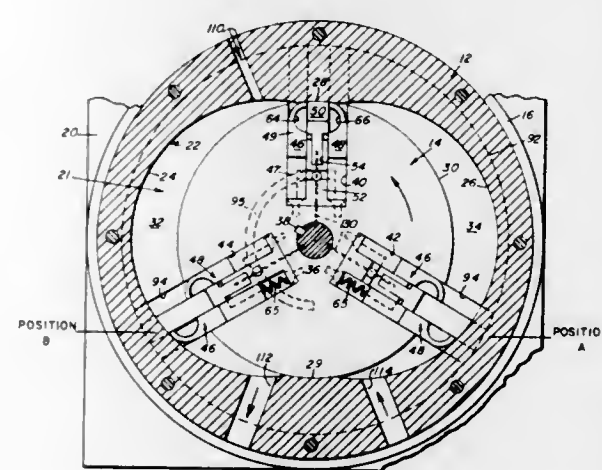
Lawrence E. Leas, Simi, Calif., assignor to Energy Research Corporation of America, Columbia City, Ind., a corporation of Delaware

Filed Nov. 29, 1968, Ser. No. 780,055

Int. Cl. F02b 53/00

U.S. Cl. 418—156

7 Claims



An engine comprised of a casing having an elliptical chamber, a cylindrical rotor within said chamber and defining first and second crescent-shaped chambers therewith, sets of vanes slidably received in said rotor and cooperating with the interior surface of said chambers to sequentially form intake, compression, combustion and exhaust chambers therebetween, and control means for varying the compression ratio between said vanes, fuel inlet passageway through said casing communicating with

said combustion chamber, and an air inlet passageway through said casing communicating with said intake chamber.

3,565,557

REVERSIBLE ROTARY PUMP WITH VANE FLEXING AND SHIFTABLE CAM

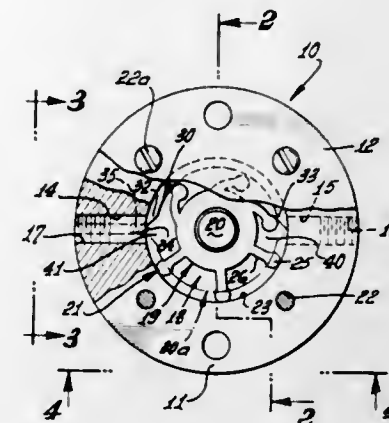
John L. Haas, Rowland Heights, Calif., assignor to Collins Machinery Corporation, Monterey Park, Calif., a corporation of California

Filed Feb. 3, 1969, Ser. No. 795,979

Int. Cl. F04c 15/04, 15/00

U.S. Cl. 418—32

9 Claims



The disclosed reversible rotary pump employs an impeller having vanes adapted to flex and unflex during rotation over an arcuate cam which is bodily displaced by the flexing vanes between positions corresponding to flow of pumped fluid through the pump.

3,565,558

ROTARY PUMP WITH SLIDING VANES

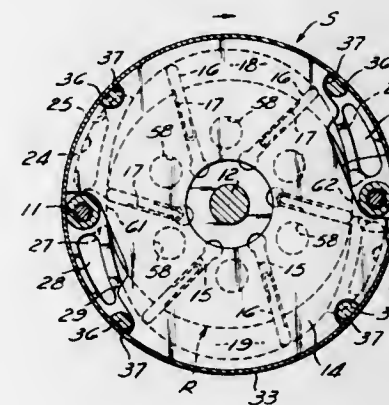
Leo Tobacman, University Heights, Ohio, assignor to Airborne Mfg. Co., Elyria, Ohio

Filed Jan. 31, 1969, Ser. No. 795,581

Int. Cl. F04c 1/00, 15/00

U.S. Cl. 418—150

14 Claims



A rotary pump having sliding vanes carried in axially extending slots in a rotor which turns in a two lobe stator. The surface of each lobe has sequential segments contoured to achieve maximum volumetric displacement within a relatively small stator and also to minimize the stresses occurring in the vanes and rotor during vane extension and retraction while moving circumferentially around a lobe surface to reduce wear and to extend pump life. The pump construction permits assembly and securing of the end plates and other components of the pump using only two threaded fasteners turned into diametrically opposite axially extending openings in the stator wall.

3,565,559

PROCESS FOR MAKING MICROCAPSULES

Nobuyasu Sato, Itami-shi, Toshio Nakamura, Ibaragi-shi, and Ryota Oishi, Hirakata-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan, a corporation of Japan

No Drawing. Filed Mar. 6, 1969, Ser. No. 805,031

Claims priority, application Japan, Mar. 11, 1968, 43/16,030

Int. Cl. A61k 9/04; B01j 13/02; B44d 1/02

U.S. Cl. 424—37

7 Claims

Process of making microcapsules of active chemical substances, for example, to prevent vitamin A from air-oxidation, coating pigment particles in carbonless paper, etc., which consists of (1) forming an aqueous emulsion or suspension of the active chemical substance, (2) adding an aqueous solution of a gelable hydrophilic substance and then surface active agent and dispersing a liquid solvent immiscible with the said emulsion or suspension or (2') dispersing a mixture of the surface active agent and the liquid solvent into the aqueous emulsion or suspension, to form a dispersion at a temperature above a gelatin point of the emulsion or suspension, (3) adding a solvent miscible with the above-said solvent but immiscible with the emulsion or suspension or (3') raising the dispersion temperature to an inversion temperature or (3'') in case the used surface active agent is mono-valent metallic and adding an aqueous solution containing multi-valent metallic ion, to inverse the dispersion phase to form droplets, (4) stirring, (5) cooling to the above said gelation point to cause the droplets to form microcapsules, (6) adding an aqueous electrolyte solution to harden the microcapsules, (7) adding water-absorptive substance to coat the microcapsules or (7') washing and dehydrating the microcapsules by lower alkyl alcohols, (8) filtering to separate the microcapsules, and (9) drying the microcapsules.

3,565,560

PHARMACEUTICAL PREPARATION CONTAINING HYDROFURAMIDE AND METHOD OF USING IT

Frederick W. Proewig, 3359 Demott Place, Wantagh, N.Y. 11793

No Drawing. Filed July 16, 1968, Ser. No. 745,109

Int. Cl. A61k 27/00

U.S. Cl. 424—285

6 Claims

Hydrofuramide causes, on oral administration, an increase in the cholinesterase blood level, an increase in the albumen level in the serum, a lowering of the blood viscosity, and an increase of the speed of the circulating blood and thus has proved to be of value in the therapy of all disorders and diseases which are accompanied by decreased cholinesterase blood level, albumen level in serum, and speed of blood flow and increased blood viscosity. Daily doses between 0.45 g. and 1.35 g. and single doses between 0.1 g. and 1.0 g. and preferably between 0.3 g. and 0.45 g. have proved to be therapeutically effective, for instance, in alcoholism, cirrhosis of the liver, angina pectoris, hypothyreosis, polycythemia, arteriosclerosis, and others.

3,565,561

GAS BURNING CIGARETTE LIGHTER

Hans Lowenthal, London, and William Retzler, Woodend, Wickham, England, assignors to Tetra Moletric Limited, London, England, a British company

Filed Mar. 17, 1969, Ser. No. 807,554

Claims priority, application Great Britain, Mar. 26, 1968, 14,554/68

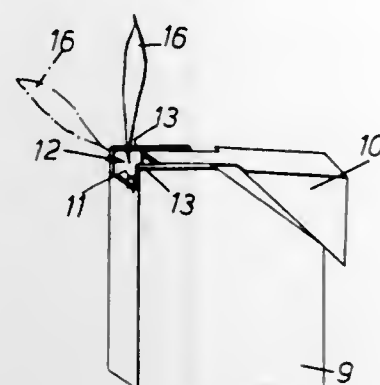
Int. Cl. F23g 2/16, 2/28

U.S. Cl. 431—130

6 Claims

The invention is concerned with a gas burning cigarette lighter of the kind in which the gas is ignited at a burner nozzle by means of electrical sparking between electrodes in an ignition zone downstream of the burner nozzle. The

lighter has an actuating member which is movable upon manual depression against spring action from a rest position to an operating position and this movement causes a burner valve to be opened so that fuel gas issues from the burner nozzle and a spark to be produced in the ignition zone so that the gaseous fuel is ignited in the ignition zone. A front end of the actuating member occupies the



ignition zone and overlies the burner nozzle when in the rest position and is withdrawn to reveal the burner nozzle and to create the ignition zone when moved to its operating position. The front end of the actuating member then defines one lateral boundary of the ignition zone at least one other side of which is then completely open to the atmosphere without any obstruction.

ERRATA

For Classes 119-18 thru 356-122 see:
Patent Nos. 3,565,563 thru 3,565,569

3,565,562

APPARATUS FOR BURNING AWAY OIL PRODUCED BY AN OIL WELL

Jean Auguste Prosper Drivet, St.-Germain-en-Laye, Yvelines, France, assignor to Societe Auxiliaire des Producteurs de Petrole Flopetrol (Societe Anonyme), Paris, France

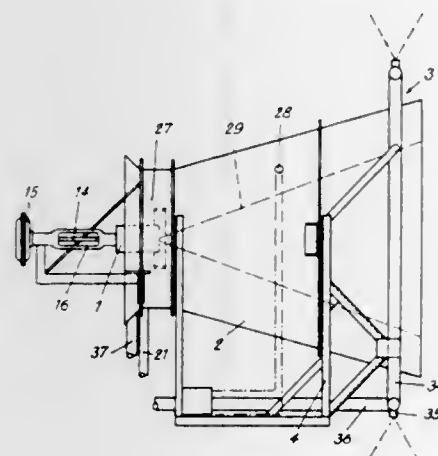
Filed Feb. 27, 1969, Ser. No. 802,989

Claims priority, application France, Nov. 6, 1968, 172,667

Int. Cl. F23m 9/00

U.S. Cl. 431-184

8 Claims



A device for burning away waste crude oil produced when investigating or testing oil wells comprises a burner connected to the oil well head and having a spraying assembly for atomizing the oil to be burnt and mixing it with air for improving the combustion. The oil penetrates

tangentially within a chamber through large channels permitting the passage of relatively large solid particles, an obturator or valve member being slidably located within said chamber. This obturator cooperates with a seat opening into a nozzle combined with air inflow tangential channels. Said burner is located coaxially with respect to a furnace. The exit of said furnace is surrounded with an annular tube provided with water-spraying nozzles directed radially or at an angle outwardly to provide a water shield as a protection against the heat produced by the combustion of the oil.

3,565,563

APPARATUS FOR HOUSING, HANDLING AND TREATING ANIMALS

Kurt Radach, Kuchen, Württemberg, Germany, assignor to Alfred Heinkel & Co., KG, Metallwarenfabrik, Stuttgart-Zuffenhausen, Germany

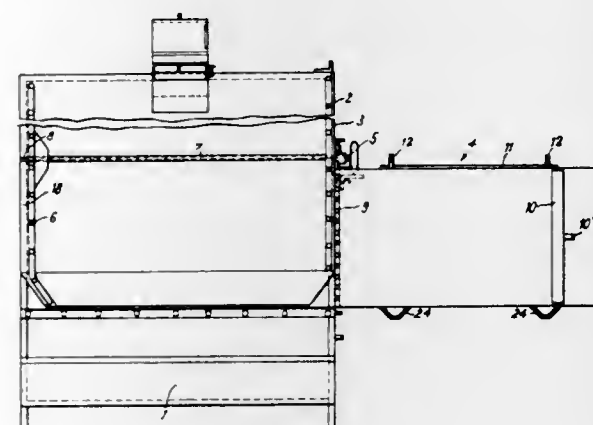
Filed Oct. 25, 1968, Ser. No. 770,746

Claims priority, application Austria, May 15, 1968, A 4,681/68

Int. Cl. A01k 31/00

U.S. Cl. 119-18

7 Claims



Apparatus for the housing, handling and treatment of animals, particularly animals kept for experimental purposes, including a storage cage having a front wall portion, a part of which is displaceable to define an opening therein at least large enough for the passage therethrough of the animal, and a rear wall portion which is displaceable in the direction of the front wall portion, a transfer cage adapted to cooperate with the storage cage and having a front wall portion which may be opened to receive or discharge an animal when the front wall portion of the storage cage is similarly opened to permit passage of an animal, said transfer cage having a rear wall portion which is displaceable toward the front wall thereof, a feeding device adapted to be inserted in an opening provided in the top of the storage cage, which feeding device is constructed so as to meter the food deposited therein by means of controls positioned externally of the storage cage.

3,565,564

FLUIDIC APPLIANCE FOR ALTERNATELY FILLING AND EMPTYING AN ENCLOSURE

Cyrille Francois Pavlin, Saclay, Edouard Maurice Eugene Aime Mace, Meudon, la Foret, and Marcel Kadosch, Paris, France, assignors to Bertin & Cie, Plaisir, France, a company of France

Continuation-in-part of application Ser. No. 475,696, July 29, 1965. This application Mar. 21, 1968, Ser. No. 714,861

The portion of the term of the patent subsequent to June 25, 1985, has been disclaimed

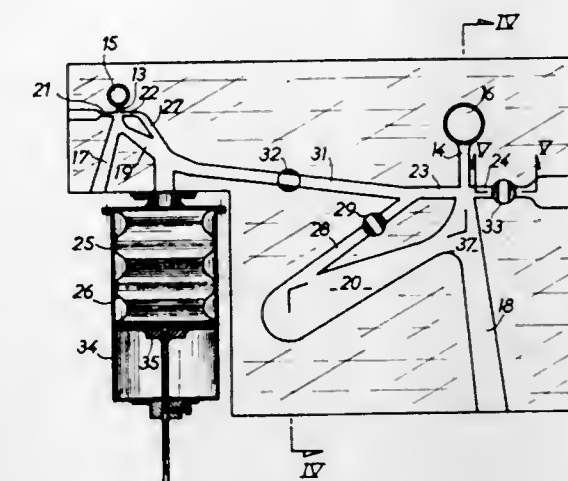
Int. Cl. A62b 7/02

U.S. Cl. 128-145.5

9 Claims

An appliance, chiefly a respirator adapted to exert an alternating pressure and suction, for instance in a

patient's lungs, of the type including a nozzle projecting a jet which is periodically deflected between an exhaust pipe and an utilisation chamber leading to the patient's lungs or any other suitable capacity. The rhythm of said deflection is caused to suit a predetermined rhythm such



as that of the patient's lungs. To this end, an auxiliary deformable capacity is connected with a duct opening into the output of the nozzle in registry with another duct leading to the atmosphere. It is possible to control the appliance by a similar pilot appliance connected with the auxiliary deformable chamber.

3,565,565

APPARATUS FOR CLASSIFYING PATTERNS BY FREQUENCY ANALYSIS OF DIFFRACTION IMAGES

Colin David Reid, Newbury, England, assignor to United Kingdom Atomic Energy Authority, London, England

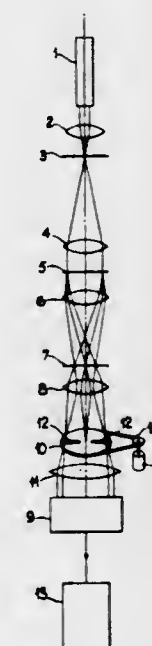
Filed Apr. 26, 1967, Ser. No. 633,809

Claims priority, application Great Britain, Oct. 12, 1966 45,704/66

Int. Cl. G06k 9/00

U.S. Cl. 356-71

9 Claims



The apparatus uses a beam of collimated light e.g. from a laser, to produce a diffraction image of the pattern, e.g. a transparent fingerprint. This image is cyclicly

scanned by a light filter, e.g. a disc having two co-linear radial slits, and the transmitted light converted to a cyclicly varying electrical signal. The signal is analysed for its content of a given fundamental frequency and several harmonics, in order to classify the pattern by its relative proportions of each frequency.

3,565,566

ALIGNING DEVICE FOR REAR VISION MIRROR

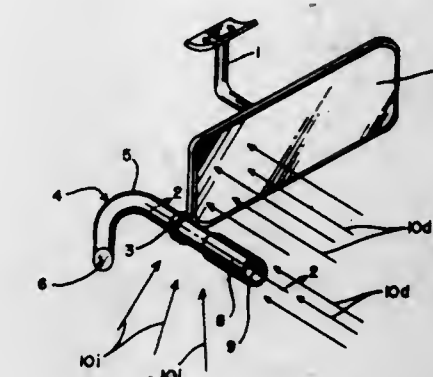
Robert Wetzel, Box 280, R.D. 1, Bath, Pa. 18014

Filed July 18, 1967, Ser. No. 654,266

Int. Cl. G01b 11/27; G02b 5/08

U.S. Cl. 356-72

7 Claims



Rear vision mirrors for motor vehicles are provided with visual indicating means to enable the operator to position the plane of the mirror perpendicularly to a beam of light impinging on the mirror.

3,565,567

METHOD OF AND APPARATUS FOR MEASURING THE PRESENCE AND/OR CONCENTRATION OF AN ELEMENT IN AN ATOMIC VAPOR

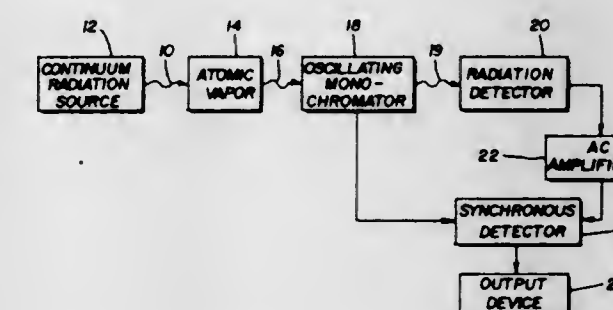
Stephen D. Rains, Henrietta, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York

Filed June 25, 1968, Ser. No. 739,853

Int. Cl. G01j 3/30, 3/12

U.S. Cl. 356-87

27 Claims

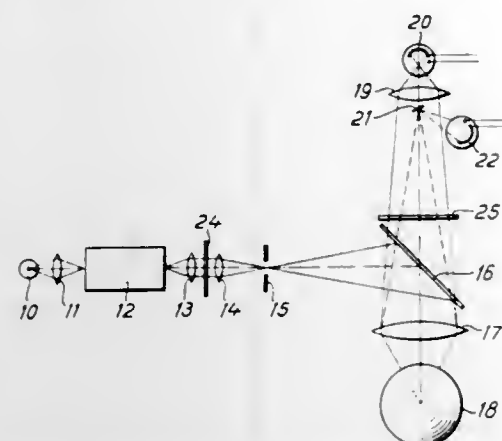


A beam of radiation from a continuum source is directed through an atomic vapor. A radiation sensitive detector monitors the radiation from the atomic vapor. A modulator is included so that the detector receives a wavelength modulated signal that periodically includes the wavelength of the spectral line characteristic of the element tested. The radiation sensitive detector generates a signal indicating the presence and/or concentration of the element by determining the amount of radiation absorbed, or the intensity of atomic fluorescence emitted.

3,565,568
**METHOD AND APPARATUS FOR ASCERTAINING
 GEOMETRIC DEVIATIONS FROM AN IDEAL
 SURFACE BY OPTICAL MEANS**

Fromund Hock, Wetzlar, Germany, assignor to Firma Ernst Leitz G.m.b.H., Wetzlar, Germany
 Filed Nov. 2, 1967, Ser. No. 680,159
 Claims priority, application Germany, Nov. 10, 1966, L 55,021

Int. Cl. G01n 21/40, 21/48; G01b 11/30
 U.S. Cl. 356—118 5 Claims

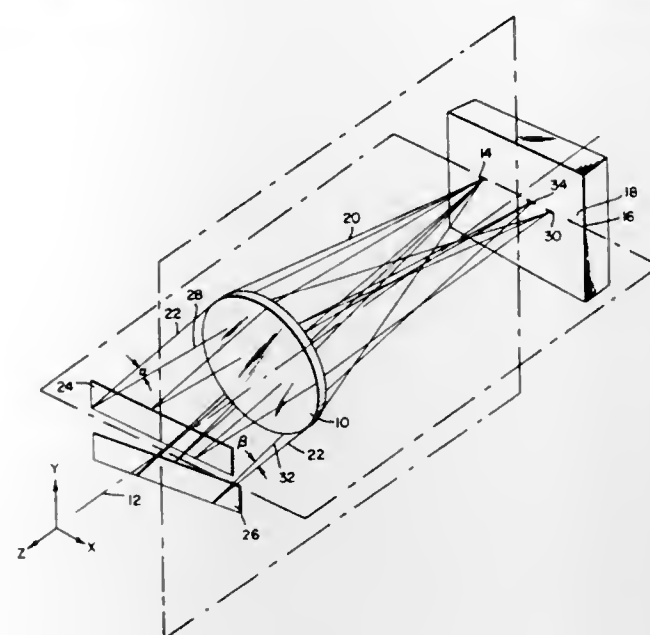


A method and apparatus for determining the size of geometric deviations of a reflecting surface from an ideal surface comprising:

- exposing the reflecting surface to light rays of definite solid angle and image area;
- separating light reflected from the reflecting surface to a first component comprising light reflected regularly from the ideal surface, and a second component comprising light irregularly reflected and (or) scattered from deviations from the ideal surface; and
- determining the ratio or difference between the first component and the second component and recording the ratio or difference.

3,565,569
FOCUS DETECTOR
 Leonard Larks, West Covina, Calif., assignor to Hycon Mfg. Company, Monrovia, Calif.
 Original application Nov. 26, 1965, Ser. No. 509,963. Divided and this application Jan. 22, 1968, Ser. No. 699,690

Int. Cl. G01j 1/00
 U.S. Cl. 356—122 7 Claims



A method and apparatus for determining the focal status of an image producible by a camera, and for locating the camera's primary focal plane. An illuminated target positioned in the vicinity of the camera's primary focal plane and a pair of mirrors in a lens cap are utilized in combination with the camera lens in an autocollimation configuration, and individually viewable double images are produced having a vertical separation indicative of image focus.

CHEMICAL

3,565,570
**20 TO 50% AQUEOUS CONCENTRATE OF TRI-
 METHYL QUATERNARY AMMONIUM METH-
 YLENE COPPER PHTHALOCYANINE**
 Chi K. Dien, Buffalo, N.Y., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Mar. 22, 1968, Ser. No. 715,189
 Int. Cl. C09b 67/00; D21h 1/46

U.S. Cl. 8—7 10 Claims
 Concentrated, fluid, aqueous solutions of trimethyl ammonium salts of polymethylene copper phthalocyanine of particular utility in the dyeing of paper and characterized by a high degree of water solubility and suitable viscosity properties.

3,565,571
**AGENTS FOR DYEING OF HUMAN HAIR WITH
 NONIONIC DIRECT DYES**

Günter Reese, Düsseldorf, Peter Berth, Düsseldorf-Benrath, and Karl-Josef Boosen, Düsseldorf-Holthausen, Germany, assignors to Therachemie Chemisch Therapeutische Gesellschaft m.b.H., Düsseldorf, Germany
 No Drawing. Filed Aug. 25, 1965, Ser. No. 482,582
 Claims priority, application Germany, Sept. 2, 1964, T 26,922

Int. Cl. A61k 7/12 4 Claims
 U.S. Cl. 8—10.1
 A process for the application of agents which improve the dyeing of hair, particularly living human hair, with nonionic direct dyes is disclosed. The hair is treated with

solutions, dispersions or emulsions of the following compounds:

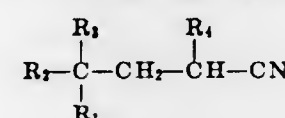
- carbonic acid or sulfurous acid esters of alkylene glycols having 2 to 4 carbon atoms;
- esters of aliphatic alcohols having 1 to 8 carbon atoms with saturated dicarboxylic acids having 2 to 8 carbon atoms and with aromatic carboxylic acids;
- pyridine derivatives;
- dithiohydantoin, tetrahydrothiophene dioxide; and mixtures thereof.

3,565,572
**PROCESS FOR THE DYEING OF SHAPED ARTICLES
 MADE OF POLYACRYLONITRILE**

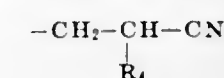
Joachim Schneider, Krefeld-Urdingen, Werner Langmann, Cologne-Flittard, and Hans Rudolph, Krefeld-Bockum, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Nov. 9, 1967, Ser. No. 681,922
 Claims priority, application Germany, Nov. 16, 1966, F 50,691; Mar. 2, 1967, F 51,694
 Int. Cl. D06p 5/04

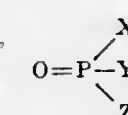
U.S. Cl. 8—171 3 Claims
 Process for dyeing polyacrylonitrile containing materials with basic dyestuffs wherein the dyeing is carried out in the presence of compounds of the formula



wherein R_1 , R_2 , and R_3 independently of one another are hydrogen, electron-attracting groups, alkyl, cycloalkyl, aryl, or



R_4 is hydrogen, CH_3 — or $-CH_2CH_2CN$; and wherein two of the radicals R_1 , R_2 or R_3 may be combined to form a cycloalkyl ring with the proviso that at least one of the radicals R_1 , R_2 , or R_3 is an electron-attracting group; and is followed by thermal aftertreatment. The process can also be carried out in the presence of phosphorous compounds of the formula

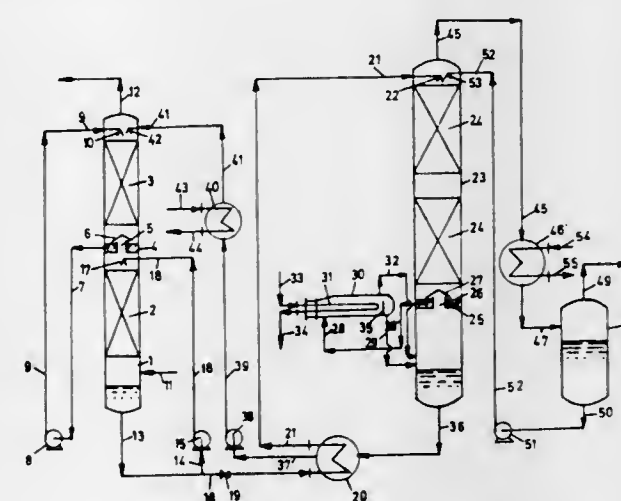


wherein X, Y and Z, independently of one another are optionally substituted alkyl, aryl, aralkyl, alkoxy, aryloxy and/or aralkoxy radicals and two of the substituents X, Y and Z may also form a heterocyclic five- or six-membered ring with the phosphorous atom.

ERRATUM

For Class 21—84 see:
 Patent No. 3,564,662

3,565,573
**REMOVAL OF ACIDIC GASES FROM
 GASEOUS MIXTURES**
 Harry Thirkell, Acklam, England, assignor to The Power-Gas Corporation Limited, Durham, England
 Filed Jan. 14, 1966, Ser. No. 520,602
 Claims priority, application Great Britain, Jan. 23, 1965, 3,063/65
 Int. Cl. B01d 53/00, 53/34
 U.S. Cl. 23—2 19 Claims

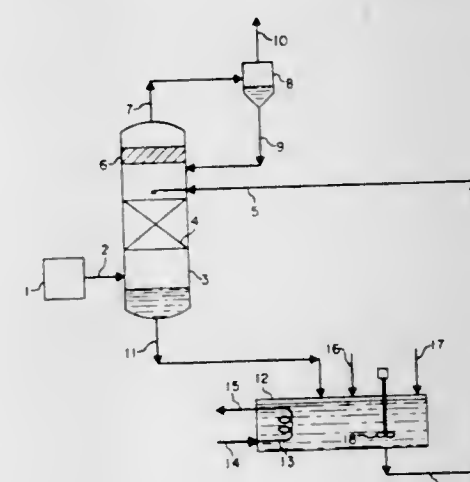


Acidic gases are removed from gaseous mixtures by passing the gaseous mixtures through an absorber in contact with an absorbent consisting of a solution of an alkanolamine or an aqueous solution of a strong base and a weak organic acid, the absorbent being provided with at least two separate zones of packing material and a portion of the absorbent liquor being separately recirculated through each separate zone, regenerating and cooling the absorbent liquor and passing the cooled regenerated absorbent liquor to the absorber at such a rate that the absorbent liquor leaving the absorber has a low pickup of acid gas.

3,565,574
**CATALYTIC CONVERSION OF EXHAUST
 GAS IMPURITIES**
 Kenneth K. Kearby, Watchung, and Harold N. Miller and Anantha K. S. Raman, Millington, N.J., and Joseph Vardi, New York, N.Y., assignors to Esso Research and Engineering Company, a corporation of Delaware
 No Drawing. Filed Apr. 23, 1968, Ser. No. 723,573
 Int. Cl. B01d 47/00

U.S. Cl. 23—2 4 Claims
 Exhaust gases are contacted with various unsupported metals and alloys thereof at elevated temperatures to catalytically convert the unburned hydrocarbons, carbon monoxide and nitrogen oxides contained therein. The catalysts maintain high activity and durability for long periods of time when used at temperatures in excess of 800° F. Exemplary catalysts are the metals of Groups I-B and IV to VIII of the Periodic System and various alloys thereof such as the nickel-, iron-, and copper-containing alloys, e.g., Inconel, stainless steel, Monel, etc.

3,565,575
**REMOVAL OF NITROGEN OXIDES
 FROM A GAS STREAM**
 Abe Warshaw, Matawan, N.J., assignor to Chemical Construction Corporation, New York, N.Y., a corporation of Delaware
 Filed May 22, 1968, Ser. No. 731,155
 Int. Cl. B01d 53/00
 U.S. Cl. 23—2 5 Claims



A gas stream containing nitrogen oxides, such as the tail gas from a nitric acid plant, is scrubbed with an aqueous urea solution. The nitrogen oxides dissolve in the solution to form nitrous acid, which reacts with the urea to form nitrogen, carbon dioxide and water. The resulting scrubbed gas stream is of reduced nitrogen oxides content and, in the case of nitric acid plant tail gas, may be safely discharged to the atmosphere without causing air pollution.

3,565,576
**PROCESS FOR PURIFYING HEXACHLOROIRIDIC
 ACID**
 Guy Pannetier, Sceaux, France, assignor to Centre National d'Etudes Spatiales, Paris, France, a company of France
 No Drawing. Filed Dec. 22, 1969, Ser. No. 887,330
 Claims priority, application France, Dec. 23, 1968, 180,118
 Int. Cl. C01g 55/00

U.S. Cl. 23—22 1 Claim
 A process for removing sodium chloride contained in commercial hexachloroiridic acid, which comprises a heat treatment of the impure acid with nitric acid, a precipitation of a complex hydroxide of tetravalent iridium

by adding ammonium hydroxide in the presence of hydrogen peroxide and a heat treatment of the washed precipitate with hydrochloric acid in order to obtain substantially pure hexachloroiridic acid.

3,565,577 METHOD FOR PRODUCING POTASSIUM NIOBATE CRYSTALS

Kurt Nassau, Bernardsville, John F. Puluka, Somerville, and John W. Shiever, Berkeley Heights, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Mar. 29, 1968, Ser. No. 717,219
Int. Cl. C01g 33/00

U.S. Cl. 23—20 6 Claims
Single crystals of KNb_2O_6 have been obtained from a melt containing an excess of K_2O over the stoichiometric amount. Such crystals exhibit excellent cleavage, flexibility, and dielectric properties which enable their use in high frequency, high voltage, high capacitance applications. Such crystals are also transparent to electromagnetic radiation within the visible and portions of the ultraviolet and infrared spectrums, and exhibit a high refractive index enabling their use as light guides.

3,565,578 METHOD OF TREATING SODIUM TETRABORATE SOLUTIONS

Kendrick R. Ellar, Whittier, Calif., and Alan D. Randolph, Gainesville, Fla., assignors to American Potash & Chemical Corporation, Los Angeles, Calif., a corporation of Delaware

No Drawing. Filed Mar. 27, 1968, Ser. No. 716,310
Int. Cl. B01d 9/02; C01b 35/00

U.S. Cl. 23—59 10 Claims
A method of treating an aqueous brine solution containing sodium tetraborate and fatty acids to remove the fatty acids from the brine. The brine solution is contacted with a quaternary ammonium compound to form an immiscible complex of the fatty acid and the quaternary ammonium compound. The immiscible complex is separated from the brine solution to thereby remove the fatty acids from the brine. Sodium tetraborate crystals subsequently crystallized out of the brine solution have a desirable crystal habit.

3,565,579 RECOVERY OF MAGNESIUM CHLORIDE DIHYDRATE

Richard L. Craig, E. A. Hunter, and Evan A. Mayerle, Lake Jackson, and Virgil L. Seale, Houston, Tex., assignors to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware

No Drawing. Filed Nov. 18, 1968, Ser. No. 776,793
Int. Cl. C01f 5/30, 5/34

U.S. Cl. 23—91 5 Claims
In the so-called "Nalco-Freeport" process for the production of organolead compounds by the electrolytic decomposition of a sacrificial lead anode utilizing a mixture of anhydrous oxygenated solvents consisting preferably of the diethylether of tetraethylene glycol (DETEG) and tetrahydrofuran (THF) in the operable ratio of 25–50/75–50; a preferred ratio of 30–40/70–60 and an optimum value of 35/65 by weight percent, with the consequent byproduct of anhydrous magnesium chloride (MgCl_2), the step and improvement which consists of separating and recovering magnesium values by treatment of the magnesium chloride with stoichiometric amounts of water to form a magnesium chloride higher hydrate precipitate ($\text{MgCl}_2 \cdot x\text{H}_2\text{O}$ where x equals about 4 to 6 mols of water per mol MgCl_2). A preferred

species of titration agent comprises a ratio of $\text{H}_2\text{O}/\text{THF}$ of about 25–50/75–50, and an optimum ratio of about $\text{H}_2\text{O}/\text{THF}$ of 35/65 in weight percent, separating a higher hydrate precipitate from the solvent mix and recovering and heating higher hydrate at about 160–180° C. to remove water and reduce the hydration value, and recovering $\text{MgCl}_2 \cdot 2\text{H}_2\text{O}$, the commercial dihydrate which is input to a cell for the production of magnesium metal.

3,565,580 PROCESS FOR THE MANUFACTURE OF RUTILE PIGMENTS WITH ROUNDED-OFF PARTICLE FROM TITANIUM CHLORIDE SOLUTIONS

Edgar Klein, Odenthal, Achim Kulling, Opladen, Rudiger Paul, Leverkusen, and Helmut Steinhausen, Odenthal, Germany, assignors to Titangesellschaft m.b.H., Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Feb. 10, 1969, Ser. No. 798,134
Claims priority, application Germany, Feb. 17, 1968, P 16 67 857.2

Int. Cl. C01g 23/04, 23/06

U.S. Cl. 23—202 2 Claims
The invention is concerned with a process for the manufacture of rounded-off rutile pigment particles by the hydrolysis of hydrochloric acid solutions containing titanium chloride solutions, which contain less than 0.2% silicic acid.

3,565,581 PRODUCTION OF HYDROGEN PEROXIDE IN THE ANTHRAQUINONE PROCESS USING A NOVEL CATALYTIC FIXED BED

Nathan D. Lee, Lambertville, N.J., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed May 16, 1968, Ser. No. 729,561
Int. Cl. C01b 15/02; C07c 49/68

U.S. Cl. 23—207 8 Claims
In the process of producing hydrogen peroxide by the anthraquinone process in which an anthraquinone compound is dissolved in one or more solvents to form a working solution and alternately catalytically hydrogenated and oxidized, an improvement in the catalytic hydrogenating stage is obtained by passing hydrogen and said working solution in contact with each other through a fixed catalyst bed made up of alternate sections of catalyst particles separated by sections containing non-catalyst packing; the sections containing non-catalyst packing act as dissolving zones and enhance dissolution of hydrogen in the working solution prior to these reactants entering adjacent catalyst sections.

3,565,582 METHODS AND MEANS FOR HANDLING BLOOD TEST SPECIMENS

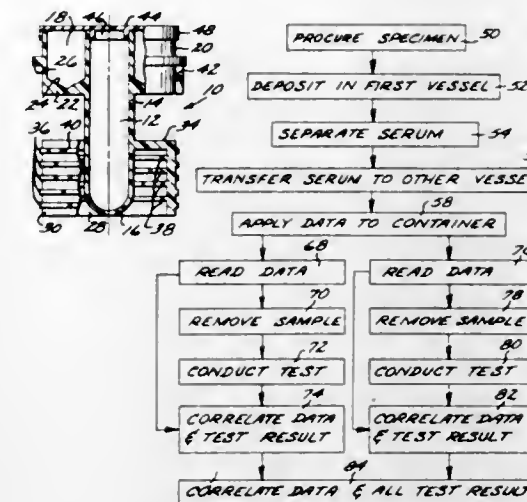
Robert R. Young, 2422 Level Ave., Anaheim, Calif. 92804

Filed Nov. 30, 1967, Ser. No. 686,983
Int. Cl. B01l 3/00; G01n 33/16

U.S. Cl. 23—230 12 Claims
Method of handling blood specimens in a blood testing routine and apparatus by which the method may be practiced. In the method, blood placed in one vessel of a dual vessel container is centrifuged to separate serum from the remainder of the blood constituents. Identifying data in the form of physical information is applied to the container. Thereafter, serum is drawn from the vessel in which separation was conducted and is deposited in the other vessel. Subsequently, serum is withdrawn from that other vessel and is tested, the test information being recorded and correlated with the data applied to the container.

One form of container suitable for use in the invention is described together with a carousel and pumping and

testing units. These elements are coordinated such that data identifying the sample is correlated with successively



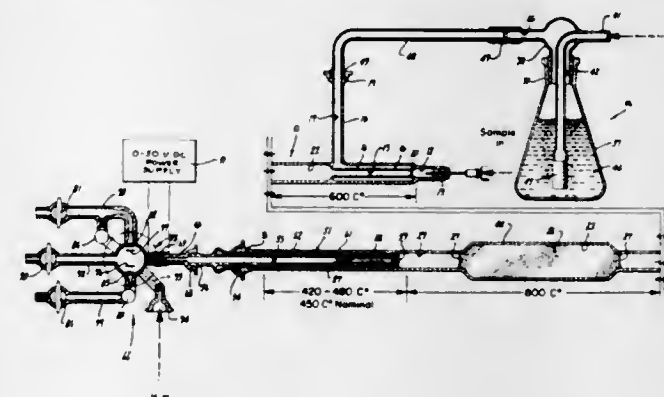
conducted tests in a means for recording that information in composite form.

3,565,583 METHOD AND APPARATUS FOR DETERMINA- TION OF NITROGEN IN WATER AND IN OXY- GENATED HYDROCARBON MATRICES

James A. McNulty, Belmont, and Robert T. Moore, Palo Alto, Calif., assignors to Dohrmann Instruments Company, Mountain View, Calif., a corporation of California

Filed Jan. 15, 1968, Ser. No. 697,901
Int. Cl. G01n 27/42, 31/08, 31/12

U.S. Cl. 23—230 2 Claims



Method and apparatus for the determination of nitrogen in water and in oxygenated hydrocarbon matrices in which the sample is volatilized and thereafter pyrolyzed by the use of a catalyst. After pyrolysis, acidic type gases including CO_2 are removed and thereafter an electrochemical determination is made to determine whether a nitrogen compound is present in the residual gas. In the apparatus, a specific type of scrubber is utilized for removing the acidic type gases including CO_2 from the products of pyrolysis.

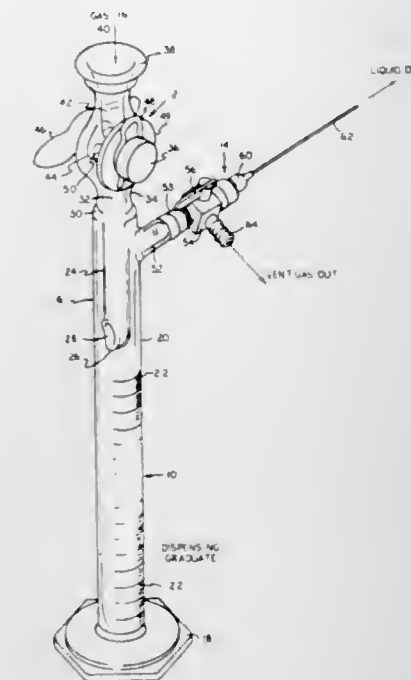
3,565,584 GAS LIQUEFICATION AND DISPENSING APPARATUS

T.O. Paine, Acting Administrator of the National Aeronautics and Space Administration, with respect to an invention of Stanley M. Hirshfield, Canoga Park, Calif.

Filed Nov. 29, 1968, Ser. No. 780,064
Int. Cl. B01l 5/00; F28d 1/02

U.S. Cl. 23—259 3 Claims
An apparatus for condensing a reagent gas and volumetrically dispensing the resultant liquid under isolation conditions is disclosed. The apparatus comprises a volumetrically calibrated transparent container such as a

graduate having a side branch liquid outlet arm. An inlet gas assembly communicates with an elongated inlet tube having an opening below the outlet arm which serves to isolate the liquid from the inlet valve and



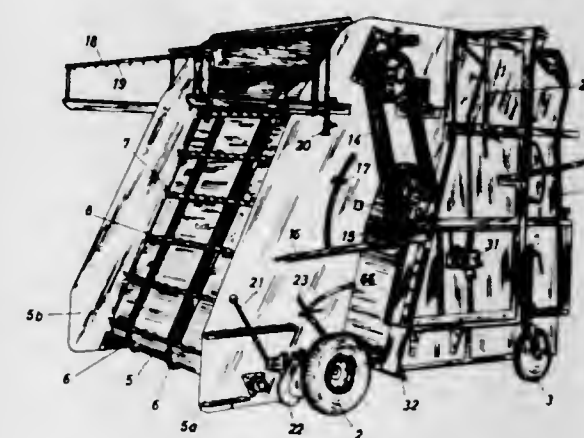
introduces the gas below the coolant level and below the outlet arm. The graduate is immersed in coolant during collection of liquid reagent. The outlet terminates in a needle nozzle which pierces a septum placed over the recipient vessel for the dispensed liquid reagent.

3,565,585 CONVERTING MACHINE FOR COMPOST

Paul Engeler, 5 Am Steinkreuz, 4401 Saerbeck, Westphalia, Germany

Filed Oct. 31, 1968, Ser. No. 772,249
Int. Cl. C05f 11/06

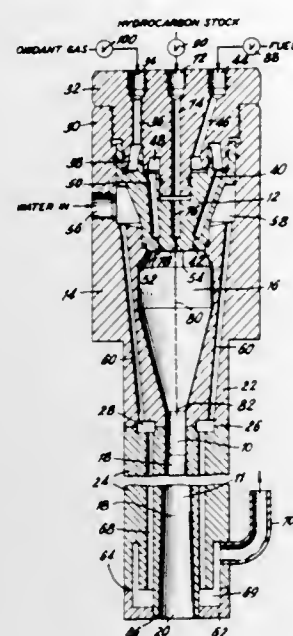
U.S. Cl. 23—259.1 14 Claims



A converting machine for compost is arranged to be moved longitudinally in the loading-unloading direction and also in the transverse direction. At the forward end of the machine a conveyor, having prongs or tooth-like members extending perpendicularly from its surface, conveys material in an upwardly sloping direction to the upper end of a discharge passage. Means are provided for mixing air and water into the compost material prior to its delivery into the discharge passage. The discharge passage contains means for regulating the manner in which the material is discharged from the machine.

3,565,586

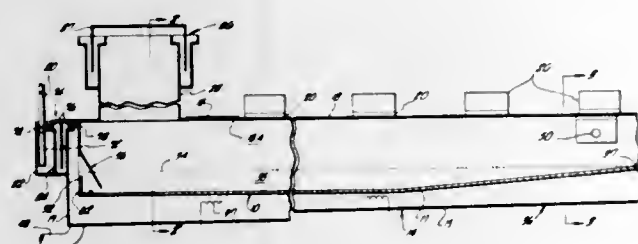
APPARATUS FOR PRODUCING CARBON BLACK
 Kazuo Kiyonaga, Newark, N.J., assignor to Union Carbide Corporation, a corporation of New York
 Continuation-in-part of application Ser. No. 543,878, Apr. 20, 1966. This application Apr. 10, 1967, Ser. No. 629,601
 Int. Cl. C09c 1/48, 1/52; C10b 47/04
 U.S. Cl. 23—259.5 7 Claims



A burner suitable for the manufacture of carbon black comprises an internal combustion chamber communicating axially at its discharge end with a processing chamber. The burner operates by having fluid hydrocarbon stock injected axially as a continuous coherent stream from the inlet end of the combustion chamber through such chamber and into the processing chamber where a constricted, high velocity stream of hot combustion products disperse, shear and pyrolyze the hydrocarbon feed stock to form carbon black. Use of a water-cooled, heat conductive metal body which forms the walls of both the combustion and processing chambers permits use of very high operating temperatures.

3,565,587

LIQUID SEALED GAS TIGHT DISSOLVER WITH VIBRATING TRAY MEANS
 Walter A. Graf, Jr., Saratoga, Calif., assignor to General Electric Company, New York, N.Y., a corporation of New York
 Filed Oct. 31, 1966, Ser. No. 590,936
 Int. Cl. B01d 11/00
 U.S. Cl. 23—267 8 Claims

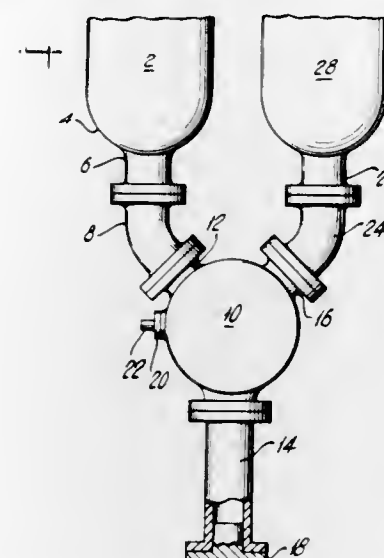


A leacher-conveyor which continuously moves solid material through a bath which dissolves soluble portions of the solid material is disclosed. The leacher-conveyor includes at least one inclined tray partially immersed in the bath within a tank. The tray is vibrated to agitate the solid material and gradually move it from a receiving section to a discharge system. A tank cover secured to the tray is included. A gas tight seal is provided between the cover and the tank, to prevent the emission of possibly toxic gases or vapor. This seal permits slight relative

movement between the cover-tray assembly and the tank, so that the cover and tray may be vibrated as a unit by vibrating means mounted on the cover.

3,565,588

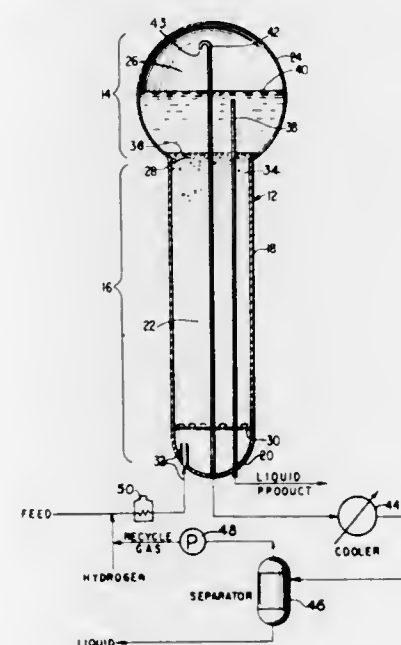
GAS GENERATOR AND WASTE HEAT BOILER INTERCONNECTED SYSTEM
 Blake Reynolds, Riverside, Conn., and Charles P. Marion, Mamaroneck, N.Y., assignors to Texaco Development Corporation, New York, N.Y., a corporation of Delaware
 Filed June 24, 1968, Ser. No. 739,418
 Int. Cl. C10b 1/00; C10g 11/28, 13/30
 U.S. Cl. 23—277 9 Claims



A system comprising a generator for synthesis gas and a waste heat boiler interconnected by a plenum with or without a separable catchpot at the hemispherical ends thereof for removal of slag and other debris from the gas-generator effluent synthesis gas between the generator exit and the waste-heat-boiler entrance.

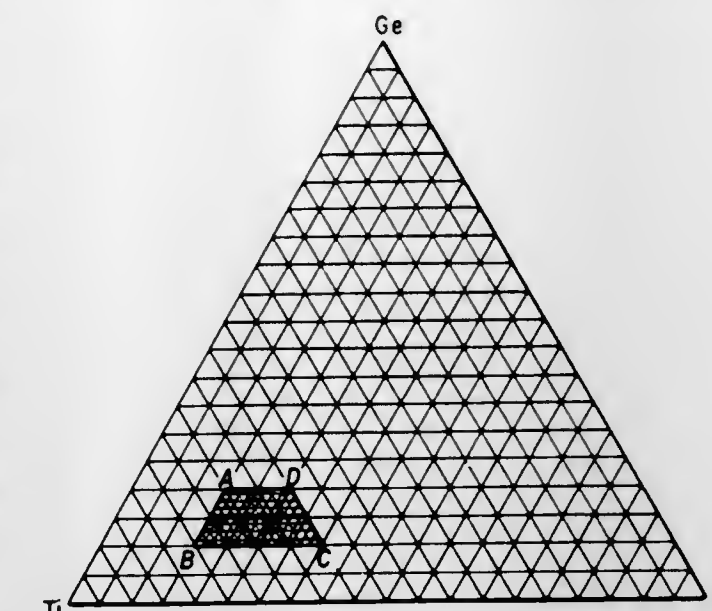
3,565,589

UPFLOW CATALYTIC HYDROTREATING REACTOR
 Norman C. Stewart, Kendall Park, and Lester M. Rapp, Highstown, N.J., assignors to Cities Service Research and Development Company, New York, N.Y., a corporation of Delaware
 Filed Oct. 28, 1968, Ser. No. 771,228
 Int. Cl. B01j 9/12, 9/16, 9/20
 U.S. Cl. 23—289 1 Claim



A process for hydrotreating a heavy hydrocarbon oil and a high pressure, high temperature reactor vessel for

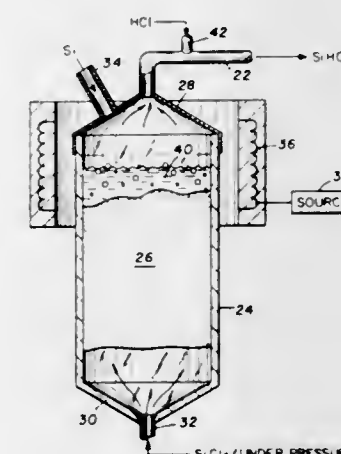
practicing the process is disclosed herein. The reactor is constructed of a vertically mounted cylindrical shell with a spherical shell attached to the upper end of the cylindrical shell. Preferably a transverse grid is mounted in the lower end of the cylindrical shell with a feed conduit opening into the cylindrical shell below the grid, and liquid withdrawal and gaseous effluent conduits extending into the reactor and opening in the spherical shell respectively below and above the liquid reactant level in the reactor. Apparatus and process are also shown for separating liquid components from the effluent and recycling separated gases, principally hydrogen, to the reactor feed conduit. The process includes treating a hydrocarbon liquid with a hydrogen-containing gas at high pressure and high temperature (i.e., above 658° F. and 1000 p.s.i.g.) in the presence of a finely divided particulate catalyst by passing upwardly in the vessel a mixture of the liquid and gas through the particulate catalyst at a flow velocity sufficient to maintain the catalyst in an expanded state, and subsequently reducing the upward flow velocity of the mixture to below that which the liquid and particulate catalyst material are carried upward by the gas, by increasing the cross-sectional area of the flow.



loying ingredient, said brazing alloy consisting essentially of, by weight, 55 to 75 percent titanium, 15 to 35 percent zirconium, and 10 to 20 percent germanium.

3,565,590

METHOD AND APPARATUS FOR PRODUCING TRICHLOROSILANE
 Ronald C. Bracken, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
 Filed July 11, 1968, Ser. No. 744,105
 Int. Cl. B01j 7/00; C01b 33/02, 33/08
 U.S. Cl. 23—366 5 Claims



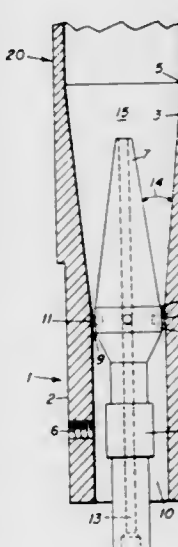
Trichlorosilane is produced in a reactor packed with a porous mass of sintered silicon particles. A furnace surrounding the upper end of the reaction chamber melts the top portion of the porous mass to form a pool of molten silicon. By flowing silicon tetrachloride through the porous mass, a reaction takes place within the reactor when the SiCl₄ contacts the molten silicon. This reaction produces silicon dichloride. To produce trichlorosilane, the silicon dichloride is reacted with HCl downstream of the reactor output.

3,565,591

TITANIUM-ZIRCONIUM-GERMANIUM BRAZING ALLOY
 Domenic A. Canonico, Oak Ridge, Nancy C. Cole, Knoxville, and Clarence W. Houck, Lake City, Tenn., assignors to the United States Atomic Energy Commission
 Filed Mar. 28, 1969, Ser. No. 811,319
 Int. Cl. B32b 15/04; C22c 15/00
 U.S. Cl. 29—195 2 Claims

This invention relates to a new and improved ternary alloy having particular utility in brazing parts made of graphite or a refractory metal selected from the group

A converging-diverging nozzle type gas distributor for a fluidized bed reactor provides great flexibility in the control of fluidizing gas flow and is particularly applicable to high temperature processing and reaction of solids.



3,565,592

POLYCARBOXYLIC ACID SALTS OF ALKYLENE NITROGEN COMPOUNDS AS FUEL DETERGENTS
 Enver Mehmedbasich, 2061 Key Blvd., El Cerrito, Calif. 94530
 Filed Nov. 14, 1968, Ser. No. 775,716
 Int. Cl. C10I 1/22 13 Claims

Aliphatic polycarboxylic acid salts of amine nitrogen containing compounds find use as fuel detergents having improved water tolerance.

3,565,593

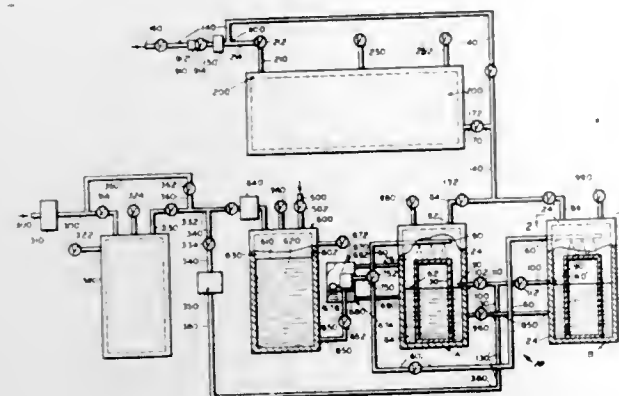
CONVERGING-DIVERGING TYPE GAS-SOLIDS FLUIDIZER AND METHOD OF USE
 Albert S. Moore, Jr., Morgantown, W. Va., assignor to the United States of America as represented by the Secretary of the Interior
 Filed Oct. 14, 1968, Ser. No. 767,366
 Int. Cl. B01j 9/18; C10j 3/46; F27b 15/00
 U.S. Cl. 48—73 14 Claims

3,565,594

GASOLINE VAPOR GENERATOR
Normand A. Hill, Canton, S. Dak. 57013
Filed Nov. 22, 1968, Ser. No. 778,193
Int. Cl. B01f 3/02

U.S. Cl. 48—180

4 Claims



A fuel vapor generator in which highly volatile liquid fuel such as gasoline is caused to evaporate by mixing it with moving air to produce a resultant combustible mixture of fuel vapor and air.

3,565,595

PRODUCTION OF POWDERED CRISTOBALITE
Philip Hedley Gaskell, Chorley, and Francis John Grove, St. Helens, England, assignors to Pilkington Brothers Limited, Liverpool, Lancashire, England, a corporation of Great Britain
No Drawing. Filed Mar. 18, 1968, Ser. No. 714,088
Claims priority, application Great Britain, Mar. 23, 1967, 13,817/67

Int. Cl. C03b 33/00

U.S. Cl. 65—21

6 Claims

Powdered silica, in the form of iron-free powdered cristobalite, for use as a glass match material is produced by heating quartz aggregate to produce cristobalite crystals, pulverizing the crystals without contamination, and leaching iron from the crystals.

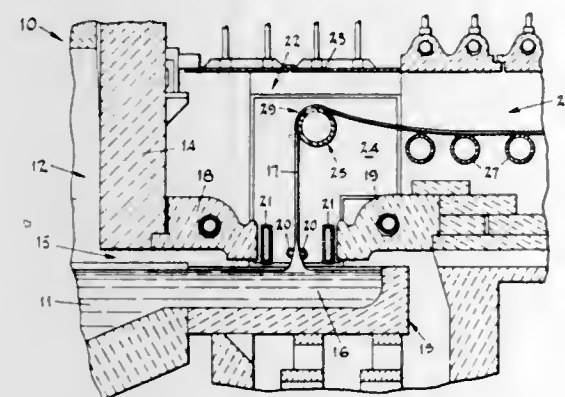
3,565,596

APPARATUS FOR CREATING A GAS FILM OVER A CURVED SURFACE SUPPORTING A GLASS RIBBON

William E. McCown and Eugene H. Heimrich, Toledo, Ohio, assignors to Libbey-Owens-Ford Company, Toledo, Ohio, a corporation of Ohio
Filed Aug. 30, 1967, Ser. No. 664,519
Int. Cl. C03b 15/04

U.S. Cl. 65—182

7 Claims



Preventing formation of lines in the undersurface of a continuous glass ribbon as a film of aeriform fluid is

interposed between the undersurface and a stationary supporting surface over which the ribbon is being conveyed while in a highly heated, plastic condition. The aeriform fluid is forced through a slot in the supporting surface extending transversely of the ribbon to form the film, and a mixer is positioned in the slot to prevent impingement of the fluid against the glass in individually defined streams of varying intensity.

3,565,597

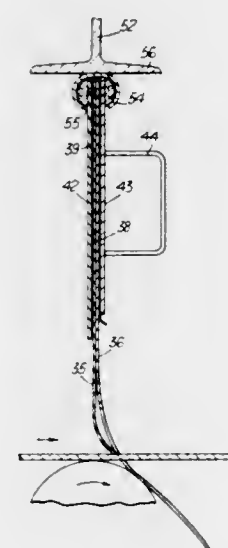
SEALING CURTAIN
Lionel Alexander Bethune Pilkington, Rainhill, and George Alfred Dickinson, St. Helens, England, assignors to Pilkington Brothers Limited, Liverpool, Lancashire, England, a corporation of Great Britain
Continuation-in-part of application Ser. No. 547,314, May 3, 1966. This application July 7, 1969, Ser. No. 842,811

Claims priority, application Great Britain, May 10, 1965, 19,614/65

Int. Cl. C03b 18/00

U.S. Cl. 65—182

8 Claims



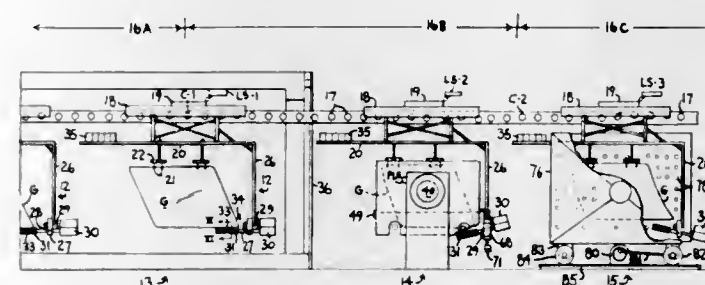
A sealing curtain for draping onto the ribbon of glass in the float process comprises a sheet of heat resistant cloth which does not mark the glass, e.g. woven silica cloth, which is weighted against the glass surface by a backing sheet of asbestos cloth.

3,565,598

GLASS SHEET PRESS BENDING APPARATUS
Samuel L. Seymour, Oakmont, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 3, 1968, Ser. No. 764,821
Int. Cl. C03b 23/02

U.S. Cl. 65—273

4 Claims



Apparatus for contacting tong-suspended glass sheets during a selected portion of a heating, press bending, and tempering operation to help support to position the glass properly during certain critical portions of said operation.

3,565,599

UREASE INHIBITED UREA-CONTAINING COMPOSITIONS

Kamil M. Sor, Fanwood, and John A. Pellissier, Metuchen, N.J., and Ross Latham, Jr., Adrian, Mich., assignors to Esso Research and Engineering Company, a corporation of Delaware

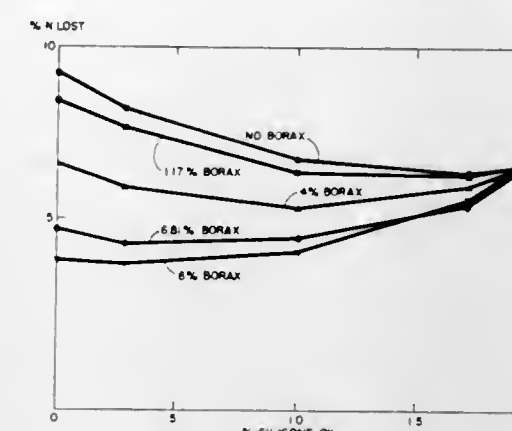
Continuation-in-part of application Ser. No. 601,536, Dec. 14, 1966. This application May 5, 1969, Ser. No. 821,638

Int. Cl. C05c 9/00

U.S. Cl. 71—28

2 Claims

EFFECT OF BORAX AND SILICONE OIL ON VOLATILIZATION LOSSES—4 DAYS



Urea-containing fertilizers comprising a boron-containing urease inhibitor are improved in regard to urease inhibitive properties by the addition thereto of various compounds generally exhibiting hydrophobic characteristics, e.g., organic acids, esters and amides; hydrocarbons such as white oils; long chain amines; vegetable oils; organo-silicones; plastic polymers and resins; etc. This addition results in increased inhibition against the rapid volatilization of ammonia therefrom when the fertilizers are surface-applied to soil.

3,565,600

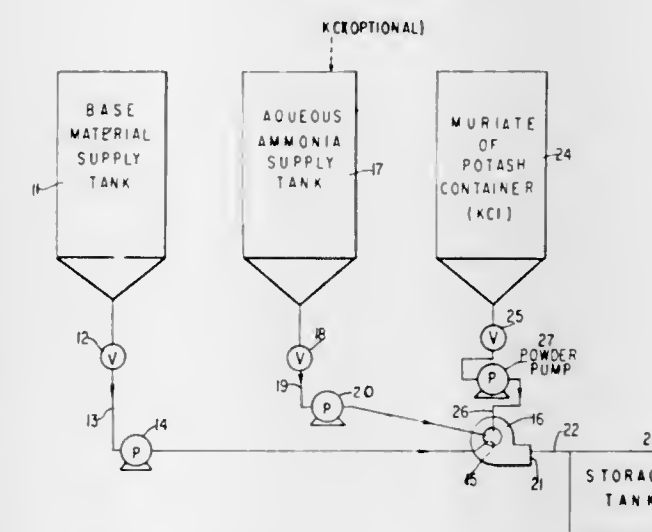
METHOD FOR MAKING SALT SUSPENSION FERTILIZERS HAVING FREE AQUEOUS AMMONIA, TRIAMMONIUM PHOSPHATE AND POTASSIUM CHLORIDE

James E. Barker, Freehold, N.J., assignor to Cities Service Company, New York, N.Y., a corporation of Delaware
Continuation-in-part of application Ser. No. 586,754, Oct. 14, 1966. This application Dec. 10, 1969, Ser. No. 884,033

Int. Cl. C05b 7/00

U.S. Cl. 71—36

2 Claims



Aqueous ammonia and a monammonium-diammonium phosphate base material are separately supplied to a mixing zone, such as afforded by a high speed centrifugal

pump, potassium chloride being also concurrently introduced into said zone, and the said materials are subjected therein to an extremely turbulent mixing environment. The endothermic heat of solution of the potassium chloride dissolving in the base material counteracts the exothermic heat of reaction between the base material and the aqueous ammonia.

3,565,601

MIXED HERBICIDE COMPOSITIONS
Pierre Polgnant, Lyon, France, assignor to Pechiney-Progil, Lyon, France, a corporation of France
No Drawing. Filed Mar. 14, 1968, Ser. No. 712,932
Claims priority, application France, Mar. 15, 1967, 48,411

Int. Cl. A01n 9/02, 9/24

U.S. Cl. 71—116

5 Claims

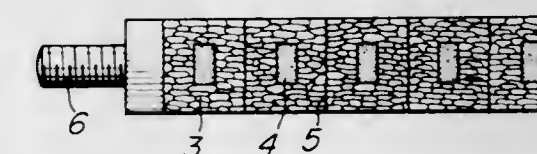
A herbicide composition consisting essentially of from 20 to 80 parts of 2,4-dinitro-6-tert-butylphenol (dinoterbe), and from 80 to 20 parts of 2-methyl-4-chlorophenoxypropionic acid. The materials are utilized either in their free form, in the form of a metal salt, in the form of an ester, or in the form of a monoamine or polyamine salt.

3,565,602

METHOD OF PRODUCING AN ALLOY FROM HIGH MELTING TEMPERATURE REACTIVE METALS
Tadao Konisi, Amagasaki-shi, and Masaaki Teragaki, Ashiya-shi, Japan, assignors to Kobe Steel, Ltd., Fukui-ku, Kobe, Japan, a corporation of Japan
Filed May 21, 1968, Ser. No. 730,718
Int. Cl. C22d 7/06

U.S. Cl. 75—10

2 Claims



A method of producing a segregation-free highly homogeneous alloy composed of at least two or more of such high melting temperature reactive metals as Ti, Zr, Hf, Nb, Ta, Mo and W and mixtures thereof. In this method both basis metal and alloying metal or metals are reduced to a powder form having a grain size smaller than 50 mesh respectively, then thoroughly mixing the powders of said basis metal and said alloying metal(s), enclosing the resultant mixture in the basis metal for forming into a consumable electrode and melting the consumable electrode in vacuum or in an inert gas atmosphere in a closed vessel.

3,565,603

PROCESS FOR PRODUCING OPTIMUM YIELDS OF FERROALLOYS IN ELECTRIC REDUCTION FURNACES

Helmnt Klee, Knapsack, near Cologne, Dieter Schorning, Bruhl-Pingsdorf, and Hermann Niermann, Bruhl, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany, a corporation of Germany

No Drawing. Filed May 31, 1968, Ser. No. 733,309
Claims priority, application Germany, June 15, 1967, K 62,562

Int. Cl. C21b 3/04; C21c 5/52; H05b 7/18

U.S. Cl. 75—11

4 Claims

As the reduction of oxidic iron ores progresses in an electric arc furnace of substantially constant furnace

space, the current intensity needed to maintain the reaction varies. It has been found that within defined limits there is an inverse relationship between the optimum intervals at which the furnace is to be tapped and the current intensity.

3,565,604 PRODUCTION OF SPHERICAL-PARTICLE POWDERS OF METALS

Yumi Akimoto, Omiya-shi, Takeyoshi Shibasaki, Urawa-shi, and Seichi Ihara, Omiya-shi, Japan, assignors to Mitsubishi Kinzoku Kogyo Kabushiki Kaisha, Tokyo-to, Japan, a joint-stock company of Japan
No Drawing. Filed Dec. 31, 1968, Ser. No. 788,320
Claims priority, application Japan, Jan. 10, 1968, 43/830

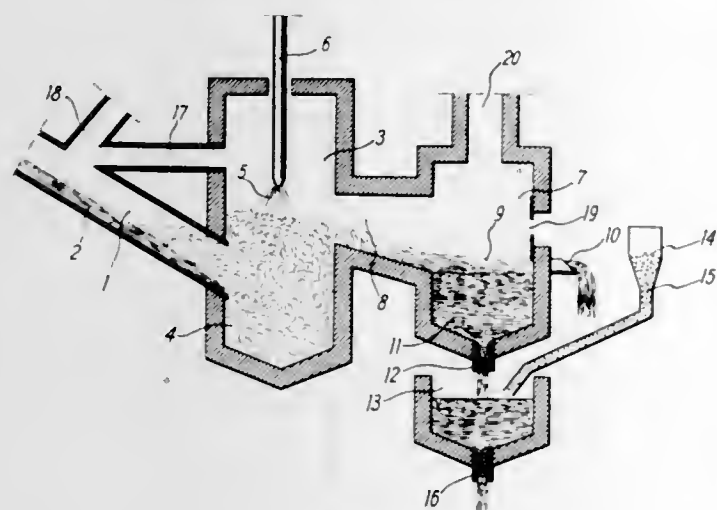
Int. Cl. B22f 9/00

U.S. Cl. 75—5 7 Claims
A reaction substance such as ammonia or methanol which gives off hydrogen when decomposed by heating is brought into contact with a pure or alloy metal maintained in a molten state at a temperature above the decomposition temperature of the reaction substance, whereupon an atmosphere of atomic hydrogen is created on the molten metal surface and reacts with the metal to form transitionally a volatile hydride of the metal, which can be easily decomposed into its elemental constituents including the metal now in the form of fine spherical particles.

3,565,605
PROCESS FOR THE CONTINUOUS REFINING
OF METALS
Pierre Vayssiere, Metz Queuleu, France, and Juan Kinde-
lan y Gomez de Bonilla, Madrid, Spain, assignors to
Institut de Recherches de la Siderurgie Francaise, Saint-
Germain-en-Laye, France
Continuation of application Ser. No. 431,427, Feb. 9,
1965. This application Jan. 15, 1968, Ser. No. 698,046
Claims priority, application France, Feb. 14, 1964,
963,736; Oct. 12, 1964, 991,114, 991,116; Oct.
23, 1964, 992,419; Nov. 26, 1964, 996,437
Int. Cl. C21c 7/00

U.S. Cl. 75—46

20 Claims

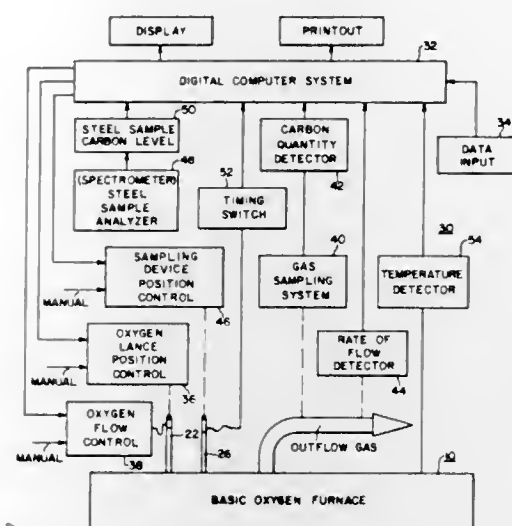


Processes for the continuous refining of metal containing slag-forming impurities comprising feeding the metal with the slag-forming impurities into a refining vessel, introducing therein refining gas so as to form a metal-slag foam, continuously transferring only this metal-slag foam into a decantation vessel, causing in the decantation vessel wherein the foam is transformed into liquid slag a concentration of the metal into a separate continuous metal phase, and separately discharging this liquid slag and the continuous metal phase from the decantation vessel.

3,565,606
METHOD FOR CONTROLLING CARBON REMOVAL
IN A BASIC OXYGEN FURNACE
Norman R. Carlson, Export, Richard E. J. Putman, Penn
Hills, and James T. Carleton, Pittsburgh, Pa., assignors
to Westinghouse Electric Corporation, Pittsburgh, Pa.,
a corporation of Pennsylvania
Filed June 27, 1967, Ser. No. 649,236
Int. Cl. C21c 5/32

U.S. Cl. 75—60

6 Claims



Both low and high carbon steels are produced in a basic oxygen furnace controlled by a system which employs a direct sampler operated at an adequately early predetermined time during the oxygen blow. Endpoint carbon level is controlled as a result of calculations made from the sample carbon level and waste gas measurements of post sample time carbon removal. The carbon control is made compatible with other endpoint controls.

3,565,607
METHOD FOR REMOVING OXYGEN
IMPURITIES FROM CESIUM
James E. Webb, Administrator of the National Aeronautics
and Space Administration, with respect to an inven-
tion of John Robert Anderson, Malibu, Calif.
Continuation-in-part of application Ser. No. 459,596,
May 28, 1965. This application Nov. 8, 1967, Ser.
No. 684,894
Int. Cl. C22b 9/08, 27/00

U.S. Cl. 75—66 1 Claim
A method for purifying cesium of oxides contained therein comprising passing cesium vapor through a filter of porous tungsten heated to a temperature sufficient to cause dissociation of the oxides present, yet not so high as to ionize the cesium.

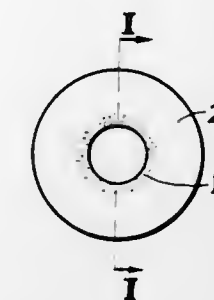
3,565,608
RECOVERY OF GOLD FROM SOLUTIONS
Harry D. Anson, Sewickley, Pa., and Donald G. Ash-
burn and Bert H. Clappitt, Overland Park, and Ronald
E. Gilbert, Shawnee Mission, Kans., assignors to Gulf
Research & Development Company, Pittsburgh, Pa., a
corporation of Delaware
No Drawing. Filed Nov. 12, 1968, Ser. No. 775,148
Int. Cl. C22b 11/04

U.S. Cl. 75—118 10 Claims
A method is provided in which gold is recovered from dilute aqueous solutions thereof by contacting such solutions with a water-insoluble ethylene polymer containing carboxylate and/or amide groups. The gold becomes associated with the carboxylate and/or amide groups of the polymer and can be recovered by burning the polymer to recover an ash enriched in gold.

3,565,609
DOUBLE LAYER CAST IRON CASTINGS
Shogo Saeki, Toshitsugu Ohi, and Minoru Fujioka,
Tamano, Japan, assignors to Mitsui Shipbuilding and
Engineering Co. Ltd., Tsukiji, Chuo-ku, Tokyo, Japan,
a corporation of Japan
Filed Oct. 24, 1967, Ser. No. 677,605
Claims priority, application Japan, Oct. 25, 1966,
41/70,529
Int. Cl. C22c 37/00, 37/10

U.S. Cl. 75—130

2 Claims



Cast iron castings having free graphite aggregated closely in the wear portion of the casting are prepared by inoculating molten cast iron with silicon in an amount sufficient to provide in the cast product a value of K of at least 0.9, the value of K being expressed in the formula:

$$C(\%) + 0.31 Si(\%) = K(1.30 + 2.57 \times 10^{-3} t)$$

representing the solubility of carbon and silicon in the molten cast iron at temperature $t^\circ C.$, casting the molten metal into a mold, and cooling the cast molten metal.

3,565,610
VANADIUM-CONTAINING ALLOYING
ADDITIVE FOR STEEL
Hans-Joachim Retelsdorf, Nuremberg-Katzwang, and
Rudolf Fichte, Nuremberg, Germany, assignors to Ge-
sellschaft für Elektrometallurgie m.b.H., Düsseldorf,
Germany
No Drawing. Filed May 22, 1968, Ser. No. 731,272
Claims priority, application Germany, May 29, 1967,
P 15 58 503.2
Int. Cl. C22c 35/00

U.S. Cl. 75—133 7 Claims
Vanadium-containing alloying additive for steels is obtained from vanadic acid, i.e., vanadium pentoxide or vanadium pentoxide-containing compositions in a one stage process without the use of vacuum treatment by the solid-state reduction of vanadic acid with carbon under atmospheric conditions at temperatures of from 1200 to 1500° C., to produce a substance of the following composition:

	Percent, from—
Vanadium	70 to 85
Oxygen	2 to 10
Carbon	5 to 20
Nitrogen	0.5 to 4

To take up residual oxygen in a steel-making bath into which said additive is added, silicon or aluminum or a ferrosilicon may be incorporated in the additive.

The use of such an additive in a steel making process is particularly advantageous in that the additive dissolves well in the steel bath despite residual oxygen in the steel making bath. The high density of the additive results in it taking up a position in the steel bath between the slag and the bath surface, thereby effecting a further improvement in solution.

ERRATUM
For Class 75—134 see:
Patent No. 3,564,940

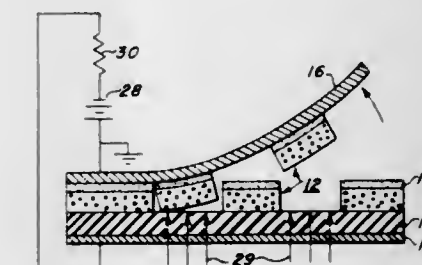
3,565,611
ALLOYS RESISTANT TO CORROSION IN
CAUSTIC ALKALIES
George Economy, Monsey, N.Y., assignor to The Inter-
national Nickel Company, Inc., New York, N.Y., a
corporation of Delaware
No Drawing. Filed Apr. 12, 1968, Ser. No. 721,059
Int. Cl. C22c 19/00

U.S. Cl. 75—171 10 Claims
Nickel-chromium and nickel-chromium-iron alloys having improved resistance in the stressed condition to stress-corrosion cracking in caustic alkalies such as hot concentrated sodium hydroxide. The presence of fair amounts of iron can be quite detrimental, an adverse effect which is greatly minimized by observing special correlation between iron and chromium, significant percentages of the latter being extremely beneficial.

3,565,612
DUPLICATING MASTERS BY THE
MANIFOLD PROCESS
Harold Ernst Clark, Penfield, N.Y., assignor to Xerox
Corporation, Rochester, N.Y., a corporation of New
York
Filed Jan. 9, 1967, Ser. No. 608,155
Int. Cl. G03g 13/22

U.S. Cl. 96—1

20 Claims



An imaging member capable of producing a duplicating master and a method of imaging wherein an imaging member comprising a donor substrate, a photoresponsive imaging layer overlying said donor substrate, a duplicating layer contiguous with said photoresponsive layer and a receiver sheet overlying said duplicating layer is exposed to an imagewise pattern of electromagnetic radiation which is actinic to said imaging layer while the imaging layer is subjected to an electric field. While under the electric field, the donor substrate and receiving sheet are separated whereby the imaging layer and duplicating layer contiguous thereto is fractured in imagewise configuration providing a duplicating master which when contacted with a copy sheet reproduces the image on the copy sheet.

3,565,613
ELECTROLYTIC ELECTROPHOTOGRAPHY
Yasuo Tamai and Masaaki Takimoto, Saitama, Japan, as-
signors to Fuji Photo Film Co., Ltd., Ashigara-Kami-
gun, Kanagawa, Japan
No Drawing. Filed Dec. 6, 1967, Ser. No. 688,306
Claims priority, application Japan, Dec. 7, 1966,
41/80,246
Int. Cl. G03g 5/00

U.S. Cl. 96—1 4 Claims
An electrolytic electrophotographic process involving the steps of exposing a photoconductive layer comprising

a photoconductive material and a binder formed on an electrically conductive base plate to form therein a latent image due to the difference in electric conductivity, and subjecting the photoconductive layer having the latent image to electrolysis in an electrolyte bath to form visible images on the layer, the improvement which comprises forming a layer of a dispersion of a pigment in a fatty oil on said photoconductive layer before or directly after exposure, said fatty oil being at least partially liquid at a temperature of from normal temperature to about 40° C.

3,565,614

IMAGE TRANSFER

Leonard M. Carreira, Webster, and Ira S. Stein and Vsevolod Tulagin, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York

Continuation-in-part of application Ser. No. 384,737, July 23, 1964. This application Apr. 12, 1966, Ser. No. 542,050

Int. Cl. G03g 13/16, 13/22

U.S. Cl. 96—1.4

3 Claims

A photoelectrophoretic imaging system is described in which the formed image is electrostatically transferred. The color balance of the image may be modified during transfer by exposure to suitable electromagnetic radiation.

3,565,615

SPECTRALLY SENSITIZED ELECTROPHOTOGRAPHIC MATERIALS AND PROCESSES

Leslie G. S. Brooker and Frank G. Webster, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Apr. 24, 1968, Ser. No. 723,917

Int. Cl. C03g 5/06

U.S. Cl. 96—1.6

25 Claims

Organic photoconductors are spectrally sensitized with a quaternated merocyanine dye containing a 2-isozazolin-5-one nucleus, a 2-pyrazolin-5-one nucleus, or a complex fused pyrimidinedione nucleus.

3,565,616

SPECTRALLY SENSITIZED ELECTROPHOTOGRAPHIC MATERIALS AND PROCESSES

Frank G. Webster and Donald W. Heseltine, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Continuation-in-part of abandoned application Ser. No. 720,359, Apr. 10, 1968. This application Oct. 30, 1968, Ser. No. 771,974

Int. Cl. G03g 5/06

U.S. Cl. 96—1.6

30 Claims

Organic photoconductors are spectrally sensitized with merocyanine dyes which contain a complex fused pyrimidine-dione nucleus linkage by a double bond or a dimethine linkage to a desensitizing nucleus.

3,565,617

METHOD OF REMOVING UNWANTED LINES FROM A MASTER NEGATIVE TRANSPARENCY

Jean Jacques Beauval, Saint-Denis, and Guy Lechaugette, Gif-sur-Yvette, France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Mar. 16, 1967, Ser. No. 623,769

Claims priority, application France, Mar. 17, 1966, 53,942

Int. Cl. G03c 5/04

U.S. Cl. 96—27

6 Claims

For photographically copying negatives exhibiting dark tracks on a transparent background while removing a major portion of the tracks an image of the negative is projected on a white paper sheet; the tracks to be kept are darkened on the sheet; a fresh film is located in close

contact with the negative and exposed to light transmitted through the negative and to light reflected by the undarkened portions of the paper sheet.

3,565,618

PHOTOGRAPHIC COLLOID TRANSFER FACILITATED BY ENZYME TREATMENT

Claude M. Maréchal, Vincennes, France, assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed July 5, 1966, Ser. No. 562,863

Claims priority, application France, Mar. 2, 1966, 51,627

Int. Cl. G03c 11/12

U.S. Cl. 96—28

20 Claims

Colloid transfer of a photographic image from an image bearing photographic element having a proteinaceous binder is accomplished by treating the protein binder with an enzyme such as a proteinase to soften a thin layer which is then transferred by contacting against a receiving support. Subsequent transfers can be made by repeating the treatment.

3,565,619

PHOTOGRAPHIC IMAGE TRANSFER PROCESS UTILIZING IMIDAZOLIDINE-2-THIONE

Edward J. Johnson, Jr., Tewksbury, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

No Drawing. Filed Jan. 18, 1968, Ser. No. 698,698

Int. Cl. G03c 5/54

U.S. Cl. 96—29

7 Claims

Imidazolidine-2-thiones are utilized in silver diffusion transfer processes to give positive transfer prints of improved quality over a broad range of processing temperatures.

3,565,620

PHOTOGRAPHIC PROCESSING LIQUIDS AND METHOD OF PRODUCING PHOTOGRAPHIC IMAGES

Jozef Frans Willems, Wilrijk, Gerard L. Vanreusel, Hove, and Camille A. Vandeputte, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium, a Belgian company

No Drawing. Filed Oct. 24, 1967, Ser. No. 677,763

Claims priority, application Great Britain, Oct. 24, 1966, 47,633/66

Int. Cl. G03c 5/50

U.S. Cl. 96—55

37 Claims

Carbazic acid, bicarbamic acid, or a water-soluble salt thereof is used in the production of photographic reversal images or direct positives, both black and white and colored. The additive can be added to the developing liquid for the development stage of the reversal process, or by way of another processing liquid for wetting the material being processed prior to the development stage. Where the reversal process utilizes plural development stages the additive is preferably applied by way of the final developing liquid or another processing liquid applied prior to the final development step.

3,565,621

FIXING COMPOSITIONS FOR PHOTOGRAPHIC SILVER HALIDE LIGHT-SENSITIVE ELEMENTS

Shunichiro Tsuchida, Haruo Shibaoka, and Relichi Ohl, all of 210 Nakanuma, Minami-Ashigara Machi, Ashigara-Kamigun, Kanagawa, Japan

No Drawing. Filed Mar. 29, 1968, Ser. No. 717,438

Claims priority, application Japan, Mar. 30, 1967, 42/20,250

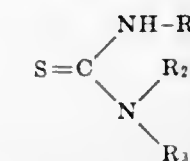
Int. Cl. G03c 5/38

U.S. Cl. 96—61

4 Claims

A fixing composition for photographic silver halide light-sensitive elements containing ammonium thiosulfate

which contains at least one compound represented by the general formula



is disclosed. Through the use of said composition, a marked reduction in fixing time is made possible.

3,565,622

PROCESS USING COBALT (II) OR MANGANESE (II) AS A DEVELOPING AGENT

Joseph A. Sincius, Little Silver, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 432,005, Feb. 11, 1965. This application July 6, 1966, Ser. No. 563,035

Int. Cl. G03c 5/24

U.S. Cl. 96—63

6 Claims

A process for developing silver halide emulsion layers by incorporating therewith a salt of copper (I), cobalt (II), or manganese (II), exposing the element imagewise, reacting said salt with a nitrogen donor complexing agent, e.g., ammonia or an aliphatic amine of 1-6 carbons which may be formed from a compound which generates such an agent upon hydrolysis and/or by heat, e.g., salts of the amines, and urea or potassium cyanate in the presence of water to develop the exposed silver halide. When a copper salt is employed an aliphatic amine is used. The invention is useful with high speed negative emulsions, graphic arts emulsions, radiographic emulsions, and paper emulsions.

3,565,623

PIPERONAL AS ANTIFOGGANT AND STABILIZER

Giacomo Luciani and Fritz Dersch, Binghamton, N.Y., assignors to GAF Corporation, New York, N.Y., a corporation of Delaware

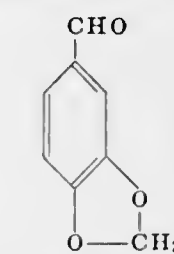
No Drawing. Filed Nov. 16, 1966, Ser. No. 594,661

Int. Cl. G03c 1/06, 1/34, 5/30

U.S. Cl. 96—66.5

1 Claim

A light-sensitive silver halide emulsion and the photographic material prepared therefrom, both of which contain as an antifoggant and stabilizer a piperonal compound having the structural formula:



3,565,624

METHOD OF SUBBING POLYETHYLENE AND PRODUCT PRODUCED THEREBY

Norman D. Uffindell, London, England, assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Feb. 24, 1969, Ser. No. 801,813

Claims priority, application Great Britain, Nov. 8, 1968, 53,059/68

Int. Cl. G03c 1/00, 1/84, 1/94

U.S. Cl. 96—85

18 Claims

Polyethylene surfaces are rendered hydrophilic and thereby more receptive to the adhesion of hydrophilic colloid layers by coating with a solution of a tribromomethylated derivative of quinoline and then exposing the coated surface to ultraviolet radiation to effect grafting of the quinoline derivative to the polyethylene. This

method is utilized with particular advantage in the manufacture of photographic elements to provide improved adhesion of the photosensitive gelatin-silver halide emulsion layer to polyethylene or polyethylene-coated supports.

3,565,625

PHOTOGRAPHIC ELEMENTS HAVING THIAZOLIDINE COMPOUNDS IN LIGHT-SENSITIVE LAYERS

Charles Lawrence Scavron, Old Bridge, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed May 17, 1967, Ser. No. 639,065

Int. Cl. G03c 1/34, 1/76

U.S. Cl. 96—67

7 Claims

Photographic elements having a radiation-sensitive, colloid-silver halide emulsion layer and a contiguous light insensitive stratum containing a thiazolidine compound, preferably L-thiazolidine-4-carboxylic acid.

3,565,626

COIL FILM PROCESS

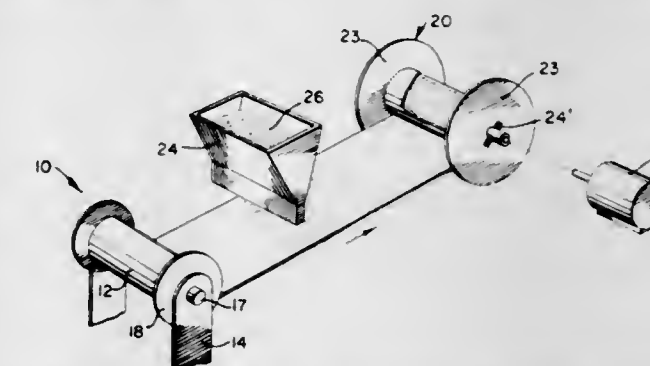
Dwin R. Craig, Falls Church, Va., and John Sytch, Hagerstown, Md., assignors, by mesne assignments, to Ingenuics, Inc., Gaithersburg, Md., a corporation of Maryland

Filed July 25, 1967, Ser. No. 655,798

Int. Cl. G03c 3/02, 5/24, 5/26

U.S. Cl. 96—78

9 Claims



A coil film process and apparatus in which adjacent convolutions of a coil of film are positively held in spaced relationship on a spool by soluble separator material. The material is dissolved and the film is further processed in coiled form with the spacing between convolutions maintained by a special processing spool which admits fluids to the film wound on the spool.

3,565,627

BLEACHABLE LIGHT-ABSORBING LAYERS FOR PHOTOGRAPHY

John A. Haefner and Herbert S. Wilgus III, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Dec. 29, 1967, Ser. No. 694,379

Int. Cl. G03c 1/40, 1/100, 7/02

U.S. Cl. 96—84

14 Claims

Quinhydrone dyes are advantageously incorporated in hydrophilic colloid layers of photographic elements as nondiffusible, bleachable dyes which do not require mordants.

3,565,628

DYE SENSITIZED LIGHT SENSITIVE SYSTEMS INCORPORATING AN IODIDE

Thomas Howard Garland, El Monte, and Yoshikazu Yamada, Sierra Madre, Calif., assignors to Bell & Howell Company, Chicago, Ill., a corporation of Illinois

No Drawing. Filed July 11, 1967, Ser. No. 652,430

Int. Cl. G03c 1/72

U.S. Cl. 96—90

23 Claims

A dye sensitized organic photosensitive composition with its sensitivity extended by the incorporation of an iodide.

3,565,629

TWO-COMPONENT DIAZOTYPE INTERMEDIATE MATERIAL

Gerhard Usbeck, Wiesbaden-Freudenberg, and Hellmut Ziegler, Wiesbaden-Bierstadt, Germany, assignors, by mesne assignments, to Keuffel & Esser Company, Hoboken, N.J.

No Drawing. Filed Oct. 6, 1967, Ser. No. 673,291
Claims priority, application Germany, Oct. 18, 1966, K 60,482

Int. Cl. G03c 1/54, 1/58

U.S. Cl. 96—91

5 Claims

Diazotype intermediate material providing images of good actinic opacity and visible contrast is prepared by combining alkyl aralkyl amino benzene diazonium derivatives with hydroxy benzoic acid- or phenylurea-derivative and naphthoic acid amide-derivative azo coupler compounds, and including a sulfo-benzoic acid-derivative stabilizer. The resulting two-component diazotype material, although containing a fast-developing diazonium compound and a blue-coupling component, has remarkable storage stability and actinic opacity.

3,565,630

SUPERSENSITIZATION WITH CYANINE AND MEROCYANINE DYES

Allan G. Millikan, Webster, and Gary L. Hiller, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Oct. 5, 1967, Ser. No. 672,991

Int. Cl. G03c 1/10, 1/22

U.S. Cl. 96—120

34 Claims

Fine grain photographic silver halide emulsions are spectrally sensitized with the combination of a quaternated, complex cyanine dye and a complex merocyanine dye.

3,565,631

6 - AMIDINOTHIO - 5,7 - DIHYDROXY - s - TRIAZOLO[2,3-a]PYRIMIDINO COMPOUNDS AS STABILIZERS FOR SILVER HALIDE EMULSION

Masanobu Oguchi and Yoshimi Kuwabara, Tokyo, and Katsuo Mogaki, Odawara-shi, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

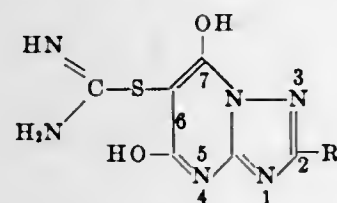
No Drawing. Filed July 7, 1967, Ser. No. 651,664

Int. Cl. G03c 1/34

U.S. Cl. 96—109

5 Claims

A light-sensitive silver halide photographic element bears on a support a photo-sensitive layer containing a 6-amidinethio - 5,7 - dihydroxy-s-triazolo[2,3-a]pyrimidine compound of the formula:



wherein R means hydrogen or a lower alkyl group. The compounds acts as a stabilizer to prolong the life of the photographic element.

3,565,632

HARDENING OF GELATIN

Peter Richard Mills, Leeds, and Brian Ronald David Whitear, John Peter Stonham, and Anthony Paul Way, Ilford, Essex, England, assignors to Ilford Limited, Ilford, Essex, England, a British company

No Drawing. Filed Nov. 3, 1967, Ser. No. 680,359

Claims priority, application Great Britain, Nov. 8, 1966, 50,035/66

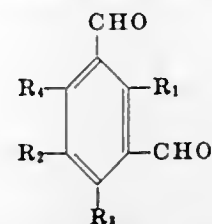
Int. Cl. G03c 1/30

U.S. Cl. 96—111

6 Claims

This application describes a process for the hardening of gelatin layers in photographic materials during the

processing thereof which comprises applying to the material prior to or during development thereof a dialdehyde of the following general formula:



wherein either R₁ or R₂ is an hydroxy group, the other being a hydrogen or halogen atom or an alkyl, aralkyl, aryl or alkoxy group, R₃ and R₄ are the same or different and are a hydrogen or halogen atom or an alkyl, aralkyl, aryl or alkoxy group.

3,565,633

PHOTOGRAPHIC EMULSIONS CONTAINING CERTAIN SILVER - GELATIN CONCENTRATIONS DURING CHEMICAL RIPENING

Guenther H. Klinger, Binghamton, and Martin V. Cwikla, Johnson City, N.Y., assignors to GAF Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 30, 1966, Ser. No. 597,838

Int. Cl. G03c 1/02

U.S. Cl. 96—114.7

5 Claims

A process for the preparation of light-sensitive silver halide emulsions which comprises mixing together in an aqueous solution of gelatin a water-soluble silver salt and a water-soluble alkali metal halide salt to form a uniform dispersion of silver halide in gelatin, washing the dispersion and chemical ripening of the emulsion with the silver-gelatin concentration limited to a ratio of 3 to 25 parts of silver per part of gelatin during the chemical ripening stage.

3,565,634

APPARATUS AND METHOD FOR CONTINUOUS EXTRACTION OF FATS FROM ORGANIC MATTER

Sven-Olof Österman, Molndal, Sweden, assignor to Astra Nutrition Aktiebolag, Molndal, Sweden, a company

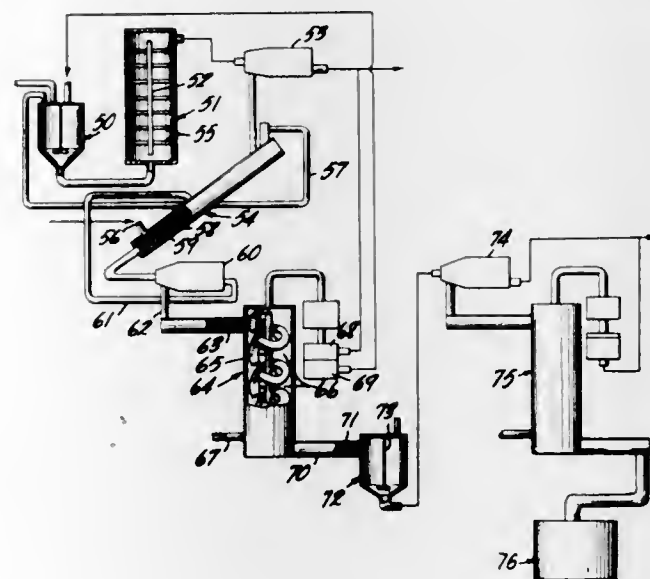
Filed Aug. 23, 1967, Ser. No. 662,819

Claims priority, application Sweden, Aug. 25, 1966, 11,460/66

Int. Cl. A23j 1/00

U.S. Cl. 99—18

16 Claims



An apparatus and method for continuously extracting fats from organic matter such as fish, with fat solvents to prepare a defatted protein having no objectionable odor or taste, comprising a vertical pre-extracting vessel in which the organic material and fat solvent are combined and having means for stirring and withdrawing

the fat-rich solvent. The pre-extraction vessel is connected to an inclined counter-flow extraction tube having means for transporting the defatted organic matter through solvent introduced into the tube. The counter-flow extractor is connected to a series of centrifuges and counter-flow evaporators to remove the solvent from the defatted organic matter.

3,565,635

SOLUBLE COFFEE

James P. Mahlmann, Wayne, N.J., assignor to General Foods Corporation, White Plains, N.Y., a corporation of Delaware

No Drawing. Filed July 31, 1968, Ser. No. 748,931

Int. Cl. A23f 1/08

U.S. Cl. 99—71

13 Claims

A process for improving the color and appearance of soluble coffee by coating frozen particles of coffee extract with a soluble coffee powder and then drying the coated particles, preferably by freeze-drying.

3,565,636

METHOD OF AGGLOMERATING DEHYDRATED POTATOES

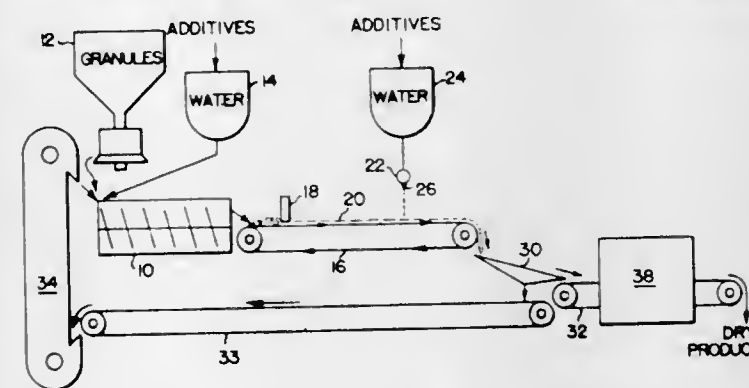
Ronald W. Hutchings, Shelley, Idaho, and Charles H. Stringham, Naples, N.Y., assignors to The R. T. French Company, Rochester, N.Y., a corporation of Delaware

Filed Aug. 23, 1967, Ser. No. 662,684

Int. Cl. A23l 1/12

U.S. Cl. 99—100

6 Claims



In the process of this invention the agglomerated dehydrated potato product is produced by adding water in a steady stream, or in a dropwise fashion, into a travelling bed of potato granules, and by screening off and drying the resultant moist agglomerates. The dry agglomerates have uniform disc shapes if the water is added dropwise. They are in the shape of rods if the water is added as a steady stream. They are friable; and each has a porous structure containing pockets of air, which are the source of the incorporated air which brings about, upon reconstitution, a light, fluffy, white mash with a minimum of stirring.

3,565,637

PROCESS FOR FORMING A HEAT STABLE SAUSAGE EMULSION

Orhan G. Artar, Evanston, Ill., and Millard J. Hafstad, Detroit Lakes, Minn., assignors to Armour and Company, Chicago, Ill., a corporation of Delaware

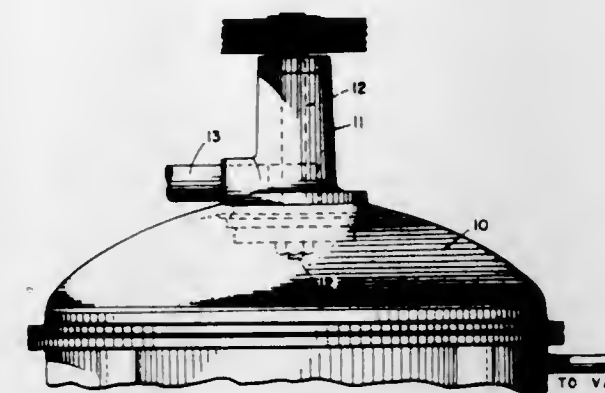
Filed Mar. 7, 1968, Ser. No. 711,439

Int. Cl. A22c 11/00; B02c 18/00

U.S. Cl. 99—109

3 Claims

An emulsification process for the forming of a heat-stable sausage emulsion employs first an abrading and cutting operation on a slurry of meat protein, fat, water and salt, and after salt-soluble protein has been effectively extracted, the slurry mixture is subjected to a cutting and dispersing action without abrasion to bring the fat into discontinuous phase so that it may be effectively



step, the fat is pressed into film or smear form, thus placing it substantially in continuous phase, and the following step of cutting and dispersing without abrasion is effective in distributing the fat in fine particle form so that it is readily coated with the binder protein.

3,565,638

FROZEN EGG MIXTURE

Homer F. Ziegler, Jr., Kirkwood, Robert D. Seeley, Crestwood, and Robert L. Holland, Ballwin, Mo., assignors to Anheuser-Busch, Incorporated, St. Louis, Mo., a corporation of Missouri

No Drawing. Filed May 22, 1968, Ser. No. 731,289

Int. Cl. A23l 1/32

U.S. Cl. 99—113

9 Claims

A frozen egg product which can be used to make scrambled eggs, omelets, etc., and which has improved stability against color change and syneresis after cooking. The product comprises fresh eggs, milk solids, water, starch, vegetable gum, and an edible acid, preferably citric acid. The product is made by lowering the pH to below about 7.1 prior to homogenization, pasteurization and freezing.

3,565,639

METHOD FOR CURING MEAT

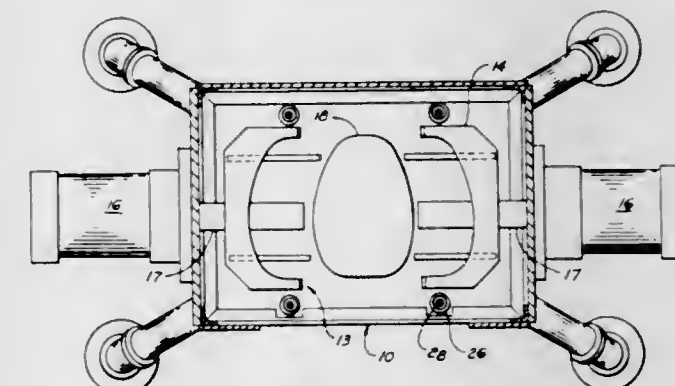
Warren R. Schack, Western Springs, Eugene G. Schmoller, Palos Heights, and Thomas K. Shanks, Chicago, Ill., and Philip C. Metzler, Orange, Calif., assignors to Swift & Company, Chicago, Ill., a corporation of Delaware

Filed Dec. 11, 1967, Ser. No. 689,721

Int. Cl. A23b 1/01

U.S. Cl. 99—159

6 Claims



Method of pickling a meat product comprising exerting a compressive force upon the meat product within a container and subsequently reducing the force to a lower positive pressure and thereupon injecting the meat with pickle solution. Apparatus for performing the method comprising positive pressure exerting assembly in combination with an assembly operable to meter desired quantities of pickle and inject the pickle into the meat product.

3,565,640

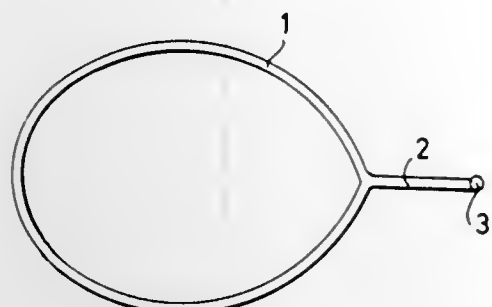
STRAP FOR HANGING SAUSAGES

Jorgen Dohmann, Gl. Vallerodgaard,
2960 Rungsted Kyst, Denmark
Filed Nov. 29, 1968, Ser. No. 779,894
Claims priority, application Denmark, Nov. 30, 1967,
6,016/67

Int. Cl. A22b 15/00

U.S. Cl. 99—175

1 Claim



Strap for hanging sausages, comprising a plastic string in the form of an endless loop, a stem projecting from said loop and a thickening at the free end of the stem; the loop, the stem and the thickening being integrally moulded.

3,565,641

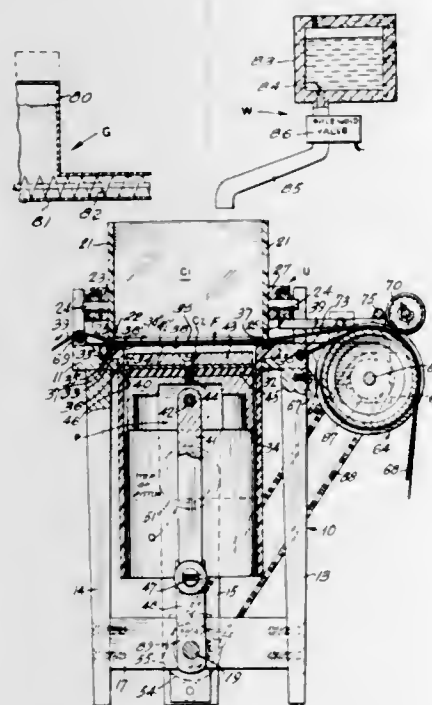
COFFEE BREWING MACHINE

Alan M. King, 4746 The Boulevard,
Wesimount, Quebec, Canada
Continuation-in-part of application Ser. No. 591,816,
Nov. 3, 1966. This application Apr. 8, 1968, Ser.
No. 719,499

Int. Cl. A47j 31/043

U.S. Cl. 99—302

16 Claims



An apparatus for brewing a single cup of beverage which has a chamber for receiving hot water and beverage material. The chamber has a floor permeable to gas and liquid and impermeable to the beverage material. The apparatus includes a second chamber located below the first chamber with a piston therein. Movement of the piston toward the floor of the first chamber forces air through the floor into the first chamber to agitate and brew the hot water and beverage material mixture to produce the beverage. Movement of the piston away from the floor withdraws the beverage through the floor to dispense it.

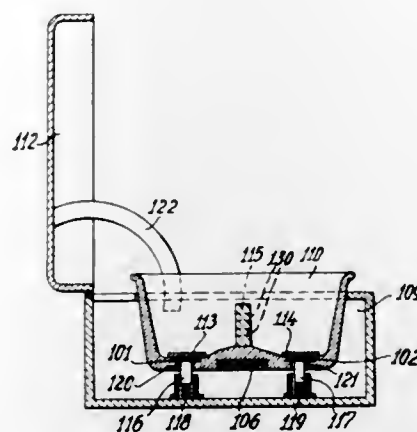
3,565,642

COOKING APPLIANCE

Paul Hirsch, Heubergg. 9,
Vienna 1170, Austria
Filed Apr. 12, 1968, Ser. No. 720,761
Int. Cl. H05b 7/06

U.S. Cl. 99—358

14 Claims



A cooking appliance for food whereby the food is placed in a container between two electrolyte baths which are connected to a source of electrical potential by a pair of electrodes, preferably via a first and second resilient contact which is inserted into holes provided in the bottom of the container. The appliance is also preferably provided with a safety device for locking the lid during cooking, and the container is preferably removably mounted in a support base which contains the current supply conductors.

3,565,643

ALUMINA - METALLINE COMPOSITIONS BONDED WITH ALUMINIDE AND TITANIDE INTERMETALLICS

Horacio E. Bergna, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Mar. 3, 1969, Ser. No. 803,558

Int. Cl. C04b 35/52

U.S. Cl. 106—43

11 Claims

Dense compositions having a grain size smaller than 10 microns and containing from 20 to 80 volume percent alumina; 10 to 78 volume percent of a metalline selected from the group consisting of titanium carbide, titanium nitride, zirconium carbide, zirconium nitride, niobium carbide, niobium nitride, tantalum carbide, tantalum nitride, and mixtures thereof; and 2 to 30 volume percent of an intermetallic selected from the group consisting of iron aluminide, iron titanide, cobalt aluminide, cobalt titanide, nickel aluminide, nickel titanide, tungsten aluminide, molybdenum aluminide, niobium aluminide, tantalum aluminide, titanium aluminide, zirconium aluminide, and mixtures thereof, are (1) effective tools for cutting steel and cast iron and (2) useful as oxidation resistant materials of construction.

3,565,644

COMPOSITION FOR GLAZING CERAMIC WARE

Richard Andrew Eppler, Timonium, Md., assignor to SCM Corporation, Cleveland, Ohio, a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 625,000, Mar. 22, 1967. This application May 28, 1969, Ser. No. 828,783

Int. Cl. C03c 3/04, 5/02; C04b 33/00

U.S. Cl. 106—48

4 Claims

This patent application describes a method and composition for glazing ceramic ware with a high gloss, low

process for glazing bodies and substrates with same, and resulting coated ceramic bodies. The composition for glazing is characterized by containing a particulate vitrifiable material, at least a substantial fraction of which is in the particulate vitreous state said vitrifiable material, after melting into a fluent vitreous state, being self-nucleating or autocrystallizable or crystallizable into a substantially dimensionally stable continuous vitreous film in which are dispersed crystals of low thermal expansion. The glazing composition is particularly suited for glazing low expansion ceramic whiteware. Set forth as useful preparations are special particulate lithium aluminosilicates modified with flux in proportion controlled to restrict the development of a primary low thermal expansion crystalline phase, some of said preparations being modified with zirconia. The percentage of B_2O_3 and K_2O as flux components is critical to the development of high gloss glazes with high ratios of combined B_2O_3 and K_2O resulting in high gloss. The glazing process comprises partially coating a ceramic body with the composition for glazing, firing the coated body at a temperature sufficiently high and for a time sufficiently long for converting the composition into a fluent continuous vitreous surface coating, then adjusting the temperature to a value at which crystal growth in the surface coating occurs at a measurable rate, and finally cooling the resultant glazed ware at a rate consistent with keeping the ware integral. The invention shows particular advantage for making high gloss glazes of adjustable and low thermal expansion for thermal shock and mechanical shock resistant ceramic whiteware, for example, dinnerware, cookware, ceramic tile, acoustical tiles of the mineral type, sanitary ware, artware, and electrical and technical porcelain. The invention is especially adaptable to conventional "two-fire" glazing practice.

3,565,645

DENSIFIED ZIRCONIA-GLASS PRODUCT

Richard C. Anderson, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

No Drawing. Filed Oct. 30, 1967, Ser. No. 679,166

Int. Cl. C04b 35/48

U.S. Cl. 106—57

2 Claims

Improvement in the sintering temperature-time relationship for solid stabilized zirconia and maximizing of the resistance thereof to gas penetration is provided by the introduction of a small amount of a glass into the body of stabilized zirconia prior to sintering thereof. For those applications of stabilized zirconia, such as a high temperature electrolyte, wherein it is important that any treatment employed must not add to electronic conductivity or impair the high anionic conductivity thereof aluminate and silicate glasses are disclosed, which are suitable for sintering.

3,565,646

METHOD OF MAKING REFRACTORY MATERIAL

Lloyd M. Housh, Santa Clara, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif., a corporation of Delaware

No Drawing. Filed Nov. 24, 1967, Ser. No. 685,299

Int. Cl. C04b 35/44

U.S. Cl. 106—65

27 Claims

Aluminous refractory material such as spinel and mullite grains and calcium aluminate cement can be made by adding foreign refractory oxide materials such as magnesia, kaolin, lime, etc. to an alumina solution and then precipitating aluminum hydroxide from the solution. The

process of dissolving aluminous material in sodium hydroxide and precipitating aluminum hydroxide with seed material is a suitable method for use in the invention. The intimate admixture of alumina hydroxide and added refractory oxide is fired to form a refractory material.

3,565,647

METHOD FOR THE MANUFACTURE OF CELLULAR FOAMED MATERIAL

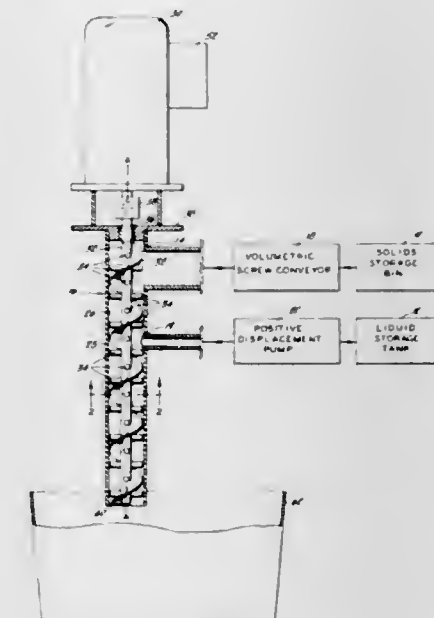
Jules Magder, 385 Walnut Lane,
Princeton, N.J. 08540

Filed Sept. 23, 1968, Ser. No. 761,761

Int. Cl. C04b 21/02

U.S. Cl. 106—87

3 Claims



A method for continuously producing foamed cement-based cellular material by subjecting specific liquid and solid components to high-shear mixing for very short periods of time and then discharging the mixture so that it can foam and set promptly. The liquid material which is mixed consists principally of water, and preferably has a viscosity of less than about 2.5 centipoises. The solid component which is mixed contains a particulate water-settable (hydraulic) cement and an inert particulate lamellar foam stabilizing agent. A gas-forming agent will also be included as part of either or both of the liquid and solid components. The time of mixing is not greater than about four seconds and preferably less than about one second, and the high-shear mixing preferably provides a maximum nominal velocity gradient greater than about 500 seconds⁻¹ for substantially all of the material. The maximum nominal velocity gradient is defined for this purpose as the maximum value of the ratio of relative speed of two surfaces of the mixer between which substantially all of the mixture is passed, to the distance between said two surfaces. Preferably the mixer comprises a rotor disposed along the axis of the tubular chamber into which the ingredients to be mixed are continuously fed, the rotor comprising helical screw means disposed along the length of the rotor for moving the mixture through the chamber to its outlet and for providing at least part of the mixing action, together with mixing pins extending radially from the axis of the rotor to within a small distance of the chamber wall to effect further mixing action. The resultant product is of increased compressive strength and characterized by the fact that substantially all of the pore volume thereof is provided by pores having effective diameters outside a range extend-

ing from about two microns to about 300 microns, and preferably at least about 97% of the pore volume is provided by pores outside said range. There is also provided novel cellular products consisting essentially of high alumina cement, as the water settable cement, and the stated inert particulate lamellar foam stabilizing agent.

3,565,648

METHOD OF UTILIZING BLAST FURNACE SLAG AS A STRENGTH-IMPROVING AGENT FOR HARDENED CEMENT

Toru Mori, Toru Iwai, Akihiko Yoda, and Masaaki Oshima, Tokyo, Japan, assignors to Kajima Construction Co., Ltd., Chuo-ku, Tokyo, Japan
No Drawing. Filed Sept. 12, 1967, Ser. No. 667,074
Claims priority, application Japan, Oct. 13, 1966, 41/60,108
Int. Cl. C04b 7/14

U.S. Cl. 106—89

4 Claims

A method of improving the initial strength of hardened cement is provided, which comprises blending blast furnace slag or fly ash with gypsum, adding water, grinding the mixture, and adding the resultant mixture to a cement mix. The improved cement composition is likewise provided.

3,565,649

PROCESS FOR GRINDING PORTLAND CEMENT
James N. Stone, Orange Park, and George H. Eick, Ponte Vedra, Fla., assignors to SCM Corporation, Cleveland, Ohio, a corporation of New York
No Drawing. Continuation-in-part of application Ser. No. 380,691, July 6, 1964. This application May 16, 1968, Ser. No. 729,511
Int. Cl. C04b 13/30

U.S. Cl. 106—94

1 Claim

This invention relates to a method of grinding portland cement clinker with an aqueous admix consisting essentially of substantially completely saponified pitch or tall oil rosin or a mixture thereof, having from 5% to 70% total solids to yield an improved cement product. The admix is added with the clinker in an amount sufficient to leave a residue of about 0.005% to about 0.5% by weight of cement product in the resultant cement.

3,565,650

LIGHTWEIGHT CONCRETE PRODUCTS AND A PROCESS OF PRODUCING SAME
William A. Cordon, Logan, Utah, assignor of fifty percent to William A. Cordon, Paul H. Mills, and Robert D. Wheeler (together), and fifty percent to Taylor Industries Inc., Salt Lake City, Utah, a corporation of Utah
Filed May 18, 1966, Ser. No. 551,063
Int. Cl. C04b 13/02, 31/02

U.S. Cl. 106—97

8 Claims

A lightweight concrete product comprises concrete aggregate, which is at least about 50% by weight expanded perlite fines compressed into substantially interlocking relationship while containing absorbed water but substantially in the absence of free liquid, and portland cement bonding the aggregate together. The product is made by mixing concrete aggregate containing at least about 50% expanded perlite by weight with sufficient portland cement to bind the aggregate together when the mixture is compressed to the point of establishing interlocks between the particles of perlite fines to provide adequate green strength for handling, but with only so much water for hydrating the portland cement as will be absorbed by the perlite fines, and by thereafter compressing the mixture to establish the interlocks.

3,565,651

ADHESIVE PROCESS

Doyle H. Waggle, Webster Groves, Mo., assignor to Ralston Purina Company, St. Louis, Mo., a corporation of Missouri
No Drawing. Filed Aug. 19, 1968, Ser. No. 753,737
Int. Cl. C08h 7/00

U.S. Cl. 106—154

5 Claims

A method of producing an adhesive is disclosed. The adhesive is produced by reacting carbohydrate material or carbohydrate precursors at high pressure to convert the carbohydrate material to an adhesive. The reaction can be catalyzed by acid and can be performed continuously in an extrusion cooker.

3,565,652

METHOD OF COLORING VISCOS

Staats G. Burnet, Mobile, and Donald S. Nelson, Eight Mile, Ala., assignors to Courtaulds North America Inc., New York, N.Y., a corporation of Alabama
No Drawing. Filed May 22, 1967, Ser. No. 640,337
Int. Cl. C08b 21/20; D01f 3/12, 3/18

U.S. Cl. 106—165

2 Claims

Shaped articles of regenerated cellulose are given opacity or color or both by introducing a glass frit into viscose from which the articles are made.

3,565,653

SENSITIVE PIGMENT FOR PRESSURE-SENSITIVE RECORD MATERIAL

Glen A. Hemstock, Princeton, and Barry S. Miller, Roselle, N.J., assignors to Engelhard Minerals & Chemicals Corporation, Woodbridge, N.J., a corporation of Delaware
No Drawing. Filed Apr. 10, 1968, Ser. No. 727,128
Int. Cl. C09c 1/28

U.S. Cl. 106—288

3 Claims

Partially rehydrated metakaolin (a form of calcined clay) is ion-exchanged with a nickelous salt. The resulting nickel-exchanged aluminum silicate pigment reacts with various leuco dye material in a chromogenic reaction. The pigment is used in pressure-sensitive record material with reactive dye material.

3,565,654

PROCESS FOR TREATING POLYAMIDE-BASED RESIN PARTICLES FOR USE IN ELECTRO-GRAPHY

Augustus L. Story, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
No Drawing. Filed Aug. 29, 1966, Ser. No. 575,571
Int. Cl. C08h 9/00

U.S. Cl. 106—243

10 Claims

There is disclosed the preparation of an electro-photographic decorating composition comprising highly electrically resistant decorative powder particles consisting of an organic polyamide resin-based composition treated with alkali silico aluminate in an amount sufficient to increase the electrical conductivity thereof.

3,565,655

METHOD OF PREPARING AQUEOUS METALLIC FLAKES

Isao Higaki, Gose-shi, Japan, assignor to Showa Aluminum Powder Co., Ltd., Gose-shi, Nara, Japan
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,989
Claims priority, application Japan, May 9, 1967, 42/28,874
Int. Cl. C09c 1/62

U.S. Cl. 106—290

18 Claims

A method of preparing aqueous metallic flakes where in a malleable metal or malleable metal alloy is ground

in an aqueous medium containing a higher fatty acid, morpholine in at least an equimol amount with the fatty acid, and a solubilized normally non-water soluble organic liquid.

3,565,656

NOVEL ALUMINUM LAKE PIGMENTS OF IRON HYDROXIDES

Howard T. Allen and John F. Santimauro, Wyckoff, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Apr. 11, 1968, Ser. No. 720,476
Int. Cl. C09c 1/0, 1/22, 1/24

U.S. Cl. 106—304

3 Claims

Soft, easily dispersible iron oxide pigments are obtained by laking, i.e. precipitating, freshly prepared ferrous/feric hydroxide together with aluminum hydroxide, filtering, washing the precipitate inorganic salt-free, and drying the product. When incorporated into synthetic resin systems, e.g. thermosetting acrylic resins, pigmented coating compositions of excellent fastness characteristics and transparency are obtained.

3,565,657

PROCESS FOR TREATING FURNACE CARBON BLACK

Eli M. Dannenberg, Waban, Raymond P. Rossman, Wellesley Hills, Bran B. Boonstra, Sharon, and Frank R. Williams, Squantum, Mass., assignors to Cabot Corporation, Boston, Mass., a corporation of Delaware
No Drawing. Continuation of application Ser. No. 562,924, July 5, 1966, which is a continuation of application Ser. No. 219,765, Aug. 27, 1962. This application June 19, 1967, Ser. No. 647,255
Int. Cl. C09c 1/50

U.S. Cl. 106—307

12 Claims

A process is described for making a furnace carbon black which is well suited for use as a reinforcing filler in relatively saturated synthetic elastomers. This process involves converting a hydrocarbon raw material to carbon black in a furnace operated so as to produce a black of relatively low structure as indicated by an oil absorption value below about 115 pounds oil per 100 pounds of black. The resultant black is then treated with a chemical oxidizing agent selected from the group consisting of nitric acid, nitrogen oxides, ozone and mixtures thereof until the pH of said black has been reduced to about 4 or below, the volatile content has been increased to about 3% by weight or more and the diphenyl quatinide uptake for a half gram sample of said black has been raised above about 25%.

3,565,658

CARBON BLACK DISPERSING AGENT

Arthur E. Frazier and Robert E. Dollinger, Phillips, Tex., assignors to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed July 19, 1968, Ser. No. 745,960
Int. Cl. C09c 1/56, 3/00

U.S. Cl. 106—307

7 Claims

A material which acts both as a pelleting agent and a dispersant for carbon black in rubber which comprises a polyethoxylated amine contained in carbon black in the amount of about 0.1 to about 10%.

3,565,659

PROCESS FOR PRODUCING CARBON BLACK PELLETS FOR INK FORMULATIONS

Theodore Dickerson, Monroe, La., assignor to Citiles Service Company, a corporation of Delaware
No Drawing. Filed Feb. 1, 1968, Ser. No. 702,198
Int. Cl. B02c 19/06; C09c 1/56, 1/60

U.S. Cl. 106—307

13 Claims

Fluffy particles of the carbon black are violently agitated in comixture with a micro-atomized fog of oil

3,565,660

CHEMICAL MASKING COMPOSITION

Thomas F. Sincoc, Simsbury, Conn., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Jan. 3, 1968, Ser. No. 695,359
Int. Cl. B05c 3/20; B29d 27/00

U.S. Cl. 117—5.5

5 Claims

The present invention relates to a coating composition comprising a resinous ester dissolved in alcohol which is used to mask portions of a polystyrene-containing plastic from a liquid foaming agent which is used to foam unmasked surface portions of the plastic.

3,565,661

FLOOR COVERINGS AND THE LIKE

Alan Morley Harrison, Welwyn, England, assignor to Welwyn Plastics (1955) Limited, Welwyn, England, a British company
No Drawing. Filed June 14, 1968, Ser. No. 736,953
Claims priority, application Great Britain, Jan. 12, 1968, 1,918/68
Int. Cl. B44c 1/20, 1/22

U.S. Cl. 117—9

6 Claims

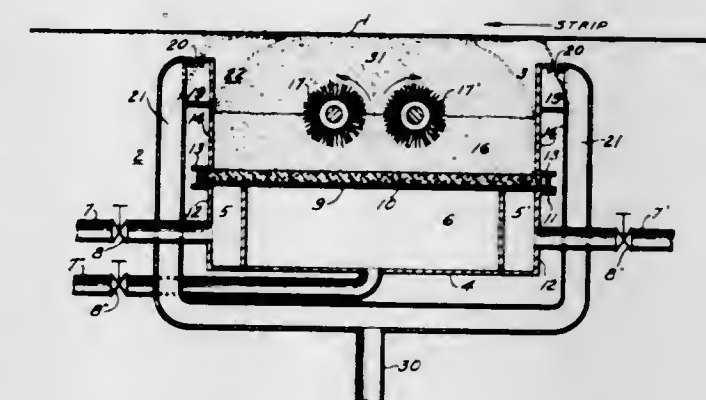
An improved floor covering and a process for making the same. A base material in sheet form having a coating of a thermoplastic material such as polyvinyl chloride impregnated with an abrasive substance in grit form. A second coating of a thermoplastic material is preferably applied over the first coating also containing an abrasive in grit form to which silicon carbide is sprinkled thereover. The tread surface of the floor covering is embossed to provide small indentations therein.

3,565,662

STRIP COATING METHOD AND APPARATUS
George W. Ward, Nazareth, Pa., and Herbert Wald and William O. Blanch, Baltimore, Md., assignors to Bethlehem Steel Corporation, a corporation of Delaware
Continuation of application Ser. No. 498,648, Oct. 20, 1965. This application May 21, 1969, Ser. No. 828,431
Int. Cl. B44d 1/095

U.S. Cl. 117—16

9 Claims



In a method of coating metal strip with powder, air is introduced into a plenum chamber and forced through a superimposed diffusing plate to fluidize powder in a chamber above said plenum chamber and plate. Brushes, located in the fluidizing chamber, displace part of the fluid-

ized powder to a coating zone directly above the fluidizing chamber. Strip passes through the coating zone wherein the underside of the strip is coated.

3,565,663

METHOD OF PROVIDING A METAL SUBSTRATE WITH A METALLIC COATING

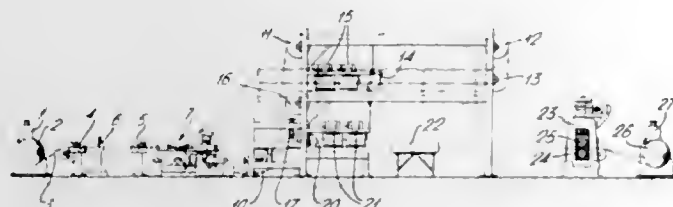
Patrick Costelloe, Chester, and Albert Edward Jackson, Wendover, Gwernaffield, Mold, England, assignors to John Summers & Sons Limited, Flintshire, England, a British company

Filed May 13, 1968, Ser. No. 728,440
Claims priority, application Great Britain, June 8, 1967, 26,584/67

Int. Cl. C23c 17/00

U.S. Cl. 117-17

12 Claims



The method of providing a surface of a metal substrate with a metallic coating comprises cleaning the said surface by removing any metallic oxide or other contamination therefrom without thereby introducing hydrogen into the said surface, coating the cleaned surface with both a solution of sodium or potassium silicate and with a metallic powder, and subsequently treating the coated substrate to make the metallic coating adhere tightly thereto.

3,565,664

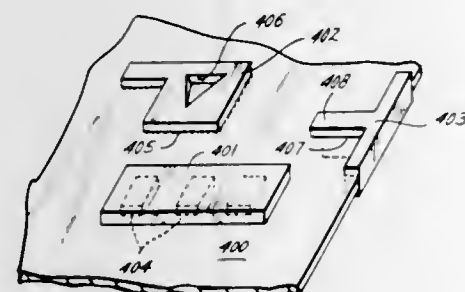
METHODS FOR MASKING SELECTED PORTIONS OF ARTICLES TO BE COATED

Rene J. Al, Houston, Tex., assignor to Schlumberger Technology, New York, N.Y., a corporation of Texas
Filed Jan. 24, 1968, Ser. No. 700,141

Int. Cl. B44d 1/095

U.S. Cl. 117-18

23 Claims



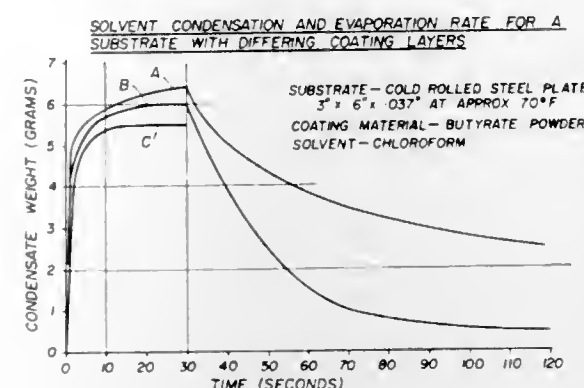
The particular embodiments described herein as illustrative of the present invention relate to the masking of particular portions of an article to be coated. More particularly, the present invention as disclosed herein is directed to techniques for masking selected portions of heat-conductive articles that are to be heated and then fusion-coated by application thereto of pulverulent particles of fusible thermoplastic or thermosetting coating materials. After the articles have been coated and the masks are removed, the coatings are terminated in well-defined edges at the boundaries of the masked portions. The mask is made of a low thermal conductivity material which is capable of withstanding prolonged exposure to elevated temperatures such as cork, wood, sheet asbestos and felt and the coating can be applied by a fluidized bed.

3,565,665
SOLVENT VAPOR FUSION METHOD
James G. Stranch and Edward E. Denison, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Continuation-in-part of application Ser. No. 491,287, Sept. 29, 1965. This application May 22, 1969, Ser. No. 830,916

Int. Cl. B44d 1/48, 1/094

U.S. Cl. 117-21

7 Claims



A method for coating an article with a continuous polymeric film including the steps of (a) depositing and adhering a layer of polymeric material in particulate form to the article's exterior surface, (b) maintaining the coated article at a temperature below the boiling point of a selected composition which is a solvent for the polymeric material at its boiling point and within a temperature range below its boiling point, and (c) exposing the article to an atmosphere containing the selected composition in vapor form, whereby the vapors condense on the surface of the article and cause the polymeric material to fuse and form a continuous film on the surface of the article.

3,565,666
CAPSULE-COATED RECORD SHEET (WITH SUBCOAT OF LATEX)
Paul S. Phillips, Jr., Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,973
Int. Cl. B41m 5/22

U.S. Cl. 117-36.2 6 Claims
This invention relates to pressure-sensitive record sheet material including a base record material sheet having at least on one surface a subcoating of latex material over which is coated a layer of printing-liquid-containing pressure-rupturable microcapsules. This sheet is used capsule-coated side against a sheet sensitized to react with liquid released by imaging printing pressure made against the capsule-coated sheet to yield a distinctively-colored image. The latex coating serves the purpose of cushioning the capsules against rupture by casual pressure occurring in handling, rolling, and stacking of the sheet material, and assists in the transfer of capsule-yielded liquid to the sensitized sheet by resisting wetting of the capsule-bearing base sheet by the liquid released from the ruptured capsules.

3,565,667
METHOD OF CHEMICAL NICKELING AND CADMIUM CHEMICAL PLATING OF METALLIC AND NONMETALLIC SUBSTRATES
Carl Klingspor, 17 Waldstrasse, 59 Siegen, Westphalia, Germany
No Drawing. Filed Nov. 8, 1967, Ser. No. 681,568
Int. Cl. B44d 1/09; C23c 3/00

U.S. Cl. 117-47 7 Claims
A method of applying smooth nickel or cadmium coatings to metallic or nonmetallic (e.g., fabric) substrates in

which the degreased and deoxidized substrate surface is treated with an aqueous solution of a cadmium or nickel salt (e.g., the metal sulfate or chloride) and sodium hypophosphite whereby, after the addition to the chemical-plating bath of an organic acid (preferably formic acid), the bath is raised from its pH of about 2 with a basic compound (e.g., NH_4OH) to approximate neutrality (pH of about 6.5 to 9) and is stabilized thereafter by a complex former of the ethylenediaminetetraacetic acid (EDTA family).

3,565,668
PROCESS FOR PREPARING MICROPOROUS SHEET MATERIALS
Francis J. Farrell, Nashville, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 705,609, Feb. 15, 1968. This application May 27, 1968, Ser. No. 732,047

Int. Cl. B44d 1/44

U.S. Cl. 117-63

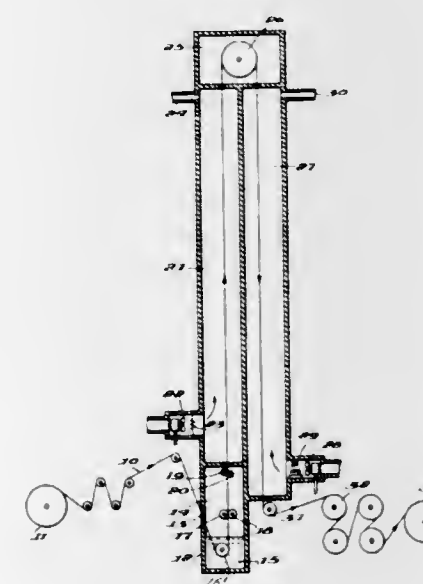
8 Claims

A process for preparing microporous sheet materials is disclosed wherein a layer of a polymer solution containing the required amount of inert liquid is applied at a suitable temperature to a substrate (e.g., a fabric), and then the layer of solution is subjected to cooling and bathing conditions such that (1) the layer is cooled by at least 5°C ., (2) the solution is converted to a substantially colloidal polymeric dispersion and (3) the layer is bathed with a suitable bathing liquid adapted to extract said solvent until substantially all the solvent is extracted.

3,565,669
PROCESS FOR IMPROVING THE PERMANENT SHRINKAGE PROPERTIES OF REGENERATED CELLULOSE FILM
Daniel E. McDermott and James P. Janosik, Richmond, Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Feb. 13, 1968, Ser. No. 705,158
Int. Cl. B44d 1/44

U.S. Cl. 117-62

4 Claims



A process for improving the permanent shrinkage and durability properties of coated regenerated cellulose film which comprises simultaneously humidifying and shrinking the coated regenerated cellulose film in an operation subsequent to the application of the coating onto the web.

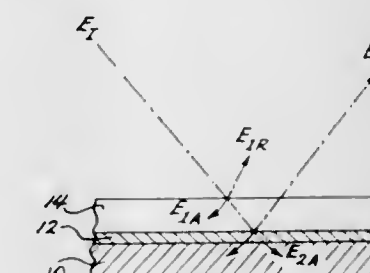
3,565,670
PROCESS FOR MANUFACTURE OF ARTIFICIAL LEATHER
Toshikazu Shinohara, Ohtsu-shi, Toyohiko Hikota, Kyoto, and Hiroshi Hattori, Ohtsu-shi, Japan, assignors to Toray Industries, Inc., Chuo-ku, Tokyo, Japan
No Drawing. Filed Aug. 5, 1968, Ser. No. 749,960
Claims priority, application Japan, Aug. 10, 1967, 42/50,928; Apr. 17, 1968, 43/25,239
Int. Cl. B44d 1/44; D06n 3/04, 3/06

U.S. Cl. 117-63 10 Claims
A process for the manufacture of an artificial leather, which comprises a first step wherein a fluff-holding high-molecular-weight polymer is applied to the surface of a fibrous sheet material and the surface of said fibrous sheet material is contacted with a smooth surface heated to a temperature not lower than the glass transition point of fibers that constitute said fibrous sheet material but not higher than the melting point of said high-molecular-weight polymer to thereby hold down the fluffs on the surface of the sheet material and a second step wherein a binder solution and subsequently a coating synthetic resin solution are applied to said fibrous sheet material and thereafter coagulated.

3,565,671
THERMAL CONTROL OF SPACECRAFT AND THE LIKE
Robert O. Teeg, Grosse Pointe, and Robert W. Hallman, Utica, Mich., assignors to Teeg Research, Inc., Detroit, Mich., a corporation of Delaware
Continuation-in-part of application Ser. No. 471,580, July 13, 1965. This application Aug. 22, 1968, Ser. No. 769,772
Int. Cl. G02b 5/08

U.S. Cl. 117-71

9 Claims



A passive thermal control system for an enclosure such as a spacecraft or an artificial satellite comprising a surface coating of a material, such as vanadium dioxide, that exhibits a thermally induced change in radiation transmissivity at a predetermined temperature.

3,565,672
METHOD OF IMPROVING RESISTANCE TO CORROSION OF METAL SURFACE AND RESULTANT ARTICLE
Ben E. Adams, Carlsbad, N. Mex., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
No Drawing. Filed May 8, 1968, Ser. No. 729,875
Int. Cl. B32b 15/04; B44d 1/14

U.S. Cl. 117-75 25 Claims
This disclosure relates to a method of improving resistance to corrosion of metal surfaces, wherein the method comprises:

- applying to the metal surface a grease-like composition consisting essentially of a nonvolatile diluent, an oil-soluble dispersing agent, and a basic alkaline earth metal compound, and
- applying to the coated metal surface a conventional paint.

An important feature is the use of the particular grease-like composition as a primer coating.

3,565,673

NITROGEN-FREE MOLDING COMPOSITION
Peter Herbert Richard Bryan Lemon, "Pandle," Newtown Road, Newtown, Romsey, Hampshire, England; John Ireland, 21 Alfriston Gardens, Sholing, Southampton, Hampshire, England; and Frederick Louis Le Serve, 17 Eastwood, Crawley, Sussex, England
No Drawing. Filed Nov. 13, 1968, Ser. No. 775,503
Claims priority, application Great Britain, Nov. 14, 1967, 51,867/67

Int. Cl. B44d 1/09; C08g 37/08

U.S. Cl. 117—100 8 Claims

This invention relates to nitrogen-free moulding compositions and to the method of preparing substantially nitrogen-free moulds and cores, wherein a granular refractory material is coated with a liquid novolak, liquid resole, and a waxy material and the pH of coated sand, measured as hereinafter described, is below about 5.5.

3,565,674

DEPOSITION OF SILICON NITRIDE

Bernard W. Boland and Don M. Jackson, Jr., Scottsdale, and James H. Williams, Tempe, Ariz., assignors to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

No Drawing. Continuation of application Ser. No. 679,217, Oct. 30, 1967. This application Mar. 10, 1970, Ser. No. 17,046

Int. Cl. C23c 11/00

U.S. Cl. 117—106 6 Claims

Silicon nitride is deposited by the reaction of silane with ammonia, in a hydrogen ambient, upon contact with a heated substrate. The ratio of ammonia to silane is particularly critical in determining the nature of the nitride deposit.

3,565,675

COATINGS FROM LITHIUM SILICATE

Robert H. Sams, Aldan, Pa., assignor to Philadelphia Quartz Company, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Oct. 5, 1966, Ser. No. 584,374

Int. Cl. C04b 41/00

U.S. Cl. 117—123 12 Claims

Siliceous films are developed on hydroxylated surfaces by heating them in contact with a solution of lithium silicate.

3,565,676

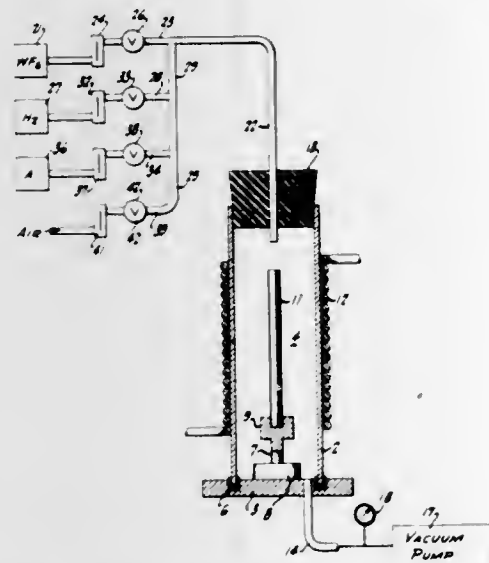
CHEMICAL VAPOR DEPOSITION METHOD

Robert A. Holzl, La Canada, Calif., assignor to Fansteel Metallurgical Corporation, North Chicago, Ill., a corporation of New York

Filed Apr. 1, 1968, Ser. No. 717,798

Int. Cl. C23c 11/00, 13/02

U.S. Cl. 117—107.2 6 Claims



In a chemical vapor deposition process wherein refractory material is coated on a hot surface from the hexa-

fluoride state, a controlled amount of oxygen or oxygen-producing material introduced into the system during the deposition process controls residual fluorine content and provides markedly improved physical characteristics to the resultant deposited coating.

3,565,677

PROCESS OF CONTROLLING THE THICKNESS OF ALUMINUM DEPOSITED ON STEEL WIRE BY CONTROLLING THE DEPTH OF THE BATH OF MOLTEN ALUMINUM

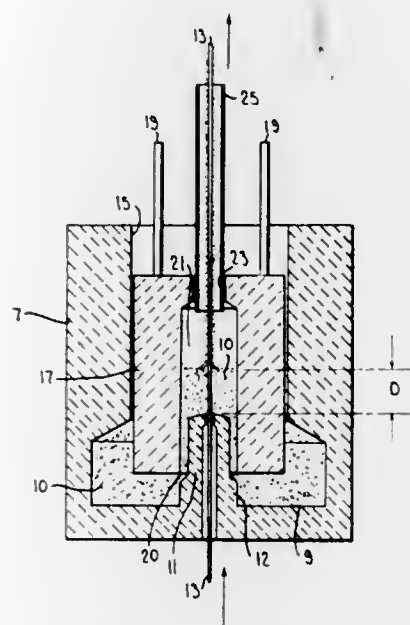
Paul A. Dion, North Attleboro, Mass., and Brian C. Coad, Oakland, Calif., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Continuation of application Ser. No. 805,951, Feb. 19, 1969, which is a continuation of application Ser. No. 514,055, Dec. 15, 1965. This application Dec. 17, 1969, Ser. No. 882,399

Int. Cl. C23c 1/08

U.S. Cl. 117—114

1 Claim



A bath of aluminum is maintained at certain depths less than approximately 2½ inches. At a given depth below 2½ inches a steel core wire is continuously moved up vertically through the bath. The temperature of the core wire and that of the bath affect the amount of aluminum that is retained by freezing on the core independently of a substantial range of wire speeds. At a given bath depth less than 2½ inches the percentage of weight of aluminum coating clinging to the steel core may be adjusted simply by varying their relative temperatures.

ERRATUM

For Class 117—126 see:
Patent No. 3,565,549

3,565,678

METHOD OF PROTECTING THE FINISH OF METAL AGAINST OXIDATIVE DETERIORATION

Keith L. Johnson, Matteson, and Harry T. Anderson, Clarendon Hills, Ill., assignors to Swift & Company, Chicago, Ill., a corporation of Delaware

No Drawing. Filed Apr. 26, 1968, Ser. No. 724,613

Int. Cl. B01f 17/22; C23f 11/00

U.S. Cl. 117—134 6 Claims

Optically transparent unified emulsions of water and oil are disclosed. These emulsions, when incorporated with appropriate corrosion inhibitors and applied to metallic surfaces, provide storage protection for the metal against extremely high humidity levels and extreme cycles of temperature and humidity.

3,565,679

LEACHPROOF FIRE-RESISTANT COMPLEX FOR CELLULOSIC SUBSTRATES

Greene W. Strother, Jr., Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed June 3, 1968, Ser. No. 733,792

Int. Cl. C09d 5/18; C09k 3/28

U.S. Cl. 117—136

7 Claims

Cellulosic substrates, e.g. wood, textiles or paper, have increased fire-resistance when treated with an aqueous solution of a complex of a polyalkylene-polyamine, e.g. polyethylenimine, and a condensation product of phosphorus pentoxide and ammonia. Application of the complex is by conventional methods, e.g. spraying, painting, or dipping, and results in leachproof protection.

3,565,680

TREATMENT OF WASH/WEAR WOOL-CONTAINING FABRICS

Angelo J. Ramunda, Fair Lawn, Joseph T. Bielen, East Paterson, and George D. Maynard, Jr., Bound Brook, N.J., assignors to Millmaster Onyx Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed May 20, 1968, Ser. No. 730,648

Int. Cl. D06m 3/02

U.S. Cl. 117—141

3 Claims

This invention relates to a composition of matter for, and a treatment of fabrics made of wool and blends of wool and other materials, whereby the fabric has a high degree of crease retention and fabric smoothness after laundering but is resistant to wrinkles after the treatment. The treatment comprises applying to the fabric and drying a composition containing as the active ingredients a methylolated methoxy or hydroxy lower alkyl carbamate plus melamine-formaldehyde or its methyl ether, with or without added methoxy methyl urea, then forming the desired creases or pleats, pressing them in place, and, finally, curing the composition on the fabric at an elevated temperature.

3,565,681

ANTIRUST PAPER

Wally Z. Walters, Piedmont, and Michael F. Shillingburg, Keyser, W. Va., assignors to Westvaco Corporation, a corporation of Delaware

No Drawing. Filed June 28, 1967, Ser. No. 649,460

Int. Cl. B32b 29/00; C09d 5/08

U.S. Cl. 117—155

10 Claims

Paper bearing a coating comprising an alkaline earth metal hydroxide in an amount to give antirust properties when subjected to corrosive environments.

The antirust paper has a coating of at least 1 pound of calcium hydroxide and the calcium hydroxide is bound to the paper by a water-dispersible adhesive which is nongellable in the presence of calcium ions. The coating may contain an antigelling agent to prevent gelation of the adhesive in the presence of calcium ions.

3,565,682

CERAMIC ELECTRICAL RESISTORS CONTAINING PdMO₂, WHERE M IS Co, Cr, Rh OR Cr/Rh

Donald B. Rogers and Robert D. Shannon, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Application Apr. 2, 1968, Ser. No. 718,046, now Patent No. 3,498,931, dated Mar. 3, 1970, which is a continuation-in-part of application Ser. No. 625,318, Mar. 23, 1967. Divided and this application Sept. 25, 1969, Ser. No. 860,886

Int. Cl. C01g 55/100; H07b 1/08

U.S. Cl. 117—201

12 Claims

Palladium oxides of the formula PdMO₂, wherein M is cobalt, chromium, rhodium, or a mixture of chromium

with rhodium, can be mixed with a vitreous enamel or glass frit and optionally with other additives to form ceramic electrical resistor compositions. Such compositions are applied to a ceramic dielectric substrate and fired, forming the conductive coating of a ceramic electrical resistor.

3,565,683

COATED FILAMENTS

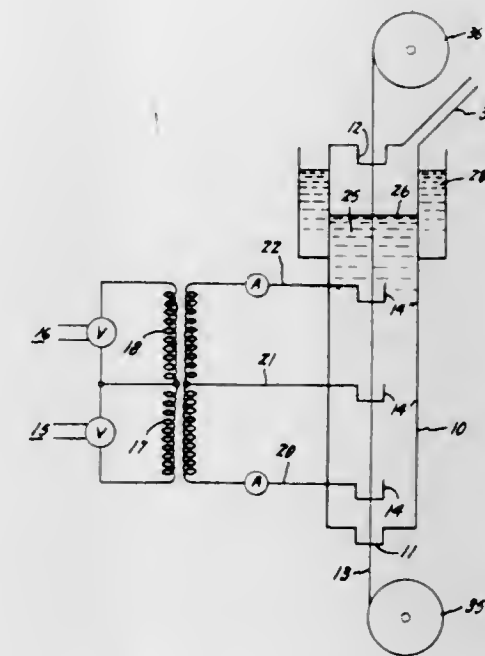
Charles R. Morelock, Ballston Spa, N.Y., assignor to General Electric Company, a corporation of New York

Filed Mar. 21, 1968, Ser. No. 714,853

Int. Cl. B44d 1/18

U.S. Cl. 117—215

4 Claims



A boro-carbon coating is deposited upon the electrically heated surface of a pyrolytic carbon coated fused silica or quartz fiber as it is passed through a liquid thermally decomposable boron compound such as boron trichloride dissolved in a non-polar organic solvent such as benzene. The heated portion of the filament produces an envelope of solvent vapor and boron trichloride gas which are pyrolytically decomposed and carbon and boron simultaneously deposited on the filament. The disclosed apparatus includes a mercury electrode structure and other features believed to be novel.

3,565,684

METALLIZED CERAMIC AND METHOD AND COMPOSITION THEREFOR

Robert W. Buck, Wheat Ridge, Colo., assignor to Coors Porcelain Company, Golden, Colo., a corporation of Colorado

No Drawing. Filed May 23, 1968, Ser. No. 731,606

Int. Cl. B44d 1/18; C09d 5/00

U.S. Cl. 117—217

8 Claims

Sintered beryllium oxide base ceramic is metallized by applying thereto a layer of a mixture of about 70 to 85% by weight molybdenum powder and about 15 to 30% by weight lanthanum oxide powder and then heating to a temperature sufficient to sinter the molybdenum powder and to cause the lanthanum oxide to react with the beryllium oxide to form a liquid phase which penetrates and fills the interstices of the sintered molybdenum to provide a strongly bonded metallized surface on the beryllium oxide ceramic to which other metals may then be easily bonded for forming electrical connections or to form a sealed structure.

3,565,685

INSULATED CONDUCTORS AND METHOD OF MANUFACTURE THEREOF

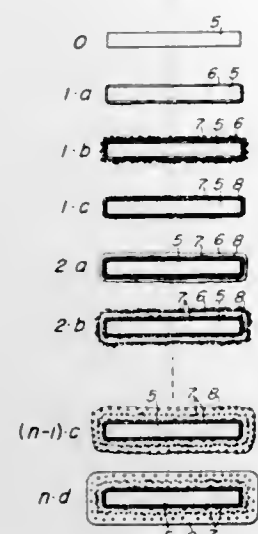
Takashi Suzuki, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan

Filed Nov. 29, 1968, Ser. No. 780,119

Int. Cl. B44d 1/094; H01f 3/02

U.S. Cl. 117—218

3 Claims



The invention pertains to a method for producing and the resulting product which is an elongated rod shaped or strip shaped electric conductor having formed on the surface thereof an electric insulating coating consisting of a synthetic thermosetting resin having inorganic fine particles therein. The percentage content of the inorganic fine particles is progressively higher in a layer of the coating closer to the surface of the substrate conductor.

3,565,686

CADMIUM SULFIDE-SELENIDE PHOTODETECTORS AND PROCESS FOR MANUFACTURE THEREOF

Gary D. Babcock, Mission Viejo, and Steve Y. Muto, Cupertino, Calif., assignors to North American Rockwell Corporation

Filed Sept. 25, 1967, Ser. No. 670,358

Int. Cl. H01d 7/00

U.S. Cl. 117—227

17 Claims

A cadmium sulfide-selenide photodetector and a process for the manufacture thereof comprising vacuum depositing cadmium sulfide, cadmium selenide and silver in predetermined ratios onto a substrate, maintaining the substrate temperature during deposition to within $\pm 1^\circ$ C. of a value within the range from 60° C. to 85° C., maintaining the cadmium sulfide-selenide evaporation boat temperature during deposition to within $\pm 2^\circ$ C. of a value which is greater than 850° C., and post-evaporation firing said photodetector by covering the detector with cadmium sulfide powder doped with chlorine and copper, applying heat for a predetermined period of time and maintaining the temperature of the applied heat within a range from 500° C. to 700° C.

3,565,687

MANUFACTURING METHOD OF XYLOSE WITH COTTONSEED HULLS AS MATERIAL

Kinshi Suminoe, Tokyo, and Kunitugu Okamura, Osaka, Japan; said Okamura assignor to Okamura Seiyu Kabushiki Kaisha, Osaka-fu, Japan

No Drawing. Filed Feb. 26, 1968, Ser. No. 711,154

Int. Cl. C13k 1/02, 9/00

U.S. Cl. 127—37

3 Claims

A method of manufacturing xylose from cottonseed hull involving the steps wherein (1) cottonseed hull, af-

ter adding 0.1% to 1.0% alkali solution thereto, is heated under a pressure between ambient and 1 kg./cm.² gauge, the resultant impurities dissolved in the said solution being removed therefrom, (2) the thus treated cottonseed hull is then hydrolyzed by heating with sulfuric acid and the acetic acid by-product removed from the resultant saccharified solution by evaporation by blowing steam across the solution; and (3) the solution of step 2 is neutralized by adding lime thereto, the resultant precipitate is filtered and the residual lime is removed from the resultant filtrate by adding oxalic acid thereto and causing the lime to precipitate.

3,565,688

METHODS OF PICKLING FERROUS METALS

Patrick Costelloe, Chester, and Albert Edward Jackson, Gwernaffield Mold, England, assignors to John Summers & Sons Limited, Deeside, England, a British company

No Drawing. Filed May 27, 1968, Ser. No. 732,059

Claims priority, application Great Britain, June 8, 1967, 26,585/67

Int. Cl. C23g 1/02

U.S. Cl. 134—3

5 Claims

A method of pickling ferrous metal comprising treating said ferrous metal with a solution containing dilute nitric acid, said solution containing urea to inhibit the accumulation of nitrous acid and oxides of nitrogen in the solution.

3,565,689

METHOD AND APPARATUS FOR PURGING LIQUID AND LIQUID VAPOR FROM THE INSIDE OF AN ELONGATED TUBE

James H. Lowe and Christopher E. Wainwright, Stittsville, Ontario, and William E. J. Moss, Bells Corners, Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Dec. 31, 1968, Ser. No. 793,640

Int. Cl. B08b 9/04

U.S. Cl. 134—8

7 Claims



A source of dry pressurized gas is applied about a rear end surface of an elongated projectile in a confined space to propel the projectile into the interior of a tube to be purged of liquid and liquid vapor, and the supply of gas is maintained under pressure about the rear end surface of the projectile to drive it toward a remote open end of the tube.

3,565,690

SHOCK-RESISTANT STORAGE OR ELECTROLYTIC CELLS

Michel Guy Marie Jochaud du Plessix, Paris, and Jean-Paul Emile Gomis, Villemomble, France, assignors to Societe des Accumulateurs Fixes et de Traction (Societe Anonyme), Romainville, France, a company of France

Filed July 26, 1965, Ser. No. 474,569

Claims priority, application France, Aug. 4, 1964, 984,178

Int. Cl. H01m 35/04

U.S. Cl. 136—14

14 Claims

An effective shock and vibration resistant electric cell including a spirally wound assembly of electrodes

3,565,692

RECHARGEABLE NON-AQUEOUS ALKALI METAL-HALOGEN ELECTROCHEMICAL CELLS

Joseph L. Weininger, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

No Drawing. Filed Oct. 27, 1966, Ser. No. 589,823

Int. Cl. H01m 27/00

U.S. Cl. 136—86

11 Claims

A rechargeable non-aqueous alkali metal-halogen electrochemical cell is described which includes an alkali metal anode, a halogen cathode, a non-aqueous electrolyte, and an ion permeable barrier between the electrodes separating the electrolyte into anolyte and catholyte reservoirs. The barrier has finely divided particles having through pores and a binder joining the particles into a unitary structure.

3,565,693

GAS DEPOLARIZED CELL HAVING A SUPPORT ASSEMBLY FOR ELECTRODES

Philip Tapsell, Four Marks, near Alton, England, assignor to Energy Conversion Limited, London, England, a British company

Filed Oct. 29, 1968, Ser. No. 771,414

Claims priority, application Great Britain, Nov. 2, 1967, 49,955/67

Int. Cl. H01m 1/00, 27/00

U.S. Cl. 136—120

4 Claims

A support member for the cathode of a gas-depolarized cell incorporates on one side thereof a plurality of spaced projections for engaging an adjoining support member of an adjacent cell when mounted in a battery. The support member may comprise an inter-cell separator member with a mount for the cathode on one side thereof and a plurality of spaced projections on the other side, said projections being so arranged as to co-operate with those of the next cell when assembled in the battery. Preferably the cathode is mounted within a recess in one face of the member. Further projections and/or recesses are provided to enable adjoining support members to be registered with respect to each other when brought face-to-face. A moulding technique is preferred for the manufacture of the support member.

The invention lends itself particularly to the production of a bi-cathode member comprising two support members as described above arranged face-to-face with the projections extending outwardly and the cathode-bearing faces being spaced to receive an anode member for the cell.

3,565,694

BIPOLAR ELECTRODE AND METHOD OF MAKING SAME

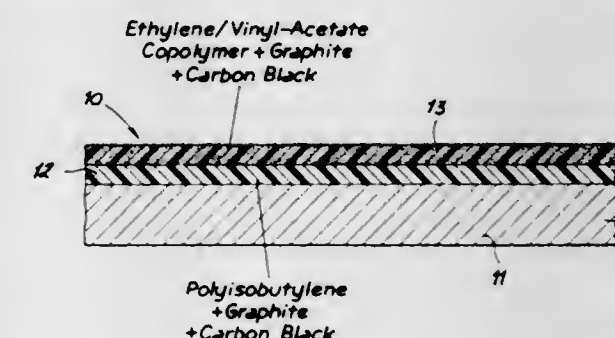
Roland F. Chireau, Saint Albans, N.Y., assignor to Yardney International Corp., New York, N.Y., a corporation of New York

Filed Mar. 17, 1969, Ser. No. 807,523

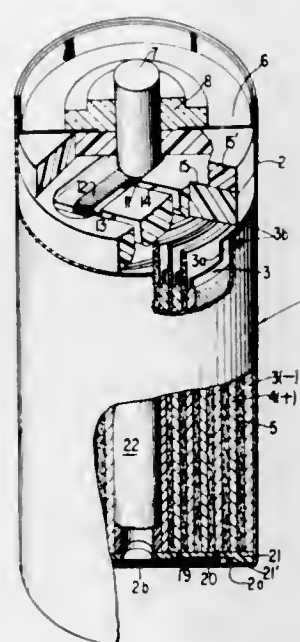
Int. Cl. H01m 13/02

U.S. Cl. 136—121

15 Claims



A bipolar electrode for use in a battery is formed by laminating a zinc sheet onto an aluminum foil and suc-



3,565,691

HIGH ENERGY DENSITY SILVER OXIDE-HYDROGEN BATTERY

Murray P. Strier, Santa Ana, and Harvey A. Frank, Newport Beach, Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif., a corporation of Maryland

Filed Nov. 12, 1968, Ser. No. 774,879

Int. Cl. H01m 35/02

U.S. Cl. 136—20

13 Claims

A solid-fluid cell or battery having a silver oxide cathode, a hydrogen catalyst anode, a separator comprising an inorganic material selected from the group consisting of (a) a solid solution consisting essentially of magnesium silicate and iron silicate, (b) zirconia and (c) alumina, positioned between the electrodes, and electrolyte material, e.g., a 30% aqueous solution of KOH, retained in said separator, to provide an improved high energy density battery of this type.

cessively depositing on the latter a pressure-sensitive adhesive layer of isobutylene polymer or copolymer and a tougher sealing layer of ethylene/vinyl-acetate copolymer, both polymeric layers being made conductive by an admixture of graphite in addition to carbon black.

3,565,695

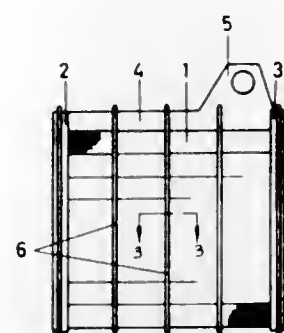
METHOD OF FORMING AN AMALGAMATED ZINC ELECTRODE

Elihu C. Jerabek, Voorheesville, N.Y., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,894
Int. Cl. H01m 13/08, 43/02

U.S. Cl. 136—126

2 Claims

A zinc electrode comprises a support, zinc powder pressed against the opposite surfaces of the support, and zinc powder amalgamated with mercury in the surface of the electrode. Additionally, a zinc electrode comprises a support, zinc powder amalgamated with a small weight percent of mercury pressed against the opposite surfaces of the support, and zinc powder in the surface of the electrode amalgamated to a higher level than the first amalgamation. A method of forming a zinc electrode comprises contacting the pressed electrode with an aqueous solution of a mercury salt thereby amalgamating the zinc powder in the surface of the electrode, and removing the remaining zinc salt residue.



deposited on pre-heated electrodes and cured by infrared heating. The extruded strings contain an adhesive additive to bond the strings to the electrode.

3,565,698

FAST-ANNEALING MALLEABLE CAST IRON METHOD

Christian de Mercoyrol de Beaulieu, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt, France, and Automobiles Peugeot, Paris, France
No Drawing. Filed Mar. 7, 1968, Ser. No. 711,210

Claims priority, application France, Apr. 5, 1967, 101,646

Int. Cl. C21d 5/06, 9/00

U.S. Cl. 148—3

2 Claims

Method of manufacturing pearlitic and/or ferritic malleable castings, wherein the white-cast pieces are annealed at a temperature and during a time sufficient to decompose the cementite, this method being characterized by the use of a cast iron containing at least 2% of Si, and by the fact that before the casting from 0.1% to 0.3% of mischmetal is added, the sulfur content being kept at $S \leq 0.025\%$ to permit the reduction of the total annealing heat-treatment cycle to less than 10 hours.

3,565,699

METAL COATING PROCESS

Elmer H. Plaxton, Bloomfield Hill, Mich., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Continuation-in-part of applications Ser. No. 378,946 and Ser. No. 378,982, both June 29, 1964. This application Dec. 31, 1968, Ser. No. 789,006

Int. Cl. C23f 7/10, 7/14, 7/26

U.S. Cl. 148—6.16

7 Claims

A metal coating process which comprises applying a phosphate or oxalate conversion coating composition to a zinc, aluminum or ferrous metal surface to form a substantially dry, uniform conversion coating, a portion of which is water-soluble. A neutralizing fixing or immobilizing coating composition is then applied which reacts out the water-soluble portion of the conversion coating to produce water-insoluble phosphates or oxalates and forms a substantially dry, uniform composite coating. A hexavalent chromium-containing stabilizing or passivating composition is also applied, either in a separate coating step or preferably by incorporating the hexavalent chromium containing material in the fixing coating composition. Preferably, all of the coating materials are applied by "mist-on" type spray application.

3,565,697

METHOD OF ARRANGING SEPARATOR MEMBERS BETWEEN ELECTRODES OF DIFFERENT POLARITY IN A GALVANIC PRIMARY OR SECONDARY CELL, AND A GALVANIC CELL PROVIDED WITH SUCH SEPARATOR MEMBERS

Arne Olof Nilsson and Jan-Erik Karlsson, Oskarshamn, Sweden, assignors to Svenska Ackumulator Aktiebolaget Jungner, Oskarshamn, Sweden, a corporation of Sweden

Filed Apr. 19, 1968, Ser. No. 722,708

Claims priority, application Sweden, Apr. 28, 1967, 6,131/67

Int. Cl. H01m 3/00

U.S. Cl. 136—142

5 Claims

Separators between electrodes of different polarity in galvanic primary or secondary cells are obtained by pro-

3,565,700

METHOD FOR PREPARING AND PURIFYING PURE DRY FLUORIDE MATERIALS

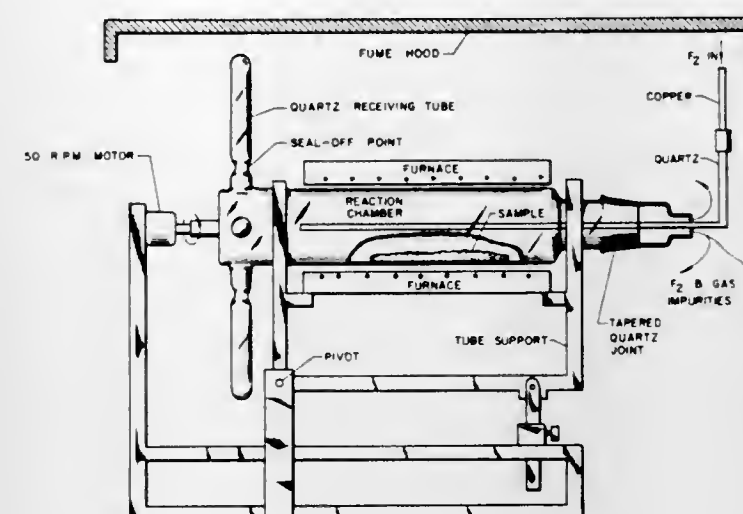
Charles B. Root, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed Dec. 10, 1968, Ser. No. 782,546

Int. Cl. C01d 3/02; C01f 11/22

U.S. Cl. 148—26

2 Claims



Methods for preparing and purifying alkali metal and alkaline earth metal salt compounds and mixtures thereof which involve the mixing and treatment of the material in a quartz reaction vessel with fluorine gas at an elevated temperature.

3,565,701

POST-WELD HEAT TREATED STRUCTURE WITH WELDED JOINTS NOT REQUIRING HEAT TREATMENT

Orwill Granger Sikora, Chicago Heights, Ill., assignor to Chicago Bridge and Iron Company, Oak Brook, Ill., a corporation of Illinois

Filed Sept. 12, 1968, Ser. No. 759,346

Int. Cl. B23p 3/00

U.S. Cl. 148—34

4 Claims

Disclosed are welded joints which do not require post-weld heat treatment used in the joining together, fabrication and closure of objects made of steel by welds which require post-weld heat treatment. The welded joints are useful in field or on-site fabrication of structures that require post-weld heat treatment followed by further welding, which cannot be post-weld heat treated for practical reasons, to complete the job.

3,565,702

DEPOSITING SUCCESSIVE EPITAXIAL SEMICONDUCTIVE LAYERS FROM THE LIQUID PHASE

Herbert Nelson, Princeton, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Feb. 14, 1969, Ser. No. 799,209

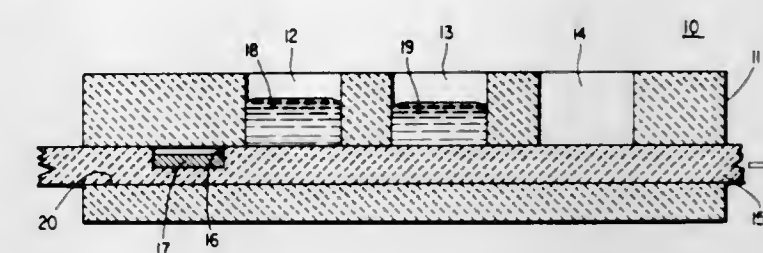
Int. Cl. H01l 7/38, 7/46

U.S. Cl. 148—172

4 Claims

Successive layers of crystalline semiconductive material are deposited on a substrate from the liquid phase by bringing one surface of the substrate in contact with a first solution consisting of a first semiconductive material dissolved in a first molten metallic solvent. The first solution is cooled to deposit a first epitaxial layer consisting of said first semiconductive material on the substrate surface. While the surface of the first epitaxial layer is still

covered with a liquid film of said first solution, the first epitaxial layer is brought in contact with a second solution consisting of a second semiconductive material dissolved in a second molten metallic solvent. The second solution is cooled to deposit a second epitaxial layer consisting of the second semiconductive material on the first epitaxial



layer. According to one embodiment, the first and second solutions consist of the same semiconductive materials dissolved in the same solvents, but the first solution contains a conductivity modifier of given conductivity type, while the second solution contains a conductivity modifier of the opposite conductivity type.

3,565,703

SILICON CARBIDE JUNCTION DIODE

G. Sanjiv Kamath, Wellesley, Mass., assignor to Norton Research Corporation, Cambridge, Mass., a corporation of Massachusetts

Continuation-in-part of applications Ser. No. 659,690,

Aug. 10, 1967, and Ser. No. 755,357, Aug. 26, 1968.

This application July 9, 1969, Ser. No. 840,255

Int. Cl. H01l 7/36

U.S. Cl. 148—172

7 Claims

The production of electroluminescent silicon carbide junction diodes is described. These diodes are preferably produced by growth from a silicon carbide or carbon solution in silicon formed between a surface of a p or n-type silicon carbide crystal and a source of carbon atoms such as a block of solid carbon. The silicon contains one or more p or n-type impurities so that a p-n junction is formed on the crystal. The reaction takes place under a temperature gradient in the growth zone of less than about 10° C./inch and preferably at an elevated temperature (between about 2200° C. and 2600° C.).

3,565,704

ALUMINUM NITRIDE FILMS AND PROCESSES FOR PRODUCING THE SAME

Ting Li Chu, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Dec. 19, 1967, Ser. No. 691,695

Int. Cl. H01l 7/36

U.S. Cl. 148—174

10 Claims

Processes for producing films of aluminum nitride in a flow system and in a closed system. In the flow system the ammonolysis of an aluminum trihalide or an aluminum trialkyl is capable of producing films of single crystal aluminum nitride suitable for use in junction devices or films of amorphous aluminum nitride suitable for use as a dielectric in electronic devices. In the closed system, aluminum nitride from a suitably located source is transported by either a hydrogen halide or an ammonium halide to a suitable substrate maintained at a lower temperature where a film of aluminum nitride is formed on the substrate.

3,565,705

PROCESS FOR MAKING SEMICONDUCTOR COMPONENTSAndré Renelle, 8 Rue des Brugnauts,
92 Bagneux, France

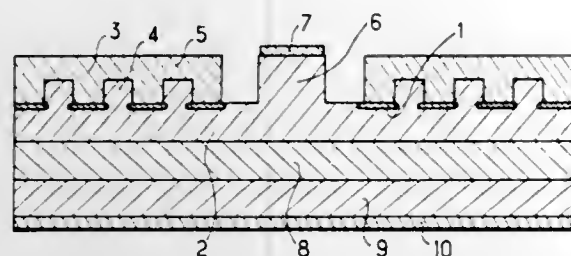
Filed Dec. 10, 1968, Ser. No. 782,703

Claims priority, application France, Dec. 18, 1967,
132,745

Int. Cl. H011 7/46

U.S. Cl. 148—179

9 Claims



A process for making semiconductor components formed of a number of adjacent semiconducting layers having opposite types of conduction and wherein at least one conducting surface constitutes an ohmic shunt between certain parts of each adjacent semiconducting layer.

3,565,706

INCENDIARY COMPOSITION CONTAINING A METALLIC FUEL AND A SOLID FLUOROCARBON POLYMERHal R. Walte, Rte. 1, Box 52E, Eldredge Road,
Fort Walton Beach, Fla. 32548

No Drawing. Filed Jan. 19, 1968, Ser. No. 699,056

Int. Cl. C06d 1/00

U.S. Cl. 149—19

10 Claims

Pyrotechnic compositions characterized by long-burning qualities and retentive incandescent ash maximizing effectiveness for incendiary bombs and similar military applications are formed of finely subdivided Groups IIIB, IVB or VB metal or metal hydrides and solid fluorocarbon polymer as oxidizer material in a mol ratio for fuel to oxidizer of between about 2.9 to 15, e.g., depleted uranium as fuel and polyfluoroalkyl acrylate polymer as oxidizer-binder.

3,565,707

METAL DISSOLUTION

Kenneth John Radimer, Little Falls, Frank Edward Caropreso, East Windsor, and Bernard James Hogya, Sayreville, N.J., assignors to FMC Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 529,643, Feb. 24, 1966. This application Mar. 3, 1969, Ser. No. 803,970

Int. Cl. C23f 1/00, 1/02

U.S. Cl. 156—3

9 Claims

Process for dissolving certain metals, namely nickel, tin and alloys thereof, which are not etched by persulfate solutions alone, by treating them in an etchant containing 8 to 45% by weight of a persulfate and 0.2 to 40% of an acid which may be either fluosilicic, fluoboric or hydrofluoric acid.

3,565,708

CARBON-STEEL DISINTEGRATING COMPOSITION AND METHODJack C. Ellis, 2298 S. 1st St.,
San Jose, Calif. 95112

No Drawing. Filed Mar. 8, 1968, Ser. No. 711,508

Int. Cl. C23f 1/00; C23g 1/20

U.S. Cl. 156—18

9 Claims

The metal-disintegrating composition consists of a mixture in water of sulphuric acid, nitric acid, acetic acid

and sodium chloride. The proportions of ingredients are such that the composition will disintegrate steels, such as high speed steel and carbon steel, commonly employed for the manufacture of machine tools. The composition will not cause deterioration of many of the metals which are commonly utilized for parts which are worked by machine tools. The metal-disintegrating method comprises the application of the composition to the steel, under a wide range of temperature conditions.

3,565,709

METHOD OF DECORATING PIECES OF SOAPElwood C. Grebe, 29—24 210th Place,
Bayside, N.Y. 11360

No Drawing. Filed Oct. 2, 1967, Ser. No. 672,016

Int. Cl. B44d 1/20

U.S. Cl. 156—62.2

4 Claims

A piece of soap is decorated by smoothing a piece of image carrying sheet material to a face of the soap piece in such a manner as to leave an annular face portion of the soap exposed around the entire edge of the sheet material, and completely covering the annular soap surface portion and the sheet material with a transparent, continuous, waterproof, and pliable layer of an organic coating material. Paraffin, when used for coating requires, predrying of the soap surface.

3,565,710

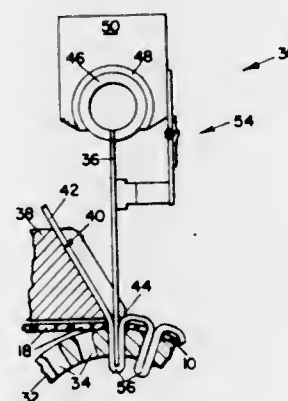
CARPET AND METHOD OF MAKING SAMEAlfred G. Garvin, 261 Maple Road,
Longmeadow, Mass. 01106

Filed Feb. 21, 1968, Ser. No. 707,186

Int. Cl. D05c 15/04

U.S. Cl. 156—72

1 Claim



The method of making a carpet comprising the steps of perforating a primary backing, feeding the primary backing to a rotatable drum having perforations registrable with the perforations in the primary backing, passing yarn through the perforations in the primary backing and drum to form loops in the yarn, and laminating a secondary backing to the undersurface of the primary backing.

3,565,711

PROCESS FOR JOINING LAYERS OF A WOVEN POLYAMIDIC MATERIAL AND FOR TIPPING THE ENDS OF A STRIP OF SUCH MATERIAL

Charles Block, North Bellmore, and Leon J. Mintz, Syosset, N.Y., assignors to Undergarment Assemblies, Inc., Copiague, N.Y., a corporation of New York

Continuation-in-part of application Ser. No. 476,502, Aug. 2, 1965. This application May 12, 1967, Ser. No. 696,664

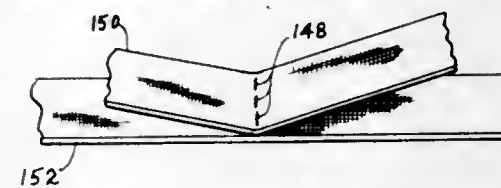
Int. Cl. B29c 27/08

U.S. Cl. 156—73

3 Claims

Superposed plies of woven polyamide-containing material are placed on a rigid anvil and are struck by a blunt

tool in one or more localized areas to bond together the plies in those areas. A tipping operation uses this



invention to form a tip on a strap of woven polyamide-containing material.

3,565,712

BOUND PLASTIC BOOKS

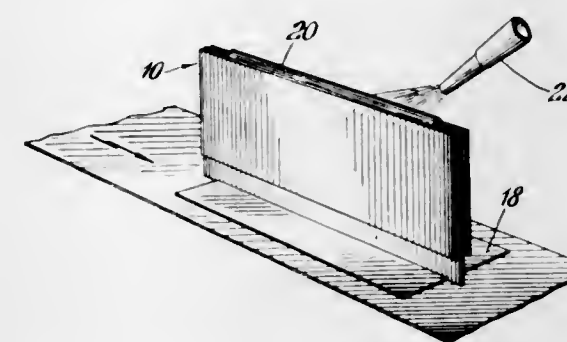
John F. McCarthy, Metuchen, N.J., assignor to Union Carbide Corporation, a corporation of New York

Filed Oct. 3, 1967, Ser. No. 672,597

Int. Cl. B32b 31/12; B42d 1/00

U.S. Cl. 156—82

1 Claim



Pages of heat-sealable material such as thermoplastic are superimposed to form a binding edge, the pages are then placed in a heat shield with only the binding edge exposed and radiant heat is applied to such binding edge to bind the pages together.

3,565,713

METHOD OF FORMING A CERAMIC IMAGE ON A CERAMIC SUBSTRATE

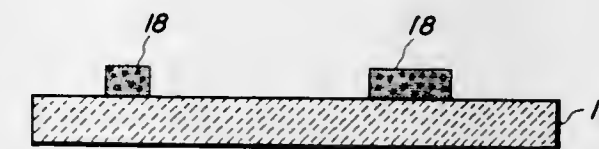
Edward M. Van Wagner, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Oct. 27, 1967, Ser. No. 678,677

Int. Cl. C03c 27/10

U.S. Cl. 156—89

15 Claims



A composite xerographic toner-ceramic powder image is formed on a ceramic article to be decorated and then fired, preferably after applying a glaze over desired portions of the article, to volatilize and burn off the toner and leave behind a ceramic powder image on the glazed ceramic.

3,565,714

SLIDE FASTENER MANUFACTURE

George Waldes, Plandome, Manhasset, N.Y., assignor to Waldes Kohinoor, Inc., Long Island City, N.Y., a corporation of New York

Filed Dec. 15, 1967, Ser. No. 690,869

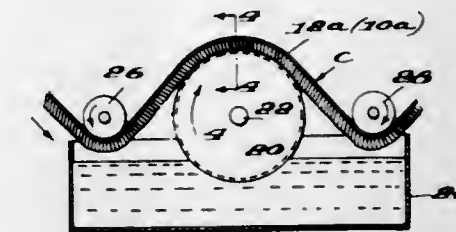
Int. Cl. B32b 7/04

U.S. Cl. 156—91

8 Claims

A method of fixing the stitches by which the plastic coils of plastic-coil type slide fastener or zipper chains

are secured to their respective tapes thereby to prevent shifting or unloosening thereof, which comprises softening the plastic material of said coils in the upper surface portions of the convolutions of the coils which are traversed by the stitches as they progress along the coils, by the ap-



plication of a suitable solvent to said surface portions, as permits the threads making up said stitches to bed to a limited degree in the softened plastic material, and thereafter allowing said softened plastic material to reharden, thus to lock the stitches to said coil convolutions.

3,565,715

METHOD OF BACKING MILL LINERS

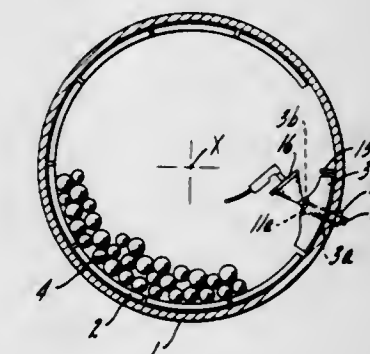
Robert M. Greenberg, Bayside, Wis., assignor to Nordberg Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin

Filed Sept. 16, 1968, Ser. No. 759,879

Int. Cl. B32b 35/00

U.S. Cl. 156—98

8 Claims



A method and apparatus for backing mill liners of ball mills and the like which involves the application of a plastic backing between abutting surfaces of mill liner and mill shell and between adjacent mill liners, including mechanisms for applying a mixture of resin paste and hardener paste for prompt backing application.

3,565,716

METHOD OF FORMING TIRE TREADS WITH ELONGATED TRACTION-AUGMENTING ELEMENTS

Paul J. Felker, Marshfield, Wis., assignor to Penetred Corporation, Marshfield, Wis., a corporation of Wisconsin

Filed Apr. 23, 1969, Ser. No. 818,768

Int. Cl. B29h 17/38

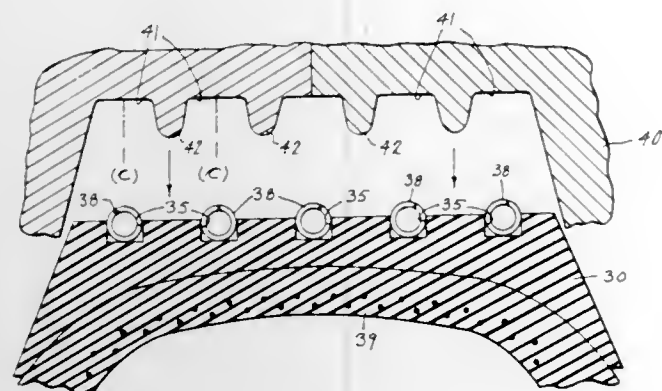
U.S. Cl. 156—114

7 Claims

In a method of manufacturing tire treads, the steps of producing a strip of uncured rubber tread stock with longitudinally-extending locating grooves therein, wrapping and securing a length of said tread stock around a tire to be retreaded or around a green tire in the manufacture of new tires, inserting elongated traction-augmenting members such as wire coils of a size to be snugly received and held in said grooves, and curing the tread stock by applying

heat and molding pressure with the use of a matrix having a tread pattern which includes ribs positioned to form

relative movement between the needles and the sheet material in the direction of travel of the latter so that any tearing or weakening of the sheet material is avoided. Sheet material having the patterned rows of spaced apart beads or globules of resin adhering thereto may then be laminated with other sheet material under the action of heat and pressure.



grooves in the tread between the traction-augmenting members and to cause rubber to flow into the locating grooves to cure around the traction-augmenting members.

3,565,717

RESIN COATED SHEET MATERIAL

Eric Smith, Bury, and David Eric Morris, Leeds, England, assignors, by mesne assignments, to English Calico Limited, Lancashire, England

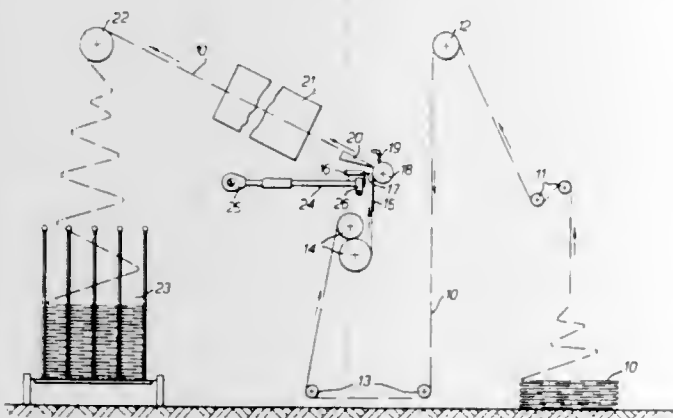
Filed June 12, 1967, Ser. No. 645,209

Claims priority, application Great Britain, June 21, 1966, 27,654/66

Int. Cl. B32b 7/14

U.S. Cl. 156—148

4 Claims



This invention is concerned with a process for the production of sheet material having adhered to at least one surface thereof a discontinuous layer of discrete beads or globules of thermoplastic resin, for example the type of material known as a fusible interlining. In this process the sheet material is caused to travel between a reciprocable bar carrying a row of spaced apart needles and a roller carrying a coating of a thermoplastic resin paste, the needles being caused to penetrate the sheet material and pick up resin paste on their points in one movement of the bar, the reverse movement causing withdrawal of the needles from the sheet material leaving a row of spaced apart beads of resin on the material. The reciprocal movement of the bar is such that there is no

3,565,718
GALVANIC PROCESS FOR MANUFACTURING ABRASIVE COMPOSITES HAVING METAL SURFACES

Richard Steding, 87 Werdohlerstrasse, 588 Ludenscheid, Germany

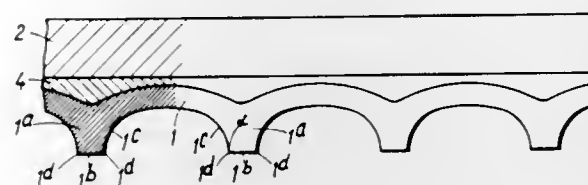
Original application Mar. 27, 1967, Ser. No. 626,212.

Divided and this application Oct. 7, 1969, Ser. No. 864,338

Int. Cl. C23b 5/50

U.S. Cl. 156—150

5 Claims



Disclosed herein is a galvanic process for manufacturing composites having metal surfaces which composites lend themselves to be used as files.

3,565,719

SOLAR PANEL FABRICATION

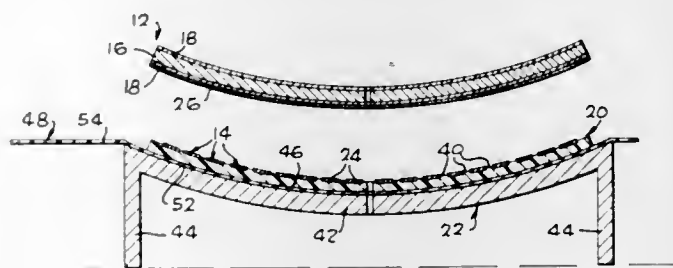
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Preston S. Du Pont, Northridge, Calif.

Filed May 17, 1967, Ser. No. 640,456

Int. Cl. B29c 17/04

U.S. Cl. 156—212

6 Claims



This disclosure teaches how to precisely fabricate solar cells on a substrate. It teaches mounting solar cells face down in a flexible mat. The mat is then bent to the configuration the cells will have in final assembled form, and then a substrate is bonded to the backs of all the solar cells at one time.

3,565,720

PROCESS FOR PRODUCING A SIMULATED ANTIQUE CRAZED FINISH

Patricia E. Nimocks, Anchorage, Ky., assignor to Connoisseur Studio, Inc., Middletown, Ky., a corporation of Kentucky

Filed Feb. 4, 1969, Ser. No. 796,496

Int. Cl. B44d 5/00; C09d 5/28

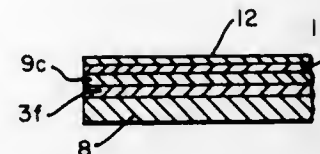
U.S. Cl. 156—237

13 Claims

Discloses a method and means for producing a simulated, crazed, antique finish on a painting, a dye transfer image, or household item. The process involves

coating of the article to be treated with an aqueous emulsion of a high molecular weight polymer resin and thereafter coating the polymeric film produced thereby with an aqueous paste of starch. The coating of starch paste is then treated with an oil stain which fills the cracks

one another. Then causing one of said silk screen members on the outside of each of said stacks to be mounted on a carrier sheet in a predetermined relationship. The device includes a fount having a plurality of vertical chambers that are shaped to receive said stacks of silk screen members in addition to being disposed in a predetermined relationship with each other. Plungers are slidably mounted therein at one end and the plungers are associated with means for slidably actuating them simultaneously in said



caused by drying of the starch and penetrates the film of high molecular resin to develop the simulated crazed finish on the film. After the stain has dried, the starch may be coated with a waterproof protective coating, such as varnish or lacquer.

3,565,721

LABEL APPLICATION APPARATUS AND METHOD

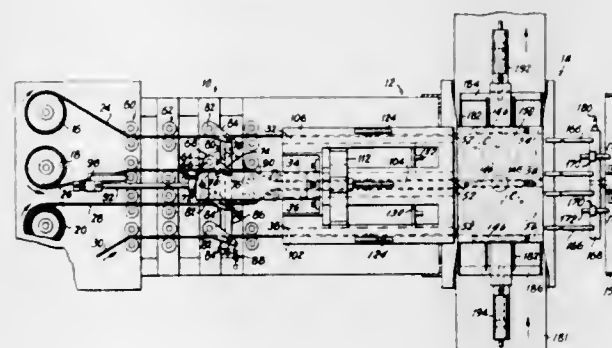
Harold Ernest Spaulding, Belle Mead, N.J., and Otto Paul Kalmbach, Warrington, Pa., assignors to American Can Company, New York, N.Y., a corporation of New Jersey

Filed July 29, 1969, Ser. No. 860,133

Int. Cl. B32b 31/20; B65b 61/18

U.S. Cl. 156—256

22 Claims



An apparatus and method for simultaneously applying labels to a plurality of articles, such as containers, which intermittently feeds labels from a continuous web within which individual labels are separated by lines of weakness, such as perforations, scoring or the like. As the labels are fed, a label breaker device is operable to separate labels from the web along the lines of weakness, the separated labels are thereafter advanced to a position where they are transferred in a transverse direction to a position adjacent a plurality of spaced articles where the labels are simultaneously applied to the articles.

3,565,722

DEVICE AND PROCESS FOR PRODUCING SILK SCREEN MEMBERS MOUNTED ON CARRIER SHEETS IN PREDETERMINED RELATIONSHIP

Loren D. Drake, Chicago, Ill., assignor to Northwest Screen Print Co., Chicago, Ill., a corporation of Illinois

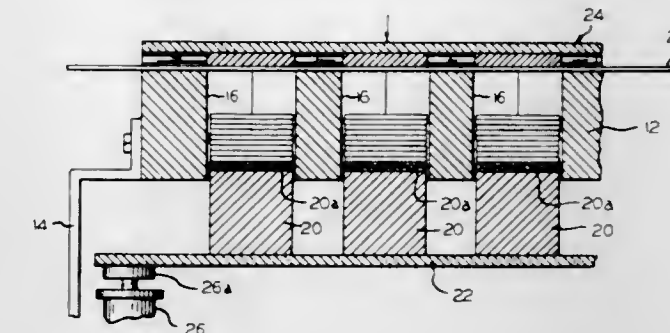
Filed May 24, 1967, Ser. No. 641,012

Int. Cl. B32b 31/18

U.S. Cl. 156—265

9 Claims

The process includes die cutting a plurality of silk screen members which could be of different shapes and thereafter superimposing said silk screen members so that like silk screen members are each stacked together to form a plurality of vertical stacks selectively spaced from



3,565,723

PROCESS FOR MAKING A METAL CLAD PLASTIC LAMINATE IN WHICH A METAL SHIM IS USED TO IMPROVE THE BONDING OF THE METAL FOIL TO THE PLASTIC LAYER

Sydney Arthur Giddings, Cincinnati, and Richard Frederick Jaisle, Harrison, Ohio, assignors to Formica Corporation, Cincinnati, Ohio, a corporation of Delaware

No Drawing. Filed Oct. 23, 1968, Ser. No. 770,078

Int. Cl. C09j 5/00

U.S. Cl. 156—311

10 Claims

The disclosure is a process for making a metal clad plastic laminate, in which wrinkling of the plastic layer is avoided. A metal shim is placed on a thermoplastic layer which is on a metal layer, and the assembly is moved through a laminating device which comprises a pair of continuous metal belts. The assembly is introduced into the nip between the belts and is heated, densified and cooled while passing through the device. The metal shim is then removed.

3,565,724

AUTOMATIC LABELLING MACHINE

Isao Yamaguchi, Kyoto, Japan, assignor to Nishimura Mfg. Co., Ltd., Kyoto, Japan, a corporation of Japan

Filed July 18, 1968, Ser. No. 745,883

Claims priority, application Japan, July 31, 1967, 42/49,171

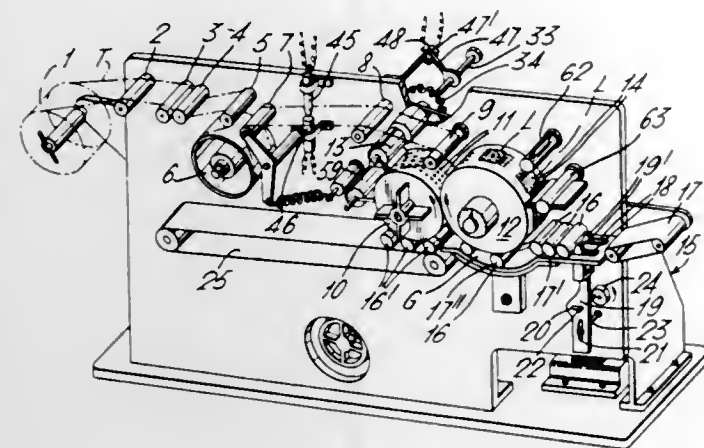
Int. Cl. B26d 5/00; B32b 31/00

U.S. Cl. 156—354

9 Claims

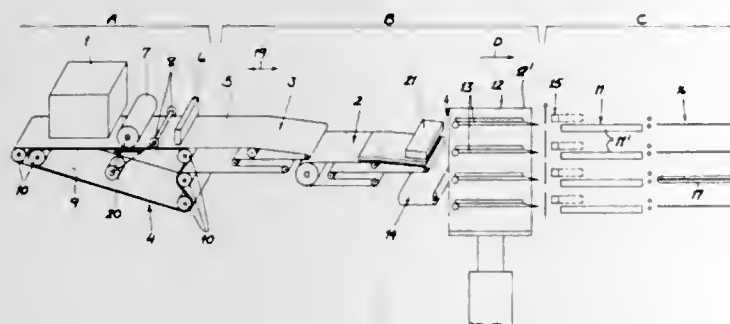
An automatic labeling machine wherein as a tape consisting of a series of labels the reverse side of which is coated with an adhesive material is fed, the labels are successively cut off from the tape and then brought into contact with articles to be labeled so as to be securely adhered thereonto. The machine comprises a first and a second suction drum mounted for rotation about parallel axes in opposite directions and disposed so as to substantially

contact each other, with suction working through at least a portion of the circumferential wall of each said drum. As the tape is guided on the circumferential wall of said first drum where suction works, each label is cut off from the tape by a rotary cutter, and the cut labels are retained on the drum surface by the suction and carried as far as the contacting point of the first with second drums, where the labels are transferred onto the second drum. As the labels are carried on the second drum, they are heated to have the adhesive activated. Articles to be labeled, such as



bottles and the like are guided along the second drum circumferential wall so that the labels thereon are successively brought into contact with the bottles and securely adhered thereonto. The machine can (1) adapt itself to labels of different lengths, (2) cut off any margin that may exist between adjacent labels in the tape by means of a second rotary cutter, and (3) cause the label to be only partially adhered to a bottle by partially activating the adhesive so that the label may later be taken off easily and cleanly for the bottle to be used again for some other purpose after the contents have been consumed.

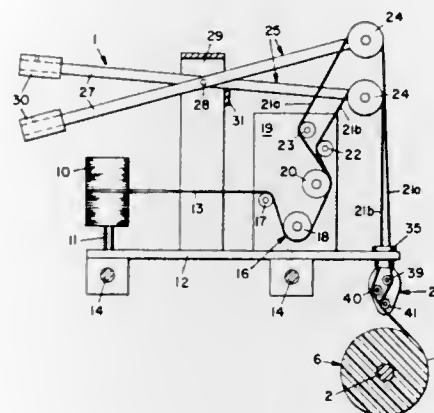
3,565,725
APPARATUS FOR MAKING PRESSED BOARDS FROM PARTICULATE MATERIAL
Eugen Siempelkamp, 69 Hohenzollernstrasse, 415 Krefeld, Rhineland, Germany
Continuation-in-part of application Ser. No. 458,228, May 24, 1965. This application Jan. 31, 1968, Ser. No. 702,026
Claims priority, application Germany, Jan. 31, 1967, S 108,806
Int. Cl. B29f 5/08
U.S. Cl. 156—375



An installation for the production of press board in which a fiber layer is deposited upon a continuous operable conveyor surface and transferred, with separation into respective layer portions, to a second conveyor which

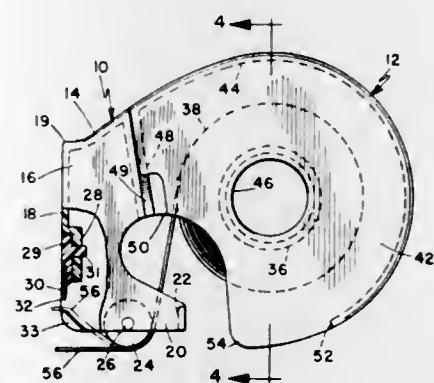
is accelerated upon completion of the transfer of each portion and, in turn, feeds the layer portion to an intermediate stacking station in which the layers are stacked in a number of tiers equal to the numbers of levels of an adjoining press, the entire group of stack layers being introduced simultaneously into the press at intervals. The charging system operates continuously.

3,565,726
FILAMENT WINDING
Arthur D. Golladay and Kevin E. Moran, Cumberland, Md., assignors to Hercules Incorporated, Wilmington, Del., a corporation of Delaware
Filed Sept. 20, 1968, Ser. No. 761,277
Int. Cl. B65h 81/04
U.S. Cl. 156—432



This invention relates to filament winding and particularly to winding pre-impregnated tape-like filamentary material on non-cylindrical surfaces, and comprises a cutter for splitting the tape endwise into a plurality of filamentary element and means for effecting a take-up action individually upon each element, thereby reducing the shingling effect inherent in winding a tape on a curved surface.

3,565,727
ADHESIVE TAPE APPLICATOR
Condie D. Guest, 1073 4th Ave., San Diego, Calif. 92101
Continuation-in-part of application Ser. No. 638,400, May 15, 1967. This application May 24, 1968, Ser. No. 731,988
Int. Cl. B32b 31/18; B44c 7/02
U.S. Cl. 156—527

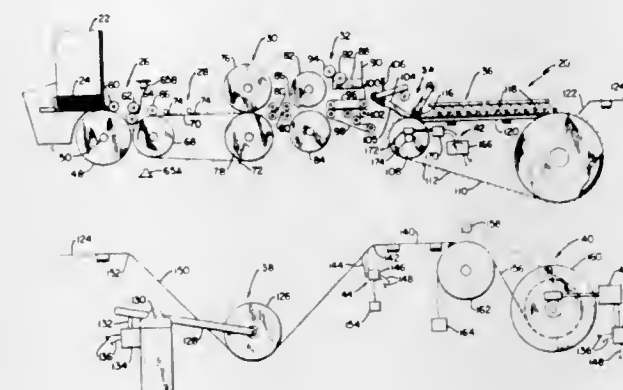


The tape applicator is particularly easy to load with tape by removing a major portion of one side of the unit, so that the tape is dropped directly into place with no

threading, the pressure roller and cut-off blade of the unit being mounted in a non-removable structure and thus not disturbed at any time; the tape is readily accessible to simplify handling and the unit can be used to apply tape rapidly with one hand, the cut off end of the tape being held in ready position for the next use.

3,565,728
METHOD AND APPARATUS FOR FORMING A CONTINUOUS ASSEMBLY OF ARTICLES IN OVERLAPPING AND INTERCONNECTED FORM

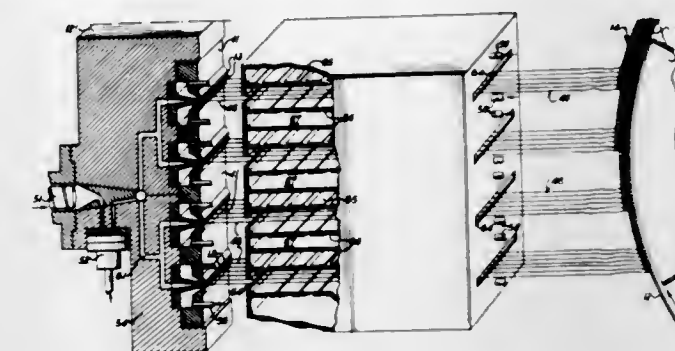
Thomas W. Alton, Phoenix, Ariz., assignor to Pak-Well Corporation, Denver, Colo., a corporation of Colorado
Filed May 9, 1968, Ser. No. 727,776
Int. Cl. B32b 31/10
U.S. Cl. 156—566



Apparatus for forming a continuous assembly of generally flat-type articles, such as envelopes, in overlapping, interconnected form, which assembly is particularly suited for processing through high speed printing apparatuses. The articles are fed along a pathway until each article has its leading portion in overlapping relation with respect to the trailing portion of a preceding article, using adhesive means to secure said article to the preceding article only along marginal portions thereof, and packaging the assembly. Marginal portions of the articles are perforated and the relative constant speeds of travel of the articles prior and subsequent to assembly thereof are controlled in such manner to cause an article to overlap, by a predetermined amount, the adjacent article downstream of same. Since one of the principal purposes of the marginal portions is to properly space the articles of the web while being fed through the printing apparatus, and which are thence removed to separate same, the adhesive means is applied only to areas of the marginal portions so that the articles are not adhesively secured together along transverse areas between the marginal portions.

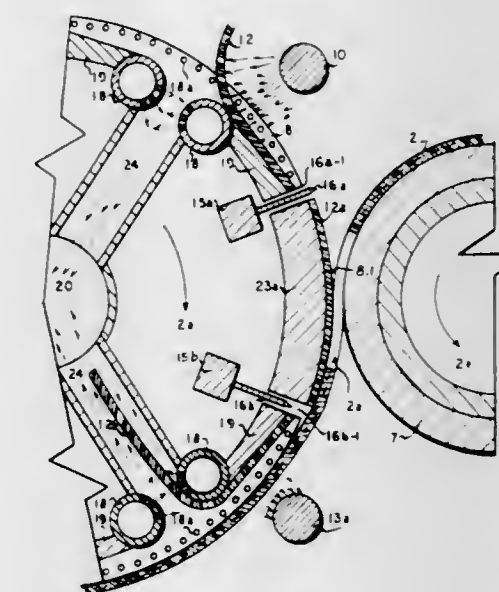
3,565,729
NON-WOVEN FABRIC
Ludwig Hartmann, Oberflockenbach, Germany, assignor to Carl Freudenberg, a corporation of Germany
Division of application Ser. No. 341,489, Jan. 29, 1964. Continuation-in-part of applications Ser. No. 254,601, Jan. 29, 1963; Ser. No. 302,370, Aug. 15, 1963; and Ser. No. 614,093, Feb. 6, 1967. This application May 29, 1969, Ser. No. 828,918
Claims priority, application Germany, Feb. 3, 1962, F 35 926
Int. Cl. B29f 3/01, 3/06; B29g 7/00
U.S. Cl. 156—441

Apparatus for producing non-woven fibrous fleeces. The apparatus includes at least one linearly aligned row of individual spinning orifices, each of which is adapted



which filament passes through the channel and is drawn therein by the air stream; and fleece form means upon which the filaments are laid after they emerge from the channels and upon which the filaments form a non-woven fleece.

3,565,730
APPARATUS FOR FORMING THERMOPLASTIC WINDOWS ON ENVELOPES, BAGS OR BOXES
Peter Weissbuh, 204-1985 Bellevue Ave., West Vancouver, British Columbia, Canada
Filed Jan. 24, 1968, Ser. No. 705,259
Claims priority, application Canada, Jan. 31, 1967, 981,637
Int. Cl. B32b 3/00
U.S. Cl. 156—500



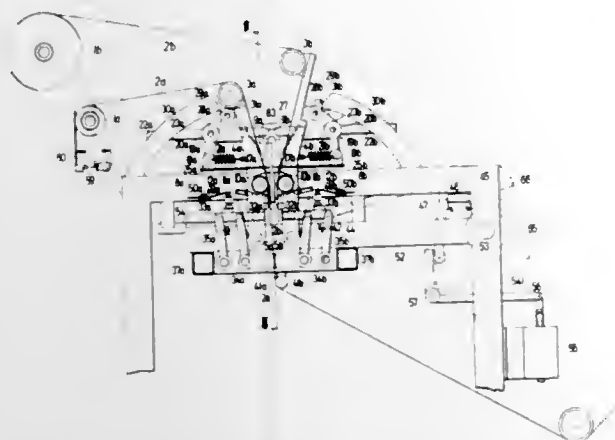
Continuous method of forming thermoplastic windows in a moving web of envelope, bag, box, etc. material. Cutting window openings in the web, preheating, passing the preheated web through a nip in contact with an extruded strip of thermoplastic film, bonding in the nip by heat and pressure. End product is a web with thermoplastic windows formed at spaced intervals, this web suitable for leading to feed rolls of conventional converting machine, so that it directly produces windowed articles. Apparatus has a cooling roll having depressed areas with a cooling area therebetween, cooling being by compressed air. Heated knife blades of the roll, or air jets, cut the film suitably with unutilized sections urged through a cavity in floor of depressed area to a hollow shaft for reprocessing. Electrostatic pinning of the film to the roll.

3,565,731

SPlicing DEVICES

Alfred Schmermund, 62 Kornerstrasse,
Gevelsberg, Westphalia, Germany
Filed Oct. 26, 1966, Ser. No. 589,748
Claims priority, application Great Britain, Nov. 4, 1965,
46,701/65
Int. Cl. B65 69/00
U.S. Cl. 156—504

6 Claims



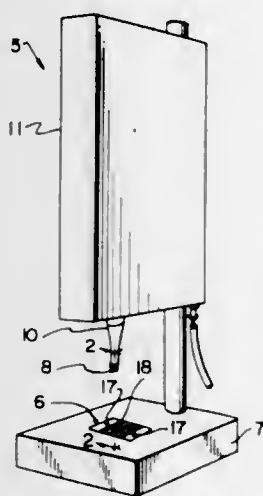
A splicing device comprising pressing means, means for feeding a travelling web and the leading portion of a stand-by web between the pressing means, means for moving the pressing means towards each other to press a portion of the travelling web and the leading portion of the stand-by web together, and means for displacing the pressing means to travel jointly along the path of the webs whilst pressing the webs together. Advantageously, means are provided for pre-heating the pressing means so that webs of thermoplastic material or having splice portions with a thermoplastic coating are welded.

3,565,732

PLATEN AND SLITTER MEANS FOR FORMING BUTTONHOLES

William D. Collanni, 4179 W. Barry,
Chicago, Ill. 60641
Filed Nov. 17, 1967, Ser. No. 683,934
Int. Cl. B29c 19/08; B32b 31/20
U.S. Cl. 156—513

16 Claims



Combined platen and slitter or cutting means for forming buttonholes in sheet or fabric material that is fusible when subjected to ultrasonic energy, dielectric energy or heat. The means comprises one or more pairs of male and female platen members having buttonhole outline areas which mate to compress sheet material therebetween. The male platen member has a material slitter or blade which either permanently protrudes through, or is

actuated so as to protrude through, a slot opening within the platen buttonhole outline area. The female platen has a recess within its buttonhole outline area for receiving the cutting edge of the material slitter. When a pair of cooperating male and female platen members are brought together with sheet or fabric material compressed therebetween, a combined fusing and cutting action is performed which serves to form a completed buttonhole.

3,565,733

THIN FLEXIBLE LENTICULAR SCREEN UNIT

Sam L. Leach, 32653 Seagate Drive,
Palos Verdes Peninsula, Calif. 90274
Application Jan. 30, 1961, Ser. No. 85,608, which is a
continuation-in-part of application Ser. No. 582,503,
May 3, 1956. Divided and this application June 29,
1967, Ser. No. 649,901
Int. Cl. B44f 1/02; G03b 21/60
U.S. Cl. 161—2

8 Claims



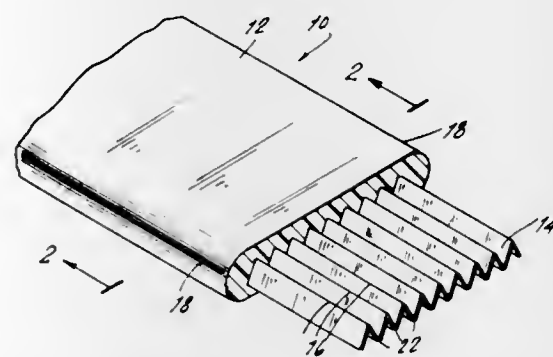
A thin flexible lenticular screen unit including a plastic screen having aspherically curved lenticles formed on the forward surface thereof and a backing sheet adhered to the rearward surface thereof. The lenticles of the screen are spaced apart from one another by a predetermined distance and the viewing angle of each lenticle is maximized.

3,565,734

COMPOSITE MOLDING STRIP

Victor Shanok and Jesse P. Shanok, both of 863 65th St.,
Brooklyn, N.Y. 11220
Filed Aug. 28, 1967, Ser. No. 663,670
Int. Cl. B32b 3/30, 15/08
U.S. Cl. 161—5

8 Claims



The invention is directed to a composite strip suitable for use as a molding strip or a trim strip, or the like, comprising a metal foil member encased within a transparent plastic material, said metal foil member being adapted to impart structural strength to said plastic material, as well to impart an exceedingly decorative feature thereto.

3,565,735

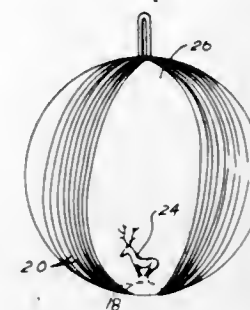
CHRISTMAS TREE ORNAMENT

Jack Burnbaum, Newton, Mass., assignor to Bradford
Novelty Co., Inc., Boston, Mass., a corporation
Filed Oct. 6, 1969, Ser. No. 864,105
Int. Cl. A47q 33/08; B44f 7/00
U.S. Cl. 161—16

9 Claims

An ornament is formed in two halves, one having an integral attaching member and the other half having a

rectangularly-shaped hole to receive a shaft that serves as a holder for a shaft during rotation of the ornament



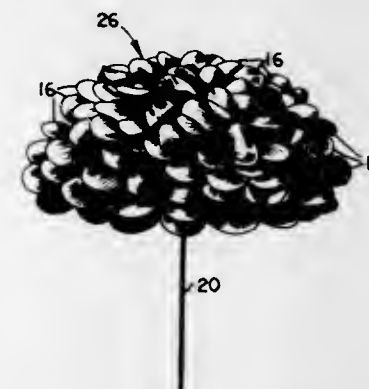
when winding decorative strands or threads on its exterior.

3,565,736

PAPER FLOWER AND METHOD OF MAKING SAME

William E. Jason, Alherton, Calif., assignor to Bemiss-Jason Corporation, Palo Alto, Calif., a corporation of California
Filed Nov. 14, 1968, Ser. No. 775,745
Int. Cl. A41g 1/00
U.S. Cl. 161—30

6 Claims



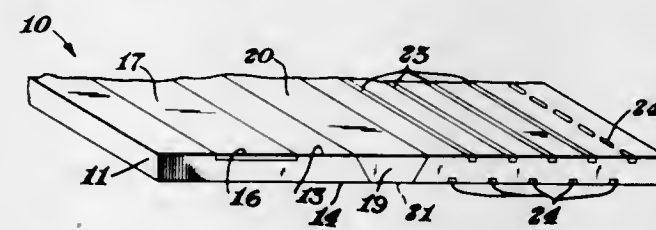
This is a paper flower made from a plurality of substantially rectangular stacked sheets of tissue the long edges of which the stack of sheets is folded alternately along equally spaced parallel lines perpendicular to the long edges, the folded sheets are secured at their center by means of a wire simulating a flower stem, the folded sheets fanned out in a substantially circular shape and then the sheets are lifted and ruffled from the topmost sheet to the bottommost sheet to simulate the petals of a flower.

3,565,737

COMPOSITE PLASTIC SHEET AND METHOD FOR THE PREPARATION THEREOF

Lloyd E. Lefevre, Bay City, and John R. Frost, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Nov. 26, 1965, Ser. No. 509,731
Int. Cl. B32b 3/14
U.S. Cl. 161—36

12 Claims



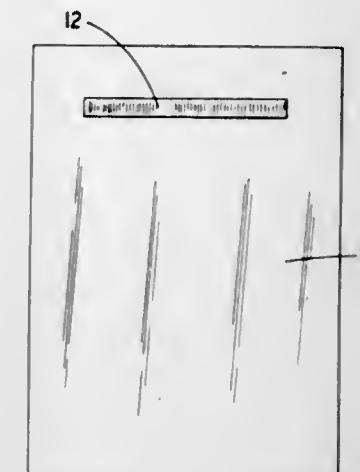
Packaging film having controlled cling is prepared by simultaneously extruding a stream which forms the major body of the film and incorporating therein minor portions of a different thermoplastic material in such a way that the minor portions are selectively disposed adjacent at least one surface of the film.

3,565,738

PLASTIC BAG AND PEELABLE PLASTIC TIE CLOSURE TAPE ATTACHED THERETO

George Fred Kirkpatrick, Middlesex, N.J., assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York
Filed Mar. 26, 1969, Ser. No. 810,563
Int. Cl. B32b 3/02
U.S. Cl. 161—38

10 Claims



A plastic bag is provided with a new twist tie closure made of a tape of high tensile modulus plastic material. The tape has semi-rigidity and dead fold characteristics similar to those of a conventional twist tie closure made of wire coated with paper tape and is heat-sealed to the bag with a peelable heat seal.

3,565,739

COMPOSITE WOOD ARTICLES AND METHODS OF MAKING THE SAME

Joseph Ianuzzi and Robert P. Haggood, Bradford, Pa., assignors to Plexwood, Inc.
Filed Feb. 21, 1967, Ser. No. 617,473
Int. Cl. B32b 21/14
U.S. Cl. 161—43

4 Claims



A compound curved wood veneer surfaced article and method of manufacturing the same. The article having a core of heat and pressure formed wood chips and resin encased within a phenolic resin envelope bonded to a sheet of wood veneer coated and impregnated with a member from the group consisting of melamine and modified melamine resins. The method including the steps of forming a core of wood chips and resin, assembling the core in a mold with a sheet of phenolic core stock on each side, a sheet of wood veneer, a sheet of melamine type resin and compressing the assembly at 240°-350° F., under 1000-6000 p.s.i.

3,565,740

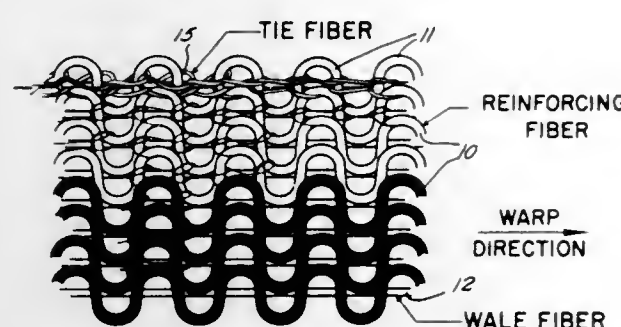
REINFORCEMENT FORM FOR USE IN STRUCTURAL COMPOSITES, ABLATIVE STRUCTURES AND THE LIKE

John L. Lazar and William E. Winters, Euclid, Ohio, assignors to TRW Inc., Cleveland, Ohio, a corporation of Ohio
Filed May 6, 1966, Ser. No. 548,166
Int. Cl. B32b 5/12; D04h 1/70, 3/05
U.S. Cl. 161—57

13 Claims

A reinforcement form wherein major reinforcement fibers are arranged in a general sine wave disposition extending longitudinally and having overlapping amplitudes

and uniform periods. Wale fibers extend parallel to the direction of the major fibers and tie fibers are provided



to form a tape which can be utilized to construct improved structural composites and ablative structures.

3,565,741

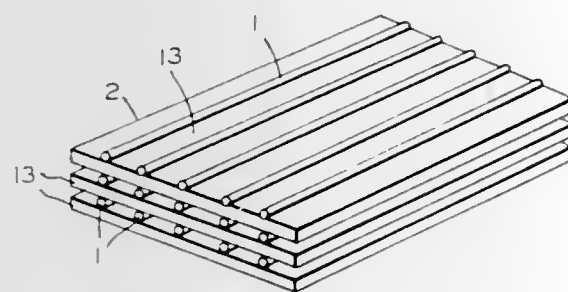
REINFORCED SYNTHETIC RESIN PRODUCTS Francis F. Jaray, Peak Cottage, Kingswood Lane, Martley, Worcester, England

Continuation of application Ser. No. 779,556, Nov. 27, 1968, which is a continuation-in-part of application Ser. No. 370,496, May 27, 1964. This application Jan. 22, 1970, Ser. No. 6,020

Int. Cl. B32b 5/12

U.S. Cl. 161—60

5 Claims



A reinforcement material comprising a plurality of fine uncrimped wires bonded to the surface of a supporting base of a fabric or transversely disposed spaced fibers, just sufficient adhesive being used to wet the underside of the wires where it contacts the supporting base so that the material is useful for the production of reinforced synthetic resin sheets, tubes and other shaped articles.

3,565,742

FLOCKED GOLF GREEN

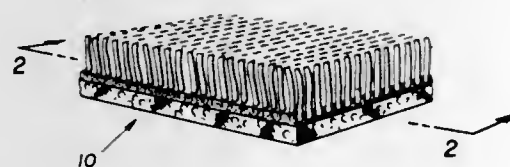
Gary L. Stephens and James M. Faria, Decatur, Ala., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed July 17, 1967, Ser. No. 653,686

Int. Cl. A63b 67/02; D04b 11/08

U.S. Cl. 161—64

10 Claims



Synthetic golf green products are made by a mechanical or an electrostatic flocking process using pigmented, ther-

moplastic ribbon on a synthetic adhesive backing or on fabrics constructed from natural fibers. The resulting product has the advantages of exhibiting true putting and chipping characteristics because of the non-directional pile and resiliency of the synthetic green.

3,565,743

TAPE HAVING A GOLD REFLECTIVE SURFACE ATTACHED TO A GLASS FABRIC CORE AND A PRESSURE SENSITIVE ADHESIVE ON THE OTHER SURFACE

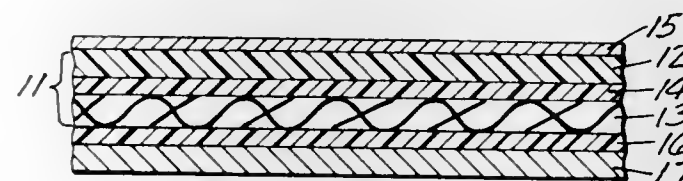
Melvin O. Kalleberg, Minneapolis, and Larry E. Espelien, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Original application June 28, 1965, Ser. No. 467,355, now Patent No. 3,522,074, dated July 28, 1970. Divided and this application Oct. 16, 1968, Ser. No. 831,789

Int. Cl. B32b 13/06, 27/06; E05d 15/26

U.S. Cl. 161—93

7 Claims



The adhesion of vapor-coated gold to polyimide or other high temperature ring-structure films exceeds about 35 ounces per inch of width if the coated film is heated to an elevated temperature, preferably about 250° C. The product is useful in reflecting radiant energy, even at very high temperatures. Pressure-sensitive adhesive tape products are disclosed.

3,565,744

EXTRUDED POLYMERIC SHEET MATERIAL

Ole-Bendt Rasmussen, 7 Topstykket,
3460 Birkerød, Denmark

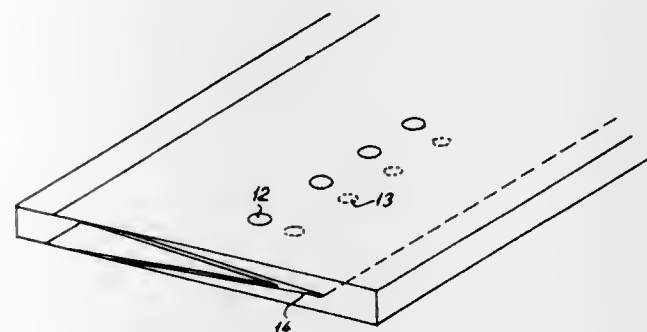
Filed Dec. 29, 1967, Ser. No. 694,439

Claims priority, application Great Britain, Dec. 30, 1966, 58,429/66

Int. Cl. B32b 3/00

U.S. Cl. 161—112

18 Claims



An extruded sheet material is composed of lamellae of a strong polymeric material that extend through the body of the sheet and at least at one end are fused together in overlapping relationship to form a skin. A less strong, preferably foamed material may be provided in the cavities between the lamellae of the skin to obtain desired properties.

The sheet is made by extruding a multitude of interspersed flows of different cross-section of the two materials through rotating die parts.

3,565,745

HIGHLY ELASTIC FLEECE

Karl-Arnold Weber, Cologne-Stammheim, Wolfgang Relensmann, Dormagen, and Wolfram von Langenthal, Cologne-Bickendorf, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Continuation of application Ser. No. 472,307, July 15, 1965. This application Sept. 2, 1969, Ser. No. 856,887

Claims priority, application Germany, July 28, 1964, F 43,593

Int. Cl. B32b 5/06, 5/28

U.S. Cl. 161—154

4 Claims

Elastic non-woven fibrous sheet material is produced by preparing a mat from elastic polyurethane staple fibers and cellulose, polyamide or polyacrylonitrile staple fibers by carding the fibers in layers with the elastic polyurethane fiber being embedded between two layers of cellulose, polyamide or polyacrylonitrile fiber and consolidating the formed multilayer to an elastic non-woven fibrous sheet material. The fibrous sheet material may then be bonded by coating the sheet material with a binding agent.

3,565,746

COMPOSITE STRUCTURES

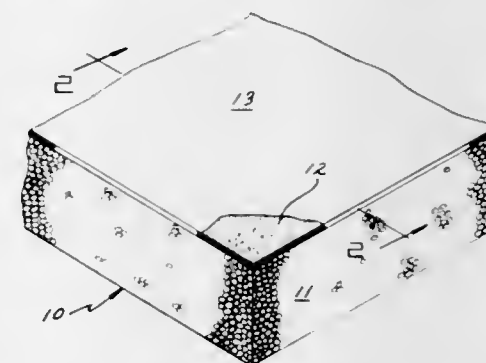
James K. Stevens, Brimfield, Mass., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed Apr. 22, 1969, Ser. No. 818,461

Int. Cl. B32b 5/18; E05f 11/00; E06b 3/92

U.S. Cl. 161—160

6 Claims



Improved integral, three-layered plastic, thermally insulating composites each having an impact resistant solid facing layer of a monovinyl aromatic compound/alpha-electronegatively substituted ethene compound interpolymer system, a layer of cellular polyurethane, and an elastomeric interlayer of cellular polyurethane positioned between the other two layers. The resulting composites have improved impact resistance as respects the solid facing layer.

3,565,747

LAMINATES OF METAL AND OLEFIN POLYMERS HAVING FINELY DIVIDED, SOLID, NON-DEFORMABLE, ORGANIC POLYMER PARTICLES THEREIN

Gerald G. Vincent and Frank L. Saunders, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Original application Aug. 27, 1965, Ser. No. 483,308. Divided and this application June 2, 1969, Ser. No. 843,261

Int. Cl. B32b 15/08, 27/20; C08f 41/12

U.S. Cl. 161—162

4 Claims

A laminate having improved bond strengths and adhesiveness comprises one metal substrate such as aluminum bonded to a layer of an olefin polymer such as polyethylene. The olefin polymer has between about 25 and about 80 percent by weight solid, non-deformable, organic polymer particles having a diameter of less than about 20 microns. The organic polymer particles have a melting point higher than the melting point of the olefin

polymer, are substantially non-adherent to the olefin polymer and to themselves, and are free of reactive groups such as carboxyl, hydroxyl, nitro, amine, and the like.

3,565,748

MULTILAYERED DECK STRUCTURE CONTAINING AN ELASTOMERIC POLYEPOXIDE RESIN COMPOSITION

Stephen T. Palmer, Worcester, Stephen T. Palmer, Jr., Lansdale, and Daniel S. Morse, Swarthmore, Pa., assignors to Palmer Products Incorporated, Worcester, Pa., a corporation of Pennsylvania

No Drawing. Continuation-in-part of abandoned application Ser. No. 131,107, Aug. 14, 1961. This application Mar. 22, 1967, Ser. No. 625,029

Int. Cl. B32b 27/38

U.S. Cl. 161—184

11 Claims

A multilayer deck structure and method for making the same is disclosed, said deck structure comprising an upper wooden deck and an underlying steel supporting deck secured by an intermediate layer comprising an elastomeric resin containing a polyepoxide, a chloroprene, a plasticizer and a hardening agent.

3,565,749

HIGH TEMPERATURE RESISTANT STRUCTURES

Irvin Wison, Swarthmore, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 332,301, Dec. 20, 1963, which is a continuation-in-part of application Ser. No. 213,138, July 30, 1962. This application Feb. 27, 1967, Ser. No. 623,497

Int. Cl. C04b 31/06, 35/64

U.S. Cl. 161—207

11 Claims

Ablative and high temperature resistant articles formed by shaping into a desired structure a cellulosic solution containing a metal compound which is converted into a hydrate of a glass- or lattice-forming metal or inorganic oxide and processing the shaped structure to remove the solvent, solidify the cellulosic material and polymerize the inorganic oxide hydrate. Application of heat to the structure in the absence of oxygen converts the structure to an inorganic oxide-carbon product and subsequently to an inorganic or metal carbide. Heat applied to the structure in the presence of oxygen converts the structure to an organic oxide product.

3,565,750

PRESSURE-SENSITIVE ADHESIVE ARTICLE WITH DRY-STRIPPABLE LINER

Jack L. Evans, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Continuation-in-part of abandoned application Ser. No. 467,127, June 25, 1965. This application May 19, 1969, Ser. No. 826,011

Int. Cl. B32b 7/06, 27/32

U.S. Cl. 161—208

6 Claims

Pressure-sensitive adhesive sheet material is provided with a release liner which is a smooth thin planar-rigid polyolefin film having an inseparably-bonded cured silicone-polymer coating which provides dry-strippable release action.

3,565,751

METHOD FOR PYROLYSIS AND CATALYTIC HYDROGENATION

Gerald B. Hoekstra, South Holland, Ill., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana

Filed May 28, 1969, Ser. No. 828,527

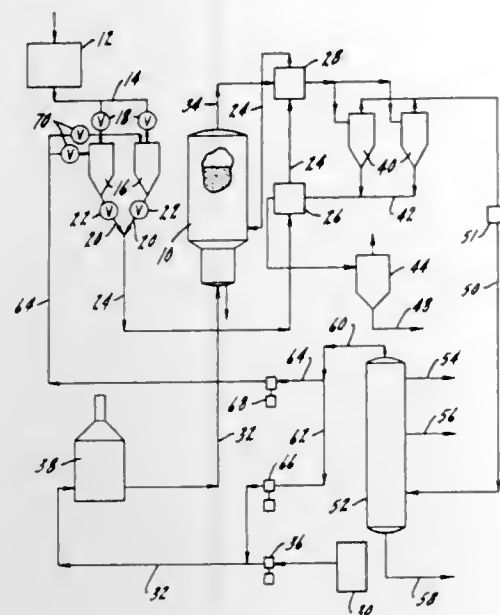
Int. Cl. C10g 1/08

U.S. Cl. 208—10

12 Claims

A method is provided for pyrolyzing oil shale while simultaneously hydrogenating shale oil in a single reaction

zone. Basically, the method comprises introducing oil shale into the reaction zone, which contains a fluidizable hydrogenation catalyst. The oil shale is heated to pyrolysis temperatures in the reaction zone, which vaporizes the kerogen, producing a breakdown of the oil shale, and leaving finely divided particles of spent shale. Hydrogen under



MAKING PAPER SHEET
WITH CAPSULE/FIBER
UNITS IN STRATUM

LAY DOWN A BASE WEB OF
PAPER FIBERS AND DRAIN
TO A SET BUT STILL WET
CONDITION.

LAY OVER THE WET BASE WEB
A LAYER OF CAPSULE/FIBER
UNITS PREVIOUSLY MADE AS
IN FIGURE 1.

AFTER DRAINING THE OVER-
LAID WEB TO A SET CONDITION,
PRESS AND DRY IT INTO A
PAPER SHEET.

capsules and a phase separation step therein with stirring; to processes using the units; and to sheets, coatings, and molded products formed of the units.

3,565,754

METHOD OF INCREASING THE WET STRENGTH OF PAPER

Norman W. Dachs, Buffalo, and George M. Wagner, Lewiston, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed Dec. 30, 1968, Ser. No. 788,074

Int. Cl. D21h 3/36

U.S. Cl. 162—164

5 Claims

A process for preparing wet-strength paper wherein the paper is treated with a cationic thermosetting resin comprised of a water-soluble reaction product of epichlorohydrin and a polyamide. The polyamide is the reaction product of a nitrilotriacetic acid and a polyalkylene polyamine containing two primary amine groups and at least one secondary amine group, the amount of reactants and temperature and time of reaction being as follows: an amount of nitrilotriacetic acid sufficient to react completely with the primary amine groups of the polyalkylene polyamine reactant, but insufficient to react substantially with the secondary amine groups; the reaction carried out at 25–50° C. and for 1–3 hours when carried out at atmospheric pressure.

3,565,755

ROSIN SIZE AND PAPER CONTAINING SAID SIZE
Robert W. Davison, North Hills, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del., a corporation of Delaware

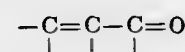
No Drawing. Continuation-in-part of application Ser. No. 522,361, Jan. 24, 1966. This application Mar. 27, 1969, Ser. No. 811,188

Int. Cl. D21d 3/00

U.S. Cl. 162—168

8 Claims

A material such as a salt of rosin or a salt of an adduct reaction product of rosin and an acidic compound containing the



group, such as maleic anhydride and fumaric acid, or an alkaline material, such as potassium hydroxide, is dissolved in water. The resulting aqueous solution is mixed with a solution of a water-immiscible organic solvent, such as benzene, which has dissolved therein rosin-base material comprised of 0–95% rosin and 100–5% of an adduct

3,565,753 CAPSULE-CELLULOSE FIBER UNITS AND PRODUCTS MADE THEREWITH

Isidore L. Yurkowitz, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

Filed July 17, 1967, Ser. No. 653,755

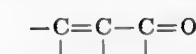
Int. Cl. B32b 29/02; D21h 1/02

U.S. Cl. 162—127

20 Claims

The invention relates to the attachment of minute capsules to individual cellulose fibers to form capsule/fiber

reaction product of rosin and an acidic compound containing the



group, such as that obtained by adducting wood rosin with fumaric acid; the amount of said material dissolved in water being sufficient to provide an amount of saponified rosin-base material, represented as a percentage of available carboxyl groups saponified, of from about 0.5% to about 20%. The unstable mixture is homogenized to produce a stable emulsion and then the organic solvent is removed by distillation to result in a stable aqueous dispersion.

3,565,756

APPARATUS FOR THE CONTINUOUS MANUFACTURE OF PATTERNED PAPER

Susumu Kashiwabara, Sapporo, and Hajime Nishina, Yoji Kinoshita, and Toshio Suzuki, Otaru, Japan, assignors to Hokkai Seishi Kabushiki Kaisha, Otaru, Japan, a corporation of Japan

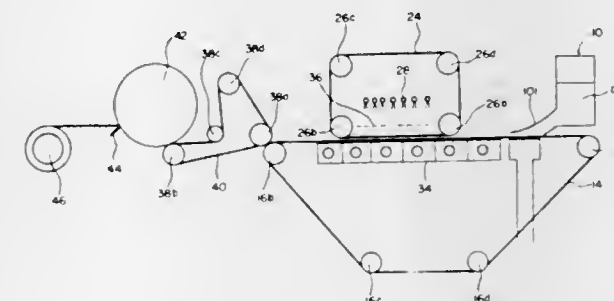
Filed Mar. 6, 1968, Ser. No. 710,902

Claims priority, application Japan, Mar. 16, 1967, 42/16,101; May 27, 1967, 42/33,423; Aug. 1, 1967, 42/49,619

Int. Cl. B31f 1/12; D21h 5/06, 5/24

U.S. Cl. 162—297

3 Claims



Liquid stock is uniformly distributed on a machine wire cloth. The thus formed web is conveyed under and in close proximity with a patterning belt. Shower pipes eject a water spray through the patterning belt and formed web. A metallic screen, positioned between the shower pipes and the patterning belt, distributes the water spray uniformly through the patterning belt.

3,565,757

APPARATUS FOR FORMING AND DEWATERING A FIBROUS WEB

Lars Bengt Jordansson, Karlstad, Sweden, assignor to Aktiebolaget Karlstads Mekaniska Werkstad, Karlstad, Sweden, a company of Sweden

Filed Nov. 27, 1968, Ser. No. 779,431

Claims priority, application Sweden, Nov. 28, 1967, 16,289/67

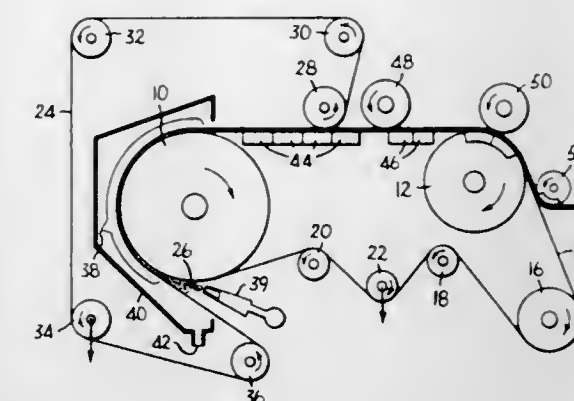
Int. Cl. D21f 1/48

U.S. Cl. 162—301

7 Claims

Apparatus for forming and dewatering a fibrous web comprises, according to the exemplary embodiments, a forming roll and a suction couch roll spaced at substantial distance from each other generally horizontally and a first movable, endless, tensioned foraminous belt trained around a portion of the forming roll and conducted along a straight run to and around the suction couch. A second belt is led around the forming roll and defines with the first belt an arcuate web-forming zone extending along a portion of the forming roll. The two belts are led in

convergent directions to the forming roll to define a tapered inlet zone where a ribbon-like jet of fiber stock is introduced. The two belts run tangentially from the forming roll together along a part of the straight path from the forming roll to the couch roll, and the second belt is separated from the web part way along the straight run by leading it out around a carrier roll. One or more pres-



3,565,758

FLOWBOX

James A. Higgins, Pucklechurch, near Bristol, and Brian W. Attwood, Hanham, near Bristol, England, assignors to St. Anne's Board Mill Company Limited, Bristol, England, a company of England

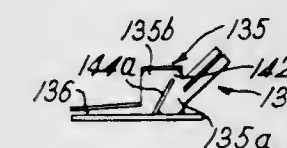
Filed July 26, 1967, Ser. No. 656,263

Claims priority, application Great Britain, Sept. 1, 1966, 38,983/66

Int. Cl. D21f 1/02

U.S. Cl. 162—336

5 Claims



A flowbox for a paper board or similar fibrous-web-making machine comprises an enclosed explosion chamber of longitudinal polygonal cross-section, a stock inlet and outlet disposed in opposed walls of the chamber, each of overall cross-section less than the transverse cross-section of the explosion chamber at the inlet and outlet respectively, and a transverse planar baffle disposed in the path of stock entering the chamber for defining therewith two successive portions in the explosion chamber, each of divergent/convergent cross section with a restricted passage therebetween. Stock impinging on the baffle and flowing through the successive divergent/convergent portions of the chamber undergoes a rapid change in the direction and velocity of flow, the stock being caused to reverse its direction of flow and pass upwardly over the baffle, so that turbulence mixing and defloculation is promoted.

3,565,759

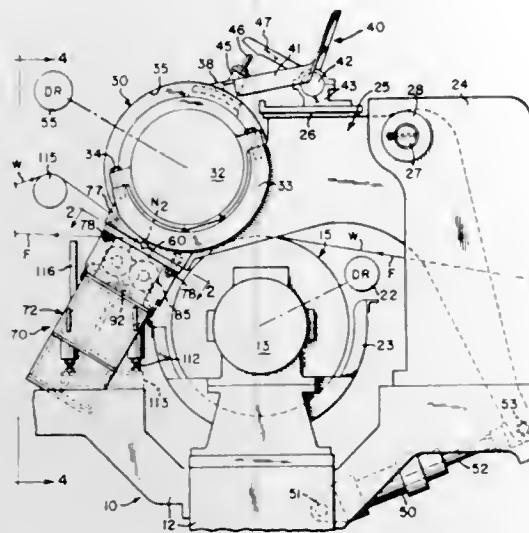
PAPER MACHINE PRESS

Willard C. Notbohm, Walter E. Rojecki, and Paul M. Schaffrath, Watertown, N.Y., assignors to The Black Clawson Company, Hamilton, Ohio, a corporation of Ohio

Filed June 10, 1968, Ser. No. 735,821
Int. Cl. D21f 3/00

U.S. Cl. 162—358

14 Claims



A press section has a driven suction press roll and a small diameter press roll located within an endless felt, and each press roll forms a nip with the same third press roll located outside the felt. The small diameter press roll is rotatably supported within a cradle formed by a plurality of backup rollers which are movable to retract the press roll to a position where it is driven solely by the felt and permits threading of a paper web without damaging the felt.

3,565,760

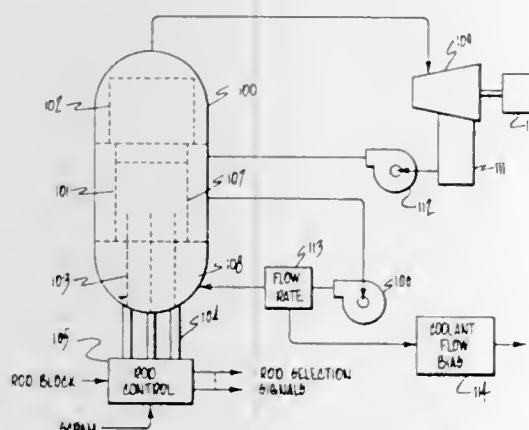
NUCLEAR REACTOR POWER MONITOR SYSTEM

Gerald R. Parkos, Gregory C. Minor, and Wells I. Collett, San Jose, Calif., assignors to General Electric Company, a corporation of New York

Filed Oct. 23, 1967, Ser. No. 677,136
Int. Cl. G21c 7/36

U.S. Cl. 176—24

32 Claims



A system for monitoring the power level of a nuclear reactor and for automatically protecting against excessive local and bulk power levels and for automatically blocking control rod withdrawal to prevent fuel damage. A plurality of nuclear detectors are located within the nuclear core, the number and location thereof being selected

to provide signals representative of the power level throughout the core. The system utilizes core symmetry and detector signal averaging to provide fault tolerance and to reduce equipment requirements.

3,565,761

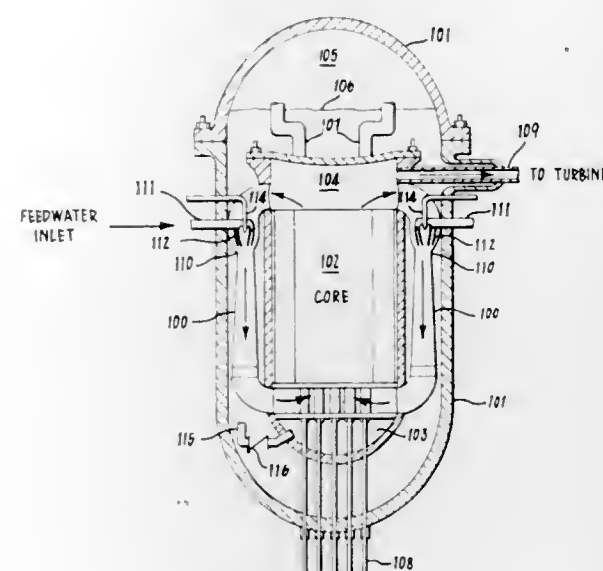
REACTOR STEAM CIRCULATOR

Douglas P. Hines, Saratoga, Calif., assignor to General Electric Company, a corporation of New York
Filed Jan. 29, 1968, Ser. No. 701,228

Int. Cl. G21c 15/24

U.S. Cl. 176—56

1 Claim



A steam circulating system for a steam cooled nuclear reactor is disclosed. This system includes a steam thermopressor for driving saturated steam coolant through the reactor core and associated piping.

3,565,762

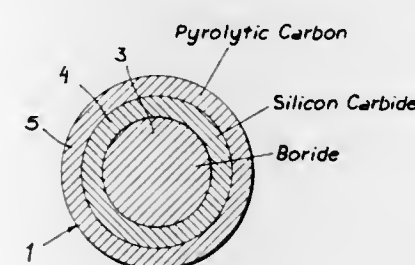
ABSORBER ELEMENT FOR NUCLEAR REACTORS

Hubertus Nickel, Julich, Germany, assignor to Kernforschungsanlage Julich des Landes Nordrhein-Westfalen e.V., Julich, Germany, a corporation of Germany
Continuation-in-part of application Ser. No. 617,280, Feb. 20, 1967. This application May 24, 1968, Ser. No. 731,791

Claims priority, application Germany, Feb. 26, 1966, K 58,574
Int. Cl. G21c 7/10

U.S. Cl. 176—86

4 Claims



An absorber element for the regulation and control of neutron flux in a nuclear reactor and especially "stacked-ball," "stacked-particle" or "ordered-bed" reactors wherein a body of graphite or zirconium alloy contains a mass of coated absorber particles having cores of high-melting-point borides, i.e. the diborides of zirconium, vanadium, hafnium or tantalum. The particles, having a particle size of the order of 100 to 500 microns (several hundreds of microns), are formed by coating these cores with pyrolytic carbon, and conventional coated-particle carbides or oxides.

3,565,763

NITROGEN SOURCE FOR IMPROVED PRODUCTIONS OF MICROBIAL POLYSACCHARIDES

Martin C. Cadmus, Peoria, Marvin O. Bagby, Morton, and Kermit A. Burton and Ivan A. Wolff, Peoria, Ill., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Dec. 19, 1967, Ser. No. 691,708
Int. Cl. C12b 1/00; C12d 13/02

U.S. Cl. 195—31

3 Claims

The use in fermentations of *Arthrobacter viscosus* NRRL B-1973 and other microbes such as *Xanthomonas campestris* that produce high viscosity polysaccharide gum thickeners, in an aqueous fermentation media containing glucose, inorganic salts, and as the sole nitrogen source kenaf of the waste raw juice expressed from the long fibrous shafts of the subtropical plant, *Hibiscus cannabinus* (also known as ambary hemp which provides culture liquors containing about twice as much polysaccharide and having far higher viscosities than those of prior art fermentations wherein the conventional nitrogen sources for the fermentation are respectively enzyme-hydrolyzed casein and distillers solubles.

3,565,764

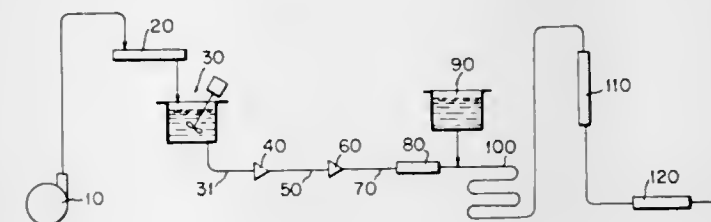
SUGAR PRODUCTION FROM AMYLACEOUS MATERIALS

Richard D. Orr, Vacaville, Calif., and Floyd K. Shoup, Manhattan, Kans., assignors to General Foods Corporation, White Plains, N.Y., a corporation of Delaware
Continuation-in-part of application Ser. No. 644,692, June 8, 1967. This application May 31, 1968, Ser. No. 733,251

Int. Cl. C12b 1/00

U.S. Cl. 195—31

8 Claims



Direct enzyme conversion of raw grain material is effected in a continuous process by initially liquefying starch containing an amylolytic enzyme at a temperature exceeding its gelatinization point and below the enzyme inactivating temperature by continuously injecting steam into the starch slurry and thereafter saccharifying the liquefied starch by saccharifying enzymes such as are high in amyloglucosidase.

3,565,765

PREPARATION OF HIGH MALTOSE CONVERSION PRODUCTS

Robert E. Heady, Park Forest, and Frederick C. Armbruster, La Grange, Ill., assignors to CPC International Inc., a corporation of Delaware
No Drawing. Filed Dec. 27, 1966, Ser. No. 604,559

Int. Cl. C12d 13/02

U.S. Cl. 195—31

11 Claims

A process for preparing a high maltose containing starch conversion product by subjecting a partially hydrolyzed starch having a D.E. less than 20 to conversion with a maltogenic enzyme preparation and a pullulanase enzyme preparation to obtain a conversion product having a D.E. of at least 40, a maltose content of at least 50% and yeast fermentables content of at least 80%. The conversion product can be concentrated and refined if desired to produce a non-crystallizing high maltose syrup. The product is particularly useful in food products such as frozen desserts, confections and the like.

3,565,766

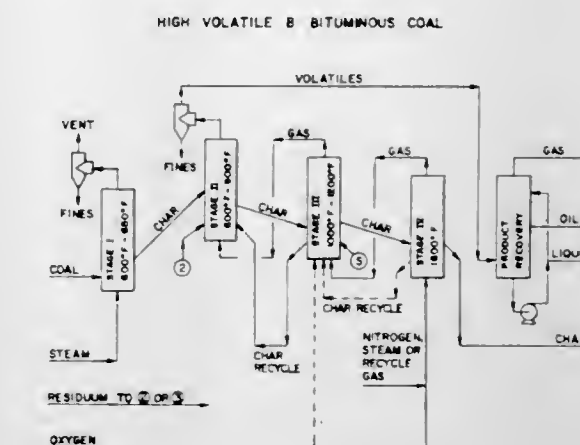
COPYROLYSIS OF COAL AND HEAVY CARBONACEOUS RESIDUE

Ralph Tracy Eddinger, Princeton Junction, and John F. Jones, Princeton, N.J., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Interior

Filed Jan. 24, 1969, Ser. No. 793,735
Int. Cl. C10b 49/22, 55/10

U.S. Cl. 201—23

5 Claims



Heavy hydrocarbonaceous residues are upgraded to lighter fractions by copyrolyzing them with coal particles—previously heated to remove from about 1% to about 10% volatiles therefrom—in the fluidized state, at a temperature between about 850° F., and about 1100° F. and recovering the resultant oily distillates and carbonaceous residues.

3,565,767

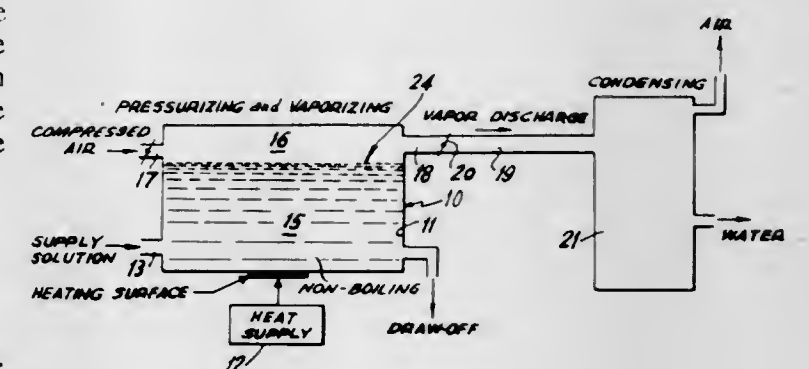
METHOD AND APPARATUS FOR REMOVING DISSOLVED IMPURITIES FROM WATER

George S. Light, Winsted, Conn. (% Polycorn Corporation, 170 Lake St., Winsted, Conn. 06098)
Continuation-in-part of application Ser. No. 439,047, Mar. 11, 1965. This application June 10, 1968, Ser. No. 735,790

Int. Cl. B01d 3/34

U.S. Cl. 203—11

13 Claims



A pressurized evaporation method and apparatus for obtaining purified water from saline solutions comprises feeding a supply of the solution into a substantially closed vessel in a quantity sufficient to provide an evaporating surface and a space above that surface, applying a positive air pressure to the evaporating surface by feeding pressurizing air into the air space; causing water to pass into the pressurizing space from the solution as an evaporate by heating the solution, the pressurization being operative to suppress boiling or vapor formation within the body of the solution; controllably releasing the evaporate from the air space and condensing it as purified water.

3,565,779

IRRADIATION CROSS LINKED COPOLYMERS OF N-SUBSTITUTED AMIDES OF UNSATURATED CARBOXYLIC ACIDS CONTAINING ACETO OR BENZOPHENONE GROUPS

Walter Lüders, Neu Isenburg, Günter Messwarb, Kelheim, Taunus, and Hartmut Steppan, Wiesbaden, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Jan. 10, 1968, Ser. No. 696,726

Claims priority, application Germany, Jan. 18, 1967, F 51,274

Int. Cl. C08d 1/00; C08g 1/12

U.S. Cl. 204—159.14

12 Claims

Copolymers of olefinically unsaturated compounds and light-sensitive, N-substituted amides of unsaturated carboxylic acids containing aceto- or benzophenone groups are prepared and subsequently cross-linked by the action of light.

3,565,780

PROCESS FOR THE PREPARATION OF GRAFT COPOLYMERS USING REPETITIVE IRRADIATION AND CONTACTING STEPS

Joseph Zimmermann, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Continuation-in-part of application Ser. No. 564,425, July 11, 1966, which is a continuation-in-part of application Ser. No. 245,926, Dec. 19, 1962, which in turn is a continuation-in-part of application Ser. No. 829,028, July 23, 1959. This application Sept. 12, 1966, Ser. No. 591,940

Int. Cl. B01j 1/00; C08f 7/00

U.S. Cl. 204—159.15

14 Claims

A process for preparing a graft copolymer between a monomer polymerizable by free radical initiation and a polymer substrate wherein the solubility of the monomer in the substrate is less than about 10%. The process includes the steps: (1) irradiating the substrate while free from excess surface monomer to a specified free-radical concentration range and prior to the decay below a specified limit, (2) contacting the monomer with the irradiated substrate and (3) removing the excess monomer from the substrate surface and, preferably, a repetition thereof. The process, by providing for concurrent and post-irradiation grafting, results in an increased amount and greater uniformity of grafting.

3,565,781

PROCESS FOR ELECTRODEPOSITING A POLYOL ESTERIFIED OIL BASED COATING

Robert D. Jerabek, Glenshaw, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Apr. 22, 1965, Ser. No. 450,205

Int. Cl. B01k 5/02; C23b 13/00

U.S. Cl. 204—181

8 Claims

Improved coating compositions comprise as the resinous vehicle a drying oil fatty acid ester-acid anhydride reaction product which is partially esterified with a polyol, preferably a diol such as 2,2-bis(4-hydroxycyclohexyl)propane. Such compositions, when partially neutralized and dispersed in water, are advantageously applied by an electrodeposition process and provide increased throwing power and ease of application at higher voltages.

3,565,782

ELECTROCOATING PROCESS

Felix Wehrmann, Vienna, Austria, assignor, by mesne assignments, to Stollack Aktiengesellschaft, Guntramsdorf, near Vienna, Austria, a corporation of Austria

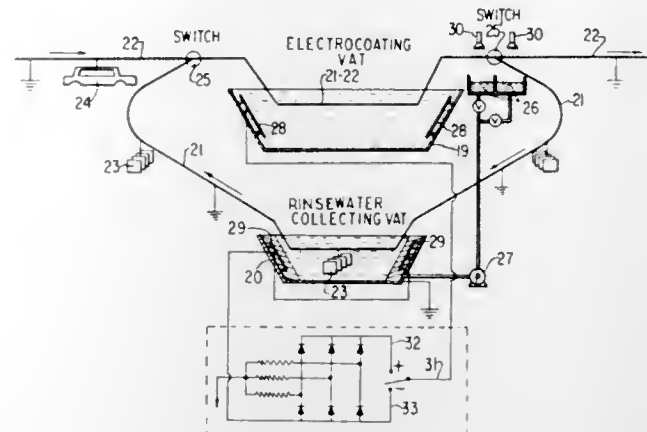
Filed May 2, 1967, Ser. No. 635,977

Claims priority, application Austria, May 3, 1966, A 4,180/66; Mar. 13, 1967, A 2,352/67; Apr. 28, 1967, A 4,002/67

Int. Cl. B01k 5/02; C23b 13/00

U.S. Cl. 204—181

10 Claims



3,565,783

FLEXIBLE INTERCELL CONNECTOR FOR ELECTROLYTIC CELLS

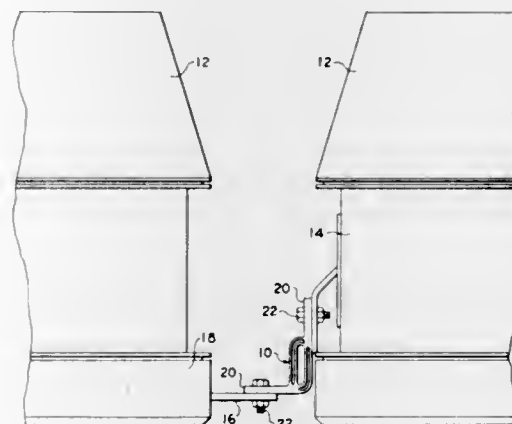
Alvin T. Emery, North Tonawanda, and John E. Currey, Lewiston, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

Continuation of application Ser. No. 565,820, July 18, 1966. This application July 7, 1969, Ser. No. 845,638

Int. Cl. B01k 1/00

U.S. Cl. 204—267

4 Claims

**ERRATUM**

For Class 208—10 see: Patent No. 3,565,751

3,565,784

HYDROTORTING OF SHALE TO PRODUCE SHALE OIL

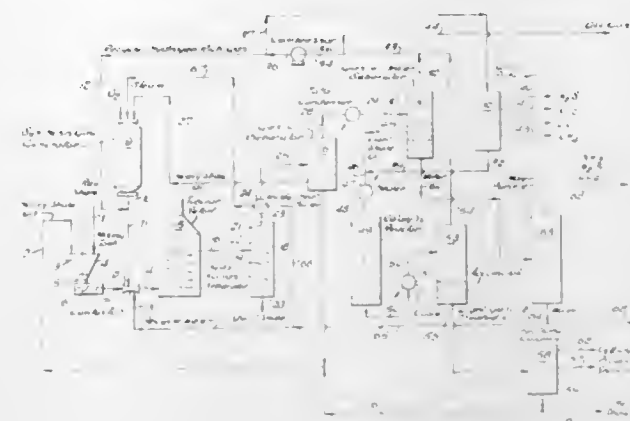
Warren G. Schlinger, Pasadena, Dale R. Jesse, Hacienda Heights, and Joseph P. Tassoney, Whittier, Calif., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

Filed Dec. 26, 1968, Ser. No. 786,951

Int. Cl. C10g 1/02

U.S. Cl. 208—11

8 Claims



Continuous process for recovering shale oil from a slurry of raw oil shale in shale oil. Water and hot unquenched synthesis gas from the reaction zone of a partial oxidation generator are injected into the raw oil shale-shale oil slurry under pressure and the mixture is immediately introduced into a noncatalytic tubular retort maintained at a temperature in the range of about 850 to 950° F. and at a pressure in the range of about 300 to 1000 p.s.i.g., and preferably at 500 p.s.i.g. for maximum yields of shale oil having a minimum nitrogen content. Substantially all of the hydrogen and a large fraction of the heat required in the tubular retort are provided by the synthesis gas. In the tubular retort under conditions of turbulent flow, the raw shale is completely stripped of kerogen in about 1/4 to 3 minutes (preferably less than a minute), and by simultaneous pyrolysis and hydrogenation the kerogen is converted to a gaseous effluent from which shale oil is separated. Simultaneously, hydrogen is generated in the tubular retort by the exothermic water-gas shift reaction, whereby CO in the synthesis gas reacts with H₂O the spent shale acting as a shift catalyst. Pure hydrogen and the prehydrogenated shale oil are introduced into a catalytic reactor to produce denitrogenated and desulfurized shale oil at yields of about 125% of the Fischer Assay. Feed to the synthesis gas generator comprises a portion of the heavy shale oil and steam produced by the process and in this respect the process is self-sustaining.

3,565,785

TEMPERATURE CONTROL IN RECOVERY OF BITUMEN FROM BITUMINOUS SAND

Lubomyr M. O. Cymbalista, Edmonton, Alberta, Canada, assignor of thirty percent each to Cities Service Athabasca, Inc., a corporation of Delaware; Imperial Oil Limited, a corporation of Canada; and Atlantic Richfield Corporation, a corporation of Pennsylvania; and ten percent to Royalite Oil Company, Limited, a corporation of Canada

Filed June 17, 1968, Ser. No. 737,667

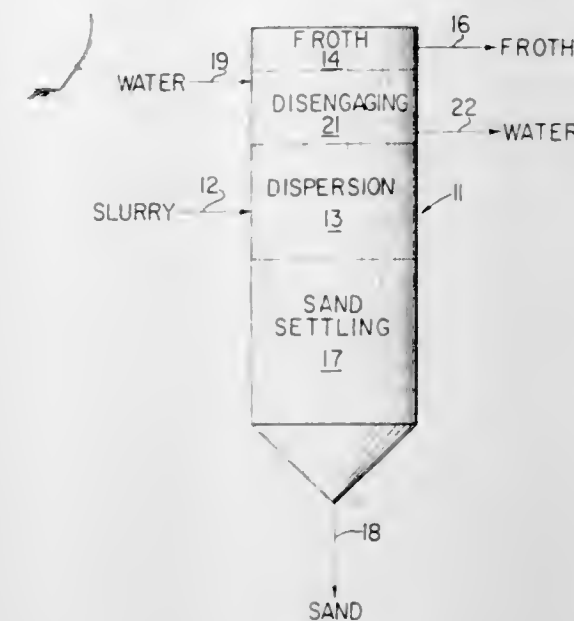
Int. Cl. C10g 1/04

U.S. Cl. 208—11

3 Claims

A process for the recovery of bitumen from tar sand in which a fluid slurry of tar sand is introduced into an intermediate zone of a body of hot water with bitumen rising to the top in the form of a layer of bituminous emulsion and said settling to the bottom. An upper zone

of the body of water immediately below the layer of bituminous emulsion is heated to a temperature greater than the temperature of the intermediate zone into which the slurry is introduced. Such temperature increase is



3,565,786

METHOD AND APPARATUS FOR CONTROLLING THE COMPOSITION OF FLUIDS

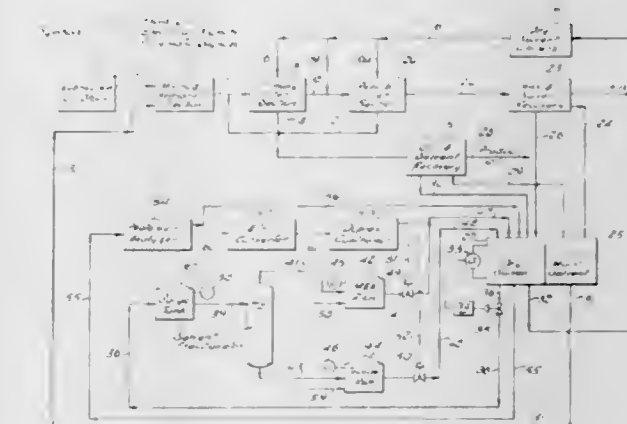
William F. Brown, William E. Crockett, and Charles H. Brodeur, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

Filed Nov. 8, 1968, Ser. No. 774,351

Int. Cl. C10g 43/08

U.S. Cl. 208—33

12 Claims



first signal, thereby tending to achieve the target value composition of the re-established solvent mixture. A preferred apparatus for controlling the composition of the aforementioned solvent mixture includes signal generating means for providing a first signal representative of the aforementioned target value, means including a fractionator for separating the solvent mixture into the aforementioned fractions, means including a mixing tank with automatic inlet flow control valves for combining the fractions to re-establish the solvent mixture, means including a photometric analyzer for sensing the concentration of the wax anti-solvent component in the re-established solvent mixture, and means including a duplex controller responsive to the first and second signals for controlling the mixing tank inlet valves in a manner tending to achieve the target value composition of the re-established solvent mixture.

3,565,787

METHOD FOR VAPORIZING DRIPOLENE
William V. Bauer, New York, N.Y., assignor to The Lummus Company, Bloomfield, N.J., a corporation of Delaware

Filed May 5, 1969, Ser. No. 821,846

Int. Cl. C10g 9/16, 31/14

U.S. Cl. 208—48

9 Claims

TEMPERATURES AND FLOW RATES OF STREAMS														
Stream	Temp. (°F)	Flow Rate (lb/hr)	Stream	Temp. (°F)	Flow Rate (lb/hr)	Stream	Temp. (°F)	Flow Rate (lb/hr)	Stream	Temp. (°F)	Flow Rate (lb/hr)	Stream	Temp. (°F)	Flow Rate (lb/hr)
1	100	100	11	100	100	21	100	100	31	100	100	41	100	100
2	100	100	12	100	100	22	100	100	32	100	100	42	100	100
3	100	100	13	100	100	23	100	100	33	100	100	43	100	100
4	100	100	14	100	100	24	100	100	34	100	100	44	100	100
5	100	100	15	100	100	25	100	100	35	100	100	45	100	100
6	100	100	16	100	100	26	100	100	36	100	100	46	100	100
7	100	100	17	100	100	27	100	100	37	100	100	47	100	100
8	100	100	18	100	100	28	100	100	38	100	100	48	100	100
9	100	100	19	100	100	29	100	100	39	100	100	49	100	100
10	100	100	20	100	100	30	100	100	40	100	100	50	100	100

This disclosure teaches a method for heating unstable hydrocarbons, and more particularly dripolene, a liquid byproduct of hydrocarbon cracking processes. The hydrocarbon is contacted directly with steam (preferably injected in a dispersed form and at high velocity via a sparger), and is maintained at a pressure sufficient for condensing the steam for preventing vaporization of the hydrocarbon. Condensate is then separated from the hydrocarbon.

3,565,788

HYDROCARBON CONVERSION WITH CLINOPTILOLITE CATALYSTS

Walter D. Foucher, Jr., and Robert M. Suggitt, Wappingers Falls, and Eugene E. Sensel, Beacon, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 27, 1968, Ser. No. 740,465

Int. Cl. C10g 13/02

U.S. Cl. 208—111

5 Claims

Clinoptilolite, a natural zeolite, after being subjected to acid leaching, possesses catalytic properties for hydrocarbon conversion. In particular, this catalyst when combined with a Group VIII and/or Group VI-B metal is useful as a hydrowaxing catalyst for processing waxy hydrocarbon distillates.

3,565,789

INITIATING A CATALYTIC REFORMING PROCESS
Paul F. Lovell, Wilmington, Del., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 666,982, Sept. 11, 1967. This application June 6, 1969, Ser. No. 831,255

Int. Cl. C10g 35/08

U.S. Cl. 208—138

12 Claims

This invention relates to a process for initiating the reforming of a petroleum naphtha feed containing less

than 10 parts per million sulfur under saturated conditions. By this invention, the reforming catalyst is initially contacted under reforming conditions with a naphtha feed containing between 10 and 300 parts per million sulfur.

3,565,790

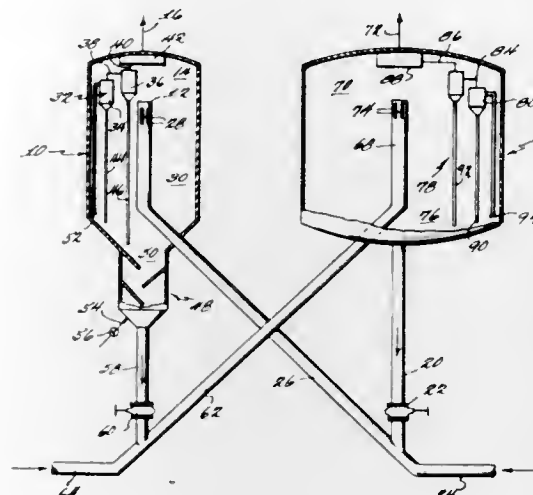
FLUID POWDER REACTION SYSTEM
Eugene F. Schwarzenbek, 20 Randall Drive, Short Hills, N.J. 07078

Filed Apr. 13, 1966, Ser. No. 542,330

Int. Cl. C10g 13/18

U.S. Cl. 208—153

4 Claims



A process and apparatus for contacting a gas with a finely divided solids in a reactor. A suspension of the finely divided solids flows downwardly in the reactor.

3,565,791

METHOD AND APPARATUS FOR DISTILLING OIL AND WATER MIXTURES

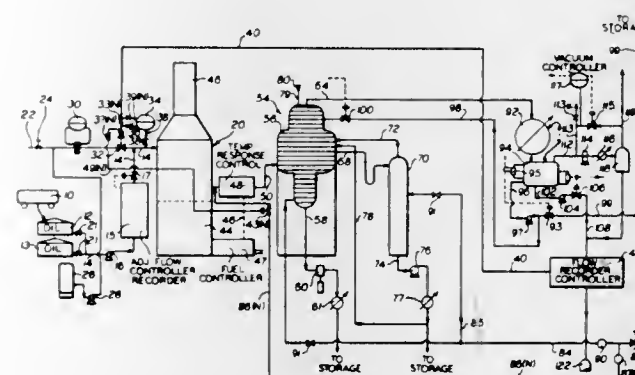
Kenneth Urquhart, 52 S. 2nd Ave., Mount Vernon, N.Y. 10550, and Solfred Maizus, 302 Ashland Place, Brooklyn, N.Y. 11217

Filed Dec. 12, 1968, Ser. No. 783,185

Int. Cl. C10g 33/00

U.S. Cl. 208—187

8 Claims



Water is separated from high boiling point oils (or other immiscible liquids) with simultaneous fractionation of the oil by supplying the mixture of water and oil to a fractionator at predetermined ratios, and using the steam generated from this water as part of the steam for flashing. A flow recorder for water at the outlet end of the system measures the outflow and controls the supply of make-up water to maintain a substantially constant water-oil ratio.

3,565,792

CYCLIC PROCESS FOR DESULFURIZING CRUDE PETROLEUM FRACTIONS WITH SODIUM

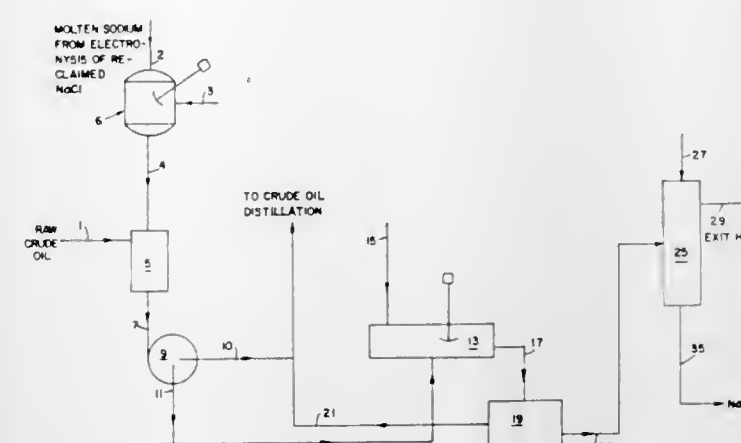
Frank B. Haskett, Ocean City, N.J., assignor of ten percent to Joan Hixon Martin, Washington, D.C.

Filed June 7, 1968, Ser. No. 735,397

Int. Cl. C10g 19/08, 29/04, 31/14

U.S. Cl. 208—208

3 Claims



An integrated process for the desulfurization of crude oil or similar virgin hydrocarbon fractions wherein a dispersion of metallic sodium is employed to react with the sulfur contaminants present within such crude oil to form a sodium sulfide precipitate eliminated from the treated crude through centrifugation. The integrated system is provided by reacting the sodium sulfide precipitate with hydrochloric acid to produce sodium chloride which after reclamation can be employed through electrolysis to provide the necessary sodium for desulfurization of the crude oil.

3,565,793

DESULFURIZATION WITH A CATALYTIC OXIDATION STEP

Sheldon Herbstman, Spring Valley, and Frank E. Guptill, Jr., Reese A. Peck, and Raymond F. Wilson, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 27, 1968, Ser. No. 787,568

Int. Cl. C10g 19/02, 27/04, 31/14

U.S. Cl. 208—208

15 Claims

A desulfurization process for the removal of sulfur in a sulfur containing hydrocarbon oil by contacting the sulfur containing hydrocarbon oil with an organic hydroperoxide, an organic peroxide or an organic peracid oxidant in the presence of a Group IV-B, Group V-B or Group VI-B metal followed by sulfur reduction utilizing for example base treatment, a thermal treatment or a hydrosulfurization treatment.

3,565,794

ESTER AND AMIDE COMPOUNDS OF PYROGLUTAMIC ACID AS SELECTIVE SOLVENTS FOR PETROLEUM HYDROCARBONS

Pierre Charles Elie Pigache, Lille, Nord, France, assignor to Leanord, Nord, France, a French company

No Drawing. Filed Mar. 15, 1967, Ser. No. 623,205

Claims priority, application France, Mar. 15, 1966, 53,411

Int. Cl. C10g 21/20

U.S. Cl. 208—326

2 Claims

This invention relates to new ester and amide compounds of pyroglutamic acid, possessing remarkable solvent properties, for use notably in selective extraction of aromatic compounds in petroleum products.

3,565,795

LUBE EXTRACTION WITH HYDROXY KETONES
Lorne W. Sproule, John M. MacDonald, and Charles C. Hong, Sarnia, Ontario, Canada, assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Nov. 14, 1968, Ser. No. 776,314

Int. Cl. C10g 21/16

U.S. Cl. 208—332

8 Claims

Polar materials, such as high molecular weight aromatics, are separated from petroleum distillate fractions by contacting a petroleum distillate fraction with a selective extraction solvent. The solvents employed, in accordance with this disclosure are hydroxyl substituted aliphatic ketones such as 3-hydroxy-3-methyl-2-butanone. The results obtained with these solvents are compared with the results obtained with the use of phenol.

3,565,796

METHOD FOR INCREASING OXYGEN AVAILABILITY IN SEWAGE TREATMENT

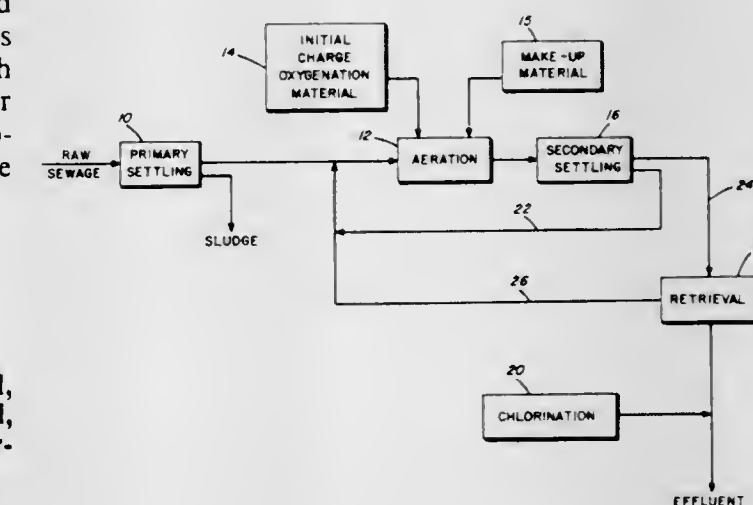
Gilbert V. Levin, Chevy Chase, Md., assignor to Biospherics Incorporated, Rockville, Md., a corporation of the District of Columbia

Filed Feb. 11, 1970, Ser. No. 10,337

Int. Cl. C02c 1/06

U.S. Cl. 210—3

13 Claims



An aerobic sewage treatment process making available to the sewage treating microorganisms a large quantity of oxygen. The oxygen availability is increased by adding to the sewage, immiscible substances which can sustain relatively high concentrations of dissolved oxygen or miscible substances with high oxygen-carrying capabilities and which can be readily separated from water.

3,565,797

APPARATUS AND PROCESS FOR TREATING SEWAGE

Paul J. Gresham, Oklahoma City, Okla.; now by Court Order of two-thirds interest to Carolyn Louise Gresham widow of Paul J. Gresham, deceased, and one-sixth each to Ralph R. Gresham, Houston, Tex., and James R. Sutton, Grand Island, Nebr.

Filed June 12, 1968, Ser. No. 736,348

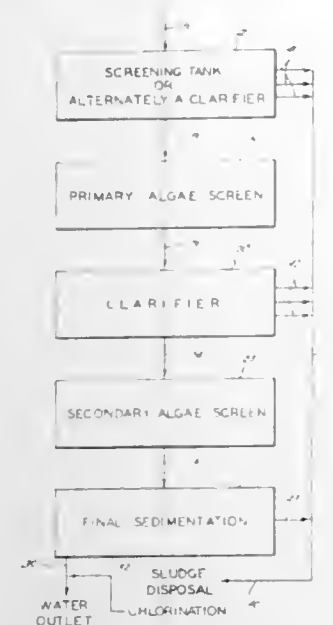
Int. Cl. C02c 3/00

U.S. Cl. 210—10

18 Claims

Apparatus and process for the treatment of sewage by oxidation and by contacting said sewage with living filamentous algae affixed to a suitable supporting framework. Several stages of treatment may be used, but a

single stage of treatment through moving contact of the sewage with an algae bed or screen of sufficient size will provide complete or almost complete removal of sus-



pended solids, and the biochemical oxygen demand of the effluent water can be reduced to acceptable levels for disposal in streams and lakes.

3,565,798

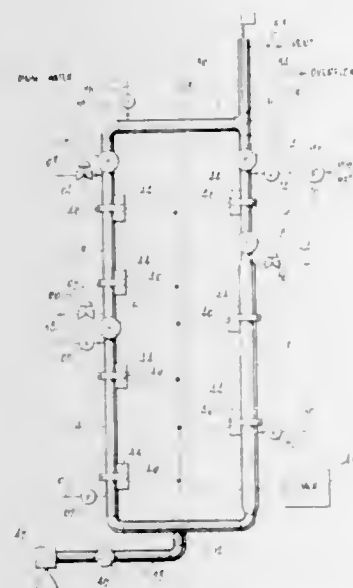
ION EXCHANGE RESIN CONTACTOR

Robert G. Barnes, Saratoga, Calif., assignor to General Electric Company, a corporation of New York
Filed Nov. 2, 1967, Ser. No. 680,234

Int. Cl. B01d 15/02, 35/20

U.S. Cl. 210—19

11 Claims



An improved semi-continuous ion exchange system is disclosed. In this system, ion exchange resin particles are moved through the contactor by push water while the contactor is subjected to vibration.

3,565,799

METHOD FOR PHYSICAL AND/OR CHEMICAL TREATMENT IN LIQUIDS OR GASES BY TREATMENT AGENTS IN GRANULAR FORM

Erich Kieschnick, Taunusstrasse 19, and Werner Lux, Taunusstrasse 21, both of Butzbach, Hesse, Germany, and Max Schultz, Moltkestrasse 20, Giessen, Hesse, Germany

Filed Dec. 8, 1967, Ser. No. 689,750

Claims priority, application Germany, Dec. 9, 1966, P 40,966

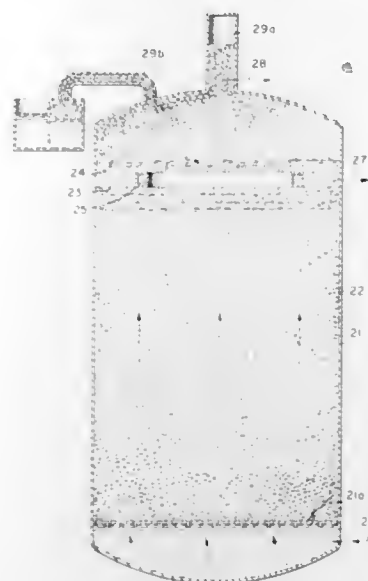
Int. Cl. B01d 23/10

U.S. Cl. 210—35

18 Claims

Liquid or gas to be treated is brought into bodily contact with a treatment agent in granular form. Means are

also provided for regenerating the treatment agent after it has been more or less exhausted or contaminated. In case the regeneration agent is directed through the packing of granular material in an upward direction whirling and re-arrangement of the treatment agent which is in granular form is prevented by a weighting or loading



medium also in granular form, the latter material being laid onto the upper surface of the granular treatment agent. After regeneration of the treatment agent has taken place the granular weighting or loading material can be flushed out again from the respective treatment apparatus, which is preferably a column.

3,565,800

IONIC COMPOSITIONS CONTAINING Hg(II), Zn(II), Cd(II), Ag(I), Cu(II), Ni(II) AND/OR Co(II), AND A POLYMER OF AN ETHYLENE IMINE

Robert C. Wade, Ipswich, Mass., assignor to Ventron Corporation, Beverly, Mass., a corporation of Massachusetts

No Drawing. Filed Feb. 4, 1969, Ser. No. 796,612

Int. Cl. C07f 15/06; C23b 5/30

U.S. Cl. 252—1

18 Claims

The invention provides an ionic composition which is a solution of an oxide or hydroxide of a metal selected from Hg(II), Zn(II), Cd(II), Ag(I), Cu(II), Ni(II), Co(II) and mixtures thereof in an aqueous solution of a polymer of ethylene imine having a molecular weight between about 600 and 100,000 and in which the nitrogen atoms are separated by not more than two carbon atoms and the primary, secondary and tertiary imine nitrogen ratio is about 1 to 2 to 1 respectively. The composition is sufficiently ionic so that the contained metal, (1) can be electroplated therefrom onto other metals without adding an alkaline material, or (2) displaced therefrom by metals higher in the electromotive series. The composition also may be used to coat various anionic substrates, such as cotton, glass, leather, paper and starch.

3,565,801

PROCESS FOR EXTINGUISHING FIRES WITH GRAPHITE CONTAINING FOAM-COMPATIBLE FIRE EXTINGUISHING POWDERS

James Derek Birchall and David Arthur Phillips, Northwich, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Dec. 30, 1968, Ser. No. 788,067

Claims priority, application Great Britain, Jan. 30, 1968, 4,776/68

Int. Cl. A62c 1/20

U.S. Cl. 252—3

6 Claims

To render powdered fire-extinguishing agents compatible with fire-extinguishing foams, for example foams

based on proteins, a minor proportion of graphite is incorporated in the powder. Examples of foam-compatible compositions so obtained are mixtures of sodium bicarbonate or potassium bicarbonate, or the fire-extinguishing agent made by heating urea with potassium bicarbonate below 150° C., with finely divided graphite the proportion of the latter in the mixture being 0.01 to 10% by weight. Free-flowing and anti-caking agents may be included in the foam-compatible compositions.

3,565,802

OIL DISPERSIBLE INORGANIC BORATE IN COMBINATION WITH EP AGENTS AS LUBRICATING OIL ADDITIVES

William W. West, El Cerrito, and John M. Stokely, San Rafael, Calif., assignors to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Filed Apr. 30, 1968, Ser. No. 725,495

Int. Cl. C10m 1/38, 3/32

U.S. Cl. 252—25

6 Claims

Oil dispersible hydrated alkali metal borate antiwear additives are combined with sulfur or halogen containing extreme pressure additives to provide compositions having excellent wear and extreme pressure properties while not contributing to inorganic salt deposition resulting from contact with moisture.

3,565,803

REACTION PRODUCT OF AN ALKALI METAL ANION OF A KETONE AND AN ACRYLONITRILE AS A LUBRICATING OIL DETERGENT

Louis de Vries, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Filed Aug. 1, 1968, Ser. No. 749,314

Int. Cl. C10m 1/20, 1/32, 1/54

U.S. Cl. 252—42.7

1 Claim

Dialkyl ketones having a relatively long oil soluble alkyl group are condensed as their anions with an acrylonitrile under mild conditions to provide lubricating oil detergent additives and emulsifiers.

3,565,804

LUBRICATING OIL ADDITIVES

Lewis R. Honnen, Petaluma, Calif., and Robert Gordon Anderson, Wassenaar, Netherlands, assignors to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Continuation-in-part of applications Ser. No. 408,686, Nov. 3, 1964, and Ser. No. 488,775, Sept. 20, 1965. This application Mar. 30, 1970, Ser. No. 23,959

Int. Cl. C07c 87/04; C07d 51/70; C10m 1/32

U.S. Cl. 252—50

23 Claims

Hydrocarbon polyamines are provided having a long, substantially aliphatic, oil solubilizing hydrocarbon chain bonded to a di- or higher polyamine which find use as detergents and dispersants in both lubricating oils and in fuels. The hydrocarbon group is normally branched and derived from natural sources or polyolefins.

3,565,805

ELECTROSTATIC DEVELOPER MIX

Viron V. Jones, Canoga Park, Calif., and Karel Kriz, Arlington Heights, Ill., assignors to Addressograph-Multigraph Corporation, a corporation of Delaware

Filed Aug. 30, 1963, Ser. No. 305,685

Int. Cl. G03g 9/00

U.S. Cl. 252—62.1

9 Claims

9. A developing powder for use in developing electrostatic images comprising a mixture of toner particles and carrier particles for said toner particles, said carrier particles being coated with from 0.01% to 1% by weight of an oleaginous substance based on the weight of said carrier particles.

3,565,806

MANGANESE ZINC FERRITE CORE WITH HIGH INITIAL PERMEABILITY

Erich Röss, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany, a German corporation

Continuation of application Ser. No. 594,931, Nov. 16, 1966. This application Jan. 23, 1970, Ser. No. 6,028

Claims priority, application Germany, Nov. 23, 1965, S 100,615

Int. Cl. C04b 35/38

U.S. Cl. 252—62.62

12 Claims

A ferromagnetic structural element having initial permeability higher than 4000 in the operating temperature range of -50° C. to +120° C. composed of 54 to 58 mol percent of Fe₂O₃ 10 to 24 mol percent of MnO and 18 to 36 mol percent of ZnO and containing less than 0.05% by weight of impurities and a method of manufacturing the same. The method includes mixing the above components and sintering them at 1270° C. to 1300° C. for 4 to 20 hours, with at least the last half of the sintering taking place in an inert atmosphere having less than 0.2% by volume of oxygen and cooling the sintered ferrite to about 300° C. in the same inert atmosphere.

3,565,807

COMPOSITE DIELECTRIC BODY CONTAINING AN INTEGRAL REGION HAVING A DIFFERENT DIELECTRIC CONSTANT

David R. Sivertsen, Dallas, and Olin B. Cecil and Rolf R. Haberecht, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

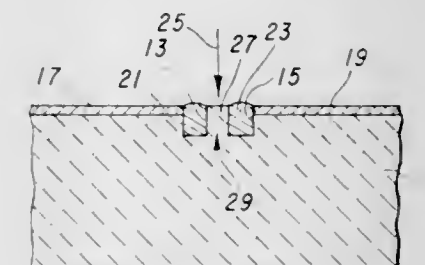
Original application Sept. 29, 1966, Ser. No. 588,663.

Divided and this application Jan. 16, 1969, Ser. No. 810,428

Int. Cl. B01j 1/10; H01b 3/12

U.S. Cl. 252—63.5

5 Claims



In the fabrication of microelectronic circuitry, a capacitive device is fabricated comprising a dielectric matrix that includes a discrete region autogenously formed therein having a dielectric constant that differs from that of the matrix.

3,565,808

PROCESSES FOR OBTAINING HIGH YIELDS OF CARBON FROM PETROLEUM RESIDUUMS AND FOR THE MANUFACTURE OF HIGH CARBON CONTENT AGGREGATES

George G. Tertipis, Rexdale, Ontario, John G. Currie, Oakville, Ontario, and Edward T. Hignell, Clarkson, Ontario, Canada, assignor to Gulf Oil Canada Limited, Toronto, Ontario, Canada

Filed Nov. 24, 1967, Ser. No. 685,393

Int. Cl. C01b 31/32

U.S. Cl. 252—188.3

11 Claims

A process for obtaining carbon in high yield from a petroleum residuum, in particular from asphalt, which consists of heating the petroleum residuum in a nonoxidizing atmosphere such as nitrogen at a temperature exceeding 1000° F. and a pressure exceeding 50 p.s.i.a.

3,565,809

**ALPHA OLEFIN SULFONATE
DETERGENT COMPOSITIONS**

Samuel H. Sharman, Kensington, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware
No Drawing. Filed Nov. 27, 1967, Ser. No. 685,948
Int. Cl. C11d 3/07, 3/066

U.S. Cl. 252—137 8 Claims
High performance detergent compositions consist of straight-chain olefin sulfonates, an alkali metal or ammonium group pentavalent phosphoric acid salt and an alkanol-1.

3,565,810

**CONCENTRATED TERTIARY AMINE OXIDE-
HYDROTROPE AQUEOUS SOLUTIONS**

Marvin L. Mausner, Teaneck, and Brij L. Kapur, Paterson, N.J., assignors to Witco Chemical Company, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 29, 1967, Ser. No. 694,412
Int. Cl. C11d 1/18

U.S. Cl. 252—152 5 Claims
Concentrated aqueous detergent solutions in the form of substantially stable and homogeneous, pourable liquids are prepared by oxidizing a tertiary amine with hydrogen peroxide while adding a hydrotropic sulfonate of benzene or lower alkyl benzene under conditions to prevent gelling during the oxidation and while allowing substantially complete conversion of the tertiary amine to its oxide to occur. Easily pourable solutions having a solids content of at least about 35% with a 15-25% tertiary amine oxide concentration are obtainable.

3,565,811

**STABILIZED 1,1,1-TRICHLOROETHANE
COMPOSITION**

Leighton S. McDonald, Angleton, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Dec. 29, 1967, Ser. No. 694,420
Int. Cl. C09d 9/00; C11d 7/52; C23g 5/01

U.S. Cl. 252—171 4 Claims
1,1,1-trichloroethane stabilized with minor amounts of methoxyacetone, a lower alkylene oxide and nitromethane or propargyl alcohol and mixtures thereof and to a process for preventing deterioration of 1,1,1-trichloroethane in contact with the metals aluminum, iron, copper, zinc and their alloys by intimately admixing with such 1,1,1-trichloroethane a stabilizing amount of methoxyacetone, nitromethane or propargyl alcohol, and a lower alkylene oxide and mixtures thereof. The invention also relates to a process for degreasing metals employing the compositions above set forth.

3,565,812

**PROCESS FOR PREPARING A MIXTURE
OF POLYESTERS**

James J. Anderson and Vasco G. Camacho, Richmond, Va., assignors to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed Sept. 29, 1967, Ser. No. 671,572
Int. Cl. C07f 9/02; C09k 3/00

U.S. Cl. 252—182 7 Claims
A mixture of polyesters is obtained by reacting together, in essentially a one-step reaction, maleic anhydride, tetrahalophthalic anhydride, pentaerythritol, a mixture containing dimethyl hydrogen phosphate and methyl dihydrogen phosphate, and propylene oxide. The mixture of polyesters is a mixture of monomeric polyester polyols having low acid numbers. The product obtained is useful in the preparation of polyurethanes.

In addition, a polyurethane composition containing therein the product mixture is provided. The polyurethane composition may, among other things, be used in coat-

ings, as packaging, or as insulation in buildings, truck or railroad car bodies or in airplane fuselages.

3,565,813

COMPOSITE CHELATING COMPOSITIONS

Frederick C. Bersworth, 120 Washington St., East Orange, N.J. 07017

Filed Oct. 2, 1967, Ser. No. 672,059
Int. Cl. C07c 101/24; C09k 3/00

U.S. Cl. 252—182 7 Claims
Chelating compositions of enhanced stability in use, namely, enhanced capacity and ability to hold a heavy metal in chelated form in solution at high pH are formed by using in combination pairs of ligand sources of ligand types, specifically, hydrazine reaction products of synthetic polyamino polycarboxylic acids together with the synthetic polyamino polycarboxylic acids and acid salts in a wide range of proportions.

3,565,814

**PHOTOCHROMIC COMPOSITIONS IN A LAURYL
METHACRYLATE POLYMERIC BINDER**

Joseph Jacinto Pellon, New Canaan, Conn., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

Filed Oct. 27, 1967, Ser. No. 678,591
Int. Cl. G03c 1/72

U.S. Cl. 252—300 3 Claims
Photochromic compositions comprising a polymer of lauryl methacrylate having dispersed throughout the body thereof various benzospiropyran compounds are described.

3,565,815

**PHOSPHOR CONTAINING PLASTIC
POLYSTYRENE**

Alexander C. Christy, Morgantown, W. Va., assignor to Industrial Manufacturing Company, Inc., Morgantown, W. Va., a corporation of West Virginia
No Drawing. Filed Dec. 28, 1967, Ser. No. 694,082
Int. Cl. A63h 33/00; C08c 11/70; C09k 1/00

U.S. Cl. 252—301.3 10 Claims
A moldable plastic product comprising polystyrene or copolymers of polystyrene such as the vinyls including, for example, vinyl chloride, vinyl acetate, vinyl butyral, vinylidene chloride, acrylonitrile, butadiene, alpha or beta-methyl styrene and maleic anhydride, and others, at least 45 percent by weight polystyrene of a phthalate plasticizer such as the alkyl, aryl, alkyl aryl, dialkyl and diaryl phthalates and in particular the dioctyl phthalates, at least 3 percent by weight polystyrene or any wax such as natural or synthetic animal, vegetable or mineral waxes; preferred are the paraffin waxes containing paraffinic hydrocarbons having a carbon content of at least 16 carbon atoms, and at least .001 percent by weight polystyrene of an electroluminescent, fluorescent or phosphorescent phosphor such as the P₁-P₃₀ type phosphors which include the sulfide and oxide phosphors.

3,565,816

FLUORESCENT POLYCRYSTALLINE MATERIALS

Rudolf Wilhelm Heindl, Fontenay-aux-Roses, and Jean A. Loriers, Versailles, France, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 23, 1968, Ser. No. 723,613
Claims priority, application France, Apr. 28, 1967, 104,688

U.S. Cl. 252—301.4 4 Claims
A mixture of magnesium and sodium vanadates activated with europium provides a high intensity of light emission in the red and yellow regions of the spectrum upon excitation by ultraviolet light.

3,565,817

**CONTINUOUS PROCESS FOR THE PREPARATION
OF EMULSIONS**

Kenneth J. Lissant, St. Louis, Mo., assignor to Petrolite Corporation, Wilmington, Del., a corporation of Delaware

Continuation-in-part of application Ser. No. 411,103, Nov. 13, 1964. This application Aug. 15, 1968, Ser. No. 753,340

Int. Cl. B01j 13/00 1 Claim
U.S. Cl. 252—312

A continuous process for the preparation of thixotropic high-internal-phase-ratio emulsions, having non-Newtonian flow properties, which is characterized by introducing into a preformed emulsion of approximately the same character as the desired emulsion both the internal and external phases of the emulsion in the presence of an emulsifier in such proportions so as to produce the desired emulsion while maintaining the emulsified mass in a state of continuous shear sufficient to reduce the effective viscosity of the emulsified mass near to that of the introduced phases but not above the inherent shear stability point of the desired emulsion, and withdrawing the prepared emulsion at the desired rate.

3,565,818

ENCAPSULATION PROCESS AND ITS PRODUCT

Robert Gordon Bayless, Yellow Springs, and Donald Day Emrick, Kettering, Ohio, assignors to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

No Drawing. Filed Jan. 29, 1968, Ser. No. 701,130
Int. Cl. A61k 9/04; B01j 13/02; B44d 1/02

U.S. Cl. 252—316 7 Claims
A process is disclosed for producing, en masse, in an aqueous manufacturing vehicle, minute capsules having walls comprising the product of a complexing reaction between poly(vinyl alcohol) and a slowly hydrolyzable alkylene glycol cyclic borate ester which product is a non-gelling product. The novel process utilizes an interfacial complexing reaction which is accomplished at the interface between a particle of intended capsule internal phase or core material and the aqueous liquid manufacturing vehicle. In a preferred embodiment of the invention, the slowly hydrolyzable cyclic borate ester is dissolved in the intended capsule internal phase material and the poly(vinyl alcohol) is dissolved in the aqueous manufacturing vehicle. When the intended internal phase material is dispersed in the manufacturing vehicle, a complexing reaction occurs at the particle-vehicle interface between the cyclic borate ester and the poly(vinyl alcohol) to create a capsule wall for the dispersed particle.

Optionally, the capsule walls, after creation, can be chemically treated with solutions of certain transition metal salts to harden the capsule walls and increase their rigidity.

3,565,819

PROCESS OF PRODUCING MICROCAPSULES

Karl G. Gagger, Laurel, Md., assignor to Westvaco Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Feb. 13, 1969, Ser. No. 799,105
Int. Cl. A61k 9/04; B01j 13/02; B44d 1/02

U.S. Cl. 252—316 8 Claims
Pressure-rupturable microcapsules having outer walls of wax which encase droplets of an oily material are produced in the absence of coacervation forces by emulsifying an oil-in-water type of emulsion into melted wax, to

form a water-in-oil type of emulsion, then dispersing the wax emulsion to form micro-droplets thereof in an aqueous phase, and cooling the resulting dispersion to solidify the wax. A membrane of hydrophilic colloid material impermeable to the encapsulated oil is formed between the oil and the wax and acts as a protective colloid. The dispersion of microcapsules can be coated onto an appropriate base sheet or the microcapsules can be recovered by spray drying or by filtering and drying.

3,565,820

**REGENERATION OF CATALYSTS USED IN
RESIDUAL OIL HYDROPROCESSING**

William R. Coons, Jr., Port Arthur, and Gerald V. Nelson, Nederland, Tex., and Glenn C. Wray, Dyersburg, Tenn., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 689,825, Dec. 12, 1967. This application June 19, 1969, Ser. No. 834,856

Int. Cl. B01j 11/04, 11/68 8 Claims
U.S. Cl. 252—414

Catalysts used in residual oil hydroprocessing have their activities restored by contacting with a distillate oil at about 600 to 800° F. and 0 to 3000 p.s.i.g. optionally in the presence of hydrogen; purging with hydrogen and then with nitrogen; steaming at about 400 to 800° F. and burning with an air steam mixture at a temperature below about 800° F.

3,565,821

**PROCESS FOR ACTIVATING
RHODIUM CATALYSTS**

Aaron C. L. Su, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,298
Int. Cl. B01j 11/01, 11/80; C07c 3/52, 3/60

U.S. Cl. 252—415 12 Claims
A process for activating a rhodium catalyst which has become deactivated through use in synthesizing dienes from α -monoolefins and conjugated dienes in which the deactivated catalyst is treated with an active organic halide or chloride. A process is also provided for oxidizing rhodium (I) to rhodium (III).

3,565,822

**LOW TEMPERATURE CONTROLLED POLYMERIZATION SYSTEM FOR METHACRYLATE
ESTERS**

Irvin Francis Bodycot, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 425,340, Jan. 13, 1965. This application July 20, 1967, Ser. No. 654,706

Int. Cl. C08f 3/62 10 Claims
U.S. Cl. 252—429

A low temperature, controlled polymerization of methyl methacrylate ester systems containing methyl methacrylate peroxide or other active oxygen can be achieved by the introduction of a specialized accelerator which accelerates the breakdown of methyl methacrylate peroxide to provide catalyzing free radicals in the system. The accelerator is comprised of an oxidizable sulfur compound, copper, an organic amine or amine salt, and a salt of either cerium, manganese, cobalt, nickel, mercury, germanium, tin or antimony.

3,565,823

CATALYTIC DISPERSIONS OF METAL HALIDES IN MOLTEN TRIHALOSTANNATE(II) AND TRIHALOGERMANATE(II) SALTS

George William Parshall, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed May 8, 1968, Ser. No. 727,710
Int. Cl. C07c 5/02, 5/22, 45/02

U.S. Cl. 252—429 9 Claims

Dispersions of transition and other metal halides in molten tetrahydrocarbylammonium or phosphonium trihalostannate(II) and trihalogermanate(II) salts are prepared by mixing a metal halide with a molten trihalostannate or trihalogermanate salt. The dispersions are useful as catalysts for the hydrogenation, isomerization or carbonylation of olefins and as colored inks for printing.

3,565,824

CATALYST FOR SETTING FINISHES ON CELLULOSIC TEXTILES

Andrew G. Pierce, Jr., and John G. Frick, Jr., New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Original application Dec. 22, 1965, Ser. No. 515,709, now Patent No. 3,441,367, dated Apr. 29, 1969. Divided and this application Aug. 6, 1968, Ser. No. 763,469

Int. Cl. D06m 13/13

U.S. Cl. 252—429 8 Claims

A synergistic catalyst composition for setting finishes of formaldehyde and water-soluble formaldehyde-amide condensates on cellulosic fibrous materials is provided. The catalyst composition comprises about from 25 to 75 parts, by weight, of a magnesium halide, such as magnesium chloride hexahydrate, and about from 75 to 25 parts, by weight, of an organic acid compound selected from the group consisting of hydroxyl and alkoxyl substituted carboxylic acids, such as citric acid, tartaric acid, methoxyacetic acid, hydroxybutyric acid, and glycolic acid.

3,565,825

SILICONE RUBBER CATALYST SYSTEM

Marvin S. Antelman, Newton, Mass., assignor to Wells-Benrus, Inc., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 480,180, Aug. 16, 1965. This application June 9, 1969, Ser. No. 831,755

Int. Cl. C08f 31/00

U.S. Cl. 252—431 6 Claims

A catalyst composition for curing silicone rubber, prepolymers containing a metal carboxylic acid salt dissolved in an isoparaffin solvent.

3,565,826

CATALYST FOR THE CATALYTIC GAS PHASE-OXIDATION OF PROPYLENE OR ACROLEIN INTO ACRYLIC ACID

Kurt Sennewald and Alfred Hauser, Knapsack, near Cologne, and Winfried Lork, Friesheim, near Euskirchen, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany, a corporation of Germany
No Drawing. Filed June 25, 1968, Ser. No. 739,658
Claims priority, application Germany, July 5, 1967, K 62,727

Int. Cl. B01j 11/08

U.S. Cl. 252—437 3 Claims

Catalyst consisting of the oxides of iron, bismuth, molybdenum and optionally phosphorus for use in the catalytic gas-phase-oxidation of propylene or acrolein by means of oxygen into acrylic acid, the catalyst containing silver oxide as an additional component in the atomic ratio of $\text{Ag}_{0.01-1.5}\text{Fe}_{0.1-12}\text{Bi}_{0.1-12}\text{P}_{0-5}\text{Mo}_{12}\text{O}_{30-110}$.

3,565,827

PREPARATION OF ACTIVATED CARBON IN SERIALY DISPOSED FLUIDIZED ZONES

John R. Friday, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Mar. 29, 1968, Ser. No. 717,148
Int. Cl. C01b 31/08

U.S. Cl. 252—445 5 Claims

Activated carbon is prepared from carbonaceous material in a reactor having a plurality of stages arranged in series. The carbonaceous material fed to the reactor has a particle size range such that the activation gas, passed upwardly through each stage, maintains the material in a fluidized state. Material from the upper portion of each stage passes to the lower portion of the next stage through overflow means. In order to prevent back-mixing, each successive stage is arranged with an overflow lower than the overflow of the preceding stage.

3,565,828

HYDRATED SILVER ALUMINATE CATALYST

John F. Kucirka, Northampton, Pa., assignor to Air Products and Chemicals Inc., Philadelphia, Pa., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 699,027, Jan. 19, 1968. This application July 11, 1969, Ser. No. 841,691

Int. Cl. B01j 11/06

U.S. Cl. 252—463 5 Claims

A catalyst composition, conveniently designated as silver aluminate monohydrate, functions as a catalyst for the synthesis of ethylene oxide from oxygen and ethylene. The catalyst had $65 \pm 5\%$ silver, a pore volume of 0.6 to 1.5 cc./g., and a surface area of 100–600 m.²/g. The catalyst is so active that acceptable conversions are obtained below 192° C., the critical temperature of ethylene oxide.

3,565,829

SUPPORTED CATALYSTS CONTAINING VANADIUM PENTOXIDE AND TITANIUM DIOXIDE

Wilhelm Friedrichsen, Ludwigshafen, and Otto Goehre, Wilhelmshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Oct. 2, 1968, Ser. No. 764,623
Claims priority, application Germany, Oct. 4, 1967, P 16 42 938.2; July 25, 1968, P 17 92 123.2

The portion of the term of the patent subsequent to

Sept. 2, 1989, has been disclaimed

Int. Cl. B01j 11/06, 11/32

U.S. Cl. 252—464 12 Claims

Supported catalysts containing vanadium pentoxide and titanium dioxide for oxidation reaction, for example for the production of phthalic anhydride from o-xylene, which contain additions of aluminum oxide and/or lithium oxide and/or zirconium dioxide.

3,565,830

COATED FILM OF CATALYTICALLY ACTIVE OXIDE ON A REFRACTORY SUPPORT

Carl D. Keith, Summit, Paula M. Kenah, East Orange, and Daniel L. Bair, Roselle Park, N.J., assignors to Engelhard Minerals & Chemicals Corporation, a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 527,511, Feb. 15, 1966, which is a continuation-in-part of application Ser. No. 256,819, Feb. 7, 1963, and also is a continuation-in-part of application Ser. No. 527,494, Feb. 15, 1966, now Patent No. 3,331,737, which is a continuation-in-part of application Ser. No. 256,820, Feb. 7, 1963. This application July 14, 1967, Ser. No. 653,322

Int. Cl. B01j 11/08, 11/16

U.S. Cl. 252—466 15 Claims

A catalyst composition is made having a platinum group metal and a film of catalytically active metal oxide supported on an inert, substantially catalytically inactive refractory support which exhibits a porosity of at least 0.03 cc./gm., say 0.1 to 0.3 cc./gm., and a substantial water pore volume. There are unobstructed openings or channels going through the support through which pass the chemical materials converted by the catalyst, e.g. automobile exhaust gases and oxygen, during its use. Calcined alumina is a suitable film of catalytically active metal oxide and alpha-alumina and zircon-mullite can be used as supports. The support is mainly crystalline and can have a macropore distribution such that over 95% of the pore volume is in pores having a diameter of over 2,000 Å. and over 5% of the pore volume is in pores having a diameter of over 20,000 Å. One way of making the catalyst is to deposit the film on the support and then impregnate the film with the platinum group metal. The platinum group metal can be fixed on the support by treatment with, for instance, hydrogen sulfide. As a final preparation step the catalyst can be calcined.

3,565,831

STRONGLY ADHERENT PINE NEEDLE FRAGRANCE COMPOSITIONS

Ernst-Rolf Detert, Lubbecke, Westphalia, Germany, assignor to Eduard Gerlach GmbH Chemische Fabrik, Lubbecke, Germany, a German corporation
No Drawing. Filed Aug. 7, 1967, Ser. No. 658,633
Int. Cl. A61k 7/00

U.S. Cl. 252—522 6 Claims

A strongly adherent fragrance composition suitable for application by spraying to artificial Christmas trees to provide them with a natural pine needle odor is provided by a mixture of pine needle oil, oil of lavender, cedar oil, in a volatile organic solvent, together with a cellulose ether fixative.

3,565,832

POLYMERIZATION OF AROMATIC MONOMERS IN PRESENCE OF LEWIS ACID CATALYST AND OXYGEN

Norman Bilow and John B. Rust, Los Angeles, and Abraham L. Landis, Northridge, Calif., assignors to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
No Drawing. Filed Sept. 5, 1967, Ser. No. 665,265
Int. Cl. C08g 33/00

U.S. Cl. 260—2 6 Claims

The disclosure herein concerns a commercially feasible method of preparing aromatic polymers which are fusible and soluble in a variety of solvents. The polymers are prepared by heating a mixture of low molecular weight aromatic hydrocarbons and a strong Lewis acid polymerization catalyst while forcing gaseous oxygen into the heated reaction mixture to form resins of a useful commercial quality and capable of withstanding higher temperatures with a negligible weight loss.

3,565,833

CORE-DUAL SHELL GRAFT COPOLYMERS WITH ION EXCHANGE RESIN SHELLS

Hendrik Adriaan Jacobus Battaerd, North Clayton, Victoria, Australia, assignors to Imperial Chemical Industries of Australia and New Zealand Limited, Melbourne, Victoria, Australia, a corporation of Australia
No Drawing. Filed Dec. 27, 1968, Ser. No. 787,551
Claims priority, application Australia, Jan. 24, 1968, 32,553/68

Int. Cl. C08f 1/16, 15/00, 19/00

U.S. Cl. 260—2.1 7 Claims

A graft copolymer wherein two reactive polymers are grafted on to and surround in shell form an inert polymeric nucleus. The shell, or shells, comprise separate and discrete regions of ion exchange reactive groups of op-

posite sign and the graft copolymers are suitable as ion exchange resins affording high reaction rates and high rates of equilibration.

3,565,834

PRODUCTION OF POLYAMIDE MOLDINGS

Karl Dachs, Ludwigshafen, and Hans Wilhelm, Heinsheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Continuation-in-part of application Ser. No. 490,086, Sept. 24, 1965. This application Dec. 11, 1968, Ser. No. 783,141

Claims priority, application Germany, Oct. 9, 1964,

P 14 95 202.4

Int. Cl. C08g 20/18

U.S. Cl. 260—2.5 4 Claims

Production of polyamide moldings which can be used as rollers, gear wheels or pipes by activated anionic polymerization of a lactam in the presence of an anionic catalyst and a catalyst wherein said lactam is polymerized in the presence of, and is reacted during polymerization with, a polyepoxide. Also, production of viscoelastic foams by employment of gas-producing foaming agent in reaction mixture.

3,565,835

USE OF AMMONIUM SULFATE AS A NUCLEATING AGENT IN THE PRODUCTION OF EXPANDED PLASTICS

Heinz Weber, Rolf Moeller, and Hans Hintz, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Feb. 17, 1969, Ser. No. 799,930
Claims priority, application Germany, Feb. 23, 1968, P 16 69 758.8

Int. Cl. C08f 29/02, 47/10

U.S. Cl. 260—2.5 4 Claims

The use of ammonium sulfate as a nucleating agent in the production of expanded polystyrene plastics.

3,565,836

DIFFUSER-CONTAINING SELF-ADHERING PLASTISOL

Robert L. Fuller, New York, N.Y., assignor to Paisley Products, Inc., Dover, Del., a corporation of Delaware
No Drawing. Filed Feb. 1, 1966, Ser. No. 523,850
Int. Cl. C08f 29/24

U.S. Cl. 260—17.5 14 Claims

A coating composition capable of adhering strongly to smooth, hard substrates is provided by a dispersion of polyvinyl chloride-type resin (e.g., vinyl chloride homopolymers and copolymers) in a plasticizer for the resin. The dispersion contains a heat activated cross-linking admixture, in certain proportions, of an aldehyde-condensable compound (e.g., a phenolic resin), a methylene donor capable of providing methylene linkages for the aldehyde-condensable compound (e.g., hexamethylenetetramine) and a diffuser compound (e.g., lignocellulose) capable of dispersing volatile components generated by heating the composition to the fusion point of the polyvinyl chloride-type resin.

3,565,837

POLYAMIDE RESINS CONTAINING AN N,N'-DIPIPERAZYL COMPONENT

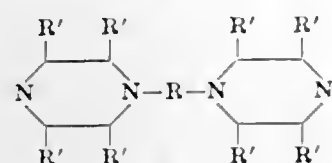
Manfred Drawert, Werne, Christian Burba, Lunen, and Eugen Griehsch, Unna, Germany, assignors to Schering AG, Berlin-Bergkamen, Germany
No Drawing. Filed Mar. 26, 1968, Ser. No. 715,956
Claims priority, application Germany, Apr. 1, 1967, Sch 40,479

Int. Cl. C08g 20/20

U.S. Cl. 260—18 10 Claims

Polyamides useful as the hot melt adhesives for vinyl resins are prepared from (A) dicarboxylic acids which

preferably contain a polymeric fat acid component, and (B) a diamine mixture containing an N,N'-dipiperazyl compound of the formula:



3,565,838

NONADHESIVE SURFACE TREATING COMPOSITIONS

Hugh Cuthbert Atkinson, Greenock, and Robert Muir Gibbon, West Kilbride, Scotland, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Nov. 20, 1968, Ser. No. 777,467
Claims priority, application Great Britain Nov. 24, 1967, 53,634/67

Int. Cl. C08g 47/02; D21h 1/28

U.S. Cl. 260—18 7 Claims

A composition suitable for coating papers, films and foils to impart good release characteristics is disclosed. The composition contains an organohydrogenpolysiloxane, a linear diorganopolysiloxane having terminal hydroxy groups or groups readily hydrolyzable to hydroxy groups, a polysiloxane resin, an amino compound such as tetraethylene-pentamine and a tin curing agent such as an organotin acrylate. The composition are useful for coating paper and other substrates when used as a protective backing for articles coated with adhesives.

3,565,839

CHIP RESISTANT POLYESTER MODIFIED ALKYD RESIN COATINGS

Howard S. Bender, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

No Drawing. Filed Nov. 25, 1968, Ser. No. 778,771

Int. Cl. C09d 3/64

U.S. Cl. 260—22 4 Claims

A hydroxy terminated aliphatic polyester, such as poly(ethylene adipate), is combined in suitable proportions with conventional alkyd resin components to form a block polyesteralkyd copolymer which is tough and durable, and when employed as a coating is more resistant to chipping than a conventional alkyd resin. The polyester preferably has a melting point below about 240° C., a glass transition point below 0° C. and a molecular weight in the range of 800 to 11,000.

3,565,840

COLOR STABILIZED OXIDIZED POLYETHYLENE EMULSIONS

Frank A. Mirabile, Wayne, and Steven T. Rabel, Boonton, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed May 21, 1968, Ser. No. 730,945

Int. Cl. C08f 27/22, 45/58

U.S. Cl. 260—23 9 Claims

The color of oxidized polyethylene emulsions containing an amine as an emulsifying agent may be color stabilized by the addition of a minor amount of a water soluble bisulfite salt.

3,565,841

ELASTOMER HAVING IMPROVED BUILDING TACK AND PROCESS FOR PRODUCING IT

Robert Edward Tarney, Chadds Ford, Pa., and John J. Verhanc, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 708,486, Feb. 27, 1968. This application Nov. 8, 1968, Ser. No. 774,494

Int. Cl. C08d 9/12

U.S. Cl. 260—27

15 Claims

An hydrocarbon elastomer is tackified by uniformly mixing with an organic cyclic resin, which has at least one polar functional group and a molecular weight of at least 200, aging the resulting mixture in the substantial absence of ozone and free-radical producing agents until a phase, different from the bulk of the mixture, forms on a surface of the mixture, followed by exposing said surface to ozone or a free radical producing agent.

3,565,842

RUBBER-ASPHALT EMULSIONS

Armin C. Pitchford, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 474,474, July 23, 1965. This application June 12, 1968, Ser. No. 736,257

Int. Cl. C08c 11/68; C08f 47/18

U.S. Cl. 260—28.5

9 Claims

A stable cationic rubber-asphalt emulsion is made by blending a rubbery block copolymer of at least one conjugated diene and at least one monovinyl or divinyl aromatic compound with asphalt, water and an emulsifying amount of a cationic emulsifying agent.

3,565,843

ORGANIC RUST INHIBITING COMPOSITION

Rudolph Kassinger, 408 Salter Place, Westfield, N.J. 07090, and Edward L. Kayle, 145 Grant Ave., Colonia, N.J. 07067

No Drawing. Filed Dec. 20, 1967, Ser. No. 691,965

Int. Cl. C08c 11/70

U.S. Cl. 260—28.5

14 Claims

A composition comprising (1) a gelled overbased alkaline earth metal sulfonate, (2) a coating material comprising a petroleum resin or a petroleum resin, wax, ethylene-vinyl acetate copolymer combination and (3) a hydrocarbon solvent when applied to metal surfaces imparts to such surfaces unusually high protection against rust.

3,565,844

URETHANE LATICES AND PROCESS FOR THE PREPARATION THEREOF

Oscar M. Grace, Madison Heights, and Pauls Davis, Gibraltar, Mich., assignors to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan

No Drawing. Filed Feb. 14, 1968, Ser. No. 705,317

Int. Cl. B32b 23/08; C08g 53/18; C08j 1/48

U.S. Cl. 260—29.2

5 Claims

Urethane latices which may be coagulated by acid or heat without degradation of the urethane polymer are prepared employing certain hybrid anionic-nonionic compounds as emulsifiers therefor. The emulsifiers are carboxylic acid salts of nonionic surfactants.

3,565,845

SILOXANE-POLYOXYALKYLENE BLOCK COPOLYMERS CONTAINING METHOXYSILOXY GROUPS

Gordon C. Johnson, Katonah, N.Y., assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Sept. 18, 1968, Ser. No. 760,720

Int. Cl. C08g 31/02, 47/02

U.S. Cl. 260—29.2

6 Claims

This invention relates to novel siloxane-polyoxyalkylene block copolymers containing methoxysiloxy groups. The novel block copolymers are particularly useful in the treatment of fibrous materials (e.g., synthetic or natural organic textile fibers or fibrous glass) to improve the properties (e.g., soil release) of the fibrous materials.

3,565,846

AGENT FOR MAKING TEXTILES CREASE PROOF AND TEXTILES TREATED BY SUCH AGENT

Heinz Enders, Stadtbergen, near Augsburg, Wilhelm Dantanello and Günter Pusch, Leitershofen, near Augsburg, and Siegfried Adolph, Haunstetten, near Augsburg, Germany, assignors to Chemische Fabrik Pfersee G.m.b.H., Augsburg, Germany, a corporation of Germany

No Drawing. Filed July 26, 1967, Ser. No. 656,064

Claims priority, application Germany, July 30, 1966, C 39,765; Dec. 24, 1966, C 41,062

Int. Cl. D06m 13/14, 13/38

U.S. Cl. 260—29.4

10 Claims

An agent for crease proofing textiles containing at least partly cellulose and/or regenerated cellulose fibers is used in an organic solution of hydrocarbons or chlorinated hydrocarbons and is produced from a mixture containing specific proportions of a water soluble methylol compound of urea or cyclic alkylene urea, the methylol groups of which can be alkoxylated, water, a specific emulsifying agent and possibly hydrocarbons or chlorinated hydrocarbons, whereby a catalyst is added to this mixture which is diluted with hydrocarbons or chlorinated hydrocarbons to form solutions or finely dispersed water/oil emulsions which are used for the textile treatment.

3,565,847

COMPOSITION OF MATTER COMPRISING A THERMOPLASTIC POLYIMIDE OF 3,4-DICARBOXY-1,2,3,4-TETRAHYDRO-1-NAPHTHALENE SUC-CINIC DIANHYDRIDE AND A DIPRIMARY DIAMINE CONTAINING CERTAIN QUANTITIES OF TRIARYL PHOSPHATES

Roland Ralph Dileone, Rowayton, Conn., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Malne

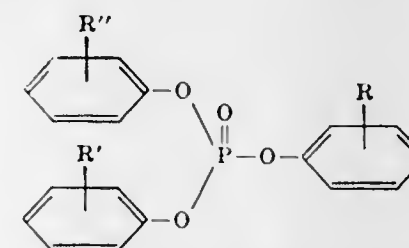
No Drawing. Filed June 5, 1968, Ser. No. 734,579

Int. Cl. C08g 51/40, 51/50

U.S. Cl. 260—30.6

10 Claims

A composition of matter comprising the thermoplastic polyimide of 3,4-dicarboxy-1,2,3,4-tetrahydro-1-naphthalene succinic dianhydride and a diprimary diamine containing from about 0.1% to about 15% by weight based on the weight of said polyimide of a phosphate having the formula:



wherein R, R' and R'' are hydrogen or an alkyl group containing from 1 to 9 carbon atoms.

3,565,848

PHENOLIC RESIN BINDER COMPOSITION

Junichi Hiroshima, Nobeoka-shi, Japan, assignor to Asahi Yukiwai Kogyo Kabushiki Kaisha, Nakanose-machi, Nobeoka-shi, Miyazaki Prefecture, Japan

No Drawing. Filed Apr. 17, 1968, Ser. No. 721,916

Int. Cl. C08g 51/36

U.S. Cl. 260—31.2

17 Claims

Properties of a phenolic resin binder composition such as thermal stability, mechanical strength, etc. are improved by incorporating into the composition during its preparation carboxyl groups from a diphenolic acid component, e.g. 4,4-bis(4'-hydroxy phenyl) pentanic acid.

3,565,849

POLYURETHANES

Timothy V. Peters, Tewkesbury Township, N.J. (Rte. 2, Rockaway Road, Lebanon, N.J. 08833)

No Drawing. Continuation-in-part of applications Ser. No. 216,735, Aug. 14, 1962, and Ser. No. 340,548, Jan. 27, 1964. This application Jan. 8, 1968, Ser. No. 696,097

Int. Cl. C08g 22/28, 41/00, 51/44

U.S. Cl. 260—32.6

14 Claims

Polyurethane solutions, useful in making finished shaped articles, particularly filaments having high resistance to heat, light and chlorine, are produced with fast reacting, lower-alkyl, diprimary diamine chain extenders, such as ethylenediamine or propylenediamine. By prior solution polymerization methods, gelling invariably results with the utilization of such fast reacting, lower-alkyl, diprimary diamine chain extenders. The method of producing polyurethanes of this invention involves a first step of reacting in solution a difunctional isocyanate terminated urethane prepolymer with a moderately fast reacting chain extender selected in accordance with the gel test hereinafter described. The resulting intermediate polymer solution is then reacted in a second step with (1) a fast reacting straight-chain, lower-alkyl, diprimary diamine chain extender and (2) additional isocyanate terminated prepolymer.

3,565,850

PIGMENT DISPERSION FOR ACRYLICS

Claude G. Bradley, Baton Rouge, La., and Neale T. Anderson, Chester, Va., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 592,284, Nov. 7, 1966. This application May 27, 1969, Ser. No. 828,347

The portion of the term of the patent subsequent to Oct. 7, 1986, has been disclaimed

Int. Cl. C08f 45/02, 45/54

U.S. Cl. 260—32.6

9 Claims

A uniform pigment dispersion containing a pigment, an acrylic polymer, an acid characterized by having an ionization constant k wherein the value of $-\log k$ is less than about 2.0, and an organic solvent. The pigment accounts for at least 4 percent by weight, the polymer at least 3 percent by weight, and the acid at least 0.10 times the weight of the pigment.

3,565,851

ORGANOPOLYSILOXANE COATINGS

Charles George Neuroth, Blissfield, Mich., assignor, by mesne assignments, to Stauffer-Wacker Silicone Corporation, a corporation of Delaware

No Drawing. Continuation of application Ser. No. 631,129, Apr. 17, 1967. This application Sept. 19, 1969, Ser. No. 859,476

Int. Cl. C08g 47/10, 51/04

U.S. Cl. 260—37

9 Claims

The present invention relates to curable coating compositions comprising grafted organopolysiloxanes and inert fillers which may be applied to substrates as a surface

coating. These coating compositions are particularly useful in areas of heavy traffic since they are resistant to abrasion and exhibit excellent adhesion properties.

3,565,852

PREPARATION OF MOULDING MATERIAL STARTING FROM POLYETHYLENE TEREPHTHALATE
André Jan Conix, Antwerp, and Lambert Gaston Jeurissen, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium, a Belgian company

No Drawing. Filed June 24, 1968, Ser. No. 739,185
Claims priority, application Great Britain, June 29, 1967, 30,139/67

Int. Cl. C08g 51/04, 49/04

U.S. Cl. 260—40 23 Claims

A moulding material having improved properties comprising a mixture of polyethylene terephthalate having an inherent viscosity of at least 0.65 dl./g. measured at 25° C. in a 60:40 mixture of phenol and tetrachloroethane, an amount of 0.1 to 10 percent by weight of a saturated polyester at least partly aliphatic in nature, compatible with polyethylene terephthalate, and having a polymer melt temperature of at most 150° C. and an inherent viscosity of at least 0.3 dl./g., and 0 to 1 percent by weight of a finely divided, inert, mineral, solid substance having an average particle size of less than 10 μ and method of preparing same is described.

3,565,853

ORGANIC NITRITE STABILIZED OLEFIN POLYMERS

Clive D. Moon, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Oct. 21, 1968, Ser. No. 769,363

Int. Cl. C08f 45/60

U.S. Cl. 260—45.9 4 Claims

Olefin polymers are stabilized to minimize melt flow dropoff at elevated temperatures by admixing polymer with a stabilizing amount up to 2.0 weight percent of an organic nitrite, R—O—N=O, where R is an aliphatic radical with 8–20 carbon atoms.

3,565,854

HEAT STABILIZATION OF POLYESTERS

Kenneth T. Barkey, C. Shelburn Hunter, and Walter L. Predmore, Jr., Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed July 2, 1969, Ser. No. 838,472

Int. Cl. C08g 51/60

U.S. Cl. 260—45.8 6 Claims

It has been discovered that polyesters can be stabilized against the spontaneous degradation which the polyesters ordinarily undergo when they are heated to temperatures substantially above their melting points for a period of time by the incorporation thereto of a small amount of flavanthrone, which is compatible with the polyester, is ultraviolet absorbing, and which is, itself, stable at said temperatures.

3,565,855

PHOSPHORUS-CONTAINING ANTIOXIDANT IN POLYOLEFINS

Bernard R. Meltner, Royal Oak, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Original application Jan. 30, 1967, Ser. No. 612,317. Divided and this application May 14, 1969, Ser. No. 824,690

Int. Cl. C08f 45/58

U.S. Cl. 260—45.85 16 Claims

Dihydrocarbylhydroxyphenyl aryl or alkyl phosphonates, phosphonates, phosphites, phosphinates, phosphinites, phosphorothionates, phosphonothionates,

and phosphinothionates are antioxidants. The effectiveness of these antioxidants is enhanced by use in combination with a dihydrocarbylthiodialkanoate such as dilaurylthiodipropionate (DLTDP). The stabilizers are especially useful in polypropylene.

3,565,856

p-PHENYLENEDIAMINE ANTIOZONANTS

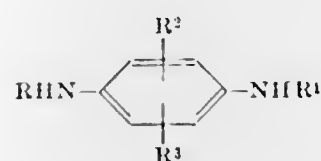
Keith Martyn Davies, Hanbridge, England, and Alan Jeffrey Neale, Llangollen, Wales, assignors to Monsanto Chemicals Limited, London, England, a British company

No Drawing. Filed Oct. 30, 1967, Ser. No. 679,177
Claims priority, application Great Britain, Nov. 3, 1966, 49,343/66

Int. Cl. C08f 45/58

U.S. Cl. 260—45.9 6 Claims

Derivatives of p-phenylenediamine having the formula



where R is secondary alkyl or cycloalkyl of up to eight carbon atoms, R¹ is secondary alkyl, cycloalkyl, or aryl of up to eight carbon atoms, and each of R² and R³ is alkyl of up to five carbon atoms provided that the total number of carbon atoms in R, R¹, R², and R³ is not greater than 20 are useful in rubber as antiozonants and resist discoloration and staining.

3,565,857

AGE RESISTERS FOR POLYMERS

Ronald B. Spacht, Hudson, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Filed Aug. 31, 1967, Ser. No. 664,601

Int. Cl. C08f 45/58

U.S. Cl. 260—45.95 10 Claims

Alkylthio substituted polynuclear phenolic age resisters and age resistant polymers containing said age resisters.

3,565,858

HEAT CONVERTIBLE ORGANOPOLYSILOXANE COMPOSITIONS

Wilfried Kniege, Bergisch-Gladbach, and Karl Schnurrbusch, Leverkusen-Steinbuechel, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Aug. 15, 1968, Ser. No. 752,765

Claims priority, application Germany, Aug. 23, 1967, F 53,310

Int. Cl. C08f 11/04

U.S. Cl. 260—46.5 9 Claims

Compositions comprising linear organopolysiloxanes, which are to be converted into a solid elastic state by adding an organic peroxide and subsequent moulding and heating, can be improved according to the invention by a treatment which comprises the addition of certain compounds releasing nitrogen at elevated temperature, and heating the resultant mixture at the same time or later until these nitrogen compounds have been decomposed. Such treatment enables the composition to be converted without the extensive final heat-treatment of the moulded articles, which is necessary in the procedure hitherto known in the art.

3,565,859

DIORGANOPOLYSILOXANE COMPOSITIONS CURABLE ON EXPOSURE TO MOISTURE

Raymond Calas, Le Bouscat, and Parasko Nicou, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France, a French body corporate

No Drawing. Filed Sept. 9, 1968, Ser. No. 758,576

Claims priority, application France, Sept. 15, 1967, 121,197

Int. Cl. C08f 11/04

U.S. Cl. 260—46.5 7 Claims

Tetrasubstituted ethylenedioxyasilanes (cyclic orthosilicates) when mixed with α,ω -dihydroxy-diorganopolysiloxanes give compositions which vulcanise on exposure to moisture.

3,565,860

OXIME-CONTAINING ORGANOTIN COMPOUNDS

Kailash Chandra Pande, Parkersburg, W. Va., assignor, by mesne assignments, to Stauffer-Wacker Silicone Corporation, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 516,756, Dec. 27, 1965. This application Dec. 4, 1968, Ser. No. 781,274

Int. Cl. C08g 31/14, 47/06

U.S. Cl. 260—46.5 5 Claims

Concerns oxime-containing organotin compounds applicable to the curing of silicone rubbers and to the preparation of flexible polyurethane foams. The compounds, in general, may be prepared by reacting selected acetoximes or aldoximes with oxides or alkoxides of selected organotin intermediates. According to a second method, the acetoxime or aldoxime may be first reacted with an alkali metal hydroxide and the resulting salt reacted with a halide of the organotin intermediate.

3,565,861

AMINE COMPLEXES OF PF₅, AsF₅, AND SbF₅ AS LATENT CURING AGENTS FOR EPOXY RESINS

Wayne E. White, Tulsa, Okla., and Leslie C. Case, Winchester, Mass., assignors to Ozark-Mahoning Company, Tulsa, Okla., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 504,989, Oct. 24, 1965. This application Apr. 30, 1969, Ser. No. 820,656

Int. Cl. C08g 30/14

U.S. Cl. 260—47 2 Claims

A latently curable composition and process for curing same to a cross-linked ethoxyline composition. The latently curable composition consisting of a complex of phosphorous pentafluoride, arsenic pentafluoride, or antimony pentafluoride with a primary acyclic aliphatic amine having from one to eighteen carbon atoms and a glycidyl ether polyepoxide or a 1,2-epoxy-substituted cycloaliphatic polyepoxide. The process including polymerizing the latently curable composition with the addition of heat to form a cured, cross-linked ethoxyline composition.

3,565,862

HYDROXYBENZENESULFONYL HALIDE POLYMERIZATION

Robert W. Campbell and Harold Wayne Hill, Jr., Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Mar. 11, 1969, Ser. No. 806,279

Int. Cl. C08g 23/16

U.S. Cl. 260—49 9 Claims

High molecular weight poly(phenylenesulfonate) homopolymers and copolymers are produced by the condensation of hydroxybenzenesulfonyl halides in the presence of either a tertiary amine or an alkaline earth metal hydroxide catalyst in the presence of hexahydrocarbylphosphoramide reaction diluents. The polymers have utility as fibers, films, and for other molded articles.

3,565,863

HIGH MOLECULAR POLYURETHANE RESINS

Hans-Georg Schmelzer, Cologne-Stammheim, and Kuno Wagner, Wolfgang von der Emden, and Ernst-Ulrich Kocher, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Sept. 15, 1965, Ser. No. 487,583

Claims priority, application Germany, Sept. 17, 1964, F 43,999

Int. Cl. C08g 22/14

U.S. Cl. 260—67 4 Claims

Polyurethane resins prepared by reacting a polyoxy-methylene which has alcoholic hydroxyl groups but which is substantially free from semi-acetalic hydroxyl groups and which has a molecular weight in the range of 500 to 4000 with an organic polyisocyanate at a temperature of from 50° C. to 200° C.

3,565,864

PROCESS FOR THE PREPARATION OF POLYETHYLENE TEREPHTHALATE OF REDUCED DIETHYLENE GLYCOL CONTENT

Antoine Girantet, La Mulatiere, France, assignor to Rhone-Poulenc S.A.

No Drawing. Filed June 11, 1968, Ser. No. 736,011

Claims priority, application France, June 12, 1967, 111,007

Int. Cl. C07c 67/00; C08g 17/08, 17/013

U.S. Cl. 260—75 2 Claims

Polyethylene terephthalate of improved colour and freedom from diethylene glycol residues is obtained by the direct esterification and polycondensation method if the esterification is effected in the presence of a small amount of triethanolamine.

3,565,865

POLYMERIC MACROPOLYESTERS OF PHENYLINDANE DICARBOXYLIC ACIDS

Delbert H. Meyer, Highland, Ind., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Continuation-in-part of application Ser. No. 552,710, May 25, 1966. This application Nov. 12, 1969, Ser. No. 876,082

Int. Cl. C08g 17/08

U.S. Cl. 260—75 4 Claims

Novel fiber- and film-forming polymeric macropolymers derived from 3-(carboxyphenyl)-1,1,3-trimethylindane carboxylic acids and a diol differ from the linear polymeric macropolymethylene terephthalates and linear macropolymethylene isophthalate-terephthalates in structure and to the sense of touch.

3,565,866

CONTINUOUS POLYMERIZATION OF LACTAMS

Ernst Guenther, Ludwigshafen, Hermann Linge, Carlberg, Kurt Noé, Ludwigshafen, and Hans Pirzer, Frankenthal, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Continuation-in-part of application Ser. No. 485,200, Sept. 7, 1965. This application Nov. 5, 1968, Ser. No. 773,376

Claims priority, application Germany, Sept. 17, 1964, P 14 95 198.5

Int. Cl. C08g 20/14

U.S. Cl. 260—78 2 Claims

An improved process for the continuous polymerization of lactams having 5 to 13 ring members in a polymerization tube in which process the lactams are prepolymerized in the first zone of a modified polymerization tube with vigorous stirring up to a conversion of more than 50%, further polymerized in the second and third zones at nearly laminar flow and after-polymerized in the fourth zone at a temperature slightly above the melting point of the resultant polymer.

3,565,867
CYCLIZED POLYAMIDES FROM α -METHYLENE GLUTARIC ACID AND PROCESSES THEREFOR
 John M. Hoyt, Cincinnati, and Karl Koch, Norwood, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia
 No Drawing. Filed Dec. 27, 1967, Ser. No. 693,762
 Int. Cl. C08g 20/00

U.S. Cl. 260—78 24 Claims
 This invention comprises polymerization reactions to give cyclized polyamides containing substantial amounts of piperidone rings and the products produced thereby.

3,565,868
POLYMERS OF UNSYMMETRICAL DISUBSTITUTED HYDRAZINE
 Edward A. Sedor, Bloomington, and Robert C. Slagel, Savage, Minn., assignors to Ashland Oil & Refining Company, Ashland, Ky., a corporation of Kentucky
 No Drawing. Filed Mar. 19, 1968, Ser. No. 714,322
 Int. Cl. C08g 33/04

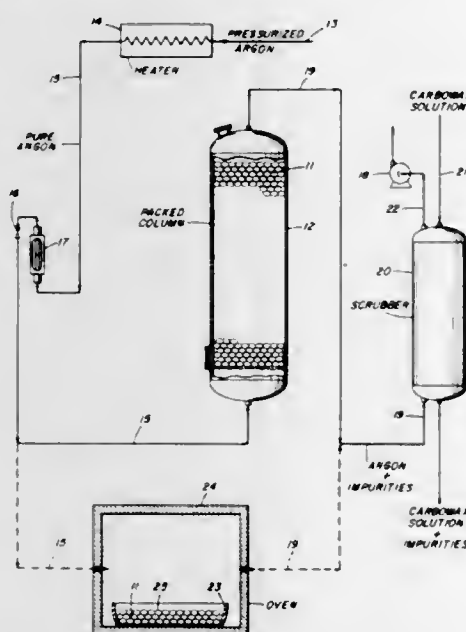
U.S. Cl. 260—78.3 7 Claims
 Polymers comprising the reaction product of:

- (A) unsymmetrical disubstituted hydrazine and
 (B) a material selected from the group consisting of:
 (1) epoxy-esters having at least one reactive epoxide group and at least one reactive carboxylic acid ester group, and
 (2) mixtures of polyepoxides having a plurality of reactive epoxide groups and polyesters having a plurality of reactive ester groups.

These polymers find utility as decorative and/or protective coatings when applied to substrates.

3,565,869
EXTRUDABLE AND STRETCHABLE POLYGLYCOLIC ACID AND PROCESS FOR PREPARING SAME
 David Anthony DeProspero, Norwalk, Conn., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
 Filed Dec. 23, 1968, Ser. No. 786,306
 Int. Cl. C08g 53/00

U.S. Cl. 260—78.3 9 Claims



The crude high molecular weight polyglycolic acid required for use as an absorbable surgical suture sometimes contains substantial amounts of glycolide and other impurities. It has been discovered that the presence of such impurities significantly interferes with the extrusion and stretching characteristics of polyglycolic acid filaments and its satisfactory rate of absorption in living tissue. A novel kind of polyglycolic acid is provided which is substantially free from such impurities consequently having

suitable extrusion and stretch properties as well as acceptable in-vivo strength retention. The novel polyglycolic acid is prepared by contacting particles of impurity laden polyglycolic acid with a flowing stream of a substantially dry, oxygen free, inert gas under controlled process conditions whereby the impurities are vaporized into the gas stream to effect their removal from the environment of the polyglycolic acid.

3,565,870
PROCESS FOR EVALUATING DEGREE OF VULCANIZATION OF VULCANIZED RUBBER ARTICLES

Hirokazu Iino, Nishinomiya-shi, Japan, assignor to Sekai-cho Rubber Company, Limited, Osaka-shi, Japan, a juridical person of Japan
 No Drawing. Filed Oct. 28, 1968, Ser. No. 771,296
 Claims priority, application Japan, Oct. 31, 1967, 42/70,345

Int. Cl. C08f 27/06; B29c 25/00
 U.S. Cl. 260—79.5 9 Claims
 A film of polyisopropene is coated on the surface of a vulcanizable rubber article, the coated article is vulcanized, and the fluorescence of the vulcanized article under exposure to ultraviolet light is evaluated as a measure of the degree of vulcanization of the article.

3,565,871
COPOLYMERS OF ETHYLENE AND N-VINYLAZETIDINONES AND PROCESS FOR PREPARING THEM

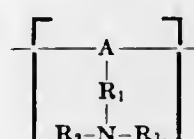
Herbert Bestian, Frankfurt am Main, Eduard Kaiser, Kelkheim, Taunus, and Horst Schnabel, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
 No Drawing. Filed Oct. 28, 1968, Ser. No. 771,293
 Claims priority, application Germany, Nov. 4, 1967, P 17 20 745.3

Int. Cl. C08f 19/00
 U.S. Cl. 260—20.72 6 Claims
 The invention provides copolymers consisting of structural units of ethylene, N-vinylazetidin-2-ones and optionally vinyl acetate or acryl esters and a process for their manufacture. Depending on the ethylene pressure applied brittle hard, rubber-elastic or waxy and plastic products are obtained which may be used as dispersion and emulsion auxiliaries, for the manufacture of rubbers, or as thermoplastic adhesive.

3,565,872
POLYMERIC HALOGEN COMPLEXES, THEIR PREPARATION AND USE
 Ephraim Katchalski, Rehovoth, Israel, and Shmuel Yaroslavsky, deceased, late of Rishon Letzion, Israel, by Carmela Yaroslavsky, Rishon Letzion, Israel, heir and guardian of minor heirs Jacob Yaroslavsky and Hana Yaroslavsky, Ramat Gan, Israel, assignors to YEDA Research and Development Co., Ltd., Rehovoth, Israel, a corporation of Israel

Filed Feb. 20, 1969, Ser. No. 801,931
 Claims priority, application Israel, Feb. 27, 1968, 29,540

Int. Cl. C08f 27/02
 U.S. Cl. 260—80.72 19 Claims
 Novel complexes of molecular halogen with cross-linked polymers or copolymers bearing tertiary amino groups. The polymer moiety of the novel complexes is of the fragmentary formula



in which A is a recurring portion of the polymer backbone, R₁ is an alkylene or arylene radical, and R₂ and R₃ are each an alkyl, aryl or aralkyl radical or any of the pairs R₁, R₂; R₁, R₃; R₂, R₃ may form together with the nitrogen atom to which they are attached a heterocyclic ring, which may be substituted and/or contain further hetero atoms. The novel complexes have various applications such as maintaining a desired halogen concentration in a certain medium, storage of halogen, controlled delivery of halogen for chemical reactions and the like.

3,565,873
METHOD AND APPARATUS FOR POLYMERIZING MONOMERIC MATERIALS

John D. Sutherland, Jr., Prairieville, and Stanford E. Groves, Baton Rouge, La., assignors to Copolymer Rubber & Chemical Corporation, a corporation of Louisiana
 Filed Sept. 25, 1967, Ser. No. 670,346
 Int. Cl. C08f 15/40

U.S. Cl. 260—80.78 17 Claims
 The ratio of monomers, concentration of monomers, concentration of polymer solids, molecular weight of the polymer, and/or temperature of the polymerization mixture in a continuously operated solution polymerization reactor are simultaneously and effectively controlled by a novel method and improved apparatus.

3,565,874
NOVEL TERPOLYAMIDES
 James S. Ridgway, Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
 No Drawing. Filed Aug. 8, 1968, Ser. No. 751,068
 Int. Cl. C08g 20/20

U.S. Cl. 260—78 2 Claims
 Terpolyamides are made from hexamethylene diamine salts of adipic acid, 1,1,3-trimethyl-5 carboxy-3(p-carboxylphenyl)indan and 1,4-cyclohexane dicarboxylic acid. Filaments made from such terpolyamides are useful in reinforcing pneumatic tires and the like.

3,565,875
POLYMERIZATION PROCESS AND CATALYST SYSTEM THEREFOR
 John E. Bozik, Pittsburgh, Harold E. Swift, Gibsonia, and Ching-Yong Wu, Pittsburgh, Pa., assignors to Goodrich-Gulf Chemicals Inc., Cleveland, Ohio, a corporation of Delaware
 No Drawing. Filed Mar. 10, 1969, Ser. No. 812,536
 Int. Cl. C08d 3/06, 3/08

U.S. Cl. 260—84.1 13 Claims
 Process for polymerizing olefins, diolefins and alkylene oxides in the presence of a catalyst system comprised of an iron complex, a trialkyl aluminum compound and a bidentate ligand capable of both pi (π) and sigma (σ) bonding to form a five or six-membered ring.

3,565,876
ORIENTED METHACRYLONITRILE POLYMER ARTICLES
 Lawrence E. Ball, Cuyahoga Falls, Ohio, and Harry R. Musser, Rolla, Mo., assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio
 No Drawing. Filed Feb. 28, 1968, Ser. No. 708,814
 Int. Cl. C08f 15/22

U.S. Cl. 260—85.5 4 Claims
 Multiaxially oriented articles or films which have superior physical properties and are heat shrinkable and heat sealable can be prepared by extrusion from polymers or copolymers of methacrylonitrile with acrylonitrile in the ratios of 80 to 100 parts by weight of methacrylonitrile

to 20 to 0 parts by weight of acrylonitrile and optionally up to about 5 parts by weight of the methacrylonitrile may be replaced by another vinyl monomer such as methyl methacrylate.

3,565,877
REDOX POLYMERIZATION PROCESS
 Sergio Lo Monaco, Mestre, and Luigi Patron, Venice, Italy, assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
 No Drawing. Filed Jan. 17, 1968, Ser. No. 698,381
 Claims priority, application Italy, Jan. 17, 1967, 11,559A

Int. Cl. C08f 3/76, 15/22
 U.S. Cl. 260—88.7 2 Claims
 Acrylic polymers have been prepared in good yields employing a redox catalyst system composed of a mixture of hypochlorite and chlorite ions in solution activated in an oxidizable sulfox compound. The polymerization is enhanced by small amounts of heavy metal sequestering agents.

3,565,878
PROCESS TO PREPARE A NOVEL HEAT STABILIZED HALOGEN CONTAINING POLYMER
 Joseph Paul Kennedy, Cranford, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
 No Drawing. Continuation-in-part of application Ser. No. 700,324, Jan. 8, 1968, which is a continuation-in-part of application Ser. No. 568,001, July 26, 1966, which in turn is a continuation-in-part of application Ser. No. 364,295, May 1, 1964. This application Apr. 3, 1968, Ser. No. 718,320

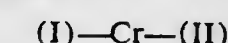
Int. Cl. C08f 3/20, 27/00
 U.S. Cl. 260—92.8 10 Claims
 Aluminum trialkyl and aluminum dialkyl monohalide catalyst can be used to graft nonpolymerizable olefins capable of forming carbonium ions, such as 2,4,4-trimethyl-1-pentene to polymers containing highly reactive halogen.

3,565,879
DIHALOCARBENE ADDUCT OF ROSIN DERIVATIVES
 Walter H. Schuller, Jacob C. Minor, and Ray V. Lawrence, Lake City, Fla., assignors to the United States of America as represented by the Secretary of Agriculture
 No Drawing. Filed Sept. 6, 1968, Ser. No. 758,119
 Int. Cl. C09f 1/04

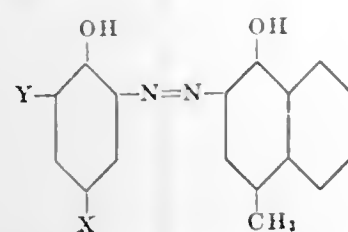
U.S. Cl. 260—103 2 Claims
 This invention relates to a process for reacting the esters of rosin. More particularly, this invention relates to a method for reacting the esters of rosin with dihalocarbenes to give adducts which are considerably more stable to air oxidation due to the destruction of the conjugated system of unsaturation in the resin acids, in particular of abietic acid.

3,565,880
MIXED CHROMIUM CONTAINING MONOAZO DYESTUFF COMPLEXES
 Marcel Georges Jirou and Claude Marie Henri Emile Brouard, Sotteville-les-Rouen, France, assignors to Ugine Kuhlmann, Paris, France, a French corporation
 No Drawing. Filed Sept. 20, 1966, Ser. No. 580,576
 Claims priority, application France, Sept. 24, 1965, 32,512

Int. Cl. C09d 45/16; D06p 1/02
 U.S. Cl. 260—145 1 Claim
 Chromium containing mixed complexes represented by the general formula:



where (I) represents the residue of a monoazo dye of the general formula:



where X and Y are each hydrogen or chlorine atoms or nitro groups and (II) is the residue of a monoazo dye of the general formula:



where A represents a radical of an o-aminophenol or o-aminonaphthol containing an $-SO_3H$ group and B represents the radical of a hydroxyl containing coupling compound, for example a naphthol, coupling in a position ortho to the functional $-OH$ group.

3,565,881

FIBER-REACTIVE, HEAVY METAL-CONTAINING FORMAZANE DYESTUFFS

Paul Dussy, Munchenstein, Hubert Meindl, Riehen, near Basel, and Hans Ackermann, Bottmingen, Switzerland, assignors to J. R. Geigy A.G., Basel, Switzerland
No Drawing. Continuation-in-part of application Ser. No. 632,173, Apr. 20, 1967. This application Jan. 28, 1969, Ser. No. 794,791

Claims priority, application Switzerland, Apr. 22, 1966, 5,876/66; Jan. 29, 1968, 1,328/68
Int. Cl. C09b 45/00, 45/48

U.S. Cl. 260—147 19 Claims

Fiber-reactive, heavy metal-containing formazane dyes which are characterized by being substituted at the carbon atom in meso-position in the formazane bridge by the radical of a monoazo dyestuff are provided; these new dyes when free from acid dissociating, salt-forming water-solubilizing groups and metallized with a heavy metal are useful for dyeing lacquers, varnishes, spinning masses of acetyl cellulose and synthetic polyamides; the new dyes which contain water-solubilizing groups and are metallized with a heavy metal atom are useful in the dyeing and printing of leather, paper and natural and synthetic polypeptide fiber materials including wool, silk, nylon and polyurethane fibers; dyes of the above-mentioned latter subclass which bear one or two fiber-reactive groupings are especially useful in dyeing cellulosic fibers. In those compounds in which this fiber reactive substituent is a pyrimidyl radical containing at least one fluorine atom, these dyes are further distinguished by their high reactivity; the dyeings or printings obtained therewith are very stable vis-a-vis acid or alkaline hydrolysis and exhibit very good fastness to light, milling and wet treatments.

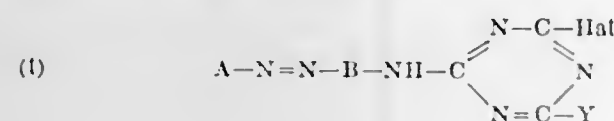
3,565,882

HALOTRIAZINYL MONOAZO DYESTUFFS

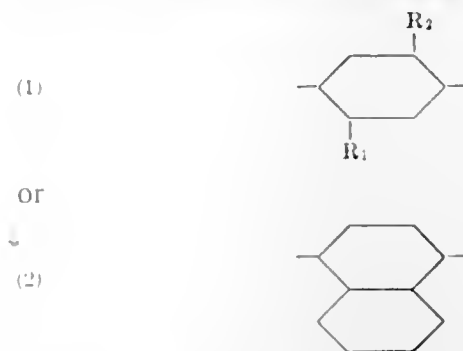
poration, New York, N.Y., a corporation of Delaware
Nagib A. Doss, Loudonville, N.Y., assignor to GAF Corp.
 R^1 is H, methyl, methoxy or acylamido; R^2 is H, methyl
No Drawing. Filed Dec. 18, 1967, Ser. No. 691,134
Int. Cl. C09b 62/08

U.S. Cl. 260—153 7 Claims

A water soluble monazo dyestuff containing a single acidic water solubilizing group and having the formula



wherein A is a phenyl or naphthyl moiety containing a single acidic water-solubilizing group; B is



R^1 is H, methyl, methoxy or acylamido; R^2 is H, methyl or methoxy; Hal is Cl or Br; Y is NHR^3 , SR^4 or OR^5 ; and R^3 , R^4 and R^5 are individually H, alkyl or phenyl, A method of dyeing nitrogenous fibers therewith

3,565,883

DISAZO DYES DERIVED FROM PYRIDINES

Peter Dimroth, Ludwigshafen, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Germany
No Drawing. Filed Feb. 28, 1969, Ser. No. 803,424
Claims priority, application Germany, Mar. 1, 1968, P 17 19 061.3
Int. Cl. C09b 33/12

U.S. Cl. 260—156 2 Claims

Disazo dyes derived from a benzidine tetrazo component and 2,6-dihydroxy-4-methylpyridine-3-nitrile as coupling component and their use as pigments.

3,565,884

DISPERSE MONOAZO DYES DERIVED FROM 3-AMINODIPHENYLENE OXIDES

Armin Haag, Grosssachsen, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Aug. 14, 1968, Ser. No. 752,456
Claims priority, application Germany, Aug. 16, 1967, P 16 44 065.6
Int. Cl. C09b 29/38; D06p 1/02

U.S. Cl. 260—162 3 Claims

Disperse dyes derived from 3-aminodiphenylene oxides and pyrazolones for dyeing synthetic organic fibers such as cellulose ester and synthetic polyester material.

3,565,885

PREPARATION OF COLOR STABLE GLYCOSIDES

Hyman Max Molotsky, Chicago, and Arthur Kott, Oak Forest, Ill., assignors to CPC International Inc., a corporation of Delaware
Filed Oct. 10, 1968, Ser. No. 766,501
Int. Cl. C07c 47/18

U.S. Cl. 260—210 19 Claims

Processes for producing color stable glycosides are disclosed. The processes used may be divided into two separate types, (1) aqueous processes and (2) non-aqueous processes. The aqueous processes contemplated generally comprise dissolving a saccharide in an excess of alcohol and reacting these two ingredients in the presence of an acid catalyst at elevated temperatures to thereby form a crude glycoside-alcohol mixture. This mixture is then cooled and neutralized whereinafter the alcohol in the mixture is partially replaced by water. This water-glycoside mixture is then run through an anionic exchange resin of a selected type to remove substantially all of the reducing materials and other impurities therefrom to thereby yield an alkali color stable glycoside product.

The nonaqueous processes are conducted in substantially the same manner as the aqueous processes except

that the alcohol in the mixture is not replaced by water. This product coming from the anion exchange resin may be directly crystallized to yield a color stable solid glycoside. The mother liquor from the crystallization step may be further processed to thereby achieve a more economic yield.

3,565,886

PHOSPHORYLATION OF CELLULOSIC MATERIAL HAVING FREE HYDROXYL GROUPS

Louis-Philippe Clermont, Ottawa, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada, a corporation of Canada
No Drawing. Filed Sept. 12, 1969, Ser. No. 857,533
Int. Cl. C08b 3/22, 5/04, 11/20

U.S. Cl. 260—219 9 Claims

A method for phosphorylating cellulosic material such as cellulose and cellulose derivatives particularly the esters and ethers by reacting the cellulosic material with a solution of phosphorus pentoxide in dimethylformamide. Phosphorylated cellulose derivatives containing about 4 to about 10% by wt. bound phosphorus have been prepared.

3,565,887

UNSATURATED AND LONG CHAIN ESTERS OF CYCLODEXTRIN

Stanley M. Parmerter, Wheaton, and Earle E. Allen, Jr., Chicago, Ill., assignors to Corn Products Company, a corporation of Delaware
No Drawing. Filed May 15, 1968, Ser. No. 729,393
Int. Cl. C08b 25/02

U.S. Cl. 260—234 11 Claims

Unsaturated and long chain saturated esters of cyclodextrin are disclosed. These esters may be prepared by a process which comprises reacting cyclodextrin with an organic acid in the presence of a strong acid catalyst such as p-toluenesulfonic acid in an apparatus designed for azeotropic removal of water formed during the reaction. The products of the invention may be used as clathrating compounds, as soaps or detergents, as plasticizers for various resins, and in polymerized form as molecular sieves.

3,565,888

BENZODIAZOCINE DERIVATIVES

Cesario O. Tio, King of Prussia, Pa., assignor to American Home Products Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Mar. 12, 1968, Ser. No. 712,360
Int. Cl. C07d 53/00

U.S. Cl. 260—239 3 Claims

A procedure is disclosed in which a 1,2,3,4,5,6-hexahydro-2,5-benzodiazocine is preferentially acylated in the 5-position using ethyl chloroformate to form a 5-carboxylic acid ester. The compounds are useful for preparing pharmacologically useful benzodiazocine derivatives.

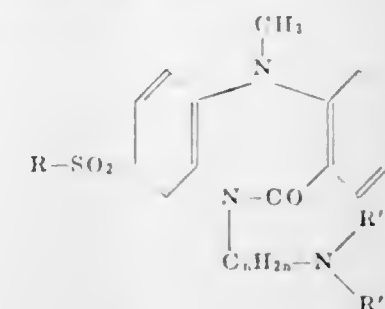
3,565,889

DERIVATIVES OF DIBENZO[b,e][1,4] DIAZEPIN-11(10)-ONE

Hiroshi Kugita, Tokyo-to, Mikio Takeda, Toda-shi, and Mitsuru Matsubara, Oomiya-shi, Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan, a corporation of Japan
No Drawing. Filed Mar. 14, 1968, Ser. No. 712,924
Claims priority, application Japan, Mar. 20, 1967, 42/17,530
Int. Cl. C07d 53/02

U.S. Cl. 260—239.3 4 Claims

Novel 8-alkylsulfonyl derivatives of 5-methyl-10-(ω -di-



alkylaminoalkyl)-5H-dibenzo[b,e][1,4]diazepin-11(10)-one represented by the formula:

wherein R, R' and R'' are lower alkyl and n is 2 or 3, which are useful as antidepressant having low toxicity, prepared by the reaction of the corresponding 10-unsubstituted-dibenzodiazepin-11(10)-one compounds with an ω -dialkylaminoalkyl halide.

3,565,890

NOVEL DI-ARYLENE AZOLYL-STYRENE COMPOUND AND THE USE THEREOF

Toshiki Tanaka, Wakayama, Japan, assignor to Nippon Chemical Works Co., Ltd., Wakayama, Japan, a corporation of Japan
No Drawing. Filed Mar. 30, 1964, Ser. No. 355,899
Claims priority, application Japan, Apr. 10, 1963, 38/18,862; June 7, 1963, 38/29,707
Int. Cl. C07d 85/48

U.S. Cl. 260—240 7 Claims

This invention relates to novel di-arylene azolyl-styrene compounds having at least one higher alkyl radical. This invention also relates to the processes for using said compounds as an optical brightening agent.

3,565,891

MANNICH BASES OF 3-TROPANYL 2-(HYDROXYPHENYL) ACRYLATES

Henry C. Caldwell, Ambler, and William G. Groves, Norristown, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Filed May 2, 1968, Ser. No. 726,220
Int. Cl. C07d 43/12

U.S. Cl. 260—240 10 Claims

Mannich bases of 3-tropanyl 2-(hydroxyphenyl)acrylates having gastrolintestinal spasmolytic activity. The basic moiety on the 2-(hydroxyphenyl) group being morpholinomethyl, piperidinomethyl, di(loweralkyl)aminomethyl, methylpiperidinomethyl, 4-methyl-1-piperazinylmethyl, pyrrolidinomethyl, 3-azabicyclo[3.2.2]nonyl-3-methyl and 4-piperidino-piperidinomethyl. The method of preparation comprises reacting the properly substituted 3-tropanyl 2-(hydroxyphenyl)acrylate with formaldehyde and the desired amine.

3,565,892

PREPARATION OF SUBSTITUTED IMIDAZOLES AND PRODUCTS RESULTING THEREFROM

Goro Asato, Titusville, and Jackson Pollard English, Princeton, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed May 6, 1968, Ser. No. 727,013
Int. Cl. C07d 49/36

U.S. Cl. 260—240 9 Claims

This invention relates to a novel process for the synthesis of 1-substituted-5-nitro-2-imidazolecarboxylic acids by the ozonization of a β -(1-substituted-5-nitro-2-imidazolyl)styrene derivative. The products prepared by the present process are useful particularly in the preparation of compounds which are effective against protozoal and bacterial infections in poultry and animals.

3,565,893

PREPARATION OF 2-(4-STILBYL)
NAPHTHOTRIAZOLES

Albert F. Strobel, Delmar, and Sigmund C. Catino, Castle-
ton, N.Y., assignors to GAF Corporation, New York,
N.Y., a corporation of Delaware
No Drawing. Filed July 23, 1968, Ser. No. 746,755
Int. Cl. C07d 55/04

U.S. Cl. 260—240

5 Claims

In a process for preparing 2-(4'-stilbyl)naphthotriazoles
useful as brightening agents, wherein a diazotized 4-ami-
no-stilbene is coupled with a naphthylamine to produce an
intermediate azo compound, the use of a system compris-
ing cupric chloride to effect the oxidation and ring closure
of the intermediate azo compound to produce 2-(4-
stilbyl)naphthotriazole. The cupric chloride is employed
in conjunction with isopropanol.

3,565,894

PYRIMIDINYL ESTERS OF
DITHIOCARBAMIC ACIDS

John Joseph D'Amico, Dunbar, W. Va., assignor to Mon-
santo Company, St. Louis, Mo., a corporation of Dela-
ware
No Drawing. Filed May 15, 1967, Ser. No. 638,595
Int. Cl. C07d 51/42

U.S. Cl. 260—247.1

15 Claims

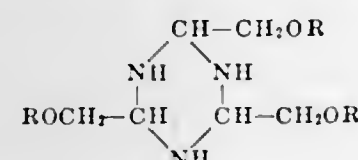
Heterocyclic esters of dithiocarbamic acids wherein the
heterocycle contains 3 or 4 carbon atoms and two meta
nitrogen atoms and is attached at the carbon between the
nitrogen atom, which esters are useful for accelerating the
vulcanization of rubber.

3,565,895

HEXAHYDROTRIAZINES

Fred L. Johnson, Jr., Austin, Tex., assignor to Jefferson
Chemical Company, Inc., Houston, Tex., a corporation
of Delaware
No Drawing. Continuation-in-part of application Ser. No.
589,814, Oct. 27, 1966. This application Sept. 11, 1969,
Ser. No. 857,224
Int. Cl. C07d 55/14

U.S. Cl. 260—248 3 Claims
New compounds of the following general formula are
disclosed:



wherein R is an alkyl or aryl group containing 1 to 16
carbon atoms. These substituted hexahydrotriazines are
useful in the preparation of textile treating resins, plas-
ticizers for synthetic organic resins, and as a cross-linker
for polyurethane elastomers.

3,565,896

PYRIDINECARBONYL DERIVATIVES OF 7-[ω-(N-
ALKYL-N-OPTIONALLY HYDROXYALKYL SUB-
STITUTED AMINO) - HYDROXYALKYL]THE-
OPHYLLINE

Giuseppe Ghielmetti and Tiberio Bruzzese, Milan, Italy,
assignors to SPA—Società Prodotti Antibiotici, S.p.A.,
Milan, Italy, a corporation of Italy
No Drawing. Filed Dec. 8, 1969, Ser. No. 883,265
Claims priority, application Great Britain, Dec. 10, 1968,
58,563/68
Int. Cl. C07d 57/48

U.S. Cl. 260—256

5 Claims

The present pyridinecarbonyl derivatives of 7-[ω-(N-
alkyl-N-optionally hydroxyalkyl substituted amino)-hy-
droxyalkyl]theophylline possess diuretic, bronchiolar dilat-
ing, myocardial stimulating, smooth muscle relaxing, lipo-
tropic and vasodilating activity and are useful as cardio-
tonic agents. The compounds are prepared by reaction of

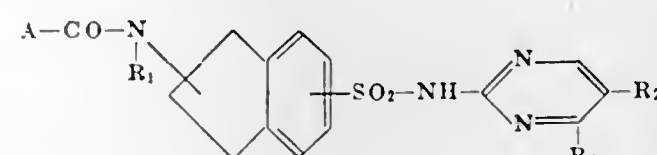
the corresponding 7 - [ω - (N-alkylamino)-hydroxyalkyl]
theophylline or 7-[ω-(N-alkyl-N-hydroxyalkylamino)-hy-
droxyalkyl]theophylline with a pyridinecarboxylic acid or
a reactive derivative thereof such as the pyridinecarbonyl
halides. Alternatively the compounds can be prepared by
reaction of theophylline with the appropriate pyridinecar-
bonyl derivative of an ω-(N-alkyl-N-optionally hydroxy-
alkyl substituted amino)-hydroxyalkyl halide or by reac-
tion of an appropriate 7-[ω-halo-hydroxyalkyl]theophyl-
line derivative with the appropriate secondary amine.

3,565,897

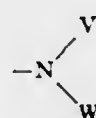
SULFONAMIDES CHARACTERIZED BY
ANTIDIABETIC ACTIVITY

Ruth Heerdt, Mannheim-Feudenheim, Manfred Hübner,
Ludwigshafen, Felix Helmut Schmidt, Mannheim-Neu-
ostheim, Kurt Stach, Mannheim-Waldhof, and Karl
Muth, Kelkheim, Taunus, Germany, assignors to Boeh-
ringer Mannheim, G.m.b.H., a corporation of Germany
No Drawing. Filed Oct. 4, 1968, Ser. No. 765,026
Claims priority, application Germany, Oct. 24, 1967,
B 95,111
Int. Cl. C07d 51/42

U.S. Cl. 260—256.5 7 Claims
Novel hydrindene-sulfonylamido-pyrimidines and the
alkali salts thereof having blood sugar reducing proper-
ties having the formula:



wherein A represents substituted or unsubstituted alkyl,
alkenyl, aryl, aralkyl, aryloxyalkyl, arylmercaptoalkyl,
cycloalkyl, cycloalkenyl, thienyl, furyl, alkoxy, alkenyl-
oxy, aralkoxy, cycloalkoxy, cycloalkylalkoxy, cycloalken-
ylalkoxy, or the group



wherein V and W are each hydrogen, substituted or un-
substituted alkyl, cycloalkyl, aryl or aralkyl and taken
together with the nitrogen atom to which they are at-
tached a substituted or unsubstituted heterocyclic ring, R₁
is hydrogen, lower alkyl or substituted or unsubstituted
aralkyl, R₂ is alkyl, cycloalkyl, cycloalkyl-alkyl, aryl,
aralkyl, alkoxy, cycloalkoxy, alkoxyalkyl, alkoxyalkoxy
or alkylmercapto which can be substituted by halogen,
hydroxy, or alkyl and R₃ is hydrogen or lower alkyl,
wherein R₂ and R₃ can be joined together to form a ring
composed of 3 to 5 methylene groups.

3,565,898

CERTAIN 5-PYRIDYL OXATRICYCLO(3.2.2.0^{2,4})
NONANE-1-AMINES

Paul E. Aldrich, Sharpley, Wilmington, Del., assignor to
E. I. du Pont de Nemours and Company, Wilmington,
Del., a corporation of Delaware
No Drawing. Original application May 8, 1967, Ser. No.
641,412, now Patent No. 3,428,643, dated Feb. 18,
1969. Divided and this application Aug. 19, 1968, Ser.
No. 753,727
Int. Cl. C07d 31/42

U.S. Cl. 260—295

4 Claims

5-phenyl, 5-substituted phenyl, 5-pyridyl, and 5-substi-
tuted pyridyl oxatricyclo[3.2.2.0^{2,4}]nonan-1-amines, and
N-carboalkoxy-5-phenyl, 5-substituted phenyl, 5-pyridyl,

and 5-substituted pyridyl oxatricyclo[3.2.2.0^{2,4}]nonan-1-
amines.

Examples of some compounds of this invention are:
ethyl N-5-(4-pyridyl)-3-oxatricyclo[3.2.2.0^{2,4}]nonan-1-yl
urethane, 5-phenyl-3-oxatricyclo[3.2.2.0^{2,4}]nonane-1-
amine, and 5-phenyl-3-oxatricyclo[3.2.2.0^{2,4}]nonane-1-
amine maleate.

3,565,899

OXY-SUBSTITUTED BENZO QUINOLIZINIUM
COMPOUNDS

Karl J. Doebel and Jeffrey W. H. Watthey, Ossining,
N.Y., assignors to Geigy Chemical Corporation, Ards-
ley, N.Y., a corporation of New York
No Drawing. Continuation of application Ser. No.
685,316, Nov. 24, 1967, which is a continuation-in-
part of application Ser. No. 603,418, Dec. 21,
1966, both now abandoned. This application Sept.
11, 1969, Ser. No. 857,658
Int. Cl. C07d 39/12

U.S. Cl. 260—286

11 Claims

(1) Benzo[b]quinolizinium compounds disubstituted
in the 8,9- and 9,10-positions and trisubstituted in the
8,9,10-positions with hydroxy, lower alkanoy and lower
alkanoyloxy groups, and (2) lower alkyl and 11-amino
substituted derivatives thereof are useful as cardiovascu-
lar agents, as agents affecting the central nervous system,
and as antipyretic agents.

3,565,900

OXAZOLO[4,3-a]ISOQUINOLINES

William J. Houlihan and Robert E. Mannig, Mountain
Lakes, N.J., assignors to Sandoz-Wander, Inc., Han-
over, N.J., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No.
663,218, Aug. 25, 1967. This application May 21, 1968,
Ser. No. 730,957
Int. Cl. C07d 85/48

U.S. Cl. 260—286 15 Claims
Compounds are of the class of 1-aryl-3-amino-1,5,6,
10b-tetrahydro-3H-oxazolo[4,3-a]isoquinolines, useful as
central nervous system stimulants.

3,565,901

CERTAIN SALTS OF 1,3,4-THIADIAZOL-
2-YLUREAS

Tony Cebalo, Allentown, Pa., assignor to Air Products
and Chemicals, Inc., Philadelphia, Pa., a corporation of
Delaware
No Drawing. Filed Jan. 29, 1969, Ser. No. 795,084
Int. Cl. C07d 91/62

U.S. Cl. 260—293.4 9 Claims
Various novel metal, amine and ammonium derivatives
of certain thiadiazol-2-ylureas are disclosed having highly
desirable utility as agricultural chemicals, and particularly
as phytotoxicants.

3,565,902

1,2-DIHYDRO-3H-IMIDAZO[1,5-a]INDOL-
3-ONES AND 3-THIONES

William Blythe Wright, Jr., Woodcliff Lake, N.J., assignor
to American Cyanamid Company, Stamford, Conn., a
corporation of Maine
No Drawing. Filed Sept. 15, 1967, Ser. No. 668,205
Int. Cl. C07d 49/30

U.S. Cl. 260—294

10 Claims

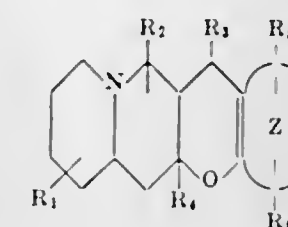
The preparation of substituted imidazo[1,5-a]indol-3-
ones, imidazo[1,5-a]indol-3-thiones, intermediates and
addition salts, are described. These compounds are useful
for their CNS depressant and tranquilizer properties.

3,565,903

PYRANO[2,3-b]QUINOLINES AND PROCESS
FOR THEIR PRODUCTION

Maximilian von Strandtmann, White Meadow Lake, Rock-
away, Marvin P. Cohen, New Milford, and John Shavel,
Jr., Mendham, N.J., assignors to Warner-Lambert Phar-
maceutical Company, Morris Plains, N.J., a corpora-
tion of Delaware
No Drawing. Filed Nov. 24, 1967, Ser. No. 685,325
Int. Cl. C07d 29/24

U.S. Cl. 260—294.3 3 Claims
Substituted pyrano[2,3-b]quinolizines of Formula I



and the process for their production are disclosed. R₁,
R₂ and R₃ are hydrogen, lower alkyl, aralkyl, aryl; R₄
is hydroxy, alkoxy or various amino groups; Z is an
aromatic or heteroaromatic nucleus; and R₅ and R₆ rep-
resent hydrogen, various amino or alkoxy groups, alkyl,
aralkyl, aryl, nitro, carboalkoxy and halogen.

3,565,904

1,2,3,4-TETRAHYDRO-1-NAPHTHOIC ACIDS

Peter Frederick Juby, De Witt, Richard Anthony Partyka,
Liverpool, and Thomas William Hudyma, De Witt,
N.Y., assignors to Bristol-Myers Company, New York,
N.Y., a corporation of Delaware
No Drawing. Filed Jan. 31, 1969, Ser. No. 795,687
Int. Cl. C07c 63/44, 69/76

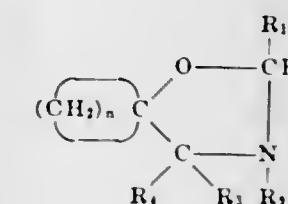
U.S. Cl. 260—294 21 Claims
6-cyclohexyl- or phenyl-1,2,3,4-tetrahydro-1-naphthoic
acids are useful anti-inflammatory agents in the treat-
ment of inflammatory diseases in animals, including man.
An example of the disclosure is 6-cyclohexyl-1,2,3,4-tet-
rahydro-1-naphthoic acid.

3,565,905

DERIVATIVES OF 5-CYCLOALKANESPIRO
OXAZOLIDINES

Jacques Georges Maillard, Paris, France, assignor to Lab-
oratories Jacques Logeais, Issy-les-Moulineaux, France,
a French body corporate
No Drawing. Filed June 5, 1968, Ser. No. 734,522
Claims priority, application Great Britain, June 13, 1967,
27,238/67
Int. Cl. C07d 85/26

U.S. Cl. 260—294.7 11 Claims
5-cycloalkanespiro oxazolidines of the formula



wherein n is 4, 5 or 6, R₁ is benzyl, phenyl or phenyl sub-
stituted with halogen, hydroxy, nitro, amino, lower alkyl-
amino, methylenedioxy or lower alkoxy, are valuable
coronary dilators.

3,565,906

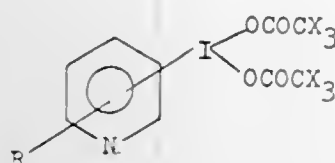
(DIACETOXYIODO)- AND [BIS(TRIHALO-ACETOXY)IODO]PYRIDINES

Zdravko Jezic, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 3, 1969, Ser. No. 803,946

Int. Cl. C07d 31/34

U.S. Cl. 260—295 5 Claims
(Diacetoxyiodo)pyridines, [bis(trichloroacetoxy)-iodo]pyridines, and [bis(trifluoroacetoxy)iodo]pyridines corresponding to the formula



wherein R represents hydrogen, a lower alkyl, an acetamido, a chloro or a bromo group. X represents H, chloro or fluoro and the diacetoxyiodo or bis(trihaloacetoxy)iodo group is in a beta position. They are prepared by reacting an iodosopyridine with glacial acetic, trichloroacetic or trifluoroacetic acid. The compounds are useful as intermediates for the preparation of antimicrobial pyridyl-iodonium salts.

3,565,907

METHOD OF PURIFYING ISOMERS OF 6-PHENYL-2,3,5,6-TETRAHYDROIMIDAZO[2,1-b]THIAZOLE

Milon Walker Bullock, Hopewell, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Continuation-in-part of application Ser. No. 573,186, Aug. 18, 1966. This application Apr. 23, 1969, Ser. No. 818,783

Int. Cl. C07d 99/10

U.S. Cl. 260—306.7 10 Claims
This invention describes a method of purifying isomers of 6-phenyl-2,3,5,6-tetrahydroimidazo[2,1-b]thiazole by the use of isomeric forms of 10-camphorsulfonic acid and derivatives thereof. The products are useful as anthelmintics.

3,565,908

2,2'-BIS(HEPTAFLUOROPROPYL)-6,6'-BIBENZOXAZOLE

Charles D. Burton and Norman L. Madison, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Feb. 5, 1968, Ser. No. 702,776

Int. Cl. C07d 85/48

U.S. Cl. 260—307 4 Claims
A novel compound 2,2'-bis(heptafluoropropyl)-6,6'-bibenzoxazole and the manner of its preparation. The compound is prepared by reacting 3,3'-dihydroxybenzidine in a solvent or carrier with methyl perfluorobutyrimide in the presence of an aliphatic carboxylic acid as reaction promoter. Alternatively, the compound can be prepared by heating 4,4'-bis(heptafluorobutyramido)-3,3'-dihydroxybiphenyl in the presence of a dehydrating agent to effect cyclization. The present novel compound is suitable for use as an antiplasticizer.

3,565,909

LOWER ALKYL 5-LOWER ALKOXYOXAZOLYL-(4)-ACETATES AND LOWER ALKYL ESTER THEREOF

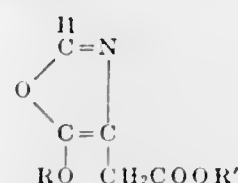
Takuichi Miki, Amagasaki, and Taisuke Matsuo, Suita, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Application May 22, 1967, Ser. No. 640,334, now Patent No. 3,413,297, dated Nov. 26, 1968, which is a continuation-in-part of abandoned application Ser. No. 483,309, Aug. 27, 1965. Divided and this application Feb. 8, 1968, Ser. No. 718,969

Claims priority, application Japan, Sept. 2, 1964, 39/50,128; Oct. 16, 1964, 39/50,012; Dec. 16, 1964, 39/71,160; Mar. 11, 1965, 40/14,357

Int. Cl. C07d 85/44

U.S. Cl. 260—307 5 Claims
New 5-lower-alkoxyoxazolyl-(4)-acetic acids and their esters of the formula:



wherein R is a lower alkyl radical having up to 4 carbon atoms and R' is hydrogen or a lower alkyl radical having up to 4 carbon atoms show interesting activities with respect to the central nervous system, for example, sedative effect, anticonvulsive effect, etc. These compounds are also useful as valuable intermediates in the improved synthesis of 2-methyl-3-hydroxy-4,5-disubstituted-pyridines, which are themselves useful intermediates in the preparation of vitamin B6.

3,565,910

PIGMENTED FIBER-FORMING NYLON COMPOSITION

Donald L. Elbert, Gulf Breeze, and Robert T. Wright, Pensacola Beach, Fla., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 541,061, Apr. 8, 1966. This application Feb. 18, 1969, Ser. No. 800,268

Int. Cl. C08g 51/54; D01f 1/04, 7/04

U.S. Cl. 260—30.8 4 Claims
Heat and light stabilized fiber-forming polycarbonamides containing a copper phthalocyanine and lead chromate are extruded into green fibers possessing good color stability, weathering durability and retention of physical properties. The fibers are particularly useful as pile fibers in the fabrication of synthetic turf simulating living grass.

3,565,911

DISUBSTITUTED N-AMINO INDOLINE COMPOUNDS

Laszlo Beregi, Boulogne, Pierre Hugon, Rueil Malmaison, and Michel Laubie, Vaucresson, France, assignors to Science Union et Cie, Société Française de Recherche Médicale, Suresnes, France, a French society

No Drawing. Filed Feb. 25, 1969, Ser. No. 802,208

Claims priority, application Great Britain, Mar. 6, 1968, 10,906/68

Int. Cl. C07d 27/38

U.S. Cl. 260—326.11 5 Claims
N-(3-sulfamyl-4-chloro-benzamido) indolines substituted in 2-position by (a) lower-alkyl having up to five carbon atoms, inclusive, (b) phenyl, halophenyl, trifluoro-

methylphenyl, lower-alkylphenyl, or lower-alkyloxyphenyl, or (c) cyclohexyl.

These compounds possess diuretic and antihypertensive properties.

3,565,912

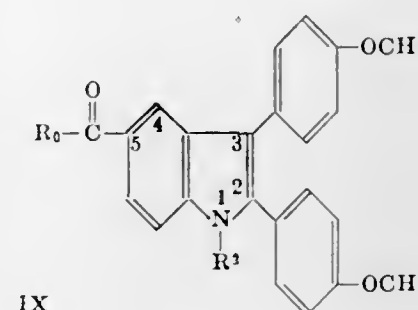
5-LOWER-ALKANOYL-2,3-BIS(p-METHOXYPHENYL)INDOLES

Jacob Szmuszkovicz, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Jan. 27, 1969, Ser. No. 794,402

Int. Cl. C07d 27/56

U.S. Cl. 260—326.16 2 Claims
New anti-inflammatory indoles of the Formula IX



wherein R0 is hydrogen or alkyl and R1 is hydrogen, alkyl or alkanoyl, are produced. The compounds can be used in the topical, oral and parenteral treatment of inflammatory diseases in animals, particularly birds and mammals.

3,565,913

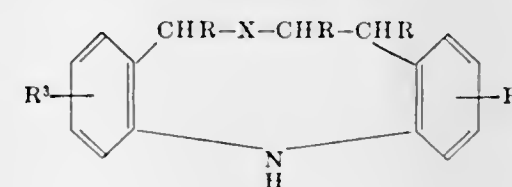
DIBENZOAZATHIACYCLOALKANES AND DIBENZOAZAOXACYCLOALKANES

Harry L. Yale and Jack Bernstein, New Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

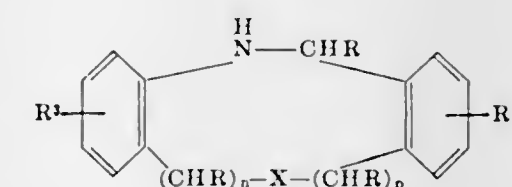
No Drawing. Continuation-in-part of application Ser. No. 546,193, Apr. 29, 1966. This application Dec. 12, 1968, Ser. No. 783,390

Int. Cl. A61k 27/00; C07d 87/00, 93/00

U.S. Cl. 260—327 10 Claims
Compounds of the formulae



and



wherein R is selected from the group consisting of hydrogen, lower alkyl, and monocyclic aryl; X is oxygen or sulfur; R3 and R4 are each selected from the group consisting of hydrogen, halogen, lower alkyl, cyclo-lower alkyl, cyano, lower haloalkyl, lower alkoxy, lower alkylthio, lower alkylsulfinyl, lower alkylsulfonyl, lower haloalkoxy, lower halo alkylthio, and amidosulfonyl; and n is 0 or 1, p is 0, 1 or 2, the sum of n+p being 1 or 2 provided that when X is sulfur, n and p are not 0 and 1, respectively. These compounds are useful intermediates in the preparation of the corresponding N-carboxamides which have

3,565,914

PROCESS FOR CYCLIZING FORMANILIDES

Harry Louis Yale, New Brunswick, and Ervin Richard Spitzmiller, Edison, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 13, 1969, Ser. No. 807,089

Int. Cl. C07d 87/54, 93/42

U.S. Cl. 260—327 9 Claims
An improved process for cyclizing certain formanilides results when the reaction is carried out in either diethylbenzene, diphenyl ether or a mixture of diphenyl ether and biphenyl.

3,565,915

PROCESS FOR PRODUCING AN OPTICALLY ACTIVE DIHYDROCHRYSANTHEMOLACTONE

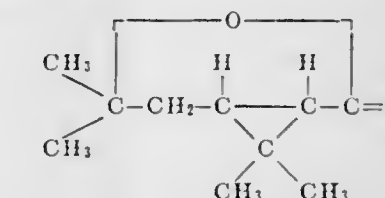
Masanao Matsui, Tokyo, Hirosuke Yoshioka, Nishinomiya-shi, Hideo Sakamoto, Saitama-ken, and Yasuhiro Yamada, Tokyo, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan, a corporation of Japan

No Drawing. Filed May 24, 1966, Ser. No. 552,443

Claims priority, application Japan, May 31, 1965, 40/32,348; June 22, 1965, 40/37,234; Dec. 20, 1965, 40/78,790, 40/78,792

Int. Cl. C07d 7/06

U.S. Cl. 260—343.5 3 Claims
A process is provided for producing an optically active dihydrochrysanthemolactone represented by the following formula:



which is useful in the production of insecticides. The process comprises treating optically active 2,2-dimethyl-3-cis-(2'-oxo)propyl-cyclo-propyl-1-acetaldehyde in an aqueous alkaline or acid solution or acetic acid anhydride, or in an organic solvent with use of catalyst, at a temperature of 50° to 200° C., reacting the resulting optically active 2-acetyl-6,6-dimethyl-bicyclo[3,1,0]-2-hexene with ozone gas in an organic solvent at a temperature of -60° to 20° C., treating the resulting ozonide with hydrogen peroxide, periodic acid or its salt and treating the resulting cis-homocaronic acid in excess acetic acid anhydride at a temperature of 100° to 150° C. to form optically active cis-homocaronic acid anhydride and treating said anhydride with a Grignard reagent represented by the formula CH3MgX where X is halogen.

3,565,916

PROPIOLACTONES AND DERIVATIVES THEREOF

Kentaro Okumura, Kobe-shi, Toshiyuki Fujii, Minoo-shi, Osaka-fu, Naoto Yoneda, Suita-shi, Osaka-fu, and Munetugu Miyoshi, Nishinomiya-shi, Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan, a corporation of Japan

No Drawing. Filed Apr. 17, 1968, Ser. No. 721,931

Claims priority, application Japan, Apr. 20, 1967, 42/25,293; Dec. 25, 1967, 42/83,085

Int. Cl. C07d 3/00

U.S. Cl. 260—343.9 1 Claim
Arenesulfonamido propiolactones and process for preparation thereof and use thereof in process for preparation of seryl peptide.

3,565,917

MAGNESIUM CELL OPERATION

Lee Roy Cervenka and Hugh King Davis, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Nov. 12, 1968, Ser. No. 775,157
Int. Cl. B01k 3/06; C22d 3/08

U.S. Cl. 204—70 6 Claims
Improved operation of electrolytic cells used in producing magnesium metal is achieved by adding vanadium to the electrolyte. Conveniently the vanadium is added to the cell feed material in an amount of from about 5 to about 300 parts per million by weight based on the total feed and preferably in the range of from about 25 to 175 parts per million. The vanadium is added in the preferred manner as vanadium pentoxide.

3,565,918

7 α -DIFLUOROMETHYL-A-NOR-B-HOMO STEROIDS AND THEIR PREPARATION

John H. Fried, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama, a corporation of Panama
No Drawing. Filed Sept. 26, 1966, Ser. No. 581,710
Int. Cl. C07c 17/10; C07d 5/04, 7/04

U.S. Cl. 260—345.9 9 Claims
The present disclosure relates to 3,5-dioxo-7 α -difluoromethyl-A-nor-B-homo androstanes and 19-norandrostanes and derivatives thereof wherein the C-17 β position is elaborated with a hydroxyl, tetrahydrofuran-2-yl, tetrahydropyran-2-yl, or hydrocarbon carboxylic acyloxy group of less than 12 carbon atoms, and the C-17 α position with a hydrogen, (lower)alkyl, (lower)alkenyl, (lower)alkynyl or halo(lower)alkynyl group. These compounds are useful as anabolic and androgenic agents. Those compounds which bear a 17 α -ethynyl or -haloethynyl grouping are additionally useful as progestational agents. Also taught is a method for the preparation of these compounds.

3,565,919

PRODUCTION OF SUPPORTED CATALYSTS FOR PARTIAL OXIDATION OF AROMATIC HYDROCARBONS IN A FLUIDIZED BED

Wilhelm Friedrichsen, Ludwigshafen (Rhine), and Otto Goehre, Wilhelmsfeld, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Sept. 6, 1968, Ser. No. 758,112
Claims priority, application Germany, Sept. 7, 1967, P 16 42 937.1

Int. Cl. B01j 11/06, 11/32 3 Claims
U.S. Cl. 260—346.4
The production of a supported catalyst containing vanadium pentoxide and titanium dioxide for the oxidation of aromatic hydrocarbons to carboxylic acids or their anhydrides with oxygen or gases containing oxygen in a fluidized bed, by treating an inert carrier substance with a solution or suspension of a titanium compound, then heating it in the presence of oxygen to a temperature of 130° to 1100° C., treating the carrier thus pretreated with a solution or melt of a vanadium compound and heating it in the presence of oxygen at 350° to 1100° C.

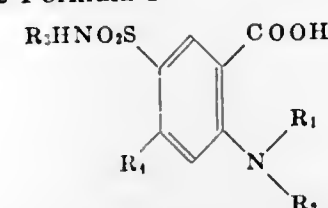
3,565,920

5-SULFAMYL-ANTHRANILIC ACIDS

Lincoln Harvey Werner, Summit, N.J., assignor to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 553,724, May 1, 1966. This application Dec. 29, 1966, Ser. No. 605,605

Int. Cl. C07d 5/14 2 Claims
U.S. Cl. 260—347.2
N-aliphatically substituted 5-sulfamyl-4-halo-anthra-

nilic acids of the Formula I



R₁=aliphatic or araliphatic hydrocarbon radical
R₂=H, R₁ or acyl
R₃=cycloaliphatic or araliphatic hydrocarbon radical
R₄=Cl or Br
esters and salts thereof, particularly the N-furfuryl-4-chloro-5-benzylsulfamyl-anthranilic acid, exhibit diuretic effects.

3,565,921

CONTINUOUS LIQUID PHASE HYDROGENATION PROCESS USING EXCESS HYDROGEN

Georges Gobron and Charles Brun, Melle, Deux-Sevres, France, assignors to Melle-Bezons, Melle, Deux-Sevres, France, a corporation of France
No Drawing. Filed Oct. 7, 1965, Ser. No. 493,876
Claims priority, application France, Jan. 6, 1965, 1,010

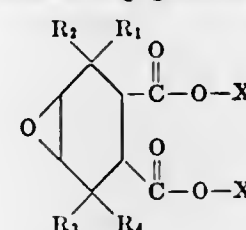
Int. Cl. C07c 5/04, 5/20, 87/36 12 Claims
U.S. Cl. 260—347.8
Process for catalytic hydrogenation in inert solvents in the liquid phase in which excess hydrogen passes through the reaction mixture to remove products as formed to prolong the life of the catalyst.

3,565,922

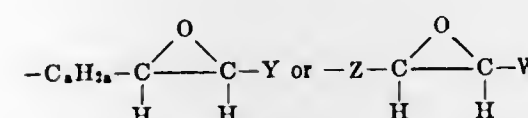
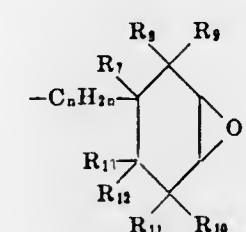
TRIFUNCTIONAL EPOXY CROSSLINKING AGENTS

Thomas P. Rudy, Saratoga, and Toshio W. Nakagawa, San Jose, Calif., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
No Drawing. Filed Sept. 2, 1966, Ser. No. 576,809
Int. Cl. C07d 1/22

U.S. Cl. 260—348 2 Claims
This invention relates to novel trifunctional epoxy compounds and to the use of such compounds as crosslinking agents for carboxy-terminated polyolefin polymers. The trifunctional epoxides are diesters of 4,5-epoxycyclohexane-1,2-dicarboxylic acid and lower alkyl derivatives thereof having the following general structural formula:



wherein R₁, R₂, R₃, and R₄ are hydrogen or lower alkyl groups and X is moiety containing up to 11 carbon atoms selected from the group consisting of epoxycyclohexyl and acyclic epoxyaliphatic moieties having the following structural formulas:



wherein R₇ through R₁₃ are hydrogen or lower alkyl groups, n is an integer from 1 to 5, a is an integer from

1 to 9, Y is either a hydrogen atom or an aliphatic group containing b carbon atoms wherein a+b \leq 9; Z is a branched chain aliphatic group containing c carbon atoms and W is either hydrogen or an aliphatic group containing d carbon atoms wherein c is an integer from 2 through 9 and c+d \leq 9.

3,565,923

PROCESS FOR THE MANUFACTURE OF 4,4'-DIAMINO-1,1'-DIANTHRAQUINONYLENES

Maurice Grelat, Bettingen, Basel, and Max Jost, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a company of Switzerland
No Drawing. Filed Dec. 1, 1967, Ser. No. 687,149
Claims priority, application Switzerland, Dec. 12, 1966, 17,709/66

Int. Cl. C09b 1/24 7 Claims
U.S. Cl. 260—367

The present invention concerns a process for the manufacture of 4,4'-diamino-1,1'-dianthraquinonyl-3,3'-disulphonic acid, wherein a 1-amino-4-halogenanthraquinone-2-sulphonic acid is heated with a reducing agent especially hydroquinone in an aqueous medium in the presence of a catalytic quantity of copper or a copper compound.

3,565,924

25-HYDROXYCHOLECALCIFEROL

Hector Floyd De Luca, Madison, Wis., and John Wilson Blunt, Christchurch, South Island, New Zealand, assignors to Wisconsin Alumni Research Foundation, Madison, Wis., a corporation of Wisconsin
No Drawing. Filed July 1, 1968, Ser. No. 741,239
Int. Cl. C07c 17/10

U.S. Cl. 260—397.2 1 Claim
25-hydroxycholecalciferol. The compound is characterized by vitamin-D-like activity and finds application as an animal feed supplement.

3,565,925

PROCESS FOR FORMYLATING ACID-SENSITIVE ALCOHOLS

Richard Frederick Stockel, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed May 6, 1968, Ser. No. 727,054
Int. Cl. C07c 169/54

U.S. Cl. 260—397.2 7 Claims
A method for formylation of acid-sensitive alcohols which comprises reacting the alcohols with a formamide compound in the presence of a protic acid having a pKa value of five or less.

3,565,926

AMINE SALTS OF PERHALOGENATED MONOBASIC CARBOXYLIC ACIDS

Michael J. Furey, Latham, N.Y., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 305,805, Aug. 30, 1963, which is a continuation-in-part of abandoned application Ser. No. 853,471, Nov. 17, 1959. This application May 4, 1966, Ser. No. 547,416
Int. Cl. C09f 7/00

U.S. Cl. 260—404 7 Claims
A composition of matter comprising an amine salt of an unsubstituted aliphatic monoamine and a perhalogenated monobasic carboxylic acid. The acid is one having the general formula: Cl(CF₂CFCl)_nCF₂COOH, where n is an integer from 1 to 4, or one having the general formula: F(CF₂)_mCOOH, where m is an integer from 3 to 9. The salt is soluble in lubricating oil and fuel compositions, and serves to reduce wear, particularly scuffing wear, during normal use of the lubricant or fuel.

3,565,927

QUATERNARY AMMONIUM COMPOUNDS HAVING A BRANCHED CHAIN ALIPHATIC ACID ANION

Reginald L. Wakeman, Philadelphia, Pa., and Joseph F. Coates, Washington, D.C., assignors to Millmaster Onyx Corporation, New York, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 295,217, July 15, 1963. This application Mar. 12, 1968, Ser. No. 712,376

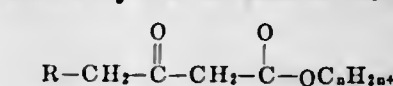
Int. Cl. C09f 7/00 6 Claims
U.S. Cl. 260—404
Microbiocidal compounds having a cation derived from a microbiocidal quaternary ammonium compound wherein there is at least one alkyl group of 8 to 22 carbon atoms attached to the quaternary nitrogen and an anion derived from a branched chain aliphatic acid, containing at least seven carbon atoms.

3,565,928

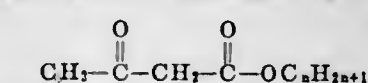
PROCESS FOR PREPARING GAMMA-SUBSTITUTED BETA-KETO ESTERS

John D. Hagarty, Racine, Wis., assignor to S. C. Johnson & Son, Inc., Racine, Wis.
No Drawing. Filed Jan. 29, 1968, Ser. No. 701,053
Int. Cl. C07c 69/72; C11c 3/00

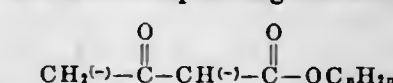
U.S. Cl. 260—410.9 6 Claims
A method of synthesizing gamma-substituted beta-keto esters, represented by the structural formula:



wherein R is an allylic hydrocarbon radical and n is a whole number from 1 to 2. The corresponding unsubstituted beta-keto ester, represented as



is converted to the corresponding dianion, represented as



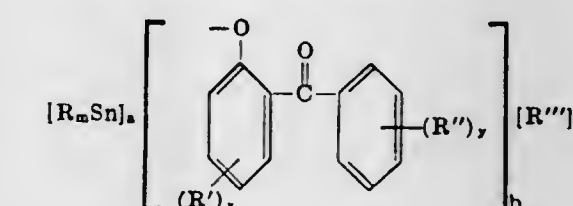
The gamma-allyl beta-keto ester is obtained by reacting this dianion with an appropriate organic compound, represented by the formula RX.

3,565,929

ORGANOTIN BENZOYLPHENOLATES OR HYDROXIDE, OXIDE, MERCAPTIDE CARBOXYLATE AND THIOCARBOXYLATE DERIVATIVES THEREOF

Toshio Seki, Osaka-shi, Kazaburo Suzuki, Kobe-shi, and Takashi Matsuzaki, Osaka-shi, Japan, assignors to Nitto Kasei Co., Ltd., Osaka, Japan, a corporation of Japan
No Drawing. Original application July 26, 1966, Ser. No. 567,823, now Patent No. 3,498,947, dated Mar. 3, 1970. Divided and this application Mar. 26, 1969, Ser. No. 828,051

Int. Cl. C07f 7/22 6 Claims
U.S. Cl. 260—429.7
Compounds are provided for light stabilization of resins, said compounds being of the formula



wherein R is alkyl of 1-18 carbon atoms, cycloalkyl, aryl, or benzyl, R' and R'' are alkyl of 1-12 carbon atoms, alkoxy, hydrogen, hydroxyl, halogen, carboxyl, or benzoyl wherein said hydroxyl or carboxyl radical may

be attached to the organotin radicals, R''' is hydroxyl or the residue of carboxylic acid of 1-18 carbon atoms, mercaptan, mercapto acid ester, or monoester maleate, provided that when c is 1 or 2, R''' also represents an oxygen atom, a is an integer from 1 to 3, b is an integer from 1 to 3, c is 0 or an integer from 1 to 2, m is an integer from 1 to 3, and x and y are 0 or integers from 1 to 3.

3,565,930 ORGANOTIN MERCAPTO CARBOXYLIC ACID ESTER SULFIDES

Otto S. Kauder, Jamaica, N.Y., and Mark W. Pollock, Teaneck, N.J., assignors to Argus Chemical Corporation, Brooklyn, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 19, 1967, Ser. No. 691,866
Int. Cl. C07f 7/22

U.S. Cl. 260—429.7 11 Claims
A polyvinyl chloride resin stabilizer is provided having a high concentration of tin, in the range from about 18 to about 35% by weight, and a high concentration of sulfur, within the range from about 10 to about 25% sulfur, comprising at least one organotin alpha- or beta-mercapto carboxylic acid ester sulfide, and preferably mixed monoorganotin and diorganotin alpha- or beta-mercapto carboxylic acid ester sulfides.

Polyvinyl chloride resin compositions are also provided, containing these stabilizers.

3,565,931 PROCESS FOR PREPARING ORGANOTIN MER- CAPTO CARBOXYLIC ACID ESTER SULFIDES CONTAINING MORE THAN 18% TIN

Lawrence Robert Brecker, 1355 E. 18th St., Brooklyn, N.Y. 11230
No Drawing. Filed Dec. 19, 1967, Ser. No. 691,867
Int. Cl. C07f 7/22; C08f 45/62

U.S. Cl. 260—429.7 21 Claims
A process is provided for preparing organotin mercapto carboxylic acid ester sulfides having a high concentration of tin, in the range from about 18 to about 35% by weight, and a high concentration of sulfur, within the range from about 10 to about 25% sulfur, by reaction of an organotin halide with a mercapto acid ester and an alkali or alkaline earth metal base, and then reacting the product with an alkali or alkaline earth metal sulfide.

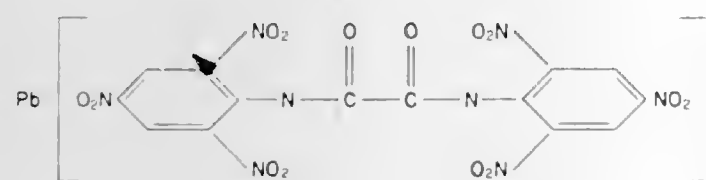
The compounds are useful polyvinyl chloride resin stabilizers.

Organotin mercapto acid ester halides also are provided, that are intermediates in the process for preparing the organotin mercapto carboxylic acid ester sulfides.

3,565,932 LEAD HEXANITROOXANILIDE

John W. Fronabarger, Sun City, Ariz., assignor to UMC Industries, Inc., a corporation of Delaware
Filed Feb. 12, 1969, Ser. No. 798,753
Int. Cl. C07f 7/24

U.S. Cl. 260—435 1 Claim



A novel compound, lead hexanitrooxanilide, is a thermally stable, primary explosive exhibiting no-fire characteristics superior to those of lead styphnates.

3,565,933 COPPER GLUCONATE-GLYCINE COMPLEX

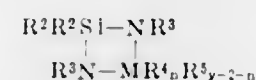
Harold N. Vagenius, 1634 Elmwood Ave., Berwyn, Ill. 60402
No Drawing. Filed May 13, 1968, Ser. No. 728,817
Int. Cl. A61k 7/16; C07f 1/08

U.S. Cl. 260—438.1 2 Claims
The present invention is an oral deodorant comprising a water soluble reaction product of copper gluconate and glycine.

3,565,934 DIAZADISILETIDINES AND THE PREPARATION THEREOF

Walter Fink, Zurich, Switzerland, assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Continuation-in-part of applications Ser. No. 268,463, Mar. 27, 1963, and Ser. No. 351,202, Mar. 11, 1964. This application Sept. 10, 1964, Ser. No. 395,593
Int. Cl. C07f 7/02

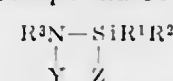
U.S. Cl. 260—448.2 20 Claims
Heterocyclic 4-membered ring compounds of the formula



where M is silicon, boron, phosphorus, phosphorus oxide, phosphorus sulfide and metals which are at least divalent, process for preparing by reacting a dialkali or di-Grignard salt of a compound of formula $R^3NHSiR^2R^3$ with a compound of formula



where X is an acid residue, and a cyclodisilazane process comprising heating a compound of the formula



at a temperature sufficient to split off YZ and form the cyclodisilazane. These compounds are useful as high temperature fluids.

3,565,935 METHOD OF FORMING MERCAPTOALKYL SUB- STITUTED ORGANOSILICON COMPOUNDS

Abe Berger, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Jan. 6, 1969, Ser. No. 796,633
Int. Cl. C07f 7/02, 7/04

U.S. Cl. 260—448.2 8 Claims
Monomeric organosilicon compounds, having mercaptoalkyl substituents, are formed through treatment of an organosilicon compound, having an alkyl substituent with a thioacid salt group, with ammonia or an amine compound. The remaining groups on the organosilicon compound are not affected by the treatment and retain functional or nonfunctional substituents, unchanged.

3,565,936 N,N-DISUBSTITUTED AMINOALKOXYAL- KYL-SILICON COMPOUNDS AND DERIV- ATIVES THEREOF

Edward Lewis Morehouse, New City, N.Y., assignor to Union Carbide Corporation, a corporation of New York
No Drawing. Continuation-in-part of application Ser. No. 304,965, Aug. 27, 1963. This application June 28, 1968, Ser. No. 741,233
Int. Cl. C07d 103/02; C07f 7/02

U.S. Cl. 260—448.2 6 Claims
This invention relates to organosilicon compounds and, in particular, to tertiary amino-organosilicon compounds wherein the tertiary amino group contains certain specific groups bonded to nitrogen and is linked to silicon by a divalent hydrocarbon group containing at least one ether linkage. This invention further relates to derivatives of such tertiary amino-organosilicon compounds and, in particular, to amine oxides, salts and metal coordination com-

pounds derived from such tertiary amino-organosilicon compounds. The compounds have utility as emulsifying agents.

3,565,937 METHOD FOR PREPARING MERCAPTOALKYL ORGANOSILANES

Abe Berger, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Jan. 6, 1969, Ser. No. 789,418
Int. Cl. C07f 7/02, 7/22

U.S. Cl. 260—448.8 4 Claims
A method for preparing mercaptoalkyl organosilanes, having a range of substituents other than the mercaptoalkyl group, employing the addition of a silicon hydride group across the double bond of an olefinically unsaturated compound.

3,565,938 PROCESS FOR PREPARATION OF PERESTERS FROM ORGANO-PEROXYBORATES

Charles N. Winnick, Teaneck, N.J., assignor to Halcon International, Inc., a corporation of Delaware
No Drawing. Filed Dec. 12, 1967, Ser. No. 689,771
Int. Cl. C07c 69/00

U.S. Cl. 260—453 5 Claims
This invention relates to a process for the manufacture of peresters and more particularly to such a process wherein the peresters are prepared by reaction between an organo-peroxyborate and a carboxylic acid. In particularly preferred embodiments, this invention relates to processes for the manufacture of secondary and tertiary alkyl peresters and especially to the manufacture of tertiary alkyl peracetates, perbenzoates, perivalates and perisobutyrate such as for example t-butyl peracetate and perbenzoate.

3,565,939 PARTIAL NEUTRALIZATION OF SULFATES OF ETHOXYLATED ALCOHOLS

Arthur L. Beiser, Jackson Heights, N.Y., assignor to Standard Chemical Products, Inc., Hoboken, N.J., a corporation of New Jersey
No Drawing. Filed June 9, 1967, Ser. No. 644,798
Int. Cl. C07c 141/00, 141/02

U.S. Cl. 260—459 4 Claims
This invention relates to partially neutralized liquid sulfuric acid esters of ethoxylated alcohols having improved stability produced by the process which comprises the steps of (A) adding in gaseous form from about 10% to about 55% of the theoretical for neutralization of an anhydrous neutralizing agent selected from the group of ammonia and alkyl amines having 1-3 carbon atoms and being gaseous at a temperature of 35° C. to an anhydrous sulfuric acid ester of an ethoxylated alcohol selected from the group consisting of

- (1) compounds of the formula $R-CH_2-O-(CH_2-CH_2-O)_n-SO_3H$
- (2) compounds of the formula $R'-O-(CH_2-CH_2-O)_n-SO_3H$
- (3) compounds of the formula R_1-CH-R_2
 $O-(CH_2-CH_2-O)_n-SO_3H$

and (4) mixtures of the above;
wherein R represents a member selected from the group consisting of alkyl having from 5 to 19 carbon atoms, alkenyl having from 5 to 19 carbon atoms, and hydroxyalkyl having from 5 to 19 carbon atoms; R' represents alkylaryl having from 7 to 24 carbon atoms; R₁ and R₂ represent alkyl having from 1 to 18 carbon atoms and the total of the carbon atoms in R₁ and R₂ is from 5 to 19; and n represents an integer of from 2 to 17; at a

temperature below 125° C.; and (B) recovering said liquid sulfuric acid esters of ethoxylated alcohols having improved stability.

3,565,940 PROCESS FOR PREPARING ACETONITRILE

Patrick Michael Brown, Catonsville, and James Michael Maselli, Ellicott City, Md., assignors to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut
No Drawing. Filed Feb. 20, 1969, Ser. No. 801,143
Int. Cl. C07c 121/18

U.S. Cl. 260—465.3 5 Claims
A method of preparing acetonitrile by the catalytic ammoniation of ethylene and/or propylene by passing a mixture of ethylene and/or propylene and ammonia through a bed of a catalyst at a temperature of about 300-600° C. wherein the catalyst is a nitride of tungsten or iron.

3,565,941 PROCESS FOR THE SELECTIVE ALKYLATION OF POLYALKYLENE POLYAMINES

Clarence R. Dick, James Larry Potter, and William P. Coker, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed July 31, 1968, Ser. No. 748,950
Int. Cl. C07c 85/00, 85/02, 89/00

U.S. Cl. 260—465.5 6 Claims
In the process of alkylating a polyalkylene polyamine, it is found that by first reacting the polyamine with an acid the primary amino groups are effectively blocked from alkylation and therefore selective alkylation at the secondary amino groups is obtained in the reaction between an alkylating agent and the polyalkylene polyamine salt. The alkylated polyamines are useful as chemical intermediates, monomers, bases and flocculating agents.

3,565,942 DIALKYLAMINOALKYL ESTERS OF ADAMAN- TANECARBOXYLIC ACIDS

Carl Peter Krimmel, Wauconda, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 466,812, June 24, 1965. This application June 7, 1967, Ser. No. 644,099
Claims priority, application Great Britain, June 13, 1966, 26,187/66
Int. Cl. C07c 93/16

U.S. Cl. 260—468 6 Claims
The present dialkylaminoalkyl and related esters of adamantanecarboxylic acids possess anti-inflammatory activity and activity against a variety of organisms. Thus, they are anti-bacterial, anti-protozoal, anti-fungal, and anti-algal agents. The compounds are prepared by the reaction of an adamantanecarboxylic acid with an appropriate dialkylaminoalkyl halide or similar compounds.

3,565,943 1-INDANECARBOXYLIC ACIDS AND DERIVATIVES

Peter Frederick Juby, De Witt, Richard Anthony Partyka, Liverpool, and Thomas William Hudyma, De Witt, N.Y., assignors to Bristol-Myers Company, New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 795,726, Jan. 31, 1969. This application Sept. 17, 1969, Ser. No. 858,870
Int. Cl. C07c 63/44, 69/76

U.S. Cl. 260—469 13 Claims
5-cyclohexyl-1-indanecarboxylic acids are useful anti-inflammatory agents in the treatment of inflammatory

diseases in animals, including man. An example of a compound of the disclosure is 5-cyclohexyl-1-indancarboxylic acid.

3,565,944

PHARMACEUTICALLY ACTIVE DERIVATIVES OF ETHANOCTAHYDROPHENANTHRENE
Kyu Tai Lee and Joel G. Whitney, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Mar. 4, 1968, Ser. No. 709,908
Int. Cl. C07c 63/50, 65/14, 69/76

U.S. Cl. 260—473 8 Claims
This invention teaches that novel disubstituted and poly-substituted derivatives of 2,4'-ethanoctahydrophenanthrene are useful as antifertility agents when administered to animals.

3,565,945

PREPARATION OF ESTERS OF 2,6- AND 2,7-NAPHTHALENE DICARBOXYLIC ACID
Earl W. Malmberg, Wilmington, Del., and Richard P. Barbor, Malvern, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
Continuation-in-part of application Ser. No. 154,292, Nov. 22, 1961. This application June 24, 1966, Ser. No. 560,388
Int. Cl. C07c 69/76

U.S. Cl. 260—475 6 Claims
Esters of 2,6- and 2,7-naphthalene dicarboxylic acids are produced by (1) concentrating a mixture of 2,6- and 2,7-naphthalene isomers by fractional crystallization, (2) oxidizing the isomers to the corresponding diacids, (3) esterifying the mixed acids, and (4) separating the isomeric esters by crystallization.

3,565,946

POLYMERIC MATERIALS AND THE PREPARATION THEREOF
I-Ming Feng, Westfield, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Original application Feb. 21, 1963, Ser. No. 260,305, now Patent No. 3,278,433, dated Oct. 11, 1966. Divided and this application Feb. 28, 1966, Ser. No. 530,396
Int. Cl. C07c 9/66, 149/20

U.S. Cl. 260—481 14 Claims
Polymeric materials useful in lubricating oil compositions as antiwear and extreme pressure additives are prepared by reacting a compound (1) having the formula:



wherein X and Y are each selected from the group consisting of sulfur and oxygen, and R is selected from the group consisting of alkylene, arylene, cycloalkylene, and carboxylic acid ester derivatives thereof, said R containing between about 2 and about 60 carbon atoms, with a halogenated polymer (2), prepared by reacting oil soluble polymer (3) having a Staudinger molecular weight of between about 100 and about 500,000 and selected from the group consisting of polymers of mono-olefins, polymers of diolefins, polymers of ethylenically unsaturated monocarboxylic acid esters, polymers of esters of alpha, beta unsaturated carboxylic acids, copolymers of mono-olefins with the aforementioned unsaturated esters, polymers of vinyl ethers, and polymers of vinyl esters, with a halogenating agent (4), the reaction of (1) with (2) being carried out at a temperature of between about 25° C. and about 250° C. and the mole ratio of said reactants (1) and (2) being between about 0.1:1.0 and about 1.4:1.0.

3,565,947
TERPOLYMER POUR POINT DEPRESSANT
Stephan Illycky, Islington, Ontario, Canada, assignor to Esso Research and Engineering Company, a corporation of Delaware
Application Mar. 11, 1966, Ser. No. 542,981, now Patent No. 3,341,309, which is a continuation-in-part of application Ser. No. 297,036, July 23, 1963. Divided and this application Apr. 21, 1967, Ser. No. 634,421
Int. Cl. C07c 69/60

U.S. Cl. 260—485 5 Claims
A terpolymer of 30–85 wt. percent ethylene, 10–40 wt. percent of an olefinically unsaturated C₃ to C₅ ester, and 5–30 wt. percent of an ester of ethylenedicarboxylic acid and a C₁ to C₂₄ monohydric alcohol having a 1000 to 4000 molecular weight is useful as a pour depressant for distillate fuels. The terpolymer can be prepared by polymerizing the monomers at 500 to 1500 p.s.i. at 250° to 350° F. for 3 to 24 hours using a peroxide catalyst.

3,565,948

2-KETO-6β-HALO-7α-HYDROXY-A-NORANDROSTENES
Patrick A. Diassi, Westfield, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 736,029, June 11, 1968, which is a continuation-in-part of application Ser. No. 370,355, May 26, 1964. This application Mar. 4, 1970, Ser. No. 16,555
Int. Cl. C07c 69/14, 69/52, 69/74

U.S. Cl. 260—488 8 Claims
2-keto-6β-halo-7α-hydroxy-A-norandrostenes are prepared from the corresponding 6α,7α-oxido compounds by treating the latter with a hydrogen halide. The compounds are useful as intermediates in the preparation of 2-keto-6-halo-Δ⁶-androstenes.

3,565,949

DIAMINOALKANEDIYLDENETETRAPHOSPHONIC ACIDS USEFUL IN CLEANING COMPOSITIONS
Richard Williamson Cummins, Cranbury, N.J., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Aug. 15, 1967, Ser. No. 660,579
Int. Cl. C07f 9/38; C11d 3/36

U.S. Cl. 260—502.5 3 Claims
Cleansing compositions are described containing a synthetic organic detergent and as a builder therefor a diaminoalkanediyldenetetraphosphonic acid.

3,565,950

METHOD OF PURIFYING CRYSTALS OF L-GLUTAMIC ACID
Kenkichi Ito, Kanagawa-ken, Naomasa Mizoguchi, Tokyo, and Miyoji Dazai, Kotaro Fujiwara, and Yoshiki Sakata, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan
No Drawing. Filed Oct. 25, 1966, Ser. No. 589,194
Claims priority, application Japan, Oct. 26, 1965, 40/65,638
Int. Cl. C07c 99/12

U.S. Cl. 260—527 3 Claims
If L-glutamic acid crystals, of which at least 40% are in the alpha form, are heated to a temperature of 50° C. or higher in a medium mainly consisting of water insufficient to dissolve the crystals entirely and at least 30% of the initially present α-form is converted to the β-form, the resulting crystals are rod-shaped, easy to filter and to wash free from mother liquor. The crystals may be entirely converted to the rod-shaped β-type.

3,565,951
RECOVERY OF LYSINE FROM FERMENTATIVE BROTHS

Moriyoshi Ishida, Kanagawa-ken, Yoshihisa Sugita, Tokyo, and Terutsugu Hori and Kunimitsu Sato, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan
No Drawing. Filed Mar. 20, 1967, Ser. No. 624,164
Claims priority, application Japan, Mar. 23, 1966, 41/17,829
Int. Cl. C07c 99/12

U.S. Cl. 260—527 5 Claims
Pure lysine is recovered in the form of its monohydrochloride from fermentation broths also containing neutral amino acids and inorganic cations by passing the broth at about pH 2.0 over a strongly acidic cation exchange resin of the NH₄⁺ type, eluting the lysine with ammonium hydroxide solution, and crystallizing the lysine as an acid salt from the partly evaporated and acidified eluate. The resin is regenerated by the eluent and ready to return to the process after elution.

3,565,952

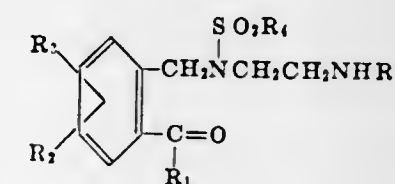
4-CHLORO-3-NITRO-5-SULFAMYL SALICYLIC ACID - (2',6'-DIMETHYL)-ANILIDE AND ITS SALTS
Walter Liebenow, Hamburg, Germany, assignor to Beiersdorf AG, a corporation of Germany
No Drawing. Filed Sept. 6, 1968, Ser. No. 758,098
Int. Cl. C07c 143/78

U.S. Cl. 260—556 4 Claims
The invention relates to the novel compound 4-chloro-3-nitro-5-sulfamyl salicylic acid - (2',6'-dimethyl)-anilide and its salts, which have favorable diuretic activity and have been found to be free from undesired side effects, are of good tolerance and distinguished from known compounds of this type by increased diuretic effects.

3,565,953

INTERMEDIATES TO HEXAHYDRO-2,5-BENZODIAZOCINES
Dong H. Kim, Wayne, Arthur A. Santilli, Havertown, Theodore S. Sulkowski, Montgomery, and Scott J. Childress, Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Original application Sept. 26, 1966, Ser. No. 581,750, now Patent No. 3,496,164, dated Feb. 17, 1970. Divided and this application Sept. 9, 1969, Ser. No. 856,473
Int. Cl. C07c 143/74, 143/78

U.S. Cl. 260—556 9 Claims
Compounds are described having the formula:



wherein R₁ is selected from the group consisting of phenyl, lower alkoxyphenyl, nitrophenyl, aminophenyl, halophenyl, halo(lower)alkylphenyl, thienyl and furyl; R₂ and R₃ are both selected from the group consisting of hydrogen, halogen, lower alkoxy, nitro, amino and halo(lower) alkyl; R₄ is selected from the group consisting of lower alkyl, phenyl, lower alkylphenyl, lower alkoxyphenyl and

halophenyl; R₅ is selected from the group consisting of hydrogen and lower alkanoyl and the acid addition salts thereof.

3,565,954

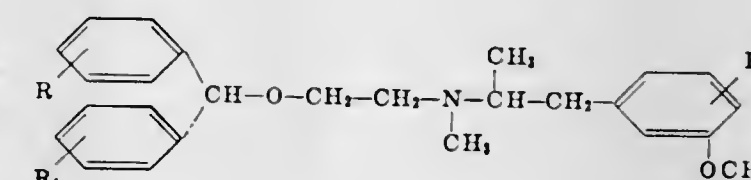
PROCESS FOR PREPARING PRIMARY AMINES
Albert Bouniot, Melle, France, assignor to Melle-Bezons, Melle, France
No Drawing. Filed Feb. 28, 1968, Ser. No. 708,756
Claims priority, application France, Mar. 8, 1967, 97,942, Patent 1,525,149
Int. Cl. C07c 85/00, 85/08

U.S. Cl. 260—563 17 Claims
The process for preparation of primary amines by reaction of a carbonyl compound with an auxiliary amine in the liquid phase to produce an imine which is then catalytically hydrogenated in the presence of ammonia to produce the primary amine in which the auxiliary amine may be regenerated as a by-product of the reaction for recycling to produce the imine and in which the operations can be carried out batchwise or in a continuous operation.

3,565,955

META-METHOXY-α-METHYL-PHENETHYL-AMINO-DIPHENYLMETHYL ETHERS
Gustav Ehrhart, Bad Soden, Taunus, Ernst Lindner, Frankfurt am Main, and Heinrich Ott, Eppstein, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Continuation-in-part of application Ser. No. 431,753, Jan. 11, 1965, which is a division of application Ser. No. 255,208, Jan. 31, 1963. This application Oct. 23, 1967, Ser. No. 677,469
Int. Cl. C07c 93/08

U.S. Cl. 260—570 6 Claims
Basically substituted diphenyl-methyl ethers of the formula



in which R and R₁ are hydrogen, chlorine, bromine, hydroxyl, alkyl of 1 to 3 carbon atoms, or alkoxy of 1 to 3 carbon atoms, and R₄ is hydrogen or methoxy having beneficial physiological activity in the treatment of heart and circulatory diseases.

3,565,956

AMINO-LOWER-ALKOXY-5-ALKYLIDENE-DIBENZO[a,d]CYCLOHEPTENES
John W. Schulenberg and Sydnor Archer, Bethlehem, N.Y., assignors to Sterling Drug Inc., New York, N.Y., a corporation of Delaware
No Drawing. Original application Oct. 16, 1964, Ser. No. 404,506, now Patent No. 3,350,405, dated Oct. 31, 1967. Divided and this application Apr. 24, 1967, Ser. No. 632,946
Int. Cl. C07c 93/06

U.S. Cl. 260—570.7 3 Claims
Dibenzo[a,d]cyclohepten-5-ones and 10,11-dihydro derivatives thereof substituted on one of the benzene rings by an amino-lower-alkoxy group are prepared by reacting the corresponding hydroxydibenzo[a,d]cyclohepten-

5-ones with an amino-lower-alkyl halide. The 5-carbonyl group is subsequently converted by reduction, Grignard and dehydration reactions to the groups CH_2 , $\text{CH}(\text{OH})$, $\text{C}(\text{lower-alkyl})(\text{OH})$, $\text{C}(\text{phenyl-lower-alkyl})(\text{OH})$, $\text{C}=(\text{lower-alkylidene})$, $\text{C}=(\text{phenyl-lower-alkylidene})$, $\text{CH}(\text{lower-alkyl})$ or $\text{CH}(\text{phenyl-lower-alkyl})$. The compounds are useful as antidepressant agents.

3,565,957 HYDROGENATION OF NITRILO- TRIACETONITRILE

Stanley B. Mirviss, Stamford, Conn., and Donald J. Martin, Irvington, and Edward D. Weil, Yonkers, N.Y., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Sept. 20, 1968, Ser. No. 761,290
Int. Cl. C07c 85/12

U.S. Cl. 260—583 5 Claims
Tris(2-aminoethyl)amine is produced by reacting nitrilotriacetone with hydrogen in the presence of a relatively large quantity of ammonia and as a catalyst Raney nickel, Raney cobalt or rhodium.

3,565,958 D-HOMOESTRA-1,3,5(10)-TRIENES AND 1,3,5(10)9(11)-TETRAENES

Marinus Los, 20 Lawnside Drive,
Trenton, N.J. 08638
No Drawing. Filed Feb. 27, 1968, Ser. No. 708,498
Int. Cl. C07c 49/76, 49/82

U.S. Cl. 260—586 8 Claims
This invention relates to novel steroid-like compounds, a method for synthesizing said compounds and to the use thereof as estrogenic agents in the treatment of laboratory and domestic animals.

3,565,959 PROCESS FOR OXIDIZING MERCAPTANS TO DISULFIDES

Sinji Takase, Yokohama-shi, Masao Nambu, Kawasaki-shi, Harumichi Watanabe, Zushi-shi, and Tomonori Shioiri, Kawasaki-shi, Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan
No Drawing. Filed May 24, 1968, Ser. No. 731,717
Int. Cl. B01j 11/22; C07c 149/12; C10g 27/04

U.S. Cl. 260—608 7 Claims
A process for oxidizing mercaptans having harmful properties and malodors to facilitate removal thereof by converting them into disulfides by oxidation thereof which comprises bringing mercaptans into contact with an oxidizing agent such as oxygen or oxygen-containing gases in the presence of a poly metalo-phthalocyanine compound obtained by reacting at least a metal salt of metals of iron, copper, cobalt, nickel, chromium, manganese, zinc, vanadium and molybdenum with pyromellitonitrile, or a mixture of urea and any one of pyromellitic anhydride, pyromellitic acid or pyromellitic acid imide.

3,565,960 PROCESS FOR THE PREPARATION OF FLUID PHENOXYBI-PHENYLS

Robert M. Schisla, Kirkwood, and Harold I. Weingarten, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 333,737, Dec. 26, 1963. This application Mar. 13, 1967, Ser. No. 622,479

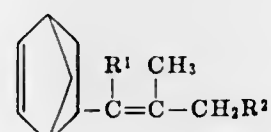
Int. Cl. C07c 43/22 7 Claims
A process for the preparation of a fluid phenoxybi-phenyl compound or phenoxybi-phenyl composition en-

riched in fluid phenoxybi-phenyl compounds comprising the steps of contacting a solid phenoxybi-phenyl compound or composition containing one or more solid phenoxybi-phenyl compounds with hydrogen chloride and a class of catalysts representative of which are aluminum trichloride, aluminum tribromide, gallium trichloride, stannic chloride and antimony pentachloride. A fluid phenoxybi-phenyl compound and compositions thereof have many uses, among which are use as hydraulic fluids and heat transfer fluids.

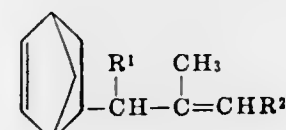
3,565,961 PROCESS FOR PRODUCING 5-(1'-ALKENYL)- 2-NORBORNENE

Tsuneyuki Nagase and Fujio Masuko, Takatsuki, Japan, assignors to Sumitomo Chemical Company, Ltd., Higashi-ku, Osaka, Japan, a corporation of Japan
No Drawing. Filed May 6, 1970, Ser. No. 35,247
Claims priority, application Japan, May 15, 1969, 44/37,827

Int. Cl. C07c 5/24 7 Claims
A 5-(1'-alkenyl)-2-norbornene, suitable as one of the components of an ethylene-propylene-diene terpolymer, having the formula,



wherein R^1 and R^2 each are hydrogen atoms or linear alkyl groups, is advantageously prepared by isomerizing in the presence of a catalyst a 5-(2'-alkenyl)-2-norbornene having the formula,



wherein R^1 and R^2 are same as above.

3,565,962 PRODUCTION OF A POLYCYCLIC DIENE

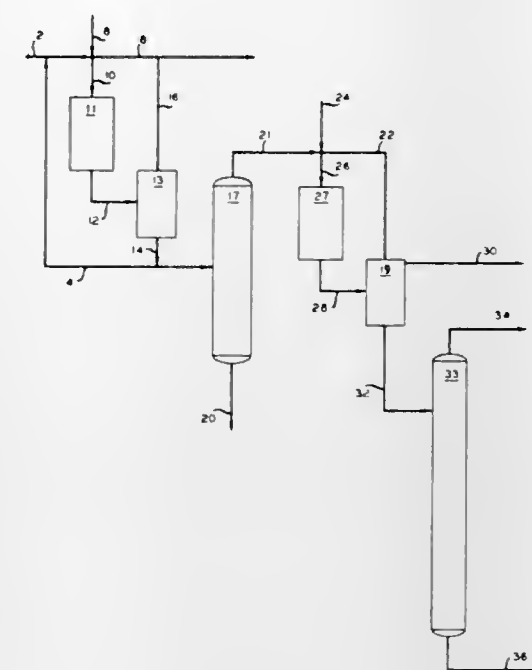
David Arthur Gregson Walmsley, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
Filed Oct. 27, 1969, Ser. No. 869,779
Claims priority, application Great Britain, Nov. 11, 1968, 53,340/68

Int. Cl. C07c 3/00 9 Claims
A process for the production of 6-methyl-1,4,5,8,9,10-hexahydro-1,4-methanonaphthalene by Diels-Alder reaction of norbornadiene and isoprene in which norbornadiene and isoprene are reacted in a molar proportion of greater than 4:3, and preferably not greater than 20:1, and unreacted norbornadiene, which may, if desired, be continuously recycled, and 6-methyl-1,4,5,8,9,10-hexahydro-1,4-methanonaphthalene are separately recovered from the mixture.

3,565,963 PROCESS FOR THE MANUFACTURE OF HIGH PURITY CYCLOPENTENE

Donald C. Tabler and Marvin M. Johnson, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Dec. 22, 1969, Ser. No. 887,286
Int. Cl. C07c 3/00

U.S. Cl. 260—666 3 Claims



A two-stage hydrogenation and separation process of a cyclopentadiene source for the manufacture of a substantially diolefin free, high purity cyclopentene suitable for polymerizing.

3,565,964 ALUMINO-SILICATE CATALYZED REACTIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN THE PRESENCE OF HYDROGEN

Ronald D. Bushick, Glen Mills, and Alfred E. Hirschler, Springfield, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Aug. 5, 1968, Ser. No. 749,932
Int. Cl. C07c 15/28, 15/29

U.S. Cl. 260—668 12 Claims
Polycyclic aromatic hydrocarbons can be converted to other polycyclic hydrocarbons by a catalytic conversion process comprising contacting the hydrocarbon with an acidic aluminosilicate zeolite in the presence of from 5–5000 p.s.i. of hydrogen at an elevated temperature (e.g., at least 40° C.) for a period of time sufficient to allow the catalytic conversion to occur. For example, sym-octahydrophenanthrene (s-OHP) can be converted to sym-octahydroanthracene by so contacting the s-OHP with a GdHY zeolite at 80–120° C. in the presence of 15–250 p.s.i.g. of hydrogen at a weight hourly space velocity in the range of 0.1–20 (preferably 0.25–10).

3,565,965 PROCESS FOR THE SEPARATION OF AROMATIC ISOMERS

David G. Walker, Baytown, Tex., and Robert B. Long, Atlantic Highlands, N.J.; said Long assignor to Esso Research and Engineering Company, a corporation of Delaware
Continuation-in-part of application Ser. No. 541,244, Apr. 8, 1966. This application Nov. 26, 1968, Ser. No. 805,919

Int. Cl. C07c 7/10 15 Claims
A solvent extraction process for separating components of a feedstream comprising isomeric C_8 – C_{20} alkyl benzene

and naphthalene or mixtures thereof in which the feedstream is contacted with a ternary compound, said ternary compound comprising $\text{R}:\text{HX}:\text{2AlX}_3$, wherein R is selected from the group consisting of C_8 – C_{20} alkyl benzenes and naphthalenes and is at least as basic as the material to be separated, and X is selected from the group consisting of chlorine and bromine, in the presence of a hydrogen halide.

3,565,966 PREPARATION OF DIALLYL COMPOUNDS

Bernard Delarue, Venissieux, France, assignor to Rhone-Poulenc S.A., Paris, France, a French body corporate
No Drawing. Filed Apr. 22, 1969, Ser. No. 818,442
Claims priority, application France, Apr. 23, 1968, 149,108

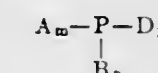
Int. Cl. C07c 1/26, 11/12 9 Claims

U.S. Cl. 260—680 9 Claims
Diallyl and alkyl-substituted diallyls are prepared by reacting allyl chlorides with zinc in the presence of a hexa-alkylphosphotriamide.

3,565,967 PROCESS FOR MANUFACTURING 1,4-DIENES OF HIGH TRANS/CIS RATIO

John Wilfred Collette and Aaron Chung Liong Su, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed June 9, 1969, Ser. No. 831,767
Int. Cl. C07c 11/12 8 Claims

U.S. Cl. 260—680 8 Claims
1,4-dienes of trans/cis-isomer ratio of at least 4:1 are made by contacting ethylene with a 1,3-diene in the presence of a zerovalent or divalent nickel compound, soluble in organic liquids, an organoaluminum chloride or bromide, and a tertiary phosphine having the formula



where A is the naphthyl radical; B is an alkyl radical having 1–6 carbon atoms or allyl; D is the phenyl or a substituted phenyl radical having one or more specific substituents; m, n and p are integers whose sum $m+n+p=3$; p is at least 1; m is at most 1, and each of m and n individually can be 0. The reaction can be run at either atmospheric or superatmospheric pressures in a batchwise or continuous process.

3,565,968 CRACKING AND RECOVERY OF HYDROCARBONS

Harold N. Hicks, Jr., Huntington, W. Va., assignor to Ashland Oil & Refining Company, Houston, Tex., a corporation of Kentucky
Filed July 31, 1967, Ser. No. 657,342
Int. Cl. C07c 3/30 37 Claims

U.S. Cl. 260—683 37 Claims
This application discloses methods and apparatus for cracking hydrocarbon feedstocks, in which a solid carbonaceous fuel is burned within a cracking zone to supply the temperature and the heat required for the endothermic cracking reaction. A reactor is also disclosed which has in it an eductor tube that is of reduced cross-section.

method may include the steps of forming a metal master from the second or third generation replica and stamping a plurality of similar replicas using the metal master.

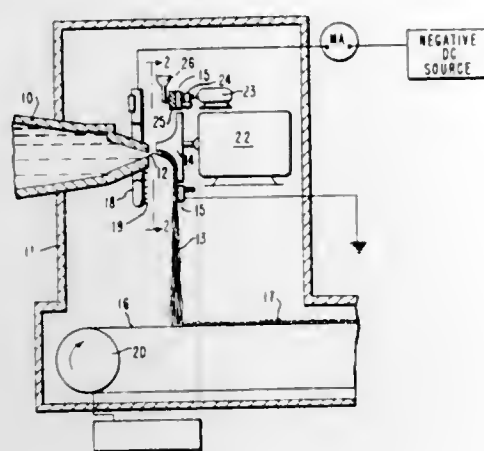
3,565,979

FLASH SPINNING

Louis C. Palmer, Richmond, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Sept. 18, 1968, Ser. No. 760,534

Int. Cl. B29d 7/02; D01d 1/10; D01f 7/00
U.S. Cl. 264—24 7 Claims



Polymeric flash-spun strands are electrostatically charged by passage between an ion gun and target plate, then collected on an oppositely charged or grounded surface. Loss of electrostatic charging of the strands, due to polymer build-up on the target plate, is prevented by maintaining a conductive substance on the plate surface. The conductive substance can be applied continuously by wiping a liquid comprising it onto the surface as the plate rotates.

3,565,980

SLIP CASTING AQUEOUS SLURRIES OF HIGH MELTING POINT PITCH AND CARBONIZING TO FORM CARBON ARTICLES

Sugio Otani, Kiryu-shi, Japan, assignor to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan, a corporation of Japan

No Drawing, Filed Jan. 27, 1969, Ser. No. 794,361

Claims priority, application Japan, Jan. 31, 1968, 43/5,371

Int. Cl. C01b 33/28, 35/52

U.S. Cl. 264—29 4 Claims
Aqueous ball milled slurries having solids contents of 5–50% by weight containing water, pitch having a softening point above 170° C., and 50 to 80% by weight ethyl alcohol, based on the weight of pitch, are slip cast in porous gypsum plaster molds of the desired shape. The cast articles are then dried and carbonized. When the softening point of the pitch is below 300° C. the method includes a further step of heating the dried article in an oxidizing atmosphere to 260–300° C. at a heating rate of 0.2–3° C./min. prior to the carbonization step. A further step of graphitizing is also disclosed.

3,565,981

PROCESS FOR PREPARING A COMPOSITE MOISTURE-PERMEABLE SHEET MATERIAL

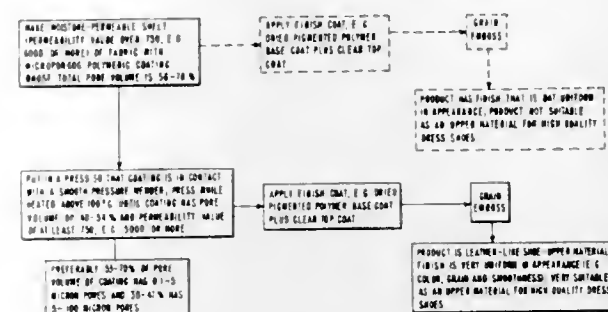
Michael R. Lauro, Madison, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed May 9, 1967, Ser. No. 637,080

Int. Cl. B29d 3/02, 27/04

U.S. Cl. 264—45 4 Claims
A leather-like shoe-upper material useful for the manufacture of high quality dress shoes is prepared by first

making a moisture-permeable sheet material having a layer of microporous polymeric composition in superposed adherence with a fibrous substrate such as a single or multiple layer fabric, said layer of composition having a pore structure which makes it impossible to obtain a uniform-appearing finish under practical manufacturing conditions when one of more finish coats is applied and the coated



surface is grain-embossed; then the sheet material is subjected to heat and pressure under carefully regulated conditions until the pore structure of said layer of composition is modified and consolidated to such an extent that the surface can be finish-coated and grain-embossed to provide a product having not only satisfactory breathability but also outstanding uniformity in such critical appearance properties as color, grain pattern and smoothness.

3,565,982

PROCESS OF MAKING MICROPOROUS SHEETS

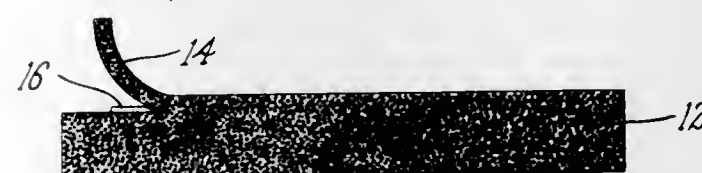
John T. Day, Manchester, Mass., assignor to USM Corporation, Flemington, N.J., and Boston, Mass., a corporation of New Jersey

Filed May 17, 1968, Ser. No. 729,890

Int. Cl. B29d 27/04

U.S. Cl. 264—53 5 Claims

Slicing thick solidified body with liquid droplets in place.



A thin, microporous sheet having excellent structural uniformity and permeability is formed by casting and solidifying a thick body of a liquid emulsion of which the continuous phase is based on liquid polymeric material reactive to form a flexible, resilient solid and the discontinuous phase is fine droplets of a volatile liquid immiscible and nonreactive with the continuous phase. The solidified body is sliced into sheets of the desired thickness while the liquid droplets are retained in the solidified material and thereafter the liquid is removed from the sheets leaving pores and discontinuities in the solidified material.

3,565,983

PROCESS FOR THE CONTINUOUS PRODUCTION OF TUBULAR TEXTILE CONTAINERS INTENDED IN PARTICULAR FOR USE IN LEAD-ACID STORAGE BATTERIES

Ludwig Eigenmann, Vacallo-Canton Ticino, Switzerland

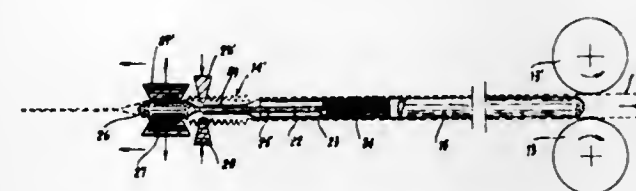
Filed Oct. 25, 1967, Ser. No. 677,919

Int. Cl. B29d 23/00; B29g 5/00

U.S. Cl. 264—137 8 Claims

Method for continuously forming plastic impregnated fabric tubing for use in forming lead-acid storage batteries wherein two superposed layers of fabric joined at

spaced apart lines is positioned on expandable shaping elements, then impregnated with a hardening material and then shaped by expansion of the shaping elements which are held in their expanded conditions until the hardening



material sets. Thereafter the shaping elements are contracted and the resultant fabric is advanced relative to the shaping elements to dispose another portion of that fabric on the shaping elements; and thereafter the method is repeated with the apparatus necessary therefor.

3,565,984

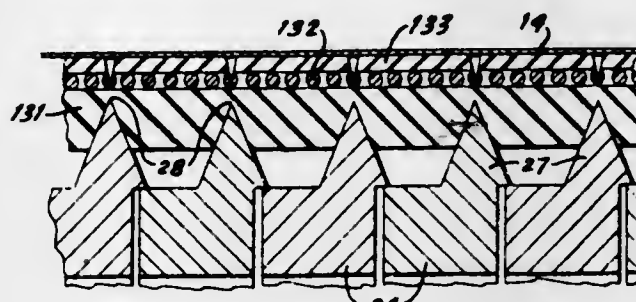
METHOD OF MAKING RUBBER ARTICLES

Herman C. Sauer, Ambler, Pa., assignor to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey

Original application Dec. 17, 1964, Ser. No. 419,092, now Patent No. 3,477,895, dated Nov. 11, 1969. Divided and this application May 9, 1969, Ser. No. 842,753

Int. Cl. B29c 15/60; B29d 29/02; B29h 7/22

U.S. Cl. 264—160 3 Claims



Method directed to the formation of endless belts from a layered slab of moldable rubber material. The slab is pressed against a ribbed drum with tension. By cutting through the tension layer, increasing the axial distance between the drum ribs while rotating the drum and applying pressure individual belts are formed. Movement of the ribs allows the initial cutting of the tension member and the later cutting of the rest of the slab to be done without distortion of the tension cord.

3,565,985

METHOD OF PREPARING MULTILAYER PLASTIC ARTICLES

Walter J. Schrenk, Bay City, and Douglas S. Chisholm, Kenneth J. Cleereman, and Turner Alfrey, Jr., Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

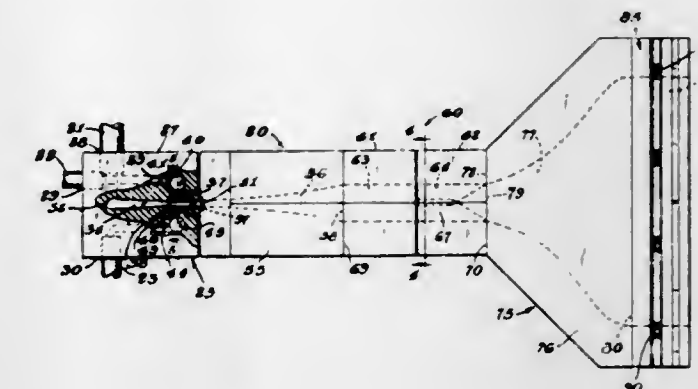
Application Mar. 29, 1965, Ser. No. 445,851, which is a continuation-in-part of application Ser. No. 431,336, Feb. 9, 1965. Divided and this application Apr. 10, 1969, Ser. No. 835,839

Int. Cl. B29d 23/04; B29f 3/00

U.S. Cl. 264—171 9 Claims

Multiple layer films are made by arranging a minimum of two streams into one stream having a plurality of generally parallel layers. By mechanically manipulating the layered stream, an increased number of layers are obtained

and the manipulating stream is shaped into a desired configuration having a plurality of layers generally adjacent



to a major surface thereof. Under certain conditions, iridescent products are obtained without the use of pigment.

3,565,986

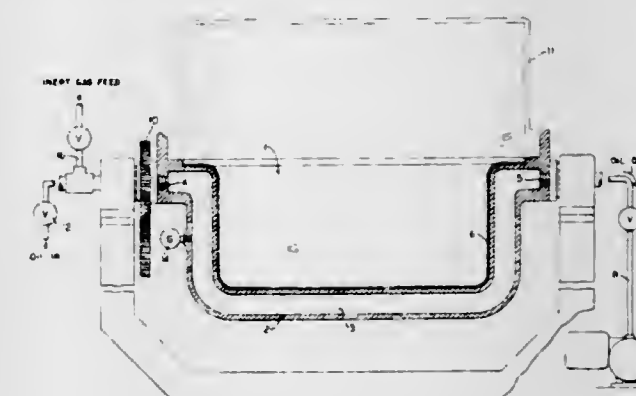
METHOD OF HEATING ELECTROFORM MOLDS

Russell D. Byall, Stow, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Filed Apr. 3, 1967, Ser. No. 628,107

Int. Cl. B29c 1/00

U.S. Cl. 264—302 2 Claims



This invention relates to a method of heating molds for use in molding thermoplastic material whereby the heating and cooling cycles of the mold are such that the small microscopic cracks or holes in the electroform molds do not leak oil into the molding cavity to thereby mar, discolor and ruin the molded article. More specifically, this method of molding feeds the heating medium or oil to the mold at a pressure of at least atmospheric or higher and removes the oil from the other side of the mold at a pressure less than atmospheric to obtain throughout the mold on the heating medium side a pressure less than atmospheric.

3,565,987

IMMUNOCHEMICAL DETERMINATIONS OF ANTIGENS AND ANTIBODIES

Antonius Hermanus Wilhelmus Maria Schuurs, Oss, Netherlands, assignor to Organon Inc., West Orange, N.J., a corporation of New Jersey

No Drawing, Filed Oct. 20, 1967, Ser. No. 676,726

Claims priority, application Netherlands, Nov. 8, 1966, 6615722; June 16, 1967, 6708461

Int. Cl. G01n 31/06

U.S. Cl. 424—12 8 Claims

A novel method for the immunochemical determination of antigens or antibodies in a liquid sample in which they

are present in low concentration or are attended with disturbing factors, comprising the steps of adsorbing one of the immunochemical reaction components on a carrier, reacting said component with the liquid to be tested, containing the other reaction component to be determined or, in case of an agglutination inhibition reaction, reacting said component with a solution of the other component and the test liquid, separating the carrier from the reaction mixture, suspending the carrier in a suitable liquid medium, and reading the sedimentation pattern of the carrier.

ERRATUM

For Class 424—37 see:
Patent No. 3,565,559

3,565,988

ANTIBIOTIC

Hamao Umezawa, 23 4-chome, Toyotama Kita,
Nerima-ku, Tokyo, Japan

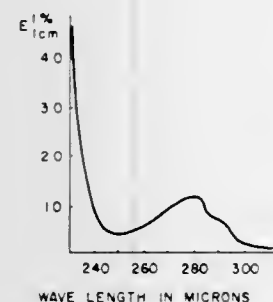
Filed May 8, 1968, Ser. No. 727,647

Int. Cl. A61k 21/00

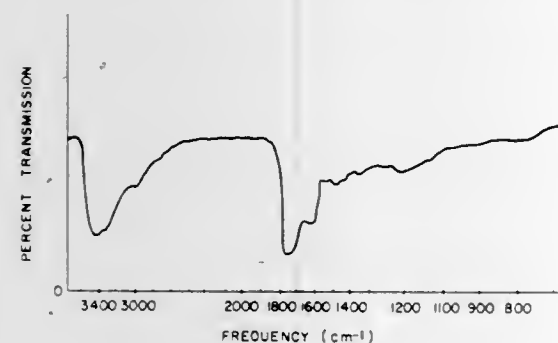
U.S. Cl. 424—117

5 Claims

ULTRAVIOLET ABSORPTION SPECTRUM OF PHENOMYCIN



INFRARED ABSORPTION SPECTRUM OF PHENOMYCIN



Phenomycin inhibits the growth of Ehrlich ascites tumor and Sarcoma 180. The antibiotic phenomycin is produced by fermentation of a new variety of *Streptomyces fervens* which has been designated *Streptomyces fervens* var. *phenomyceticus*.

3,565,989

METHOD FOR PREVENTING FLACHERIE-LIKE DISEASE OF SILKWORMS

Reijiro Kodama, Takezi Hasegawa, and Katsumi Morishima, Toyonaka, and Yoshiharu Tsubota, Kobe, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Continuation-in-part of application Ser. No. 344,823, Feb. 14, 1964. This application Mar. 6, 1967, Ser. No. 620,637

Claims priority, application Japan, Feb. 15, 1963, 38/7,914

Int. Cl. A61k 21/00

U.S. Cl. 424—181

5 Claims

The inhibitory action of certain antibiotics such as dihydrostreptomycin, zygomycin A₁, neomycin B, kanamycin, leucomycin, erythromycin, pikromycin, spiramycin, etc. and of certain compounds such as hinokitiol, nitrofurazone, furazolidone, nitrofurylacrylic acid amide, 2-(2-furyl)-3-(5-nitro-2-furyl)acrylamide, etc. against alkalophilic acid-producing bacteria, more especially against e.g. *Streptococcus faecalis*, *Aerobacter aerogenes* and *Serratia piscatorum*, renders these antibiotics and/or chemical compounds effective active ingredients of compositions useful in preventing flacherie-like disease in silkworms.

3,565,990

BLOOD PRESSURE LOWERING SUBSTANCE

Alfred Groebel, Bad Soden, Taunus, and Ernst Lindner, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

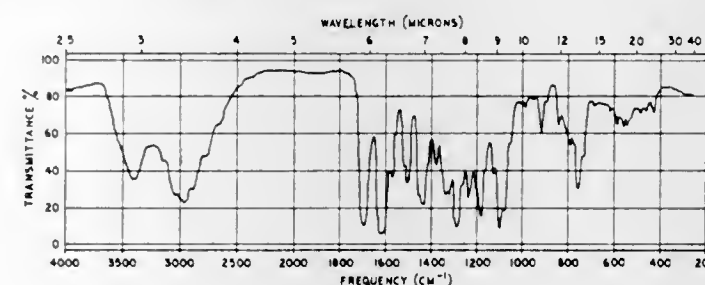
Filed Feb. 13, 1968, Ser. No. 705,182

Claims priority, application Germany, Feb. 16, 1967, F 51,540

Int. Cl. A61k 27/14

U.S. Cl. 424—195

2 Claims



A pharmacologically active substance having blood pressure lowering activity, isolated from *Cabucala madagascariensis* and a process for isolating said substance from the plant material by alcohol extraction.

3,565,991

METHODS FOR USE AND COMPOSITIONS OF 17-ETHYL-19-NORTESTOSTERONE AND CARRIERS FOR THE SUSTAINED RELEASE OF STEROIDS

George E. Short, Arlington Heights, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed Apr. 22, 1968, Ser. No. 723,284

Int. Cl. A61k 17/06, 27/12

U.S. Cl. 424—243

3 Claims

A method of controlling ovulation and estrus in bovines by the parenteral administration of 17-ethyl-19-nortestosterone. Compositions containing 17-ethyl-19-nortestosterone for parenteral administration. Carriers for the sustained release of steroids comprising the steroid dispersed in a copolymer of a monoester of an olefinic acid and a diester of an olefinic acid.

ERRATUM

For Class 424—285 see:
Patent No. 3,565,560

3,565,993

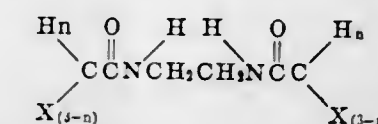
INSECT CHEMOSTERILANT METHOD—ACETAMIDES

Philip C. Hamm, Glendale, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed May 19, 1967, Ser. No. 639,657
Int. Cl. A01n 9/20

U.S. Cl. 424—320

8 Claims

Compounds of the following formula are insect chemosterilants:



wherein X is a halogen and n is an integer from zero to two inclusive.

3,565,992

HALOGENATED IMIDAZOLE AND IMIDAZOLE SALTS USED FOR CONTROLLING INSECT AND HELMINTH PARASITES

Lisby L. Wade, Lake Jackson, and James F. Landram, Angleton, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Mar. 8, 1968, Ser. No. 711,479
Int. Cl. A61k 27/00

U.S. Cl. 424—267

8 Claims

Disclosed are, halogenated imidazole compounds and salts thereof, compositions incorporating such compounds and salts, and methods utilizing such compounds, salts and compositions for parasite control, especially those which parasitize animals.

ELECTRICAL

3,565,994

ELECTRODE SLAG MELTING METHOD

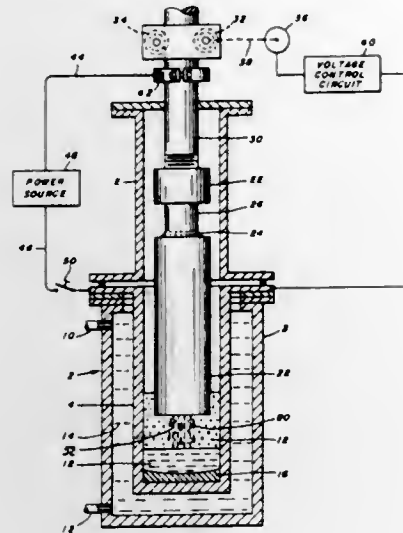
Harold S. Jackson, Troy, N.Y. assignor to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed Aug. 27, 1969, Ser. No. 854,361

Int. Cl. F27d 11/10

U.S. Cl. 13-34

7 Claims



The method of melting a consumable electrode in a consumable electrode furnace wherein the end of the electrode being melted is immersed in a slag layer covering the molten metal and ingot being formed by the solidification of the molten metal, and an electrical current is maintained through the electrode and slag to the conductive mold, increasing the rate of melting by periodically moving the electrode in the direction of the axis of the electrode without withdrawing the electrode from the slag layer nor touching the ingot with the electrode.

3,565,995

ELECTRONIC ORGAN EMPLOYING AUTOMATIC COUPLING OF SOLO AND ACCOMPANIMENT NOTES

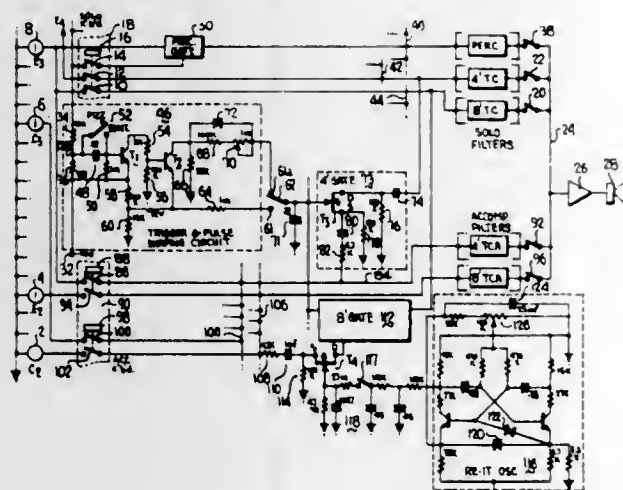
David A. Bunge, Cincinnati, Ohio, assignor to D. H. Baldwin Company, Cincinnati, Ohio

Filed Oct. 17, 1968, Ser. No. 768,321

Int. Cl. G10h 1/00

U.S. Cl. 84-1.17

21 Claims



An array of tone signal sources is controlled by solo keys and by accompaniment keys for transfer respectively to solo tone-color filters and accompaniment filters, and thence to a loud speaker, in the manner usual in electronic organs. Tones

collected in response to actuation of accompaniment keys are also applied to the input of a normally inhibited gate having its output connected to solo filters. Actuation of any one or more of the solo keys uninhibits the gate, selectively either transiently or for the duration of the actuation, by generating appropriate gate control pulses.

A second normally inhibited gate is paralleled to the first gate, and similarly controlled, but its input circuit is a further gate which is supplied with reiteration voltage.

3,565,996

PLURAL KEYBOARD ELECTRONIC MUSICAL INSTRUMENT WITH BALANCER AND REVERBERATION ARRANGEMENT

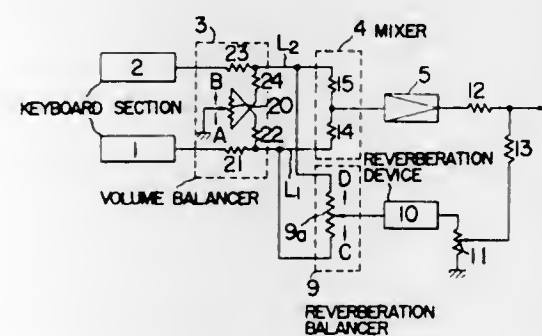
Sholchi Suzuki, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-cho, Hamamatsu-shi, Shizuoka-ken, Japan

Filed July 14, 1969, Ser. No. 841,250

Int. Cl. G10h 1/02

U.S. Cl. 84-1.17

10 Claims



In an electronic musical instrument including two keyboard sections, signals from each section are supplied to a first balancer circuit which controls the proportion of signal intensities which appear at two lines each corresponding to each of the sections, then the signals of the two lines are on the one hand mixed directly and on the other hand fed to a second balancer circuit which mixing the two signals further controls the mixing proportion and in turn fed to a reverberation device, and the directly mixed signal and the output signal from the reverberation device are mixed and supplied to the following stage of the circuit.

3,565,997

AUTOMATIC TRILL-PRODUCING DEVICE FOR ELECTRONIC MUSICAL INSTRUMENTS

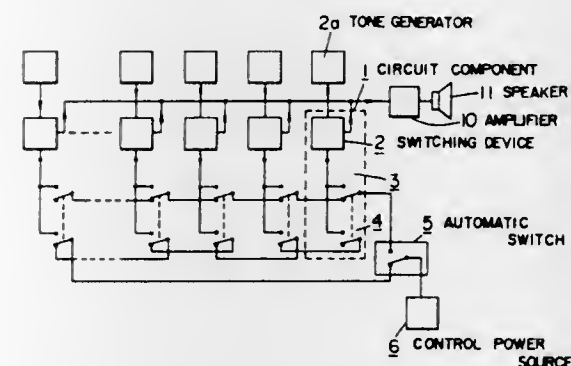
Akira Nakada, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-cho, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Oct. 21, 1969, Ser. No. 868,021

Int. Cl. G10h 1/02

U.S. Cl. 84-1.24

3 Claims



An automatic trill-producing device for electronic musical instruments having keyboards is composed of a plurality of

FEBRUARY 23, 1971

ELECTRICAL

1651

switching circuits (or tone generators), a first group and a second group of changeover switches, make-contacts of said first and second groups of changeover switches being connected to said switching circuits (or tone generators) respectively, the break-contacts and moving contact of said first group of changeover switches being connected in a "high note priority" arrangement, the break contacts and moving contact of said second group changeover switches being connected in a "low note priority" arrangement, an automatic changeover switch connected to a control power source (or an amplifier and a speaker combination), one switch position of said automatic changeover switch being connected to the moving contact of the highest note changeover switch belonging to the first group, and another switch position of said automatic changeover switch being connected to the moving contact of the lowest note changeover switch belonging to the second group.

3,565,998

BANJO SIMULATION SYSTEM

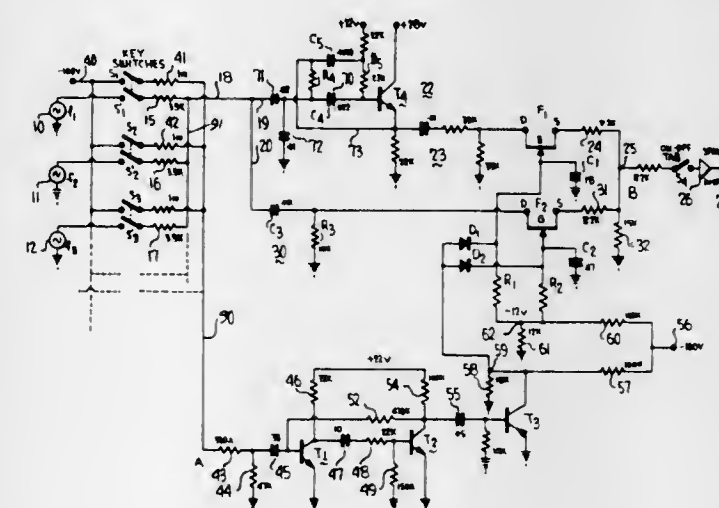
David A. Bunge, Cincinnati, Ohio, assignor to D. H. Baldwin Company, Cincinnati, Ohio

Filed Oct. 16, 1968, Ser. No. 768,069

Int. Cl. G10h 1/02

U.S. Cl. 84-1.26

15 Claims



An array of tone signal sources is connectable to a common collector via key switches. The common collector leads to parallel percussive gating paths, normally nonconductive, which are turned on simultaneously in response to depression of any key regardless of the condition of other keys, and which become nonconductive gradually at diverse rates following the depression whether or not the key is released.

3,565,999

SELF-BIASING PERCUSSION SYSTEM FOR AN ELECTRONIC ORGAN

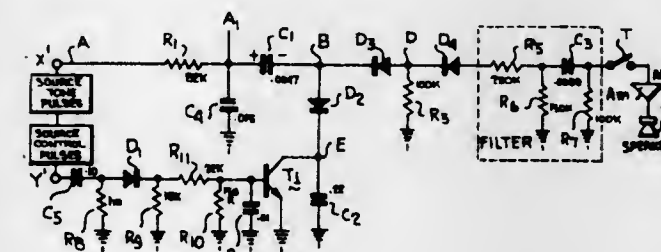
David A. Bunge, Cincinnati, Ohio, assignor to D. H. Baldwin Company, Cincinnati, Ohio

Filed Dec. 9, 1968, Ser. No. 782,367

Int. Cl. G10h 1/02

U.S. Cl. 84-1.26

12 Claims



A self-biasing percussive gate for an electronic organ including a relatively small capacitor C_1 in series with a continuously connected tone signal source which provides posi-

tive signal pulse trains of selective frequencies, in response to playing of the organ, the small capacitor C_1 being connected in a shunt path to ground which contains a first diode and a large capacitor C_2 , the first diode being poled to conduct in response to positive signal. The anode of the first diode is connected to the cathode of a gating diode, the anode of which is connected to a load circuit. A timing circuit is provided between the source and the small capacitor to smooth and control voltage changes during each pulse. Means are provided for momentarily short circuiting the large capacitor, as each tone is called for by the player, an action which initiates the percussive tones. Each tone persists for a time which is inversely proportional to the frequency of that tone signal, and has a progressive modification of tone color in proceeding from its initial to its final points. Tone color is also a function of frequency.

3,566,000

GROUNDING ROD

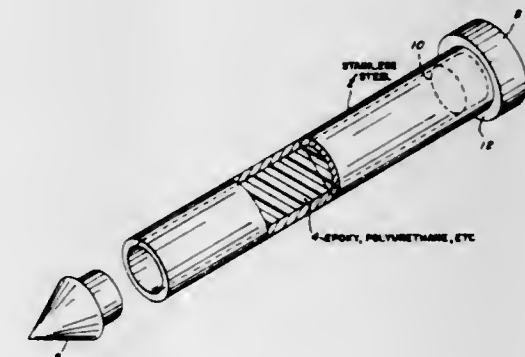
Jack R. Maurer, Natrona Heights, Pa.; Frank J. Haynes, Chesire, and Harrison Stevens, Wallingford, Conn., assignors to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed June 20, 1969, Ser. No. 835,050

Int. Cl. H01r 3/06

U.S. Cl. 174-7

11 Claims



Described herein is a grounding rod and method of using it. The grounding rod comprises a rigidized thin-walled tube of a corrosion-resistant steel and a core of a plastic-type filler within the tube, the core being sufficiently rigid to provide structural support to the thin-walled tube yet resilient enough to allow some bending of the rod to circumvent obstructions encountered in driving the rod into the ground. The plastic filler is a material substantially nonreactive with the tube or the earth environment of the rod's location. The rod is pointed on one end to facilitate driving into the ground and has an anvil on the other end to distribute forces and minimize distortion while the rod is driven into the ground.

3,566,001

GAS-FILLED BUSHING WITH SPRING BIAS CLAMPING AND INTERNAL FLEXIBLE SHUNT

James R. McCloud, Burbank, Calif., assignor to I-F-E Imperial Corporation, Philadelphia, Pa.

Filed Aug. 25, 1969, Ser. No. 852,534

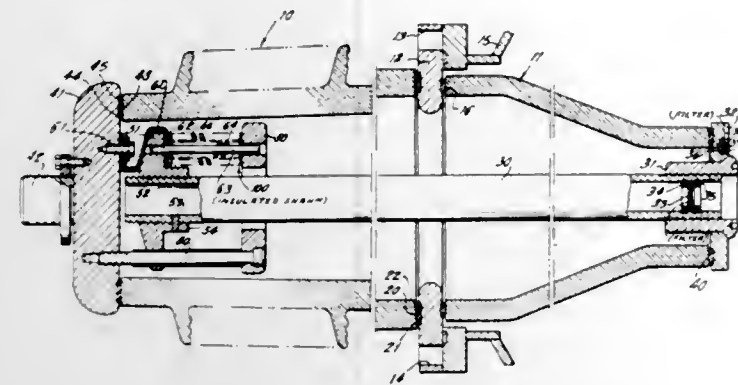
Int. Cl. H01b 17/26

U.S. Cl. 174-31

4 Claims

A hollow insulation column has a central conductor extending therethrough, and the insulation column is filled with a high-pressure gas, such as sulfur hexafluoride, under greater than atmospheric pressure in order to provide insulation between the central conductor and a centrally disposed mounting flange in the bushing. One end of the central conductor is connected to an end conductive plate of the bushing through flexible shunts in order to permit dimensional changes between the central conductor and the insulation bushing, due to temperature changes. The insulator is held clamped together by a spring biasing arrangement connected to the upper end of the bushing between a flange mounted on

the upper end of the conductive member within the bushing and a plate which is fastened directly to the upper conductive



head of the bushing. There are only two seals to the external atmosphere.

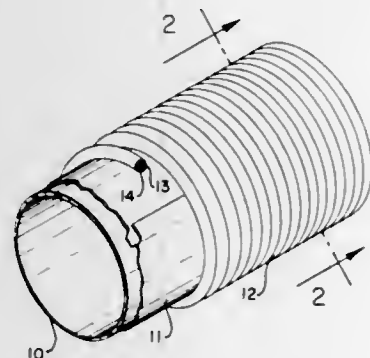
3,566,002

FLEXIBLE TUBING STRUCTURE

Kenard D. Brown, 1227 S. Willow St., Casper, Wyo. 82601
Continuation-in-part of application Ser. No. 444,563, Apr. 11, 1965, now abandoned. This application Apr. 12, 1968, Ser. No. 720,814
Int. Cl. F16l 11/12

U.S. Cl. 174-47

7 Claims



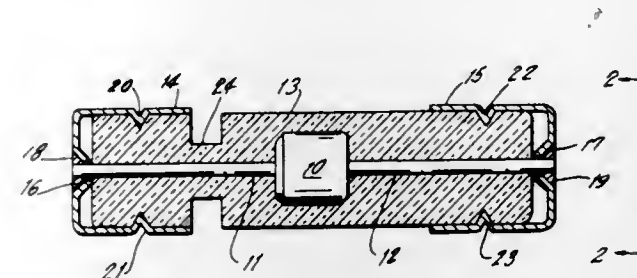
A flexible tubing for various industrial purposes including the transmission of fluids under pressure and the protection of the circular cross section from distortion due to external forces, both lateral and longitudinal. The tubing comprises a thin-walled central tube of smooth material, and a strip or ribbon of thin flexible material of high tensile strength wrapped longitudinally about the tube with its edges overlapping; the strip is held in tight face engagement with the tube and the overlapping edges with each other by a helical reinforcing wire having a plastic coating and wrapped securely about the tubing with adjacent turns in engagement with one another. The wrapping conforms closely to the tube does not tend to spring away therefrom and thus holds the strip securely in engagement with the tube during bending thereof. A second elongated strip with overlapping edges and a second helical wrapping may be provided for further reinforcement and by making the strips of electrical conducting material or providing conducting layers on the strips the wires and strips may be used as conductors in an electric signalling system to assure detection of damage to the tubing.

3,566,003 PLUG-IN DIODE HAVING CONDUCTIVE METALLIC CAPS AND HOMOGENEOUS ENCAPSULATION MEDIUM

Joseph Wislocky, El Segundo, Calif., assignor to International Rectifier Corporation, El Segundo, Calif.
Filed Jan. 24, 1968, Ser. No. 700,090
Int. Cl. H01l 3/00, 5/00

U.S. Cl. 174-52

3 Claims



A standard diode having axial leads is encapsulated in a cylindrical plastic body. The ends of the plastic body receive respective ferrules connected to the respective leads so the unit can be plugged into spring clip terminals.

3,566,004

COLOR-CODED TELEPHONE CONDUCTOR TERMINAL

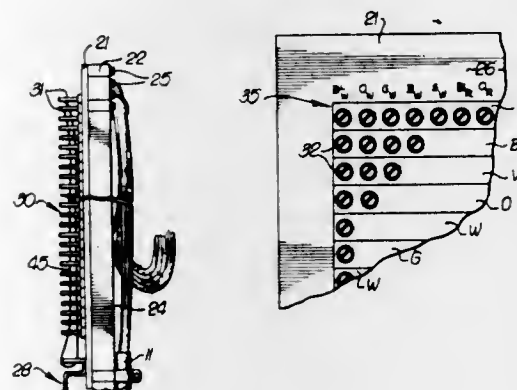
John P. Creedon, 4946 Llano Drive, Woodland Hills, Calif. 91364

Filed Sept. 4, 1969, Ser. No. 855,293

Int. Cl. H01r 13/46; H01b 7/36

U.S. Cl. 174-60

9 Claims



In a telephone communications system including cables interconnecting a first location with a second location through at least one terminal, each of the cables including pairs of telephone conductors, each pair including different colored conductors, no two pair having the same two different colored conductors so that each pair is individually color identifiable, an improvement in the terminal comprising a terminal board having a front and rear face and supporting a plurality of lugs extending from the rear to the front face and arranged in substantially straight lines comprising rows and columns, each of the rows bearing a color which may be matched to one of the colors in the conductor pairs, and adjacent lines of lugs comprising two different colored lines and no two pair of lines having the same two different colors, and column identification indicia, each such column comprising a plurality of lug pairs and each pair including one lug from one of the pairs of adjacent different colored lines of lugs so that pairs of conductors in an input cable may be selectively connected to a pair of conductors in the output cable through jumper wires attached to lug pairs at the front face of the board which identify the two different pairs of colored conductors which it is desired to interconnect through the terminal board.

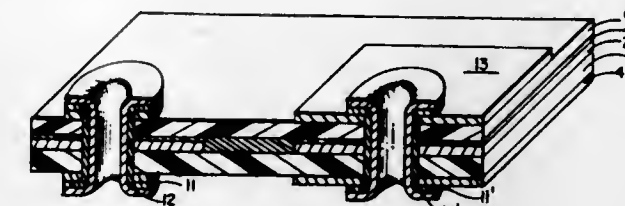
3,566,005

CIRCUIT BOARD WITH WELD LOCATIONS AND PROCESS FOR PRODUCING THE CIRCUIT BOARD

Joseph M. Shaheen, La Habra, Calif., assignor to North American Rockwell Corporation
Filed Mar. 4, 1969, Ser. No. 804,170
Int. Cl. H05k 1/18, 3/32

U.S. Cl. 174-68.5

1 Claim



A nickel layer insulatively laminated over a circuit pattern of a circuit board is etched to produce weld locations at certain points on said circuit board. In one embodiment, the nickel layer is insulatively laminated over the outer surface of a multilayer board and etched to produce weld sites where an electrical connection between the circuits of the multilayer board and an electrical compound, device, etc. is required.

In another embodiment, the weld sites are produced for making welded pin terminations on said board. For that embodiment, a metal pin is inserted in a plated through hole. One end of the pin is bent over and welded to the nickel weld sites so that it is secured within the hole. The other end protrudes from the circuit board for use as a pin termination so that the circuit board can be interconnected with other electrical circuits.

3,566,006

WIRE CONNECTOR AND METHOD OF USING SAID CONNECTOR

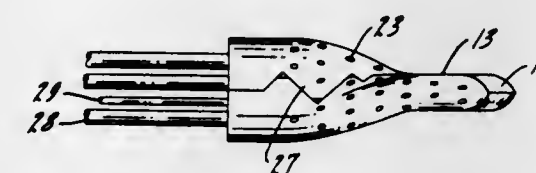
Irving R. Metcalf, St. Charles, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill.

Filed July 7, 1969, Ser. No. 839,398

Int. Cl. H01r 9/06; H02g 15/08

U.S. Cl. 174-84

4 Claims



A connector and a method of using the connector to join insulated wires and particularly insulated wires of the magnet type without prestripping the insulation from the wires. The connector has internal barbs which abrade the insulation on the wires as the connector is twisted into contact with the wires. The connection formed is not susceptible to release due to spring back.

3,566,007

CORRUGATED COAXIAL CABLE

Michael Francis O'Keefe, Mechanicsburg, and Edgar Wilmont Forney, Jr., Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed June 2, 1969, Ser. No. 829,364

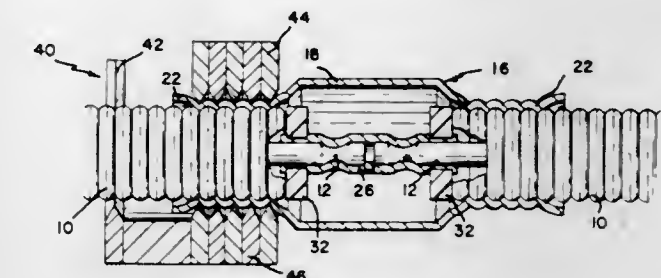
Int. Cl. H02g 15/02, 15/08

U.S. Cl. 174-88

4 Claims

A connector is disclosed for use with coaxial cable of a type having a rigid armoring sheath which is corrugated and which surrounds a coaxial outer conductor and an inner conductor supported along the center of the cable with dielectric material. The connector includes a one-piece outer conductive shell which is crimped down directly onto the armoring

sheath of the cable at its ends and an inner contact structure comprised of a sleeve crimped onto the center conductors of the ends of cables and supported within the outer shell by dielectric inserts. The outer shell has an undeformed inner diameter sufficient to pass over the outside of the armoring



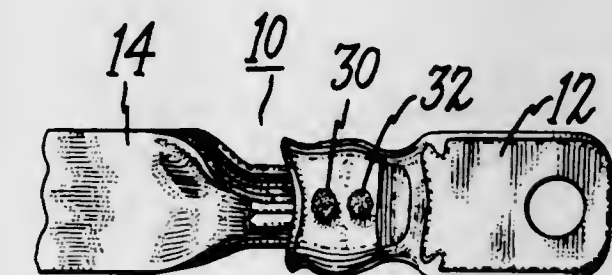
3,566,008

MECHANICAL AND ELECTRICAL JOINT BETWEEN COPPER AND ALUMINUM MEMBERS AND METHOD OF MAKING SUCH JOINT

Louis F. Ettlinger, Conover, N.C., and Moreland P. Bennett, Pittsfield, Mass., assignors to General Electric Company
Filed July 15, 1969, Ser. No. 841,948
Int. Cl. H02g 15/08

U.S. Cl. 174-94

4 Claims



A mechanical and electrical joint is obtained between copper and aluminum members by utilizing a tin-plated copper member having a portion formed in a tubular shape with a plurality of chamfered holes made in such tubular portion. Aluminum material to be joined to the copper member is formed with a tubular end which is inserted into the tubular portion of the copper member. Heat and pressure are applied to the tubular portion of the copper member until the aluminum melts and flows out of the chamfered holes forming a strong mechanical lock with good electrical characteristics.

3,566,009

FIRE-RESISTANT ELECTRICAL CABLES

Andrew J. Lamond, Philadelphia, Pa.; Gene Arthur Tyrer, Tecumseh, and Charles George Neuroth, Blissfield, Mich., assignors to Stauffer-Wacker Silicone Corporation
Filed Oct. 4, 1968, Ser. No. 765,069
Int. Cl. H01b 7/28

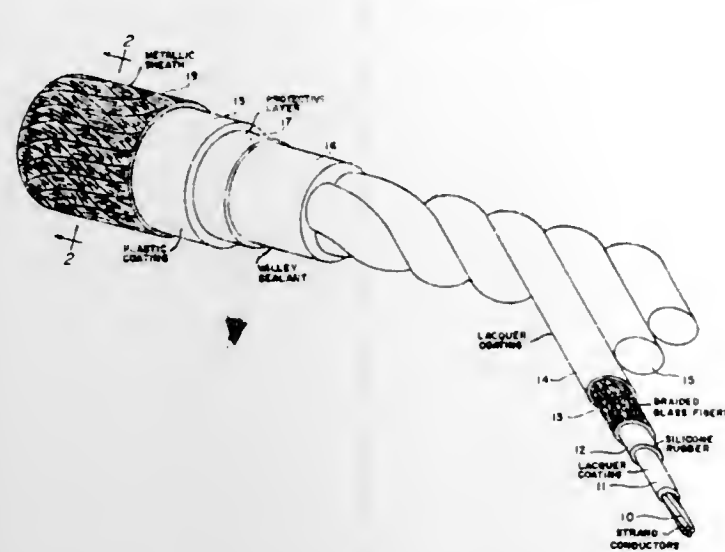
U.S. Cl. 174-116

6 Claims

The disclosure relates to multiple conductor electrical cables containing room-temperature-curable organopolysiloxanes as valley sealants. The organopolysiloxane may be filled

with low density cellular particulate matter having closed or semiclosed cells, such as glass spheres, which will revert to a nonconductive inert organic silica layer when exposed to

channel, and a retainer loop extends over the channel above the line clamp. The pins are formed to shear for releasing the clamp from the saddle channel under stress somewhat less



open flame. The silica layer protects the electrical integrity of the wire even in the advent of a long duration open flame condition.

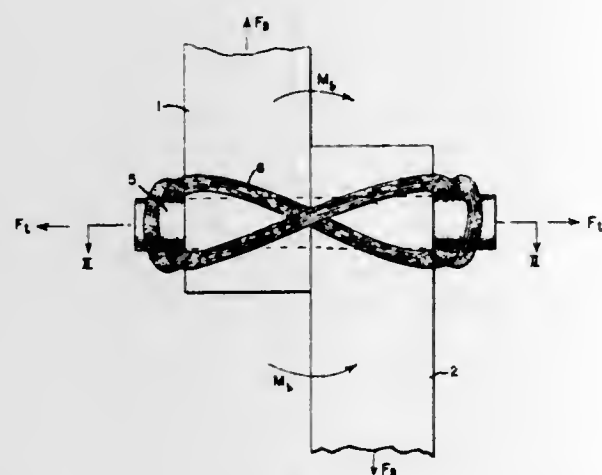
3,566,010

HEAVY-DUTY INSULATING SUPPORT CONNECTOR

Karl F. Drexler, Burnt Hills, and James S. Bishop, Schenectady, N.Y., assignors to General Electric Company
Filed Dec. 17, 1969, Ser. No. 885,723
Int. Cl. H01b 17/00

U.S. Cl. 174-138

5 Claims



Insulating support members are secured to one another in an optimized manner to resist shear forces, tensile forces, compression forces and bending moments tending to separate the members, by means of an insulating dowel extending into holes in both members and held in place by a tension member of glass roving impregnated with curable resin.

3,566,011

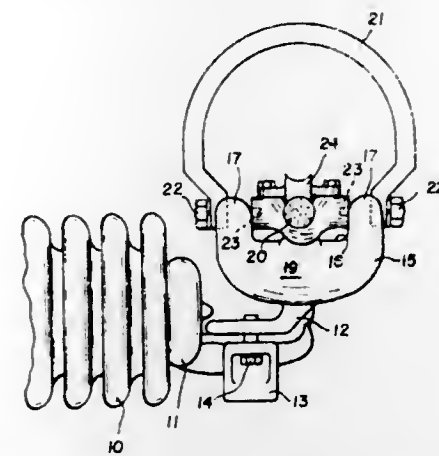
LOAD-LIMITING LINE SUPPORT FOR A POST INSULATOR

Thomas A. Pinkham and Carl D. Fiero, Le Roy, N.Y., assignors to Interpace Corporation, Parsippany, N.J.
Filed Nov. 12, 1969, Ser. No. 875,869
Int. Cl. H01b 17/16, 17/38

U.S. Cl. 174-169

3 Claims

A line support for a post insulator includes a support bracket secured to the post insulator and carrying a saddle forming a channel extending in the direction of the line. A pair of opposed pins extend into the channel of the saddle from opposite sidewalls to hold a line clamp in place in the



than the strength of the insulator so that extraordinary tension on the line shears the pins to release the clamp rather than breaking the insulator.

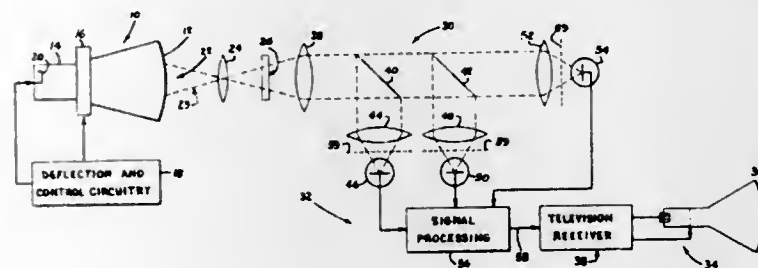
3,566,012

DISPLAY DEVICE UTILIZING A FLYING SPOT SCANNER AND A COLOR CATHODE RAY TUBE

Harry E. Smithgall and Kenneth Spiegel, Seneca Falls, N.Y., assignors to Sylvania Electric Products Inc.
Filed June 4, 1968, Ser. No. 734,492
Int. Cl. H04n 7/18, 9/16

U.S. Cl. 178-5.2

8 Claims



The combination of a color television receiver and a display system for presenting slide transparencies, movies or other image mediums upon the color cathode ray tube of the television receiver. The slide or other medium is scanned by a flying spot cathode ray tube which, in conjunction with dichroic mirrors and suitable filters separates the information derived from the scan of the medium into its representative color components, translates the representative color components into processed electrical signals and couples the processed signals directly to appropriate electrodes of the color cathode ray tube.

The flying spot cathode ray tube is provided with a fixed focus and has a screen comprised of an admixture of

 $Y_3Al_5O_{12}:Ce$

and $Ca_2Al_2SiO_7:Ce$ phosphors in approximately the ratio of 3 to 1 by weight. Also disclosed as an alternate for $Ca_2Al_2SiO_7:Ce$ is $ZnS:Ag:Ni$.

3,566,013

OPTICAL REDUCTION OF LUMINANCE TO CHROMINANCE CROSSTALK IN COLOR TELEVISION CAMERAS

Albert Macovski, Palo Alto, Calif., assignor to RCA Corporation
Filed Sept. 18, 1968, Ser. No. 760,444
Int. Cl. H04n 9/06

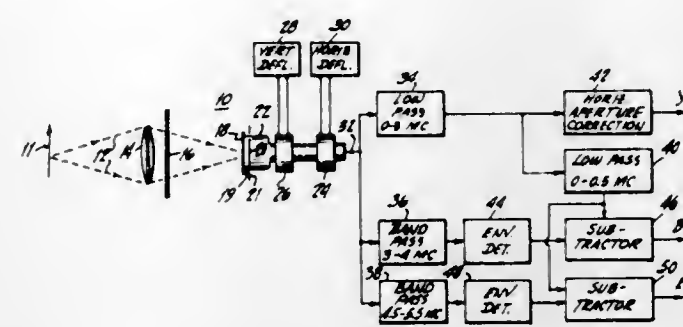
U.S. Cl. 178-5.4

16 Claims

In a color television camera of a type utilizing a color-encoding filter in the light path of an image pickup tube to

derive signals representative of the color components of an image, crosstalk of the higher frequency luminance signals into the chrominance signals adversely affects the quality of

between an object to be televised and said image pickup means, index signal generating means disposed on said filter means, a lens screen comprising a plurality of spaced, cylindrical lenses interposed between said filter means and said



the color representative signals. Apparatus, in the optical path, is provided for reducing the high frequency luminance signals in a horizontal direction so that the crosstalk between the luminance and chrominance signals is reduced.

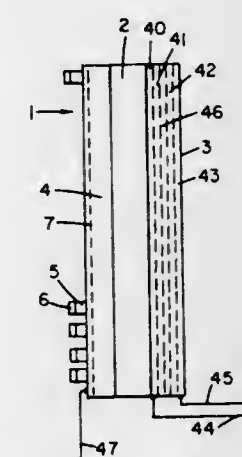
3,566,014

ELECTROLUMINESCENT DISPLAY SYSTEMS

Philip C. Norem, New York, N.Y., assignor to Autotelic Industries Limited, Fort Erie, Ontario, Canada
Filed Apr. 12, 1967, Ser. No. 631,846
Int. Cl. H04n 9/12

U.S. Cl. 178-5.4

16 Claims



A display system including a display screen having at least two component panels, one of the panels having a plurality of elements for emitting light when activated and the other panel having a layer comprising strips of material between two sets of conductive electrodes so that when an element of the first panel is caused to emit light, a potential is applied to conductive elements in the first and second electrodes of the second panel to activate the corresponding portion of the layer and transmit light through that portion whilst preventing light from passing through other portions of the layer. Circuits are provided to operate the display panel.

3,566,015

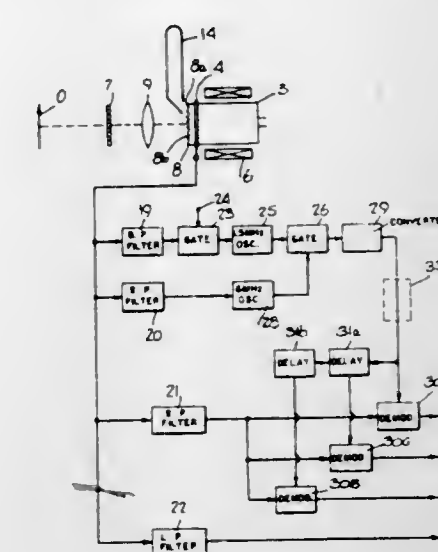
COLOR TELEVISION CAMERA SYSTEM WITH MEANS FOR GENERATING AN INDEXING SIGNAL HIGHER IN FREQUENCY THAN THE VIDEO INFORMATION

Toshiro Watanabe, Zushi-shi, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed May 28, 1968, Ser. No. 732,763
Claims priority, application Japan, May 29, 1967, 42/34023
Int. Cl. H04n 5/42

U.S. Cl. 178-5.4

10 Claims

A color video signal generating apparatus is provided and includes image pickup means having scanning means and being operative to photoelectrically convert light projected onto said image pickup means into an electrical output composed of successive signals corresponding to the intensities of light successively encountered by said scanning means in a line scanning direction, filter means interposed optically



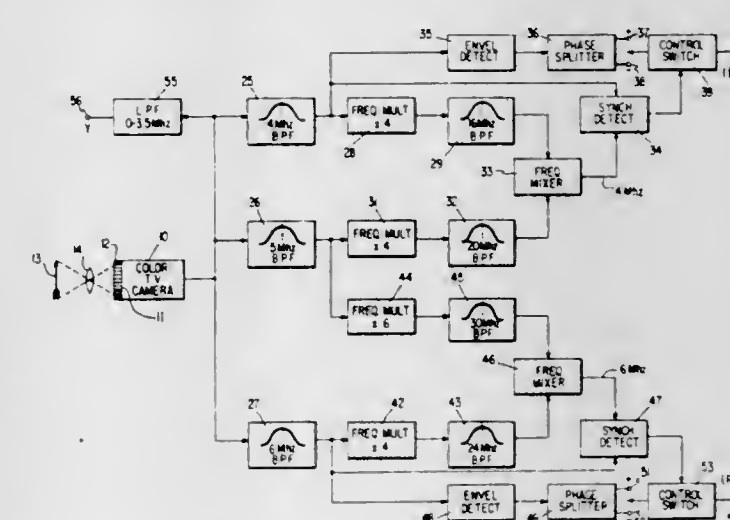
3,566,016

COLOR TELEVISION CAMERA ENCODING SYSTEM

Albert Macovski, Palo Alto, Calif., assignor to RCA Corporation
Filed Mar. 5, 1969, Ser. No. 804,485
Int. Cl. H04n 9/06

U.S. Cl. 178-5.4

24 Claims



A camera tube has two different color signal filter gratings, each with alternate color and neutral density parallel strips, and a reference signal grating of alternate transparent and neutral density strips. The numbers of strips in the three gratings are mutually different so that the frequencies of the waves resulting from the scanning of corresponding areas of the camera tube are mutually distinct and with the reference signal frequency bearing a specific relationship to each of the color signal modulated wave frequencies. The frequency of each color signal wave derived from the camera is multiplied an even number of times according to the specific relationship to produce a multiple color signal wave frequency of constant phase which is then mixed with a multiple of the reference signal frequency according to the specific relationship to produce waves at the respective frequencies of the original color signal waves but with no phase ambiguity. Each such wave is compared in a product detector with the corresponding original color signal modulated carrier wave to establish the correct polarity of the color signal. Each of the original color signal waves is separately envelope detected

and the proper polarity of the detected signal is selected under the control of the output of the product detector for application to an output terminal.

3,566,017

TELEVISION COLOR DIFFERENCE SIGNAL ENCODING SYSTEM

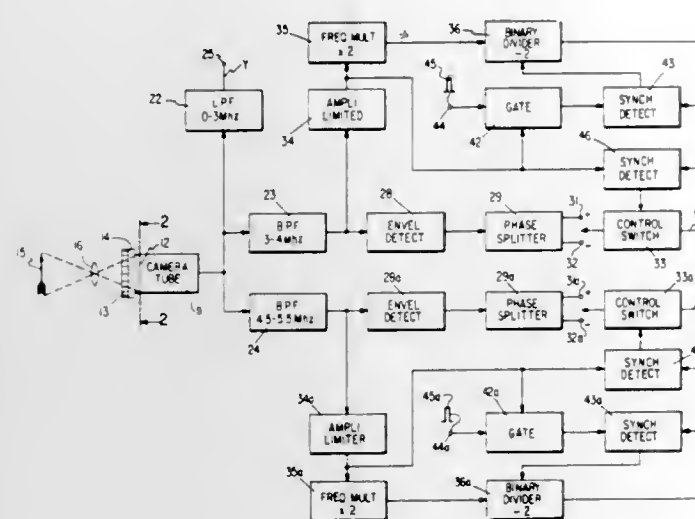
Albert Macovski, Palo Alto, Calif., assignor to RCA Corporation

Filed Mar. 6, 1969, Ser. No. 804,746

Int. Cl. H04n 9/06

U.S. Cl. 178-5.4

17 Claims



Each of the (B-Y) and (R-Y) sideband signals of two suppressed color carrier waves derived from a camera tube having a spatial color difference signal encoding filter is envelope detected and positive and negative polarities of the detected signal are developed, the proper polarity being selected to produce an unambiguous output signal by a switch controlled by a correct polarity indicating signal. The color carrier wave derived from the camera tube also is amplitude limited, doubled in frequency and applied to a controllable phase-frequency divider to produce an unambiguous reference wave of the suppressed color carrier wave frequency which is compared in phase with the signal modulated color carrier wave derived from the camera tube to produce the correct phase indicating signal which controls the switch. The frequency divider is controlled by a phasing signal produced by comparing the divider output with a phasing pulse generated during each horizontal scanning line. The phasing pulse is generated by projecting light from an external source through a narrow strip of filter material onto the camera tube area which is scanned during each horizontal raster line.

3,566,018

COLOR TELEVISION SIGNAL GENERATING SYSTEM

Albert Macovski, Palo Alto, Calif., assignor to RCA Corporation

Filed Mar. 6, 1969, Ser. No. 804,747

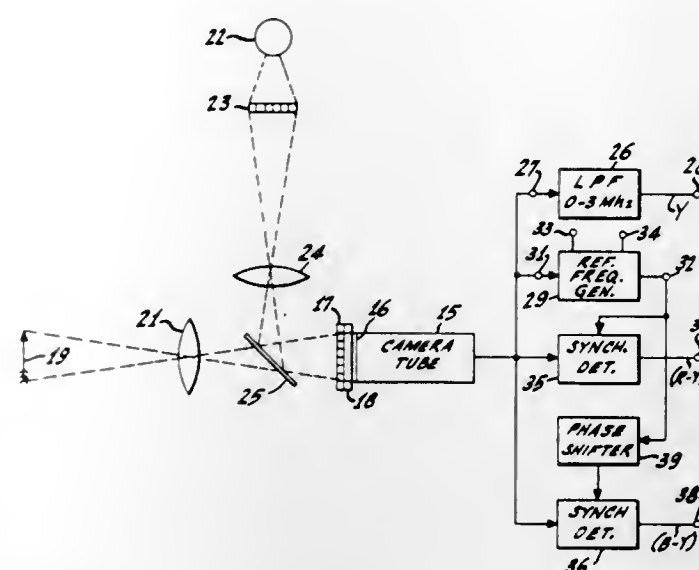
Int. Cl. H04n 9/06

U.S. Cl. 178-5.4

17 Claims

Light from a colored subject is projected onto the photosensitive electrode of a camera tube through a spatial color encoding filter grating including strips of subtractive color material equally transmissive of white light so that scanion of the electrode by an electron beam produces in the camera tube output color difference signals as amplitude modulations of different phases of a single suppressed carrier wave, the envelopes of which are subject to polarity ambiguities because of the suppression of the wave. A constant intensity light, which is modified by an auxiliary signal encoding filter grating, is projected onto the photosensitive camera tube electrode so that the interaction between the light passing through the two gratings produces a plurality of unmodulated waves of different frequencies in the camera tube output. Selected ones of these unmodulated waves are mixed to produce a reference wave of fixed amplitude and phase at

the color carrier frequency and are applied to synchronous detectors in such phases as to recover the color difference



signals from the phase modulated color carrier wave with no polarity ambiguities.

3,566,019

COMBINED ELECTRON IMAGE TUBE AND VIDICON

Richard F. Koch, Silver Lake, Cuyahoga Falls, Ohio, and

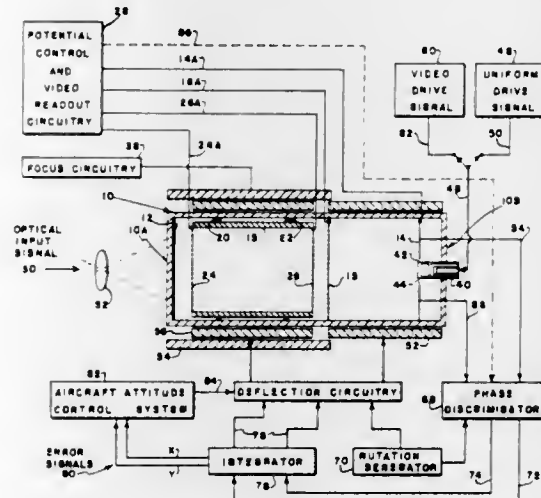
John R. Shoemaker, 1353 Shannabrook Ave, Akron, Ohio

Filed Sept. 19, 1966, Ser. No. 580,258

Int. Cl. H04n 3/00

U.S. Cl. 178-6

6 Claims



This invention relates to the combination of a vidicon and an electron image tube into one envelope to achieve the best characteristics of both devices which will be much more efficient in cost, weight, volume, and reliability than using two separate devices.

3,566,020

WIRED BROADCASTING SYSTEMS AND APPARATUS THEREFOR

Rupert Ivor Kinross, Shepperton, and Eric John Gargini, West Drayton, England, assignors to Communications Patents Limited

Filed Sept. 8, 1967, Ser. No. 666,287

Claims priority, application Great Britain, Sept. 13, 1966, 40834/66

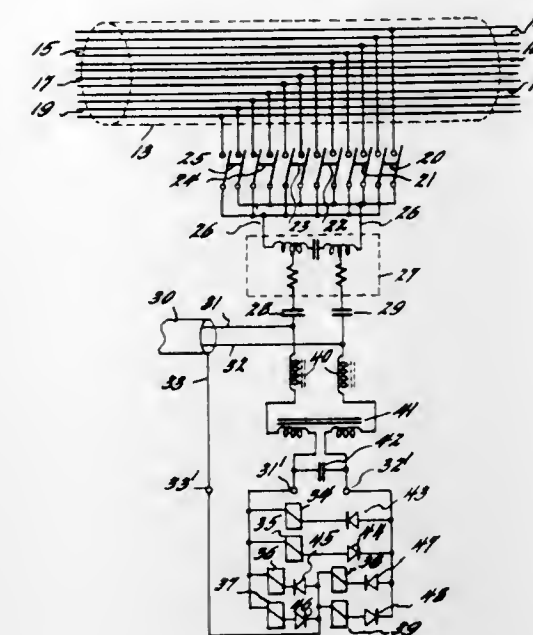
Int. Cl. H04n 7/10

U.S. Cl. 178-6

4 Claims

In a wired-broadcasting system affording selection of a plurality of program channels, a television subscriber is connected by a three wire cable to a control station. At this station cables from a multiplicity of program channels are available through a switching control circuit for connection

by operating selected ones of a set of solenoids having associated switching contacts. Selective control of the solenoids to choose channels is effected by remote signals from



the subscriber station transmitted through the wire cable. Thus, a three wire cable to a subscriber provides access to a plurality of wired program channels.

3,566,021

REAL TIME THREE DIMENSIONAL TELEVISION SYSTEM

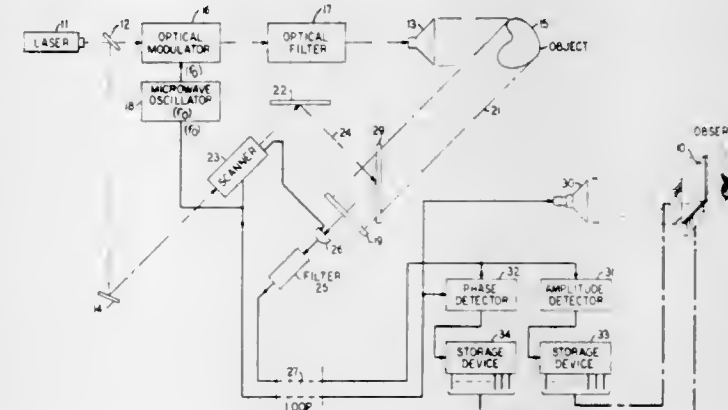
William C. Jakes, Jr., Rumson, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Continuation-in-part of application Ser. No. 658,123, Aug. 3, 1967, now abandoned. This application Nov. 29, 1968, Ser. No. 779,842

Int. Cl. H04n 9/54

U.S. Cl. 178-6.5

5 Claims



This disclosure relates to a television system that utilizes wave front reconstruction techniques to provide a real time three-dimensional image at the receiving end of the system, with the image changing in perspective as the object and/or observer moves. The coherent light from a laser is first modulated at a frequency in the microwave range and one sideband of the coherent light is filtered out and used to illuminate an object scene. The light reflected from the object scene impinges on a photodetector while a narrow reference beam of coherent light raster scans the photodetector to thereby generate a signal which is modulated in phase and amplitude in accordance with the interference pattern formed on the photodetector. The signal carrying the modulated phase and amplitude information is then transmitted to a remote receiver. At the received end, the phase and amplitude modulated information is recovered and stored, a frame at a time, in respective storage devices. At the end of a complete frame the stored information is read out and

respectively applied to an array of phase and amplitude optical modulators. Also, at the end of a complete frame received information, a second laser at the receiver is pulsed with the light therefrom directed toward said array. In this manner, an image of the original object is obtained at the receiver. The described operation is continued a frame at a time.

3,566,022

FACSIMILE PAPER CUTTER WITH FIRST CUT MEANS

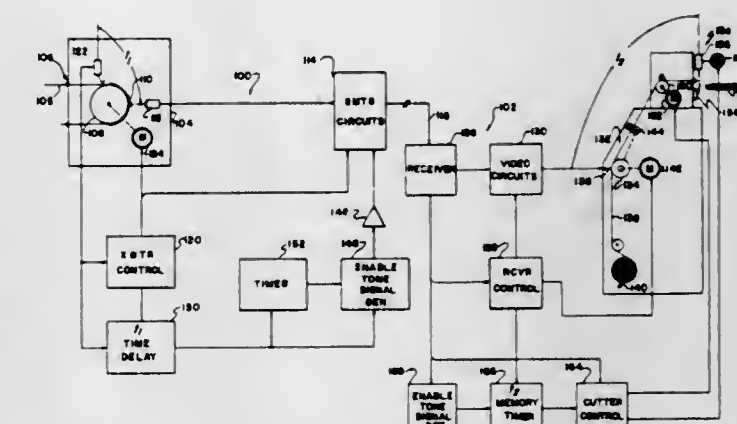
Robert M. Bishop, Arlington Heights, and Joel C. Goldberg, Chicago, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill.

Filed June 19, 1968, Ser. No. 738,299

Int. Cl. H04n 1/22

U.S. Cl. 178-6.6

4 Claims



Apparatus for severing recording medium in a document reproduction system, such as facsimile, wherein the recording medium at the recorder is caused to be automatically cut at the beginning and end of each reproduced document as well as at an intermediate point along the long unmarked lead to the first document caused by the runup of the medium after a preceding document and/or the medium runup during the initial phasing period before the marking of the next document.

3,566,023

SEQUENTIAL DOT, DIGITALLY ENCODED TELEVISION SYSTEM

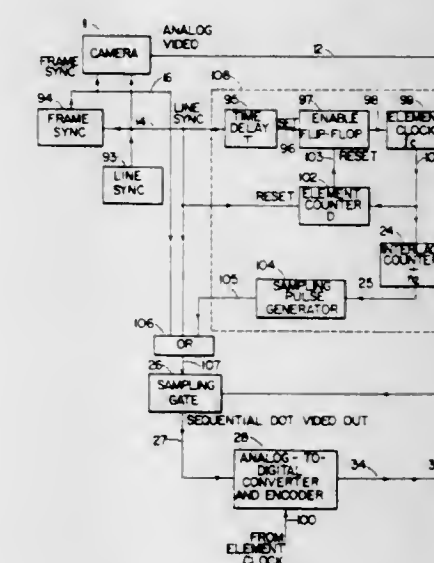
Edward S. Smierciak, Fort Wayne, Ind., assignor to International Telephone and Telegraph Corporation

Filed Aug. 3, 1967, Ser. No. 658,099

Int. Cl. H04m 5/38

U.S. Cl. 178-7.1

8 Claims



A sequential dot, digitally encoded, raster-type television system including an input circuit for receiving a time-based video signal having recurrent line and frame synchronizing

signals; a clock pulse generator is provided for generating a train of clock pulses having a frequency

$$f_c = f_r n_2$$

where f_r is the sampling signal frequency

$$f_c = f_r \frac{(LD)}{n_1 n_2}$$

where f_r is the frequency of the frame synchronizing signals, L is the number of lines in one frame, D is the number of picture elements in one line, n_1 is the vertical interlace ratio (if any), and n_2 is a predetermined dot interlace ratio, it being required that the quotient $\frac{LD}{n_1 n_2}$ be irreducible. Means are provided for generating a train of recurrent sampling signals having the frequency f_r , the sampling signal generating means being coupled to the clock pulse generator and actuated thereby. Means are provided for coupling the input circuit to an output circuit in response to the train of sampling signals thereby to pass a train of sampled analogue video signals, i.e., sequential dot interlaced video signals from the input circuit to the output circuit. An amplitude level comparator is provided which quantizes the sampled analogue video signals on a predetermined number of levels, and a decimal to binary converter is coupled to the amplitude level comparator for converting the amplitude-responsive signals to parallel binary coded form. A parallel-to-serial converter couples the decimal-to-binary converter to a transmission facility for converting the parallel binary coded signals to serial binary coded form.

At the receiving station, a serial-to-parallel converter is coupled to the transmission facility for converting the transmitted serially-coded binary signals to parallel binary form and a digital-to-analogue converter is coupled to the serial-to-parallel converter for converting the parallel binary coded signals to analogue form, thus reconstructing the original sampled analogue video signals, i.e., the sequential dot interlaced signals which may be applied to a conventional video monitor.

3,566,024

BANDWIDTH REDUCTION FOR VIDEO SIGNALS OF LOW LUMINANCE

Raymond Matchell, Essex, England, assignor to The Marconi Company Limited, London, England

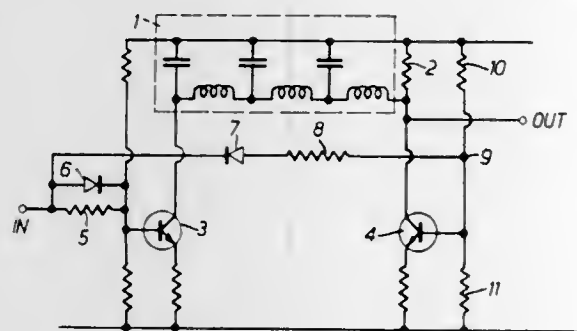
Filed Dec. 16, 1968, Ser. No. 783,790

Claims priority, application Great Britain, Feb. 26, 1968, 9209/68

Int. Cl. H04n 7/12; H04b 1/66

U.S. Cl. 178-7.1

9 Claims



A circuit for receiving video signals from a television camera tube is described. The circuit includes a delay line which is reflective at one end and terminates in its characteristic impedance at its other end so as to be nonreflective. Video signals, derived from the television camera tube, are applied to the one end of the delay line through a diode biased signal-level-dependent circuit adapted to differentiate against high level signals, and video signals are also applied to the other end of the delay line through a similar diode biased circuit adapted to differentiate against low level signals. Means are provided for taking off output video signals from the end of the line which is terminated in the

characteristic impedance of the line. The bandwidth for video signals corresponding to low luminance areas of a subject of transmission is reduced compared to the bandwidth for video signals corresponding to higher luminance areas.

3,566,025

DEVICE FOR THE AUTOMATIC GAIN CONTROL AND CLAMPING OF THE BLACK LEVEL FOR TELEVISION RECEIVERS

Marcel Rognon, Houilles-Val D'Oise, France, assignor to U.S. Philips Corporation, New York, N.Y.

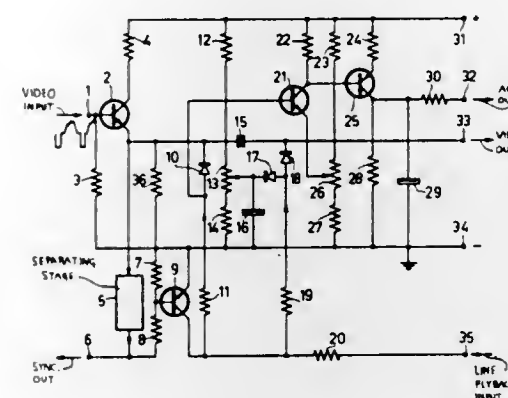
Filed Feb. 1, 1968, Ser. No. 702,301

Claims priority, application France, Feb. 2, 1967, 93443

Int. Cl. H04n 5/56

U.S. Cl. 178-7.3

8 Claims



In a circuit for generating an automatic gain control voltage and for clamping the black level of television signals, a diode has one electrode connected to a video input circuit. Line flyback pulses are applied to the other electrode of the diode by way of a resistor, and an automatic gain control voltage is derived from the other electrode of the diode. A blocking circuit is provided to prevent conduction of the diode during the line synchronizing signal. A video output circuit capacitively coupled to the input circuit is clamped by a line flyback pulses which are also blocked during the line synchronizing period.

3,566,026

AUTOMATIC ACQUISITION AND TRACKING SYSTEM

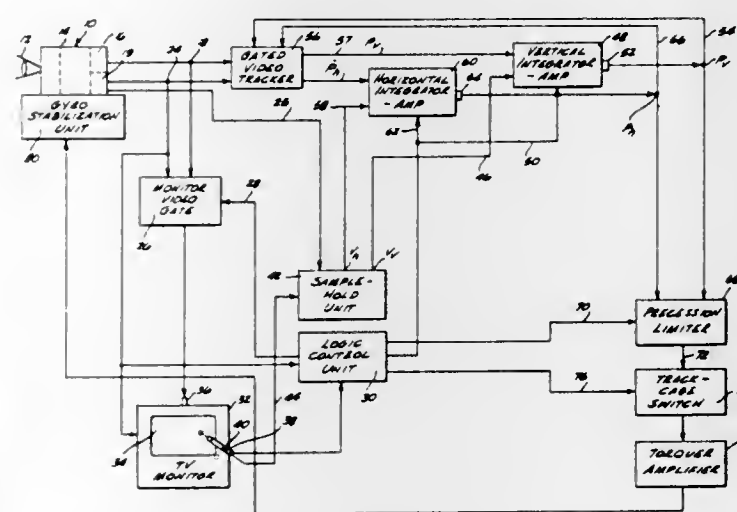
Robert L. Bonebreak, Los Angeles, David B. Park, Inglewood, Calif., and Phillip R. Tulloh, Tucson, Ariz., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Feb. 27, 1967, Ser. No. 618,674

Int. Cl. H04n 3/04

U.S. Cl. 178-6.8

11 Claims



A system that acquires and tracks an object designated by a light sensor placed over the object's image on a display monitor. The system includes a tracking sensor, such as a television camera, a video tracker and a tracking sensor stabilization unit. Sample and hold circuits are gated by an output pulse of the light sensor at which time these circuits sam-

ple the value of the deflection signals of the tracking sensor. The output signals from the sample and hold circuits are applied to switchable amplifier-integrator circuits that preposition the tracking gates of the video tracker. A monitor video gating circuit is coupled to the display monitor for intensification of the display during a portion of the acquisition sequence. Delay and limiting means are coupled between the video tracker and the tracking sensor stabilization unit for allowing the video tracker to stabilize prior to initiating maximum sensor position tracking rates.

3,566,027

VIDEO SIGNAL ENHANCEMENT SYSTEM WITH DYNAMIC RANGE COMPRESSION AND MODULATION INDEX EXPANSION

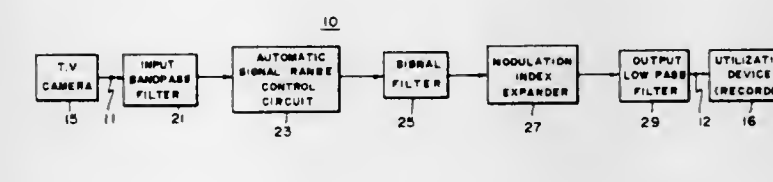
T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration in respect to an invention of, Robert Y. Wong, Monterey Park, Calif.

Filed Aug. 7, 1968, Ser. No. 750,786

Int. Cl. H04n 5/14

U.S. Cl. 178-7.1

5 Claims



A video signal enhancement system is disclosed for enhancing the signal component representing the brightness of scene elements in a low contrast scene, wherein overall scene contrast is represented by a slowly varying DC component of an amplitude-modulated carrier frequency and the element brightness by one cycle of the carrier frequency. The system includes in addition to input/output and intermediate filters, an automatic signal range control circuit, which acts as a high pass filter to reduce the effect of the low frequency signal component.

3,566,028

CIRCUIT ARRANGEMENT FOR SUPPRESSING NOISE IN A TELEVISION RECEIVER

Wouter Smeulders, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York N.Y., N.Y.

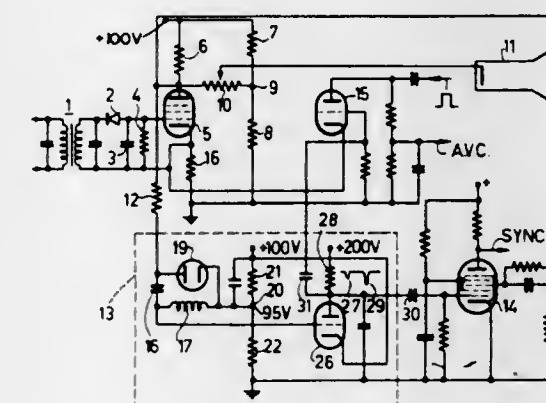
Filed Oct. 17, 1968, Ser. No. 768,355

Claims priority, application Netherlands, Oct. 25, 1967, 6714456

Int. Cl. H04n 5/21

U.S. Cl. 178-7.3

6 Claims



A video signal noise eliminator circuit features an active element such as tube or transistor biased at cutoff. Noise pulses which exceed the black level are applied to the element through a diode, and are amplified by the element. Noise pulses that are less than the black level are selected by a filter circuit and also applied to the element where they are rectified. The active element then supplies inverted noise pulses to a sync separator where they cancel the original noise pulses.

3,566,029

IMAGE SCANNING, TRANSMISSION AND RECEPTION

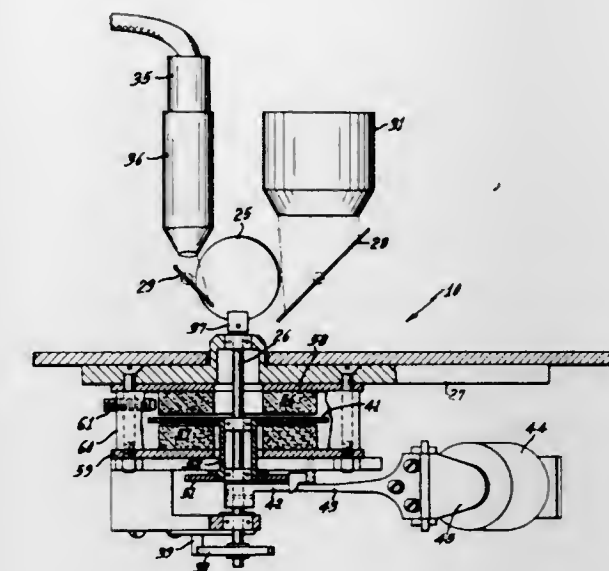
Arnold S. J. Lee, 1402 Bergen Blvd., Fort Lee, N.J., and David H. Margolien, 12 Ingleside Road, Lexington, Mass.

Filed Sept. 21, 1967, Ser. No. 669,486

Int. Cl. H04n 3/08

U.S. Cl. 178-7.6

11 Claims



An image-transmitting system in which the transmitting and receiving scanners are identical. Each scanner has a spring-driven mirror for horizontal scan, and another mirror for vertical scan. The scanning movement of both mirrors is initiated by an electrical pulse from a separate pulse source and mechanical means controls scanning movement.

3,566,030

TELEPRINTER HAVING INSIGNIA FORMING MATRICES CARRIED BY A DRUM

Dennis William George Byatt, Great Baddow, England, assignor to The Marconi Company Limited, London, England

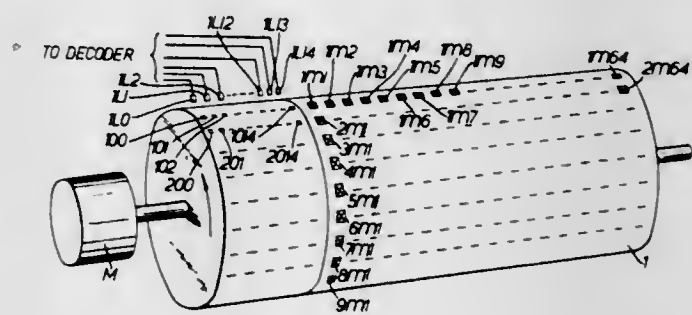
Filed Mar. 25, 1968, Ser. No. 715,608

Claims priority, application Great Britain, May 4, 1967, 20874/67

Int. Cl. H04l 15/34, 21/04

U.S. Cl. 178-30

7 Claims



Known high speed teleprinters are, in effect, signal actuated typewriters, and have the defect of being relatively slow speed. In the present invention a teleprinter includes letter or other insignia forming matrices composed of several mutually insulated elements, in such an array that different combinations of elements correspond to different letters, each element being an electrode of a condenser. Input signals cause different combinations of elements to be charged. A printing material is applied to the matrices, and the charged elements will electrostatically retain it, until the matrix is pressed against specially treated paper, to which the printing material adheres.

3,566,031

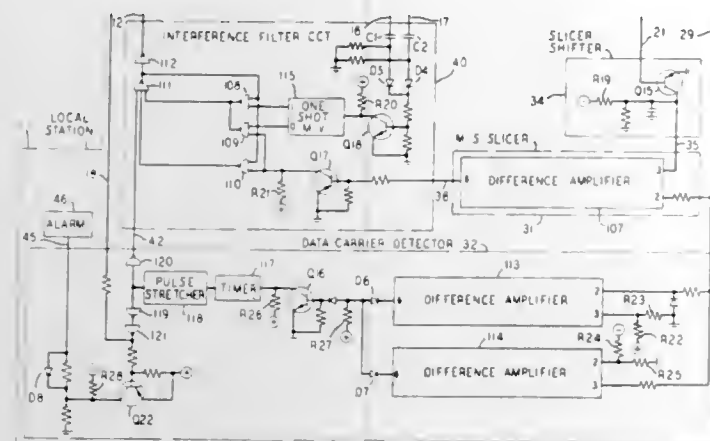
DIRECT-CURRENT DATA SET ARRANGED FOR POLAR SIGNALING AND FULL DUPLEX OPERATION

John T. Carbone, Englishtown; Robert C. Morris, Matawan, N.J., and George Parker, New York, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 23, 1968, Ser. No. 786,119
Int. Cl. H04I 5/14

U.S. Cl. 178-59

8 Claims



A data set receiver detects the direction and magnitude of the cumulative polar loop current on a full duplex two-wire line. The detected signals are applied to a signal slicer which is biased to discriminate between incoming and outgoing signals. The bias is modified to change the slicing level to compensate for the outgoing signal currents. Changes in the output of the slicer are momentarily precluded after transitions of the outgoing signals to filter out line transients. An alarm circuit for line signal failure is also included in the set.

3,566,032

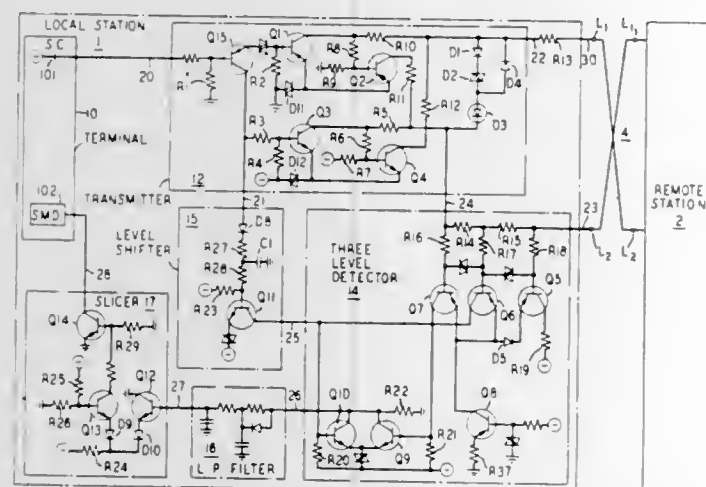
DIRECT-CURRENT DATA SET ARRANGED FOR POLAR SIGNALING AND FULL DUPLEX OPERATION

John T. Carbone, Englishtown, N.J., and George Parker, New York, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 23, 1968, Ser. No. 786,176
Int. Cl. H04I 5/14

U.S. Cl. 178-59

9 Claims



The direction and magnitude of the cumulative polar loop current on a full duplex two-wire line are monitored by a three-level detector which determines when the incoming and outgoing current signals are both marking, both spacing, or concurrent marking and spacing. An appropriate one of the detector outputs is selected depending on whether an outgoing marking or spacing signal is being transmitted enabling the identification of incoming signals. Detection of the direction of loop current is accomplished by a pair of emitter-coupled transistor signal slicers. A third transistor signal slicer, whose emitter is coupled via a diode to the com-

mon emitter circuit, detects for the high magnitude current produced when both data sets generate spacing currents.

3,566,033

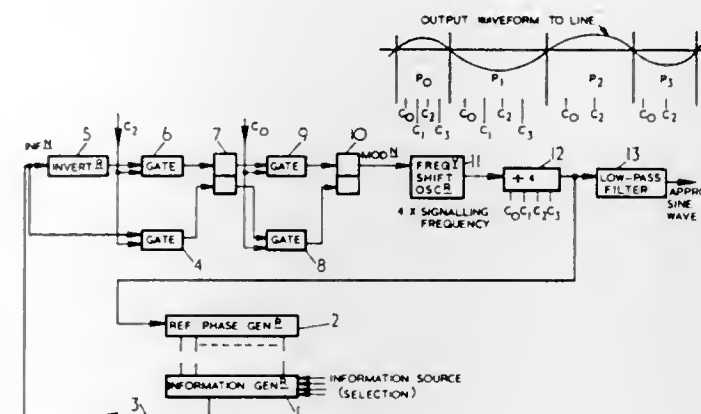
FREQUENCY SHIFT SIGNAL TRANSMISSION SYSTEMS USING HALF-CYCLES OF FREQUENCY SHIFT OSCILLATOR

Robert Eric Young, Leamington Spa, England, assignor to Serck Controls Limited, Queensway, Leamington Spa, England

Filed May 8, 1968, Ser. No. 727,470
Int. Cl. H04I 27/10

U.S. Cl. 178-66

8 Claims



In data transmission system for the transmission of binary coded data a mark is represented by only one-half a cycle of one frequency and a space by only one-half a cycle of another frequency. The receiver is arranged to reorganize the respective frequency from examining each half-cycle.

3,566,034

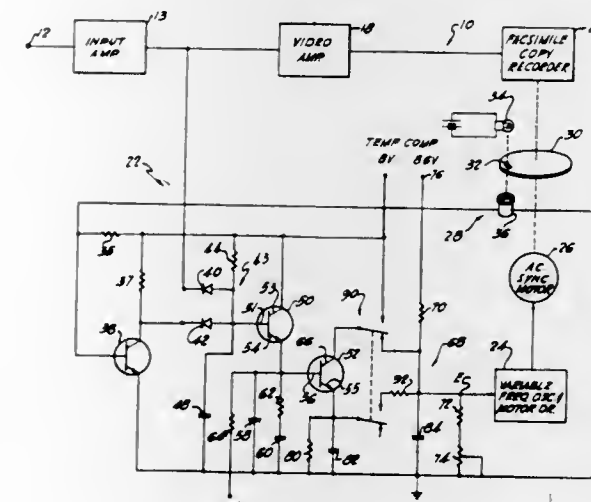
PHASING AND SYNCHRONIZING CIRCUIT MEANS FOR USE IN FACSIMILE SYSTEMS OR THE LIKE

Frans Brouwer, Glencoe, Ill., assignor to Stewart-Warner Corporation, Chicago, Ill.

Filed Aug. 24, 1967, Ser. No. 663,026
Int. Cl. H04n 1/36

U.S. Cl. 178-69.5

18 Claims



Synchronizing systems of the type useful with facsimile equipment in which a motor driven recorder is driven at a speed to provide generated pulses of a quiescent frequency slightly different from the frequency of synchronizing pulses received from a transmission source and in which the speed of the motor is caused to sweep through the speed that produces a generated pulse frequency equal to the synchronizing frequency if and when there is time coincidence between the synchronizing and generated pulses. Also disclosed are photocell means for providing synchronizing pulses and generated pulses especially useful in facsimile transceivers.

3,566,035

REAL TIME CEPSTRUM ANALYZER

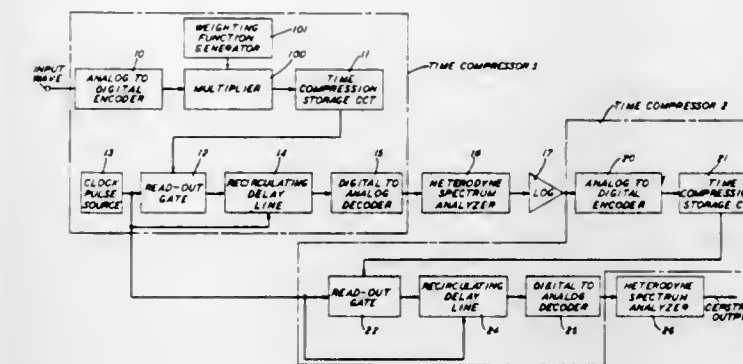
A. Michael Noll, Newark, N.J., and Manfred R. Schroeder, Gillette, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y.

Continuation of application Ser. No. 420,362, Dec. 22, 1964, now abandoned. This application July 17, 1969, Ser. No. 863,398

Int. Cl. G10I 1/04

U.S. Cl. 179-1

8 Claims



The periodicity or aperiodicity of a signal is determined, in a signal analyzer, from the so-called "cepstrum" of the signal; that is, from the Fourier transform of the logarithm of the power spectrum of the signal. The short-time cepstrum is obtained by passing the signal through a first spectrum analyzer followed by a logarithmic amplifier and a second spectrum analyzer. The cepstrum signal is characterized by a peak at a time proportional to the fundamental period during periodic portions of the signal, and by the absence of a peak during aperiodic portions of the signal.

3,566,036

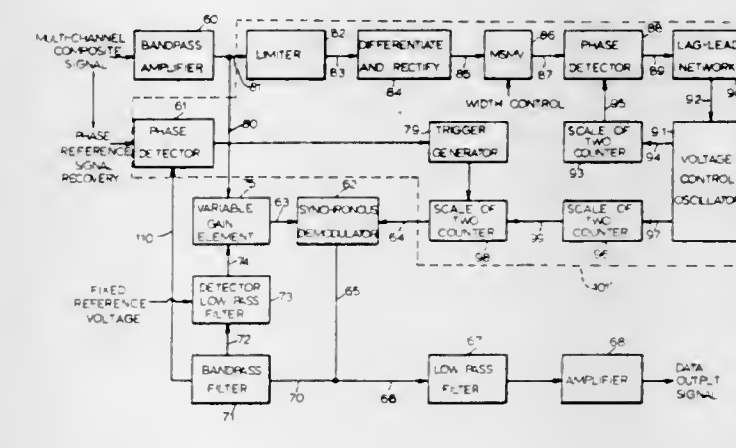
SYNCHRONOUS DOUBLE SIDEBAND SUPPRESSED CARRIER MULTICHANNEL SYSTEM

Austin O. Roche, Winter Park, Fla., Myron H. Nichols, La Jolla, Calif., and Parker Painter, Jr., Winter Park, Fla., assignors to General Dynamics Corporation

Filed Jan. 7, 1965, Ser. No. 424,042
Int. Cl. H04J 1/06; H04b 1/68

U.S. Cl. 179-15

15 Claims



A multichannel telemetry system using double sideband suppressed carrier amplitude modulated signals is described. The transmitted suppressed carrier signal also contains a reference signal component which is on continuously notwithstanding that the information or data signal to be transmitted is discontinuous. At the receiving terminal, the entire composite signal is used to synthesize the carrier. The reference signal is extracted from the composite signal and also used to control the amplitude and phase of the received composite signal and the synthesized carrier, respectively.

3,566,037

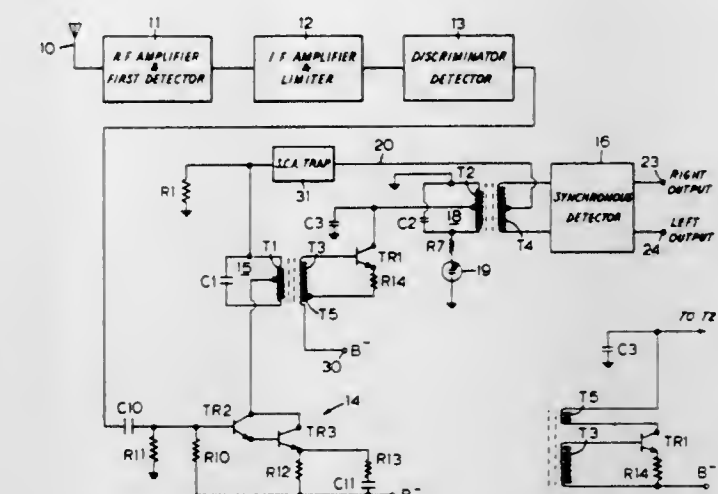
STEREOPHONIC F.M. RECEIVERS HAVING AUTOMATIC SWITCHING MEANS FOR STEREO RECEPTION

Roland H. Fichtner, Waterloo, Ontario, Canada, assignor to Electrohome Limited, Kitchener, Ontario, Canada

Filed Dec. 18, 1968, Ser. No. 784,744
Int. Cl. H04J 3/04

U.S. Cl. 179-15

7 Claims



"Motorboating" of an FM receiver adapted to reproduce both monaural and stereophonic signals is avoided by means of a positive feedback network connected between the output and input circuits of the frequency multiplier of the decoder of the receiver, the feedback network causing the amplifying device of the frequency multiplier, once conduction thereof has started, to be driven quickly into full conduction, the result being that a stronger signal is required to switch the decoder from its monaural to stereophonic operating condition than is required to switch the decoder from its stereophonic to monaural operating condition.

3,566,038

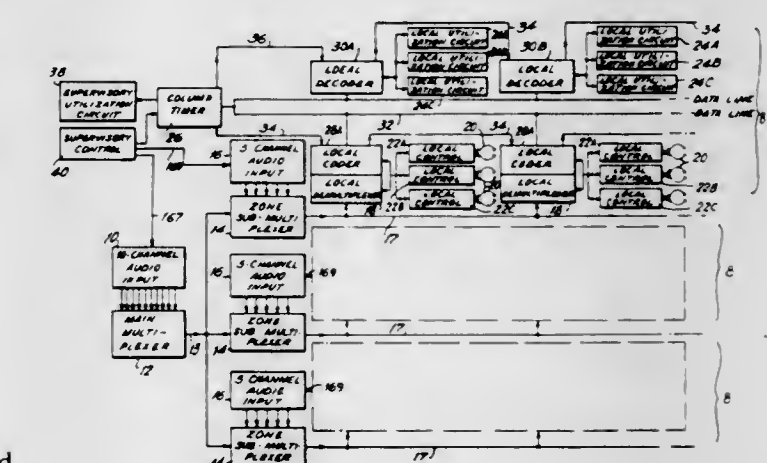
MULTIPLEXED ENTERTAINMENT-SERVICE SYSTEM

Martin J. Slavin, Huntington, N.Y., assignor to Instrument Systems Corporation, Huntington, Long Island, N.Y.

Filed Feb. 20, 1969, Ser. No. 800,943
Int. Cl. H04J 3/12

U.S. Cl. 179-15

30 Claims



An entertainment-service system wherein a plurality of local stations are permitted to selectively receive one or more of a plurality of channels of audio signals and to control one or more utilization circuits associated with each local station or a group of such stations through the use of multiplexing techniques.

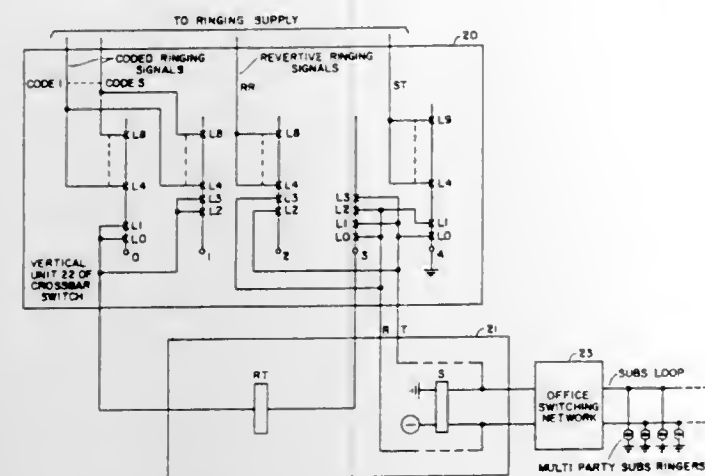
3,566,039

APPARATUS FOR SUPPLYING REVERTIVE RINGING TO A MULTIPARTY TELEPHONE LINE

George W. Saunders, Cooksville, Ontario, and Robert E. Hartlen, Brampton, Ontario, Canada, assignors to Northern Electric Company, Limited, Montreal, Quebec, Canada
 Filed Dec. 11, 1967, Ser. No. 689,565
 Int. Cl. H09m 13/00

U.S. Cl. 179-17

2 Claims



This invention relates to the application of reverting ringing to a multiparty telephone line. In accordance with the invention, the ringing selection switch automatically applies coded ringing signals to the side of the line on which the called party is located and reverting ringing signals to the other side of the line.

In a preferred embodiment of the invention the ringing selection switch is a crossbar switch having horizontal and vertical paths with point of contacts with each other. Each vertical path comprises a plurality of wires, one of which having contacts for connection to the source of ringing signals and a second one of which having contacts for connection to the source of reverting ringing signals. The wires have two additional contacts which are selectively operated for connecting the source of ringing signals to one side of the line and the source of reverting ringing signals to the other side of the line.

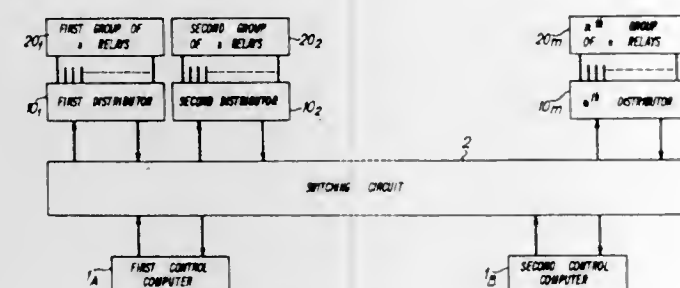
3,566,040

DEVICE FOR SELECTIVELY ACTUATING SWITCHING NETWORK ELECTROMAGNETIC RELAYS

Pierre M. Lucas, 20 rue Tariel, 92 Issy-Les-Moulineaux; Charles E. Abraham, 114 Elysées 11, 78-La Celle, Saint-Cloud, and Roger Fabre, 1 rue Georges Bizet, 78 D'Arcy, France
 Filed Jan. 8, 1969, Ser. No. 789,895
 Claims priority, application France, Jan. 9, 1968, 135350
 Int. Cl. H04q 3/54

U.S. Cl. 179-18

2 Claims



System for selectively energizing and deenergizing a plurality of signalling and control electromagnetic relays arranged in several groups in the junctors of a switching network under the control of at least two control computers. The relays to be actuated have first and second half-windings interconnected at a common point which is connected to a grounded holding contact of each relay and the terminals of the two half-windings are first connected to a current source pole and second to a selector switch through a crosspoint of an address matrix. This selector switch connects the terminal of the second half-winding to the ground for an activation of

the relay and to the current source pole for a release of the relay. An address signal and an order signal are forwarded by one of the control computers respectively to an address register associated with the address matrix and to an order register associated with the selector switch. According to the address signal, a crosspoint of the matrix is actuated and, according to the order signal, the selector switch connects the terminal of the second half-winding of the relay for activation or release. Means are provided for deriving from the establishment or release of the feed current in the relay a check signal and for actuating a fault circuit when the time interval between the order signal and the check signal reaches a predetermined value.

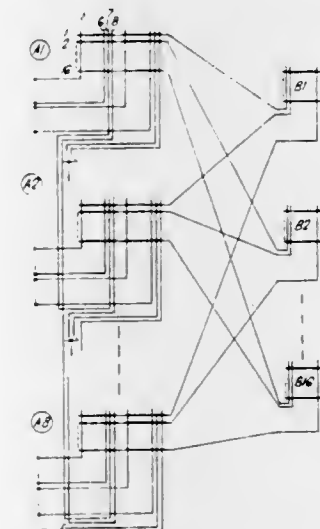
3,566,041

MULTIPLE STAGE SWITCHING NETWORK

Evert Oskar Ekberg, Bridge of Weir, Great Britain, and Per Gustaf Jonsson, Sorlid, Sweden, assignors to International Standard Electric Corporation, New York, N.Y.
 Filed Oct. 18, 1968, Ser. No. 768,777
 Claims priority, application Great Britain, Oct. 25, 1967, 48460/67
 Int. Cl. H04q 3/00

U.S. Cl. 179-18

9 Claims



In a two-stage crossbar switching network where the first stage has overflow, this is provided by overflow links each of which interconnects two switch verticals in different switches. This is by contrast with conventional systems where an overflow link interconnects a horizontal in one switch and a vertical in the other.

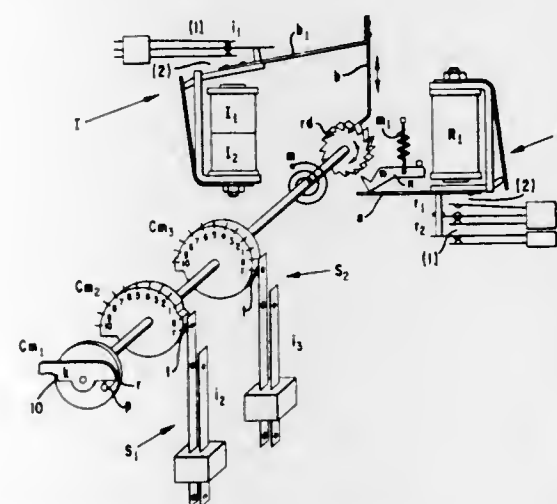
3,566,042

DEVICE FOR PREVENTING OR SIGNALLING THE DIALING OF GIVEN TELEPHONE NUMBERS

Giorgio Pugliese, 15, via Luigi Gall, Rome, Italy
 Filed May 4, 1967, Ser. No. 636,193
 Filed May 4, 1967, Ser. No. 636,193
 Int. Cl. H04q 3/10

U.S. Cl. 179-27.021

14 Claims



The invention refers to a device which prevents the telephones it controls from calling telephone numbers com-

encing with given digits, such as the digits of an area code, toll call office, etc.

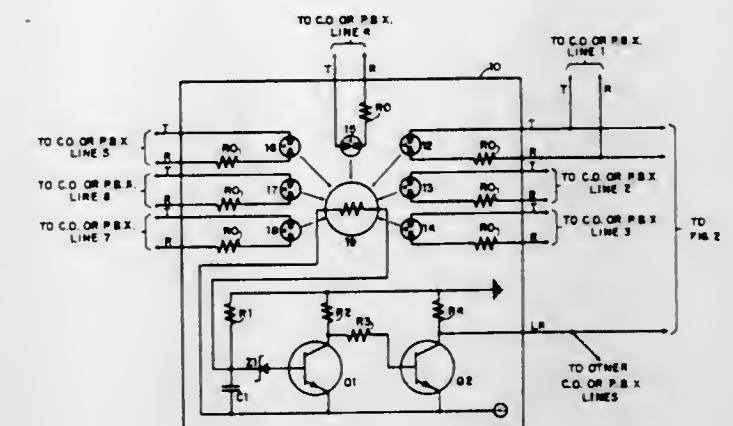
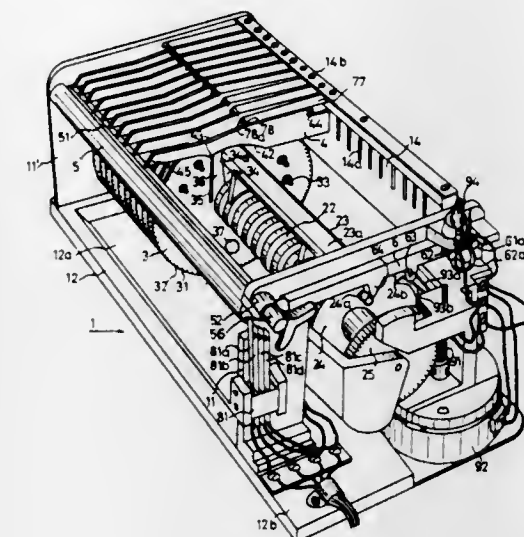
3,566,043

AUTOMATIC DIALLING DEVICE

Jean-Pierre Nicolas, Nice, France, assignor to Societe Le Prototype Industriel, Nice, France
 Filed Jan. 15, 1968, Ser. No. 697,683
 Claims priority, application France, Jan. 17, 1967, 91,358
 Int. Cl. H04m 1/45

U.S. Cl. 179-90

3 Claims



ringing current in all of the lines for releasing the audible and visual signalling within a predetermined time interval.

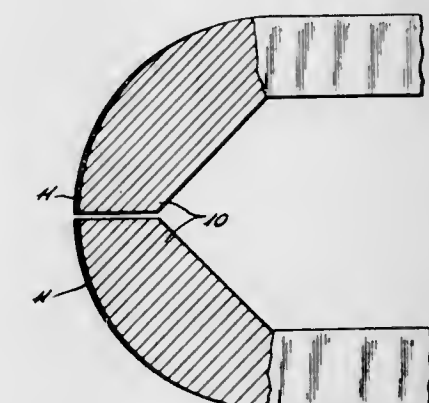
3,566,045

MAGNETIC RECORDING HEAD AND METHOD OF MAKING SAME

T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of; James D. Kern, Capinteria, and Valdimar W. Vodicka, Santa Barbara, Calif.
 Filed Sept. 26, 1968, Ser. No. 762,957
 Int. Cl. G11b 5/22, 5/42

U.S. Cl. 179-100.2

4 Claims



Automatic dialling device for dial telephones comprising a rotor, means for driving said rotor for one turn and an arrangement of cam discs provided with notches and blades for reading out said cam discs so devised that the waveform of the generated dial pulses does not depend upon the shape of the notches. The cam discs comprise a toothed track with rectangular notches indexed in its periphery and a smooth track having a diameter slightly smaller than the toothed track and adjacent thereto and accurately coaxial therewith, and first blades and second read-out blades substantially parallel to each other are provided, each first blade resting on the smooth track and each second read-out blade terminating in an inclined portion provided with a tooth extension having a width lesser than the blade width, the edge of the inclined portion of said second blade engaging the notches of the toothed track in the radial plane passing through the contact point of the first blade and smooth track and the edge of the tooth extension resting on the first blade in the said radial plane when the edge of the inclined portion falls into a notch.

3,566,044

TIME-OUT CIRCUIT FOR KEY TELEPHONE SYSTEMS

James Ronald Cross, Montreal, Quebec, Canada, assignor to The Bell Telephone Co. of Canada, Montreal, Quebec, Canada
 Filed Oct. 23, 1967, Ser. No. 677,254
 Int. Cl. H04m 1/00

U.S. Cl. 179-99

6 Claims

This invention relates to a timeout circuit for use with key telephone systems which provides timeout of the audible and visual signals in key telephone equipments within a predetermined time interval after ringing current has stopped on all the other central office lines sharing the same timeout circuit.

The timeout circuit comprises neon lamps located one in each central office or private exchange line and coupled to a common photoconductive cell, and a time delay circuit energized by the photoconductive cell in response to ringing cur-

A magnetic recording head comprising a ferrite core having a thin film of Alfesil coated thereon and a method of producing same using a plasma arc sputtering technique.

3,566,046

TWO-WAY AMPLIFIER FOR SINGLE-LINE TRANSMISSION

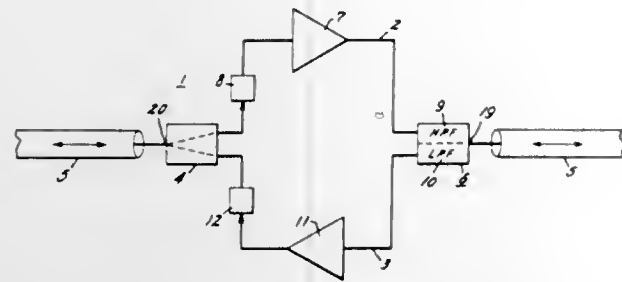
Edward D. McCormick, Schenectady, N.Y., and Frederick A. Hottes, Grand Junction, Colo., assignors to General Electric Company
 Filed Aug. 27, 1968, Ser. No. 755,614
 Int. Cl. H04b 3/38

U.S. Cl. 179-170

8 Claims

An amplifier employing a directional coupler and branching filter amplifies a plurality of signals having different frequencies and moving in different directions in a single transmission line or coaxial cable. The directional coupler

couples the plurality of signals into and out of a plurality of amplifying branches and also provides power isolation



between branches. The branching filter performs the function of separating the signals having different frequencies.

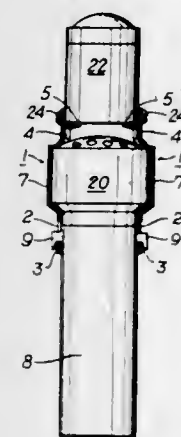
3,566,047

DETACHABLE BRACKET ASSEMBLY FOR SPACED COAXIAL MOUNTING OF DUAL TRANSDUCERS

Bernhard Weingartner, Mauerberg, and Kurt Amplatz, Inzersdorf, Austria, assignors to Akustische U.Kino-Geräte Gesellschaft m.b.H., Nobilegasse, Vienna, Austria
Filed Jan. 23, 1968, Ser. No. 700,331
Int. Cl. H04r 1/02

U.S. Cl. 179-179

6 Claims



A device for securing two transducer elements such as two microphones together includes a yoke member having an intermediate recess for receiving a head of a microphone of one of the transducer elements and with means at one end for interengaging with this transducer element. The opposite end includes inwardly directed tab elements or tongues defining stops for positioning the other transducer element or microphone at a spaced location from the head of the first transducer element. In addition this opposite end includes means for securing the second transducer element in a position abutting against the tabs.

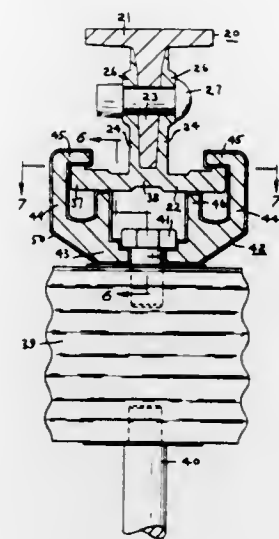
As assembly of two transducer elements includes two yoke members arranged on respective opposite sides of the transducers to be joined together. The intermediate recesses of the opposite yokes surround opposite portions of the microphone head and the respective ends of the yokes extend outwardly into engagement with respective transducers. The yoke members are advantageously made of a resilient material or include additional spring elements to provide for a biasing connection between them and the associated transducers. In one embodiment the yoke member includes an open window which is engageable over a hook projection on one transducer at one end and the opposite end is provided with openings for receiving a threaded bolt which may be threaded into the other transducer. An alternate arrangement includes a hook-shaped formation on the yoke members which engages in recess on the transducer body.

3,566,048 CURRENT CONDUCTOR RAIL SYSTEM

Gerald E. Martin, Lynchburg, Va., assignor to H. K. Porter Company, Inc., Lynchburg, Va.
Filed May 9, 1968, Ser. No. 728,009
Int. Cl. B60m 1/30

U.S. Cl. 191-22

10 Claims



A composite steel/aluminum electrical conductor rail system utilizing the structural strength and abrasion resistance of a T-shaped carbon steel insert together with the high electrical conductivity of an inverted split T-shaped aluminum body into which the stem of the steel insert is fitted.

The split T stem of the aluminum body is provided with laterally outwardly projecting longitudinally extending protrusions or keys which coact with a pair of conformingly shaped aluminum splice plates with key receiving keyways to provide electrical conductivity and mechanical strength at a rail joint at least equal to that of the same length of unbroken rail. Single and dual insulator nylon coated rail supports are provided for both overrunning and underrunning rail mounting with tapered and radiused rail grips which prevent rail seizing during longitudinal expansions and contractions of the supported rail and which supports provide for installation and removal of the conductor rail without removing the rail grips from the insulators. The splice plates are also formed to permit the use of rail supports at a splice joint.

3,566,049

SECTIONAL DIGITAL SELECTOR SWITCH CONSTRUCTION

Harry Dudley Wright, Pasadena, Calif., assignor to Becton Dickinson Electronics Company, Pasadena, Calif.

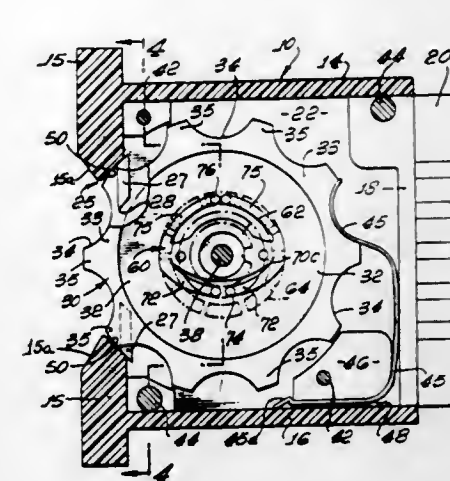
Continuation of application Ser. No. 265,315, Mar. 12, 1963, which is a division of application Ser. No. 820,543, June 5, 1959, now Patent No. 3,089,923, dated May 14, 1963. This application Oct. 6, 1969, Ser. No. 866,426
Int. Cl. H01h 19/58

U.S. Cl. 200-14

9 Claims

The invention provides a composite multiple selector switch, and switch units therefor, for displaying in-line indications of information signals that may be selected by independent manual adjustment of the individual switch units. Each switch unit comprises a stationary switch structure having stationary contacts and a rotary switch structure having rotary contacts which are selectively brought into registry to display a symbol corresponding to the selected information signal. Each of the rotary structures includes a wheel having

a plurality of lugs, at least one of which projects at any one time radially outwardly and is accessible through an open window of a switch panel on which the composite switch unit is mounted.



window of a switch panel on which the composite switch unit is mounted.

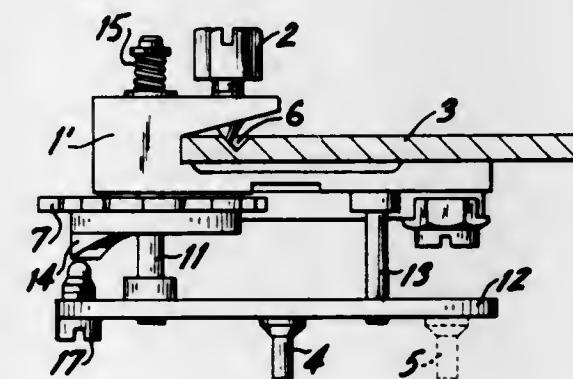
3,566,050

WEEKLY SWITCHING DEVICE FOR TIME SWITCH HAVING A ROTATING DAILY DIAL

Johannes Pfister, Birsstrasse 176, 4000 Basel, Switzerland
Filed Oct. 23, 1968, Ser. No. 770,035
Claims priority, application Switzerland, Oct. 26, 1967, 15,274
Int. Cl. H01h 7/08

U.S. Cl. 200-38

7 Claims



A weekly switching device, for a time switch including a rotating dial and a switch-operating tappet adjustably mounted thereon for rotation therewith at an angular position representing the time of day, includes a stepping wheel mounted rotatably on the tappet and having a number of stepped positions evenly divisible by seven and representing days of the week. The stepping wheel is advanced one step during each revolution of the daily dial. Switch controlling means are selectively associated with the stepped positions and operate to make ineffective operation of an electric switch by the tappet, at the time of day represented by the angular position of the tappet, on the day represented by the selected stepped position of the switch controlling means.

3,566,051

DRUM-TYPE PROGRAMMER WITH IMPROVED ELONGATED PINION GEAR AND CYLINDRICAL DRUM STRUCTURE

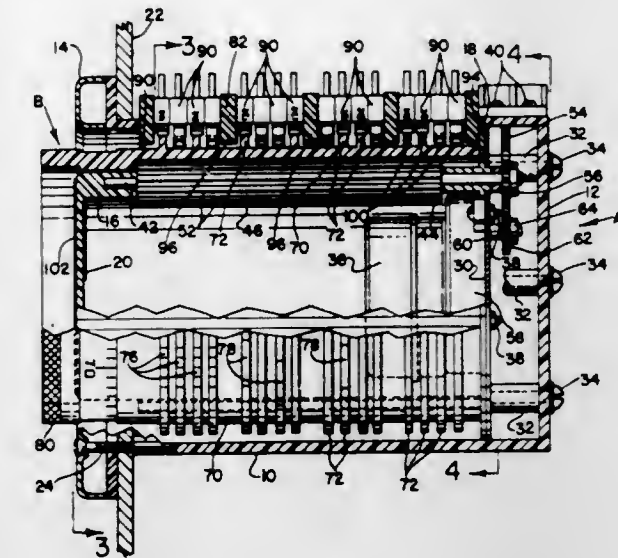
Harold D. Hulterstrum, Baraboo, Wis., and Frank Arthur Pearson, Moline, Ill., assignors to Gulf+Western Industries, New York, N.Y.

Filed Mar. 10, 1969, Ser. No. 805,728
Int. Cl. H01h 7/08, 43/10

U.S. Cl. 200-38

7 Claims

A drum-type programmer for performing a plurality of switch operations in a predetermined sequence during a timing cycle, comprising: a frame member; a motor secured to the frame member; an elongated pinion gear; means for in-



pinion gear; and, a plurality of switches mounted on the frame member for sequential actuation by the drum.

3,566,052

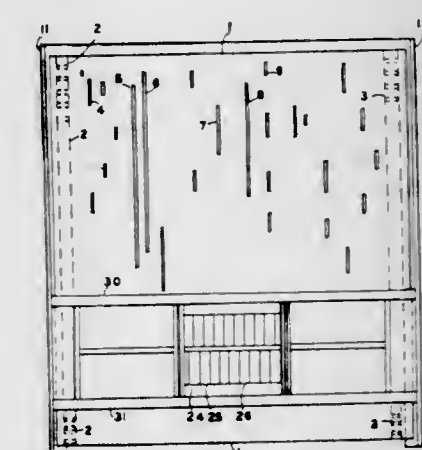
PROGRAM CONTROL MEANS

Marvin L. Mindell, Great Neck, N.Y., assignor to Viewlex, Inc., Holbrook, N.Y.

Filed Oct. 10, 1968, Ser. No. 766,393
Int. Cl. H01h 43/08

U.S. Cl. 200-46

5 Claims



A program control plate directly actuates power switches. The program control card is a plastic plate or card which has a pair of racks along the bottom side edges and a plurality of ridges on top. The plate or card is inserted in a reader device which has gears which engage the racks. The card is motor driven by control pulses to drive the control card under a bank of microswitches which are actuated by the ridges on the card. The gear arrangement has an initial locating stop which engages the racks in a zero reference position. After the sequence of operations, or at any time, when the card is withdrawn, it actuates a switching arrangement which drives the gears to the zero reference position so that when the card is again inserted, the stop will be in the proper position.

3,566,053

ADAPTABLE REPAIRABLE AND SEALED LIMIT SWITCH

Ray A. Gause, La Grange, Tex., assignor to Gause Dynamics Corporation, Houston, Tex.

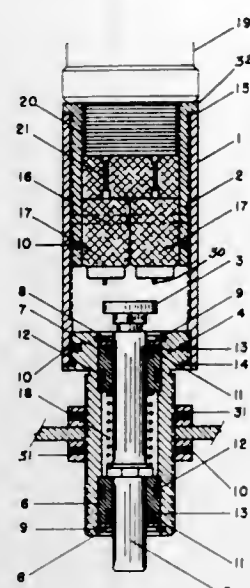
Filed May 23, 1969, Ser. No. 827,336
Int. Cl. H02j 1/16

U.S. Cl. 200-47

7 Claims

A limit switch or microswitch is described in which the switch or switches and the actuating means are entirely housed in a sealed, waterproof and airtight assembly. The

switches are axially operable microswitches which are sealed in a switch housing which may be threadably engaged with the main assembly housing; thus facilitating easy replacement



of switches. The actuating means is a reciprocating piston placed in a separate sealed housing member which also is in threaded engagement with the main assembly housing.

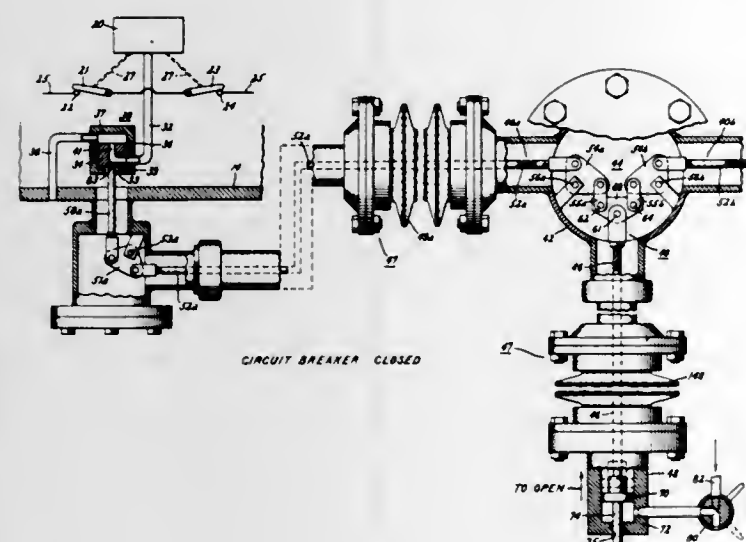
3,566,054

HIGH VOLTAGE CIRCUIT BREAKER COMPRISING A MECHANICAL LINKAGE INTERCONNECTING ITS COMPONENTS FOR SYNCHRONIZED OPERATION THEREOF

Philip Barkan, Media; Philip Sciscione, Havertown, and Edward J. Tuohy, Swarthmore, Pa., assignors to General Electric Company

Filed Feb. 13, 1968, Ser. No. 705,044
Int. Cl. H01h 33/02, 33/30

U.S. Cl. 200-48

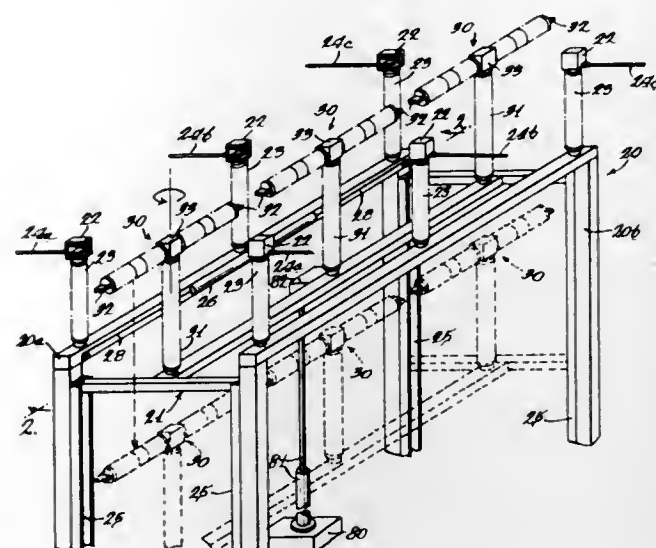


A circuit breaker comprising spaced-apart, high voltage enclosures respectively mounted atop spaced-apart insulators, circuit interrupters within the enclosures, and control valves respectively associated with the interrupters for controlling their operation. The control valves are interconnected by a mechanical linkage for simultaneously operating the control valves. The linkage comprises a force-equalizing coupling, the parts of which can change position slightly in response to minor shifting of one enclosure relative to another without imparting motion through said linkage to any of said control valves.

3,566,055
ISOLATING CIRCUIT BREAKER
Donald E. Weston, East Sebago, Maine, assignor to H. K. Porter Company, Inc., Chicago, Ill.
Filed Nov. 14, 1968, Ser. No. 775,660
Int. Cl. H01h 31/00

U.S. Cl. 200-48

28 Claims

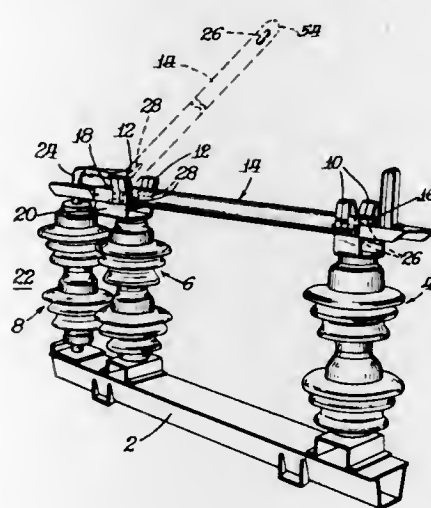


High tension electric circuit breaker comprising the combination of interrupter switch means and disconnect switch means so combined as to perform the functions of a high capacity circuit breaker, and also to perform the usual functions of a disconnecting switch, whereby to provide a single switch of novel structure attaining all of the functions of prior art circuit breakers, interrupters and disconnect switches.

3,566,056
AIR DISCONNECT SWITCH
Howard E. Joseph, Pittsburgh; Calvin C. Patterson, Bethel Park, and Marcel N. Rieser, Washington, Pa., assignors to McGraw-Edison Company, Elgin, Ill.
Filed Dec. 12, 1968, Ser. No. 783,335
Int. Cl. H01h 31/00

U.S. Cl. 200-48

7 Claims

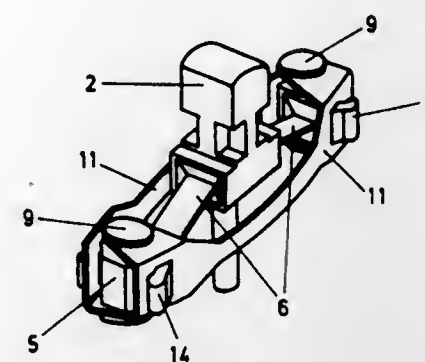


A disconnect switch having stationary contact means and movable contact means comprising a tubular switch blade having a contact structure formed therein for contacting the stationary contact means when the movable and stationary contact means are in an engaged position. The contact structure comprises a continuous portion of the wall of the tubular switch blade and is formed by radially displacing a softened portion of the wall. A silver layer is formed on the raised contact structure which engages the stationary contact means to provide low contact resistance.

3,566,057
SNAP SWITCH WITH DUAL FLEXIBLE MEMBERS AND INSULATING BEARINGS
August Reinke, 1 Wiedenhofkamp, Radevormald, Germany
Filed June 6, 1969, Ser. No. 831,126
Claims priority, application Germany, July 4, 1968, P 17 65 712.4
Int. Cl. H01h 15/18

U.S. Cl. 200-76

7 Claims

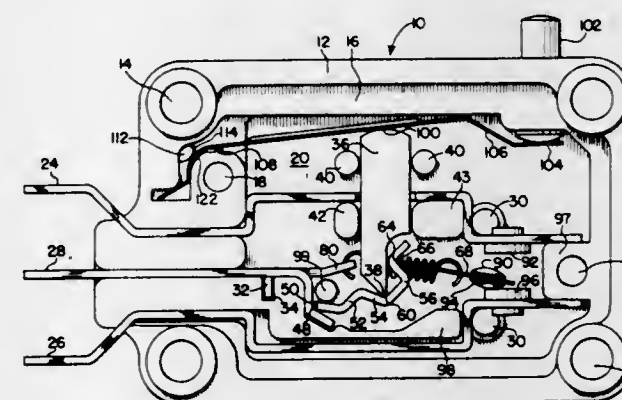


A snap-action electric switch having an overcenter mechanism including oppositely bowed spring leaves pivotally anchored with their adjacent ends to opposite insulating members, respectively, and being extended in passing of the mechanism from either stable position through a dead center position to the other stable position, with at least one of the spring leaves having at its ends bent lugs with contacts which on extension of the leaf undergo angular displacement so as to have a wiping action on associated fixed contacts on their engagement therewith.

3,566,058
SNAP ACTION SWITCH WITH LOW FORCE DIFFERENTIAL
Phillip M. Elliott, Schiller Park, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed July 1, 1968, Ser. No. 741,427
Int. Cl. H01h 13/28

U.S. Cl. 200-67

8 Claims

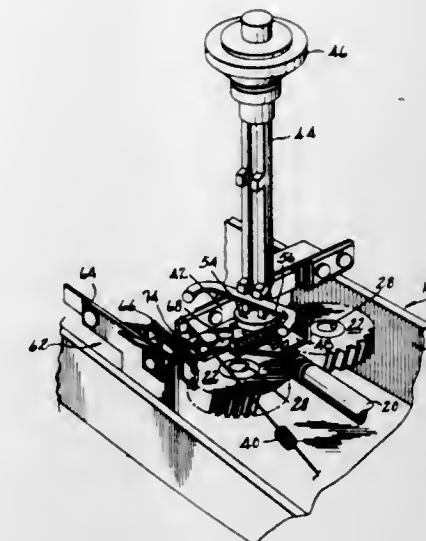


Single-pole double-throw snap action switch device has a rocking element which pivots at one end on a fixed terminal element and at its opposite end pivotally supports a movable contact element in a V-shaped pocket. An actuator member, which can be either rigid or flexible, is mounted to apply an actuating force to the rocking element intermediate its two ends. The actuating member and the rocking element contact each other in a rolling, nonsliding motion which is substantially frictionless. The device also has a mount for an over-center spring which eliminates any possibility of shifting of the spring's fixed pivot. This mount comprises a bent apertured tab to which the spring is attached. The aperture in the tab is chamfered on one side of the tab to insure the spring end can only contact the edge of the aperture on the unchamfered side.

3,566,059
SWITCH AND SPEED CONTROL MECHANISM
Bhim S. Madan, Brockport, N.Y., assignor to General Electric Company
Filed May 15, 1969, Ser. No. 824,847
Int. Cl. H01h 35/10

U.S. Cl. 200-80

5 Claims

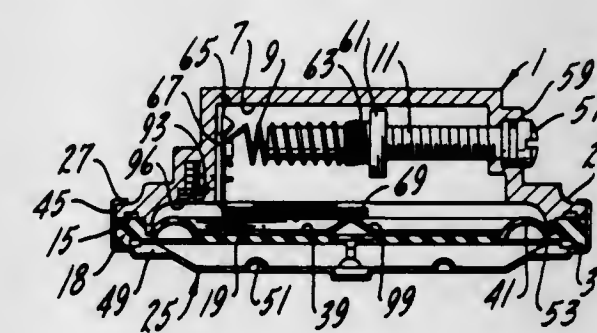


The disclosure herein shows an improved switch and speed control mechanism for an electric power tool such as a food mixer to provide accurate speed control when the mixer is in operation and employing novel positive and audible snap-action structure for shutting down the control circuit when the mixer is inoperative.

3,566,060
PRESSURE RESPONSIVE SWITCH WITH IMPROVED DIAPHRAGM OPERATING MEANS
James W. Phillips and Richard S. Zoludow, South Bend, Ind., assignors to F. W. Dwyer Mfg. Co., Inc.
Filed June 7, 1968, Ser. No. 735,339
Int. Cl. H01h 35/40

U.S. Cl. 200-83

9 Claims



A differential pressure-sensitive microelectric switch of low profile made possible by placing both high and low pressure connections on the same side of a flexible diaphragm and utilizing a range spring mounted to undergo tension and contraction in a direction perpendicular to the motion of the diaphragm. The spring is connected to the short arm of a bellcrank lever, the longer arm of which is engaged by the diaphragm and in turn operates the switch. Because of the leverage, the spring travel is small as compared to diaphragm and switch operating arm travel. By providing annular grooves in the housing members on each side of the diaphragm, aligned with passageways through the rim of the diaphragm and by providing a passageway from the high pressure connection to the groove on the same side of the diaphragm as the connection, the unit can be assembled without the necessity of lining up the parts of the device.

3,566,061

HIGH VOLTAGE SWITCH WITH ENCLOSED PREINSERTION RESISTOR

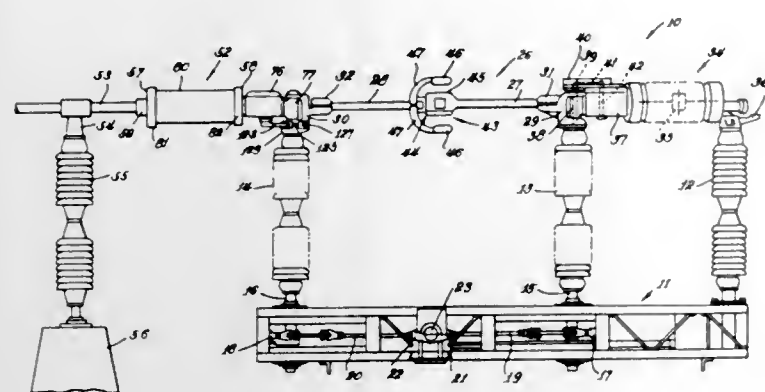
Joseph Bernatt, Arlington Heights, Ill., assignor to S & C Electric Company, Chicago, Ill.

Filed Nov. 27, 1968, Ser. No. 779,508

Int. Cl. H01h 33/16

U.S. Cl. 200-144

7 Claims



A high voltage center-break disconnecting switch has a resistor and short-circuiting contact assembly connected in series circuit relation and mounted in tandem for operation by one of the rotatable insulators in such fashion that the resistor is short circuited except during the closing movement of the switch blades. At that time the contacts are opened and the resistor is connected in the circuit to limit the inrush current. The contacts are closed as the switch blades are swung to the fully closed position to bypass the resistor when the switch is closed. A weatherproof housing encloses the resistor, short-circuiting contacts and operating mechanism therefor to protect them from contamination by the atmosphere and from rain, sleet, ice and snow.

3,566,062

HEATER ARRANGEMENT FOR SF-6 CIRCUIT BREAKERS

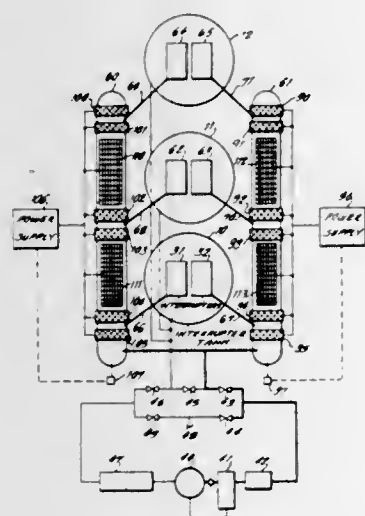
Henry G. Meier, Glendale, and George Y. DeSeve, Valencia, Calif., assignors to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed July 28, 1969, Ser. No. 845,376

Int. Cl. H01h 33/80

U.S. Cl. 200-148

6 Claims



Heaters are disposed uniformly over the exterior of high-pressure sulfur hexafluoride tanks which supply high-pressure sulfur hexafluoride gas to three interrupter tanks, which contain interrupter structures. A gas recirculating system is provided for drying and cleaning gas which circulates between a high-pressure and low-pressure system.

3,566,063

TIMER POSITION INDICATOR LIGHT

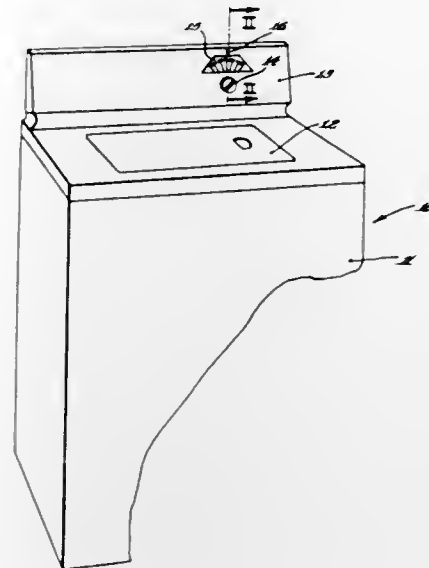
James L. McConnell, St. Joseph, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed July 24, 1969, Ser. No. 844,495

Int. Cl. H01h 9/18

U.S. Cl. 200-167

8 Claims



An automatic washing machine is provided with a visual signal that is operatively controlled by the presettable sequential control means to positively indicate that the selector means has been properly preset to the first and starting period or increment of a selected washing program.

3,566,064

RADIATION SHIELD

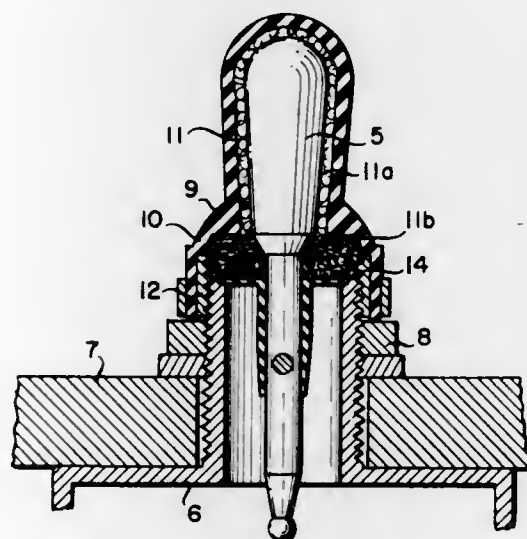
Stewart Nellis, Colts Neck, N.J., assignor to Technical Wire Products, Inc., Cranford, N.J.

Continuation of application Ser. No. 457,272, May 20, 1965, now abandoned. This application June 19, 1969, Ser. No. 835,912

Int. Cl. H01h 9/04

U.S. Cl. 200-168

13 Claims



A switch is provided which is shielded against the passage of electromagnetic energy and is composed of a switch case, a switch lever in the switch case and a flexible electromagnetic radiation shielding boot attached to said case and enclosing and shielding the switch lever to prevent escape of electromagnetic radiation through said switch. The boot has a resilient electrically insulating outside jacket and an electrically conductive wire mesh inside lining fitting within the jacket and over the lever.

3,566,065

MOTION TRANSFER MECHANISM

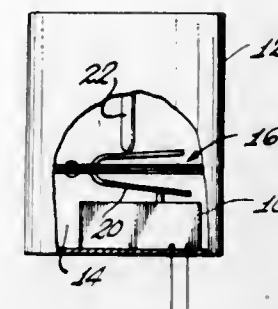
Allen V. C. Davis, 5600 Alta Canyada, La Canada, Calif. 91011

Filed Aug. 18, 1969, Ser. No. 850,787

Int. Cl. H01n 3/04

U.S. Cl. 200-172

9 Claims



A plate has a circular opening and diametrically opposed pins extending into the opening. A diaphragm is secured to one face of the plate and covers the opening. Secured to the diaphragm in the center of the opening is a disc-like element with portions which nest on and slidably engage the pins. A tongue extending from the disc is actuated to rock the disc, and thereby effect rotational movement of a member secured to the other surface of the diaphragm. Such element may be a pin, or it may be a similar disc which is similarly positioned on pins in an opening of another plate abutting the other surface of the diaphragm.

3,566,066

APPARATUS FOR HEATING ARTICLES

John B. Borthwick, Erdington, and Eric H. Searle, Sutton Coldfield, England, assignors to The Dunlop Company Limited, London, England

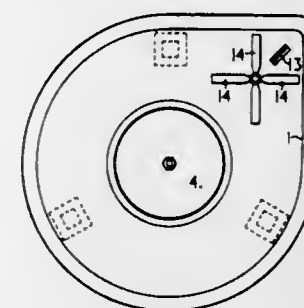
Filed Aug. 18, 1969, Ser. No. 850,890

Claims priority, application Great Britain, Aug. 30, 1968, 41507/68

Int. Cl. H05b 9/06, 5/00

U.S. Cl. 219-10.55

11 Claims



Apparatus for heating or preheating a rubber article before moulding and vulcanization. The apparatus comprises a chamber, means for locating an article within the chamber in a position symmetrical within the space in the chamber, a closure member for enclosing the article in the chamber, and a wave guide for supply of microwave energy to the chamber for heating the article, the wave guide communicating with the space in the chamber via a wave guide entry in the base of the chamber, the entry being location in a position so as to establish a multimode distribution of energy in the chamber.

3,566,067

METHOD OF SEALING OFF A REFRACTORY METAL TUBULATION BY TUBE-IN-CIRCUIT ELECTRIC HEATING

Daniel A. Larson, Cedar Grove, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 14, 1968, Ser. No. 728,942

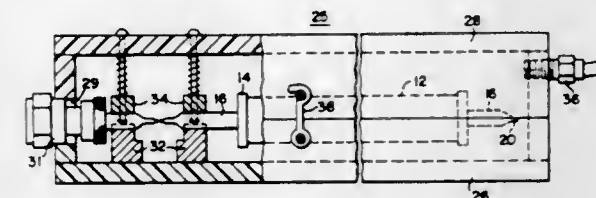
Int. Cl. B23k 11/22

U.S. Cl. 219-68

2 Claims

A method of sealing off the refractory metal exhaust tubulation of a ceramic arc tube containing a rare gas at less than

atmospheric pressure. The method primarily comprises, pinching or flattening a portion of the exhaust tubulation, disposing the arc tube and tubulation within an inert at-



mosphere at a pressure greater than that of the rare gas within the arc tube and passing a predetermined amount of electrical energy through the tubulation causing it to separate and form a vacuumtight seal at the separated edges.

3,566,068

APPARATUS FOR ALIGNING AND ARC-REMOVING TURBINE NOZZLE VANES

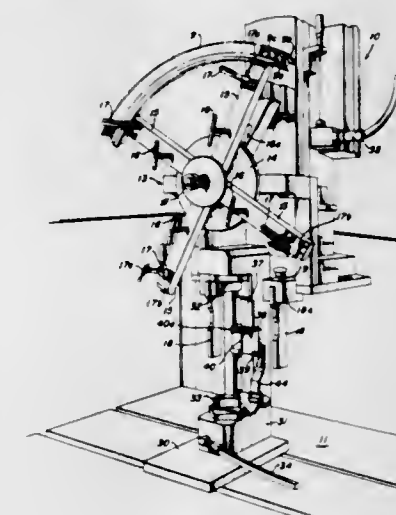
Russ L. Bruneri and James J. Carter, San Diego, Calif.

Filed Aug. 29, 1968, Ser. No. 756,089

Int. Cl. B23p 1/12

U.S. Cl. 219-69

9 Claims



The present disclosure relates to a method and means for precisely aligning a particularly shaped element having a hollow cross-sectional area, in this case an arcuately contoured hollow turbine nozzle vane, with a pair of correspondingly shaped electrodes to permit the vane's precise arc removal without damaging the structure on which the vanes are mounted.

3,566,069

CUTTING AND GOUGING METAL BY AIR CARBON-ARC PROCESS

Harold R. Henderson, Lancaster, Ohio, assignor to Arcair Company, Lancaster, Ohio

Continuation-in-part of application Ser. No. 577,935, Sept. 8, 1966, now abandoned. This application Sept. 19, 1969, Ser. No. 864,937

Int. Cl. B23p 1/12

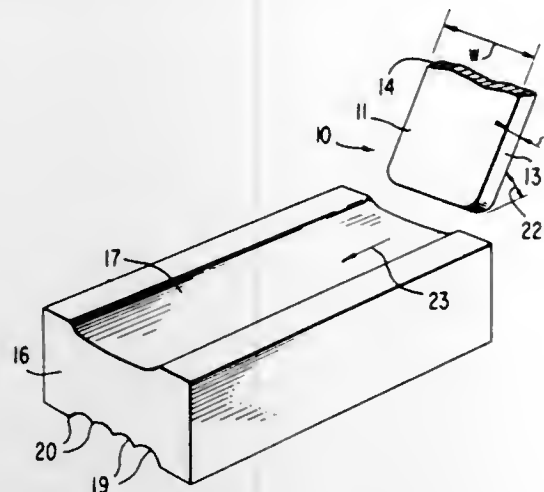
U.S. Cl. 219-70

5 Claims

An improved method of cutting a gouge in metal or filleting the corner edge of a metal block by the conventional air carbon-arc cutting and gouging process of gripping a consumable electrode with the electrode projecting toward the work while establishing a continuous arc between the electrode and the work to melt the work and, concurrently with the heating and melting, directing a free stream of air parallel to the axis of the electrode along its face to pass between the electrode tip and the work. The improvement involves gripping an electrode having a rectangular cross section and parallel opposing faces of which the transverse width is sub-

stantially greater than the electrode thickness between the faces, inclining the electrode to the work surface with a free

which is substantially greater than the width of the melted portion to produce a deep narrow weld. If spot welds are desired the step of moving may be omitted. Along with the steps above recited the beam may be oscillated back and



stream of air directed along the downwardly inclined electrode face and moving the electrode along the work opposite to the direction of inclination.

3,566,070

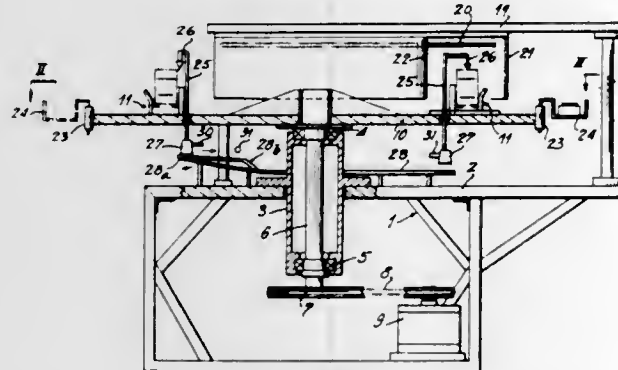
MACHINE FOR SOLDERING ON WORK PARTS, MORE PARTICULARLY FOR SOLDERING WATER BOXES ON COLLECTORS OF HEAT EXCHANGERS

Alain Edouard Plegat, Asnieres, France, assignor to Societe Anonyme Des Usines Chausson, Asnieres, France
Filed Mar. 4, 1969, Ser. No. 804,087

Claims priority, application France, Mar. 20, 1968, 144,620
Int. Cl. B23k 1/04

U.S. Cl. 219-85

5 Claims



A machine for soldering water boxes on the collectors of heat exchangers including a circular rotatable table fitted with mountings for the water boxes and the heat exchangers. The machine includes means to press each water box on its associated heat exchanger, and a fixedly mounted infrared row located above the rotatable table on a portion of its periphery.

3,566,071

METHOD OF METALS JOINING

Richard L. Matchett, Bethel Park, George Burton, Jr., Greensburg, James F. Smith, Snowden Township, and William L. Frankhouser, Irwin, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 511,275, Oct. 23, 1965, now abandoned, which is a continuation of application Ser. No. 53,302, Aug. 31, 1960, now abandoned. This application Oct. 12, 1966, Ser. No. 586,613

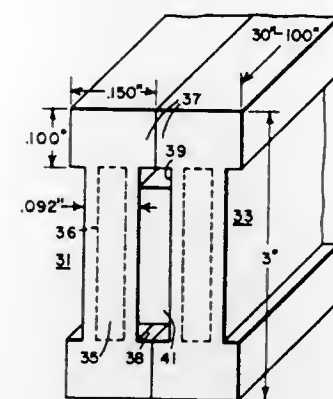
Int. Cl. B23k 15/00

U.S. Cl. 219-121

3 Claims

A process of joining metals by directing a focused electron beam on a joint to be welded and by moving the beam longitudinally of the joint whereby the adjoining walls of the work are melted and flow together to form a seam weld. The intensity of the beam is sufficient to penetrate to a depth

forth across the joint with a magnitude of the beam traversed small relative to the depth that the beam penetrates the work. All of the foregoing steps are preferably performed in a vacuum.



forth across the joint with a magnitude of the beam traversed small relative to the depth that the beam penetrates the work. All of the foregoing steps are preferably performed in a vacuum.

3,566,072

ARC WELDING SUPPLY

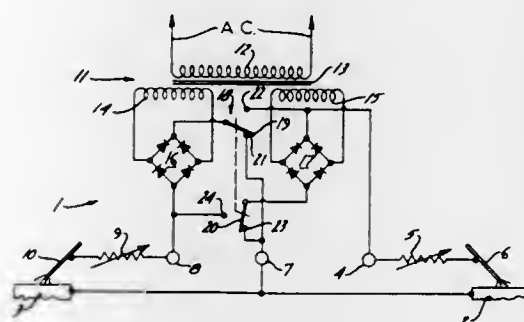
Dennis G. Pierce, Hales Corners, Wis., assignor to Chemetron Corporation, Chicago, Ill.

Filed Dec. 23, 1968, Ser. No. 786,184

Int. Cl. B23k 9/10

U.S. Cl. 219-135

6 Claims



This disclosure includes a dual polarity, multiple operator direct-current welding source including a single phase or a three-phase constant potential transformer having a primary winding and a pair of secondary windings. A separate full wave diode bridge rectifier is connected to each of the secondary windings. A double pole, double throw switch unit connects the rectifiers to three weld terminals for single polarity welding or dual polarity welding. The one pole is interconnected to the positive side of the one rectifier and selectively engages a first contact connected to the positive side of the second rectifier and to the positive weld terminals or a second contact connected to the common weld terminal. The second switch pole is connected to the negative side of the second rectifier and a first contact connected to the negative side of the first rectifier and to the negative weld terminal means or a second contact connected to the common weld terminal.

3,566,073

OUT-OF-POSITION AUTOMATIC CORED WELDING ELECTRODE

Thomas Joseph Black, Middleburg Heights, Ohio, assignor to The Lincoln Electric Company, Cleveland, Ohio
Filed Apr. 3, 1968, Ser. No. 718,588

Int. Cl. B23k 35/22

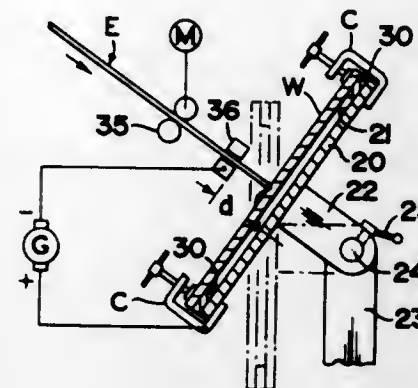
U.S. Cl. 219-146

20 Claims

Coredtype arc-welding steel electrode particularly intended for out-of-position welding wherein the ingredients in

the core provide a pinch-effect type metal transfer at relatively low arc currents as well as a viscous slag which prevents the molten metal in the weld pool from being pulled out of the weld pool by the force of gravity. The ingredients

which selectively energizes the upper or lower element for a timed period. Means are included in the control to regulate



making up the core provide a CaF_2 metallic oxide slag system which provides a shielding action to the arc, plus as an essential ingredient(s), a compound of barium or strontium or both.

3,566,074

THERMOSTATICALLY CONTROLLED ELECTRIC SOLDERING IRON

Robert A. Adamson, 35 Courtfield Rise, West Wickham, Kent, and Colin P. Adamson, "Monorest" Westerham Road, Biggin Hill, Kent, England

Filed Dec. 13, 1968, Ser. No. 783,554

Int. Cl. B23k 3/04; H01h 37/50; H05b 1/02

U.S. Cl. 219-241

1 Claim



An electrically heated soldering iron includes a tubular body of two rigidly connected colinear parts, a bit and heater element at the front end of said body and a hollow handle at the rear end of said body. A thermostatic control is disposed within the body and includes a wire having a low coefficient of thermal expansion secured at its front end to a rear part of the bit and secured at its rear end to operating means for a switch in the handle. At least a part of the rear end of the bit is of a higher coefficient of thermal expansion than the effective coefficient of thermal expansion of said wire, and said wire is tensioned as the bit heats up to operate said switch means.

3,566,075

COOKING DEVICE WITH PROPORTIONING CONTROL

Ivar Jepson, South Duxbury, Mass., and Moises B. Lorenzana, Glen Ellyn, Ill., assignors to Sunbeam Corporation, Chicago, Ill.

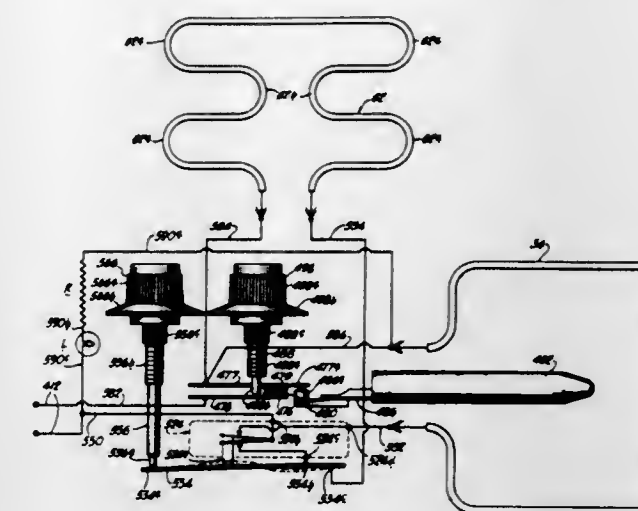
Original application Dec. 29, 1964, Ser. No. 421,795, now Patent No. 3,393,295, dated July 16, 1968. Divided and this application Nov. 22, 1967, Ser. No. 658,125

Int. Cl. H05b 1/02

U.S. Cl. 219-492

6 Claims

An electrical cooking device having an upper heating element positioned in a deep cover and a lower heating element in a shallow pan portion. A detachable control is provided



the proportions of the time each of the heating elements is energized during short cyclic intervals.

3,566,076

TONER FIXING APPARATUS

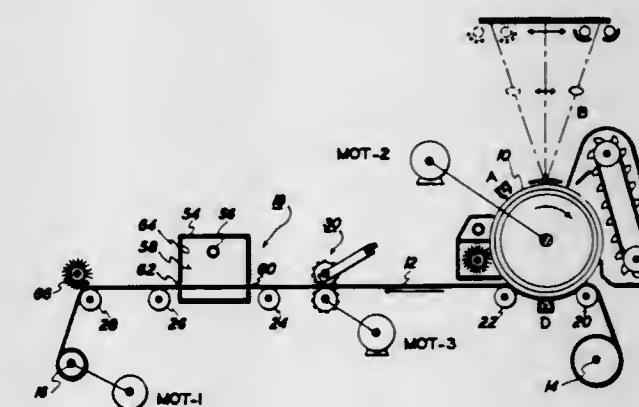
Joseph Fantuzzo, Webster; John A. McNally, and Thomas L. Thourson, Penfield, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed July 3, 1969, Ser. No. 838,777

Int. Cl. G03g 13/20

U.S. Cl. 219-216

7 Claims



Apparatus for fixing toner images to a support material during movement through first and second stations. The first station is a cold roll fixer to partially fix the image to the support material. The second is a radiant energy source to complete the fix.

3,566,077

UTILITY CARRIER END MOUNTED REPLACEABLE BASEBOARD HEATER

Robert E. Steiner, St. Louis County, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Nov. 29, 1968, Ser. No. 779,849

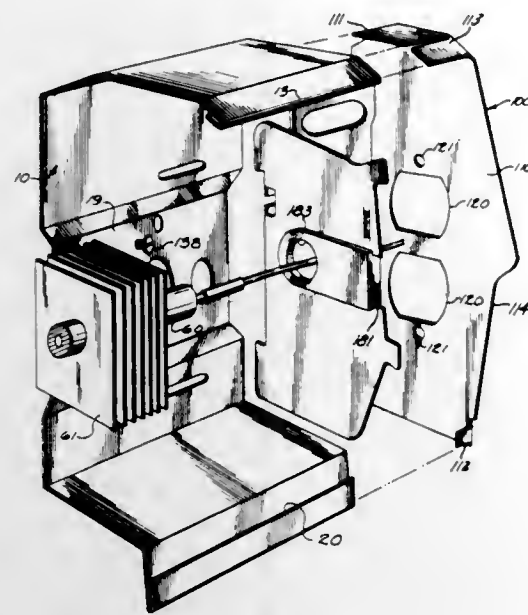
Int. Cl. F24h 9/10; H05b 3/02

U.S. Cl. 219-366

2 Claims

An electric baseboard heater having an elongated rod-type heating element supported between a backwall and a demountable front wall is provided with an end-loaded utility carrier. The carrier includes an end wall defining the end wall of the heater, a web section integral with the end wall and extending along the heater backwall and a heater-component mounting wall integral with the web section spaced inboard a substantial distance from the end wall and projecting forwardly from the web section. The component mounting wall includes means for mounting an end of the heating element and for mounting the front wall of the heater. A forwardly extending channel is provided along the heater

backwall and provides means for accommodating the screws adjacent a sample to be temperature programmed. Circuit for securing the utility carrier and the intermediate heating means are provided for applying a portion of the voltage V_0 .



element supporting brackets to the backwall. The utility carrier can accommodate such accessories as a relay, thermostat switch, female electrical receptacle, transfer switch, etc.

3,566,078

WARMUP DEMAND LIMITER FOR A BOILER OR THE LIKE

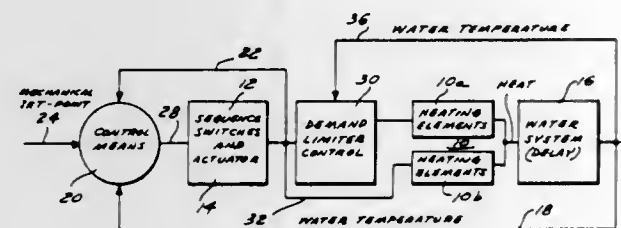
Eric S. Krackow, Flushing, N.Y., assignor to Automatic Steam Products Corporation, New York, N.Y.

Filed Dec. 4, 1968, Ser. No. 781,119

Int. Cl. H05b 1/02

U.S. Cl. 219-486

26 Claims



A demand limiter is operatively interposed between the system actuator of a control system and a predetermined number of a plurality of load elements. In the period following system actuation until the system attains a predetermined condition dependent upon the operation of the load elements, that predetermined number of load elements, as a result of the operation of the demand limiter, will be disconnected from the system actuator, thereby to limit the number of load elements capable of being energized during system warmup, and thus limiting the initial system demand on the external energy source.

3,566,079

TEMPERATURE LINEARIZATION CIRCUIT

Michael J. O'Neill, West Redding, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Oct. 11, 1968, Ser. No. 766,775

Int. Cl. H05b 1/02

U.S. Cl. 219-505

10 Claims

A temperature-programming arrangement includes a source of voltage V_0 having a magnitude which varies over a period of time in accordance with a predetermined temperature program, and, a resistance thermometer positioned ad-

to said resistance thermometer for causing a linearizing component of current to flow therein.

3,566,080

TIME DOMAIN PRENORMALIZER

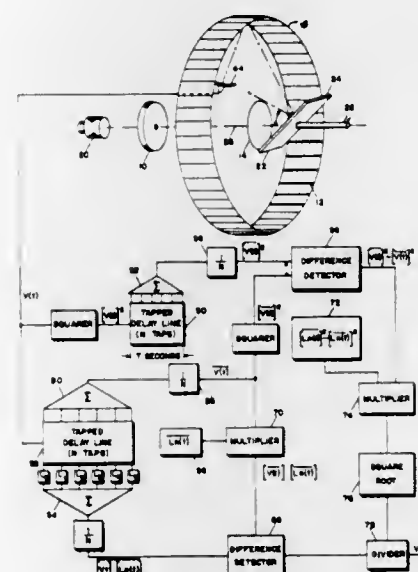
Malcolm R. Uffelman and Warren L. Holford, Fairfax, Va., assignors to Scope Incorporated, Falls Church, Va.

Filed Apr. 27, 1967, Ser. No. 634,333

Int. Cl. G06k 9/12; G01n 21/30; G01d 5/36

U.S. Cl. 235-61.6

6 Claims



An image-analyzing system using a rotating sweeping line scan to provide an input to a set of normalizing time domain filters which produce a set of outputs which describe the image in a manner independent of translation or rotation of the image. The set of outputs can be used by a pattern recognition device to classify the image.

3,566,081

MONETARY TRANSACTION REGULATION APPARATUS

Robert N. Goldman, Pacific Palisades, Calif., assignor to Telecredit, Inc.

Filed Dec. 5, 1967, Ser. No. 688,179

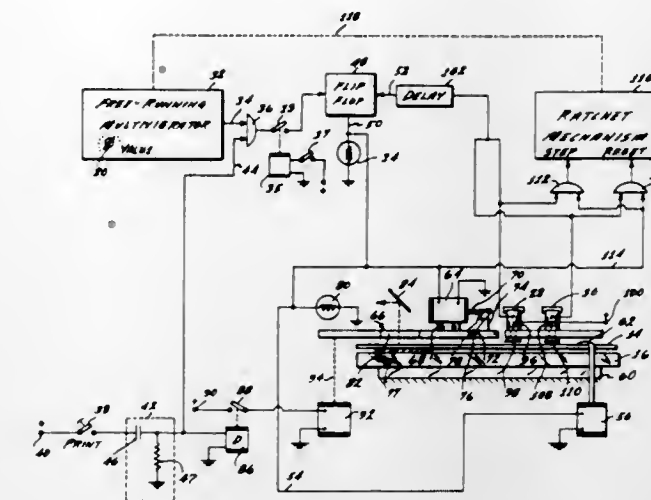
Int. Cl. G05b 1/00; G06k 1/12

U.S. Cl. 235-61.9

10 Claims

A system is disclosed for regulation of commercial transactions on the basis of preestablished criteria. A bistable device is free-running to command or dismiss the requirement for approval on each transaction, depending upon its state. The testing operation is linked with printing an identification on a

sales record. The state of the bistable device which determines the requirement for approval varies, depending upon the nature of the installation, the importance of the transaction, and the experience of the system in a particular location.



3,566,082 DEVICE FOR SCANNING STATIONARY PROGRAMMING CARDS

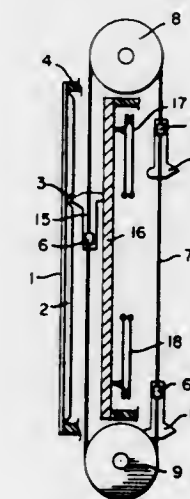
Otto Ramstetter, Prinzeneiche 22, 813 Starnberg, Germany

Filed Sept. 8, 1966, Ser. No. 578,434

Int. Cl. G06k 7/04; H01h 43/08

U.S. Cl. 235-61.11

3 Claims



A scanning device for a program card having a number of ridge-shaped control paths with notches at selected positions. Scanning levers arranged on endless runners sense the notches to cause electrical contacts to be made.

3,566,083

SENSOR FOR PUNCHES AND MARKS

John V. McMillin, Iowa City, Iowa, assignor to Measurement Research Center, Inc., Iowa City, Iowa

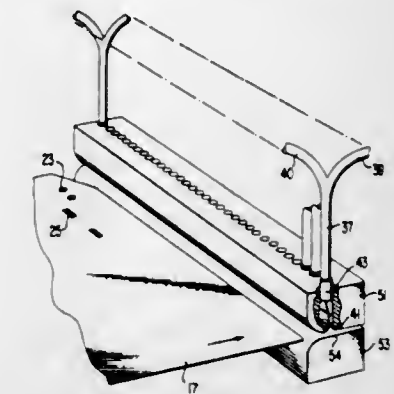
Filed Oct. 16, 1967, Ser. No. 675,670

Int. Cl. G02b 5/14, 5/16; G06k 7/10

U.S. Cl. 235-61.11

5 Claims

An apparatus for optically reading data cards bearing both standard perforations and marks. In the preferred embodiment, a plurality of bifurcated optical fiber bundles are arranged to scan the card to be read column by column. Each bundle is arranged in the form of a Y. Light is directed into one branch of the Y and a light sensitive element is con-



of light reflected is determined by whether a perforation or a mark is detected and by the density or blackness of the mark.

3,566,084

DISCONTINUITY DETECTOR

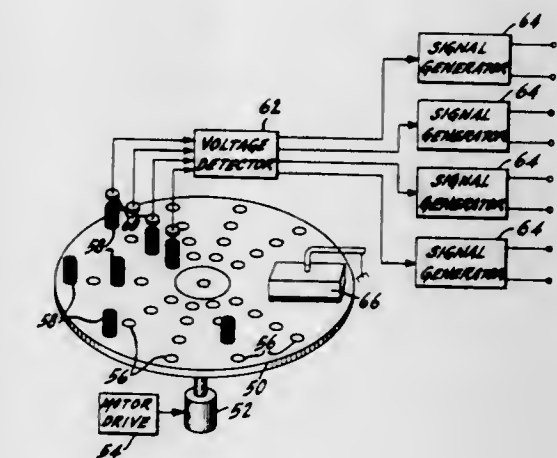
James Power Watson, Jupiter, Fla., assignor to RCA Corporation

Filed Apr. 23, 1968, Ser. No. 723,442

Int. Cl. G06k 7/08

U.S. Cl. 235-61.11

9 Claims



A detector for discontinuities in a moving medium using a probe having self-polarized material in operative association with a metal conductor connected to a voltage detector. In one form, the material is attached to the conductor, while in another form, the material is located on the other side of the medium from the conductor.

3,566,085

PHOTOELECTRIC READING APPARATUS

Etsuro Nagata, Tokyo, Japan, assignor to Tokyo Shibaura Electric Co., Kawasaki-shi, Japan

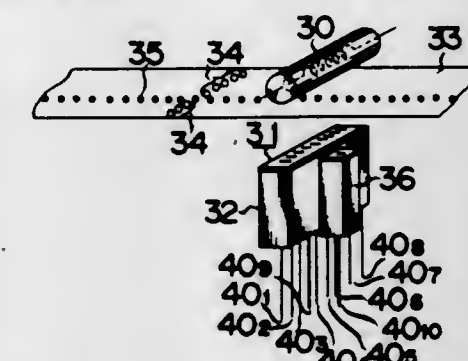
Filed Dec. 13, 1968, Ser. No. 783,693

Claims priority, application Japan, Dec. 20, 1967, 42/81209

Int. Cl. G06k 7/10; G01n 21/30

U.S. Cl. 235-61.11

4 Claims



A photoelectric reading apparatus for tapes perforated with sprocket apertures and data apertures is provided with an additional photoelectric element for the sprocket aper-

tures and with AND circuits corresponding in number to data flip-flop circuits and connected between the data flip-flop circuits and an external apparatus. A sprocket flip-flop circuit is reset when the additional element detects the latter edge of its corresponding sprocket aperture, thus supplying an input to one input terminal of an AND circuit connected with the set terminal of a start-and-stop flip-flop circuit. The other input terminal of the AND circuit is rendered open when a stop order is supplied thereto. Once the start-and-stop flip-flop circuit is set, data signals are never supplied from the data flip-flop circuits to the external apparatus even when the sprocket flip-flop circuit is set due to undesired vibrations of the perforated tapes.

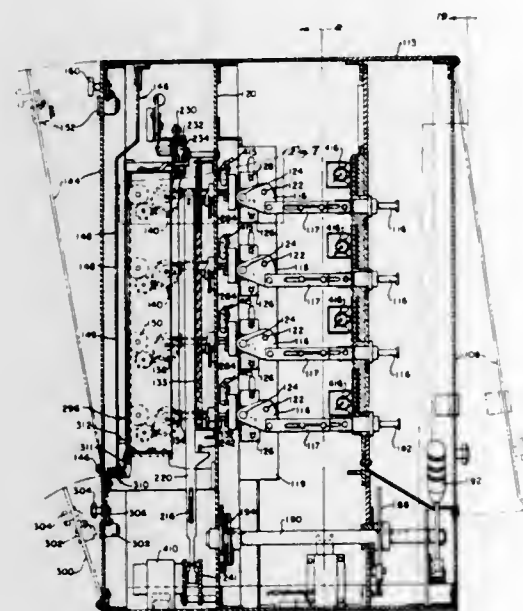
3,566,086 VOTING MACHINE

Afton V. Martin, and Michael T. Moldovan, Jr., Jamestown, N.Y., assignors to AVM Corporation, Jamestown, N.Y.

Filed Jan. 31, 1969, Ser. No. 802,313
Int. Cl. G07c 13/00

U.S. Cl. 235-54

4 Claims



An improved voting machine accommodating with improved facility a large variety of preprogrammed procedures, featuring improved "security" provisions obviating fraud potentials inherent in other machines and voting systems, and including improved overvote prevention means and means insuring failproof recording and totalizing of all intended vote selections.

3,566,087 COMPUTING DEVICE

Lawrence Dilger, Surrey, England, assignor to Veeder Industries Inc., Hartford, Conn.

Filed Aug. 24, 1967, Ser. No. 663,087

Claims priority, application Great Britain, Sept. 1, 1966, 39024/66

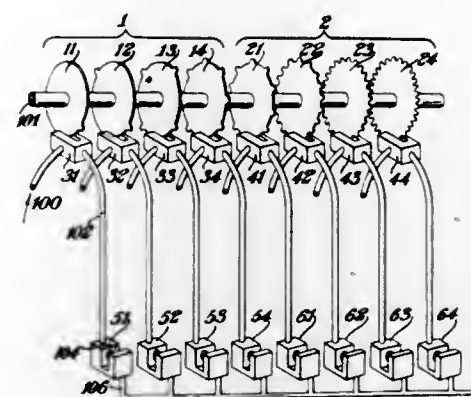
Int. Cl. G06m 1/274, 3/00; B67d 5/22

U.S. Cl. 235-92

33 Claims

A computing device for a gasoline dispensing pump for indexing a cost counter of the pump for registering the cost of fuel dispensed. The computing device includes a plurality of pulse generators with coaxial rotary pulse actuators driven by the meter of the pump and detectors or switches associated with the rotary pulse actuators for generating pulses in accordance with the angular displacement of the pulse actuators. The rotary pulse actuators are adapted to provide a number of pulses for each revolution thereof in accordance with a mathematical progression and the pulse generators include inhibitors which may be selectively operated for selecting the number of generated pulses for each gallon of fuel delivered in accordance with the desired price per gallon. In

the embodiments of FIGS. 1-5 the computing device provides for generating fluid pulses; in the embodiment of FIG. 6 the computing device provides for generating electrical pulses superimposed on an AC supply; and in the embodiments



of FIGS. 8 and 9 the computing devices employ two and three banks of pulse generators respectively having common pulse actuators and suitable pulse dividers for proportionally reducing the number of output pulses of the additional banks.

3,566,088 ANALOG CORRELATOR WITH CONSTANT SIGNAL-TO-NOISE RATIO

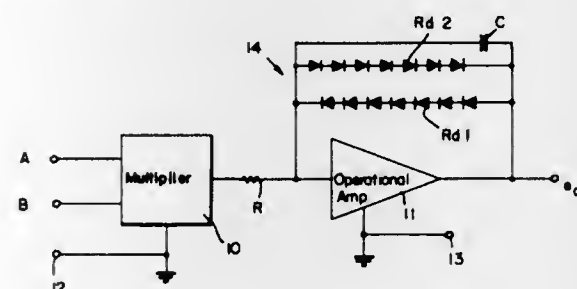
Gaines M. Crook, Canoga Park, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Continuation-in-part of application Ser. No. 607,432, Jan. 5, 1967, now abandoned. This application Aug. 22, 1969, Ser. No. 857,273

Int. Cl. G06g 7/19; H03g 3/10

U.S. Cl. 235-181

2 Claims



An improved analog correlator wherein the output of a multiplier is fed into a nonlinear amplifier having a feedback network which may contain a capacitor and in which the impedance and time constant increases for an output that is decreasing, thereby increasing the gain of the amplifier while also increasing the time constant of the amplifier by a second order in the presence of the capacitor. Because the time constant of the amplifier increases faster than the signal-to-noise input decreases, the signal-to-noise output from the amplifier gets better for low level signals and can be adjusted to maintain a substantially constant ratio over a relatively large range of input signals.

3,566,089 METHOD FOR DISPLAYING THE CONTENTS OF MAGNETIC CORE REGISTER

Akira Yokoyama; Harunaga Neya; Yoshinori Yoshimune; Nobuhiro Tomabechi, and Toshio Imai, Kawasaki-shi, Japan, assignors to The General Corporation, Kawasaki-shi, Japan

Filed Dec. 26, 1967, Ser. No. 693,411

Claims priority, application Japan, Dec. 29, 1966, Apr. 18, 1967, Apr. 24, 1967, June 14, 1967, 41-85653; 42-24225; 42-25844; 42-37766

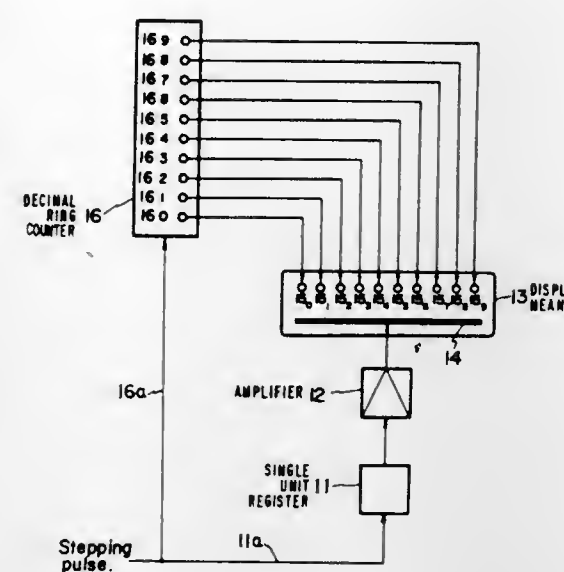
Int. Cl. G09f 9/00; H03k 23/18

U.S. Cl. 235-92

7 Claims

A displaying system for the contents of a magnetic core register on a display device having one common terminal and

10 numeral terminals such as a Nixie tube, one display device being annexed to each unit of the register, the numeral terminals of which show the same numerals of each display



device and are commonly connected, and are switched over, and driven by the output of a 10-progress ring counter which proceeds by stepping pulses in a constant cycle.

3,566,090 APPARATUS FOR CONTROLLING THE RATE OF TRANSFER OF INFORMATION

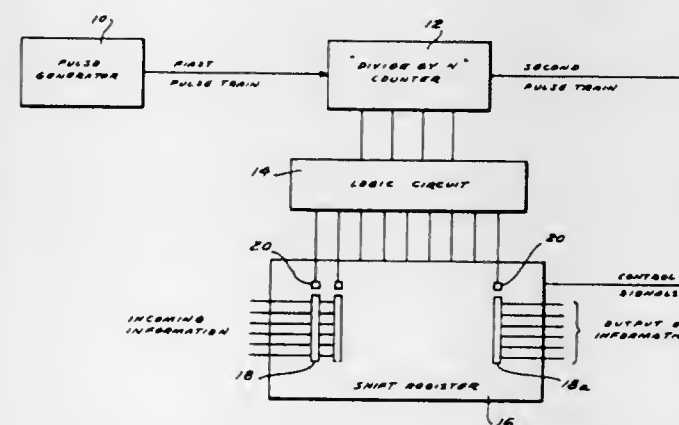
Ronald W. Johnson, Cherry Hill, N.J., assignor to Ultronic Systems Corporation

Filed Nov. 25, 1968, Ser. No. 778,605

Int. Cl. H03k 21/36

U.S. Cl. 235-92

3 Claims



Apparatus for controlling the rate at which information is transferred from the output of a multistage storage register in accordance with the rate at which information is supplied to the input of the register. A pulse generator supplies a first pulse train of equidistantly spaced pulses of like amplitude and duration to a "divide by N" counter where N is a variable integer. The output of the counter yields a second pulse train of variable recurrence frequency which is used to control the information transfer rate from the output of the register. The rate at which information is supplied to the input of the register varies, thus varying the amount of information stored in the register. A logic circuit is interposed between the buffer and the counter to vary the value of N in accordance with the changes in the amount of information stored in the register in such manner that the average rate at which information is transferred from the output of the register is always equal to the average rate at which information is supplied to the input of the register.

3,566,091 METHOD AND APPARATUS FOR CONTROLLING A PROCESS VARIABLE BY MANIPULATION OF A SELECTED ONE OF TWO VARIABLES

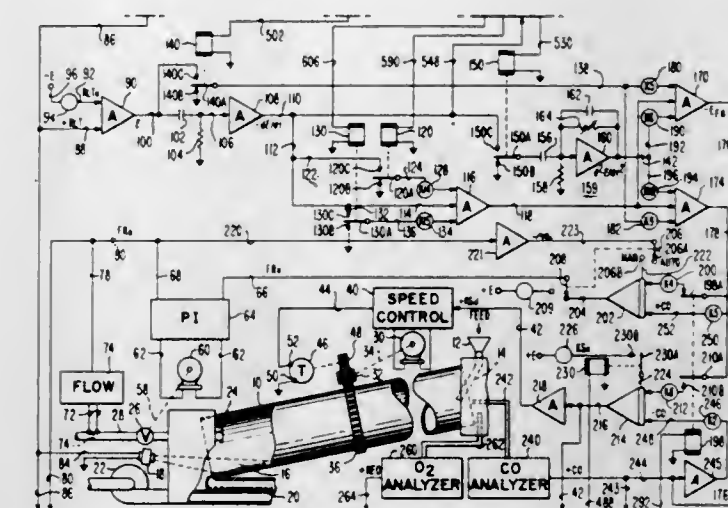
Theodosios Bay, Lansdale, and Charles W. Ross, Hatboro, Pa., assignors to Leed & Northrup Company, Philadelphia, Pa.

Filed Sept. 2, 1966, Ser. No. 577,032

Int. Cl. G051 11/01

U.S. Cl. 235-151.1

28 Claims



A method and means for controlling a rotary kiln so as to maintain the desired temperature in the burning zone utilizes a selected one of two variables to effect the control. The burning zone temperature is controlled by controlling the speed of the kiln or by controlling the firing rate. The system is specifically designed to provide an arrangement for determining whether the control will be effected by a change in firing rate. Also, the amount of proportional action which is utilized in the control and the decision as to whether or not rate and reset action will be applied is determined by the logic of the system. An anticipatory control from CO is provided. The control system is so organized that proportional action may be doubled when the burning zone temperature is above or below a predetermined limit. Also, rate action is incorporated in the control only when the burning zone temperature is decreasing below a certain high limit or increasing above a certain low limit and reset action is utilized only within predetermined limits.

3,566,092 AVERAGING COMPUTER

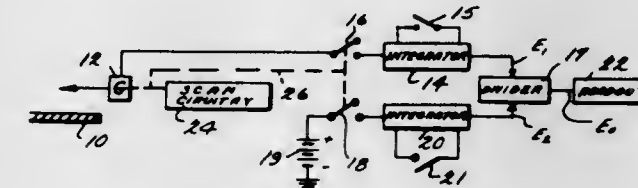
Michael P. Grant, and Henry T. Jagers, Columbus, Ohio, assignors to Industrial Nucleonics Corporation

Filed Apr. 26, 1966, Ser. No. 545,499

Int. Cl. G06g 7/12

U.S. Cl. 235-151.3

17 Claims



Specifically disclosed is an averaging system for obtaining the average value of a signal representing a transduced parameter such as the thickness of a sheet of material which is scanned by a gauge. The signal is integrated and the integral is divided by a signal representing the elapsed averaging time. The division is performed by a divider including an operational amplifier integrator having two summing circuit inputs, with the integral signal applied to one input and the amplifier output fed back to the other input through a resistive voltage divider. The feedback signal input to the summer is alternately applied and reduced to zero in

response to a time-modulation signal comprising constant-duration pulses which are time-spaced in dependence on the signal representing the elapsed averaging time.

3,566,093

DIAGNOSTIC METHOD AND IMPLEMENTATION FOR DATA PROCESSORS

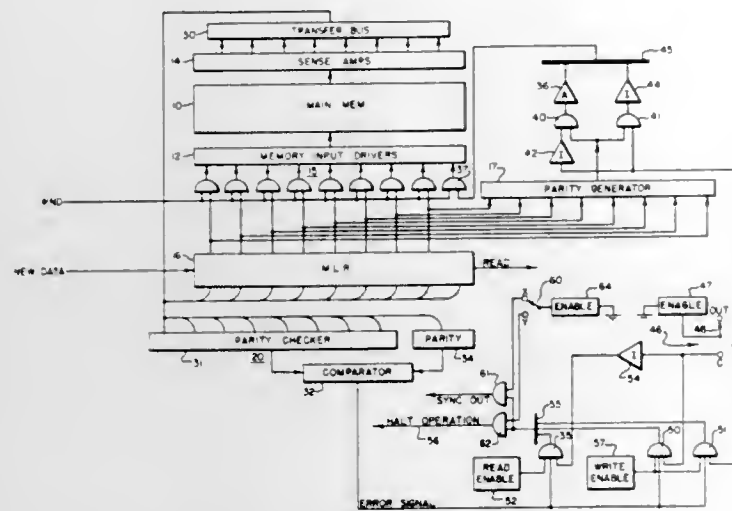
Thomas F. Joyce, Melrose; John J. Bradley, Framingham, and Richard A. Lemay, Marlboro, Mass., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Mar. 29, 1968, Ser. No. 717,267

Int. Cl. G11c 29/00; G06f 11/08

U.S. Cl. 235-153

12 Claims



The addition of means for selectively complementing parity signals provides a way of flagging selected words or locations in a memory of an electronic data processor. The parity error signal can then be used in diagnostic routines for signaling erroneous access to a memory location or to provide a distinctive synchronization signal for test equipment while the memory is cycled through a loop including locations under test.

3,566,094

REGISTERING APPARATUS

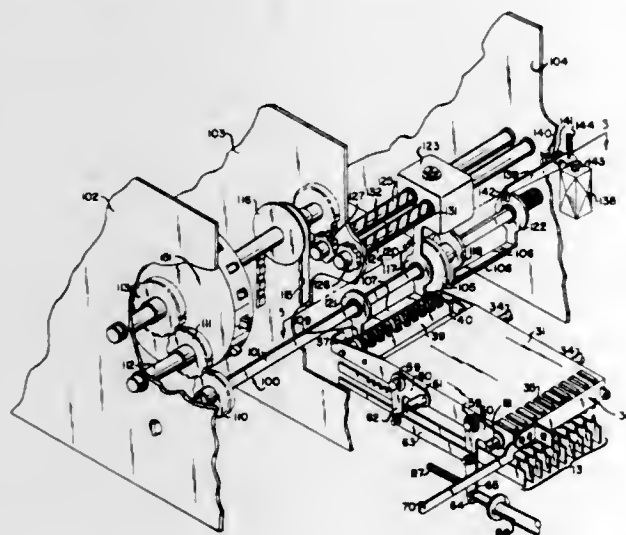
Eugene E. Reynolds, Orangeburg, S.C., assignor to SCM Corporation

Filed Apr. 9, 1968, Ser. No. 719,865

Int. Cl. G06k 1/12; G08c 11/00

U.S. Cl. 235-154

18 Claims



The invention relates to a mechanism for printing values entered in a keyboard or transmitted from a computer. Normally, values entered in a keyboard are entered in the decimal system of notation and values received from a computer or other external source are transmitted in a binary code. With this thought in mind, this invention provides a mechanism for receiving information from either an internal keyboard in decimal values or from an external source in bi-

nary coded values, entering said values serially into a storage and printing out said values in parallel.

3,566,095

BASIC TIME INTERVAL INTEGRATOR

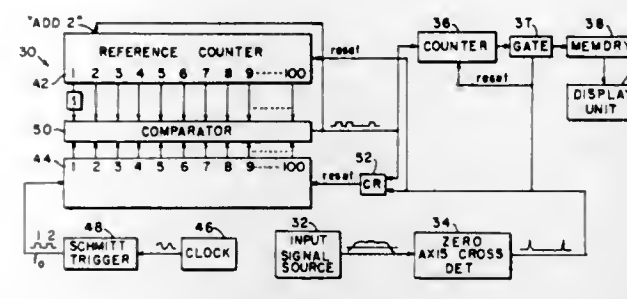
Herbert E. Schmitz, Amherst, N.H., assignor to Sanders Associates, Inc., Nashua, N.H.

Filed May 22, 1968, Ser. No. 731,003

Int. Cl. G06f 7/38

U.S. Cl. 235-158

8 Claims



A system for generating timing pulses proportional to the square root of the elapsed number of linear clock pulses employs a reference counter and a linear clock counter, the latter of which counts pulses from a linear clock. A comparator compares the counts in the counters and emits an output pulse when the two counts are the same. In response to successive output pulses from the comparator, the count in the reference counter increases by successive odd numbers and the linear clock counter recounts pulses from the linear clock until its count again equals that in the reference register, so that the successive pulses from the comparator are spaced from their predecessors by a uniformly increasing odd number of linear clock pulses.

3,566,096

DIGITAL RATIO METER

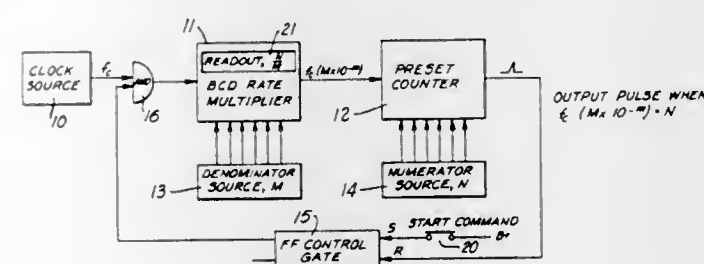
Harry B. Schultheis, Jr., Woodland Hills, Calif., assignor to Pacific Industries, Inc., New York, N.Y.

Filed July 25, 1966, Ser. No. 567,468

Int. Cl. G06f 7/38

U.S. Cl. 235-159

4 Claims



A binary coded decimal rate multiplier for computing the ratio of two input decimal numbers comprising a numerator and a denominator. Using conventional coded counters, such as the 1-2-4-8 counter or the 1-2-2-4 counter, a 1-1-2-5 binary code is used as the entry code for the denominator.

3,566,097

ELECTRONIC CALCULATOR UTILIZING DELAY LINE STORAGE AND INTERSPERSED SERIAL CODE

Volker Hildebrandt, Constance, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm Danube, Germany

Filed Mar. 6, 1967, Ser. No. 621,047

Claims priority, application Germany, Mar. 17, 1966, T30695

Int. Cl. G06f 7/38, 13/02, 15/00

U.S. Cl. 235-159

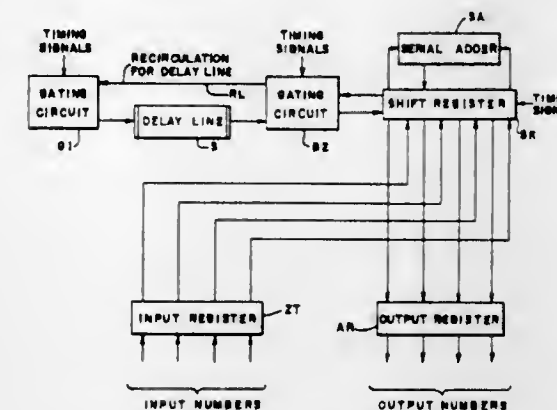
13 Claims

An electronic calculator for performing arithmetic operations on binary coded numbers using delay line storage

techniques. Four dynamic storage positions are defined in a single channel delay line storage loop by means of timing pulses, and binary coded numbers are introduced into and extracted from the delay line storage loop through a shift register which is coupled to an adder circuit. Binary coded numbers are stored in the delay line storage loop in accordance with an interspersed serial code in which each bit of each binary number is adjacent in the time sequence to

propagated carry signal for each digit position of each group which is developed by real group carry signals transferred to a selected digit position within each of said groups.

Simultaneously, therewith, the initial position sum and initial position carry signals of each digit position are employed for the purpose of developing a modified position sum signal within a group of digits of which the modified position sum signal is combined with the intergroup position carry signal which is propagated from the adjacent lower group to generate a signal representing the final position sum. Hereafter, all of the initial positions sum, group sum, super-group sum, modified position sum, real group carry, real super-group carry, intergroup position carry, final position sum or the like, may be abbreviated respectively as sum or carry signals when their meaning is clear in their related context. The high-speed parallel adder circuit of the invention is capable of performing all of the above functions through the employment of circuitry which requires only seven logical levels.



the corresponding bit of a different binary number, whereby the consecutive bits of each binary number are separated from each other in the time sequence and are interspersed among the individual bits of other binary numbers. This interspersed serial code allows the delay line storage loop to be operated at a substantially higher bit rate than the shift register and adder circuit, thereby materially reducing the size and cost of the delay line, shift register and adder circuits.

3,566,098

HIGH SPEED ADDER CIRCUIT

Makoto Kono, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan

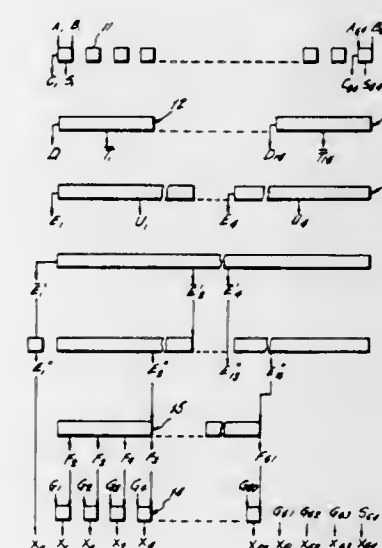
Filed Sept. 26, 1967, Ser. No. 670,729

Claims priority, application Japan, Sept. 28, 1966, 41/63887

Int. Cl. G06f 7/385, 7/48, 7/50

U.S. Cl. 235-175

3 Claims



A high-speed parallel adder circuit employing wired AND CML circuitry in which the digits corresponding to digit positions of the two multibit words are added to obtain an initial position sum and an initial position carry. Selected digit positions are divided into groups to develop group sum and group carry signals for each of said groups. The groups, in turn, are divided into super groups, and the group sum and carry signals, in turn, are employed to develop super group sum and super group carry signals. The super group sum and super-group carry signals are, in turn, utilized to develop a real super group carry for each super group and to develop, indirectly, a real carry for each group. The real group carry signals, in turn, are employed for the development of a

3,566,099

LIGHT PROJECTION ASSEMBLY

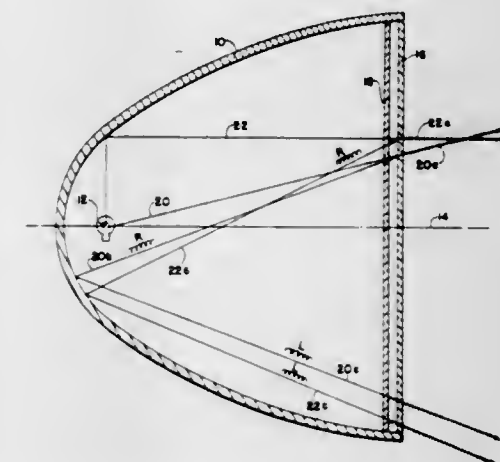
Albert S. Makas, Medford, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Sept. 16, 1968, Ser. No. 762,280

Int. Cl. F21v 9/14

U.S. Cl. 240-9.5

4 Claims



Apparatus for projecting a beam of uniformly polarized light. A planar reflective-transmissive polarizer in combination with a quarter-wave plate is used in front of a reflector. The polarization component initially rejected by the polarizer is reflected or backscattered rather than being absorbed. Its polarization azimuth is altered by the quarter-wave plate and reflector to match that of the initially transmitted polarization component. Therefore, substantially all light emitted by the apparatus's source is eventually projected outwardly, uniformly polarized.

3,566,100

DEEP SUBMERSIBLE LIGHT ASSEMBLY

Robert L. Seeley, and Edwin C. Buffington, San Diego, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed Aug. 6, 1968, Ser. No. 750,603

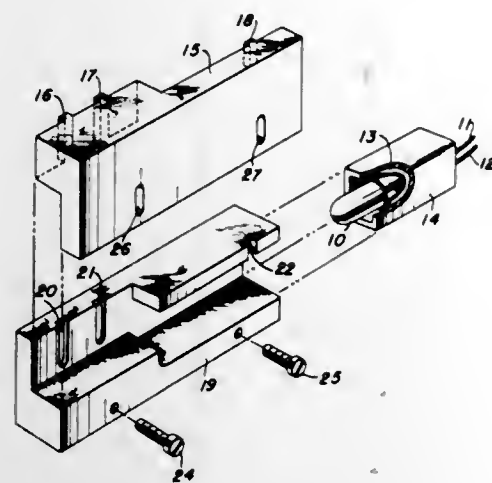
Int. Cl. F21v 31/00

U.S. Cl. 240-26

7 Claims

A deep submersible light assembly includes a light bulb having electrical conductors connected to it and encapsulated to protect the connections and the conductors from the high pressure water environment while exposing the glass portion of the light bulb. A two-part body assembly receives the light bulb and forms a slot of adjustable size by selecting the position of one body members relative to the other and fixing the selected size of slot with a fastener which secures one part of the body assembly to the other. The slot and the cavity within the body assembly which receives the light bulb is free-flooding so that when the light assembly is employed in a deep submersible environment, the high pressure, cooler water allows the light to be operated substantially in excess

of its normal rating thereby producing much greater light. The light bulb may be an ordinary commercially available

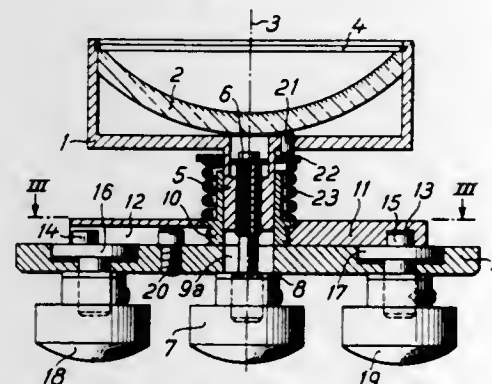


type since it has been found that several types will withstand the extreme pressures found at up to 4,000 feet ocean depths.

3,566,101 CENTERING DEVICE

Willi Hagner, Oberbiel Kreis Wetzlar, Germany, assignor to Ernst Leitz Gmb, Wetzlar, Germany
Filed June 17, 1968, Ser. No. 737,552
Claims priority, application Germany, June 22, 1967, 1,623,224
Int. Cl. F21v 7/00, 19/02
U.S. Cl. 240-44.1

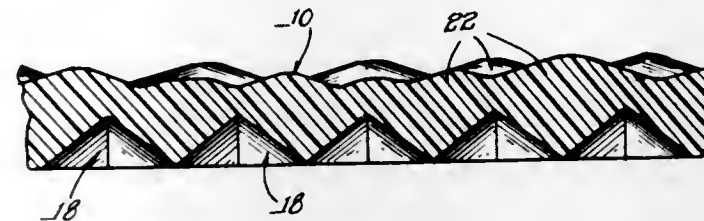
3 Claims



A device for centering optical elements which is adjustable in three directions normal to each other having a carrier, a shaft, one guide bar, one base plate and one compression spring. The device is adjustable in all three directions by a spindle and two eccentric studs. The base plate has a central bore and a first and second bore on either side of the central bore. The guide bar has a sleeve perpendicular to the central bore and also has first and second grooves perpendicular to each other. The carrier for an optical element is provided with a hollow internally threaded shaft which has an outer surface extending into the sleeve. The spindle has a threaded end which is threaded into the internally threaded shaft of the carrier and extends through the central bore. A first knob is secured to the other end of the spindle and abuts the base plate. The spring is positioned between the carrier and the guide bar to apply force to the base plate, the guide bar and carrier to hold them together in an adjustable relationship. When the first knob is turned it adjusts the carrier in an axial direction. The eccentric studs extend through the first and second bores and engage the first and second grooves, respectively, of the guide bar. When the eccentric studs are turned the position of the guide bar and carrier are adjusted.

3,566,102
LIGHT PANEL
Arthur D. Choyke, Jr., Chicago, Ill., assignor to Artcrest Products Co., Inc., Chicago, Ill.
Filed Sept. 13, 1967, Ser. No. 667,477
Int. Cl. F21v 5/00
U.S. Cl. 240-78

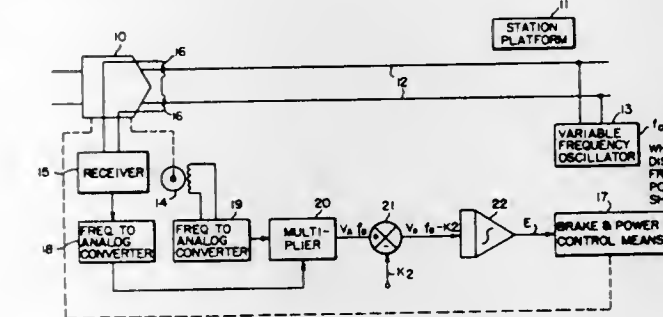
3 Claims



A light panel which may be used from either side to produce two different lighting effects. The panel is a translucent sheet having a plurality of protuberances on one side and a plurality of indentations on the opposite side. Each of the protuberances has a plurality of plane surfaces intersecting the plane of the sheet, and each of the indentations has a plurality of plane surfaces also intersecting the plane of the sheet.

3,566,103
RAIL VEHICLE CONTROL SYSTEMS
Clinton S. Wilcox, and Vincent P. Kovalcik, Rochester, N.Y., assignors to General Signal Corporation, Rochester, N.Y.
Filed Dec. 6, 1968, Ser. No. 781,742
Int. Cl. B61l 3/10
U.S. Cl. 246-182

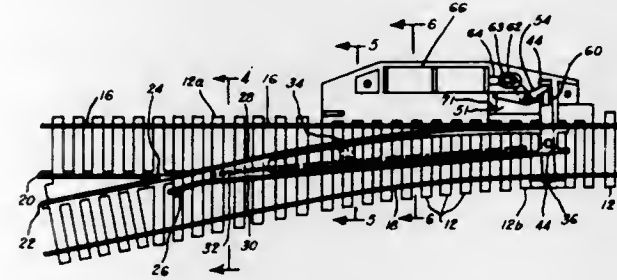
4 Claims



A system for controlling the operation of rail vehicles in response to a continuously variable frequency in the rails, wherein the frequency varies in accordance with the distance of the vehicle relative to a wayside location at which the frequency is applied to the rails. This distance frequency signal is used in combination with a frequency signal generated in accordance with the actual speed of the vehicle to control operation of the vehicle.

3,566,104
MODEL RAILWAY SWITCH ASSEMBLY
Clarence K. Edwards, 865 Morrison St., and Lawrence D. Edwards, 2816 Rosemont Ave., Medford, Oreg. 97501
Filed July 30, 1968, Ser. No. 748,733
Int. Cl. A63h 19/32
U.S. Cl. 246-415

6 Claims



A model switch assembly is provided of the kind in which the switch includes blades or rails depended upon both (a)

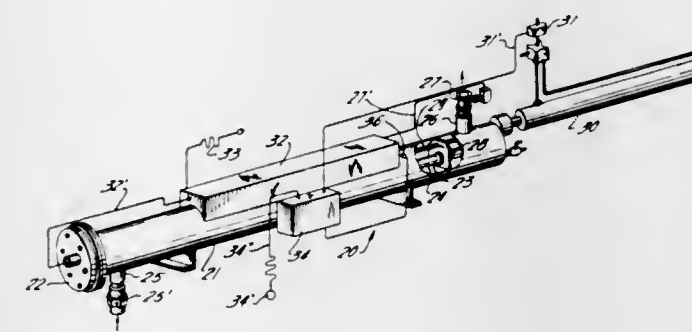
for controlling which of two track forks a locomotive or train will be delivered onto from a main track section, and (b) for delivering electrical energy selectively to the track forks and through the track forks to operating instrumentalities on the locomotive and/or the cars.

Firm but yielding conductive pressure of both ends of either switch blade with cooperative rails is assured by providing a switch pivot which is normally biased to a datum position, but which can yield. With this arrangement, when one end of a switch blade is closed on a rail, that does not block the closing of the opposite end of the blade nor the keeping of it pressed firmly and dependably on the rail with which it is designed to cooperate.

3,566,105
SYSTEM FOR ULTRAVIOLET IRRADIATION OF FLUIDS WITH FAIL SAFE MONITORING MEANS
Dale E. Wiltrout, Wyckoff, N.J., and Myron Dale Wood, Hasbrouck Heights, N.J., assignors to Ultradynamics Corporation, Paterson, N.J.
Filed Aug. 16, 1968, Ser. No. 753,285
Int. Cl. G01n 21/26

U.S. Cl. 250-43

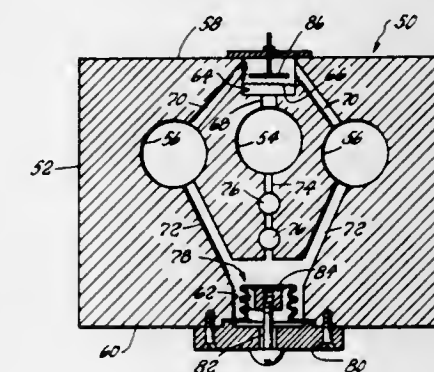
8 Claims



System for the purification and/or sterilizing of liquids by the application of ultraviolet (U-V) ray-emission means. The system includes a monitor for measuring the output of the ultraviolet source and at preset intervals activates various devices for rendering the system fail-safe.

3,566,106
NONMICROPHONIC INFRARED GAS ANALYZER
Taylor C. Fletcher, Orange, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Jan. 2, 1969, Ser. No. 789,096
Int. Cl. G01n 21/26

U.S. Cl. 250-43.5



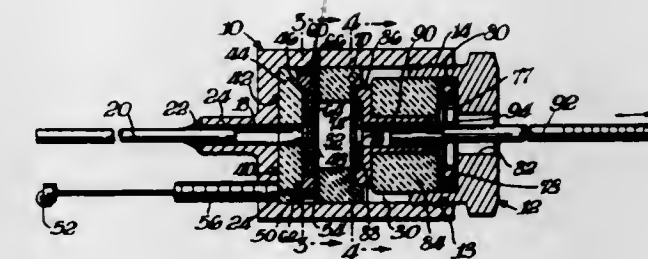
In an infrared analyzer cell having at least two pockets of the same gas separated by a very thin sensitive diaphragm, an electrical element adjacent to the diaphragm and fixed to the cell housing to function with the diaphragm as a capacitor, a slow leak path between the pockets to preclude static pres-

sure differential across the diaphragm, an infrared window for transmitting energy in a predetermined energy band in the infrared portion of the spectrum to one of the gas pockets, the centroids of the two gas pockets being contiguous to minimize deflection of the diaphragm relative to the pockets of gas with vibration of the cell.

3,566,107
NICKEL 63 ELECTRON CAPTURE DETECTOR
Donald F. Taylor, West Grove, Pa.; Uban James Peters, and John A. Schmit, Newark, Del., assignors to Hewlett-Packard, Palo Alto, Calif.
Filed Nov. 24, 1967, Ser. No. 691,673
Int. Cl. G01n 23/12

U.S. Cl. 250-44

1 Claim

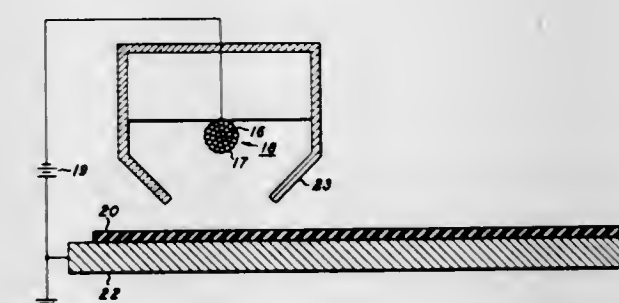


A gas ionization detector is constructed to have a stacked array of individual elements together defining a sealed cavity disposed within mating cylinder and piston-housing members. The piston is adapted to threadedly engage the hollow cylindrical housing. Disposed within the cylindrical housing is a first electrically nonconductive washer, a disclike anode electrode, a second electrically nonconductive washer, and a disc element containing the radioactive material. Mounted within a bore formed in the piston portion of the housing is a thrust bearing, a spacer washer, and a disclike cathode electrode. A tube extending through the spacer washer of the piston element communicates with the outside of the detector. An orifice in the cylindrical housing provides a second access to the outside of the detector. When the piston-housing member is inserted into the cylindrical housing and tightened, the stacked elements within the housing form an inner sealed cavity which is capable of relatively high temperature operation and facilitates removal and replacement of the radioactive material.

3,566,108
CORONA GENERATING ELECTRODE STRUCTURE FOR USE IN A XEROGRAPHIC CHARGING METHOD
John W. Weigl, and Richard J. Komp, Webster, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Filed Jan. 27, 1967, Ser. No. 612,124
Int. Cl. G02g 13/00

U.S. Cl. 250-49.5

5 Claims



A corona generating article is provided by overcoating a strand or bundle of strands with a material which is at least partially conductive.

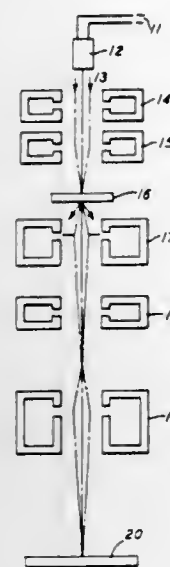
3,566,109

ELECTRON MICROSCOPE METHOD AND APPARATUS FOR IMPROVING IMAGE PHASE CONTRASTRobert D. Heidenreich, Madison, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Feb. 15, 1968, Ser. No. 705,810

Int. Cl. H01j 37/26; G01n 23/04

U.S. Cl. 250-49.5

6 Claims



Superimposition of a critical amount of an AC component on the objective lens current of an electron microscope results in obtaining useful image contrast for object spacings below 10 angstroms.

3,566,110

ELECTROSTATIC CHARGING APPARATUS WITH MEANS TO BLOW ELECTROSTATIC CHARGE ONTO A PHOTOCONDUCTIVE SURFACE FROM A REMOTELY LOCATED CORONA GENERATOR

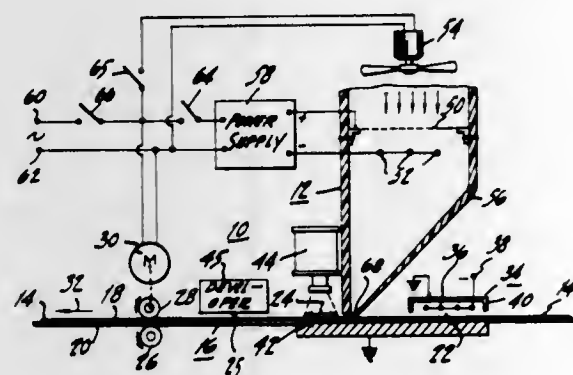
Henderson C. Gillespie, Moorestown, N.J., and Roger G. Olden, Gwynedd, Pa., assignors to RCA Corporation

Filed Feb. 20, 1968, Ser. No. 706,835

Int. Cl. B41m 5/22; G03g 13/00, 15/00

U.S. Cl. 250-49.5

5 Claims



An insulating surface, such as the surface of a photoconductive layer of an electrophotographic recording element, is provided with an electrostatic charge by a method comprising (1) charging a gas (air) with a corona discharge device at a location relatively remote from the insulating surface, and (2) blowing the charged gas to the insulating surface at a desired location. Apparatus for charging the insulating surface comprises a conduit disposed between electrodes of a corona discharge device and the insulating surface at the desired location. Blower means blow the charged gas through the conduit to the insulating surface.

3,566,111

APPARATUS FOR VARYING THE DETECTOR SLIT WIDTH IN FULLY FOCUSING X-RAY SPECTROMETERS

Bruno Harm, Karlsruhe, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed June 18, 1968, Ser. No. 737,970

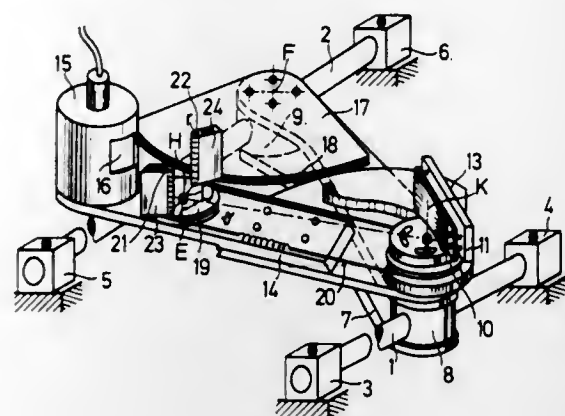
Claims priority, application Germany, June 19, 1967,

P 15 72 829.7

Int. Cl. G01n 23/22

U.S. Cl. 250-51.5

7 Claims



A mechanism in a fully focusing X-ray spectrometer for adjusting the width of the detector slit to an optimal value as the analyzer crystal is rotated during the spectrometric process. The analyzer crystal, the detector slit and the detector are mounted on a detector arm. The width of the detector slit is defined by the space (viewed from the analyzer crystal) between two screening members affixed to a pulley in a diametrically opposed relation. Said pulley is rotatably connected with another pulley being at a constant distance therefrom and being secured to the analyzer crystal. A relative rotation of the analyzer crystal with respect to the detector arm is transmitted as a rotation of the same extent to the pulley carrying the screening members.

3,566,112

X-RAY GONIOMETERS PROVIDING INDEPENDENT CONTROL OF THREE ROTARY MOTIONS AND ONE RECIPROCATING MOTION

Kurt Luecke, Morillenhag 80, 51 Aachen, Germany

Filed Aug. 1, 1968, Ser. No. 749,425

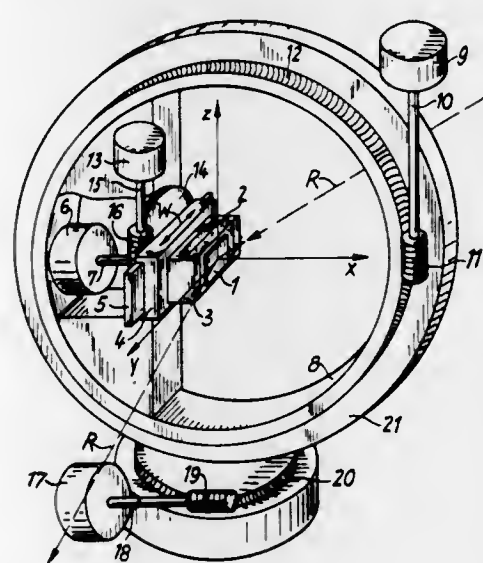
Claims priority, application Germany, Aug. 5, 1967,

P 15 72 719.2

Int. Cl. G01n 23/20; H01j 37/20

U.S. Cl. 250-51.5

9 Claims



In an X-ray goniometer an apparatus comprising a specimen holder, a first motor to move the holder in a linear reciprocating path parallel to the specimen face exposed to the X-rays, a second motor to rotate said holder about an X-axis normal to said face and passing through the center of said specimen, a third motor to rotate said holder about a Y-

axis normal to said X-axis and lying in the plane defined by the incident and diffracted X-rays and a fourth motor to rotate said holder about a Z-axis normal to said plane and passing through said specimen; all four motors are adapted to be controlled independently of one another.

3,566,113

METHODS OF AND APPARATUS FOR IRRADIATION OF ARTICLES BY RADIOACTIVE PANELS

Pierre Balanca, Neuilly-s/-Seine; Georges Frignet, Paris, and Rene Pierlas, Antony, Seine, France, assignors to Saint-Gobain Techniques Nouvelles, Courbevoie, France

Filed Dec. 1, 1965, Ser. No. 510,863

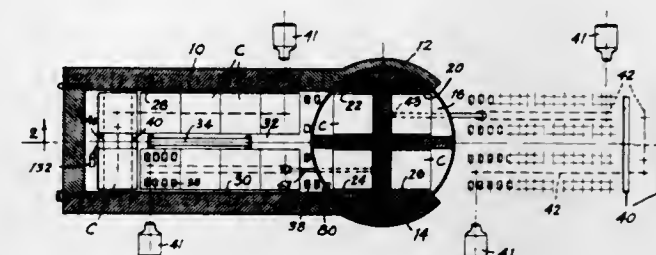
Claims priority, application France, Dec. 2, 1964, Oct. 27,

1965, Oct. 27, 1965, 997,132;36,417;36,418

Int. Cl. H01j 37/20

U.S. Cl. 250-52

21 Claims



Method and apparatus for the irradiation of containers and articles therein, by radioactive panels. A chamber defined by shielded top, bottom and sidewalls, and one end wall, supports a radioactive panel in vertically-erect position midway between and parallel with the sidewalls, to define two corridors side by side. The otherwise open end of the chamber is closed by a cylindrical housing rotatable about its vertical central axis. The housing has four compartments separated and defined by shielded walls. In one of two 180° positions of the housing, two of these compartments register with the respective corridors while the other two face outwardly for loading and unloading. In a second 180° position the locations of the compartments are reversed. Conveyor means support the containers and move them in and along one corridor, past the radioactive panel, translate them without rotation at and along the end wall, then in a return translation pass in and along the corridor at the other side of the panel, to thus complete a cycle. Opposite sides of each container are thus directly and equally exposed to radiation, during a cycle. The bottom wall of the chamber has an opening into which fits a shielded housing for enclosing the panel during transport. Means are provided for elevating the panel from the housing into the chamber, through the opening, when the chamber and housing are in interfitting relation. The panel may be in upper and lower sections and connected for relative vertical translation. When collapsed, the panel sections fit snugly into the housing. When moved from the housing into the chamber, the sections automatically move vertically and relatively and when fully emplaced in the chamber, form what is in effect a single panel of double the area of the sections. Suitable safety interlocks provide complete protection for operating personnel and indicate and assure proper functioning of the apparatus. The invention is of particular value because it may be transported in sections from one place of use to another.

3,566,114

METHOD AND MEANS FOR DETECTION OF MICROORGANISMS IN THE ATMOSPHERE

Aubrey K. Brewer, 3247 38th St. N.W., Washington, D.C.

Filed Apr. 25, 1968, Ser. No. 725,269

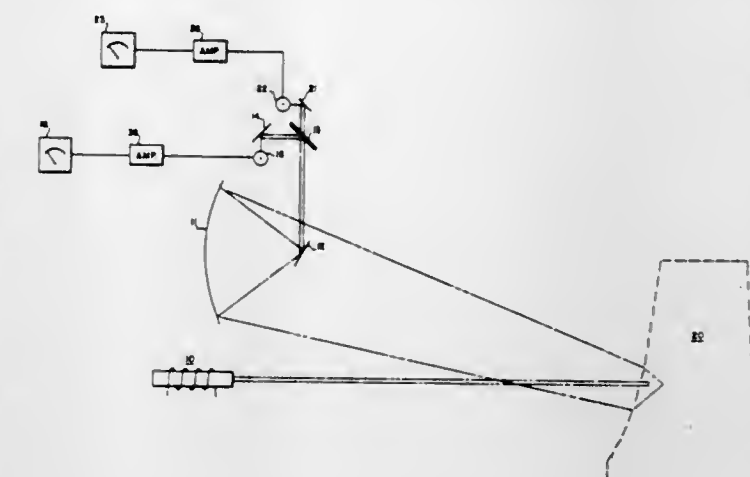
Int. Cl. G01j 3/28

U.S. Cl. 250-71.5

2 Claims

This disclosure is directed to a method and apparatus for detecting and identifying bacteria within the atmosphere. A suitable ultraviolet light is directed into the atmosphere. The light will be reflected back by nonliving substances, and living organisms such as bacteria will be excited and produce fluorescent light. Means adjacent to the light source is pro-

vided to receive and differentiate between the reflected and fluorescent light. Bacteria of different classes will produce



their characteristic wavelength; therefore, bacteria of different classes may be determined.

3,566,115

RADIATION DOSIMETER COMPRISING A GAS-EVOLVING MATERIAL

Ann Swain; Robert Sheldon, Abingdon, and Geoffrey Brian Stapleton, East Hanning, England, assignors to Science Research Council, London, England

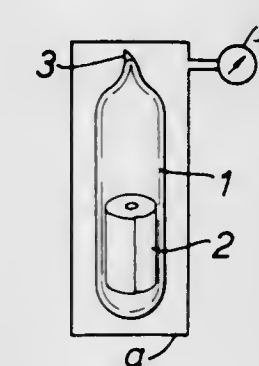
Filed Mar. 11, 1968, Ser. No. 712,078

Claims priority, application England, Feb. 12, 1968, 6889/68

Int. Cl. G01t 1/04

U.S. Cl. 250-83

7 Claims



A radiation dosimeter device comprising a container having a substantially constant volume, and a material within the container which material evolves a gas when irradiated by the radiation to be measured, the dose being determined by measuring the quantity or pressure of the gas after irradiation.

The material is preferably polyethylene powder or film and the quantity or pressure may be determined by a permanently connected conventional Bourdon pressure gauge or by breaking the container into a constant volume apparatus connected to a pressure gauge or by measuring the ionization produced across electrodes sealed into the container.

3,566,116

METHOD AND APPARATUS FOR MEASURING NEUTRON CHARACTERISTICS OF A MATERIAL SURROUNDING A WELL BORE

William B. Nelligan, Danbury, Conn., assignor to Schlumberger Technology Corporation, Houston, Tex.

Filed Nov. 8, 1966, Ser. No. 592,795

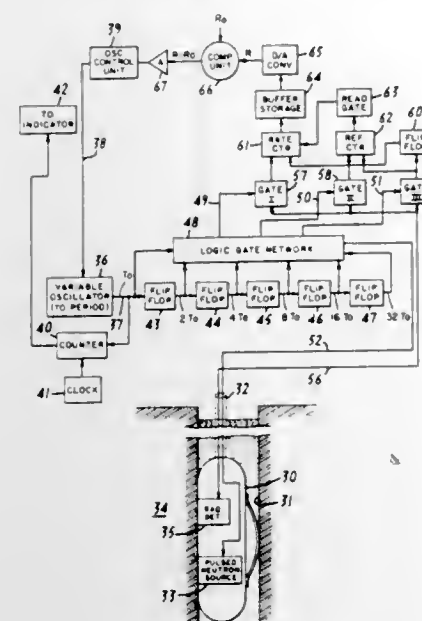
Int. Cl. G01t 1/17; G01v 5/00

U.S. Cl. 250-831

33 Claims

In the particular embodiments of the invention described herein, the formation surrounding a well bore is irradiated with a burst of neutrons and the neutron concentration is observed during selected time intervals after irradiation to

determine the thermal neutron decay time characterizing the formation. In one embodiment, the neutron concentration is observed during a first interval one decay time long and dur-



ing a second and subsequent interval two decay times long which starts immediately after the first interval. In another embodiment the two intervals are spaced by one decay time.

3,566,117

MEASURING TECHNIQUE

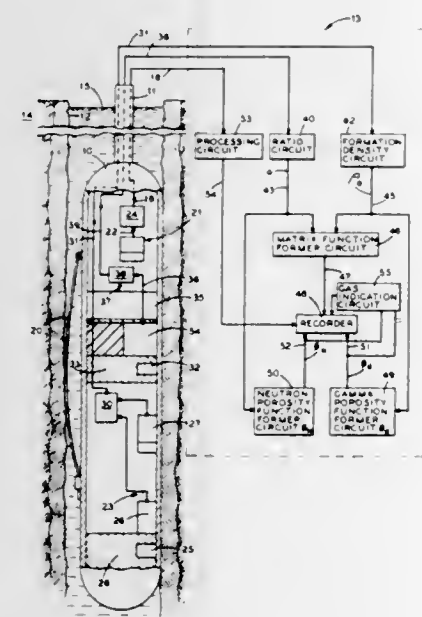
Maurice P. Tixier, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Jan. 5, 1968, Ser. No. 695,972

Int. Cl. G01t 1/20; G01v 5/00

U.S. Cl. 250-83.1

1 Claim



A specific embodiment of the invention provides a technique for measuring the matrix composition and gas saturation of an earth formation surrounding a borehole. These parameters may be measured by combining porosity dependent signals derived from two-detector neutron porosity tool with the bulk density-related signals from a two-detector gamma-gamma mudcake compensated density tool. The combined signals produce more accurate indications of matrix lithology and gas saturation.

3,566,118 AN AXIALLY ALIGNED GAMMA RAY-NEUTRON DETECTOR

Charles W. Peters, Alexandria, Va., assignor to the United States of America as represented by the Secretary of the Navy

Filed Nov. 14, 1968, Ser. No. 775,837

Int. Cl. G01t 1/20, 3/00

U.S. Cl. 250-83.1

4 Claims



A neutron and gamma ray detector including in combination one detector that detects gamma rays and another detector that detects neutrons in the presence of a large flux of gamma rays. The two detectors are combined in such a manner that the scintillator material of the gamma detector becomes the moderator material of the neutron detector.

3,566,119

INFRARED SCANNING DEVICE USING A SPHERICAL LENS

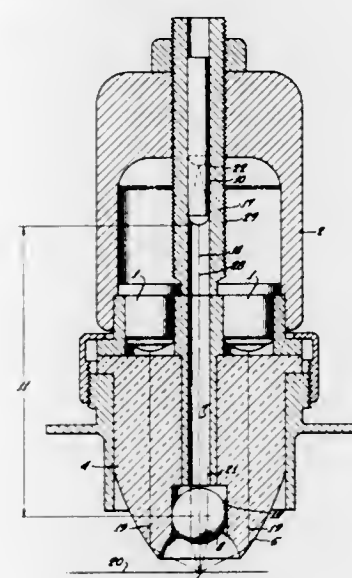
Edward V. Lewis, Newport Beach, Calif., assignor to California Computer Products, Inc., Anaheim, Calif.

Filed Oct. 6, 1967, Ser. No. 673,457

Int. Cl. G01j 1/42

U.S. Cl. 250-833

2 Claims



The scanning of graphically displayed information may be accomplished using infrared energy. The necessary elements include a source of infrared energy, a means for concentrating the energy on a small sample area, and a sensor which is responsive to energy reflected from the sample area. From the standpoint of dynamic response and reliability, a lightweight self-contained source and receiver of infrared energy is required. By changing the focal point of energy concentration the scanning head may be made to function as a detector of distant objects.

3,566,120

METHOD OF CODED DATA STORAGE BY MEANS OF CODED INKS IN WHICH THE CODE COMPONENTS HAVE PARTICULAR ABSORPTION BANDS IN THE INFRARED

Leslie C. Lane, Jr., Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of application Ser. No. 526,183, Feb. 9, 1966, now abandoned. This application Sept. 25, 1968, Ser. No. 777,538

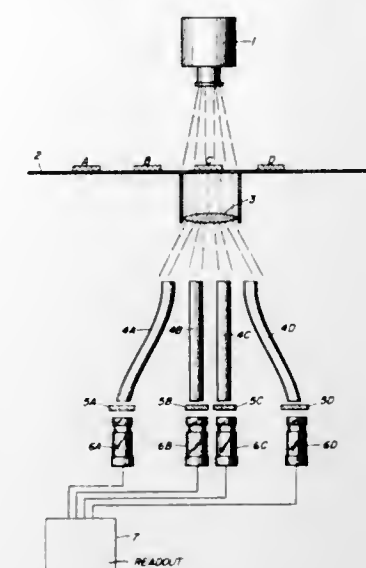
Int. Cl. G01j 3/34

U.S. Cl. 250-83.3

3 Claims

A data storage method is described in which inks with code components of compounds having narrow absorption

bands in the infrared are impressed on a substrate which is transparent to the infrared in the regions of the absorption bands of the code components. Decoding is effected by passing infrared radiation through the areas of the substrate



where the symbols have been placed in the coded inks and the infrared radiation detected in the particular bands of the coded components to produce electrical signals which are then analyzed to produce a readout corresponding to the particular symbol.

3,566,121

DETECTING INTERNAL CHARACTERISTICS OF LIGHT PERVIOUS MATERIAL

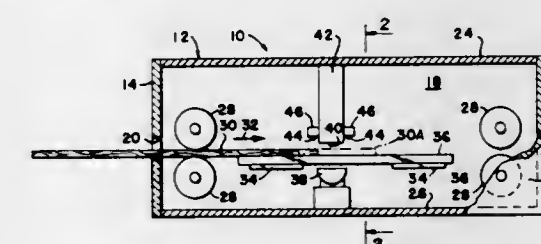
Clifford E. Myers, Forest Grove, Oreg., assignor to Welsh Panel Company, Longview, Wash.

Filed Nov. 25, 1968, Ser. No. 778,545

Int. Cl. G01t 1/16

U.S. Cl. 250-83.3

9 Claims



Apparatus for detecting defects in the core of plywood panels and the like. The apparatus includes transport mechanism for moving a panel along a path, a light source for illuminating one face of a panel moved along the path, and light sensors positioned to sense the amount of light from the source transmitted through a panel. The light sensors produce responses related to the amount of light so transmitted, and such responses are interpreted by electronic circuitry connected to the sensors to indicate the presence of a defect. The invention recognizes that in a plywood panel, different types of defects in the core produce different types of responses and such can be used to segregate panels as to their core defects.

3,566,122

BLACK BODY CAVITY RADIOMETER

T. O. Paine, Administrator of the National Aeronautics and Space Administration with Respect to an Invention of James M. Kendall, Sr., Pasadena, Calif.

Filed Mar. 10, 1969, Ser. No. 805,405

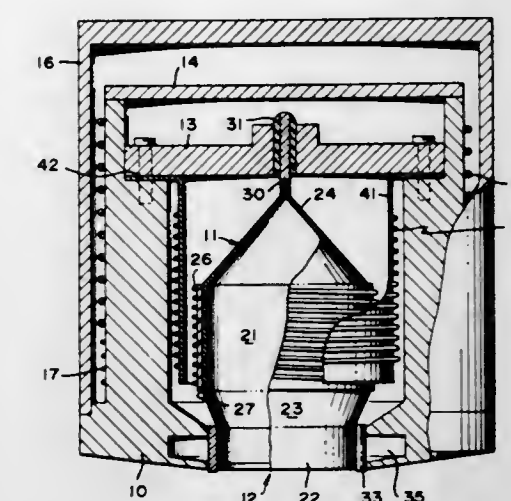
Int. Cl. G01j 1/02

U.S. Cl. 250-83.3

15 Claims

A black body cavity radiometer is provided by a radiation receiving isothermal body having a short hollow cylinder with a hollow cone at one end. The cylinder is spun down at the

other end to a smaller hollow cylinder of short length to form a radiation cavity having an aperture. A thermal guard surrounds the cavity, except over the aperture. The annular wall of the guard around the short cylindrical extension of the cavity is provided with an internally blackened groove which functions as an annular radiation trap for radiation from the internal surface of the guard and the external surface of the cavity. Glass rods or fibers maintain a thin annular space between the guard and the cylindrical extension of the cavity.



3,566,123

HINGED WINDOW FOR AN X-RAY ANALYZER CHAMBER

George William Browning, Sale, England, assignor to Associated Electrical Industries Limited, London, England

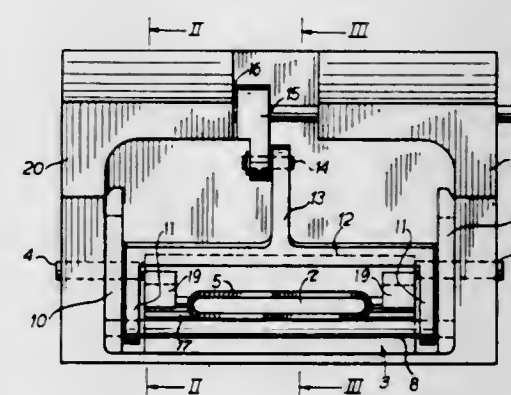
Filed Dec. 11, 1967, Ser. No. 689,642

Claims priority, application Great Britain, Dec. 13, 1966, 55,816/66

Int. Cl. H01j 5/16, 5/18

U.S. Cl. 250-86

10 Claims



An X-ray chamber having an aperture in a wall closed by a hinged window controlled by an actuating member so as to form a vacuum seal in the closed position.

3,566,124

MINIATURIZED RADIOISOTOPE GENERATOR

Wayne J. Gemmill, Warwick, N.Y., assignor to Union Carbide Corporation

Filed Apr. 12, 1968, Ser. No. 720,800

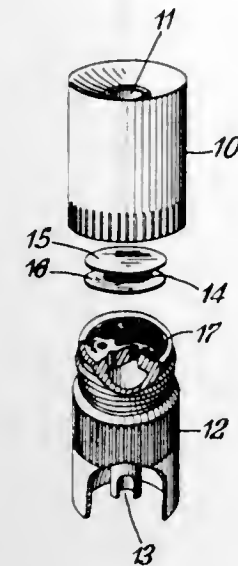
Int. Cl. G21h 5/00

U.S. Cl. 250-106

7 Claims

A nonshielded, miniaturized radioisotope generator for the production of radioisotopes having a nonhazardous level of

radioactivity is comprised of a closed container having an entrance port at one end, an exit port at the other end, an inner chamber communicating with the entrance and exit



ports and an elutable radioactive material disposed in the generator in such a manner that the eluate can be withdrawn without contamination by the radioactive source.

3,566,125

RADIATION EXCITED LIGHT SOURCE

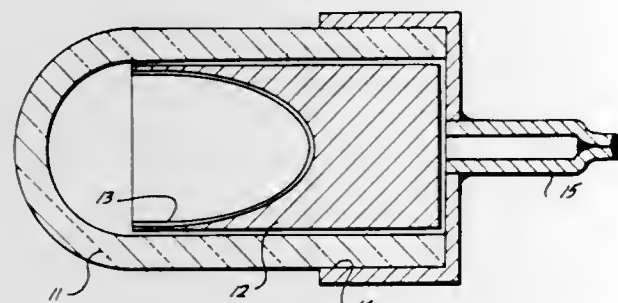
Theo F. Linhart, Jr., Robert J. Doda, and Arthur F. Mahon, Tucson, Ariz., assignors to American Atomics Corporation, Tucson, Ariz.

Continuation-in-part of application Ser. No. 470,381, July 8, 1965, now abandoned. This application July 19, 1968, Ser. No. 746,145

Int. Cl. G21h 3/02

U.S. Cl. 250-106

30 Claims



A radiation excited self-luminous light source in which luminescence is provided by the impingement of beta emissions upon a phosphor within the source. A gastight chamber within the source is bounded by a concave phosphor surface and by radiation-resistant window. The concave surface is of a predetermined shape designed to maximize the efficiency of the source. In addition, the gastight chamber is designed to withstand pressures of up to 15 atmospheres, thereby enabling gaseous radioisotopes of greater activity to be utilized as the source of beta emissions. In one embodiment, greater efficiency is achieved by utilizing a window having a convex surface which corresponds to the concave phosphor surface and which is positioned a predetermined distance from the phosphor surface equal to the average range of beta emissions within the chamber.

3,566,126

ACQUISITION AND TRACKING LASER COMMUNICATION SYSTEM

Kenneth T. Lang, Needham; Robert F. Lucy, Andover, and Gerard H. Ratcliffe, Boston, Mass., assignors to Sylvania Electric Products Inc.

Filed Nov. 29, 1967, Ser. No. 686,471

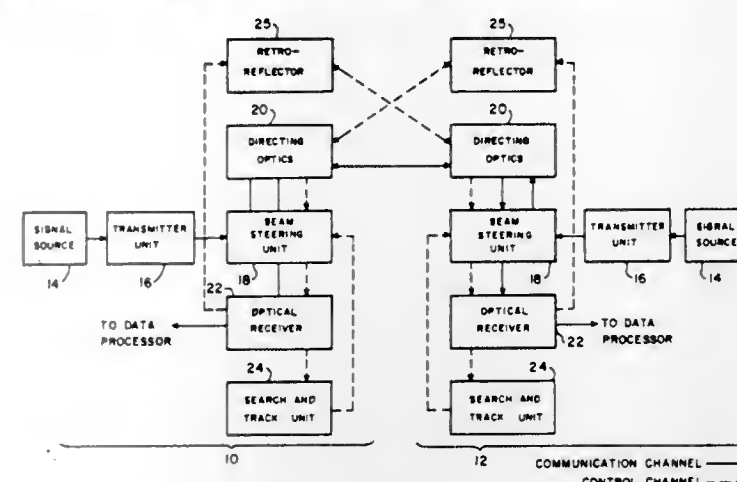
Int. Cl. H04b 9/00

U.S. Cl. 250-199

7 Claims

A laser communication system employing first and second

transmitter-receiver terminals wherein each terminal includes a single beam steering element to simultaneously control



both the transmitted and received signals while maintaining a high degree of isolation between the two signals.

3,566,127

LONG DISTANCE TRANSMISSION OF COHERENT WAVES

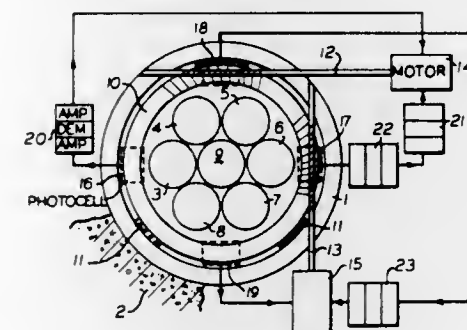
Theodore Hafner, 265 Riverside Drive, New York, N.Y.

Filed Apr. 5, 1968, Ser. No. 726,268

Int. Cl. H04b 9/00

U.S. Cl. 250-199

26 Claims



An optical beam wave guide has an array of lenses for guiding light beams to and from a multichannel transmit/receive system. The array of lenses are adjusted by a servosystem to maintain the multiple light beams parallel to each other.

3,566,128

OPTICAL COMMUNICATION ARRANGEMENT UTILIZING A MULTIMODE OPTICAL REGENERATIVE AMPLIFIER FOR PILOT FREQUENCY AMPLIFICATION

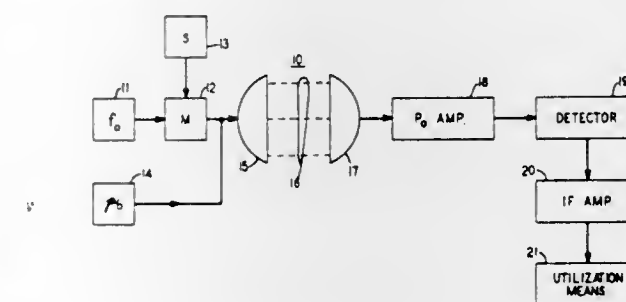
Jacques A. Arnud, Matawan Township, Monmouth County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Continuation-in-part of application Ser. No. 695,446, Jan. 3, 1968, now abandoned. This application June 17, 1968, Ser. No. 744,264

Int. Cl. H04b 9/00; H01s 3/05

U.S. Cl. 250-199

16 Claims



A narrow band laser regenerative amplifier for a multiple-mode optical signal is included in the receiver of an optical

transmission system in which a pilot, transmitted together with an information bearing signal, is amplified prior to a detection process in which the amplified pilot is used as the local oscillator.

The resonator of the laser is adapted to resonate at least a majority of the pilot transverse modes at the same frequency. A fully degenerate planar ring embodiment and a Luneburg lens embodiment are also disclosed.

3,566,129

PATTERN CATCHING IN A PHOTOELECTRIC PATTERN CONTOUR TRACING SYSTEM

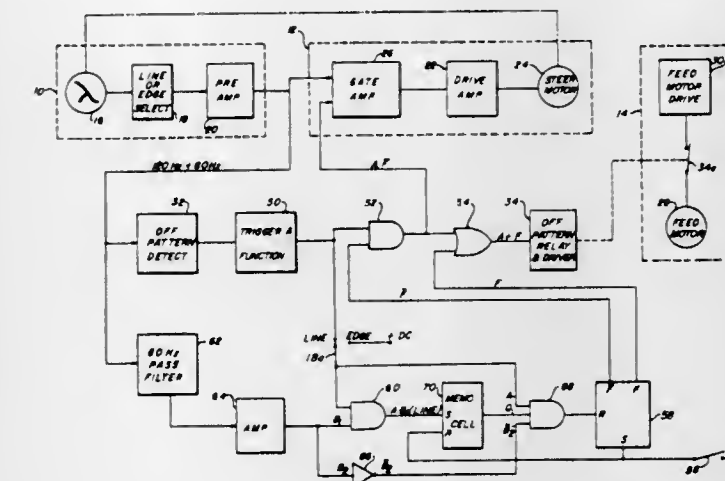
Francis G. Bardwell, Elmhurst, and Richard A. Mazur, Chicago, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill.

Filed Apr. 28, 1969, Ser. No. 819,787

Int. Cl. G01n 21/30; G05b 1/00

U.S. Cl. 250-202

21 Claims



A pattern contour-tracing system which is capable of intercepting and locking on the pattern contour from a position removed from the contour without the use of a lead-in contour. The pattern contour-sensing head is pointed so as to travel in a line toward the contour with the sensing head steering means locked out until the sensing means detects that the sensing is within a predetermined distance of the contour. The steering means is then unlocked so that the sensing head can be automatically steered by the servo means to make a smooth transition into the path defined by the pattern contour. A photosensitive tracing system is disclosed which is operable to lead into and trace the pattern contour whether the contour is defined by a line or an edge.

3,566,130

CONTRAST CONTROL BY ADDITION OF SPATIALLY INVARIANT MODULATION TO SPATIALLY VARYING MODULATION REPRESENTATIVE OF AN IMAGE

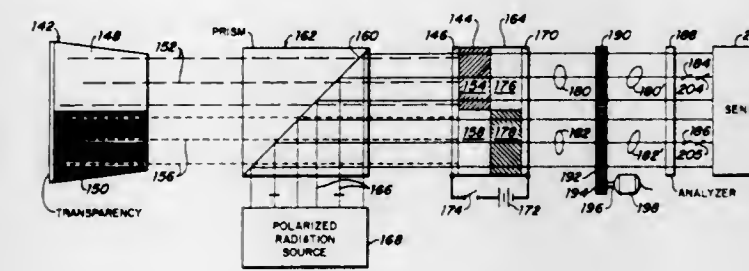
Ralph Edward Aldrich, Woburn, and Paul John Caruso, Bedford, Mass., assignors to Itek Corporation, Lexington, Mass.

Filed May 15, 1969, Ser. No. 824,997

Int. Cl. H01j 31/50; G02f 1/18, 1/26

U.S. Cl. 250-213

30 Claims



Apparatus is disclosed for varying the contrast of an image by exposing a photoconductive medium associated with an electro-optic medium to the image to vary the conductivity

3,566,131

SOLAR CELL CURRENT SENSING CIRCUIT EMPLOYING DIGITAL-TO-ANALOG ELECTRICAL SIGNAL CONVERSION

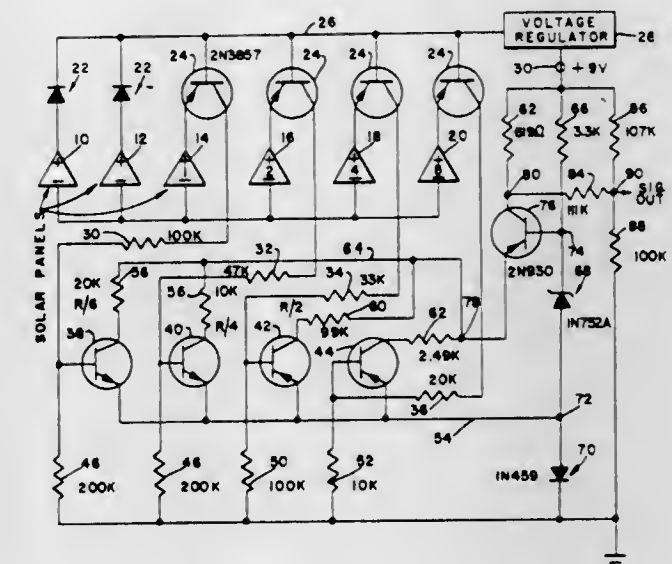
Franklin G. Kelly, Long Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Oct. 6, 1967, Ser. No. 673,415

Int. Cl. H01j 39/12

U.S. Cl. 250-214

3 Claims



A current sensing circuit for use in a satellite attitude detecting system employs an array of solar cell panels connected in parallel circuits. Each parallel circuit includes a solar cell panel connected in series with the input circuit of a transistor. The output circuit of the transistor provides a logic output current that is fed to a digital-to-analog converter. The output current remains constant for all values of solar intensity that exceed a predetermined threshold level.

3,566,132

BEGINNING-OF-TAPE AND END-OF-TAPE SENSOR

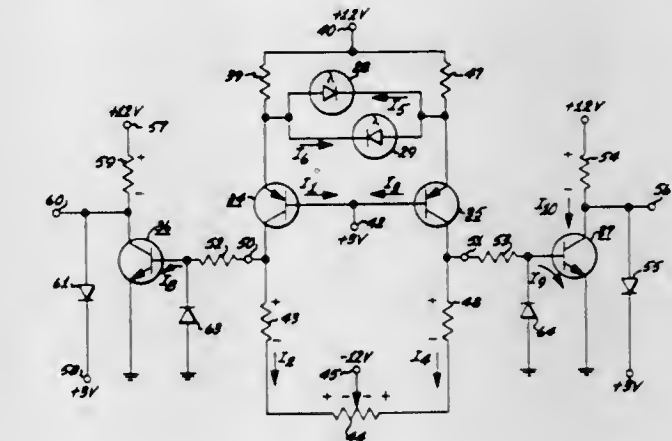
Richard L. Walker, Peabody, Mass., assignor to General Electric Company

Filed Dec. 26, 1967, Ser. No. 693,339

Int. Cl. H01j 39/12

U.S. Cl. 250-214

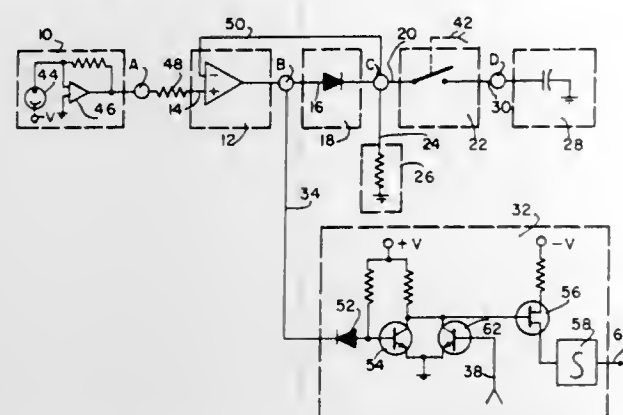
8 Claims



A beginning-of-tape and end-of-tape sensor provides one signal when a first reflective area near the beginning of a tape

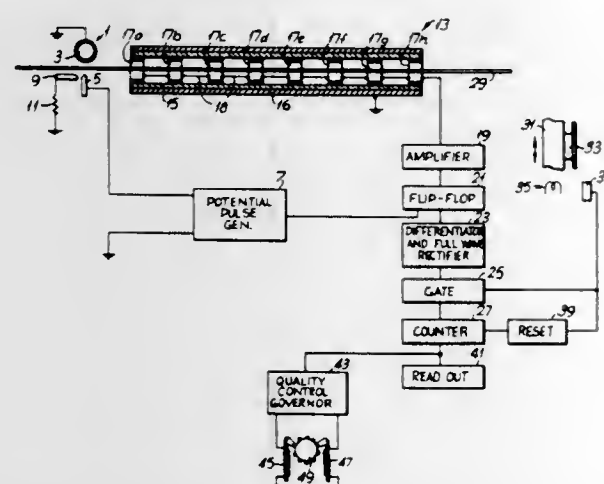
is reached and provides a different signal when a second reflective area near the end of a tape is reached.

3,566,133
A HEMOGLOBIN MEASURING METHOD AND APPARATUS HAVING VOLTAGE FOLLOWING WITH FEEDBACK
 Ervin L. Dorman, Jr., and Walter R. Hogg, Hialeah, Fla., assignors to Coulter Electronics Inc., Hialeah, Fla.
 Filed Mar. 18, 1968, Ser. No. 713,958
 Int. Cl. H01j 39/12
 U.S. Cl. 250-214 8 Claims



Method for determining the hemoglobin content of a sample by the photoelectric monitoring of a reference and the sample and the transducing thereof into a pair of electrical signals representative of the relative light transmission of the two media. The reference signal is applied to a store and, through comparison with the sample signal, an output signal having a duration directly proportional to the hemoglobin content is elicited. Also, apparatus for carrying out such method in which a capacitive storage circuit is charged proportionally to the reference light transmission through use of a monochromatic light and photocell and is discharged to an intermediate value dependent upon the transmission of the sample, the duration of such discharging being the desired output. Interposed in series between the photocell and the storage circuit is an operational amplifier a diode and a switch. The amplifier provides a voltage follower enabling the diode to be a precise comparator between the two signal levels. The time dependent output is taken from the anode side of the diode.

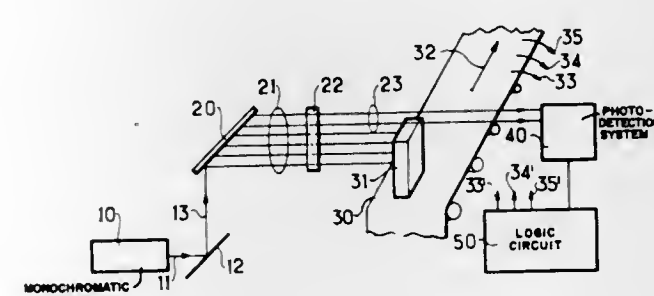
3,566,134
DEVICE FOR MEASURING STITCH LENGTH
 Derek Peat and Richard William Bucknell Sutton, Nottingham, England, assignors to National Research Development Corporation, London, England
 Filed July 1, 1969, Ser. No. 838,222
 Claims priority, application Great Britain, July 2, 1968, 31609/68
 Int. Cl. D04b 11/00
 U.S. Cl. 250-215 13 Claims



A device for measuring the length of a stitch formed in a fully fashioned or Jacquard knitting machine by creating

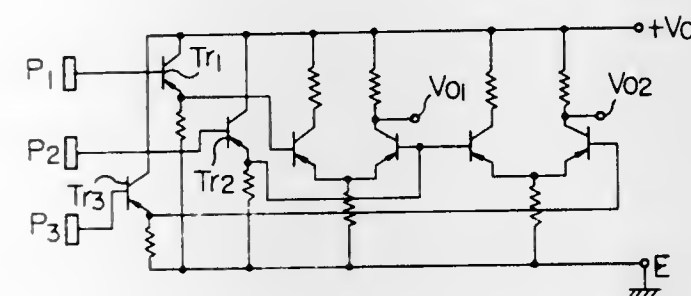
electrostatic marks on the yarn and detecting the passage of the marks through a detector. The passage of a mark through the detector causes the creation of a further mark. The detector comprises a plurality of electrically-conductive members uniformly spaced apart in the direction of movement of the yarn. The members are electrically connected to one another and the change in potential of the members upon passage of a mark past the members is used as a signal to a counter. The distance between the point of creation of the mark and the first detector member is equal to or a multiple of the distance between adjacent detector members.

3,566,135
OPTICAL CALIBRATING DEVICE FOR OBJECTS OF DIFFERENT HEIGHTS
 Jacques Mouchart, L'Hay-les-Roses, France, assignor to Compagnie Generale D'Electricite, Paris, France
 Filed Dec. 11, 1968, Ser. No. 782,950
 Claims priority, application France, Dec. 11, 1967, 131,780
 Int. Cl. G01b 11/02
 U.S. Cl. 250-219 10 Claims



A group of fine monochromatic parallel beams which are disposed one above the other in a vertical plane are intercepted to a varying extent by objects of different height which pass through the beams. A photodetector system and associated logic circuits make it possible to calibrate the objects as a function of the number of beams intercepted.

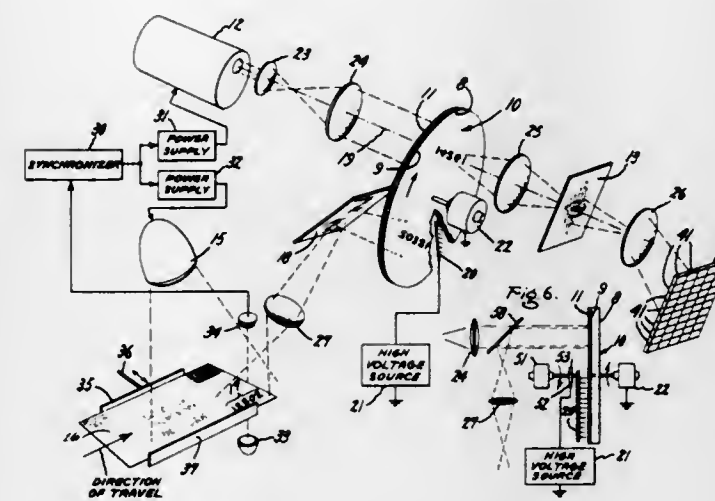
3,566,136
SYSTEM FOR DETECTING THE SENSE OF THE DIRECTION OF THE VARIATION IN PHASE OF A CYCLICALLY VARYING SIGNAL
 Shin-ichi Kamachi, and Yuzi Ikuno, Tokyo, Japan, assignors to Olympus Optical Company, Ltd., Tokyo, Japan
 Filed Nov. 20, 1968, Ser. No. 777,379
 Int. Cl. H01j 39/12
 U.S. Cl. 250-220 5 Claims



System for detecting the sense of the direction in which the variation in the phase of a cyclically varying signal is occurring comprising the steps of detecting a first signal having a phase in advance of that of the cyclically varying signal by one-fourth of the cycle thereof and a second signal having a phase in retard of that of the first-mentioned cyclically varying signal by one-fourth of the cycle thereof, and producing two resultant signals having their phases relatively shifted from each other by one-fourth of the cycle of the first-mentioned cyclically varying signal by producing the vectorial differential respectively between the above-described first signal and the first-mentioned cyclically varying signal and between the same and the above-described second signal. The thus produced two resultant signals are used for detect-

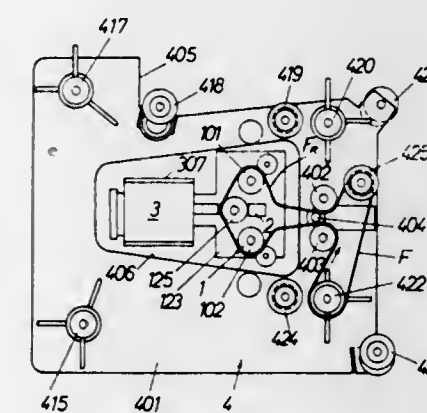
ing the sense of the variation in the phase of the first-mentioned cyclically varying signal. The accuracy is improved regardless of the drifts of the signal responding means used in the system, while the production cost is lowered by reducing the number of the signal responding means required as well as by increasing in latitude of the allowance of the sensitivity of the same.

3,566,137
HOLOGRAPHIC CHARACTER READER
 Charles Q. Lemmond, Scotia, N.Y., assignor to General Electric Company
 Filed Nov. 28, 1967, Ser. No. 686,188
 Int. Cl. G06k 9/00
 U.S. Cl. 250-219 9 Claims



Apparatus for recognizing serially viewed characters of a known font of type is achieved by imaging the characters onto a substrate bearing an electrically charged liquid photoconductor medium deformable in accordance with the optical image. When the deformed portion of the medium is rotated into the beam of a pulsed laser, spots are imaged upon a matrix of photodetectors by passing the laser beam emergent from the medium through a multiple spatial filter made by positioning the type for each of the expected characters in a vertical line.

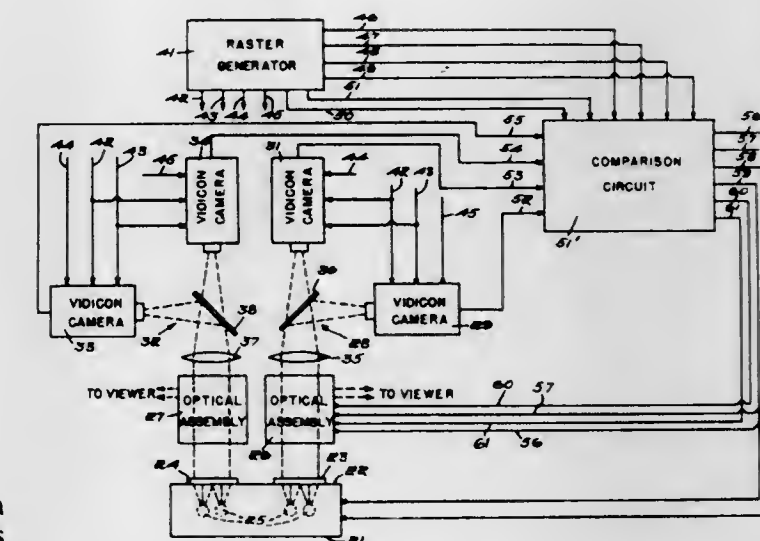
3,566,138
PHOTOELECTRIC TAPE READER HAVING PLURALITY OF INTERCHANGEABLE MAGAZINES EACH CONTAINING A TAPE OF DIFFERENT LENGTH
 Gernot Gottschall, Boblingen, Germany, assignor to Franz Morat GmbH, Stuttgart-Vaihingen, Germany
 Filed Aug. 20, 1969, Ser. No. 851,561
 Claims priority, application Germany, Aug. 21, 1968, 1,797,146
 Int. Cl. G01n 21/30
 U.S. Cl. 250-219 16 Claims



A plurality of magazine units, each supporting an endless record carrier tape of different length, can be used with the same readout unit. Each endless record carrier tape is looped about selected guide rollers and passes between a pair of out-

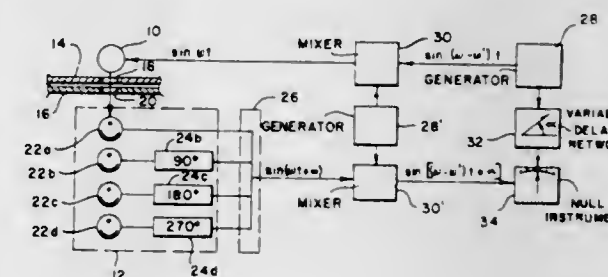
put rollers of each magazine to form a free readout loop. When a selected magazine unit is attached to the readout unit, sensing means of the readout unit sense the readout loop of the respective selected endless record carrier tape. The guide rollers and output rollers of each magazine are positioned so that differently looped endless record carrier of different lengths can be placed on the guide rollers and output rollers.

3,566,139
SYSTEM FOR COMPARING DETAIL IN A PAIR OF SIMILAR OBJECTS
 John W. Hardy, Lexington, and Donald C. Redpath, Winchester, Mass., assignors to Itek Corporation, Lexington, Mass.
 Filed Dec. 18, 1967, Ser. No. 691,536
 Int. Cl. G01c 11/12; H01j 39/12
 U.S. Cl. 250-220 51 Claims



An image correlation system which produces vector error signals comprising error signal components corresponding to relative image detail misregistration along related nonparallel paths in each of the images being correlated. The vector error signals represent two-dimensional types of image detail misregistration and can control optical components to produce registration of the compared images. A pair of image storing electronic cameras having different rasters formed by nonintersecting scanning lines generate separate video signals for each compared image. The different scanning patterns permit a comprehensive comparison of the images while preventing the generation of undesirable video components caused by scanning line intersections.

3,566,140
ARRANGEMENT FOR MEASURING RELATIVE DISPLACEMENT UTILIZING RELATIVELY MOVABLE SHUTTERS WHICH CONTROL THE PASSAGE OF MODULATED LIGHT
 Carl-Erik Granqvist, Lindingo, Sweden, assignor to AGA Aktiebolag, Lindingo, Sweden
 Filed Mar. 26, 1969, Ser. No. 810,594
 Claims priority, application Sweden, Mar. 27, 1968, 4058/68
 Int. Cl. H01j 39/12
 U.S. Cl. 250-227 9 Claims



An apparatus for measuring the relative displacement of an object includes a stationary shutter and a movable shutter

signal to a tuned load including an induction heating coil. The circuit is operative to generate the output pulse by detecting, through peak detection for example, the substantial peak of the alternating signal and comparing, through an active device for example, a selected portion of the peak value with the instantaneous value of the alternating signal. An output pulse at the selected phase angle is provided when the compared signals bear a predetermined relationship with respect to each other.

3,566,149

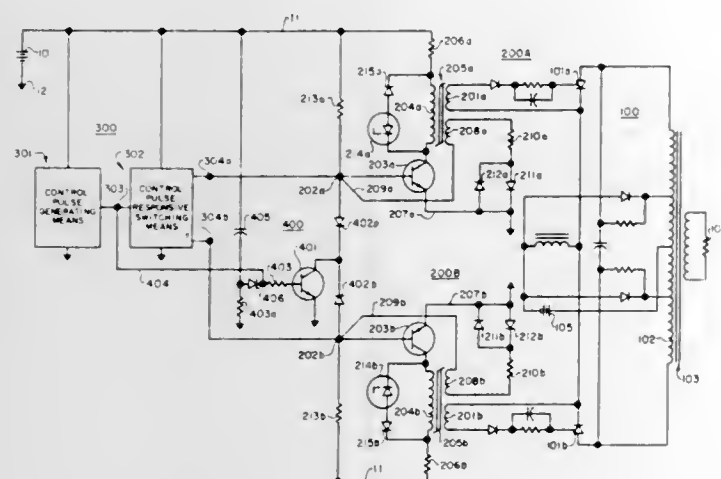
COMB DRIVE CIRCUIT FOR THYRISTORS
Pantelis P. Paradissis, Amherst, Ohio, assignor to Lorain Products Corporation

Filed June 25, 1969, Ser. No. 836,488

Int. Cl. H03k 3/00

U.S. Cl. 307-106

6 Claims



A control circuit for supplying a modulated train of short duration firing pulses to each of a plurality of thyristors. A pulse suppression circuit is connected to a plurality of oscillator circuits which supply firing pulses to respective thyristors. The pulse suppression circuit disables the output of all oscillator circuits to prevent simultaneous firing of the different thyristors only during starting and only during the period preceding the firing of each thyristor.

3,566,150

IMPULSE GENERATOR CIRCUIT FOR THE CONTROL OF RECTIFIERS

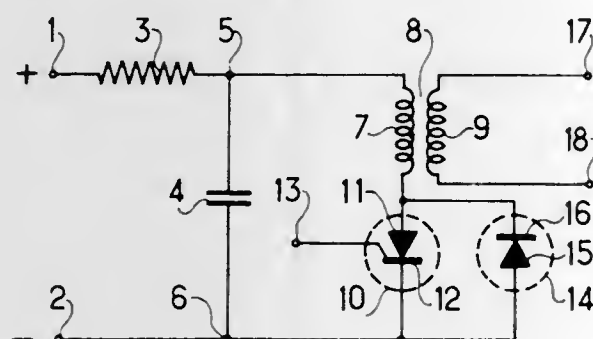
Pierre Nollage, Lamanon, France, assignor to Compagnie Generale D'Electronique Industrielle Lepaute, Paris, France

Filed Mar. 18, 1968, Ser. No. 713,975

Int. Cl. H03k 3/00

U.S. Cl. 307-108

2 Claims



Generator of an electrical impulse having a steep wavefront for extinguishing voltage controlled rectifiers including a capacitor charging circuit in parallel with the series combination of an inductance and a control voltage controlled rectifier, and an oppositely poled diode in parallel with said control voltage controlled rectifier.

3,566,151
TEMPERATURE CONTROL CIRCUITS
Frederick W. Wilburn, Southport, England, assignor to Pilkington Brothers Limited, Liverpool, England

Filed Mar. 10, 1969, Ser. No. 805,463

Claims priority, application Great Britain, Mar. 18, 1968, 13,026/68

Int. Cl. H01h 35/00

U.S. Cl. 307-117

8 Claims



A circuit for controlling the heating current flowing through a load according to a predetermined temperature/time function includes a thyristor circuit which controls the power supplied to the load and a firing circuit for the thyristor circuit. The output from a thermocouple associated with the load is compared with a voltage representing a predetermined temperature/time function to produce a control output which is connected to the firing circuit.

3,566,152

HIGH VOLTAGE ELECTRIC CIRCUIT BREAKER INCLUDING A SYNCHRONOUSLY CLOSED RESISTOR SWITCH

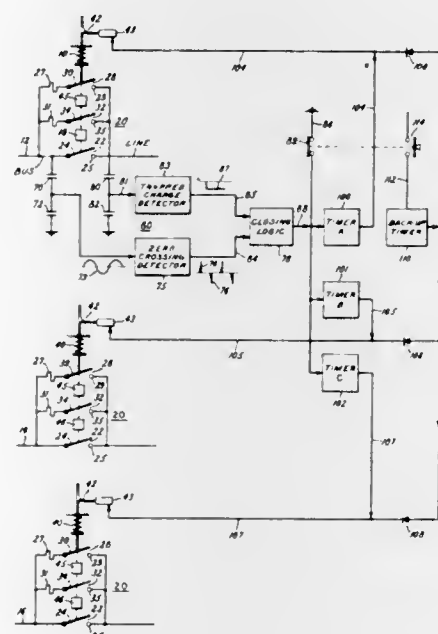
Edward J. Casey, Springfield, and Thornton S. Lauber, Media, Pa., assignors to General Electric Company

Filed July 23, 1969, Ser. No. 844,056

Int. Cl. H01l 7/16, 33/44

U.S. Cl. 307-133

12 Claims



Discloses a high voltage circuit breaker for a three-phase AC circuit in which the surge voltages produced by circuit breaker closing are held to a very low value by: (1) preinserting resistance across the main contacts of each phase in two steps prior to main contact closing, (2) staggering the initial resistor switch closings in the three phases by 30 to 120 electrical degrees, and (3) engaging the resistor switch contacts in the first-to-close phase at approximately the instant that the bus-side phase-to-ground voltage on that particular phase reaches a crest of the same polarity as the trapped charge on the line side of the breaker in that particular phase.

reaches a crest of the same polarity as the trapped charge on the line side of the breaker in that particular phase.

3,566,153

PROGRAMMABLE SEQUENTIAL LOGIC

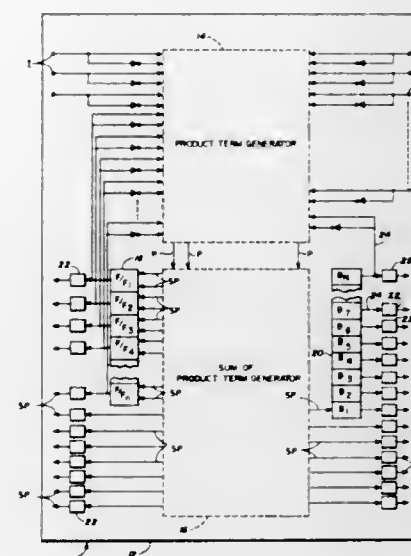
Ralph F. Spencer, Jr., Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 30, 1969, Ser. No. 820,534

Int. Cl. H03k 19/08

U.S. Cl. 307-205

8 Claims



A mass production sequential logic circuit which can be custom programmed by modification of a single fabrication mask to perform sequential combinational logic is disclosed. The circuit includes a first programmable matrix of voltage controlled devices for generating product terms, a second programmable matrix of voltage controlled devices for summing the product terms, a plurality of binary storage elements such as flip-flops or shift registers, input inverters and output buffers on the same semiconductor substrate. The outputs of the second matrix are applied either to the inputs of the storage elements, or to the output buffers, or both. The outputs of the storage elements are applied either to inputs of the first matrix, or to output buffers, or both.

3,566,154

INTEGRATED CIRCUIT COMMUTATOR

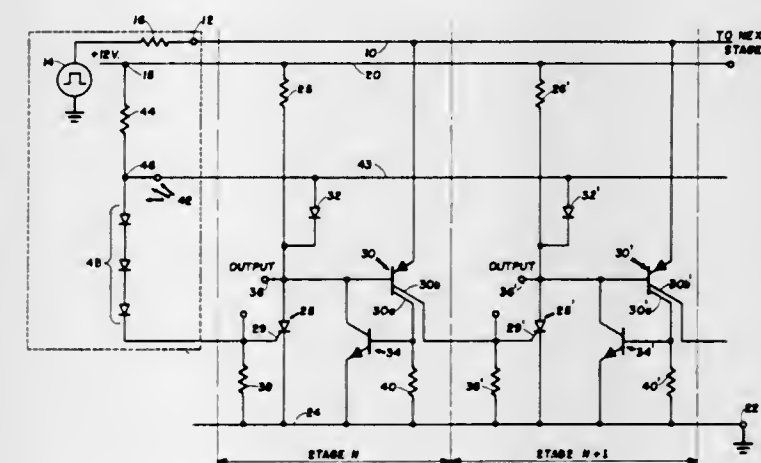
Jack C. Loessi, Ellicott City, and Reginald M. Rhue, Laurel, Md., assignors to the United States of America as represented by the Secretary of the Navy

Filed Jan. 2, 1969, Ser. No. 789,092

Int. Cl. H03k 23/08

U.S. Cl. 307-223

5 Claims



Invention is a ring counter which may be fabricated in any desired practical length by using integrated circuit techniques. It utilizes split collector transistors in conjunction with silicon controlled rectifiers and standard transistors to

3,566,155

BIT SYNCHRONIZATION SYSTEM

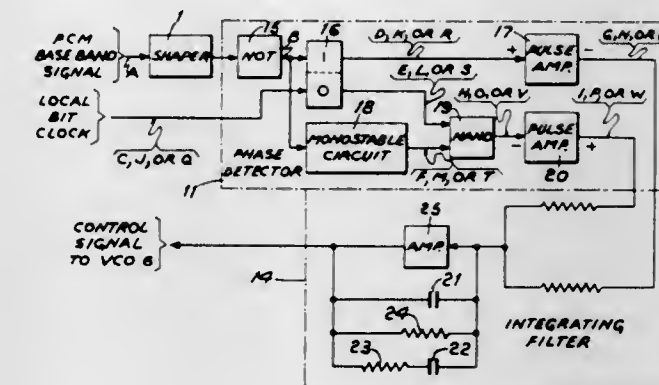
Samuel J. DeMaio, Nutley, Arthur H. Magnus, Succasunna, James G. Dunn, Montclair, and John Granlund, Short Hills, N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed June 25, 1968, Ser. No. 739,737

Int. Cl. H03k 5/20, 9/08

U.S. Cl. 307-232

7 Claims



A flip-flop is coupled to a code signal source and a bit clock source. Logic and amplifier circuitry cooperate with the flip-flop to produce two oppositely varying width modulated pulses having opposite polarity. An integrating filter algebraically combines the width modulated pulses to produce a control signal proportional to the phase relationship between the bits of the code signal and the clock bits. The control signal adjusts a voltage control led oscillator in the bit clock source to establish synchronization between the bits of the two signals. The integrating filter has a first time constant enabling rapid synchronization and a second time constant to maintain the value of the control signal during long fades of the code signal.

3,566,156

GATE INITIATED PULSE SHAPING CIRCUIT

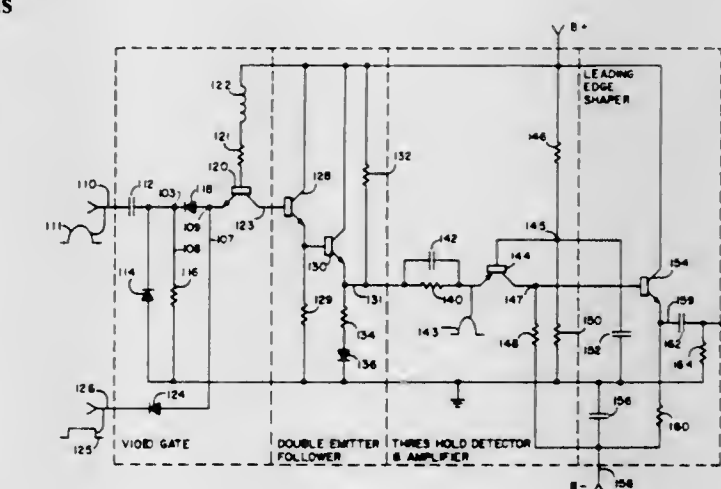
Herbert C. Loewer, San Diego, Calif., assignor to Ryan Aeronautical Co., San Diego, Calif.

Filed July 25, 1967, Ser. No. 655,839

Int. Cl. G01s 9/02; H03k 17/00

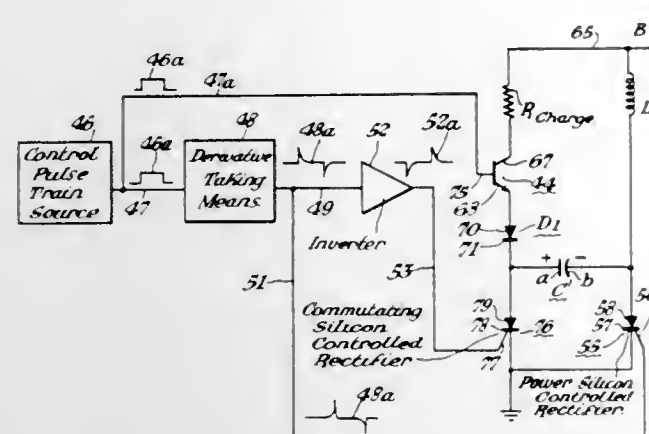
U.S. Cl. 307-249

8 Claims



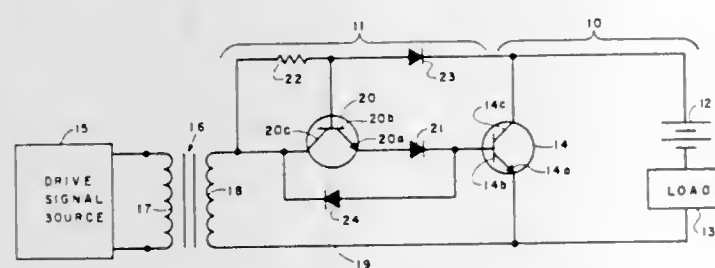
This gated initiated pulse shaping circuit provides a high speed, low power, constant minimum time delay circuit that provides a spike-shaped output pulse corresponding to the leading edge of an input video echo radar pulse when the input pulse exceeds a given threshold level in coincidence with a pulse from a tracker circuit.

3,566,157
LOAD DRIVING CIRCUIT EMPLOYING A CONTROL GATE TO PREVENT OVERLOADING
 Lincoln Ong, Verona, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.
 Filed July 16, 1968, Ser. No. 745,304
 Int. Cl. H03k 17/00
 U.S. Cl. 307-252 12 Claims



This invention relates to a unique load driving circuit including a load, a power gate, directly connected to the load, a commutation gate connected to the load through an energy storage device, and an energy storage control gate which operates in conjunction with the energy storage device for permitting commutation of the power gate and for causing self-quenching of the commutating gate thereby preventing excessive current from flowing through the load due to simultaneous operation of the power gate and control gate.

3,566,158
TRANSISTOR DRIVE REGULATOR
 T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration in Respect to an Invention of, Richard J. Ravas, Monroeville, Pa.
 Filed Aug. 7, 1968, Ser. No. 750,787
 Int. Cl. H03k 17/04
 U.S. Cl. 307-253 6 Claims

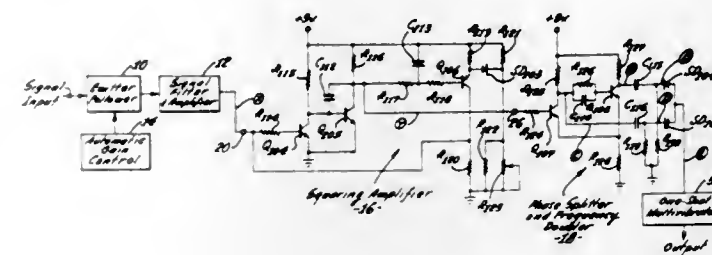


A drive circuit for a semiconductor switch has a variable conducting means connected between a drive signal source and the switch. The variable conducting means is connected in controlled relationship to the driving source through a voltage dropping means and drive current diverting means bypasses some drive current around the variable conducting means. Means for decreasing the turnoff time of the switch is also provided.

3,566,159
FREQUENCY MULTIPLIER CIRCUIT
 Bradley J. Plunkett, Van Nuys, Calif., assignor to Warwick Electronics Inc., Chicago, Ill.
 Filed June 21, 1968, Ser. No. 739,054
 Int. Cl. H03b 19/14
 U.S. Cl. 307-271 7 Claims

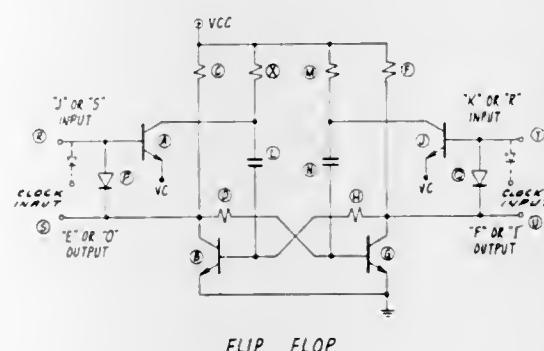
A frequency multiplying circuit is provided which responds to input signals of a wide variety of frequencies and wave forms, to produce corresponding frequency multiplied outputs which are free of the fundamental subtone. The frequency multiplying circuit to be described includes a squaring am-

plifier which converts the individual inputs into corresponding square waves; and it also includes a phase splitter, dif-



ferentiator and rectifier circuit coupled to the squaring amplifier to perform the frequency multiplying function.

3,566,160
SIMPLIFIED RACE-PREVENTING FLIP-FLOP HAVING A SELECTABLE NOISE IMMUNITY THRESHOLD
 Thomas E. Osborne, San Francisco, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
 Filed June 23, 1966, Ser. No. 559,887
 Int. Cl. H03k 3/12
 U.S. Cl. 307-291 16 Claims

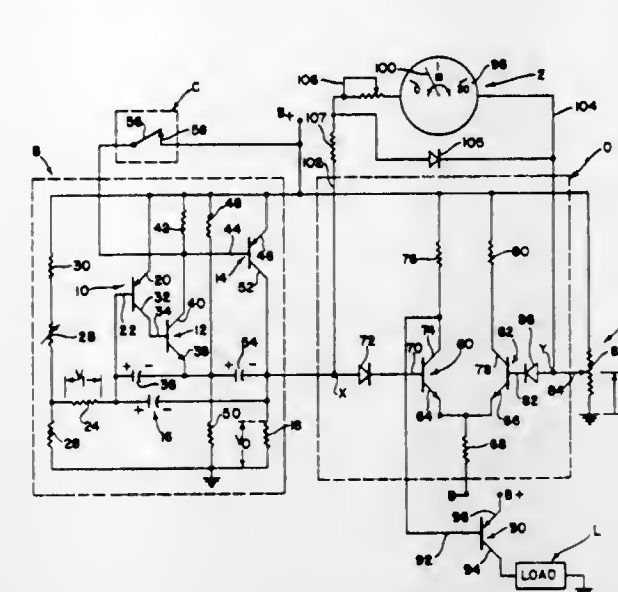


First and second transistors are arranged as a flip-flop in which the base of each transistor is connected by a separate resistor to the collector of the other transistor, the collector of each transistor is connected by a separate resistor to a source of supply voltage, and the emitter of each transistor is connected to a source of reference voltage. A first input drive circuit is connected to the base of the first transistor. This input drive circuit includes a capacitor and a resistor serially connected between the base of the first transistor and the source of supply voltage. It also includes an input transistor having its collector connected by the capacitor to the base of the first transistor, its base connected by a diode to the collector of the first transistor, and its emitter connected to a source of adjustable voltage having a value intermediate to the values of the supply and reference voltages. A second input drive circuit of the same type as the first is similarly connected to the base of the second transistor. See FIGS. 29 and 29' and under the heading FLIP-FLOP DRIVER AND GATING. Such flip-flops are employed in the internal control and subroutine logic of a calculator.

3,566,161
ELECTRONIC TIMER CIRCUIT INCLUDING LINEAR RAMP FUNCTION GENERATOR AND/OR PROGRESS POINTER
 Larry Keith Clark, Davenport, and Peter Greenough Bartlett, Bettendorf, Iowa, assignors to Gulf + Western Industries, New York, N.Y.
 Filed Sept. 20, 1966, Ser. No. 580,809
 Int. Cl. H03k 17/28
 U.S. Cl. 307-293 2 Claims

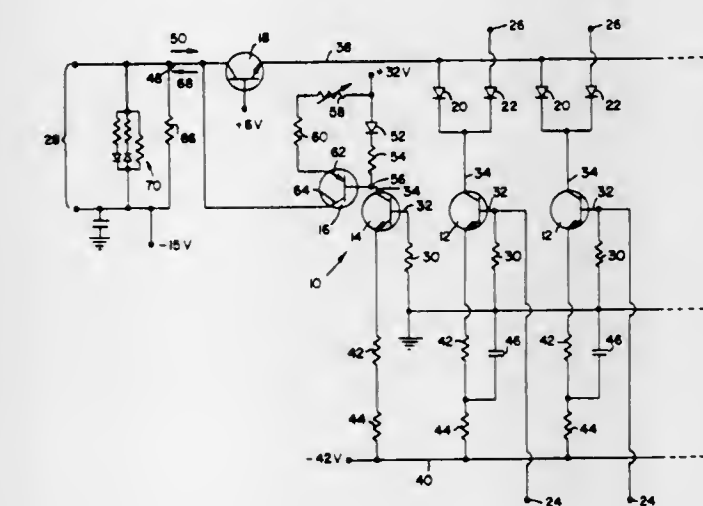
There is provided in one aspect of the present invention an electronic timer circuit having a progress pointer which visually indicates the elapsed time in linearly calibrated time units, and in another aspect a linear electronic timer circuit including a novel ramp function generator for providing a

potential which varies linearly with elapsed time, and means for comparing the potential with a second potential and compressional forces is provided as a self-contained integral assembly whereby individual outputs exist for each of the



developing an output signal when the values of the two potentials are substantially equal.

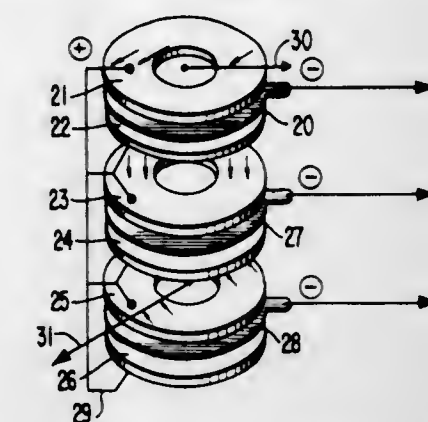
3,566,162
GATING CIRCUIT
 David J. Warrender, Berkeley, Calif., assignor to Lynch Communications Systems, Inc., San Francisco, Calif.
 Filed Feb. 12, 1968, Ser. No. 704,643
 Int. Cl. H03k 17/14, 17/56
 U.S. Cl. 307-310 5 Claims



This inherently temperature-compensated and supply-voltage-compensated gating circuit is capable of maintaining a constant no-signal output pedestal. It has a constant input impedance and eliminates switching transients in the gates by maintaining current flow at all gates at all times.

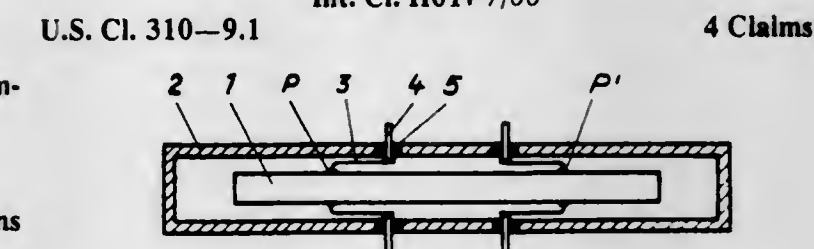
3,566,163
MULTIPLE-COMPONENT PIEZO MEASURING CELLS
 Hans Fischer, Zollikonberg; Hans C. Sonderegger, Neftenbach, and Gelll Spescha, Winterthur, Switzerland, assignors to Kistler Instrumente A.G., Winterthur, Switzerland
 Filed Aug. 29, 1968, Ser. No. 756,173
 Claims priority, application Switzerland, Sept. 5, 1967, 12423
 Int. Cl. H04r 17/00
 U.S. Cl. 310-8.3 9 Claims

A multiple-component piezomeasuring cell in which an arrangement of crystal elements sensitive to both shear and



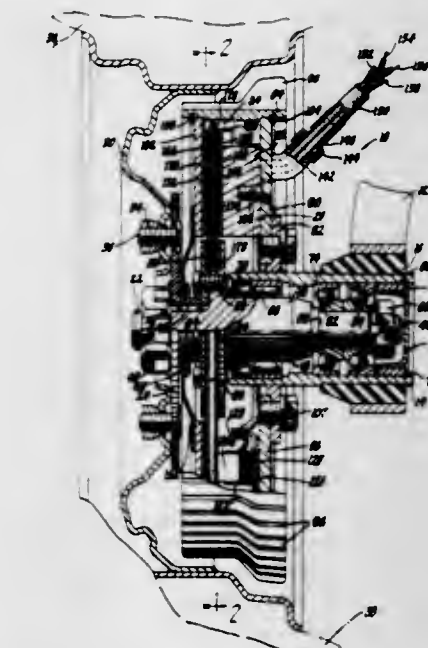
forces to be measured and the assembly is under high mechanical prestress in the assembled condition.

3,566,164
SYSTEM FOR RESILIENTLY SUPPORTING AN OSCILLATION QUARTZ IN A CASING
 Pierre Boillat, Neuchatel, and Richard Challandes, Sonceboz, Switzerland, assignors to Centre Electronique Horloger S.A., Neuchatel, Switzerland
 Filed May 31, 1968, Ser. No. 749,240
 Claims priority, application Switzerland, June 5, 1967, 7915/67
 Int. Cl. H01v 7/00 4 Claims



This invention involves the resilient suspension of a quartz oscillator in a casing. Resilient suspension members are provided between the nodal joints of the quartz and the casing and damping members are disposed so as to damp and limit the displacement of the quartz under conditions of shock.

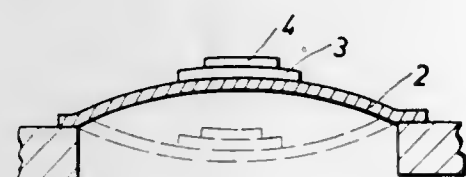
3,566,165
ELECTRIC VEHICLE DRIVE MOTOR
 Thomas E. Lohr, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.
 Filed May 6, 1969, Ser. No. 822,163
 Int. Cl. H02k 7/00
 U.S. Cl. 310-67 5 Claims



An integral vehicle electric drive motor and wheel includes an annular permanent magnet field arrangement which

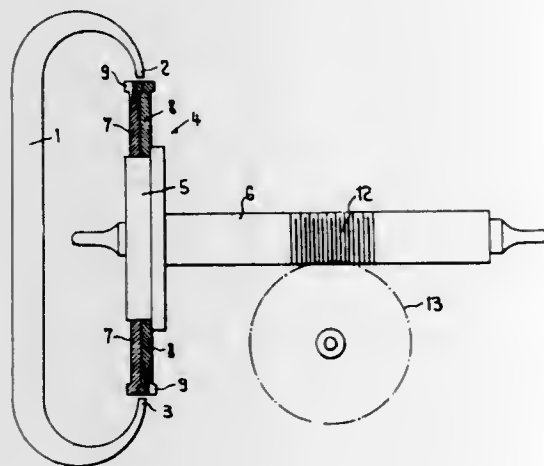
produces an axial airgap field. A disc armature includes layers of flat conductors mounted on both sides of nonconductive discs. The motor shaft is journaled in a support sleeve carried by a vehicle suspension system. The disc armature and a driving flange are rotated by the shaft to drive a conventional vehicle wheel mounted to the driving flange. The motor housing includes a cylindrical casting which supports the field and brush assemblies and aids cooling by radiating heat from integral fins. The ends of the motor are enclosed by annular plates which provide end paths for the axial magnetic field.

3,566,166
MECHANICAL RESONATOR FOR USE IN AN INTEGRATED SEMICONDUCTOR CIRCUIT
Manfred Borner, Ulm Danube, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Danube, Germany
Filed May 27, 1968, Ser. No. 732,398
Claims priority, application Germany, May 31, 1967, T33,983
Int. Cl. H01v 7/00; H04r 17/00
U.S. Cl. 310-8.2 9 Claims



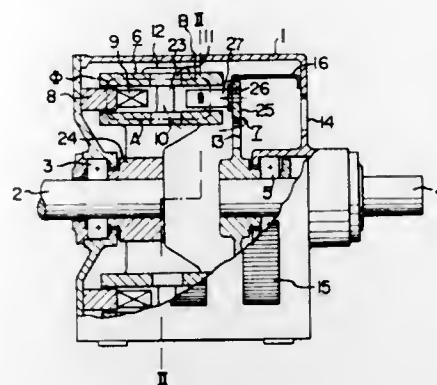
A mechanical resonator for use in an integrated semiconductor circuit. Such resonator is formed by that portion of a circuit element which extends freely beyond a circuit block to which the circuit element is firmly connected. A further aspect of the invention relates to the method of producing such a resonator.

3,566,167
APPARATUS FOR CONVERSION OF RECIPROCATING MOTION INTO ROTATING MOTION
Gaston Raval, La Neuveville, Switzerland, assignor to Omega Louis Brandt & Frere S. A., Biel, Bern, Switzerland
Filed Oct. 17, 1969, Ser. No. 867,224
Claims priority, application Switzerland, Nov. 2, 1968, 16,358/68
Int. Cl. H02k 7/06
U.S. Cl. 310-21 16 Claims



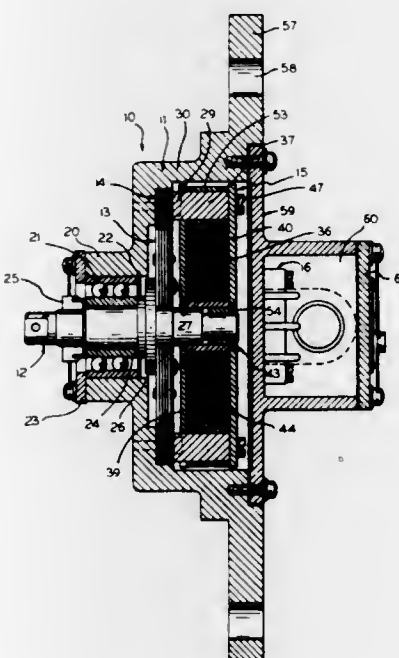
A transmission for conversion of a reciprocating movement into a rotating movement, particularly for use in an electronic timepiece having a time-keeping mechanical resonator, and wherein synchronization between the reciprocating movement and rotating movement and starting of the rotating movement in a perfectly defined direction is obtained by suitable shaping of cams of a track of ferromagnetic material facing a magnetized reciprocating element.

3,566,168
EDDY CURRENT ROTARY MACHINE HAVING TORQUE TRANSMISSION ARRANGEMENT
Toshiya Matsubara and Yoshitomi Taniwaki, Kitakyushu, Japan, assignors to Kabushiki Kaisha Yaskawa Denki Seisakusha, Fukuoka-ken, Japan
Filed June 30, 1969, Ser. No. 837,678
Claims priority, application Japan, July 1, 1968, 43/46379
Int. Cl. H02k 49/02
U.S. Cl. 310-105 7 Claims



The eddy-current element in a torque transmitting device is formed from two concentric radially spaced apart drums. An annular array of inductor members is inserted in the space between the drums from one end and a magnetic field generating yoke is inserted between the drums from the other end. The drums, consisting of magnetic material, are supported in spaced relation by nonmagnetic means interposed between the drums intermediate the ends between the inductor members on the one hand and the yoke on the other hand. Efficient cooling is afforded by a series of holes in the drums and the provision of fan blades for impelling air through the holes.

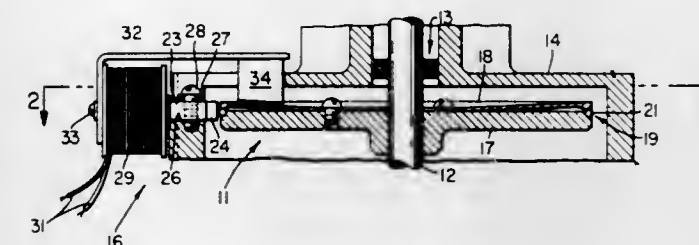
3,566,169
MAGNETIC ROTARY PULSE GENERATOR
Chester H. Fluder, Wheeling, and Marshall Miles and Harry L. Myrent, Willmette, Ill., assignors to Vapor Corporation, Chicago, Ill.
Filed Oct. 6, 1969, Ser. No. 863,808
Int. Cl. H02k 21/38
U.S. Cl. 310-155 7 Claims



A magnetic rotary pulse generator for producing a speed signal in a vehicle as a direct function of a shaft or axle speed to operate speed indicating apparatus. The generator includes a rotor shaft having a rotor thereon coacting with a

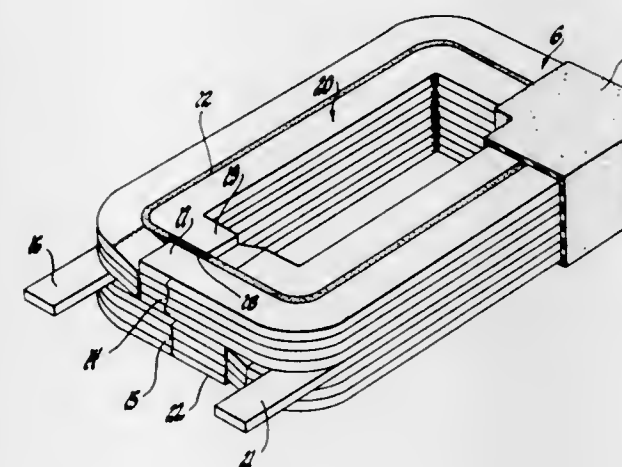
stator. A coil assembly includes permanent magnets for producing a magnetic field through the rotor and stator, and a winding in which a signal is generated as a direct function of the speed of the rotor. Coacting teeth in opposed relation are formed on the rotor and stator wherein the matching and mismatching thereof caused by the relative motion therebetween produces a pulsing signal output.

3,566,170
TACHOMETER
George D. Rehklau, Los Altos, Calif., assignor to Ampex Corporation, Redwood City, Calif.
Filed Feb. 26, 1969, Ser. No. 802,499
Int. Cl. G01p 3/54
U.S. Cl. 310-168 4 Claims



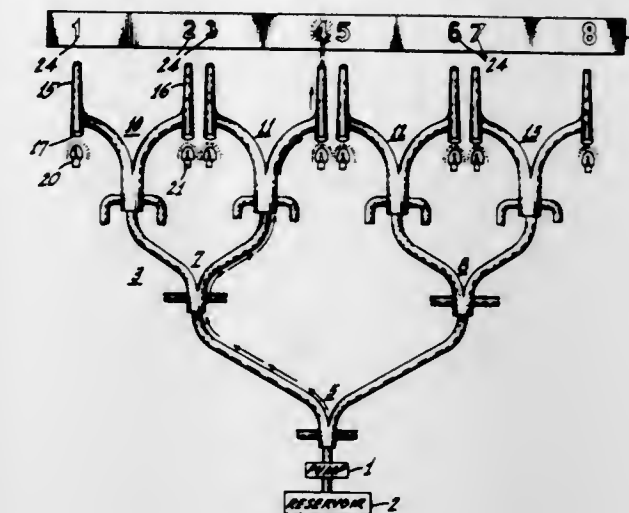
A magnetic sensing device emits an alternating signal that is stimulated by rotation of a toothed-type wheel. In place of machined teeth, the wheel has a circumferential row of precision-made steel bearing balls. Thus the needed discontinuities are provided to high precision, but the wheel is inexpensive and easy to manufacture and assemble.

3,566,171
MAIN FIELD COIL FOR RAILWAY TRACTION MOTOR
Henry F. Tichy, Clarendon Hills, and Walter Drabik, Downers Grove, Ill., assignors to General Motors Corporation, Detroit, Mich.
Filed Jan. 29, 1970, Ser. No. 6,887
Int. Cl. H02k 3/00
U.S. Cl. 310-180 7 Claims



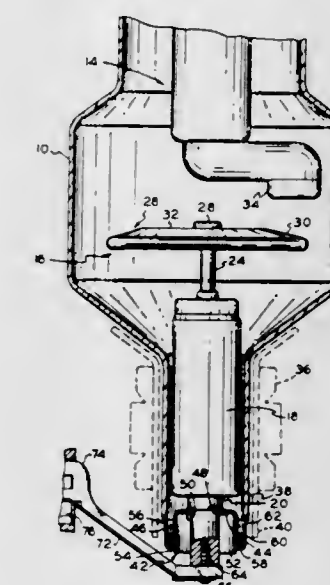
A coil assembly having first and second outer windings and a third inner winding electrically connected in series. The outer windings have approximately one-half the number of turns of the inner winding. The outer windings are identically wound and each has an outwardly extending terminal. By turning one winding over during the assembly process both outwardly extending terminals will protrude from the coil assembly substantially midway between the upper and lower surfaces of the assembly.

3,566,172
LIGHT DEFLECTION SYSTEM
George William Taylor and Andrew R. Sass, Princeton, N.J., assignors to RCA Corporation
Filed May 14, 1968, Ser. No. 728,956
Int. Cl. G08b 5/00; G02b 1/06
U.S. Cl. 340-380 13 Claims



A display system using a fluid stream as an optical fiber carrying a light beam, by total internal reflection, to a display panel. The fluid stream is selectively directed to a transparent character on the display panel, and the light beam is released from the fluid stream by inducing a sharp bend into the fluid stream.

3,566,173
X-RAY TUBE ELECTRODE MOUNTING
John T. Perry, Melrose Park, and Roy F. Kasten, Jr., and Robert M. Gager, Elmhurst, Ill., assignors to Picker Corporation, White Plains, N.Y.
Filed Sept. 3, 1968, Ser. No. 756,769
Int. Cl. H01j 17/16, 35/16
U.S. Cl. 313-55 9 Claims



The rotating anode structure of an X-ray tube is positioned relative to the tube's glass envelope by a deepdrawn cylindrical metal cup joined to a cylindrical portion of the glass envelope by a second cup. The rotating anode structure extends through the cup where it is secured to an X-ray tube housing and where it is connected to a source of anode voltage. The cup provides a metal grain structure for maintaining a gastight seal for the X-ray tube, while providing a stronger and more shock resistant tube construction.

3,566,174

DIRECT-VIEW STORAGE TUBE HAVING CONTROLLED WRITE-THROUGH

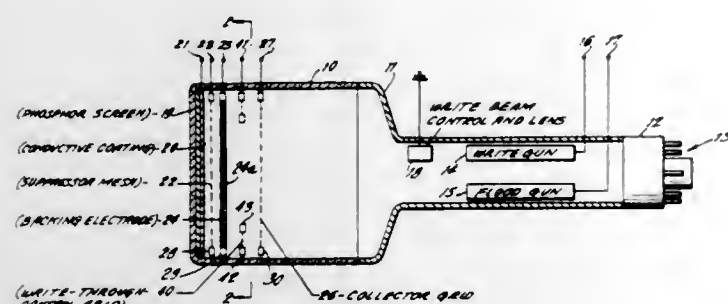
Joseph Burns, Pequannock, N.J., assignor to Fairchild Camera and Instrument Corporation, Mountain View, Calif.

Filed July 22, 1969, Ser. No. 843,495

Int. Cl. H01j 31/52, 31/58, 31/62

U.S. Cl. 313-68

9 Claims



A flood gun control grid is placed between an electron gun and a backing electrode, and covers a given portion of the area of the backing electrode. This control grid is connected to control potentials sufficient to cutoff flood gun electrons. Write-gun electrons, having sufficiently high velocity, will not be cutoff by the flood control grid and will penetrate the grid and backing electrode to write directly on the portion of the viewing screen of the tube which is blocked by the flood-control grid.

3,566,175

ELECTRON TRANSPARENT SHIELD FOR SEPARATING REGIONS OF DIFFERENT FIELD INTENSITIES

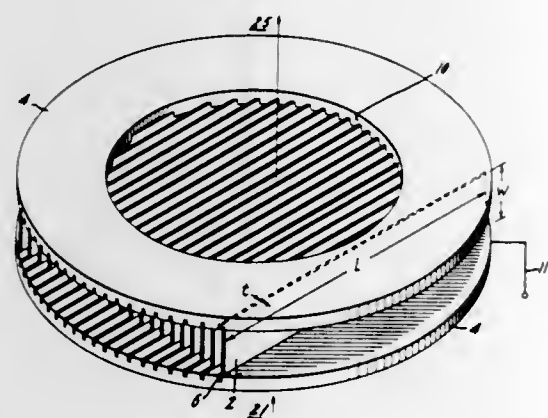
George C. Baldwin, Schenectady, N.Y., assignor to General Electric Company

Continuation of application Ser. No. 519,158, Jan. 6, 1966, Patent No. 3,482,091. This application Nov. 25, 1968, Ser. No. 778,549

Int. Cl. H01j 33/00, 1/46

U.S. Cl. 313-74

10 Claims



An abrupt transition-shielding device for permitting electron passage therethrough while separating a strong electric field from a field-free region. The shield is constructed of an array of thin equipotential members arranged in a particular pattern, either parallel to each other and to the incident electron path, or a cylindrical array of members arranged radially. The spacing between the members is completely unobstructed along the electron flight path to prevent any scattering of electrons especially in the low energy range.

CORRECTION OF IMAGE DEFECTS CAUSED BY PERTURBATIONS OF THE ROTATIONAL SYMMETRY WITH ANNULAR APERTURES

Erwin Kasper, Tübingen, Germany, assignor to Corpulcular-Forschungs-Stiftung, Zurich, Switzerland

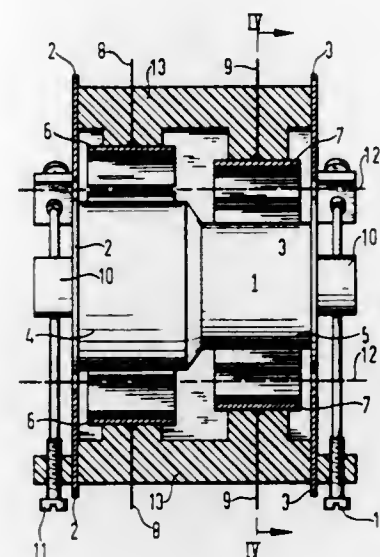
Filed June 9, 1969, Ser. No. 831,529

Claims priority, application Germany, Feb. 6, 1969, P1905937.1

Int. Cl. H01j 29/46, 29/56

U.S. Cl. 313-83

8 Claims



A stigmator for the electrical compensation of image defects in electron optical systems working with hollow beams and annular apertures in which a cylindrically shaped middle electrode, limited at its front faces by two metallic annular diaphragms, is closely arranged behind the aperture diaphragms within the lens field free space in the path of the beam, the middle electrode being of varying diameter and being surrounded by two sector shaped electrode ring system.

3,566,177

MERCURY-ALKALI METAL DISCHARGE DEVICES

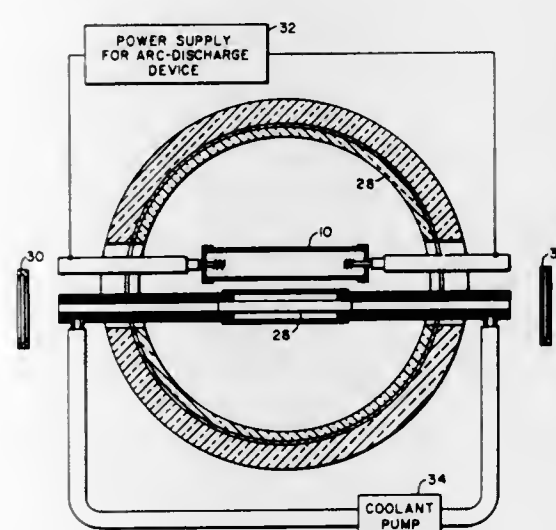
Daniel A. Larson, Cedar Grove, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 26, 1968, Ser. No. 740,180

Int. Cl. H01j 17/20; H01s 3/09

U.S. Cl. 313-184

4 Claims



An arc-discharge device for efficiently producing radiation in selected portions of the spectrum. The device contains a discharge sustaining filling of inert gas, mercury, and sodium or potassium. The ratios of the materials and the operational mode are such that the resonance lines of the sodium and potassium are self-reversed and the radiation is broadened as a continuum in the portions of the spectrum adjacent the

respective resonance lines. These devices can be advantageously used to optically pump neodymium-doped yttrium-aluminum-garnet laser material, which strongly absorbs radiation in the portions of the spectrum in which these devices generate radiation.

3,566,178

HIGH PRESSURE DISCHARGE LAMP CONTAINING AN INERT GAS, MERCURY, A HALOGEN AND TIN

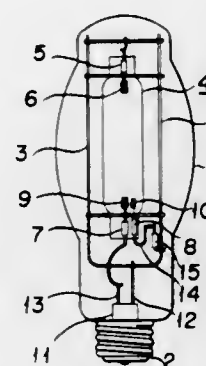
Leo Mori, Tokyo, Tadatoshi Higashi, Satoshi Nagano, Kawasaki-shi, and Kiyoshi Saita, Yokosuka-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Continuation of application Ser. No. 567,281, July 22, 1966, now abandoned. This application Dec. 11, 1968, Ser. No. 785,039

Int. Cl. H01j 61/18

U.S. Cl. 313-229

4 Claims



In a high pressure discharge lamp including a luminous sealed tube containing an ionizable inert gas, mercury, bromine, iodine, and tin, the improvement wherein said halogen and tin are sealed in said luminous sealed tube in such quantities that the ratio between the number of atoms of the halogen and the tin is from about 1 for the halogen to between about 0.51 to about 3.0 for the tin and the ratio between the number of atoms of the bromine and the iodine is between 1:0.1 and 1:5.0.

3,566,179

CATHODE AND HEATER CONSTRUCTIONS AND MOUNTINGS IN ELECTRON DISCHARGE DEVICES

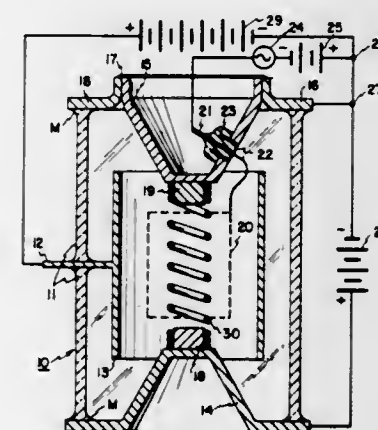
Beverly D. Kumpfer, Salt Lake City, Utah, assignor to American Microwave Incorporated, Salt Lake City, Utah

Filed June 20, 1968, Ser. No. 738,465

Int. Cl. H01j 1/20, 19/14

U.S. Cl. 313-337

8 Claims



The present invention comprises new and useful cathode and heater constructions and assemblies for electron discharge devices, particularly vacuum tubes. The cathode or heater is mounted at both ends to the interior structure of the electron discharge device and, in a preferred form of the invention, is pressed over a pair of bosses which are integral with heat sinks comprising opposite ends of the device. The materials of these bosses and the cathode or heater are so

3,566,180

MEANS FOR SUPPRESSING HELIX CURRENT DURING MECHANICAL FOCUSING OF TRAVELING WAVE TUBE

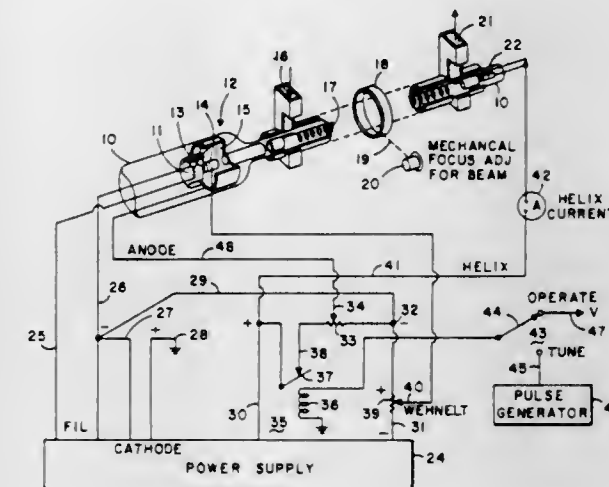
William T. Ewton, Richardson, Tex., assignor to Collins Radio Company, Dallas, Tex.

Filed Oct. 2, 1969, Ser. No. 863,135

Int. Cl. H01j 25/34

U.S. Cl. 315-3.5

11 Claims



Application of normal operate supply voltages to a helix-type traveling wave tube may cause, under worst defocused conditions, a helix current due to beam impingement thereon, sufficiently high to destroy the tube. By switching the application of supply voltage to a beam defining electrode between normal value and a beam suppressing value at a predetermined duty cycle, the tube may be focused by monitoring helix current which is prevented under worst defocused conditions from being great enough to cause tube damage.

3,566,181

PIN-CUSHION CORRECTION CIRCUIT

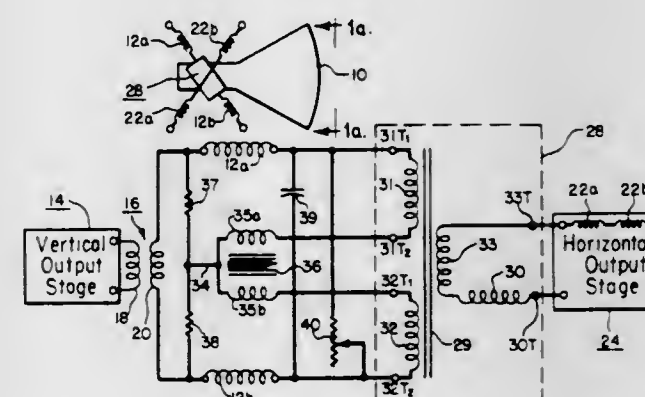
Raymond C. Figlewicz, Park Ridge, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed June 16, 1969, Ser. No. 833,421

Int. Cl. H01j 29/72

U.S. Cl. 315-24

8 Claims



Apparatus for effecting asymmetrical top and bottom pin cushion correction in a television receiver includes a core of saturable magnetic material upon which a signal winding and a control winding are physically oriented at right angles in order to preclude inductive coupling therebetween. An auxiliary winding, formed as an extension of the control winding, is positioned upon the core adjacent the signal winding and in an inductive coupling relation thereto. The signal winding

is included in the output circuit of the vertical output stage. The control winding, which is energized from the horizontal output stage, cyclically varies the saturation of the core to modulate the vertical sweep signal flowing in the signal winding. This modulated signal is modified by a horizontal frequency component inductively coupled to the signal winding by the auxiliary winding. The inductively introduced horizontal component adjusts the relative peak amplitudes of the modulated vertical sweep signal to produce an asymmetrical vertical pin cushion correction which emphasizes beam deflection at the beginning of the sweep while attenuating beam deflection at the end of the sweep.

3,566,182 COLOR TELEVISION TUBE

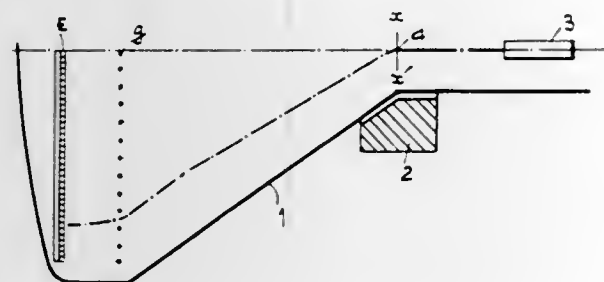
Henri DeFrance, 1, Rue d'Ajou, Asnieres, (Hauts de Seine), France

Continuation-in-part of application Ser. No. 574,370, Aug. 23, 1966, now abandoned. This application May 22, 1969, Ser. No. 843,879

Int. Cl. H01j 29/56, 29/84

U.S. Cl. 315—31

5 Claims



In a color television tube of the type including a striped tricolor luminescent screen and a postfocusing grid adjacent the screen, the grid is set at a potential higher than that which ensures focusing on the screen of the electron beam or beams impinging on the grid. Diaphragm means is provided to prevent lateral portions of the cross section of the beam or beams from impinging upon the screen. Secondary electron emissions are reduced or substantially eliminated because the electric field between screen and grid is reduced. As a result, the contrast provided by the tube is increased.

3,566,183 LIGHTNING ARRESTER COOLING APPARATUS

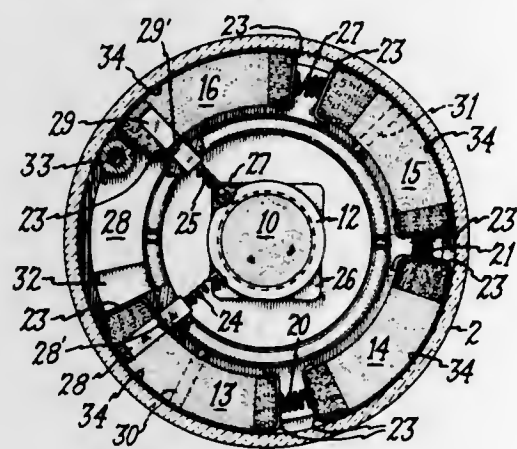
Arthur A. Olsen and Vale P. Myler, Pittsfield, Mass., assignors to General Electric Company

Filed July 11, 1968, Ser. No. 750,419

Int. Cl. H02h 3/22, 7/24, 9/06

U.S. Cl. 315—36

22 Claims



A lightning arrester having voltage-grading resistors that generate heat due to leakage currents therethrough, in combination with heat exchanger means adapted to cool the grading resistors and other internal components. In one form of the invention the grading resistors are biased into contact with the interior wall of the insulating housing of the lightning arrester by resilient spring means to assure optimum thermal conduction between the resistors and the housing.

3,566,184 COLD CATHODE DISCHARGE DEVICES

Clifford William Alfred Maskell, Abingdon, England, assignor to United Kingdom Atomic Energy Authority, London, England

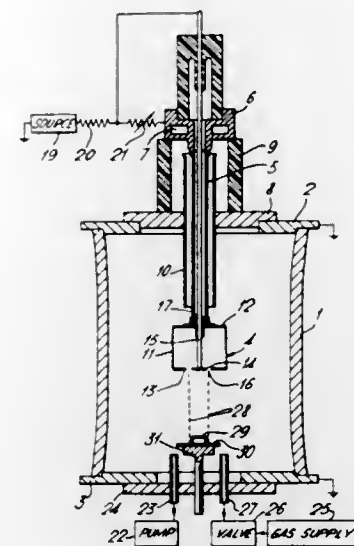
Filed July 17, 1968, Ser. No. 745,612

Claims priority, application Great Britain, July 18, 1967, 33053/67

Int. Cl. H01j 37/04, 37/30

U.S. Cl. 315—111

9 Claims



A cold cathode discharge device comprising an enclosure, having means to admit a gas to the interior of said enclosure and means to maintain the gas therein at a predetermined pressure. An anode is at least partly disposed within the enclosure and a hollow cathode of mesh material is mounted within the enclosure. One wall of the cathode has an aperture in which is positioned a further electrode which, with the aperture, defines a gap. A suitable operating potential is applied to the anode, cathode, and further electrode whereby a stream of electrons leave the hollow cathode through the gap to produce a beam having a cross-sectional shape substantially the same as the shape of the gap. The beam is focused by varying the potential applied to the further electrode.

3,566,185 SPUTTER-TYPE PENNING DISCHARGE FOR METALLIC IONS

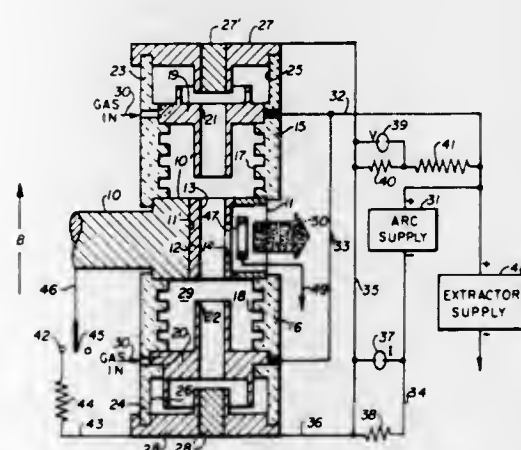
Basil F. Gavin, Berkeley, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 12, 1969, Ser. No. 806,649

Int. Cl. H05b 31/26

U.S. Cl. 315—111

8 Claims



An ion source in which ions of normally solid materials are easily produced. A plasma is generated in a gas adjacent the solid material from which ions are to be produced. The solid is negatively charged and the gas plasma ions bombard the solid, sputtering off ions of the solid. This is accomplished

through the use of a Penning discharge with a cold cathode-type source and a centrally positioned and negatively charged dynode upon which the solid material is mounted, the dynode being electrically connected to the cathode and provided with an exit slit through which the metallic ions are extracted from plasma potential.

3,566,186 STARTING AND OPERATING CIRCUIT FOR GAS DISCHARGE LAMPS

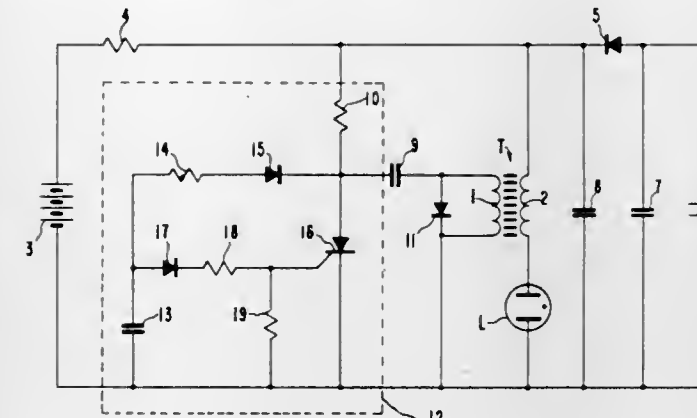
Samuel W. Woolsey, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Sept. 10, 1968, Ser. No. 758,761

Int. Cl. H05b 37/00

U.S. Cl. 315—160

9 Claims



A circuit for starting a gas discharge lamp connected across a high voltage direct current source. The circuit comprises a saturable core transformer having primary windings connected in parallel with the lamp, and secondary windings connected in series therewith. A capacitor is connected in series with the primary winding. Switching means are provided for discharging the capacitor through the transformer to breakdown gas in the lamp. Another capacitor is connected across the serially connected secondary windings and lamp to provide a starting current through the lamp once it has become conductive.

An operating circuit is also disclosed comprising a low voltage direct current source connected in parallel with the lamp across the high voltage source with like terminals of the two sources coupled together.

3,566,187 PHOSPHORESCENT DISPLAY TUBE HAVING X-Y SIGNAL GRIDS AND CONTROL CIRCUITRY FOR SAME

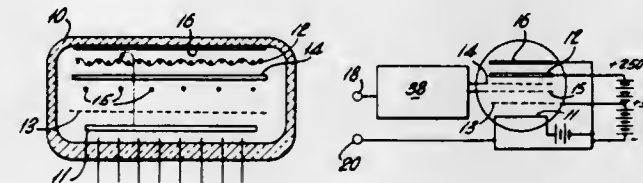
Richard DuBois, Jr., Caldwell Township, N.J., assignor to Wagner Electric Corporation

Filed Oct. 9, 1968, Ser. No. 766,229

Int. Cl. H05b 37/00, 39/00

U.S. Cl. 315—169

9 Claims



A display device which includes an evacuated envelope, a phosphorescent anode and a plurality of signal grids which control the intensity of electron beams from a cathode. The signal grids are disposed in a double array of parallel wires, each array being positioned at right angles to the other. In the absence of a signal, all the grids are maintained at a negative potential with respect to the cathode. When a small area of the anode is to be illuminated, two grids one from each array, are given positive potentials to send an electron beam from the cathode to the anode and generate light by activating the phosphor. The device also includes an accelerating grid for distributing the electrons evenly over a wide area.

3,566,188 TRIGGERED IGNITION SYSTEM

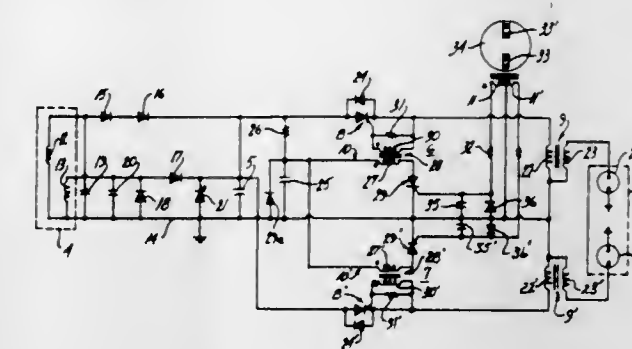
Floyd M. Minks, Kissimmee, Fla., assignor to Brunswick Corporation, Chicago, Ill.

Filed Oct. 31, 1968, Ser. No. 772,127

Int. Cl. H05b 37/02

U.S. Cl. 315—209

3 Claims



This disclosure relates to an alternator-driven capacitor system for a two-cylinder engine. A main capacitor is connected across the output of the alternator. Separate discharge circuits for each of the spark plugs are connected in parallel to the capacitor and each includes a silicon-controlled rectifier and a pulse transformer. A trigger capacitor in series with a resistor is connected across the main capacitor. Paralleled trigger circuits are connected to the trigger capacitor and each includes a pulse transformer in series with a silicon-controlled rectifier. The pulse transformers are connected to fire a corresponding main-controlled rectifier. The controlled rectifiers of the trigger circuits are fired from a separate pulse generator driven in synchronism with the engine.

3,566,189 CIRCUIT BREAKER WITH LOOSELY COUPLED DEENERGIZING MEANS FOR HIGH OVERLOAD CURRENTS

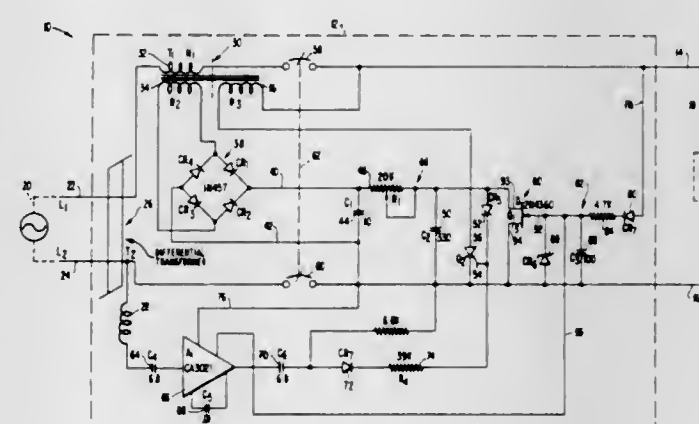
Davud H. Wilson and Lyl N. Merriken, Cambridge, and John R. Shand, Easton, Md., assignors to Airpax Electronics Incorporated, Cambridge, Md.

Filed Mar. 18, 1969, Ser. No. 808,175

Int. Cl. H02h 1/02

U.S. Cl. 317—18

6 Claims



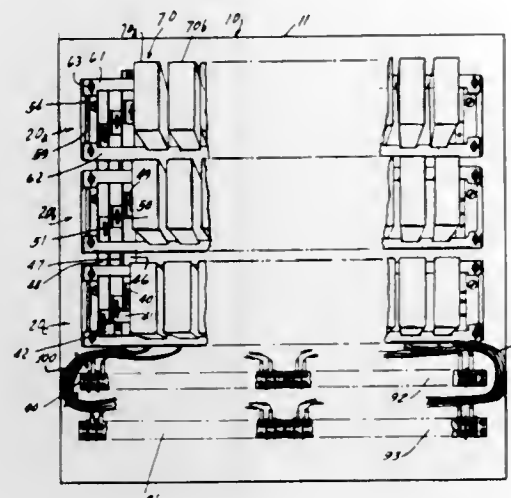
Disclosed is a circuit breaker in which the current-carrying contacts are mechanically opened in response to a delay induced solid state switch. The line current passes through the primary of a transformer which is mounted on a common core with the transformer secondary and a third winding. The third winding is energized by the switch to open the breaker contacts. High overload currents are coupled directly from the transformer to the breaker mechanism bypassing the delay. Also provided is a ground fault circuit for closing the switch when the line becomes unbalanced.

3,566,190
INDUSTRIAL CONTROL SYSTEM WITH MEANS FOR
RELEASABLY SECURING A PLURALITY OF
ELECTRONIC MODULES
 Virgil J. Huebner, Sioux Falls, and David L. Brown, Parker, S. Dak., assignors to Raven Industries, Inc., Sioux Falls, S. Dak.

Filed Dec. 23, 1968, Ser. No. 786,328
 Int. Cl. H01b 1/04; H05k 5/02

U.S. Cl. 317-100

10 Claims



Control apparatus for industrial control applications in which modular construction includes a plurality of rail systems each having means for releasably securing thereto a plurality of electronic logic circuit modules. Each of the rail systems includes a pair of spaced-apart side rails which carry a circuit board having a plurality of plug-in type electrical connectors secured thereto to form a mother board assembly for receiving respective ones of the electronic logic modules. All module wiring for input output and intermodule connections lie on the front side of the rail system circuit board. The spaced-apart rails of the rail system and module locking bars, which secure the modules to prevent mechanical shock and vibrations, together provide tunnels for the wiring which acts as a partial Faraday shield to prevent such wiring from acting as an antenna in the environment of industrial control applications wherein large amounts of uncontrolled electromagnetic radiation may occur, such as in the operation of large dynamoelectric equipment.

The power distribution system of the control apparatus is provided by a plurality of printed conductors on the back side of a circuit board carried on each rail system and by a plurality of bus bars which interconnect the conductors of the individual rail systems to the power supply. The printed conductors of the circuit board and the bus bars are of exceptionally large dimensions so as to provide a low impedance path for noise in order to prevent the deleterious effects of noise in the electronic modules.

The plurality of electronic logic modules are individually housed free from foreign matter in wedge-shaped containers which, when placed in a stacked vertical alignment form chimneys for cooling of the equipment and which provide an ample amount of room for the insertion and articulation of test probes to terminals located between the wedge-shaped housings.

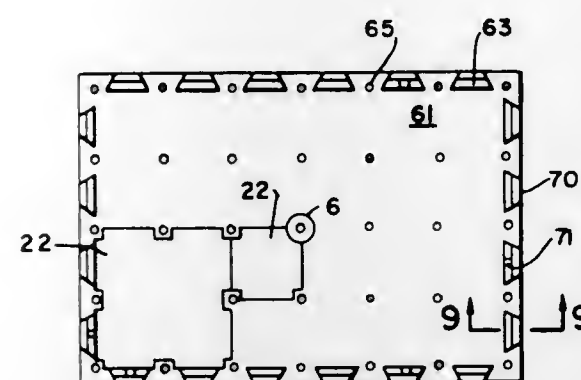
3,566,191
MICROWAVE CIRCUIT HOUSING
 Ronald Holst, San Jose, Calif., assignor to Western Microwave Laboratories, Inc., Los Gatos, Calif.
 Filed Feb. 26, 1969, Ser. No. 802,594
 Int. Cl. H02b 1/04

U.S. Cl. 317-101

11 Claims

A two-piece housing composed of a lower member presenting a support surface for supporting at least one microstrip substrate and in which are formed a plurality of cavities disposed along its edges, the member also having an upstanding rim surrounding the support surface and provided with a plurality of recesses, each recess being disposed adjacent a respective cavity. The other member of the housing

is a cover member having a top surface arranged to be disposed opposite the support surface of the bottom member to define a chamber in which a microstrip substrate is disposed, and a rim portion arranged to rest on the upstanding rim of the bottom member. The cover member rim portion

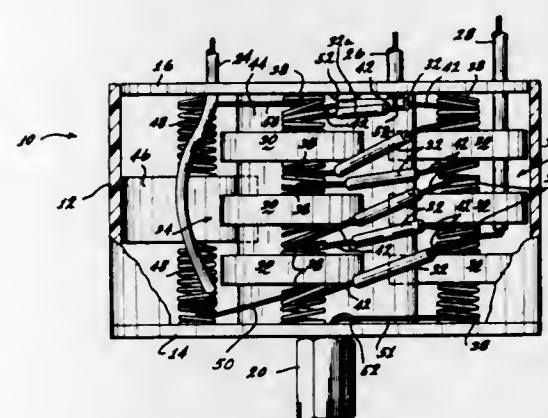


tion is provided with recesses arranged to cooperate with the recesses in the bottom member rim portion to define openings for the passage of connectors. One such housing could be employed by itself as a single microwave circuit package or it could be employed in combination with similar housings as one module of a more complex circuit.

3,566,192
ELECTRICAL COMPONENT ASSEMBLY
 Harvey Stump, Jr., Thousand Oaks, Calif., assignor to Semtech Corporation
 Filed Feb. 4, 1969, Ser. No. 796,419
 Int. Cl. H02b 1/04

U.S. Cl. 317-101

15 Claims

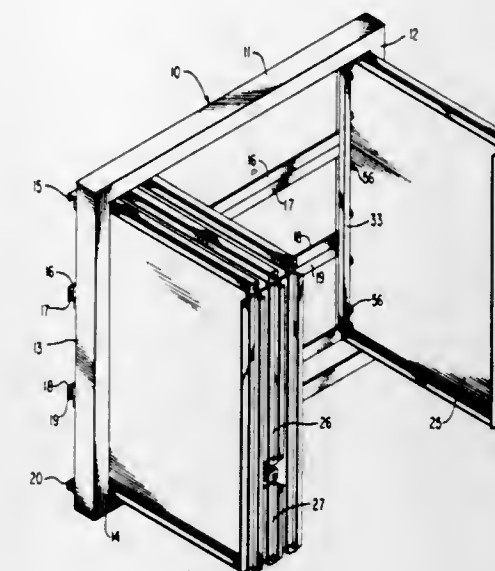


An electrical assembly wherein components are connected by resilient coils of electrically conductive exposed wire turns. Various components can be coaxially stacked on such coils and interconnected by other components via leads inserted between the wire turns. A housing is provided resiliently supporting components by such coils and the components can be secured by material within the housing having a coefficient of thermal expansion and contraction vastly differing from that of the components. In particular embodiments, capacitors are stacked so that their voltage gradients are in the same direction and are interconnected by diodes so as to constitute a voltage multiplier.

3,566,193
PRINTED CIRCUIT CARD ARRANGEMENT WITH
SUPPORT FRAME AND SUPPORT ASSEMBLY
 Adam A. Jorgensen, Pittsford, Robert William Bentley, Penfield, and Edward Uryckl, Buffalo, N.Y., assignors to Stromberg-Carlson Corporation, Rochester, N.Y.
 Filed Mar. 21, 1969, Ser. No. 809,072
 Int. Cl. H05k 5/02, 5/04

U.S. Cl. 317-101

23 Claims

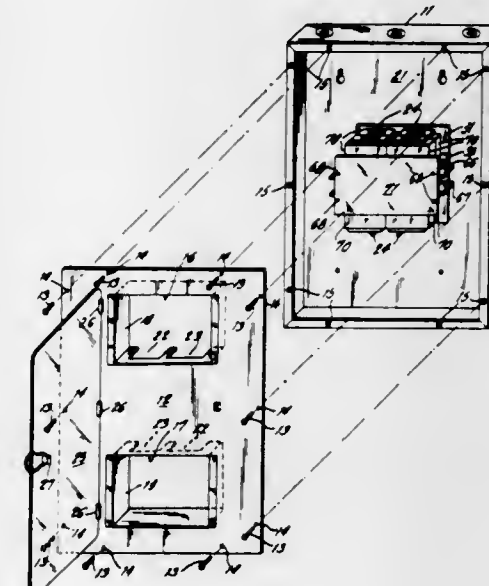


A printed circuit card arrangement including a printed circuit and a rigid frame secured thereto, and a module of printed circuit card arrangements supported on a gate in spaced parallel arrangement.

3,566,194
SHALLOW DEPTH LOAD CENTER
 Carl E. Grytko, Haddon Heights, N.J., assignor to I-T-E Imperial Corporation
 Filed Sept. 2, 1969, Ser. No. 854,687
 Int. Cl. H02b 1/04

U.S. Cl. 317-119

10 Claims



A load center is constructed with line busings disposed entirely between the circuit breakers, without adding depth to the load center enclosure, and positioned to be engaged by circuit breakers that are locked into position by pivoting thereof in planes parallel to the rear wall of the enclosure.

3,566,195
CONTROL RELAY UNIT
 Michael W. Pastore, West Simsbury, Conn., assignor to Argo Industries, Incorporated, Berlin, Conn.
 Filed Jan. 15, 1968, Ser. No. 697,987
 Int. Cl. H01h 47/24; H01f 27/04

U.S. Cl. 317-137

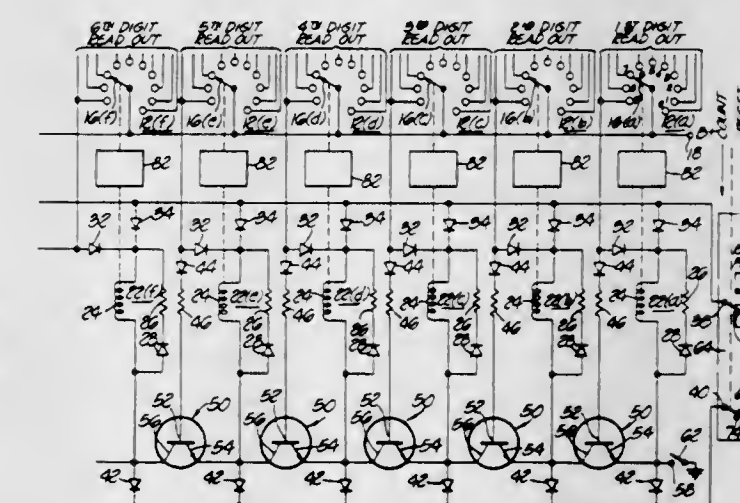
4 Claims

There is disclosed a relay unit for controlling a variety of controlled elements. The unit is extremely versatile in that it includes a plug-in transformer and plug-in relays. One or a plurality of relays may be plugged into the control unit and the unit may be wired to provide the additional function of an auxiliary switch.

3,566,196
SEQUENTIAL COUNT CIRCUIT WITH READOUT
 Robert E. Einem, Canoga Park, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
 Filed Aug. 12, 1968, Ser. No. 751,839
 Int. Cl. H01h 47/32

U.S. Cl. 317-140

5 Claims

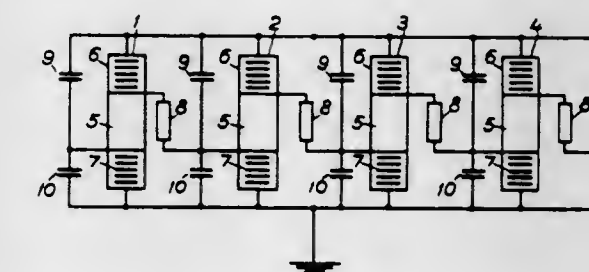


The invention relates to a sequential counting circuit permitting a single-pole, multiposition wiper arm in each decade counter to function (1) as switching logic for the carryover pulse in sequential counting; (2) as a reset to zero positioning of the wiper arm, and (3) as an isolated readout. Further, a single wiper position of each decade counter is used for all three circuit functions.

3,566,197
OVER-VOLTAGE PROTECTION DEVICE
 Erland Nilsson and Asle Schei, Ludvika, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
 Filed Oct. 28, 1968, Ser. No. 771,210
 Claims priority, application Sweden, Nov. 6, 1967, 15144/67
 Int. Cl. H02h 3/22

U.S. Cl. 317-31

6 Claims



An overvoltage protection device consists of a number of parallel connected columns containing nonlinear resistance stacks between upper and lower spark gap stacks. The spark gap stacks provide arc extension by magnetic effect. Cross-

impedances are arranged between the columns for transferring ignition pulses. The spark gaps, nonlinear resistors and connecting members for the cross-impedances are so dimensioned and arranged that the impedance increase of a column after ignition in comparison with the impedance increase of one or more subsequent ignited columns is so great that the current through the first column is less than a value corresponding to its lowest current carrying voltage. The cross-impedances may be connected between the bottom of an upper spark gap stack and the top of a lower spark gap stack.

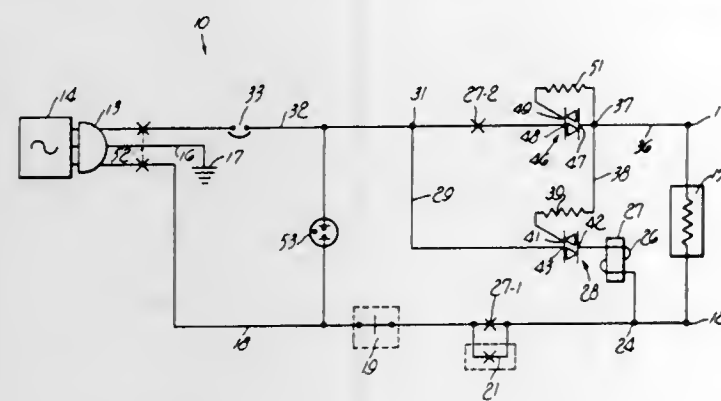
3,566,198

LOAD SENSING AND POWER APPLICATION CIRCUIT
Kevin Barrie Delahunty, Chicago, Ill., assignor to Teletype Corporation

Filed Dec. 19, 1968, Ser. No. 785,215
Int. Cl. H02h 7/00; H03k 17/56

U.S. Cl. 317-33

16 Claims



A manually operable switch is operated to render conductive a first bidirectional current-conducting semiconductor device in a sensing circuit when a load is connected between output terminals to condition a power application circuit for supplying alternating current to the output terminals and to energize a relay and close contacts to render conductive a second bidirectional current conducting device and to complete the power application circuit to the load. Disconnection of the load from the terminals return the bidirectional current conducting semiconductor devices to a nonconductive state and disables the load sensing and power application circuit until a load is connected across the terminals and the switch is operated.

3,566,199

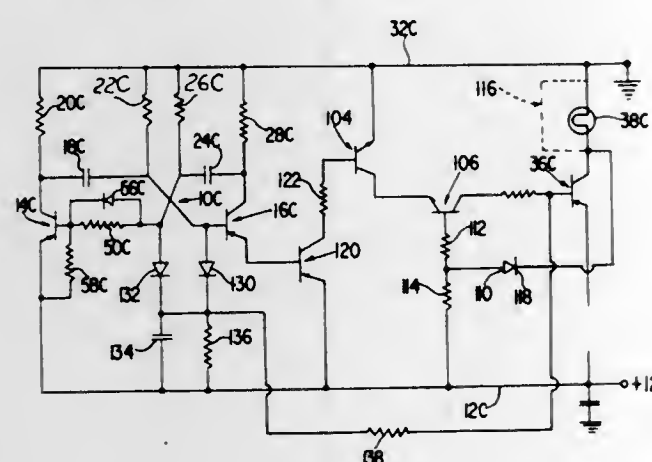
PROTECTIVE MEANS FOR TRANSISTORIZED LOAD CIRCUIT

Wilhelm Kolster and John F. Bolinger, Michigan City, Ind., assignors to Meridian Industries, Inc., Southfield, Mich.

Filed Aug. 8, 1968, Ser. No. 751,235
Int. Cl. H02h 7/00

U.S. Cl. 317-33

17 Claims



A transistorized switching circuit for flashers such as used on automotive vehicles in which the power or load switching transistor is automatically rendered nonconductive to load

currents, i.e., "turned off," in the event of a short in the load circuit. Circuit means may also be provided to reversely bias the power or load switching transistor when it is nonconducting so as to minimize dangerous leakage currents through the transistor.

3,566,200

PROTECTIVE BIASING CIRCUIT FOR TRANSISTORS

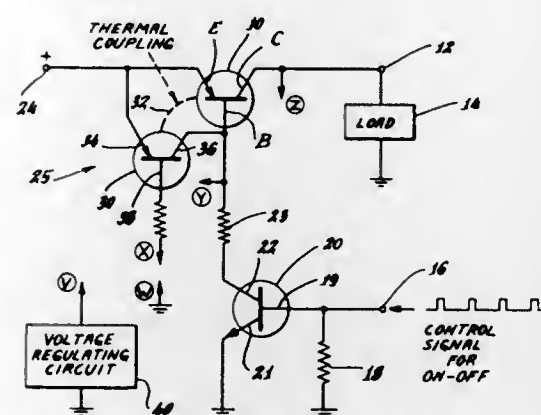
Robert L. Seidler, 6 Plymouth Road, Summit, N.J.

Filed May 21, 1969, Ser. No. 826,430

Int. Cl. H02h 3/08, 7/20

U.S. Cl. 317-33

9 Claims



A protective biasing circuit is described for transistors to control their leakage current and to provide reverse-polarity protection for them, this protective biasing circuit being particularly advantageous in use with power switching transistors of either the Germanium or Silicon types. The biasing circuit includes a transistor of the same polarity type and leakage characteristic as the transistor it controls and thermally coupled to the transistor it controls so that its temperature varies in the same manner as the one it controls. The emitters of the two transistors are connected together and the collector of the protective biasing transistor is connected to the base of the controlled transistor, and the base of the protective biasing transistor is connected through a resistor of relatively large resistance value in a predetermined range to a voltage point which is lower in potential than the source of the power for the controlled transistor.

3,566,201

DISCHARGE ARC CONTROL MEANS FOR A LIGHTNING ARRESTER

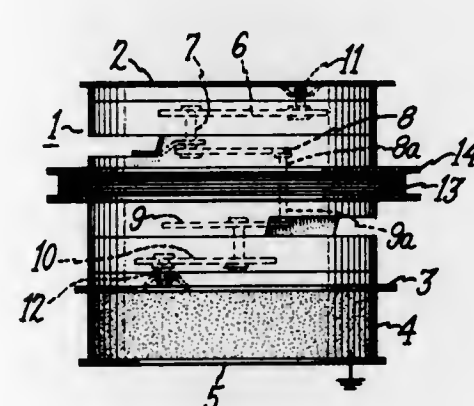
Eugene C. Sakshaug, Lanesborough, and James S. Kresge, Pittsfield, Mass., assignors to General Electric Company

Filed Mar. 3, 1969, Ser. No. 803,589

Int. Cl. H02h 9/06

U.S. Cl. 317-74

10 Claims



A surge voltage arrester having means for retarding the build up of appreciable current limiting voltage therein for a predetermined interval of time after sparkover of the arrester

comprising, a current limiting spark gap assembly having an electromagnetic coil electrically connected in series with it and disposed adjacent to it for moving arcs within the assembly in a manner such that arc voltage is increased. The coil is shunted by a current limiting means and is provided with enough turns to give it a substantial inductance so that an overvoltage surge may be discharged through the assembly for a predetermined interval of time before the coil develops enough magnetic flux to move arcs within the assembly sufficiently to build up an appreciable current limiting arc voltage. Additionally, the highly inductive coil provides the arrester with a high inductive reactance such that at the moment of clearing the current is forced slowly to zero providing a "gentle" clearing so high induced voltages are not produced in inductive protected circuits.

3,566,202

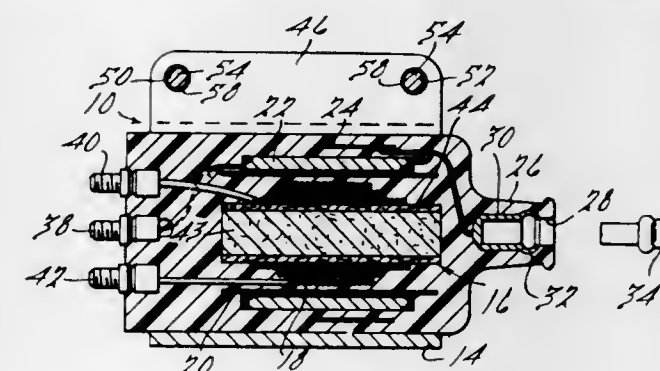
SELF-RESONANT IGNITION COIL AND SYSTEM
Sherman C. Carr, Hartford, Wis., assignor to Chrysler Corporation, Highland Park, Mich.

Filed June 3, 1968, Ser. No. 734,006

Int. Cl. H01f 15/04, 27/24; F02p 1/00

U.S. Cl. 317-157.62

8 Claims



An ignition coil of low internal impedance and high energy storage and transfer characteristics and having an electrostatic shield between the coil primary and the coil secondary surrounding the primary and additional capacity resonating the secondary to a high frequency providing improved operating efficiency and prolonged spark duration of a spark plug load connected thereto.

3,566,203

CHIP CAPACITOR

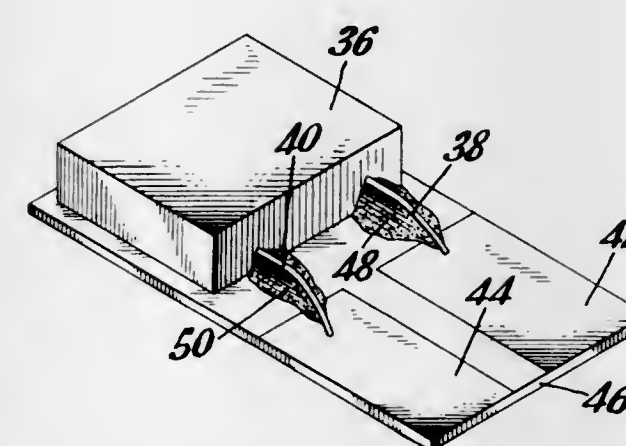
David Edmund Maguire, Greenville, S.C., and Charles Michael Peterson, Cedar Rapids, Iowa, assignors to Union Carbide Corporation, New York, N.Y.

Filed Oct. 24, 1968, Ser. No. 770,352

Int. Cl. H01g 9/06

U.S. Cl. 317-230

17 Claims



A low profile electrolytic capacitor for mounting on a substrate, comprising a base of an insulative material having

electrically conductive strips attached to the surface of the base, and a capacitor pellet attached to the base with its cathode portion in electrical contact with one of the strips and with its anode portion in electrical contact with another of the strips through an anode lead. Both of the conductive strips provide bonding areas for making electrical connections of the capacitor to other circuit elements by ultrasonic bonding, parallel gap welding, reflow soldering, etc.

3,566,204

CERAMIC CHIP CAPACITOR HAVING COPLANAR SURFACES

James P. Callahan, Elk Grove Village, and Richard A. Stark, Des Plaines, Ill., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind.

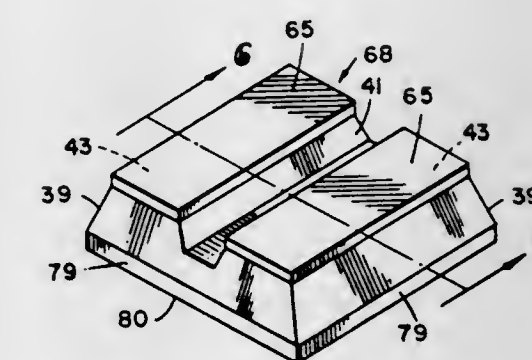
Original application Mar. 23, 1967, Ser. No. 625,459.

Divided and this application Apr. 4, 1969, Ser. No. 840,869

Int. Cl. H01g 1/035, 3/06

U.S. Cl. 317-230

20 Claims



A ceramic chip electrical capacitor, primarily for use in hybrid integrated circuits. The capacitor has a body of one type conductivity ceramic material with a pair of embossed coplanar surfaces and a groove separating the surfaces. A layer of electrically conductive material is upon each of the coplanar surfaces forming electrodes on the respective surfaces. The electrodes include dopant material, productive of the other type conductivity in the ceramic material, diffused into the surfaces to form a PN-junction dielectric region in each of the surfaces beneath the respective electrodes.

3,566,205

PACKAGED HIGH FREQUENCY TRANSISTOR WITH DIRECTLY FUSED CONTACTS

John Siddall Walker, Colmworth; Michael Rupert Platten Young, Turvey; Gordon Howard Littlejohn, Bedford, and Ian Hambry Morgan, Eaton Socon, St. Neots, England, assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed July 27, 1967, Ser. No. 656,534

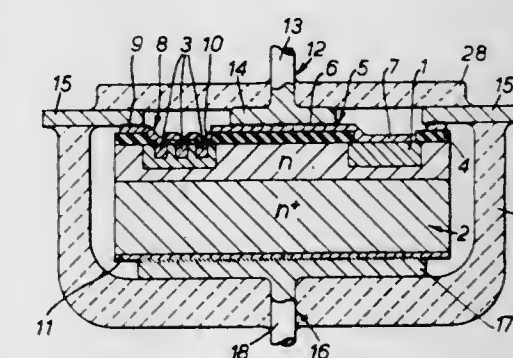
Claims priority, application Great Britain, July 29, 1966,

34,239

Int. Cl. H01l 5/00, 3/00

U.S. Cl. 317-234

5 Claims



A transistor suitable for use in the U.H.F. band and capable of providing power amplification. The transistor incor-

porates terminations that are directly fused, e.g. in soldering or brazing to respective emitter, base and collector contact surfaces having relatively large areas. In one embodiment the base region is a circular annulus in which are diffused emitter regions spaced around the annulus. The emitter contact is an annulus having radially inward projecting fingers overlying the emitter regions and the base contact is a disc having radially outward projecting fingers interdigitating with the emitter contact fingers. The base and collector terminals have coaxial stems projecting from discs fused to the base and collector contacts and the emitter terminal is an annulus fused to the emitter contact. This provides a package suitable for incorporation into a coaxial line system. Other embodiments incorporate rectangular, platelike terminations and provide packages suitable for direct incorporation into strip line and rectangular waveguide systems.

3,566,206

NEGATIVE RESISTANCE SEMICONDUCTOR DEVICE HAVING A PINPIN ZONE STRUCTURE

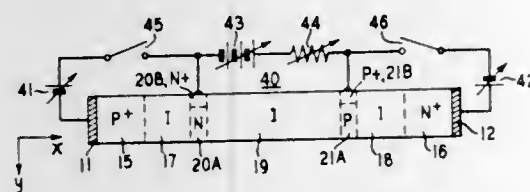
Dirk J. Bartelink, Morris Township, Morris County, and Donald L. Scharfetter, Morristown, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 20, 1968, Ser. No. 785,547

Int. Cl. H011 9/10, 11/08, 13/00, 9/12, 11/10

U.S. Cl. 317-234

8 Claims



A P+INPIN+ diode is operated as an avalanche diode to provide highly efficient negative resistance. Also, by connecting voltage sources to the intermediate N- and P-zones, the devices may be used as an electronic switch.

3,566,207

SILICON-TO-GOLD BONDED STRUCTURE AND METHOD OF MAKING THE SAME

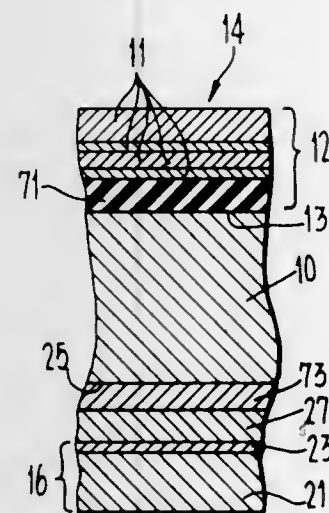
Clark N. Adams, Courbevoie, France, assignor to The Singer Company

Filed May 19, 1969, Ser. No. 825,725

Int. Cl. H011 1/14

U.S. Cl. 317-234

7 Claims



A silicon chip, constituting the substrate of an integrated circuit, is coated first with chromium, and then tin, to pro-

vide a surface that will bond at temperatures as low as 217° C. to a gold-surfaced mounting pad.

3,566,208

PIN SOCKET

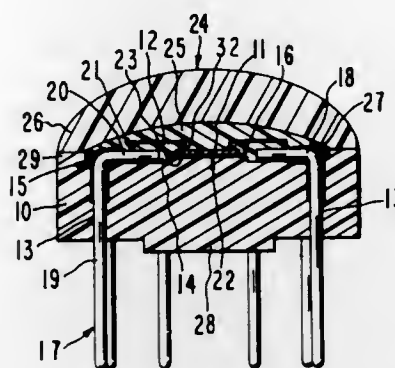
Chan H. Wang, Saratoga, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, Long Island, N.Y.

Filed Feb. 2, 1968, Ser. No. 702,634

Int. Cl. H011 1/14

U.S. Cl. 317-234

10 Claims



A semiconductor device assembly including an insulating substrate and a plurality of L-shaped pins disposed around the periphery of the substrate. The pins fit in slots on the top surface of the substrate and the semiconductor device is centrally located with respect to the pins adjacent the substrate. Electrical connections are made between portions of the device and the pins. The entire device, pins, and substrate are covered with an insulating coating.

3,566,209

DOUBLE-SINTERED GOLD-NICKEL ELECTRICAL CONTACT FOR COMPRESSION-BONDED ELECTRICAL DEVICES

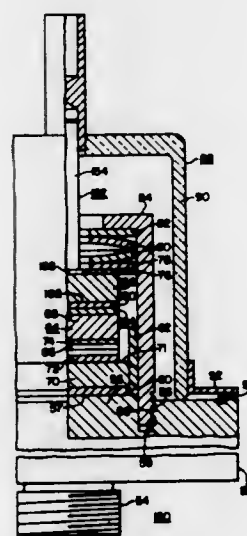
Robert R. Shaw, Jeannette, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 28, 1968, Ser. No. 755,923

Int. Cl. H011 1/02, 1/12; H021 11/00

U.S. Cl. 317-324

23 Claims



An electrical contact is first plated with a layer of nickel on at least its contact surface which is then metallurgically bonded to the contact by a heat-treating process. The nickel-plated contact is then plated with gold on at least the nickel-covered contact surface. The gold is metallurgically diffused into, and alloyed with the nickel by a heat-treating process.

3,566,210

SEMICONDUCTOR SWITCHING DEVICE HAVING A SHORTED EMITTER

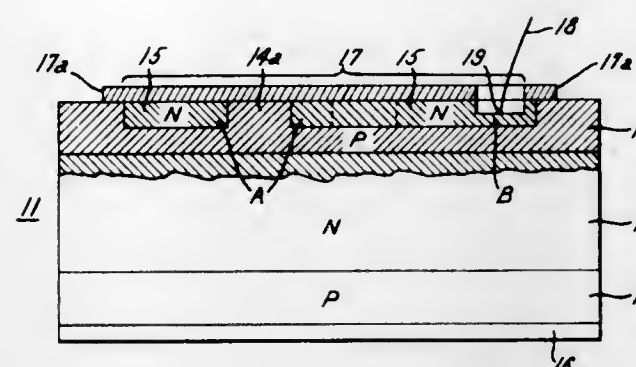
Angelo Louis DeCecco, Newtown Square, Pa., assignor to General Electric Company

Filed Oct. 12, 1967, Ser. No. 674,946

Int. Cl. H011 11/00, 15/00

U.S. Cl. 317-235

6 Claims



The temperature and transient turn-on sensitivities of a high-power solid-state PNP switching device can be reduced by using an inboard auxiliary region in one end layer (the emitter) of the device for triggering purposes and by spanning all external edges of the emitter junction with a low resistance shunt.

3,566,211

THYRISTOR-TYPE SEMICONDUCTOR DEVICE WITH AUXILIARY STARTING ELECTRODES

Per Svedberg, Vallingby, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

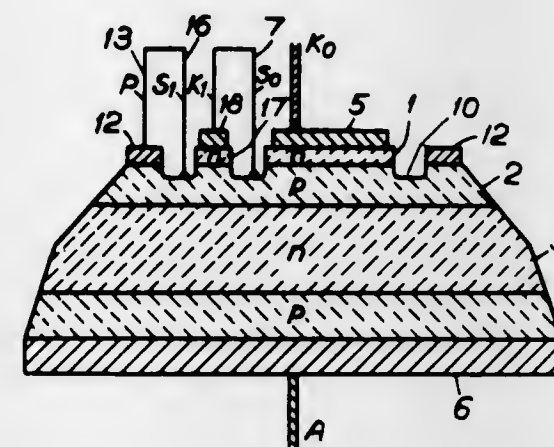
Filed Oct. 23, 1967, Ser. No. 677,334

Claims priority, application Sweden, Oct. 25, 1966, 14,606/1966

Int. Cl. H011 9/00, 11/00, 13/00

U.S. Cl. 317-235

1 Claim



A thyristor is constituted by a body having at least four alternately P conducting and N conducting layers with two main electrodes for the load current; one of the layers has a connection for ignition current; one part of the body has a blocking voltage lower than that of the other parts; an auxiliary contact applied on such part is connected to the ignition current connection so that, when the blocking voltage of such part is exceeded, current is supplied to the ignition current connection.

3,566,212

HIGH TEMPERATURE SEMICONDUCTOR PACKAGE

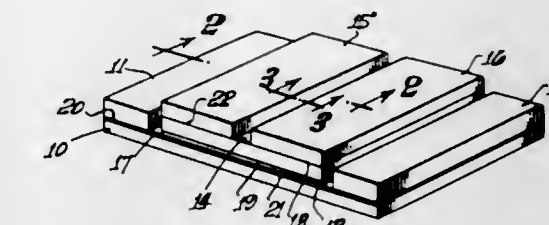
David Wayne Marx, Redondo Beach, Calif., assignor to TRW Semiconductors, Inc., Lawndale, Calif.

Filed Feb. 24, 1969, Ser. No. 801,462

Int. Cl. H011 1/08

U.S. Cl. 317-235

21 Claims



A package for a transistor or other semiconductor device wherein a semiconductor crystal is connected to a first thermal conducting ceramic layer and enclosed within a cavity created by a second thermal conducting ceramic layer. Openings in at least one of the thermal conducting ceramic layers are filled with a conductive material, the material making electrical contact with the active regions of the semiconductor device. Metal contacts are connected to the thermal conducting ceramic layer making electrical contact with the conductive material in the openings, and therefore making electrical contact with the active regions of the semiconductor device.

3,566,213

VOLTAGE LEVEL SENSITIVE SEMICONDUCTOR ARRANGEMENT

Reinhold Kaiser, Heilbronn, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm/Danube, Germany

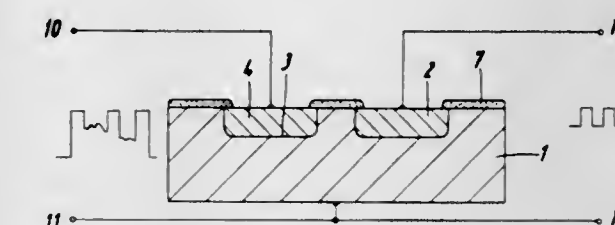
Filed Dec. 13, 1967, Ser. No. 690,154

Claims priority, application Germany, Dec. 24, 1966, T32853

Int. Cl. H011 9/00, 9/12, 11/00

U.S. Cl. 317-235

2 Claims



A semiconductor arrangement includes a semiconductor body largely formed of a material of a first conductivity type. Within this material of the first conductivity type a first zone is formed of material of the opposite conductivity type so as to form a PN junction, and appropriate means are provided to apply a voltage across this PN junction so as to create a space charge region which extends for a distance therefrom. Also within the material of the first conductivity type is formed a second zone of material of the opposite conductivity type. The second zone is spaced at such a distance from

the PN junction that it will be contacted by the space charge region under appropriate conditions. Appropriate means are provided to give an indication of such a contact of the second zone.

3,566,214

INTEGRATED CIRCUIT HAVING A PLURALITY OF CIRCUIT ELEMENT REGIONS AND CONDUCTING LAYERS EXTENDING ON BOTH OF THE OPPOSED COMMON MAJOR SURFACES OF SAID CIRCUIT ELEMENT REGIONS

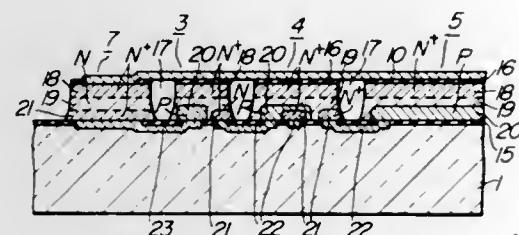
Koji Usuda, Tokyo, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 18, 1968, Ser. No. 722,345

Claims priority, application Japan, Apr. 19, 1967, 42/24517
Int. Cl. H011 19/00

U.S. Cl. 317—235

7 Claims



A method of wiring a semiconductor integrated circuit device, wherein a plurality of semiconductor circuit elements having two principal surfaces are disposed on one principal surface of an insulating substrate and mutually connected by extending connection wires along each principal surface of said circuit devices.

3,566,215

TENSIONED SEMICONDUCTOR COMPONENT

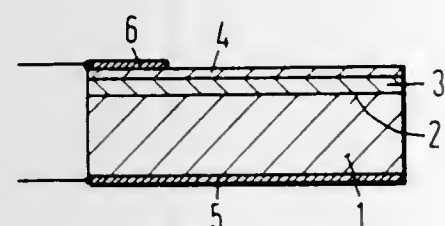
Walter Heywang, Neuweilerhof, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed July 31, 1968, Ser. No. 749,180

Claims priority, application Germany, Aug. 4, 1967, S111192
Int. Cl. H011 15/00, 7/38

U.S. Cl. 317—235

4 Claims



The present invention relates to a semiconductor component particularly a semiconductor component with a PN junction whose characteristic electrical property is improved

by mechanical tensioning of its semiconductor body. In accordance with the invention, the monocrystalline semiconductor body of the semiconductor component, produced by epitaxy upon a foreign substrate at elevated temperature, is so arranged on the substrate that at operating temperature its characteristic quality will be improved in contrast to an otherwise equal semiconductor component, which is precipitated upon a substrate of the same monocrystalline semiconductor material, due to a different thermal contraction of the substrate, compared to the semiconductor and the resulting tensioning of the semiconductor.

3,566,216

AN ELECTROMECHANICAL TRANSDUCER INCLUDING A SEMICONDUCTOR AND SENSITIVITY CONTROLLING COUPLING MEANS

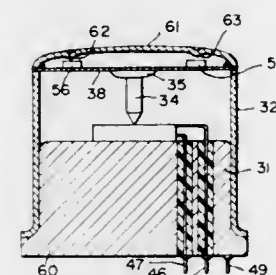
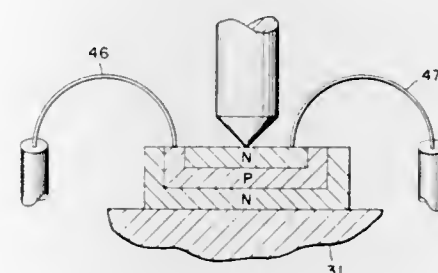
Gerhard Doering, Stow, and Charles Kadlec, Acton, Mass., assignors to Stow Laboratories, Inc., Stow, Mass.

Filed Aug. 7, 1968, Ser. No. 750,857

Int. Cl. H011 11/00, 15/00

U.S. Cl. 317—235

7 Claims



A piezoelectric transducer assembly wherein an electrical output is produced by an applied mechanical load coupled to the junction by means of a stylus supported by a diaphragm. Variation of the force applied to the junction by the stylus results in reversible changes in the junction's characteristics, thereby causing an electrical output signal at the output terminals.

The basic device is modified by an additional structural element attached to the diaphragm. By selection of the location of the contact between the structural element and the diaphragm, the effective distribution of the applied force or pressure is modified, which changes the proportion of the total load supported by the stylus and the diaphragm support, thereby changing the range of mechanical input over which the device will have useful output.

In a preferred embodiment, the structural element is a convex circular dome attached along its periphery to a concave diaphragm.

3,566,217

ELECTRICAL COMPONENT AND METHOD OF MANUFACTURE

Theodore W. Cooper, San Bruno, Calif., assignor to Globe-Union Inc., Milwaukee, Wis.

Filed Oct. 1, 1968, Ser. No. 764,121

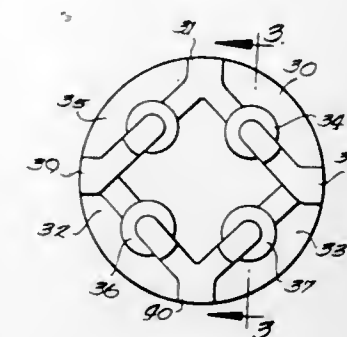
Int. Cl. H011 11/14, 19/00

U.S. Cl. 317—235

4 Claims

An electrical component, which includes a film of

semiconducting barium titanate with suitable ohmic or recti-



fying contacts, is described together with the method for its manufacture.

3,566,218

MULTIPLE BASE WIDTH INTEGRATED CIRCUIT

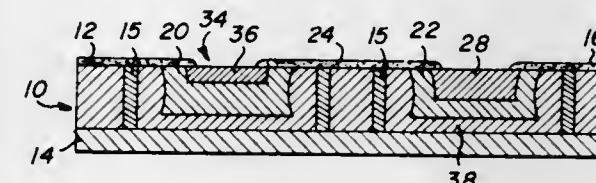
Robert J. Widlar, Mountain View, and David V. Talbert, Santa Cruz, Calif., assignors to the National Semiconductor Corporation, Santa Clara, Calif.

Filed Oct. 2, 1968, Ser. No. 764,403

Int. Cl. H011 19/00

U.S. Cl. 317—235

4 Claims



A novel high-performance monolithic integrated circuit means including semiconductor transistor elements having different base widths so that one or more of the transistors have a high voltage breakdown characteristic, while one or more of the remaining transistors have a high current gain characteristic. This is accomplished by diffusing certain regions of selected ones of the respective transistors for longer periods of time than like regions of the other transistors so as to render the base widths of certain ones of the transistors of lesser thickness than those of the remaining transistors.

3,566,219

PINCHED RESISTOR SEMICONDUCTOR STRUCTURE

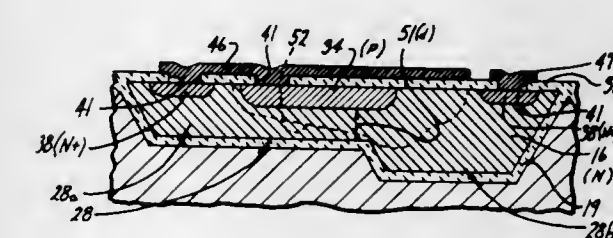
Carroll E. Nelson, Dallas, Tex.; Hans R. Camenzind, Los Altos, and Albert P. Youmans, Cupertino, Calif., assignors to Signetics Corporation, Sunnyvale, Calif.

Filed Jan. 16, 1969, Ser. No. 791,657

Int. Cl. H011 11/14, 9/00

U.S. Cl. 317—235

4 Claims



Pinched resistor semiconductor structure having a channel and a field plate to provide a depletion region which pinches off the channel so that the current flow remains constant for any voltage after a predetermined voltage is reached.

3,566,220

INTEGRATED SEMICONDUCTOR CIRCUIT HAVING COMPLEMENTARY TRANSISTORS PROVIDED WITH DIELECTRIC ISOLATION AND SURFACE COLLECTOR CONTACTS

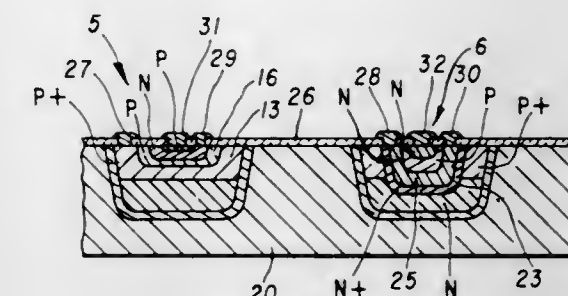
Simon D. Post, Clearwater, Fla., assignor to Texas Instruments Incorporated, Dallas, Tex.

Original application June 24, 1966, Ser. No. 560,158. Divided and this application Apr. 25, 1969, Ser. No. 819,368

Int. Cl. H011 11/00, 15/00

U.S. Cl. 317—235

3 Claims



An integrated semiconductor circuit wherein the functional electronic components are separated by dielectric isolation and is provided with complementary transistors, each having a buried heavily doped collector contact region extending to the upper surface of the semiconductor slice. The structure provides each transistor with a low collector saturation resistance, and permits all ohmic contacts to be made at the same surface of the slice.

3,566,221

LINEAR VARIABLE CAPACITANCE TRANSDUCER

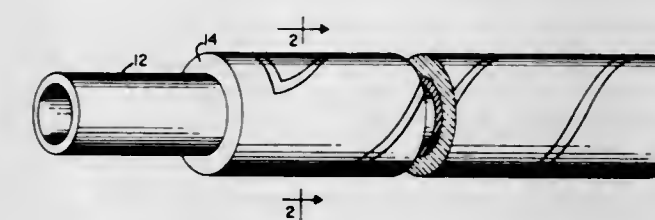
Raymond W. Sargent, Bristol, and Siderius Van Manen, Mile Point, Vt., assignors to Simmonds Precision Products, Inc., Tarrytown, N.Y.

Filed Oct. 24, 1968, Ser. No. 770,277

Int. Cl. H01g 5/14

U.S. Cl. 317—246

7 Claims



A linear variable capacitance transducer to monitor the axial position of an object by varying the capacitance of the transducer corresponding to the position of the object. When fed an AC signal, the position of the object being monitored corresponds to the proportional AC signal emitted therefrom.

3,566,222

CAPACITIVE DISPLACEMENT TRANSDUCER

Peter Caleb Frederick Wolfendale, Chiltern Close, Great Brickhill, Bletchley, Buckinghamshire, England

Filed Oct. 15, 1969, Ser. No. 866,648

Claims priority, application Great Britain, Oct. 17, 1968, 49181/68

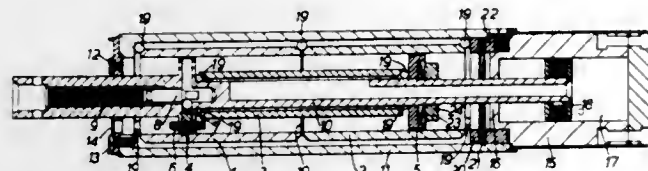
Int. Cl. H01g 5/04

U.S. Cl. 317—246

9 Claims

A capacitive position transducer comprising two cylindrical coaxial reference electrodes disposed side by side, and a coaxial cylindrical movable electrode disposed within the reference electrodes for movement along the axis to vary the capacitive couplings between the moving electrode and the respective reference electrodes as functions of position. Flanges at each end of the moving electrode are maintained at ground potential and project towards the reference elec-

trodes to form guard rings. One or more screws of conductive or insulating material project through the guard rings to



adjust the capacitive couplings. The reference electrodes are spaced from a housing, and the moving electrodes from a shaft, by three-point bearings formed by sapphire balls.

3,566,223

CHARGING DEVICES FOR ELECTROSTATIC COPIERS
Werner Salger, Hamburg-Langenhorn, Germany, assignor to Lumoprint Zindler KG, Hamburg, Germany
Filed Dec. 26, 1967, Ser. No. 693,242
Claims priority, application Germany, Dec. 27, 1966, L55,369

Int. Cl. H01t 19/00

U.S. Cl. 317-262

15 Claims



A charging device for an electrostatic copier has at least two parallel corona wire sections with each two wire sections being sections of a single continuous corona wire, at least one U-shape cross section housing shell of electrically conductive material, and insulating mountings at the ends of the device. One mounting includes a double-acting clamping mechanism clamping both opposite ends of the single corona wire, and the other mounting includes an abutment member having the corona wire trained therearound and spring biased away from the ends of the single corona wire. The clamping mechanism is a wedge type clamping mechanism which is readily adjustable, and the abutment member has a conical section engaging the single corona wire and is axially adjustable for setting the wire tension.

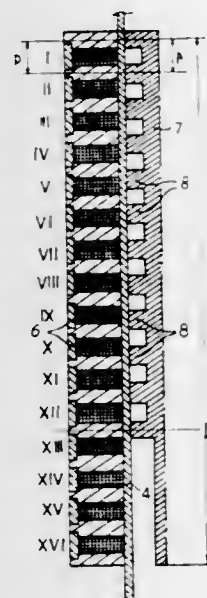
3,566,224

LINEAR ELECTROMAGNETIC MOTOR
Maurizio Vallauri and Luciano Parodi, Turin, Italy, assignors to Fiat Societa per Azioni, Turin, Italy
Continuation-in-part of application Ser. No. 492,663, Oct. 4, 1965, now abandoned. This application May 8, 1969, Ser. No. 830,564

Int. Cl. H02k 41/02

U.S. Cl. 318-135

2 Claims



A linear electromagnetic motor having a plurality of similar annular, coaxial and uniformly spaced coils or elec-

tromagnets, an elongated core of ferromagnetic material coaxially arranged with said coils, and a plurality of similar, annular projections, equally spaced along the core. The length L of the coil row is related to the pitch of the coils P and to the pitch of the projections p by the following equations:

$$L = np$$

$$L = (n \pm 1)P$$

the length of the row of coils being greater than that of the projections.

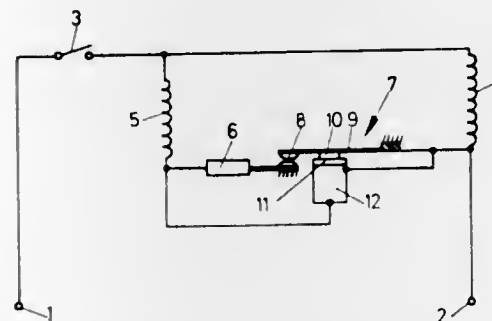
3,566,225

MAGNETIC CIRCUIT OPENING AND CLOSING MOTOR STARTING SWITCH IN RESPONSE TO HEAT VARYING MAGNETIC PERMEANCE

Erik Kurt Poulsen, Egelykke, Vollerup, Denmark, assignor to Danfoss A/S, Nordborg, Denmark
Filed Sept. 26, 1968, Ser. No. 762,757
Claims priority, application Germany, Oct. 7, 1967, P 15 88 139.7
Int. Cl. H02k 17/08

U.S. Cl. 318-221

4 Claims



A synchronous motor and a starting circuit therefore in which a switch in series with the motor winding determines the starting period during which the starting winding is electrically energized. The switch has a leaf-spring movable contact tending toward opening the starting circuit kept in a circuit-closing position by a magnetic system which has a ferromagnetic member therein rendered nonmagnetic by heat applied by a PTC-resistor in series with the motor starting winding so that the ferromagnetic member releases a magnet on the movable contact closing the switch and the motor starting period is thus determined.

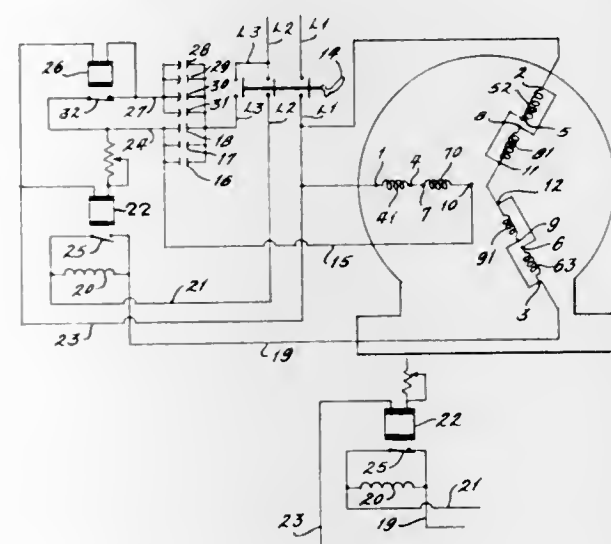
3,566,226

SINGLE-PHASE OPERATION OF THREE-PHASE MOTOR

Emil S. Tamm, Fort Smith, Ark., assignor to Baldor Electric Company, Fort Smith, Ark.
Filed Aug. 25, 1969, Ser. No. 852,643
Int. Cl. H02p 7/00

U.S. Cl. 318-225

2 Claims



disconnecting one leg of Y from other two legs, connecting the disconnected leg in series with a running capacitance across the single phase supply, connecting said two legs in series with a shunt inductance across said supply. The coils of two voltage-sensitive relays for respectively shunting said shunt inductance, and disconnecting a starting capacitance, each at different motor speeds, are connected in parallel with the aforesaid disconnected leg of the motor winding.

3,566,227

SWITCHING CIRCUIT FOR OPERATION AND DYNAMIC BRAKING OF A DC MOTOR

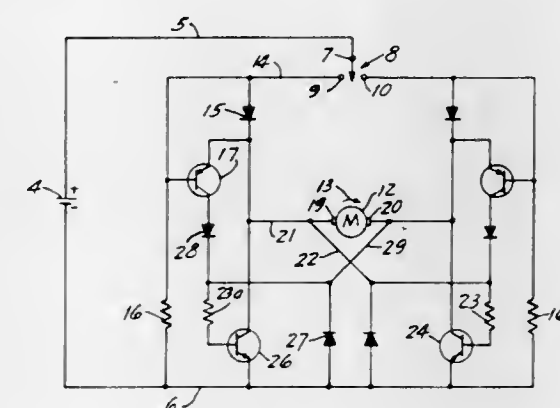
Arthur J. Edlund, Town of May, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed May 6, 1969, Ser. No. 822,200

Int. Cl. H02p 3/12

U.S. Cl. 318-258

2 Claims



A switching circuit for controlling the operation of a DC motor or the dynamic braking of the motor, having driving circuits for selectively driving the motor in different directions when selectively connected to a direct current source and having dynamic braking circuits for connection to the motor armature winding, which dynamic braking circuits include solid-state switching devices which respond to a directional coasting of an undriven armature to complete a dynamic braking circuit to dynamically brake the motor. The dynamic braking-circuit switching devices are inhibited by means included in the driving circuits from completing the dynamic braking circuit while the motor is being driven.

3,566,228

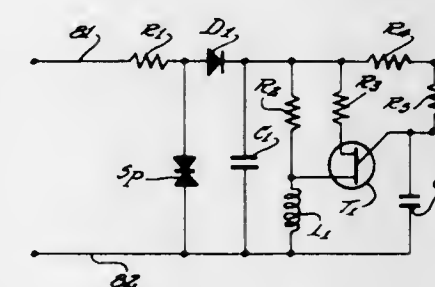
TIME-DELAY SWITCH FOR PIPE THREADER
Athanasios N. Tsengas, Wood Dale, and Radames Ramirez, Chicago, Ill., assignors to Ram Tool Corporation, Chicago, Ill.

Filed June 23, 1969, Ser. No. 835,587

Int. Cl. H02p 1/22

U.S. Cl. 318-264

14 Claims



A time-delay switch for a pipe threader which allows the length of threads to be cut by the pipe fitter to be adjusted and to automatically reverse the direction of the pipe threader after the desired length has been cut so as to remove the pipe threading die from the member being threaded. A time delay is incorporated in the switch so that the drive motor may coast to a stop before reversal of the motor occurs.

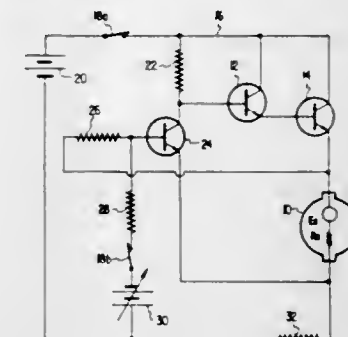
3,566,229

MOTOR CONTROL CIRCUIT

Richard L. Wickens, Hawthorne, N.J., assignor to Servo-Tek Products Company, Hawthorne, N.J.
Filed July 23, 1968, Ser. No. 751,671
Int. Cl. H02p 5/16

U.S. Cl. 318-308

12 Claims



A control circuit for a direct current shunt motor. The motor armature is serially connected with a current control element and a current sensing element across a direct voltage source. A first voltage loop includes the armature, a portion of the current control element, and a current passage element. A second voltage loop includes the current sensing element, the portion of the current control element, a variable direct voltage source, and a second current passage element which is connected to the first current passage element for serial current flow therethrough. A voltage variation in either loop causes a current variation in the two current passage elements which maintains the motor counter electromotive force substantially equal to the voltage from the variable source. Automatic dynamic braking can be provided by a current passage means across the armature and responsive to current flow through the armature.

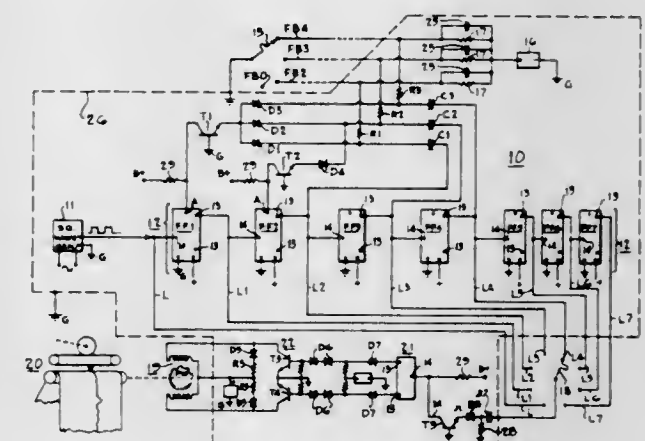
3,566,230

ELECTRONIC COUNTERS

Samuel J. Mac Mullan, Flourtown, Pa., assignor to Leeds & Northrup Company, Philadelphia, Pa.
Filed Feb. 20, 1968, Ser. No. 706,973
Int. Cl. H02p 7/28

U.S. Cl. 318-341

14 Claims



Electronic counter at least in part comprising a variable modulus portion having unilateralized feedback circuitry to make available a multiplicity of discrete pulse-repetition frequencies for operation of a motor at correspondingly different constant speeds.

3,566,231

SERVOMECHANISM CONTROL APPARATUS

Frederick R. Pfeiffer, Shoreview, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Feb. 10, 1969, Ser. No. 798,036
Int. Cl. G05f 1/08

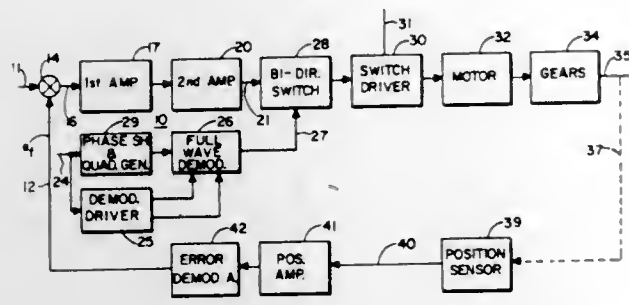
U.S. Cl. 318-681

11 Claims

A closed loop servosystem includes an AC electric motor that is connected to an external AC power source for reversi-

ble rotation. The phase angle of energization of the motor during a half-cycle of the power source is a nonlinear function of the magnitude of the error signal in the closed loop system. The connection of the power source with the motor is effected by a switching arrangement that varies the period of motor energization in each of the AC power source half-cycles so that the magnitude of torque of the motor is substantially linear with the magnitude of the error signal in the system. The phase angle control or the controlling of the period of energization of the motor in each half-cycle of the

ers on the probe, and controlling said energy source by way of a new quantity in the field detected after the probe



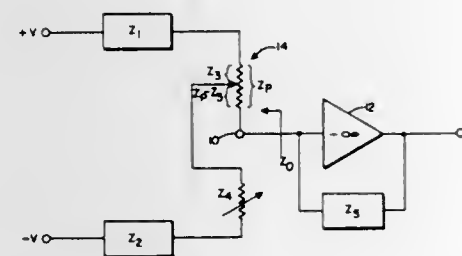
power source voltage is such that the torque of the motor relative to the error signal approaches linearity whereas the relationship between the error signal and the phase angle of energization is nonlinear. The switching arrangement provides a unique switching signal that comprises the closed loop error signal and a second signal derived from manipulation of the line voltage obtained from the external AC power source for the motor. In the present arrangement, such second signal is a demodulated quadrature signal of the AC power source to provide desirable nonlinearity between the error signal and phase angle of energization of the motor.

3,566,232 BRIDGE CIRCUITS

Orrin H. Grangaard, Jr., St. Paul, Ramsey, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Nov. 13, 1968, Ser. No. 775,332
Int. Cl. G01r 17/10

U.S. Cl. 323-75

2 Claims



A balanceable circuit made up of two parallel branches each containing two impedance elements. Two of the impedance elements, one in each branch, are variable so that the circuit can be balanced. A portion of at least one of the variable impedance elements is in series with the balanceable circuit and compensates for changes in the output impedance of the balanceable circuit.

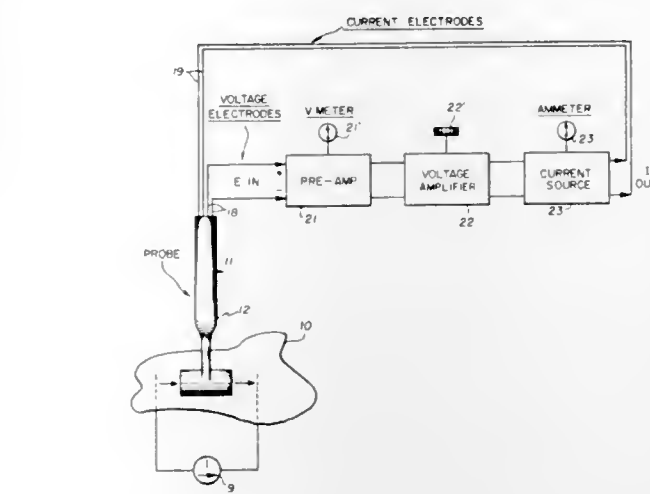
3,566,233 METHOD AND APPARATUS FOR MEASURING IMPEDANCE OF A CONDUCTING MEDIUM WITH A CALIBRATED PROBE

Alan Richard Kahn, Cherry Hill, and Louis Ciro Cosentino, West Paterson, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
Filed Oct. 21, 1968, Ser. No. 769,150
Int. Cl. G01n 27/00

U.S. Cl. 324-71

6 Claims

A technique and apparatus for measuring a quantity in a field associated with the transport of energy in a medium by introducing a transducer bearing probe to the medium, employing an external active energy source and externally adjusting the energy transport between relatively fixed transduc-



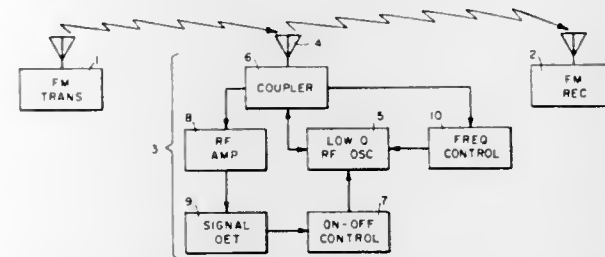
disturbance to restore the field to its nondisturbed condition enabling a precise measurement to be made.

3,566,234 CONCURRENT SAME-FREQUENCY FM RADIO REPEATER

George W. Thomson, Sunnyvale, Calif., assignor to Cutler-Hammer, Incorporated, Milwaukee, Wis.
Filed Nov. 7, 1968, Ser. No. 774,101
Int. Cl. H04b 7/14, 3/36

U.S. Cl. 325-7

5 Claims



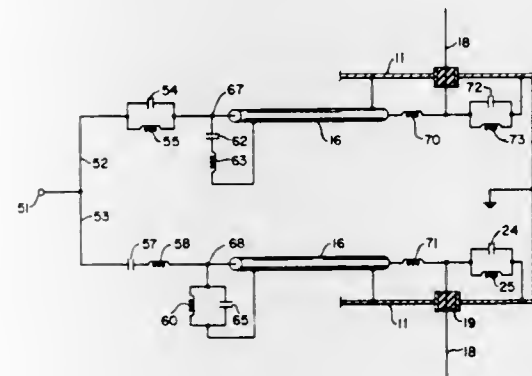
A common antenna, used for simultaneous reception and transmission, is coupled in single-port fashion to an oscillator that tends to synchronize itself with relatively weak signals of external origin. The frequency of the oscillator is captured by, and follows variations in, the frequency of an FM signal received by the antenna. The output of the oscillator is radiated by the antenna as an amplified replica of the received FM signal.

3,566,235 DUAL FREQUENCY MEANS FOR TRANSMITTING RADIO WAVES FROM A DAMAGED AIRCRAFT

Gary W. Rose, Brampton, Ontario, Canada, and Rollin A. Cooper, Los Angeles, Calif., assignors to The Garrett Corporation, Los Angeles, Calif.
Filed Oct. 28, 1968, Ser. No. 771,061
Int. Cl. H04b 1/02

U.S. Cl. 325-115

8 Claims



In combination, a radio transmitter mounted on an aircraft wherein the antenna has the features of a center-fed

balanced dipole antenna but is capable of operating effectively when one half thereof is broken off. The dipolelike antenna comprises two inline elements protruding from the vertical stabilizer of the aircraft in which position the probability of both elements breaking off during a crash landing is minimized. Circuit means are provided for feeding a radio frequency signal to each element of the novel antenna so that both signals have the same frequency and have their currents 180° out of phase.

3,566,236 AMPLIFIER OUTPUT STAGE COUPLING

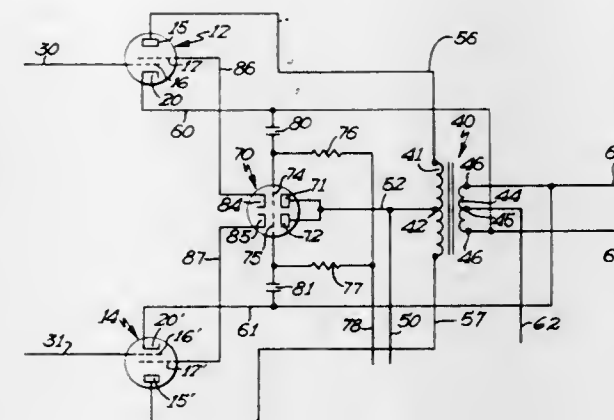
William Z. Johnson, 2900 Douglas Drive N., Apt. 337, Minneapolis, Minn.

Filed Oct. 17, 1968, Ser. No. 768,461

Int. Cl. H05f 3/22

U.S. Cl. 330-192

9 Claims



An amplifier output stage coupling utilizing tetrodes in a push-pull circuit configuration with a transformer output in which the cathodes are coupled into the secondary winding of the transformer and the screen grids are energized through signals controlled by the cathode energization and held to a fixed differential with the cathode.

3,566,237 CONTROL CIRCUIT FOR REGULATING THE MEAN CURRENT FLOW IN A LOAD

John Howard Moore, Redditch, and Derek Stanley Adams, Solihull, England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England

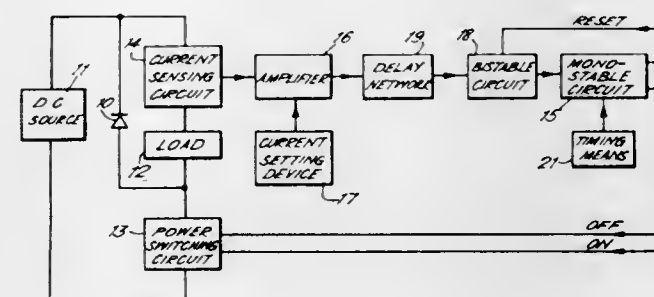
Filed Sept. 11, 1968, Ser. No. 759,046

Claims priority, application Great Britain, Sept. 21, 1967, 43036/67

Int. Cl. H02p 5/16, 7/28

U.S. Cl. 318-332

5 Claims



A control circuit particularly designed for regulating the mean current flow in a traction motor, but usable for other purposes, includes a switching device in circuit with the load. The switching device is turned on and off, and current sensing means is provided operable when the device is in one condition, either on or off, to sense the current flow in the load and turn the switching means to its opposite state when the current has a predetermined magnitude. Timing means is then provided for determining how long the switching device remains in the switched state.

3,566,238 MOTOR GOVERNOR

Hideaki Akiyama, Yokohama-shi, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

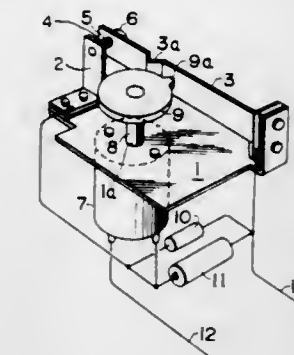
Filed June 7, 1968, Ser. No. 735,215

Claims priority, application Japan, June 14, 1967, 42/38094

Int. Cl. H02p 5/10

U.S. Cl. 318-346

14 Claims



A cam rotates at a speed proportional to that of an electric motor and a projection thereon strikes and vibrates a spring-biased contact arm having an electric contact on its outer end. When the impulses thus given to the arm are given at a frequency equal to the natural vibrational frequency of the contact arm, the contacts never close and the current to the motor drops, reducing its speed slightly.

3,566,239 AUTOMATIC FINE & COARSE POSITIONING APPARATUS BY MEANS OF NUMERICAL CONTROL FOR MACHINE TOOLS AND THE LIKE

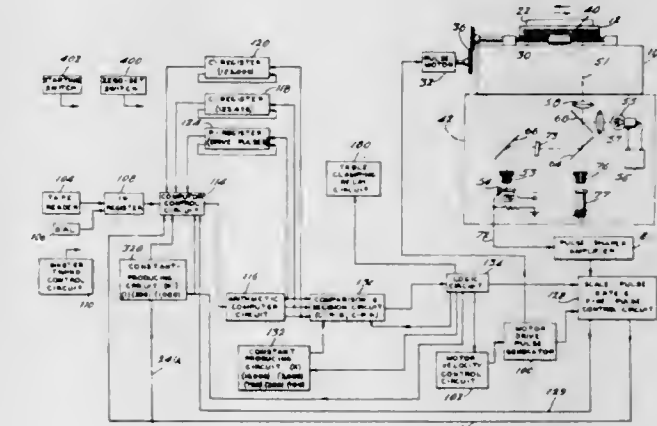
Masami Taniguchi, Tokyo, Japan, assignor to Mitsui Seiki Kogyo Co. Ltd., Tokyo, Japan

Filed July 3, 1967, Ser. No. 651,001

Int. Cl. G05b 1/18

U.S. Cl. 318-593

10 Claims



Automatic positioning of a workpiece with respect to a machine tool in response to coded numerical command data is provided by a system which uses a pulse motor driving a lead screw to move the workpiece. The pulses driving the motor are counted and compared with the command data in a comparator to determine the remaining distance to the destination and to stop the pulse motor when the destination is reached. A highly accurate scale graduated in millimeters moves with the workpiece and is photoelectrically monitored to produce a scale pulse each time the workpiece moves by a millimeter. The comparator operates a gate to select the scale pulse produced by the last graduation before the destination, and the selected pulse is used to correct the accumulated count of motor-driving pulses, thus to eliminate prior errors. Subsequently, when the accumulated count equals the command data, the comparator stops the motion of the workpiece in the desired final position. The comparator also provides a controlled stepwise decrease in workpiece

speed as the scale-pulse selection time and the destination are approached. An offset of a fraction of a millimeter is preferably provided for the photoelectric monitoring system to improve accuracy further.

3,566,240

DIGITAL DRIVING EQUIPMENT

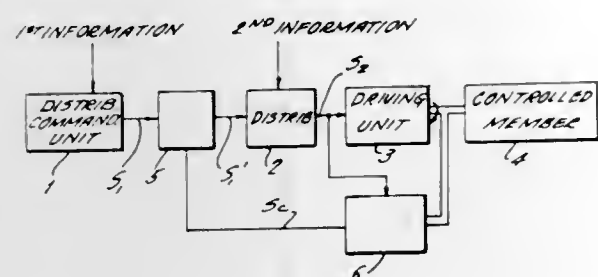
Kiyokazu Okamoto and Takeo Ando, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Sept. 23, 1968, Ser. No. 761,640

Claims priority, application Japan, Sept. 22, 1967, 42/61155
Int. Cl. G05b 1/06

U.S. Cl. 318—600

8 Claims



Digital driving equipment for moving (i.e., positioning) a controlled member and providing means for smooth acceleration and deceleration of the controlled member; and including means for preventing misfollowup, and for maintaining droop within a prescribed value. Means are provided for determining the control point of the controlled member, for comparing this information against the command point to which it is desired the controlled member be moved and for modifying the distribution command signal accordingly and thereby operate the controlled member to maintain droop within the prescribed range to provide for smooth acceleration and deceleration of the controlled member and further and most importantly to prevent misfollowup.

3,566,241

PROCESS SERVO CONTROL SYSTEM INCLUDING ERROR SIGNAL LIMITATION TO PREVENT DEGRADED RESPONSE

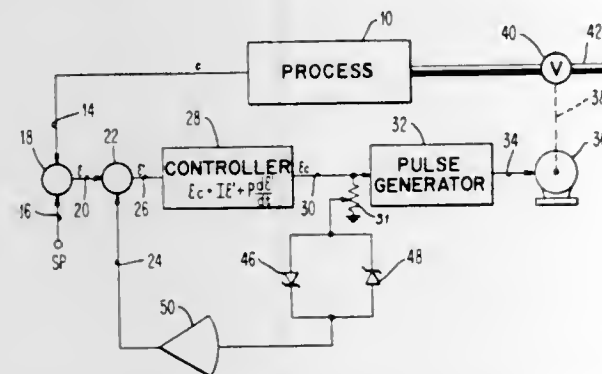
Charles W. Ross, Hatboro, Pa., assignor to Leeds & Northrup Company, Philadelphia, Pa.

Filed Oct. 12, 1966, Ser. No. 586,257

Int. Cl. G05b 5/01

U.S. Cl. 318—624

4 Claims



In a PI process controller subject to degraded response such as reset windup caused by the limited ability of some component to follow changing error signals, means are provided to prevent this degradation. This means includes an additional loop around the controller which includes threshold devices to render the loop inoperative except when the controller output exceeds the threshold magnitude. When this occurs, the additional loop acts to prevent the degraded response.

3,566,242

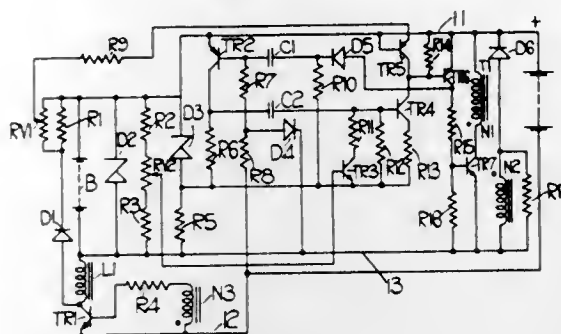
BATTERY CHARGING SYSTEMS

Malcolm Williams, Solihull, Warwickshire, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Nov. 19, 1968, Ser. No. 776,896

Claims priority, application Great Britain, Dec. 18, 1967, 57326/67

Int. Cl. H02j 7/00

6 Claims



In a battery charging system in which a DC source, which may itself be a battery, is used to charge the battery, the voltages of both the DC source and the battery can vary, voltage control is effected by turning a switch controlling flow of current from the DC source to the battery on and off for periods of time determined by the voltages of the DC source and battery. The on period of the switch is inversely related to the voltage of one of the sources, and the off period of the switch is directly related to the voltage of the other source.

3,566,243

HIGH FREQUENCY POWER SUPPLY

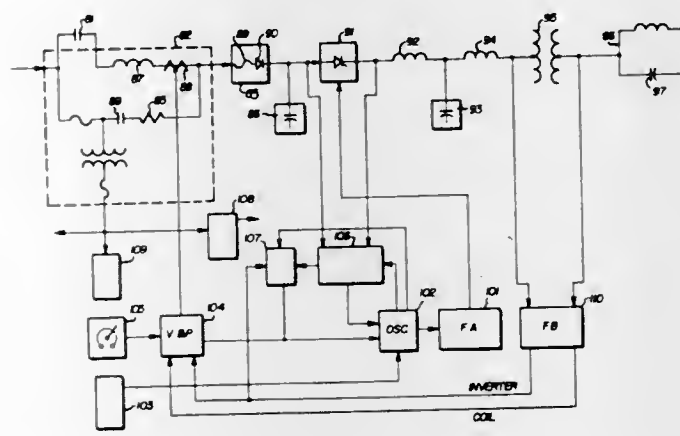
James P. Landis, Wauwatosa, Wis., assignor to Pillar Corporation, West Allis, Wis.

Filed Sept. 30, 1968, Ser. No. 763,563

Int. Cl. H02m 5/40

U.S. Cl. 321—2

11 Claims



A static, single-phase, alternating current supply for powering an inductive load. In a preferred embodiment, the load is an induction heating coil with parallel power factor correcting capacitors, but equivalent elements consisting of parallel connected inductance and capacitance may be incorporated in the system and any external load can then be powered. Adjustment of output power and/or voltage is accomplished by varying the frequency of the supply. The preferred embodiment includes an alternating current input of line voltage and frequency, a rectifier producing DC output voltage of substantially constant magnitude, an inverter capable of operation over a range of frequencies for converting the DC voltage to high frequency alternating current, and inductive reactance between the inverter and the load. The frequency of the inverter is controlled by an oscillator which has various inputs providing control functions.

3,566,244

POLYPHASE WAVE GENERATOR

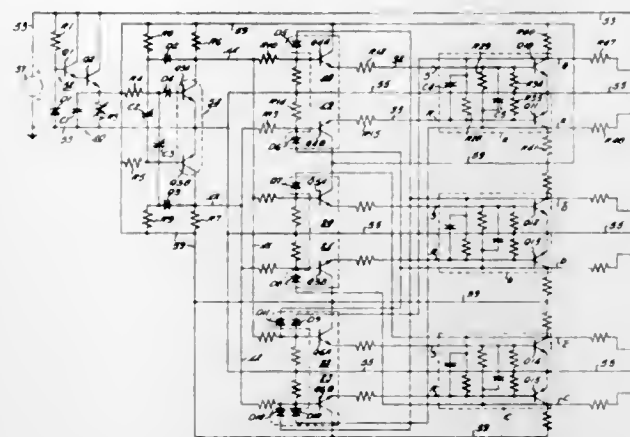
John Baude, Milwaukee, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed May 23, 1968, Ser. No. 731,580

Int. Cl. H02m 1/08, 1/12

U.S. Cl. 321—5

15 Claims



A static inverter for converting direct current into polyphase alternating current has a source of periodic signals, N bistable devices, and logic means including AND gates interconnecting the source and the bistable devices to switch them in a predetermined sequence of 2N permutations of stable states and inhibit them from transferring to permutation states which could cause lockup. The outputs of the bistable devices are coupled through power transistors to the primary windings of N output transformers in push-pull, and transformer secondary winding means derive N phase voltages displaced from one another by 360/N degrees of a waveform which results in the instantaneous voltages adding to zero and thus eliminates harmonic currents in the neutral. The inverter includes means for biasing the power transistors so they operate with low power dissipation near the region of saturation regardless of variations in supply voltage.

3,566,245

THREE PHASE REGULATED D.C. POWER SUPPLY WITH CONTROL FOR BALANCING INPUT PHASE CURRENT

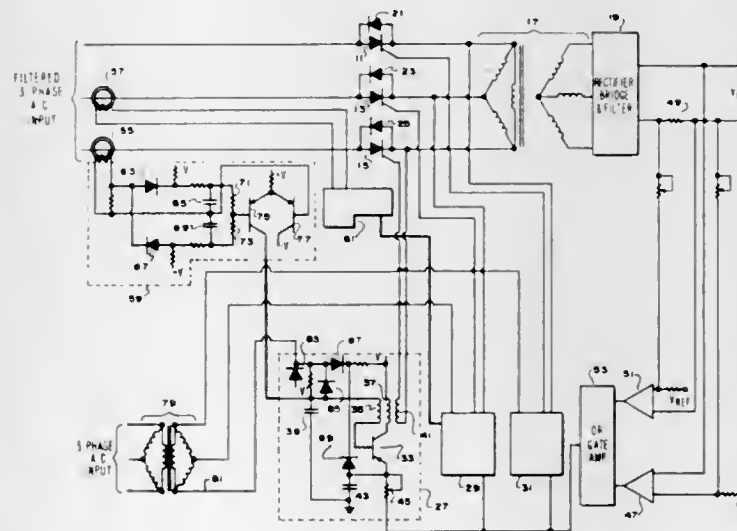
Johan F. Blokker, Summit, and Robert J. Bland, Berkeley Heights, N.J., assignors to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California

Filed Jan. 21, 1969, Ser. No. 792,250

Int. Cl. H02m 7/12

U.S. Cl. 321—5

9 Claims



A power supply system has a regulated D.C. output and a three phase A.C. input. Input current in each phase is controlled by a silicon controlled rectifier (SCR). Three

blocking oscillators produce output pulses for firing the SCR's at phase angles determined in response to the D.C. output voltage and current. Additionally the firing angles for two of the three SCR's are automatically adjusted to balance current among the three phases at the input. This is achieved by circuitry which senses and compares the positive and negative input current in two of the phases and produces difference signals which drive two of the blocking oscillators to adjust the firing angles of two of the SCR's until phase current is equalized.

3,566,246

CURRENT REGULATOR UTILIZING A FLOATING REFERENCE VOLTAGE SUPPLY

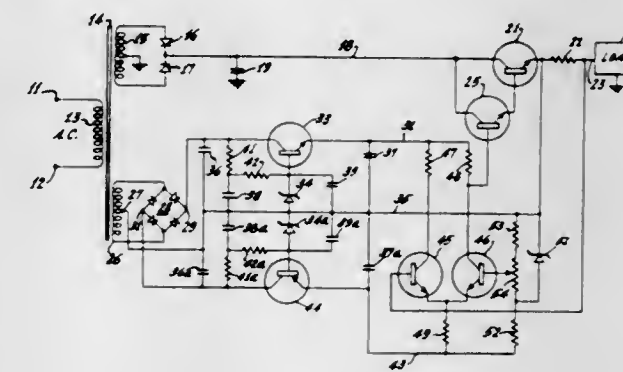
Harold George Seer, Jr., Woodbury, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Feb. 3, 1969, Ser. No. 795,964

Int. Cl. G05f 1/56, 1/64

U.S. Cl. 321—18

9 Claims



Current variation is sensed as a voltage change across a sensing resistor connected in series between a series pass transistor and a load terminal. The voltage change coupled to error sensing means which couples a control voltage to the pass transistor to control the load current. A common terminal of a floating voltage supply is coupled to one side of the sensing resistor such that a reference voltage coupled to the error sensing means is constant with respect to the common terminal voltage and does not vary with the load current.

3,566,247

FREQUENCY MULTIPLIER CIRCUIT WITH LOW TEMPERATURE DEPENDENCE

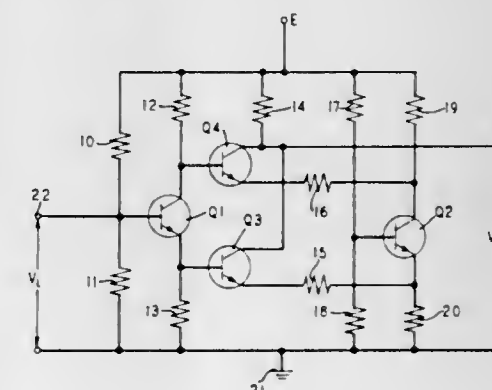
John J. Golembeski, New Providence, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Sept. 3, 1969, Ser. No. 854,872

Int. Cl. H02m 5/22

U.S. Cl. 321—60

9 Claims



A frequency multiplying circuit utilizes transistors having matched characteristics to eliminate the effects of temperature variations. The input signal is connected to

one transistor of a matched pair of transistors having identical bias circuits. The voltages of the emitter terminals and the collector terminals of the two transistors are respectively compared and combined by an output circuit. The resulting output signal contains frequency harmonics of the input signal. Temperature effects are substantially cancelled in the voltage comparison process and thus do not affect the output signal.

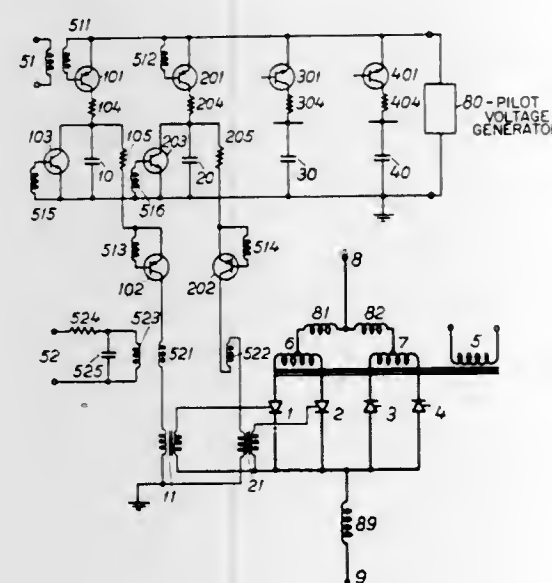
3,566,248 CONTROL MEANS FOR REGULATING THE OUTPUT FREQUENCY OF A FREQUENCY CONVERTER

Ulrik Krabbe, Helsingo, Denmark, assignor to Allmänna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed Jan. 24, 1969, Ser. No. 793,806
Claims priority, application Sweden, Jan. 25, 1968, 978/68

Int. Cl. H02m 5/16

U.S. Cl. 321—66

4 Claims



A frequency converter for converting an alternating voltage of a higher frequency to an alternating voltage of a lower frequency, the converter including at least two groups of mutually commutating rectifiers, is controlled by a pilot voltage generator which generates a voltage having the desired amplitude and frequency of the output voltage of the converter. The pilot voltage is compared with a reference voltage derived from the input voltage of the converter. The comparison is used to give the desired control angle for the rectifiers in each group. The control means for each rectifier includes an integrating arrangement including a memory device constituted by a capacitor and switching means constituted by transistors controlled by the input voltage of the converter to connect the memory device alternately to the pilot voltage generator and to the control circuit for the rectifier at a rate corresponding to the period length of the input voltage divided by the pulse number of the commutating group.

3,566,249 HIGH FREQUENCY MULTIPLIER EMPLOYING INDUCTORS FORMED BY AXIALLY COEX- TENSIVE CONCENTRIC SECTIONS OF CO- AXIAL LINES

Thomas C. Leonard, Topsfield, Mass., assignor to Varian Associates, Palo Alto, Calif., a corporation of California

Filed Aug. 13, 1969, Ser. No. 849,717

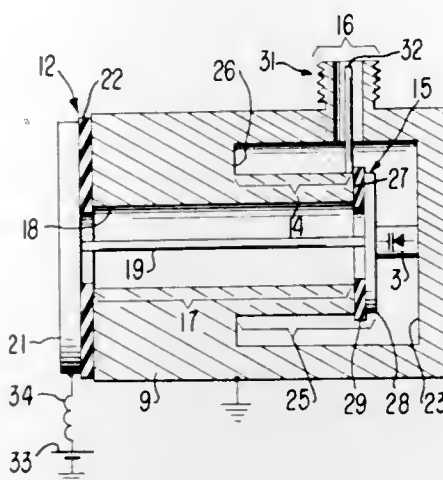
Int. Cl. H02m 5/30

U.S. Cl. 321—69

7 Claims

A high frequency multiplier is disclosed. The multiplier includes a varactor diode multiplying device connected to a low pass input network including a shunt capacitor to

ground and a series connected inductor. A high pass filter network is connected as the output network of the multiplying device. The high pass network includes a series capacitor connected to the device and an inductor shunt-



ing the output terminals to ground. The first and second inductors are formed by axially coextensive concentrically disposed sections of coaxial line to provide a compact relatively easily fabricated structure.

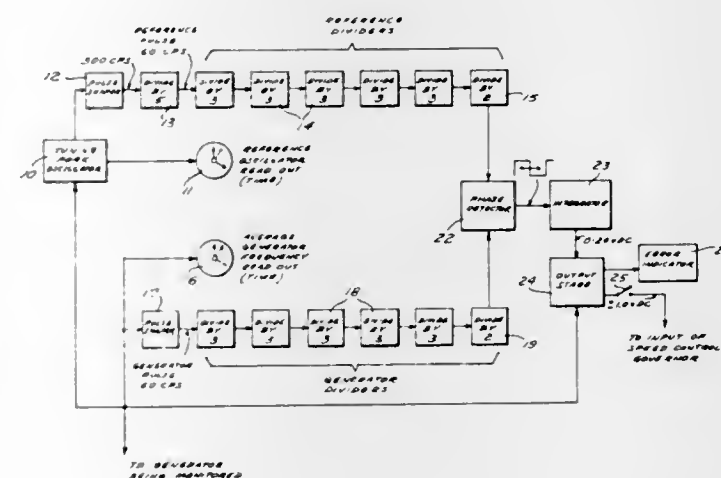
3,566,250 TIME ERROR CORRECTOR FOR AUTOMATI- CALLY MAINTAINING AVERAGE FREQUENCY OF A.C. SOURCE CONSTANT

Ralph H. Ringstad, Whippany, N.J., assignor to Automatic Switch Co., a corporation of New York
Filed Nov. 19, 1968, Ser. No. 780,309

Int. Cl. H02p 9/04

U.S. Cl. 322—32

10 Claims



A means having a fixed frequency of oscillation is provided, and a first series of pulses is produced having a certain timed relationship to the frequency of oscillation. A second series of pulses is produced having the same timed relationship to the frequency of the power source. A phase detector compares the two series of pulses and produces a square wave signal which is fed to an integrator. The latter produces a D.C. signal proportional to the difference in frequencies between the two series of pulses. Integrator signal compared to a signal of fixed magnitude, and difference between them, if any, produces signal for controlling governor which alters speed of prime mover, and hence generator comprising the power source, in a way to maintain average frequency of power source constant.

3,566,251 SERIES FIELD FOR PERMANENT MAGNET MACHINE

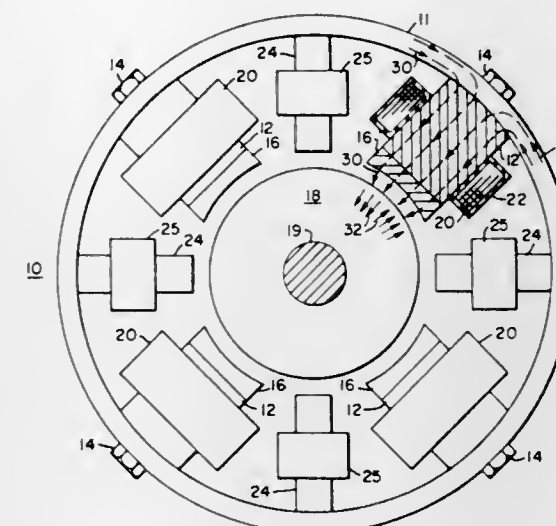
Thor F. Hoglund, East Amherst, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed May 6, 1968, Ser. No. 726,737

Int. Cl. H02p 9/40; H02k 21/26

U.S. Cl. 322—46

5 Claims



A dynamoelectric machine having permanent magnet field poles subject to demagnetization due to armature reaction, and field coils disposed on said poles and electrically associated with said armature to provide cumulative ampere-turns to counteract said demagnetization as a function of armature current and machine load.

3,566,252 METHOD OF AND MEANS FOR DIGITAL PROGRAMMING OF REGULATED POWER SUPPLIES

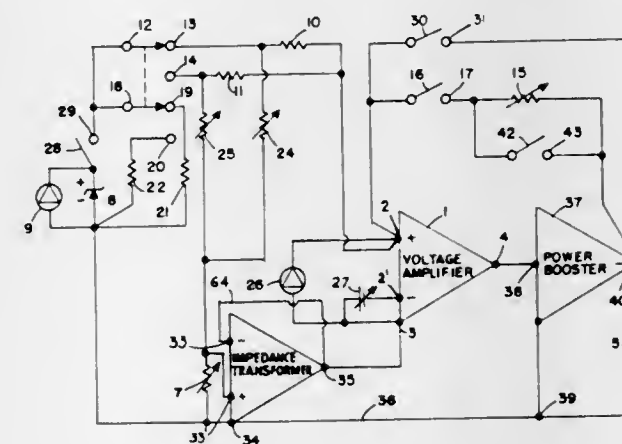
Sarkis Nercessian, Long Island City, N.Y., assignor to Forbro Design Corp., New York, N.Y., a corporation of New York

Filed Oct. 1, 1968, Ser. No. 764,083

Int. Cl. G05f 1/10

U.S. Cl. 323—1

7 Claims



Relay operated switches are provided for programming a regulated power supply using a control bridge circuit. Bridge current and voltage control resistors are digitally

selected adjustments to compensate for the switch resistance are used for improving accuracy in such a configuration.

3,566,253 SWITCHING TYPE REGULATORS HAVING ALTERNATE LOAD CURRENT PATHS

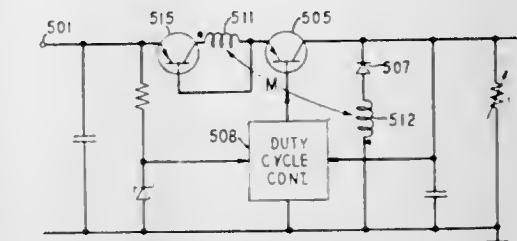
John F. O'Neil, Eatontown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Apr. 1, 1969, Ser. No. 812,085

Int. Cl. G05f 1/44

U.S. Cl. 323—22

2 Claims



A switching type regulator utilizes two alternate load current paths with independent current level control to reduce the power normally carried by the switching device located in one of the load current paths. The independent control is achieved by magnetically coupling the two load current paths with appropriate winding ratios to achieve the desired current in each of the two paths.

3,566,254 SERIES-TYPE VOLTAGE REGULATOR

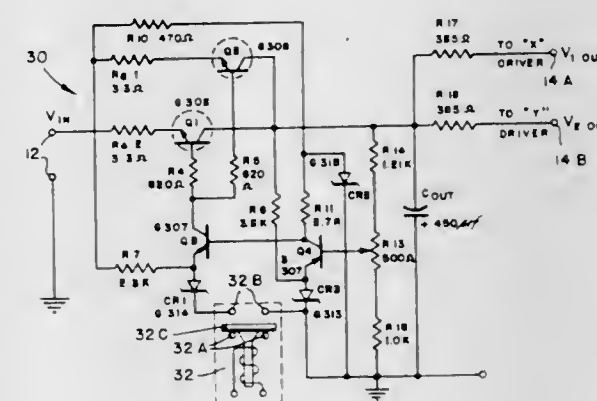
Jon Hobart Griffin, Pittsfield, Mass., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed May 19, 1969, Ser. No. 825,612

Int. Cl. G05f 1/56

U.S. Cl. 323—22

5 Claims



A series-type voltage regulator utilizing one or more parallel regulating transistors in which the unregulated input voltage is applied between the emitter and base and the regulated output voltage is developed across the collector and base, the opposite of the conventional regulator circuit. A particularly important feature resides in the extremely high ratio of regulated output voltage to unregulated input voltage; for example, even if the input voltage drops from a nominal -20 v. to approximately -16.5 v., a drop approaching 20%, the output voltage will drop only very slightly below the desired 16 v. output voltage. This feature, in addition to the other circuitry of the voltage regulator, permits use of the voltage regulator under the extremely stringent conditions required for the X and Y drivers of a computer core memory, wherein any number of the cores associated with a pair

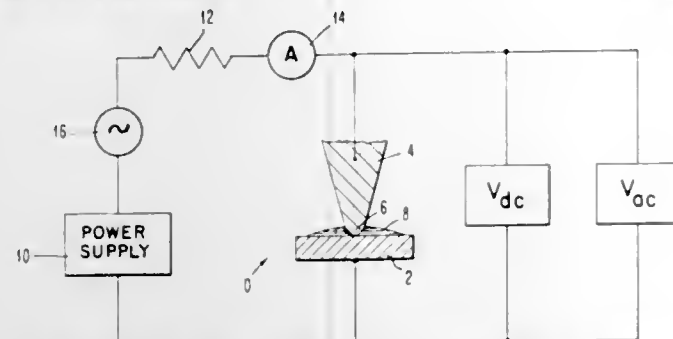
3,566,262

MOLECULAR SPECTROMETER USING POINT TUNNELING

William A. Thompson, Hartsdale, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
 Filed Mar. 18, 1968, Ser. No. 713,692
 Int. Cl. G01r 27/02

U.S. Cl. 324—65

3 Claims



A molecular spectrometer or spectroscopy is described based on the interaction of tunneling electrons with energy states of molecules included at a metal-semiconductor interface. Molecular rotational levels of sample substances are observed by means of a simple bulk tunneling device wherein the Schottky barrier layer of a semiconductor is employed as part of a tunneling diode comprising a semiconductor probe contacting a metal electrode. A particularly practical barrier effect is created by doping a semiconductor so that it has a low conductance at its surface so as to provide a high number of tunneling electrons at low voltages. Because the barrier is created to be an intrinsic property of the probe, the ultimate spectrometer unit using such probe has a long life, and is capable of being used indefinitely in molecular spectrometry devices relying upon tunneling of electrons through a barrier layer.

ERRATUM

For Class 324—71 see:
 Patent No. 3,566,233

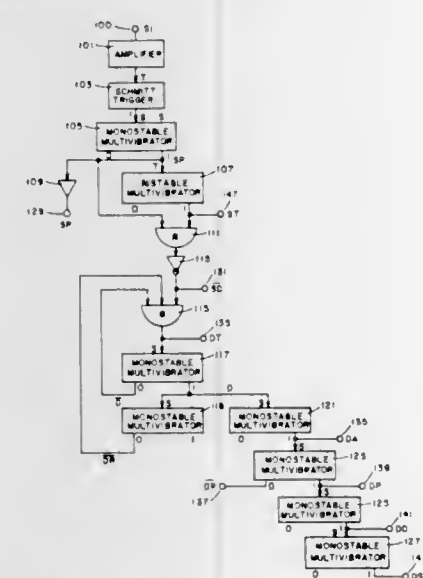
3,566,263

DIGITAL NOTCH FILTER

Benjamin Z. Meers, Jr., 12150 Parklawn Drive, Rockville, Md. 20852
 Filed May 7, 1968, Ser. No. 727,177
 Int. Cl. G01r 23/02

U.S. Cl. 324—78

6 Claims



A digital device for determining if the time period of an incoming signal coincides with a time period set in the device, for determining if the frequency of the incoming signal is high or low as compared to the device's resonant frequency, and for digitally indicating the frequency deviation of the incoming signal from the resonant frequency of the device.

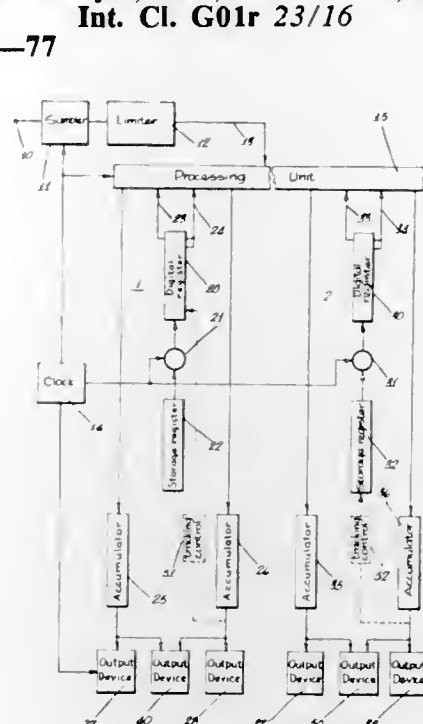
3,566,264

METHOD AND APPARATUS FOR ANALYSING ELECTRICAL SIGNALS WITH DIGITAL CORRELATION

Bruce F. Chown, Ottawa, Ontario, Canada, assignor to Computing Devices of Canada Limited, Ottawa, Ontario, Canada
 Filed July 3, 1967, Ser. No. 651,033
 Int. Cl. G01r 23/16

U.S. Cl. 324—77

10 Claims



A spectrum analyser using digital correlation techniques where a large number of oscillators are simulated by using digital registers such as magnetic core storage registers. A periodically varying characteristic of each digital register, such as the value of its most significant digit, defines the corresponding oscillator phase. An unknown signal is sampled and limited and its polarity expressed as a single bit. Repeated samplings give a binary sequence and individual bits are compared with bits of the binary sequences representing the oscillator frequencies. Any coincidences between the binary sequences are detected and summed to give a statistical measure of the correlations between the unknown signal and the oscillator frequencies. The analyser is capable of measuring the relative phase of components of the unknown signal and of tracking slowly varying signal components.

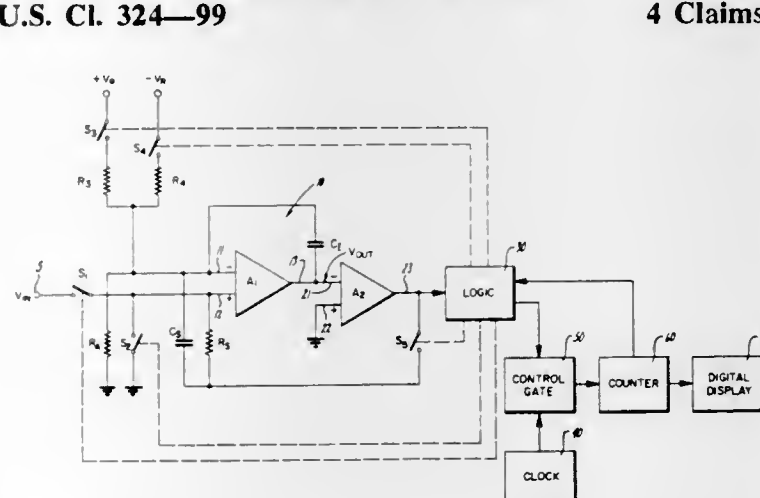
3,566,265

COMPENSATED STEP RAMP DIGITAL VOLTMETER

Samuel Cameron Milton Reid, Mountain View, Calif., assignor to Time Systems Corporation, Mountain View, Calif., a corporation of California
 Filed Nov. 18, 1968, Ser. No. 776,414
 Int. Cl. G01r 17/06, 1/00

U.S. Cl. 324—99

4 Claims



Digital voltmeter with self-biasing means to provide a high input impedance and substantially eliminate loading of the input signal.

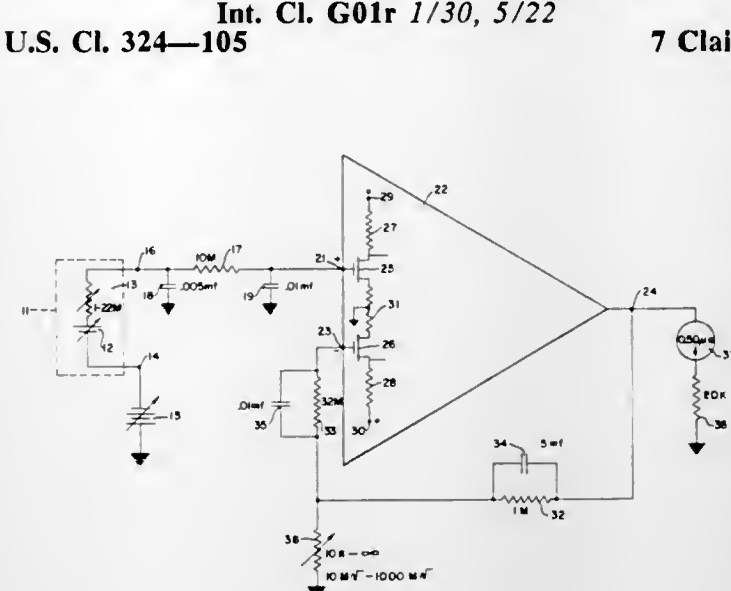
3,566,266

VOLTMETER

Abraham Bloom, Silver Spring, Md., assignor to National Instrument Laboratories, Inc., Rockville, Md., a corporation of Maryland
 Filed Mar. 9, 1967, Ser. No. 621,971
 Int. Cl. G01r 1/30, 5/22

U.S. Cl. 324—105

7 Claims



A semiconductor differential operational amplifier responds to the source being measured and feeds a meter. The amplifier input offset current is balanced as a function of temperature by connecting one of the amplifier inputs to a feedback resistance having a value approximately equal to the series resistance of the source and a large resistance, connected to the other amplifier input. The input and feedback resistances are filtered to remove stray A.C. pickup so that the response time of the meter is on the order of 2 seconds. The source being measured is connected to ground through a bucking voltage.

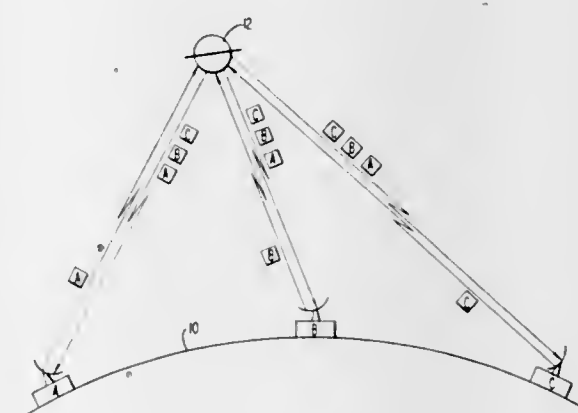
3,566,267

BURST SYNCHRONIZATION METHOD AND APPARATUS

Leonard S. Golding, Rockville, Md., assignor to Communications Satellite Corporation
 Filed Oct. 30, 1968, Ser. No. 771,944
 Int. Cl. H04l 7/02

U.S. Cl. 325—4

9 Claims



In a satellite communications system operating in a time division multiple access mode the burst transmit time at each station is varied in accordance with a predicted phase error. The predicted phase error is based on past phase errors, which, over a short period of time indicate the substantially linear movement of the satellite and the substantially linear variation of the phase error.

ERRATUM

For Class 325—7 see:
 Patent No. 3,566,234

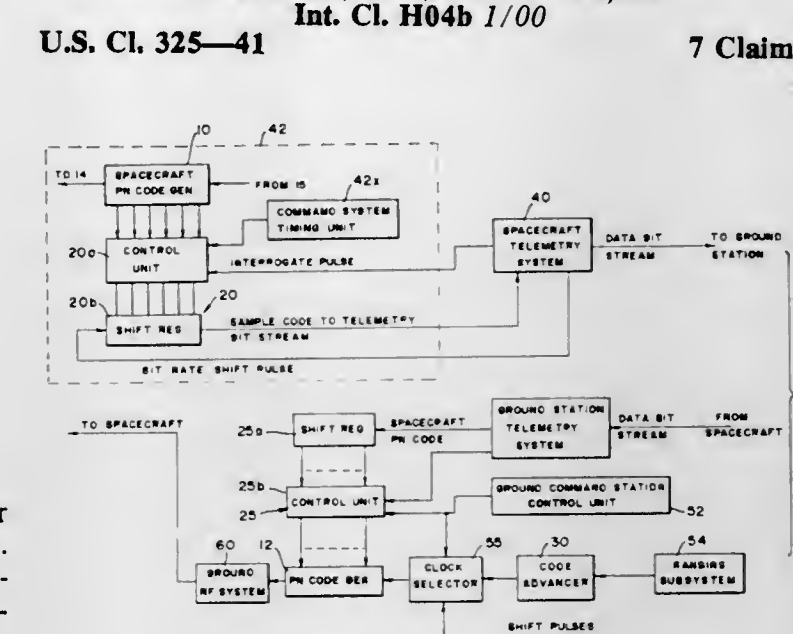
3,566,268

RAPID SYNC-ACQUISITION SYSTEM

James E. Webb, Administrator of the National Aeronautics and Space Administration with respect to an invention of Tage O. Anderson, Arcadia, and Albert J. Gallo San Diego, Calif.
 Filed Feb. 9, 1968, Ser. No. 704,299
 Int. Cl. H04b 1/00

U.S. Cl. 325—41

7 Claims



A system is disclosed for reducing sync-acquisition time in a data communication system, in which synchronization is achieved as a function of the phase correlation of a PN code, generated in a ground station and received by a spacecraft, and a similar PN code which is generated in the spacecraft. The system includes circuitry which is incorporated in the spacecraft to sample the phase of the PN code generated therein and to communicate the phase of the sampled code to the ground station, via a telemetry channel. At the ground station, the phase of the sampled spacecraft PN code is used to set a ground PN code generator to a state so that when the ground PN code is transmitted to and arrives at the spacecraft, it is substantially in phase with the PN code, generated therein.

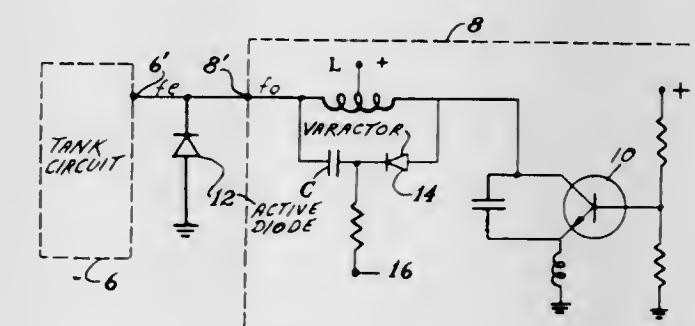
3,566,269

WIDE BAND MICROWAVE MODULATOR

Harold R. Walker, Metuchen, N.J., assignor to Laser Link Corporation, New York, N.Y.
 Filed Dec. 28, 1967, Ser. No. 694,266
 Int. Cl. H04b 1/00

U.S. Cl. 325—48

7 Claims



A semiconductor crystal diode is simultaneously part of a subcarrier oscillator tank circuit, and in an R.F. carrier output circuit, such that the R.F. carrier is modulated by the subcarrier.

3,566,277

SWITCH TUNER ASSEMBLY

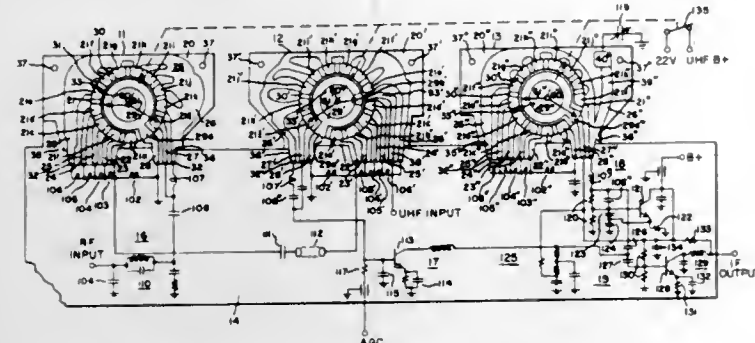
Eugene K. Von Fange and Sanjar Ghaem-maghami, Chesapeake, Va., assignors to General Electric Company, a corporation of New York

Filed Mar. 14, 1968, Ser. No. 713,047

Int. Cl. H03j 5/06, 5/26; H04b 1/18

U.S. Cl. 325-462

15 Claims



A wafer comprising a plurality of planar copper elements having characteristic inductances at high frequencies and coating a dielectric member and forming a continuum therewith is rigidly secured to a printed circuit board comprising a plurality of electronic components to form a tuner assembly. The plurality of the planar copper elements are fixedly connected to printed circuitry on the printed circuit board. The assembly is tuned by moving a rotary contact member to engage various pairs of silver plated contact elements associated with various pairs of the planar copper elements.

3,566,278

SWEPT FREQUENCY SYNTHESIZER WITH FREQUENCY MARKER GENERATION CAPABILITY

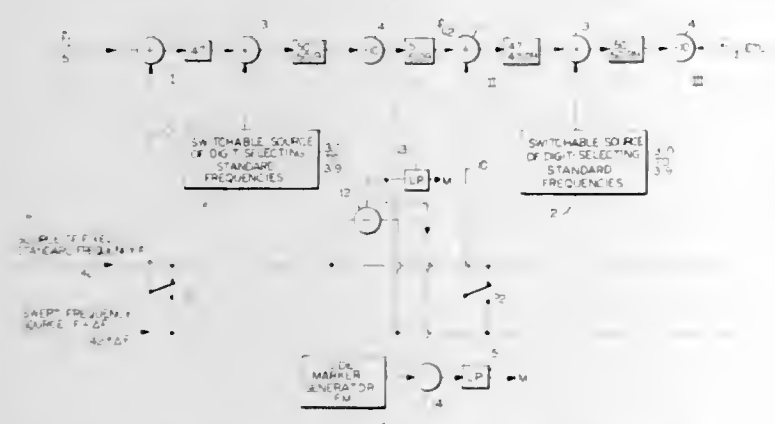
Atherton Noyes, Jr., Concord, Mass., assignor to General Radio Company, West Concord, Mass., a corporation of Massachusetts

Filed May 31, 1968, Ser. No. 733,600

Int. Cl. H03b 21/02, 23/00

U.S. Cl. 328-14

9 Claims



This disclosure deals with the introduction of frequency sweeps into synthesized signals by apparatus adapted to the generation of frequency markers with synthesizer accuracy. An input signal carrying digit information is added in a first adding means to a fixed standard frequency connected to the adding means through a standard frequency input circuit, the output frequency of the first adding means being added in a second adding means to a step-wise adjustable digit-selecting frequency, thereby to produce a sum frequency in each of a plurality of digit-insertion circuits, the successive sum frequencies of the said circuits being each divided to achieve an output frequency suitable for use as the input signal of the next successive digit-insertion circuit. A periodically vary swept frequency signal centered about the standard frequency is selectively switched to replace the fixed standard frequency signal in any of the digit-insertion cir-

cuits, and beat detector means connected to the standard-frequency source and the swept-frequency source produces marker outputs.

3,566,279

CIRCUIT ARRANGEMENT FOR THE SUMMATION OF PULSE SEQUENCES FORMED IN DECADE ADJUSTABLE FREQUENCY DIVIDERS

Gerhard Kaps, Hamburg, Germany, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

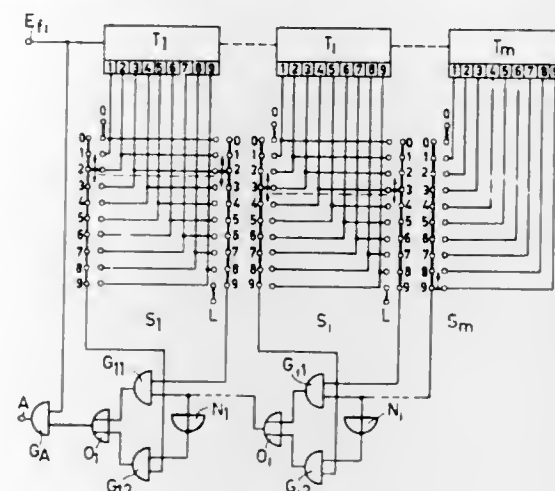
Filed Apr. 12, 1968, Ser. No. 721,000

Claims priority, application Germany, June 23, 1967, P 42,435

Int. Cl. H03k 21/16

U.S. Cl. 328-42

3 Claims



A frequency divider for providing desired sequences of pulses from a series of input pulses by decade selection switches providing the desired control sequence and the sequence increased by one and a gating circuit responsive to each control sequence and control sequence increased by one for combining each of the sequences into a single desired frequency output.

3,566,280

DIGITAL COMMUNICATIONS CLOCK SYNCHRONIZER FOR RESPONDING TO PULSES OF PREDETERMINED WIDTH AND FURTHER PREDICTABLE PULSES OF SUFFICIENT ENERGY LEVEL DURING PARTICULAR INTERVAL

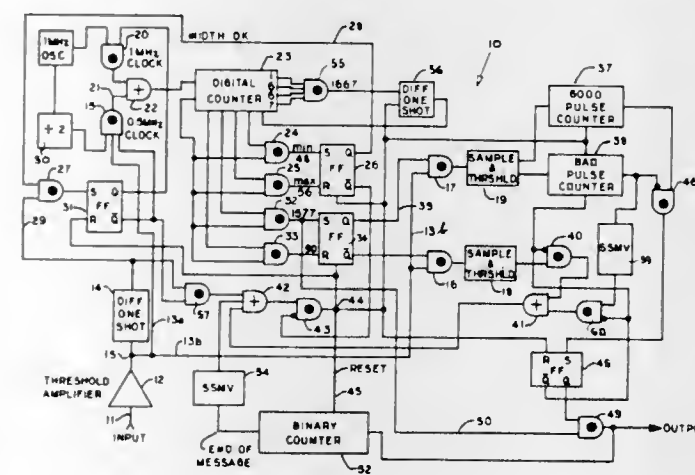
David L. Emmons, Orlando, and Russel James Breiding, Jr., Winter Park, Fla., assignors to Martin Marietta Corporation, New York, N.Y., a corporation of Maryland

Filed Mar. 7, 1969, Ser. No. 805,301

Int. Cl. H03k 1/00, 3/00

U.S. Cl. 328-63

5 Claims



The disclosure is directed to logic apparatus used in conjunction with a digital communications receiver, and

employed to establish when correct pulses, known as supervisory pulses, are being received from another communications system or from another unit of the same system. Our device looks for a first pulse of the correct width, and by virtue of being able to predict when subsequent correct pulses would be received, is able to establish if synchronization exists. If it does exist, our device then provides a clock signal to the related digital communications receiver which is then in frequency and in phase with the clock of the other communications unit.

3,566,281

ELECTRIC PULSE WAVE CLIPPING CIRCUITRY

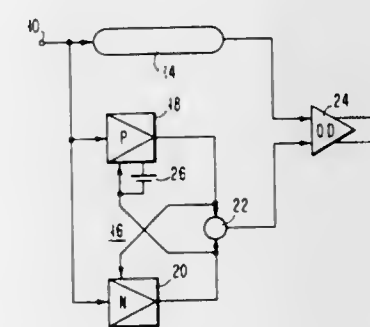
Donald Dennis Baumann, Los Gatos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed May 21, 1968, Ser. No. 730,695

Int. Cl. H03k 5/08; H03b 3/02

U.S. Cl. 328-171

12 Claims



Within limits each pulse of an input electric pulse wave sets the clipping level of the clipping circuitry to which that pulse is applied. A squared output electric pulse wave is developed in an overdriven differential amplifier circuit. The input circuitry of this differential amplifier operates to clip the input electric pulse wave applied to one input terminal in accordance with clipping level voltages applied to the other input terminal. The clipping level voltage is derived from the input electric pulse wave in a network having positive and negative peak detecting circuits coupled to a mixing circuit. The output of the mixing circuit is a dynamic clipping level voltage which is applied to the differential amplifier. The input electric pulse wave is delayed before application to the differential amplifier circuit to provide time for the generation of the clipping voltage. Cross coupling between the peak detecting circuits effects resetting of each other after each pulse is detected in readiness for the development of a new clipping level voltage for the succeeding input pulse.

A long time constant negative peak detecting circuit and a further mixing circuit are incorporated in an extended embodiment for applying a voltage to the basic negative peak detecting circuit preventing it from restoring above a voltage developed in the further mixing circuit from the long time constant and the positive peak detecting circuit. Thus, waves of pulses of steadily ascending amplitude are clipped without loss of fidelity.

3,566,282

ANALOG CONTROLLER INCLUDING MANUAL PULSE-TRAIN CONTROL

Verlin A. Lauher, Ballwin, and Louis H. Fricke, Jr., St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed June 25, 1968, Ser. No. 739,738

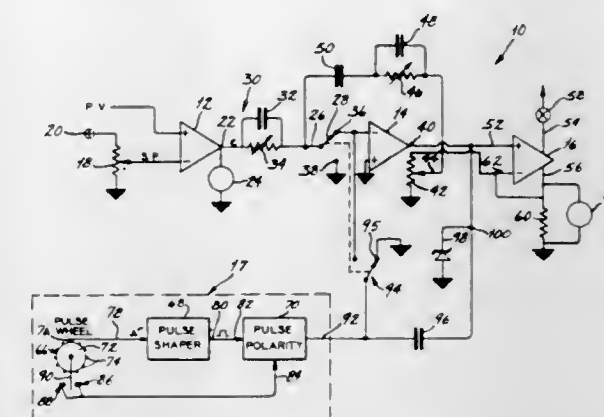
Int. Cl. H03k 5/00

U.S. Cl. 328-127

7 Claims

An electronic analog controller including comparator amplifier circuitry for comparing the set point value of a process to the process variable. The comparator output

signal is coupled to the input of an integrating amplifier circuit, which integrating amplifier provides the desired process load current. A pulse wheel, pulse shaping, and



3,566,283

SIGNAL CONVERTER

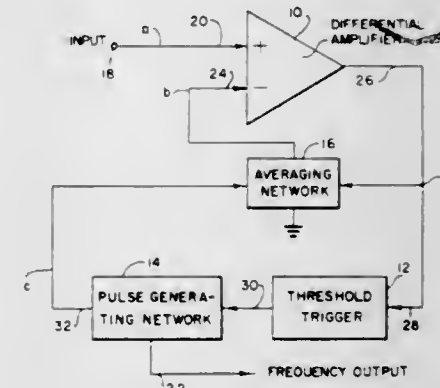
Herman G. Diebler, North Haledon, N.J., assignor to NUS Corporation, Washington, D.C., a corporation of the District of Columbia

Filed Aug. 19, 1968, Ser. No. 753,642

Int. Cl. H03b 19/00; H03k 5/00, 17/00

U.S. Cl. 328-150

15 Claims



A voltage applied to one input terminal of a differential amplifier is converted to a frequency signal. A voltage threshold circuit monitors the difference voltage output of the differential amplifier and triggers a pulse generating circuit after a predetermined voltage threshold value is exceeded. The pulse generating circuit produces a pulse of constant width and amplitude which is applied to an averaging network, which, in turn, is connected to the other input terminal of the differential amplifier. The pulse generating circuit includes a constant voltage source and an electronic switch connecting the source to a pulse output terminal. A timer, which includes a crystal controlled pulse oscillator and a counter, causes the switch to open a predetermined time interval after it is closed. In order to insure that the width of the pulses provided are equal, the threshold circuit may take the form of a threshold AND gate which provides an output signal when the voltage threshold is exceeded and a pulse is received from the crystal controlled oscillator for enabling the counter to count and for closing the switch. Resistances may be provided in the switch circuit for compensating for signal nonlinearity. The converter is adaptable and may be employed as a voltage-to-frequency converter, a voltage reciprocal-to-frequency

converter, a voltage ratio-to-frequency converter, a frequency-to-frequency converter, and a resistance-to-frequency converter.

3,566,284

ACTIVE RC WAVE TRANSMISSION NETWORK HAVING A 360° NON-MINIMUM PHASE TRANSFER FUNCTION

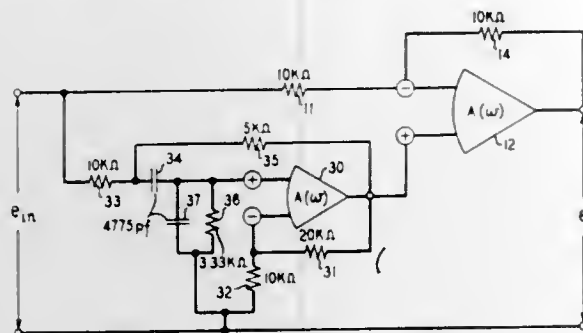
William Thelen, Salem, N.H., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Dec. 29, 1967, Ser. No. 694,498

Int. Cl. H03k 5/20

U.S. Cl. 328—155

18 Claims



In a resistance-capacitance transmission network the input signal is first applied to two separate filter networks both of which have positive transfer functions. One of the networks is passive and has a first order transfer function whereas the other network is active and has a second order transfer function. The individual outputs of the filter networks are subtracted from each other in a subtracting circuit which may take the form of a differential amplifier. The resulting output signal has a 360° nonminimum phase transfer function without having required any inductors in the wave transmission network.

3,566,285

PITCH SYNCHRONOUS REDUCTION OF SIGNAL ENVELOPE

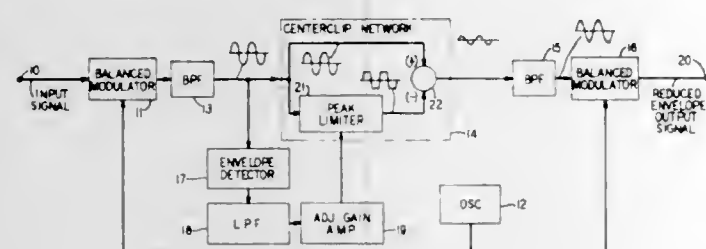
Manfred R. Schroeder, Mountainside, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed July 26, 1968, Ser. No. 747,854

Int. Cl. H03k 5/08; H03b 3/02

U.S. Cl. 328—169

10 Claims



By reducing the envelope of a signal, such as a speech signal, in a nonlinear fashion a modified signal is produced which, in addition to being highly intelligible, exhibits desirable properties. Pitch synchronous gaps, smoothly established in a reduced envelope signal in place of intervals of low signal levels, are effective in eliminating noise which masks low level signals, reducing reverberation, and in adapting the signal for multiplex transmission. Envelope reduction is efficiently achieved by controllably center clipping a selected modulation sideband of a signal, filtering the resultant, and restoring the signal to baseband.

SYSTEM FOR DETERMINING THE GAIN COMPRESSION OF AN R.F. AMPLIFIER

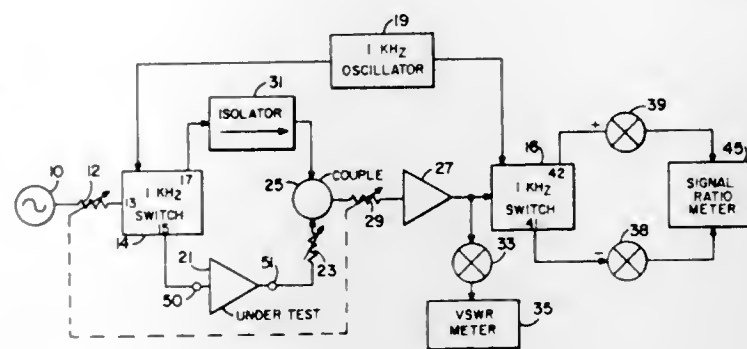
William S. Freeman, deceased, late of Reading, Pa., by Patricia C. Paylor, executrix, Charlotte, N.C., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Filed Apr. 21, 1969, Ser. No. 818,202

Int. Cl. G01r 17/00, 17/14

U.S. Cl. 330—2

7 Claims



Two loops are provided for the testing of the R.F. amplifier; one through variable fore and aft ganged attenuators and the amplifiers to one side of a ratio or difference meter; and another loop through the attenuators, an isolator and another side of the ratio meter. This is accomplished alternately by a pair of switching devices and a coupler. In this way the meter reading will not be subjected to any errors presented by the attenuators.

3,566,287

AMPLIFIER CIRCUIT HAVING PAIRED COMPLEMENTARY AMPLIFIERS FOR PROVIDING TWO OPPOSITE POLARITY OUTPUTS

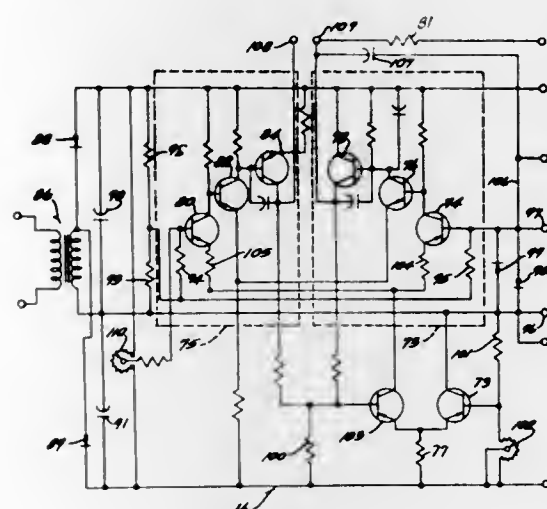
Alan W. Wilkerson, Thlensville, Wls., assignor, by mesne assignments, to Web Press Engineering, Inc., Addison, Ill., a corporation of Illinois

Original application Oct. 21, 1965, Ser. No. 499,409, now Patent No. 3,435,316, dated Mar. 25, 1969. Divided and this application Oct. 16, 1968, Ser. No. 768,037

Int. Cl. H03f 3/18, 3/68

U.S. Cl. 330—14

9 Claims



An amplifier circuit suitable for connection to a bipolarity input signal provides a pair of bi-polarity output signals responsive to the input signal. The amplifier circuit includes a pair of complementary amplifiers having their inputs receiving the input signal. One of the complementary amplifiers produces an output signal directly proportional in magnitude and corresponding in polarity to the input signal. The other of the complementary amplifiers produces an output signal inverse in polarity, but directly proportional in magnitude, to the input signal.

3,566,288

VHF SOLID STATE AMPLIFIER

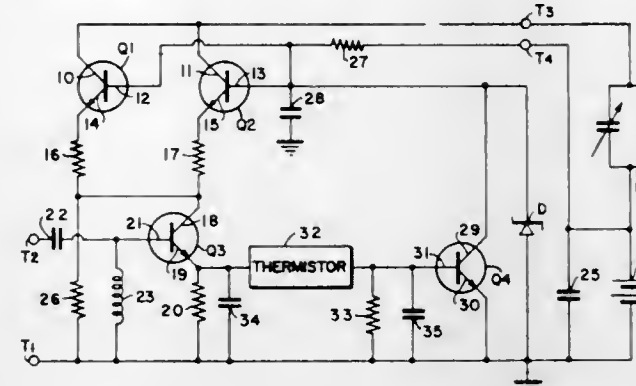
Johannes A. F. Oomen, Cincinnati, Ohio, assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware

Filed Nov. 29, 1968, Ser. No. 780,106

Int. Cl. H03f 3/42, 3/02

U.S. Cl. 330—18

4 Claims



A solid state circuit, providing a direct replacement for a vacuum tube, is operable in the VHF region and achieves output power of approximately two watts with a collector supply voltage of 150 volts. A heatsink temperature sensor protects the device against high ambient temperatures without the need for thermal fuses.

3,566,289

CURRENT AMPLIFIER AND INVERTING CIRCUITS

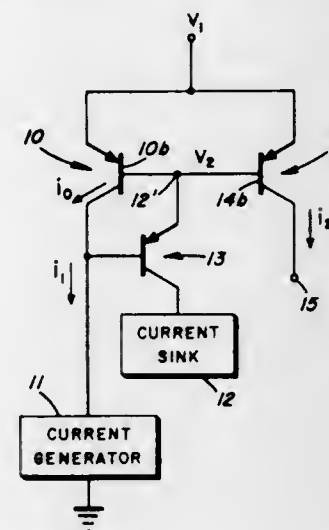
Robert W. Cope, Sparks, Md., assignor to The Bendix Corporation, a corporation of Delaware

Filed Mar. 17, 1969, Ser. No. 807,752

Int. Cl. H03f 3/42

U.S. Cl. 330—19

14 Claims



Current amplifier and current inverting circuits are described which are comprised of semi-conductor elements and which operate in the current domain.

3,566,290

TRANSISTOR FEEDBACK AMPLIFIER FOR HIGH AND LOW IMPEDANCE SIGNAL SOURCES

Irving J. Abend, Bergenfield, N.J., assignor to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware

Filed Dec. 23, 1968, Ser. No. 785,940

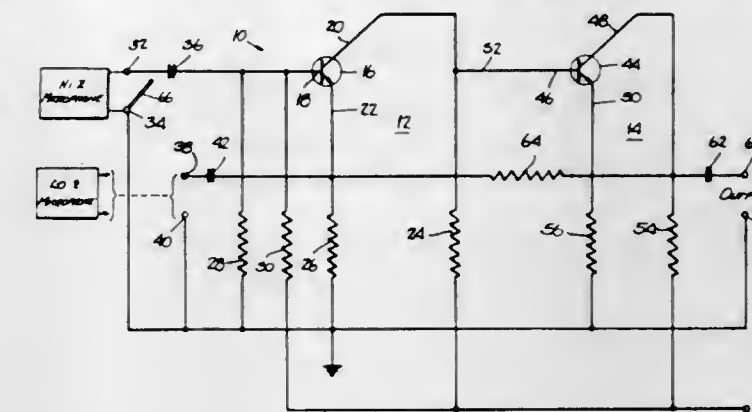
Int. Cl. H03f 1/34, 3/68

U.S. Cl. 330—19

19 Claims

An amplifier circuit, for accepting either high or low impedance sources, having two transistor stages, the transistor in the first stage operating in a common-emitter configuration when accepting a signal from a high impedance source and in a common-base configuration when accepting a signal from a low impedance source. The

transistor in the second stage operates in a common-emitter configuration. Feedback is provided to set the gain of the amplifier circuit and, when used with low impedance sources, the feedback further adjusts the gain of the amplifier circuit to maintain the overall gain essentially at the same value for all levels of low input source impedance.



pedance sources, the feedback further adjusts the gain of the amplifier circuit to maintain the overall gain essentially at the same value for all levels of low input source impedance.

3,566,291

FILTER CIRCUIT

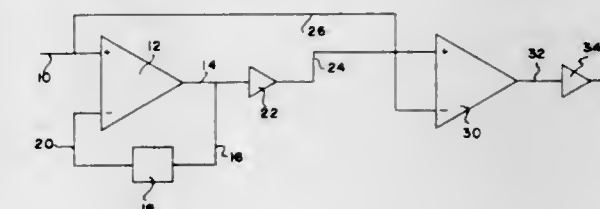
Ira B. Tice, Jr., 5200 Myer Court, Rockville, Md. 20853

Filed Apr. 7, 1969, Ser. No. 813,849

Int. Cl. H03f 3/04

U.S. Cl. 330—21

12 Claims



Two successive differential amplifier stages have a signal input simultaneously applied thereto, a frequency selective inverse feedback circuit connected to the first stage, and the first stage output also being applied to the second differential amplifier stage.

3,566,292

POWER OUTPUT STAGE FOR BIPOLAR OPERATIONAL POWER SUPPLY

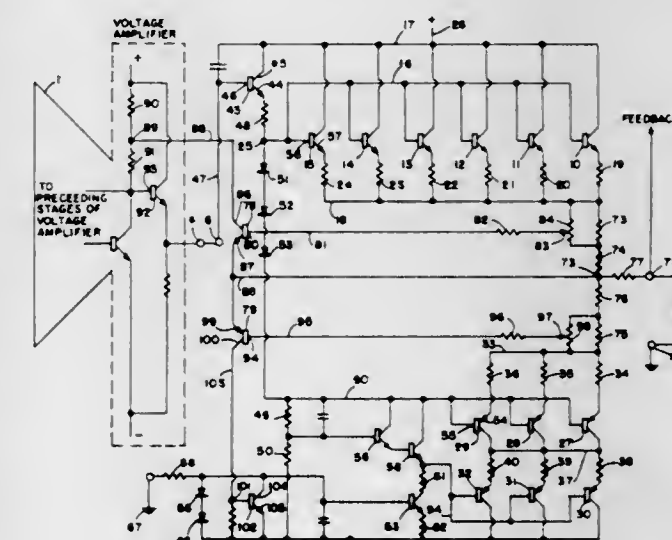
Sarkis Nercessian, Long Island City, and John Kiviranna, Flushing, N.Y., assignors to Forbro Design Corp., New York, N.Y., a corporation of New York

Filed Feb. 7, 1969, Ser. No. 797,464

Int. Cl. H03f 3/04, 3/18

U.S. Cl. 330—22

10 Claims



A bipolar operational power supply is provided with a differential output circuit including means for limiting the

output current which is compatible with both NPN and PNP output transistor amplifier transistors and with AC feedback in the voltage amplifier which drives the output.

3,566,293

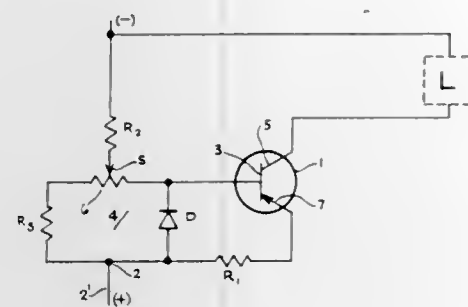
TRANSISTOR BIAS AND TEMPERATURE COMPENSATION CIRCUIT

Daniel R. von Recklinghausen, Arlington, Mass., assignor to H. H. Scott Inc., Maynard, Mass., a corporation of Massachusetts

Continuation of application Ser. No. 419,888, Dec. 21, 1964. This application June 10, 1968, Ser. No. 735,805
Int. Cl. H03f 1/32, 3/04

U.S. Cl. 330—23

5 Claims



A novel transistor amplifier bias and temperature compensation circuit is disclosed employing in the input circuit a current-division network one path of which embodies a diode or the like connected between the base and emitter of the amplifier.

3,566,294

SOUND EFFECT AMPLIFIER

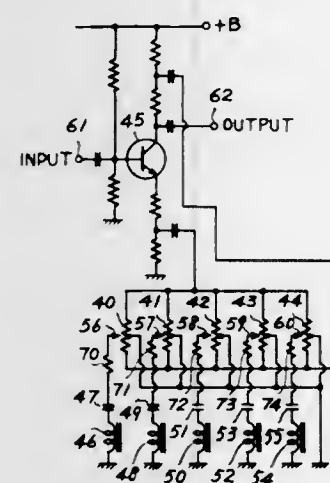
Nobuaki Takahashi, 1594-3 Fukuda, Kanagawa-ken, Yamato, Japan

Filed Oct. 18, 1968, Ser. No. 768,745
Claims priority, application Japan, Oct. 18, 1967, 42/87,812

Int. Cl. H03f 1/34

U.S. Cl. 330—28

7 Claims



A sound effect amplifier comprising an amplifier circuit, a plurality of series resonance circuits connected in parallel relation to one another and forming together with said amplifier circuit a device for dividing an input signal into respective frequency bands and for amplifying or attenuating the respective frequency bands, and a damping resistance disposed in series in each of said

series resonance circuits whereby increase or decrease of the gain is carried out separately for each of the frequency bands or simultaneously for all of them.

3,566,295

SERVO SYSTEM INCLUDING DIFFERENTIAL AND UNBALANCE AMPLIFIERS

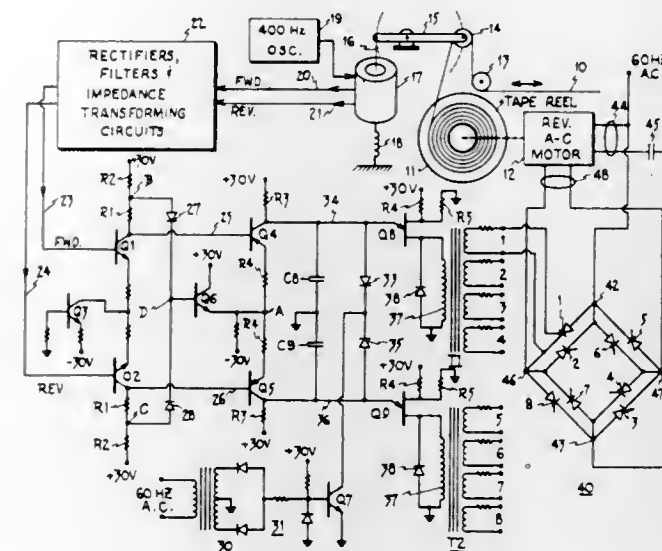
David W. Hall II, and Emrys C. James, Palm Beach, Fla., assignors to RCA Corporation, a corporation of Delaware

Filed Sept. 25, 1967, Ser. No. 670,241

Int. Cl. H03f 3/68

U.S. Cl. 330—30

8 Claims



A tape loop servo system of the type including sensing means providing forward and reverse input signals having amplitudes which are equal when no motion is called for and having amplitudes which are unequal when motion in one direction or the other is called for. A differential amplifier includes two normally-conducting transistors each having an input electrode receptive to a respective one of the forward and reverse signals. An unbalance amplifier includes two normally-nonconducting transistors each having first and second input electrodes, the first input electrodes being receptive to outputs from respective ones of the differential amplifier transistors. Two diodes and an additional transistor couple the equal or greater one of the outputs of the differential amplifier transistors to the second input electrodes of both of the unbalance amplifier transistors. When the forward and reverse input signals are unequal, the total signal applied across the first and second input electrodes of one unbalance amplifier transistor remains unchanged and keeps the transistor nonconductive, and the total signal applied across the first and second input electrodes of the other unbalance amplifier transistor is equal to the difference between the outputs of the two differential amplifier transistors. Means including silicon controlled rectifiers and a reversible A.C. motor utilize the outputs of the unbalance amplifier to provide rotation of a tape reel in a direction and at a speed determined by the direction and degree of unbalance of the forward and reverse signals.

3,566,296

TRANSISTOR DIFFERENTIAL AMPLIFIER

Chung C. Liu, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Nov. 15, 1967, Ser. No. 683,259

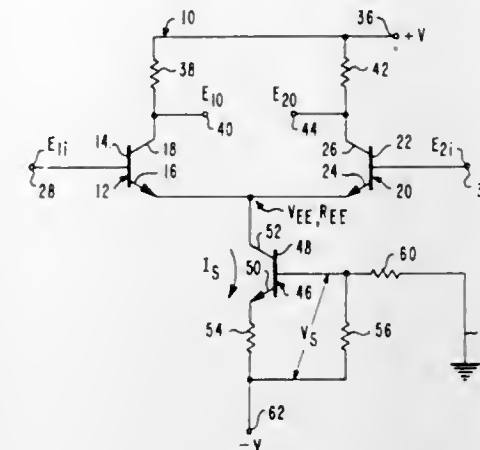
Int. Cl. H03f 3/04, 3/68

U.S. Cl. 330—30

4 Claims

In a transistor differential amplifier pair, a bias voltage range is established for an associated current source.

With the selected bias voltage, the current source compensates for temperature variations to maintain gain of the differential amplifier pair substantially independent of normal temperature variations. A primary relation is established to define that bias voltage which causes the



gain of any transistor differential amplifier pair having known characteristics to be insensitive to temperature change. More complex and series-coupled differential amplifier circuits may also be rendered temperature stable, with respect to gain, without the use of temperature compensating components.

3,566,297

LASER DEVICE

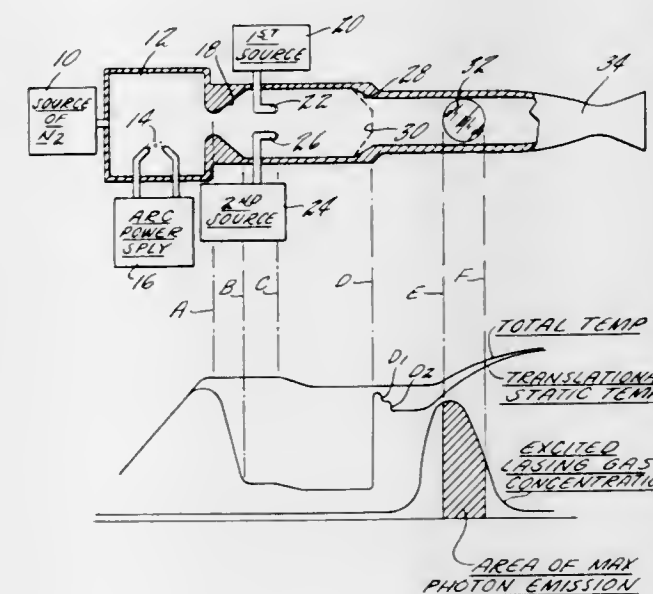
Arthur Wade Blackman, Jr., Hartford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed May 23, 1968, Ser. No. 731,660

Int. Cl. H01s 3/09, 3/22

U.S. Cl. 330—4.3

4 Claims



By means of an expander, the static temperature of laser reactants is caused to remain too low to operate until passed through a converging section which establishes a shock pattern in the flow of reactants. This causes a rise in static temperature and allows a suitable reaction to proceed downstream of the converging section. An optical cavity is located at a proper point in the temperature and reactant concentration profile for efficient laser action. A variety of chemically pumped embodiments are shown.

3,566,298 AMPLIFIER CIRCUIT PROVIDING A FLOATING OUTPUT

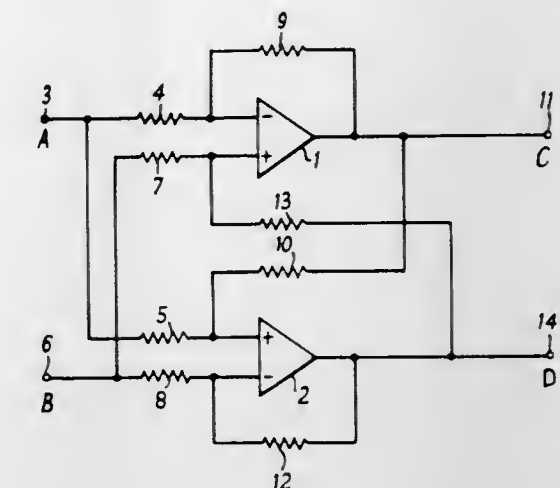
Michael Charles Stevens, Broxbourne, England, assignor to A. C. Cossor Limited, Harlow, England
Filed Mar. 12, 1969, Ser. No. 806,607

Claims priority, application Great Britain, Apr. 10, 1968, 17,175/68

Int. Cl. H03f 3/68

U.S. Cl. 330—84

1 Claim



As an alternative to a transformer as a means for providing a floating output the invention uses two cross-coupled differential amplifiers in a novel circuit configuration. The circuit is much less bulky than a transformer and can be micro-miniaturized.

ERRATUM

For Class 330—192 see:
Patent No. 3,566,236

3,566,299

MULTI-BAND SIGNAL GENERATOR WITH SWITCHED OSCILLATORS GROUPED AROUND A COMMON TUNING CAPACITOR

Reinhard Bruckner, Munich, Jacob Gropp, Kirchseeon, and Gerd Meyer-Marc and Hans Egon Ramundt, Munich, Germany, assignors to Rohde & Schwarz, a corporation of Germany

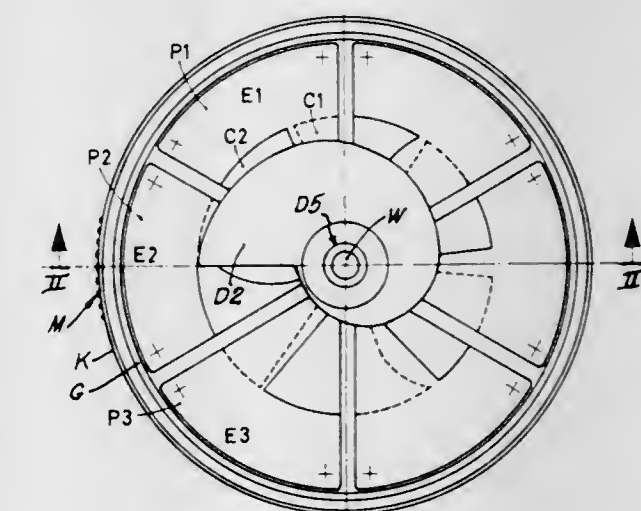
Filed Apr. 3, 1969, Ser. No. 812,995

Claims priority, application Germany, Apr. 10, 1968, P 17 66 153.9; Dec. 4, 1968, P 18 12 641.5

Int. Cl. H03b 5/12; H03j 5/04

U.S. Cl. 331—49

19 Claims



Multi-band oscillator apparatus includes a plurality of independent oscillator units of which the oscillatory cir-

cuit elements are variable to determine the frequency by operation of an adjustable common tuning device and in which band-switching is accomplished by switching on and off the supply voltage to the individual oscillator units.

3,566,300

OPTICAL MEANS FOR PRODUCTION OF LASER EMISSION

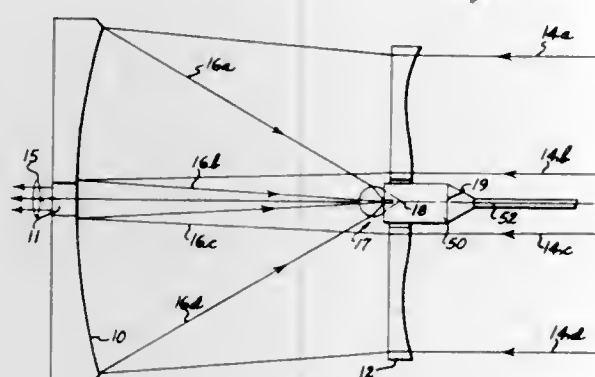
George R. Simpson, South Woodstock, Conn., Elias Snitzer, Sturbridge, Mass., and Charles J. Koester, South Woodstock, Conn., assignors, by mesne assignments, to American Optical Company, Southbridge, Mass., a corporation of Delaware

Filed Jan. 31, 1962, Ser. No. 170,138

Int. Cl. H01s 3/02

U.S. Cl. 331-94.5

28 Claims



1. A device for use in a laser assembly, said device comprising a laser component of predetermined length and cross-sectional size and formed of an active laser material, refracting optical means including a refracting lens element in optical alignment with and in intimate optical contact with an end wall of said laser component, said refractive lens element having a spherically curved front surface of such predetermined convex curvature as to receive a convergent beam of pumping light of large predetermined angular value and high flux density and direct same at increased flux density into said end of said laser component, a first highly reflecting coating upon the front of said refracting lens element adjacent the vertex thereof, and a second highly reflecting coating upon the end of said laser component remote from said lens element, said first and second coatings being in facing relation to each other so as to form an optical resonant cavity therebetween, at least one of said coatings having a relatively small amount of transmission so as to allow laser light during laser action to pass outwardly there-through.

3,566,301

MULTIVIBRATOR WITH LINEARLY VARIABLE VOLTAGE CONTROLLED DUTY CYCLE

Orrin H. Grangaard, Jr., St. Paul, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Nov. 13, 1968, Ser. No. 775,333

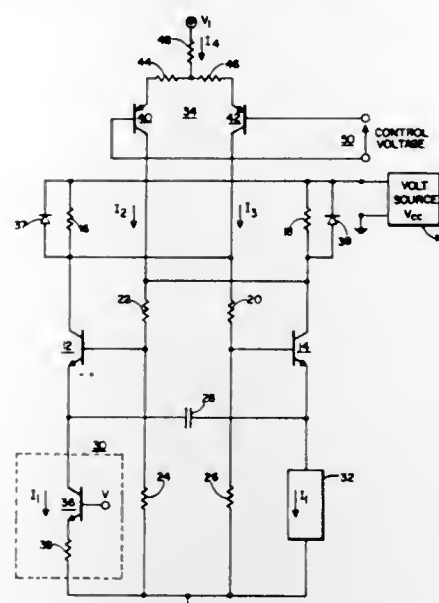
Int. Cl. H03k 3/282

U.S. Cl. 331-113

6 Claims

A multivibrator including two transistors and a timing capacitor, connected between the emitters of the transistors, which is charged with a constant current. The potentials at the transistor bases are established by con-

trollable currents and determine the voltage to which the timing capacitor charges. By changing the voltage



to which the constant current charges the capacitor, the duty cycle of the multivibrator is changed.

3,566,302

LASER OPTICAL CAVITY AND ALIGNMENT METHOD

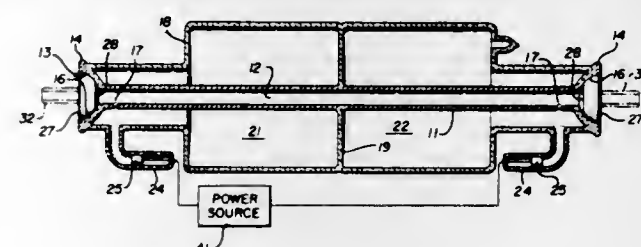
Henry L. Rhodes, Berkeley, Calif., assignor, by mesne assignments, to Spectra-Physics, Inc., a corporation of California

Filed Sept. 23, 1966, Ser. No. 581,556

Int. Cl. H01s 3/05, 3/02; G02b 5/08

U.S. Cl. 331-94.5

12 Claims



Laser optical cavity and method of alignment utilizing reflectors mounted on substrates having a hemispherical form and set into rigid structure for supporting the substrate and permitting it to be adjusted into alignment to form a portion of an optical cavity. A sealant having a plastic and a rigid state is disposed between the substrate and the support so that by exciting the laser and simultaneously shifting the substrate while the sealant is in a plastic state, an incipient laser beam can be developed and maximized, after which the sealant is caused to assume its rigid state and maintain the substrate and associated reflector in the aligned position.

3,566,303

ULTRASONIC CONTROL SYSTEM FOR LASERS

Anthony J. De Maria, West Hartford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Continuation of application Ser. No. 228,969, Oct. 8, 1962. This application June 15, 1967, Ser. No. 653,289

The portion of the term of the patent subsequent to Jan. 10, 1984, has been disclaimed

Int. Cl. G02f 1/28; H01s 3/00

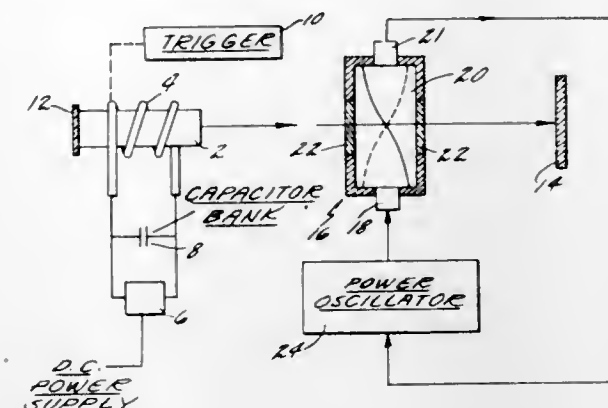
U.S. Cl. 331-94.5

15 Claims

A control system for lasers in which the refractive index of the medium through which the laser electromagnetic energy propagates is varied by positioning therein an ultra-

sonic cell through which an acoustic wave is generated. Either refraction or diffraction of the laser radiation occurs

a lasing gas, transfers the energy to the lasing gas, preferentially to an upper laser energy level. The lasing gas is ozone, which is preferably introduced directly into



as a function of the acoustic wave-length. The cell may be positioned in the laser feedback cavity.

3,566,304

GAS LASER PRESSURE CONTROL FOR MAINTAINING CONSTANT PRESSURE

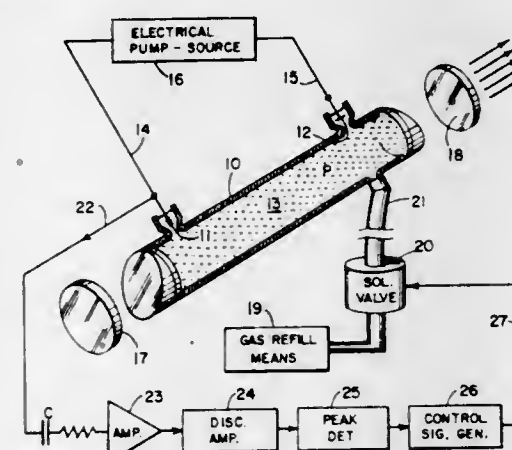
Robert H. Neusel, Malibu, and Homer Eugene Hunley, Hawthorne, Calif., assignors to Union Carbide Corporation, a corporation of New York

Filed Mar. 20, 1968, Ser. No. 714,729

Int. Cl. H01j 17/22, 61/28; H01s 3/00

U.S. Cl. 331-94.5

5 Claims



A sensor circuit is provided for detecting a reduction in the gas pressure of an ion laser. The noise signal voltages in the plasma current of the gas laser increase rapidly with a reduction in pressure. The sensor takes advantage of this phenomenon by detecting the noise signal spectrum in the plasma current. A discriminating circuit passes only those noise signals in the noise spectrum exceeding a predetermined voltage value and provides a control signal whenever the gas pressure falls below a predetermined value resulting in the increased voltage noise signals. This control signal is utilized to operate a solenoid valve to automatically pass refill gas to the laser tube and thereby maintain the gas pressure in the tube within a predetermined pressure range.

3,566,305

NITROGEN-OZONE LASER

Barry R. Bronfin, Weathersfield, and Daniel J. Seery, Glastonbury, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

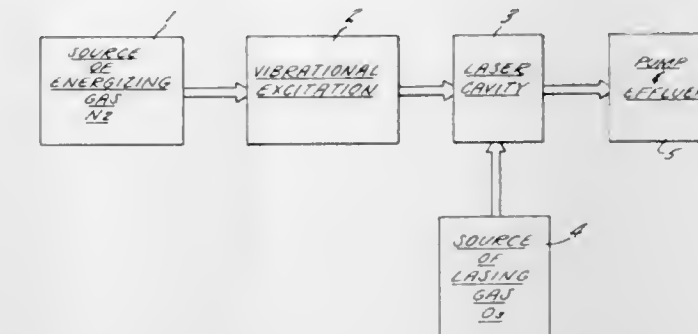
Filed Dec. 23, 1968, Ser. No. 786,481

Int. Cl. H01s 3/09, 3/22

U.S. Cl. 331-94.5

5 Claims

A gas laser utilizes vibrationally excited nitrogen as an energizing gas and, through resonant collisions with



the laser cavity free of prior excitation so as to avoid undesired chemical reactions. Laser energy at 6.60, 8.49, 9.01 and 9.06 microns is produced.

3,566,306

GUNN OSCILLATOR WITH P-N JUNCTION CONTACT FOR FAST LOW POWER ON-OFF CONTROL

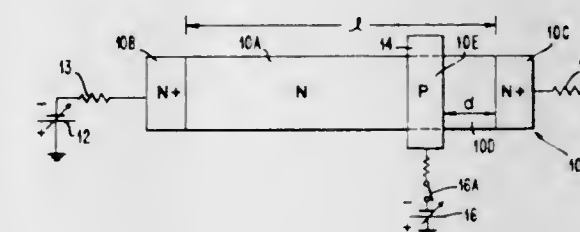
Ralph M. Esposito, Somers, Peter S. Hauge, Yorktown Heights, and Conrad Lanza, Putnam Valley, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed June 30, 1969, Ser. No. 837,833

Int. Cl. H03b 7/00

U.S. Cl. 331-107

13 Claims



The controllable oscillator includes a conventional Gunn oscillator formed of a body of n type gallium arsenide with ohmic contacts at both ends. The n_0l product for the body is at least twice the critical value for sustaining domain nucleation and propagation. An above-threshold voltage is applied to the body to produce high frequency oscillations. The oscillations are controlled by signals applied to a p type contact made to the body at a distance d from the anode such that n_0d is less than the critical value for oscillations. Application of a reverse bias signal to this region causes the oscillations to stop and a stable field condition to be produced with a high field near the anode.

3,566,307

UNIUNCTION TRANSISTOR TIME DELAY CIRCUIT

Dustin E. Morris, Tempe, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Feb. 9, 1968, Ser. No. 704,328

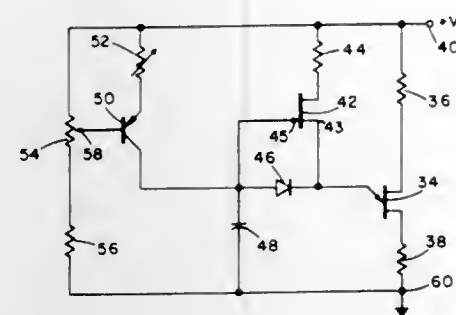
Int. Cl. H03k 3/26

U.S. Cl. 331-111

9 Claims

Disclosed in a unijunction transistor (UJT) time delay circuit wherein a unijunction transistor is charged to its peak voltage V_p by a field-effect transistor and is there-

after fired by a capacitor which is charged from a constant current source. The capacitor may be charged at variable



rates and during long time durations if desired to fire the unijunction transistor.

3,566,308

COMBINATION POWER SUPPLY MODULATOR FOR AN AMPLIFIER

Eduard Herman Hugenholtz, Willowdale, Ontario, Canada, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

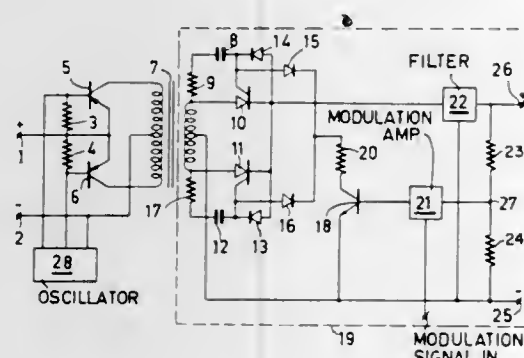
Filed Mar. 8, 1968, Ser. No. 711,764

Claims priority, application Canada, Mar. 11, 1967, 985,001

Int. Cl. H03c 1/36, 5/00

U.S. Cl. 332—31

10 Claims



A combination power supply and modulator circuit for a power amplifier features either a silicon controlled rectifier with the modulation signal applied to control the conduction time thereof, or a DC to square wave circuit with the modulation signal controlling the conduction time thereof.

3,566,309

DUAL FREQUENCY BAND, POLARIZATION DIVERSE TRACKING FEED SYSTEM FOR A HORN ANTENNA

James S. Ajioka, Fullerton, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Feb. 24, 1969, Ser. No. 801,588

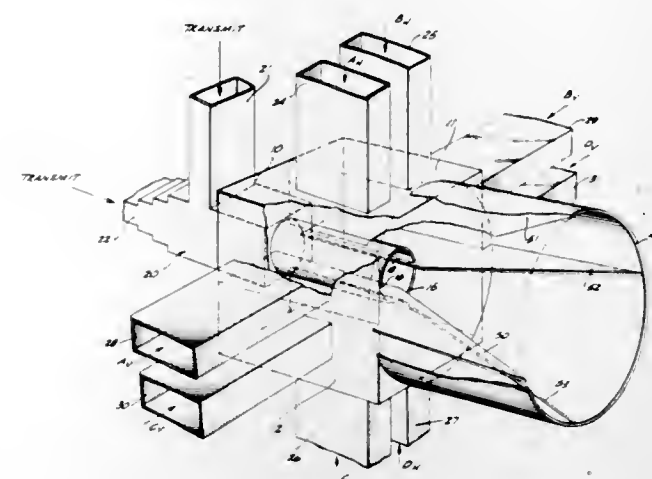
Int. Cl. H01p 1/16; H01q 13/02

U.S. Cl. 333—6

12 Claims

The apparatus of the present invention constitutes a feed to a single horn-type antenna providing one frequency band for communications and monopulse tracking and a higher frequency band for high power transmitting. More particularly, the higher frequency band is of the order of 50-100 percent higher than the frequency band for the receive and tracking frequencies. In this latter frequency band, the antenna is capable of receiving communications and having monopulse tracking capability with polarization diversity, i.e., orthogonal linear, orthogonal circular, rotatable linear or arbitrary elliptical

polarizations. Cross-polarization of all patterns is very low and cross-talk between azimuth and elevation tracking channels is substantially zero. Also, high efficiency



tracking can be achieved over a broad frequency range without retuning of components such as couplers or filters.

3,566,310

WAVEGUIDE FOR PRODUCING ARTIFICIAL REVERBERATION

Werner Fidi, Baden, near Vienna, and Bernhard Weingartner, Vienna, Austria, assignors to Akustische U. Kino-Geräte Gesellschaft m.b.H., Vienna, Austria

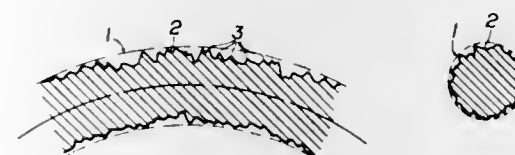
Filed July 1, 1968, Ser. No. 741,418

Claims priority, application Austria, July 5, 1967, A 6,254/67; Apr. 26, 1968, A 4,096/68

Int. Cl. H03h 7/30, 9/00

U.S. Cl. 333—30

8 Claims



The surface of a waveguide is formed with irregularities having geometrical dimensions which are smaller than the wavelength at the upper limit of a predetermined frequency range. The irregularities are arranged to impart, to the propagation constant of waves traveling along said waveguide, a statistical variation throughout said frequency range and about a mean value which would be obtained in a waveguide which is free of such irregularities and otherwise identical.

3,566,311

RECIPROCAL FERRITE FILM PHASE SHIFTER HAVING LATCHING CONDUCTOR FILM

Daniel C. Buck, Hanover, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed May 2, 1969, Ser. No. 821,423

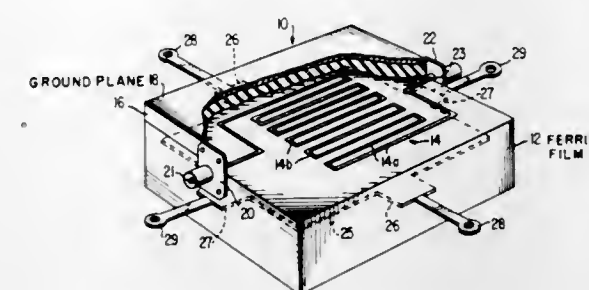
Int. Cl. H01p 1/18, 3/08

U.S. Cl. 333—31

9 Claims

The phase shifter comprises an integral structure of first and second separately deposited ferrite layers and an intermediate conducting film defining orthogonal latching current conducting paths and serving to structure the ferrite film in a double torroid configuration. A microwave transmission line includes a microstrip deposited on the second ferrite layer defining the direction of propagation of microwave energy. Energization of the conducting

film for establishing a flow of latching current in a selected one of the conducting paths therein provides for flux driving the film to a remanent condition of magnetization in a corresponding, desired orientation, parallel or perpendicular to the direction of microwave propagation. Where β is the propagation constant of the microstrip, relative



differential phase shift is expressed as $\Delta\beta/\beta$, and is a function of the remanent field strength in the direction of propagation. Alternate current pulsing of the conducting film to establish latching current in alternate ones of the current paths permits rapid switching between minimum and maximum relative phase shift conditions.

3,566,312

SWITCHABLE FILTER NETWORK

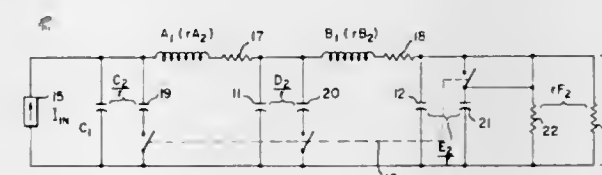
John C. McDonald, Los Altos, Calif., assignor to Vidar Corporation, Mountain View, Calif., a corporation of California

Filed May 25, 1967, Ser. No. 641,254

Int. Cl. H03h 7/10

U.S. Cl. 333—70

4 Claims



A filter switchable between Thomson and Butterworth characteristics where two of the inductors of the filter are maintained constant and the switching is accomplished by changing the values of three capacitors and the load resistance. The inductor dissipation factor is used as a common parameter and its value adjusted to cause the inductor ratios between the two characteristics to be equal. Thereafter by application of this ratio as an impedance scaling factor to the Butterworth characteristics, the inductor values are equalized necessitating only a change in the capacitor values and the load resistance value to switch between the two characteristics.

3,566,313

WAVE FILTER OF THE COMPLEX FORK TYPE
Tasuku Yuki and Takayuki Kawana, Tokyo-to, Japan, assignors to Nippon Electric Company, Limited, Tokyo-to, Japan

Filed May 22, 1968, Ser. No. 731,174

Claims priority, application Japan, May 29, 1967, 42/34,325

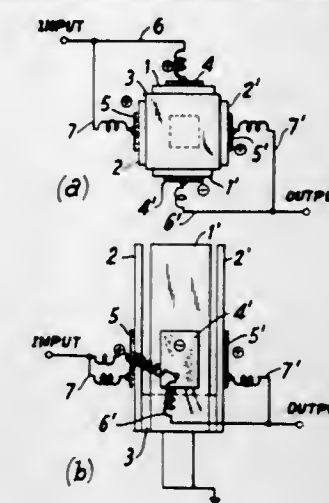
Int. Cl. H03h 9/00

U.S. Cl. 333—72

2 Claims

A wave filter is described wherein a complex tuning fork structure is formed by pairs of cantilever mounted resonating plates mounted to a base. At least two pair of resonating plates are provided which resonate respectively at the same frequency but with opposite phase. The plates are driven by transducer elements selectively affixed

to the plates with similar transducers used to detect the complex wave vibrations induced in the structure to pro-



vide an electrical signal which is attenuated according to the pass band response of the filter.

3,566,314

CRYSTAL BAND-PASS FILTER WITH CONTROLLED ATTENUATION BETWEEN PASSBANDS

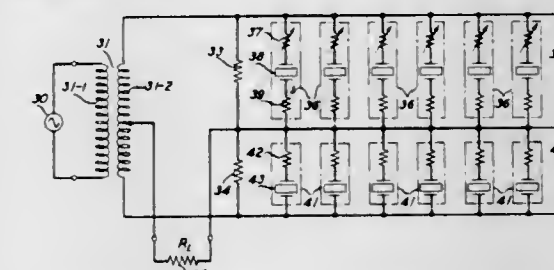
Frank R. Bles, Atkinson, N.H., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Feb. 27, 1968, Ser. No. 708,612

Int. Cl. H03h 9/32

U.S. Cl. 333—72

6 Claims



In a crystal filter having a plurality of passbands, resistances of predetermined value as derived from and related to specific circuit parameters are inserted in series and in parallel with the crystal units to maintain the passbands and the attenuation between the passbands flat and constant and to hold the attenuation ratio between all of the passbands and the regions outside of the passbands at a fixed, predetermined level.

3,566,315

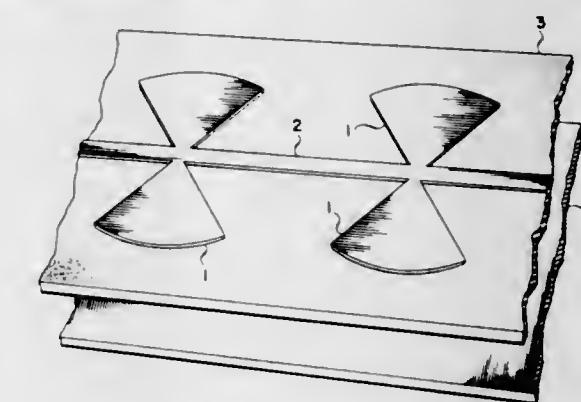
STRIP LINE ELECTRICAL FILTER ELEMENT
Jorgen P. Vinding, Monte Sereno, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Dec. 29, 1967, Ser. No. 694,555

Int. Cl. H03h 7/02

U.S. Cl. 333—73

2 Claims



This invention is directed to an improved strip line electrical filter. The quarter wave resonator disclosed is fan-shaped which simplifies defining the point of junction to the transmission line.

3,566,316 WAVE GUIDE AND ITS METHOD OF MANUFACTURE

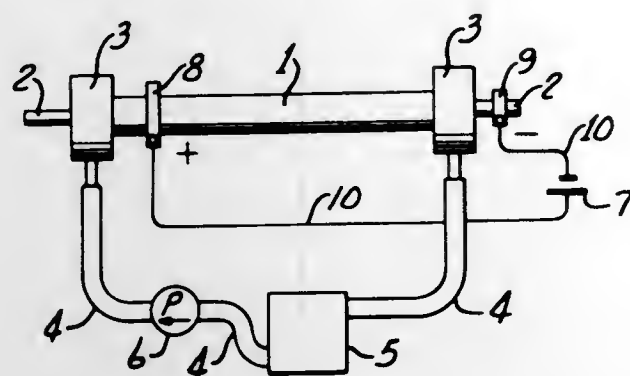
Sumio Sawada, Nishinomiya, Hiroshi Shioyama, Ashiya, and Tsuneo Nakahara, Nishinomiya, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan, a company of Japan

Filed Nov. 24, 1967, Ser. No. 685,602

Int. Cl. H01p 11/00, 1/16, 3/12

U.S. Cl. 333-95

8 Claims



A waveguide for the transmission of electromagnetic wave energy which is made of a steel pipe having a copper metal layer formed by copper plating on the inner surface of the pipe, and extremely thin semi-electroconductive layer disposed on the copper metal layer by means of electro chemical treatment or chemical treatment and a uniform dielectric layer steadily adhered to the surface of the semielectro conductive layer and methods of manufacturing it.

3,566,317 EXTENSIBLE SURFACE WAVE TRANSMISSION LINE

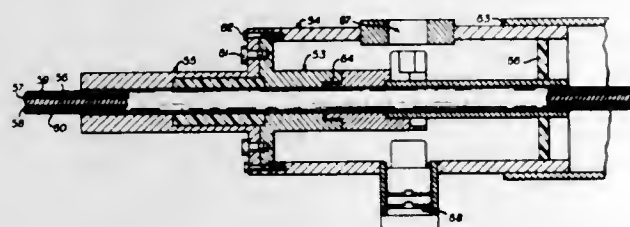
Theodore Hafner, 1501 Broadway,
New York, N.Y. 10036

Filed May 24, 1968, Ser. No. 732,502

Int. Cl. H01p 3/12; H01q 1/28

U.S. Cl. 333-95

10 Claims



This invention relates to a surface wave transmission system, in which the closed end of the surface wave launcher is formed as a coaxial line having an inner conductor through which a surface wave conductor is movable, and an outer conductor conductively supported on one end, and dielectrically supported on the inner conductor on the other end of the coaxial line; and capacitively coupled to the inner conductor at an intermediate point of the coaxial line so as to permit tuning from the outside.

3,566,318 CIRCUIT BREAKER WITH IMPROVED TRIP MEANS

Francis L. Gelzbeiser, Fairfield, and Charles E. Nystrom, Derby, Conn., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 31, 1968, Ser. No. 788,230

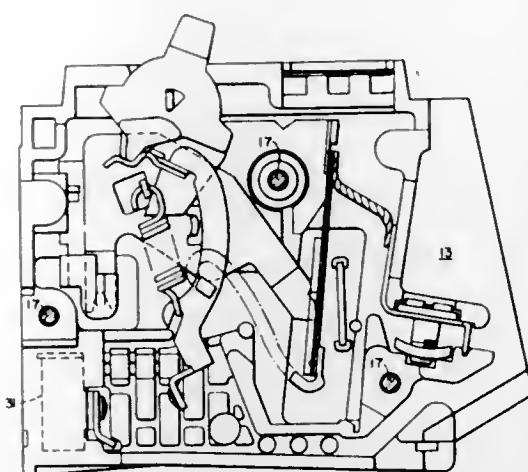
Int. Cl. H01h 73/48

U.S. Cl. 335-39

20 Claims

A circuit breaker comprises improved thermal and electro-magnetic trip means for automatically tripping the

circuit breaker upon the occurrence of overload current conditions. Automatic thermal calibration is built into the construction whereby circuit breakers can be manufactured in quantity with predictable tripping characteristics.



A lever latch member, which is secured to a bimetal member, is angled against a releasable member with a levering action, upon flexing of the bimetal member, to release the releasable member to thereby trip the circuit breaker.

3,566,319 SWITCH ASSEMBLY

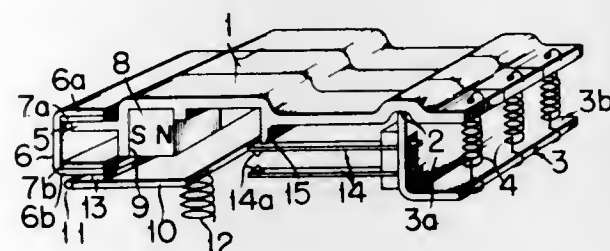
Junji Ohno, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-cho, Hamamatsu-shi, Shizuoka-ken, Japan, a corporation of Japan

Filed Apr. 7, 1969, Ser. No. 813,893

Int. Cl. H01h 9/24

U.S. Cl. 335-160

9 Claims



A plurality of parallel arranged tablets for selectively switching any one of the pairs of contact members are individually movable in a vertical direction. One of the tablets is downwardly moved and magnetically interlocked at the intermediate position of the specified range of its movement so as to close the corresponding pair of contact members, and is released from its interlocked state by further downward movement of another tablet over the intermediate position so as to open the corresponding pair of contact members.

3,566,320 ELECTROMAGNETIC DEVICE HAVING A DUAL COIL FOR INDEPENDENT TRIPPING THEREOF

Hal H. Bakes, Brown's Mills, N.J., assignor to Heinemann Electric Company, Trenton, N.J., a corporation of New Jersey

Filed June 5, 1969, Ser. No. 830,634

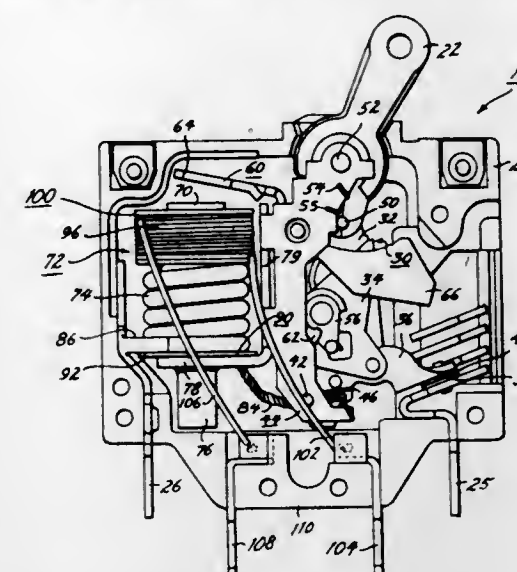
Int. Cl. H01h 7/00

U.S. Cl. 335-174

15 Claims

An electromagnetic device comprising first and second solenoid coils, an armature actuable by either coil and a magnetizable frame carrying the coils. A time delay

device comprising a tube of non-magnetic material within which is a movable magnetizable core and with which the first coil cooperates to actuate the armature after a time delay period upon predetermined energization of the first coil. The tube has a pole piece at one end toward which the armature is attracted on predetermined



overload conditions, the core being biased toward the end of the tube away from the pole piece. Both coils surround the tube and the first coil provides overload tripping of the device, while the second coil trips the device in response to an electrical signal independently of whether the first coil is energized or not.

3,566,321 ADHESIVE MOUNTING MEANS FOR A CATHODE RAY TUBE-YOKE COMBINATION

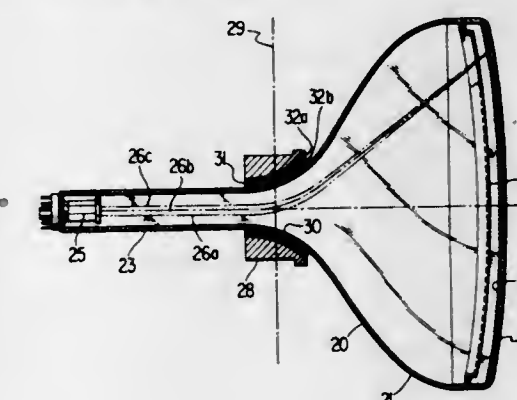
Malcolm George Brown, Jr., Lancaster, Pa., assignor to RCA Corporation, a corporation of Delaware

Filed July 23, 1969, Ser. No. 843,922

Int. Cl. H01f 7/00

U.S. Cl. 335-210

6 Claims



A combination including a cathode ray tube, magnetic field producing means and a body of cured polymeric material holding the yoke in a fixed position on the tube. There is a parting layer of thermoplastic material between the cured polymeric body and at least one of the tube or the yoke. The parting layer of thermoplastic material softens at a temperature above the operating temperature of the yoke and below the temperature at which the yoke is damaged.

3,566,322 BOBBIN FOR ELECTRICAL WINDINGS

Stephen Horbach, 40 Glen Road,
Mountain Lakes, N.J. 07046

Filed June 20, 1969, Ser. No. 835,111

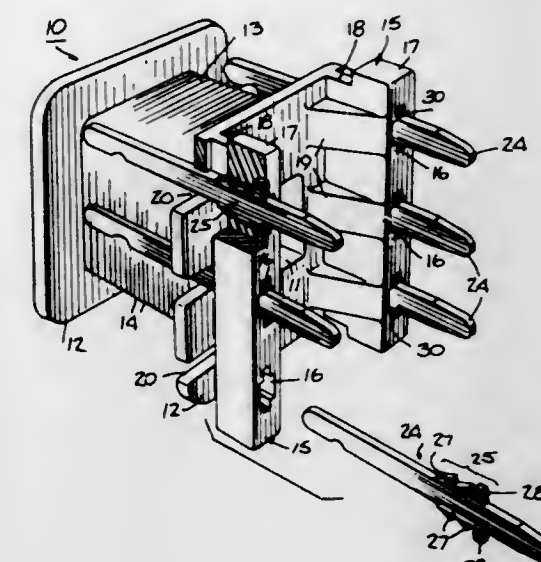
Int. Cl. H01f 15/10

U.S. Cl. 336-192

7 Claims

A bobbin is formed with a pair of terminal blocks which extend from one of the flanges of the bobbin and

a plurality of L-shaped metal terminal pins secured in air insulated pockets in each of the terminal blocks. Each terminal pin is provided with a barb so as to be secured



within the pockets through an interference fit. In addition, each terminal pin is bent on itself so as to further facilitate securement to the bobbin. The lead wires are connected to the pins through flange slots overlying each pocket.

3,566,323 C-SHAPED MAGNETIZABLE CORE

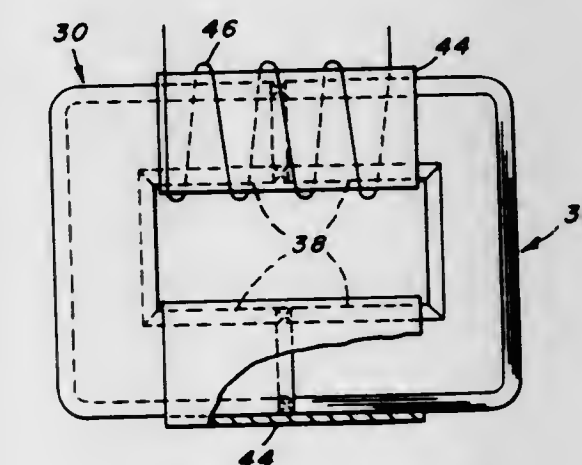
Richard B. Graf and Edward H. Chant, Marengo, and John F. Marco, Woodstock, Ill., assignors to The Arnold Engineering Company, Marengo, Ill., a corporation of Illinois

Filed May 1, 1969, Ser. No. 820,815

Int. Cl. H01f 27/24

U.S. Cl. 336-233

4 Claims



A C-shaped magnetizable core and method of making same of powdered material manufactured by filling a predetermined quantity of the powdered material into a C-shaped mold having two ends and having a trapezoidal cross section, compressing said powdered material to a density of at least 6.0 g./cm.³ by a cooperating, C-shaped ram from the larger trapezoidal base toward the smaller trapezoidal base, withdrawing the ram and ejecting the core from the die with a comparably C-shaped rod from the smaller trapezoidal base toward the larger trapezoidal base, the core uniformly expanding laterally as it is ejected from the die having a uniform density of improved structural, magnetic and electrical properties.

3,566,324

TEMPERATURE CHANGING CIRCUIT PROGRAMMING APPARATUS

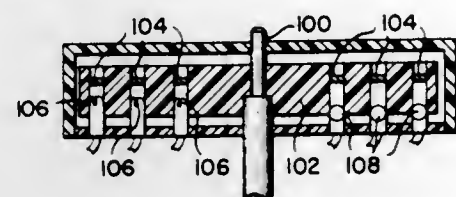
Bernard Edward Shlesinger, Jr., 3906 Bruce Lane, Annandale, Va. 22003

Original application Aug. 10, 1965, Ser. No. 478,588, now Patent No. 3,517,166, dated June 23, 1970. Divided and this application Oct. 17, 1969, Ser. No. 867,220

Int. Cl. G06k 7/00; H01h 43/08

U.S. Cl. 337—1

13 Claims



A thermally responsive programming apparatus for programming electrical devices having a support member, movable means in the support member having heatable and coolable spot portions movable about an axis, a series of sequentially spaced pre-set detectors connected to the electrical devices and arranged in the direction of travel of the movable means and in close proximity to the movable means and each responsive to a specific temperature, independent moving means for moving the movable means at different programming speeds, a spot temperature changing applicator means in close proximity to the support member and remote from the heat detectors for changing the temperature of at least one of the spot portions, the detectors being remote from the temperature changing applicator means so as to be uninfluenced thereby, controlling means independent of the block for controlling the temperature changing applicator means when changing the temperature of the spot portions and whereby upon programmed controlling of at least one of the independent means, the heat detectors by means of the spot portions are selectively caused to operate in a predetermined sequence depending upon the heat transmitted by the spot portions when they are moved in the support member into close proximity with the detectors.

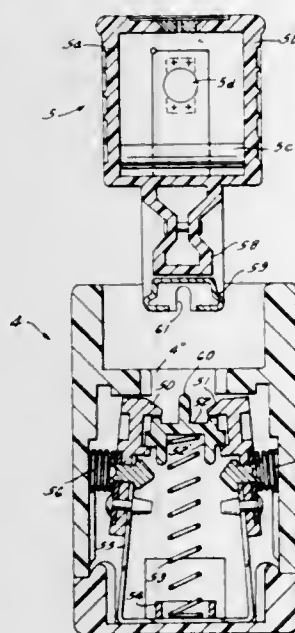
3,566,325

ELECTRICAL CIRCUIT PROTECTION ARRANGEMENTMario Paganelli, Via Col di Lana 8, Varese, Italy
Continuation-in-part of application Ser. No. 626,506, Mar. 28, 1967. This application Sept. 10, 1969, Ser. No. 865,223

Int. Cl. H01h 85/24, 85/56

U.S. Cl. 337—7

11 Claims



A circuit-protecting device including a housing provided with an aperture for removably receiving an electric

fuse. The aperture is provided with a biased closure device which blocks the aperture opening when the fuse is removed. The closure device is automatically yieldable for unblocking the aperture in response to the insertion of the fuse into the housing.

3,566,326

CIRCUIT BREAKER

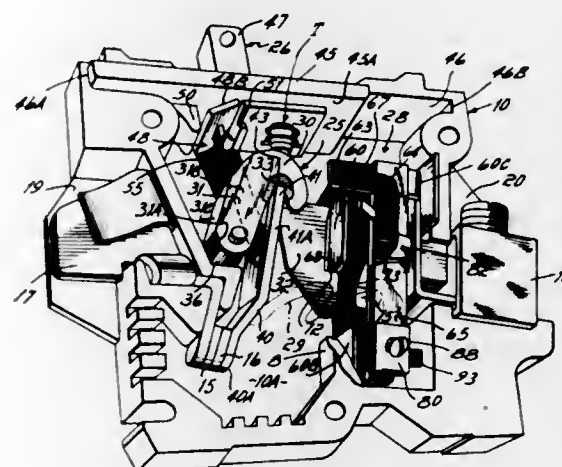
William H. Middendorf, Fort Mitchell, and Edward J. Fritz, Florence, Ky., assignors to The Wadsworth Electric Mfg., Co., Incorporated, Covington, Ky., a corporation of Kentucky

Continuation-in-part of application Ser. No. 689,640, Dec. 11, 1967. This application Jan. 26, 1970, Ser. No. 5,693

Int. Cl. H01h 71/16, 71/40, 73/50

U.S. Cl. 337—55

20 Claims



A circuit breaker having a fixed contact, a movable contact, a movable carrier mounting the movable contact, and a tripping mechanism for disconnecting the contact in response to overload currents. The carrier is spring-biased, and mounted for pivotal movement between an unlatched position wherein the contacts are electrically disconnected, and a latched position wherein the contacts are selectively connectable. The tripping mechanism is in series electrical circuit with the fixed and movable contacts for releasably maintaining the carrier in the latched position under non-overload current conditions, thereby enabling the series electrical circuit to be selectively completed, and for releasing the carrier to permit it to return to its unlatched position in response to overload current conditions, thereby interrupting the circuit connection between the fixed and movable contacts. The tripping mechanism includes a pivotal main latch selectively engageable with the carrier to maintain the carrier in the latched position, an auxiliary latch pivotal transversely relative to the main latch for selectively holding the main latch in a position to engage the carrier, and a bimetal movable in response to overload currents for pivoting the auxiliary latch which in turn releases the main latch enabling the latter to pivot, releasing the carrier and electrically disconnecting the fixed and movable contacts.

3,566,327

COMBINED DIRECT AND INDIRECT THERMALLY CALIBRATED BIMETAL

Carl E. Grytko, Haddon Heights, N.J., assignors to I-T-E Circuit Breaker Company, Philadelphia, Pa.

Continuation of application Ser. No. 708,862, Feb. 28, 1968. This application May 4, 1970, Ser. No. 31,870

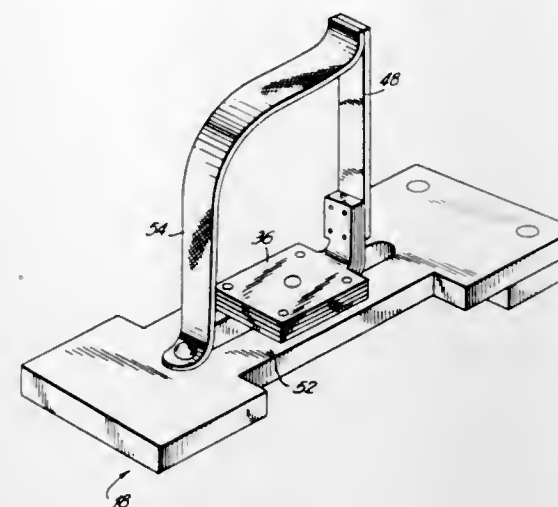
Int. Cl. H01h 61/013, 71/16, 73/50

U.S. Cl. 337—77

10 Claims

An automatic circuit breaker in which the bimetal element of the thermally responsive tripping assembly is provided with both indirect and direct heating, responsive

to the flow of current through the breaker. The bimetal is positioned adjacent a restricted cross-sectional area of a conductive member forming part of the circuit being protected so as to be indirectly heated by the flow of cur-



rent through such conductive member, while at the same time a parallel electrical path is established across the conductive member which includes the bimetal itself in series. In this manner the bimetal is also heated directly by the flow of current through the parallel path.

3,566,328

ELECTRICAL CIRCUIT OVERLOAD PROTECTOR OF THE THERMALLY RESPONSIVE BIMETAL ELEMENT TYPE

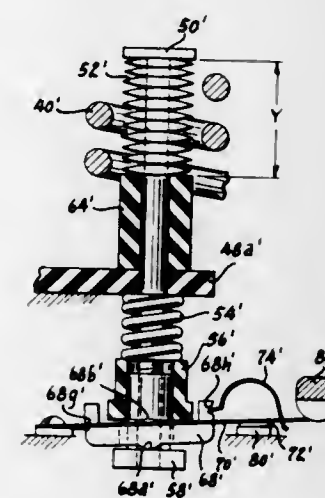
Uriel F. Carter, deceased, late of Wauwatosa, Wis., by Ruth Carter, administratrix, Wauwatosa, Wis., and Edward A. Mallonen, Hales Corners, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware

Filed May 13, 1968, Ser. No. 729,496

Int. Cl. H01h 37/52, 37/60

U.S. Cl. 337—335

3 Claims



An electrical circuit overload protective device of the thermally responsive bimetal type which can be selectively set for either automatic or manual reset modes of operation. Overload responsive units, for one or more circuit branches employing stacks of bimetal discs as thermally responsive elements, and are mounted within a housing on a common base. Each overload unit has an individual snap acting switch which opens in response to an overload condition as detected by the heat developed in a

heater coil connected in the branch circuit which surrounds its thermally responsive element. The switches of the overload units are all connected in a single series circuit between terminals provided for connection to a circuit to be controlled. In a manual trip-free mode of operation a pushbutton lever upon subsidence of all overload conditions is depressed inwardly of the housing to afford manual reset of the movable contact members of any switch tripped open by overload response. Alternately the reset lever may be latched in such depressed position wherein the contact opening movement of the movable switch contact members is so limited that they will individually automatically reset upon subsidence of the overload condition in their respective branch circuits. A modified form of ambient temperature compensated bimetallic disc type of overload responsive unit is provided for use wherein the device will be subjected to high or widely varying ambient temperature conditions.

3,566,329

GANGED POTENTIOMETER STRUCTURE

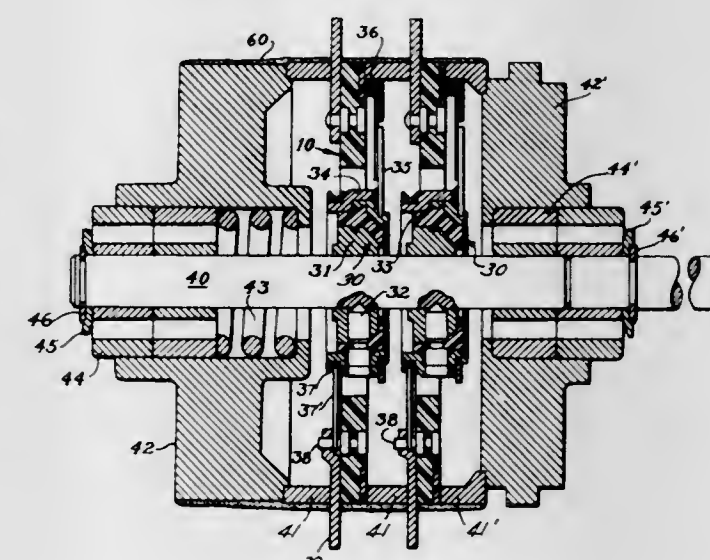
Morris A. Shiro, Mount Vernon, and Myron A. Coler, Scarsdale, N.Y., assignors to Markite Corporation, New York, N.Y.

Filed June 26, 1968, Ser. No. 740,259

Int. Cl. H01c 5/02

U.S. Cl. 338—132

1 Claim



A ganged potentiometer structure having spring means for maintaining the elements under compression during assembly. The individual elements may be individually phased and after final assembly trimmed to obtain a desired output resistance characteristic relative to shaft position. After final adjustment an adhesive sealant agent is applied to the elements. A monolithic structure is obtained.

3,566,330

VARIABLE RESISTOR OF SLIDING TYPE

Katsumi Ichikawa, Osaka, Syunzo Oka, Hirakata-shi, and Tadasi Yano, Kadoma-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan

Filed Sept. 20, 1968, Ser. No. 761,035

Claims priority, application Japan, Dec. 21, 1967, 42/108,288; Feb. 7, 1968, 43/9,305, 43/9,306; Feb. 16, 1968, 43/11,778

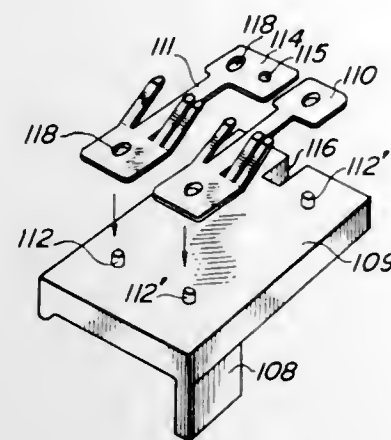
Int. Cl. H01c 5/02

U.S. Cl. 338—133

8 Claims

Improvements on a variable resistor of the sliding type and more particularly the structure of fitting a slider

and a contact element to a resistor is disclosed, preventing the lateral rolling of the slider and making the fitting



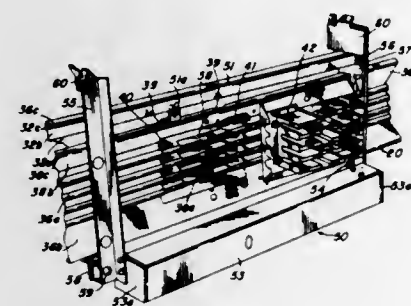
position of the contact element adjustable to control the value of resistance simply.

3,566,331

ELECTRICAL DISTRIBUTION SYSTEM

Harris I. Stanbeck, Allan E. Silcer, and George N. Jorgensen, Lexington, Ky., assignors to Square D Company, Park Ridge, Ill., a corporation of Michigan
Filed Oct. 21, 1968, Ser. No. 769,070
Int. Cl. H01r 3/00, 7/00; H02g 5/00
U.S. Cl. 339—22

9 Claims



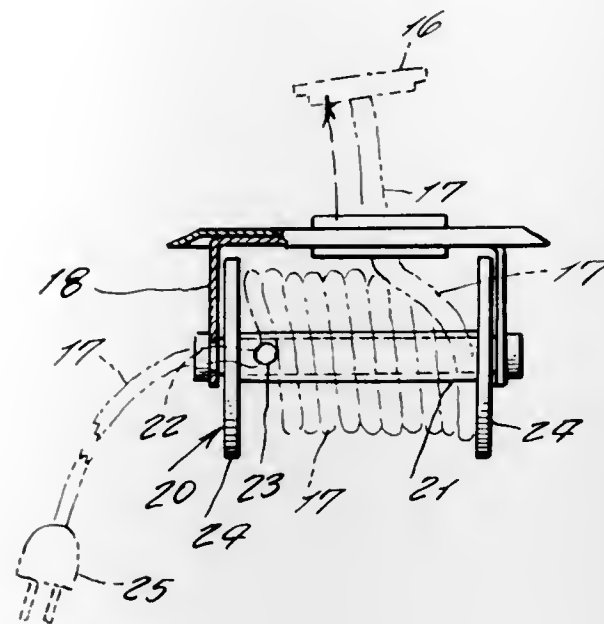
A section of the duct has a housing of rectangular cross section containing a plurality of flatwise-stacked power bus bars and having recurring access openings in opposite side walls each of which permits either a lower-current plug-in unit or a higher current tap-off unit to be selectively connected therethrough to the bus bars. Hood and door assemblies are pivoted on the housing at the respective access openings and each covers its associated access opening when in closed position. An insulator, secured to the inner side of each hood, has a plurality of relatively small openings providing access to the bus bars by jaws of a low-current plug-in unit when the door is open. When each assembly is in its open position, the insulator secured to the hood thereof is removed from the bus bars to uncover a relatively large contact area on each bus bar. A generally rectangular mounting frame may be releasably attached to the housing at each of selected ones of the access openings, and a high-current tap-off unit may be removably attached to each mounting frame. Each tap-off unit has a joint structure which, when the associated hood member is in its open position, can extend through the associated access opening and interleave with the relatively large contact areas on the bus bars. Jaws of ground bus bar connector extend through the respective access openings for selective engagement with a grounding blade of the plug-in and tap-off units.

3,566,332

WALL EXTENSION SOCKET

John Bonhomme, Brooklyn, N.Y.
(430 W. 119 St., New York, N.Y. 10027)
Filed June 9, 1969, Ser. No. 831,322
Int. Cl. B65h 75/48; H01r 11/00; H02g 11/02
U.S. Cl. 339—28

3 Claims



A reel unit for a plurality of electric extension cords, one end of the cords being secured to a house outlet receptacle the unit being mounted on a wall or base board of a room the unit including reels with the extension cords being wound up thereupon, and the opposite ends of the extension cords being able to be unreel from the reels so as to reach a plug of an appliance electric extension cord.

3,566,333

EJECTOR MEANS FOR A LAMP RECEPTACLE

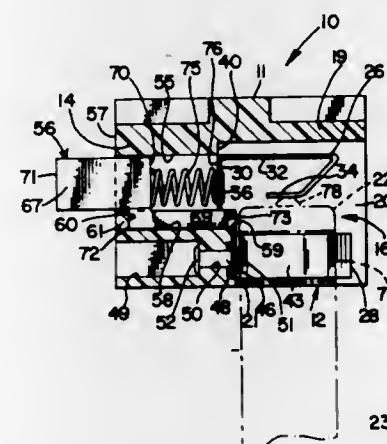
Hans Ege, Des Plaines, Ill., assignor to Underwriters Safety Device Co., Chicago, Ill., a corporation of Illinois

Filed Dec. 4, 1968, Ser. No. 781,136

Int. Cl. H01r 13/62, 33/08

U.S. Cl. 339—45

13 Claims



A lamp receptacle for use in a lamp socket assembly adapted to receive an elongated lamp, the receptacle including electrical contact means within the receptacle adapted to connect one end of an elongated lamp to a source of electric energy, and ejector means associated with the receptacle for ejecting the elongated lamp from the receptacle in a direction transverse to the longitudinal axis of the lamp. Preferably, the lamp receptacle includes a terminal block having a body portion and

a lamp receiving portion and the body portion has passage means for receiving the ejector means. In one preferred embodiment of the invention, spring means are provided within the passage means for biasing the ejector means to a non-ejecting position while allowing the ejector means to be manually operated to move a finger portion thereof into the lamp receiving portion to eject one end of the lamp from the receptacle. In another preferred embodiment of the invention, the passage means is partially closed off at one end by a portion of the electrical contact means to limit movement of the finger portion into the lamp receiving portion and to assist in retaining the ejector means in the passage means.

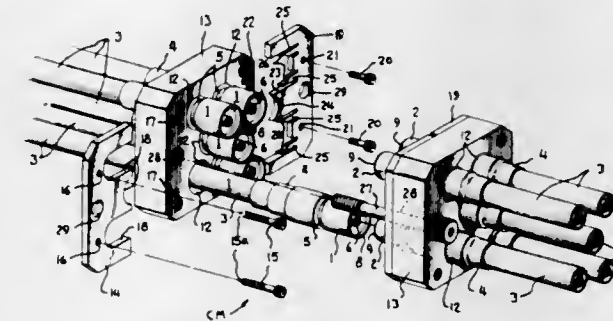
3,566,334

COAXIAL CONNECTOR MOUNTING MEANS

George William Ziegler, Jr., Carlisle, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed May 27, 1968, Ser. No. 732,447
Int. Cl. H01r 13/62

U.S. Cl. 339—64

6 Claims



Coaxial connector mounting means comprises mounting block means connectable together to connect coaxial connector means floatably mounted in the mounting block means.

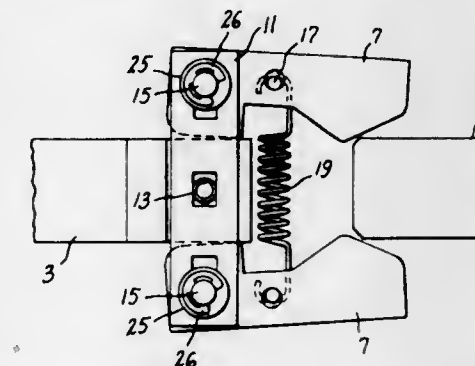
3,566,335

SELF-ALIGNING MULTIPLE ELECTRICAL CONNECTOR

David B. Powell, Bristol, Conn., assignor to General Electric Company, a corporation of New York
Filed Sept. 18, 1968, Ser. No. 760,654
Int. Cl. H01r 13/62

U.S. Cl. 339—64

10 Claims



A self-aligning multiple contact electrical connector of the plug-in type comprising a conductive support member and at least one pair of opposed elongated contact members having a rocking type contact engagement with the support member adjacent one end, the other ends of said contact members projecting outwardly away from the support member. A tension spring interconnects the contact members of each pair at an intermediate point outwardly of their points of rocking engagement with the support. A tie plate interconnects the contact members of each pair at a point inwardly of their points of making engagement with the support member. The tie plate is slidable transversely of the support whereby the outer ends of each pair of contact members can shift transversely to accommodate slight misalignment between the connector and a conductive member onto which it is being plugged.

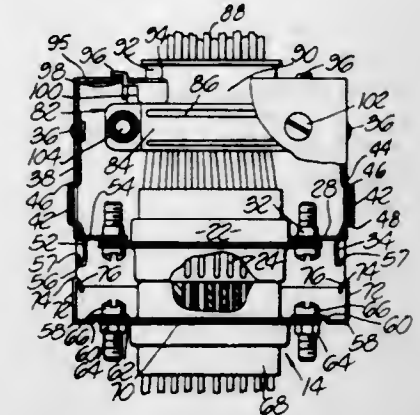
3,566,336

CONNECTOR ASSEMBLY

George S. Johnson, Canoga Park, and Stanley Schachnow, Los Angeles, Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Delaware
Filed Aug. 30, 1968, Ser. No. 756,532
Int. Cl. H01r 13/54

U.S. Cl. 339—91

5 Claims



The invention comprises a plug connector and a mating receptacle connector with one of the connectors secured within a housing. A pair of locking spring members are secured at one end to the housing and extend generally parallel to the axis of its associated members and terminate in a lip-shaped member. The other connector is secured to one end of each of a pair of brackets; the other ends of the brackets extend substantially parallel to the axis of its associated connector and terminate in a ramp-shaped section which extends inwardly toward its associated connector. The distance between the lip-shaped members is less than the distance between the ramp-shaped brackets. Upon mating of the connectors, the lip-shaped member rides up the ramp incline of an associated locking ramp bracket and snaps into place in a positive abutting relationship with the ramp incline in order to restrict the backing off of the mated connectors. The housing to which one of the connectors is secured is used to house a cable clamp for protecting cable wires from undue strain.

3,566,337

DUPLEX LOCKING RECEPTACLE WITH ISOLATED THIRD WIRE

Robert L. Martin, Cranston, R.I., assignor to General Electric Company, a corporation of New York
Filed Oct. 30, 1968, Ser. No. 771,731
Int. Cl. H01r 19/40

U.S. Cl. 339—132

6 Claims



A duplex locking outlet is provided to receive locking caps with three power blades, each of which is to re-

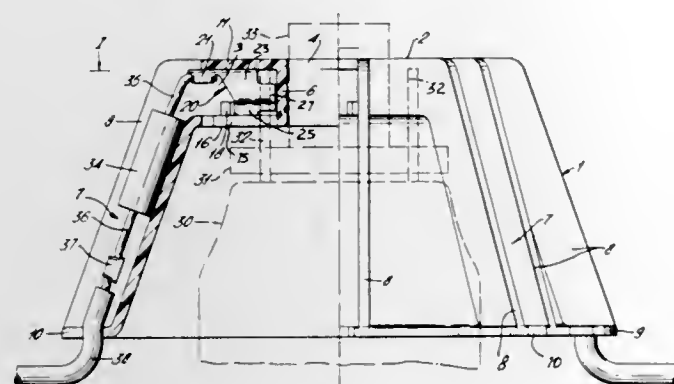
ceive power. More specifically, the duplex locking outlet is adapted to supply two separate levels of voltage to power blades inserted therein due to an isolated third wire construction.

3,566,338 ELECTRICAL CONNECTOR FOR AN ELECTRON TUBE

Kenneth John Startin, Hemel Hempstead, England, assignor to AMP Incorporated, Harrisburg, Pa., a corporation of New Jersey

Filed Jan. 29, 1969, Ser. No. 794,883
Claims priority, application Great Britain, Feb. 2, 1968, 5,347/68

Int. Cl. H01r 3/50, 3/06
U.S. Cl. 339—186 6 Claims



A connector block for a cathode ray tube is made in dish form with channels along its outside. Components, such as resistors, can lie in these channels connected to sockets in the base of the block into which pins of the cathode ray tube are plugged.

3,566,339 MULTIPLE SWITCH SOCKET ADAPTER

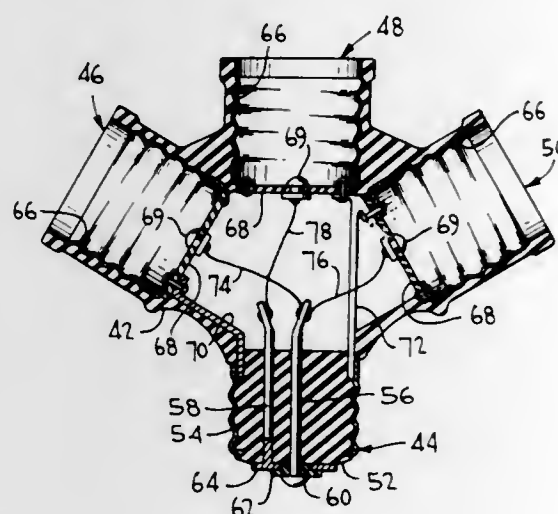
Charles R. Cook, 3708 University Way NE., Seattle, Wash. 98105

Filed Jan. 2, 1969, Ser. No. 788,594

Int. Cl. H01r 13/50

U.S. Cl. 339—161

2 Claims



An adapter for use with a multiple switch socket including a plurality of sockets each having a side contact and bottom contact, a male member having three contacts adapted to connect with the contacts of the multiple switch socket and electrical connections for connecting the three contacts with the side and bottom contacts of the sockets whereby light bulbs inserted in the plurality of sockets may be selectively energized to provide varying levels of illumination.

3,566,340 MEANS FOR POLARIZING A CONNECTOR ASSEMBLY

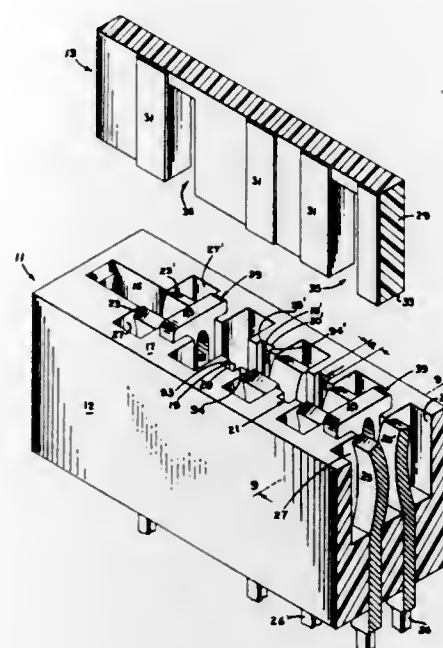
Max Leroy Jayne, North Warren, and Robert William Pihlblad, Warren, Pa., assignors to Sylvania Electric Products Inc., a corporation of Delaware

Filed June 14, 1968, Ser. No. 737,163

Int. Cl. H01r 13/64; H05k 1/07

U.S. Cl. 339—186

4 Claims



Removable key means for polarizing a multiple contact connector assembly for accommodating printed circuit boards whereof at least one key of flexural material is discretely formed to resiliently fit within respective spaced apart channels in a manner that the key can be easily inserted thereinto and resiliently retained therein to provide desired polarization of the assembly. The key is also formed with provisions to provide facile removal thereof when a change of polarization is desired.

3,566,341 CLUSTER ASSEMBLY AND CLIP THEREFOR

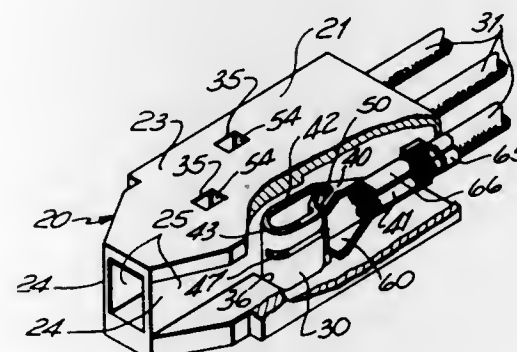
Sigmund J. Skony, Cincinnati, Ohio, assignor to Van Products, Incorporated, a corporation

Filed Dec. 26, 1968, Ser. No. 787,086

Int. Cl. H01r 33/72, 11/22

U.S. Cl. 339—192

4 Claims



An assembly of three connector clips, each adapted to be applied to one of a cluster of three pins to form an electrical connection, the assembly being particularly adapted for use with refrigeration compressors having a horsepower requirement of one-half or more horsepower.

3,566,342 MINIATURE CONNECTOR

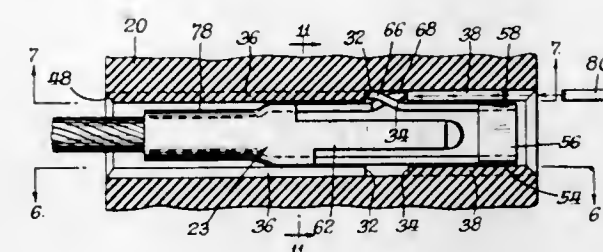
Karl F. Schmitt and Heinz Knitter, Delsenhofen, near Munich, Germany, assignors to The Bunker-Ramo Corporation, Oakbrook North, Ill., a corporation of Delaware

Filed Sept. 9, 1968, Ser. No. 758,541

Int. Cl. H01r 9/12

U.S. Cl. 339—217

12 Claims



Connector member including a block having cavities for receiving contacts, each cavity having shoulders directed longitudinally oppositely and disposed on opposite sides of a longitudinal center line, the contact having spring detents corresponding to the shoulders and engageable therewith, the contact being positively but releasably held in place, and the contact being insertable and removable through either end of the cavity; the shoulders being arranged in association with grooves which facilitate molding of the block.

3,566,343 ELECTRICAL CONNECTORS FOR TERMINATING LEADS OF MICRO-MODULAR COMPONENTS OR THE LIKE

Robert John Kinkaid, New Cumberland, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

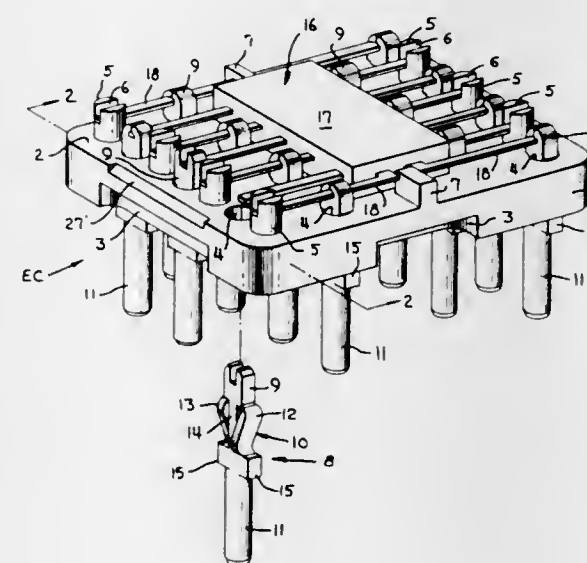
Original application Mar. 21, 1966, Ser. No. 535,939.

Divided and this application Aug. 26, 1968, Ser. No. 755,045

Int. Cl. H01r 5/08, 9/16

U.S. Cl. 339—221

2 Claims



An electrical terminal comprises a securing section having opposite sides and including undulating portions provided with curved edges extending at one end of the securing section to the other end and extending outwardly from the opposite sides at axially-spaced locations therealong. The undulating portions of the securing section bight into the wall of an aperture of a mounting panel thereby securing the terminal in position in the mounting panel.

3,566,344 ELECTRICAL CONNECTOR RECEPTACLES

Wladimiro Teagno and Franco Trevisol, Turin, Italy, assignors, by mesne assignments, to AMP Incorporated, Harrisburg, Pa., a corporation of New Jersey

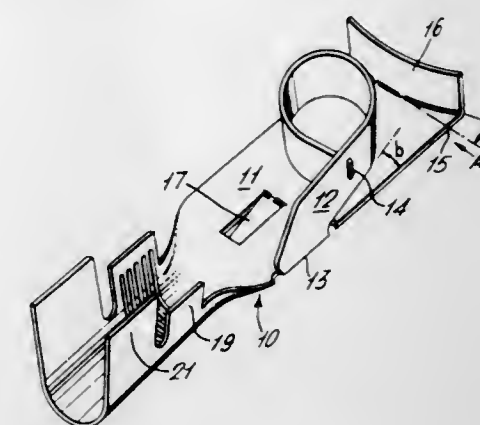
Filed May 6, 1968, Ser. No. 726,835

Claims priority, application Italy, May 15, 1967, 16,114/67

Int. Cl. H01r 13/12

U.S. Cl. 339—258

9 Claims



An electrical connector for engaging with the edge of a printed circuit board, tab or the like is made from one sheet of metal by bending up a spring portion which is at right angles to the plane of the connector and is curved in the direction of insertion of the board. A support part of the connector is also formed from the one piece of sheet metal and engages the nonconductive surface of the board.

3,566,345 SYSTEM FOR TRANSMITTING TO A VESSEL INFORMATION FROM A SUBMERGED UNIT TRAILING BEHIND THE VESSEL

Jean de Souza Lage, Saint-Firmin, France, and Claude Michel Bruneau, 1 Villa Marceau, Paris XIX°, France

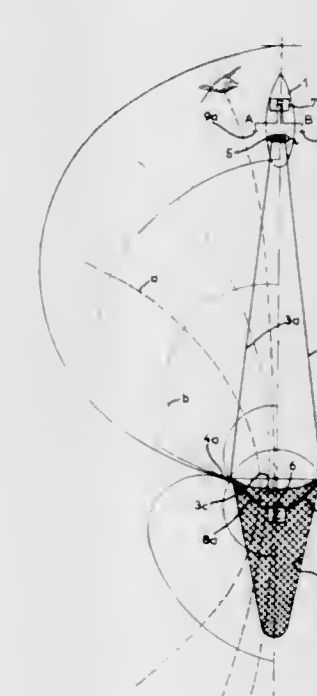
Filed Mar. 26, 1969, Ser. No. 810,534

Claims priority, application France, June 12, 1968, 154,732

Int. Cl. H04b 13/02

U.S. Cl. 340—4

11 Claims



The device of the invention comprises a gauge carried by the trawl and a receiver carried by the trawler. The gauge is constituted by a device for measuring the immersion depth of the trawl and by a transmit assembly for

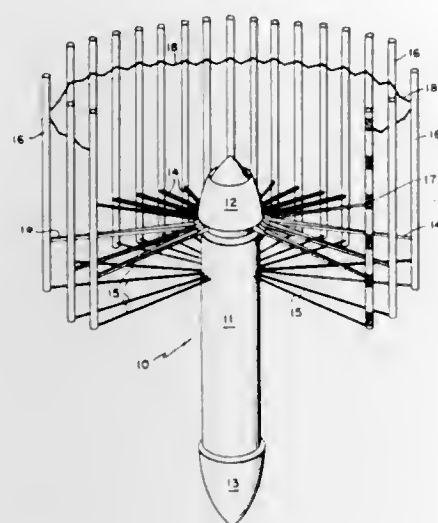
transmitting underwater electric signals, said transmit assembly comprising a dipole. The receiver comprises a dipole which is immersed and connected to the hull of the trawler.

3,566,346

TRANSDUCER ARRAY EXPANSION MECHANISM
John A. Scopatz, Woodland Hills, Calif., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed May 19, 1969, Ser. No. 825,588
Int. Cl. H04r 1/00

U.S. Cl. 340—8

8 Claims



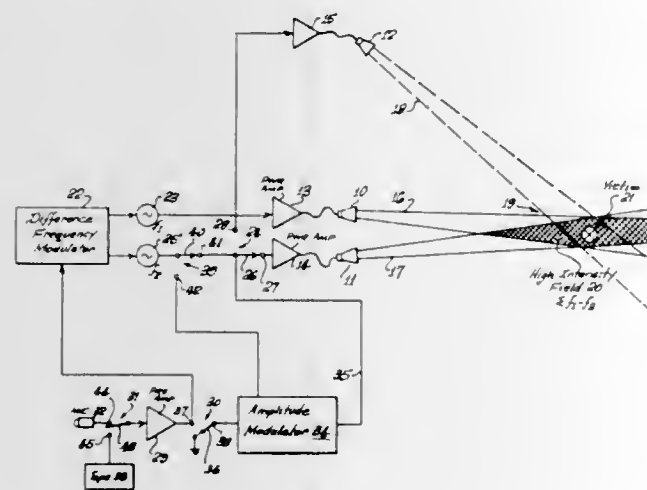
A unified sonar transducer array with an expansion mechanism employing triangular truss-type arms and a fail-safe mechanism which collapses the array upon loss of power.

3,566,347

PSYCHO-ACOUSTIC PROJECTOR
Andrew E. Flanders, Pomona, Calif., assignor to General Dynamics Corporation, a corporation of Delaware
Filed Apr. 27, 1967, Ser. No. 634,348
Int. Cl. H04b 11/00

U.S. Cl. 340—15

7 Claims



Broadly, this disclosure is directed to a system for producing aural psychological disturbances and partial deafness of the enemy during combat situations. Essentially, a high directional beam is radiated from a plurality of distinct transducers and is modulated by a noise, code or speech beat signal. The invention may utilize various forms and may include movable radiators mounted on a

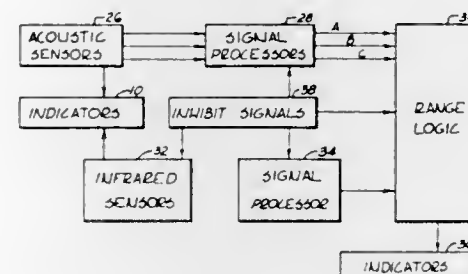
vehicle and oriented to converge at a desired point, independently positioned vehicles with a common frequency modulator, or means employed to modulate the acoustical beam with respect to a fixed frequency. During combat, friendly forces would be equipped with a reference generator to provide aural demodulation of the projected signal, thereby yielding an intelligible beat signal while enemy personnel would be rendered partially deaf by the projected signal as well as being unable to perceive any intelligence transmitted in the form of a modulated beat signal.

3,566,348

RANGE MEASURING SYSTEM
Robert D. Leyden, Costa Mesa, and Donald L. Knippel, Huntington Beach, Calif., assignors to Babcock Electronics Corporation, Costa Mesa, Calif., a corporation of Delaware
Filed May 16, 1969, Ser. No. 825,232
Int. Cl. G01s 11/00

U.S. Cl. 340—16

5 Claims



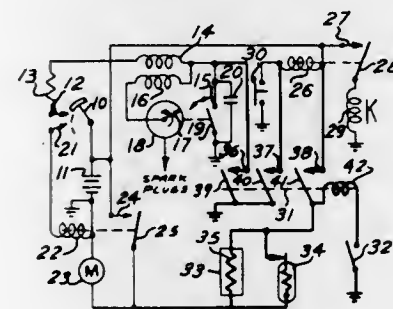
This invention relates to a range measuring system of the kind in which range is found by a computation based upon the difference in time of arrival at a measuring position of two signals initiated as an incident to occurrence of a distant event, the propagation velocities of which are different and are known. The embodiment illustrated and described senses infrared radiation and acoustic pressure waves which serve as signatures of the same event, measures the time difference of their arrival at the measuring point, and transforms that time information into distance information. The system also incorporates structures for indicating the direction in which the event occurred.

3,566,349

VEHICLE ANTI-THEFT SYSTEM
August F. Loeb, 800 Woodlawn Ave., Collingdale, Pa. 19023
Filed Oct. 25, 1967, Ser. No. 677,982
Int. Cl. B60r 25/04

U.S. Cl. 340—64

9 Claims



An auxiliary circuit package addable to the existing electrical circuitry of an internal combustion engine automotive vehicle including a multi-pole relay and arming switch, and optionally including a tear gas bomb and/or

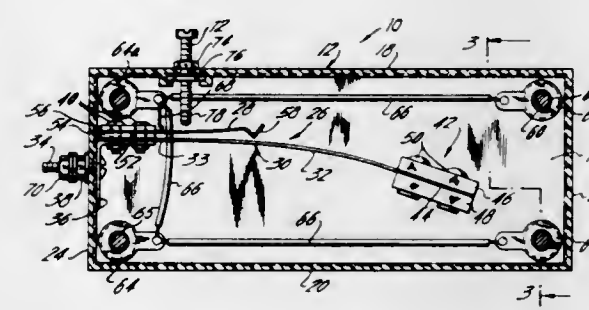
engine compartment latch lock, the bomb when used being dischargeable at a selected time into the vehicle driver occupant compartment. When the auxiliary is armed the engine compartment is locked and any attempt to then start the engine without first disarming the auxiliary circuit actuates the relay, thereby grounding the ignition coil primary winding to prevent ignition spark generation, continuously sounding the vehicle horn, and firing the tear gas bomb with or without a time delay. When disarmed the auxiliary circuitry has no effect whatever on the normal vehicle operation.

3,566,350

AUTOMOTIVE TAMPER ALARM
Robert D. Kahn, Rockville Centre, N.Y., assignor to Fedtro, Inc., Rockville Centre, N.Y., a corporation of New York
Continuation-in-part of design application Ser. No. 10,516, Feb. 9, 1968, now Patent No. 214,468. This application Mar. 27, 1968, Ser. No. 716,582
Int. Cl. B60r 25/00

U.S. Cl. 340—65

1 Claim



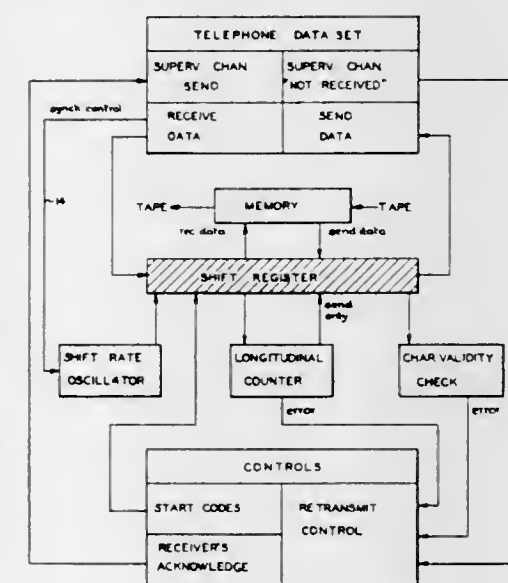
An alarm connected to an automobile to sound an alarm signal when tampering takes place with the automobile. The alarm includes a casing containing a switch with a pair of contacts, one of the contacts comprising an elongated flat spring arm. When the automobile is tampered with, the alarm will move causing the spring contact to vibrate and, in its movement, close with the other contact to complete an alarm circuit.

3,566,351

DATA COMMUNICATION APPARATUS
Torkjell Sekse, Marcy, and Walter Banziger, Utica, N.Y., assignors to Mohawk Data Sciences Corporation, Herkimer, N.Y., a corporation of New York
Filed May 5, 1967, Ser. No. 636,403
Int. Cl. H04l 1/10, 7/02

U.S. Cl. 340—146.1

18 Claims



Data communication apparatus for use with standard communication terminal facilities and operable as either

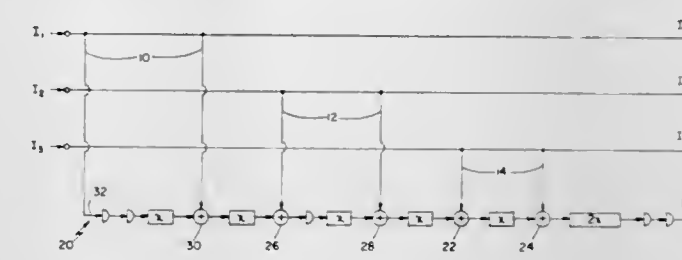
a transmitter or receiver. The apparatus provides a synchronizing system that is more tolerant of line distortions than other known asynchronous equipment. Synchronization of the receiver's oscillator with that of the transmitter occurs whenever there is a positive or negative change in the data being received. Special transmission codes are employed to guarantee changes at intervals of no more than four bit times. The special codes also provide a means for making effective alpha and numeric validity checks and result in increased data transmission speeds.

3,566,352

ERROR CORRECTION IN CODED MESSAGES
James Lee Massey, South Bend, Ind., assignor to Codex Corporation, Watertown, Mass., a corporation of Delaware
Filed Sept. 4, 1968, Ser. No. 757,323
Int. Cl. G06f 11/12; G08c 25/00

U.S. Cl. 340—146.1

7 Claims



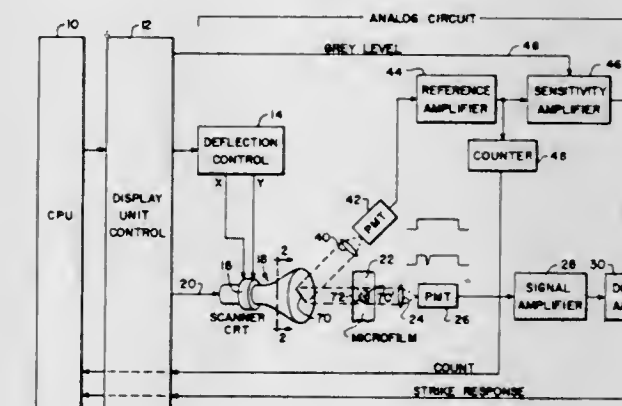
Error correction in convolutionally coded messages, using a plurality of information digit streams and a single parity digit stream with each information digit being included as a component in the defining summation for exactly two parity digits spaced apart by a certain number of time intervals (a time interval being defined to include a digit from each stream), the time interval spacing between the two parity digits being the same for each information digit in a given stream but different for each stream, the spacing being longer than the design correctable burst length but shorter than twice the design correctable burst length for all but at most one of the information digit streams.

3,566,353

PRECISION CATHODE RAY TUBE SCANNER WITH REFERENCE GRID NETWORK
Richard G. Gray, West Hurley, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Jan. 15, 1968, Ser. No. 697,736
Int. Cl. G06k 9/00

U.S. Cl. 340—146.3

12 Claims



A cathode ray tube with a light emitting coating on its face is illuminated by an electron beam selectively controlled to scan any desired pattern on the face of the

cathode ray tube, a document disposed in the path of the light emitted from the face of the CRT, a light responsive device responsive to light passing through the document to detect a change in light intensity thereby to indicate that a point on the character has been detected, an opaque grid pattern disposed on the inner face of the cathode ray tube, another light responsive device disposed to receive light directly from the light emitting face of the cathode ray tube and sense changes of intensity created as the electron beam crosses any segment of the opaque grid pattern, and circuit means responsive to the first and second light responsive devices to provide signals which are used to locate a detected point on a character with respect to the grid pattern.

3,566,354

CONTOUR PATTERN SCANNER

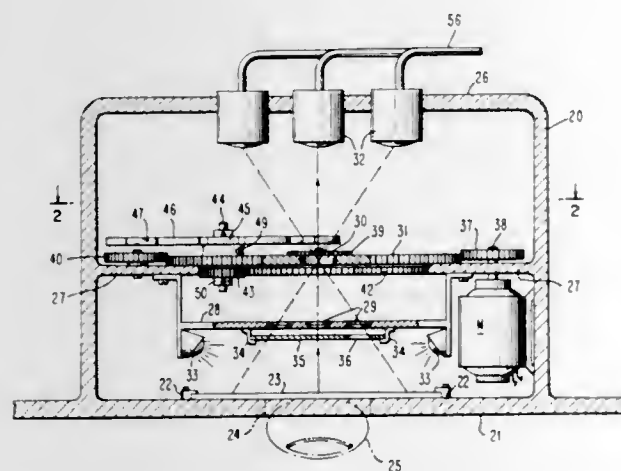
Walter K. French, Montrose, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed July 14, 1967, Ser. No. 653,564

Int. Cl. G06k 7/10

U.S. Cl. 340—146.3

3 Claims



A fingerprint scanner chops images with a notched disk geared to rotate and orbit. The basic electrical chopper output is sinusoidal. Several parallel lines such as print ridges yield a higher frequency superimposed on the regular frequency.

3,566,355

SUPERVISORY CONTROL SYSTEM

Lawrence R. Smith, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Mar. 7, 1968, Ser. No. 711,430

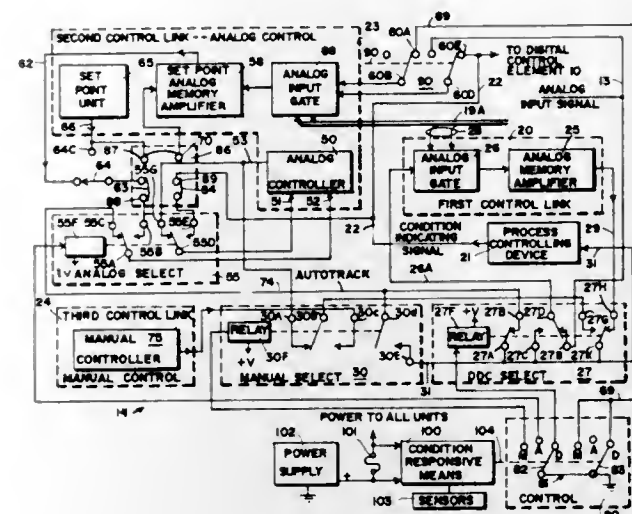
Int. Cl. H03f 1/14

U.S. Cl. 340—147

4 Claims

A supervisory control system having three independent control links. A first one of the control links embodies direct digital control; the second, automatic or semiautomatic analog control; and the third, manual control. Each control link can independently supply a signal to direct a process being controlled. The first control link includes an analog memory amplifier receiving analog signals from a central control unit and supplying an output analog control signal. The second control link comprises a known type analog controller controllable by an analog memory amplifier which is preset during digital control receiving a signal indicating the first controller analog signal as the variable input such that transfer between the first controller and the second controller is "bumpless." The first and second control links also receive the same variables when the system is under manual control to facilitate bumpless transfer from manual control to analog or digital control. The process-variable signals are returned to

a digital control unit which integrates the variables in the system. The analog control signal from a digital control



unit is multiplexed to a plurality of process-control stations, each of which has three independent controllers. Address selection is provided.

3,566,356

MAGNETIC RECORDING DOCUMENT AND METHOD

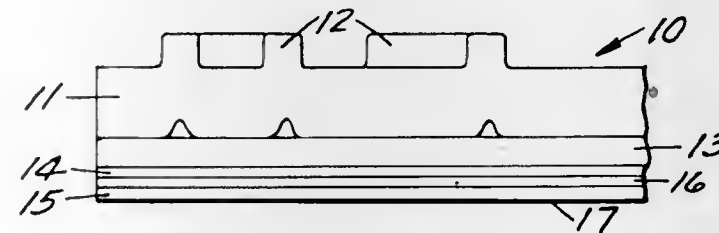
John D. Holm and Peter J. Vogelgesang, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed Feb. 29, 1968, Ser. No. 709,296

Int. Cl. G11b 5/62

U.S. Cl. 340—149

16 Claims



A document such as a credit card or transportation ticket has a subsurface magnetic recording medium for electronic processing of information associated with use of the document. The recording medium either by itself or in a composite with other magnetizable material in the document has an A.C. demagnetization curve of gradual slope which lends itself to a unique and economical test for validity as a safeguard against counterfeiting. The gradual demagnetization curve is conveniently achieved through the use of magnetizable particles of two distinctly different coercivities.

3,566,357

MULTI-PROCESSOR MULTI-PROGRAMED COMPUTER SYSTEM

Andrew T. Ling, Collingswood, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed July 5, 1966, Ser. No. 562,639

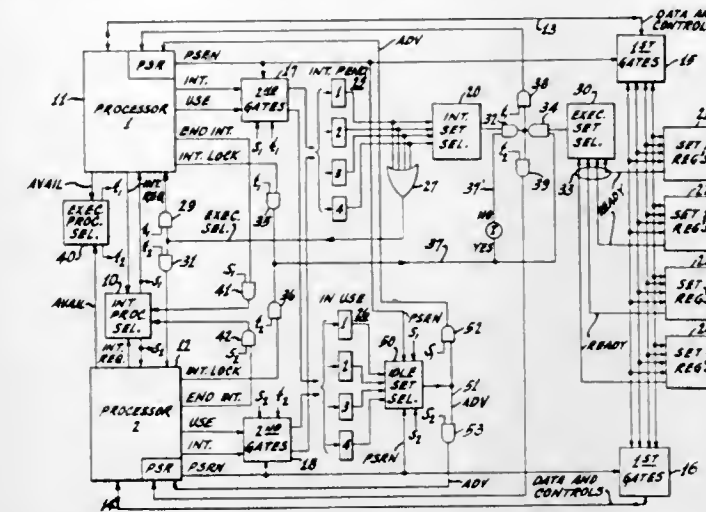
Int. Cl. G06f 9/18, 15/16

U.S. Cl. 340—172.5

4 Claims

A computer system including at least two processors having access to a main memory, a plurality of sets of program execution registers for use in the execution of respective programs, and a controller. The controller

supervises the connections between the processors and the sets of program execution registers to keep the proc-



essors most efficiently utilized in successively executing parts of a number of programs stored in the main memory.

3,566,358

INTEGRATED MULTI-COMPUTER SYSTEM

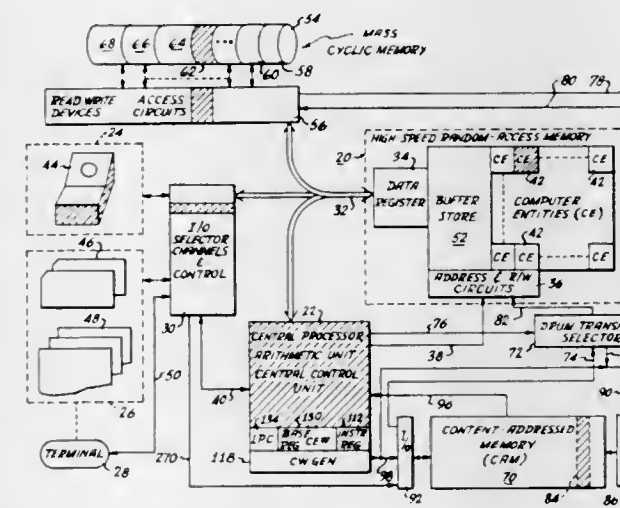
Bevier Hasbrouck, 314 Lafayette Ave., Swarthmore, Pa. 19081

Filed Mar. 19, 1968, Ser. No. 714,201

Int. Cl. G06f 15/16

U.S. Cl. 340—172.5

51 Claims



A multi-computer system employs a mass cyclic storage, such as a magnetic drum, as the main system memory, and it comprises a plurality of independent computer entities that operate with a common central processor on a time-sharing basis. Each computer entity comprises a small plurality of registers from the random access memory. A content-addressed memory controls the assignment of the central processor to the computer entities and controls the drum transfers of data and instruction signals to and from the computer entities; these transfers are scheduled so that, over each memory cycle, a plurality may be performed with minimal latency. The central processor, upon completing the processing for a particular computer entity, supplies the content-addressed memory with the addresses for the drum transfer and calls for the next computer entity to be processed.

3,566,359

TRAINABLE COMPUTER MODULE

Edward M. Connelly, Springfield, Va., assignor to Melpar, Inc., Falls Church, Va., a corporation of Delaware

Filed Apr. 17, 1968, Ser. No. 722,076

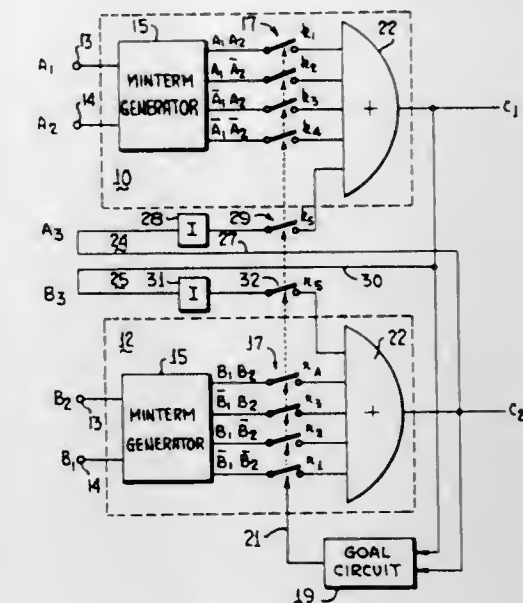
Int. Cl. G06f 15/18

U.S. Cl. 340—172.5

16 Claims

A trainable logic circuit capable of organization to provide combinatorial logical functions and memory func-

tions according to a desired objective, includes as a part of the minimal circuit structure sufficient to produce any of the desired functions a pair of dual input-single output trainable logical networks of the type in which minterm products representing all combinations of the input variables are formed and directed to statistical switches which in turn provide connectives for passing (or blocking) the



respective functional combination to an OR gate supplying the network output. The memory function for the trainable logic circuit is provided by feedback circuits cross-coupling the output terminal of each network to an input terminal of the other. Training signals are supplied to the circuit switches as desired to force the circuit toward the implementation of a desired function.

3,566,360

CONTROL SYSTEM FOR COORDINATING OPERATION OF A PLURALITY OF ASYNCHRONOUSLY OPERATED PERIPHERAL DATA TRANSMITTING AND RECEIVING DEVICES

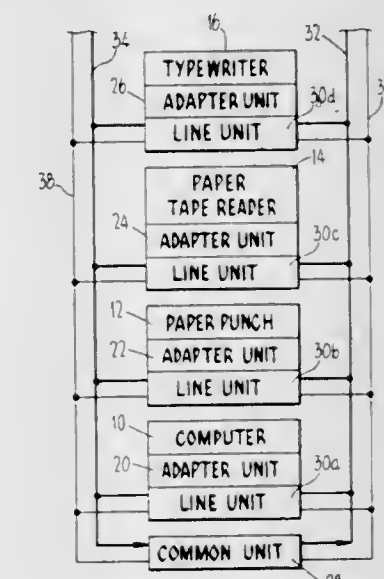
Francois J. J. M. Stollman and Jan Krammer, Nijmegen, and Theunis Brinkman, Bommel, Netherlands, assignors to The Singer Company, a corporation of New Jersey

Filed Apr. 30, 1968, Ser. No. 725,471

Int. Cl. G06f 3/00, 9/18

U.S. Cl. 340—172.5

1 Claim



A plurality of data receiving and/or transmitting devices such as, for example, an electronic central processor, a magnetic type handler, a paper tape reader/punch, a magnetic disc, and the like, commonly termed peripherals

or satellites, each of which may have data receiving or transmitting speeds different from the others, are coupled together through a central or common control means for integrating or controlling communication of the peripherals with each other. Each satellite has associated therewith a line unit or control means for transmitting and receiving control and data signals between the satellite and the common control unit, each line unit being identical to the other line unit.

3,566,361 DATA MANAGEMENT COMPUTER DRIVEN DISPLAY SYSTEM

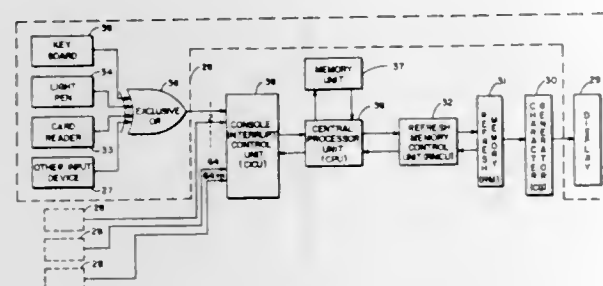
Donald C. Lavertu, Bedford, and Donald L. Hupfer and Louis F. Majchrzak, Reeds Ferry, N.H., assignors to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware

Filed July 9, 1968, Ser. No. 743,469

Int. Cl. G06f 3/14

U.S. Cl. 340—172.5

19 Claims



Logic is provided between computer and display to save main memory storage space while providing automatic protection from loss of identity of permanently stored characters such as those contained in a fixed form. A compressed form is sent from memory to display in uncompressed form by means of logic which allows variable lengths of spaces to be stored by a single character. Format control characters are utilized to determine word blocks while providing protection of characters from loss of identity.

Once the permanent characters composing the form are presented on any one of several displays, an operator may fill in the form with variable data. The "write" location, as represented by a cursor, is controlled in conjunction with the memory saving and protect features of the system such that the cursor location of a display terminal is automatically stored each time a character is written. In addition, other cursor control functions are utilized with the system.

Means are shown to compress the variable data for storage in order to further save memory space. Logic between the computer and the display also enables the recall of fixed format characters and variable data stored in separate locations such that they are sent to the display in an interlaced manner.

Additional features are shown whereby edit control characters may be self-protecting without the use of format control characters. Also, means are shown whereby program information for specific program use may be self-protecting and inserted in the unprotected word blocks without being displayed upon recall.

3,566,362 PROGRAM EXECUTION CONTROLLER

Alan E. Taylor, 633 Central St., Framingham Center, Mass. 01701

Filed July 15, 1968, Ser. No. 744,775

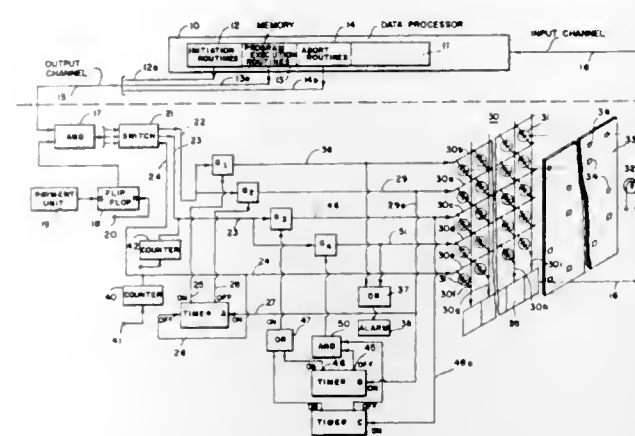
Int. Cl. G06f 9/00

U.S. Cl. 340—172.5

10 Claims

A controller, installed as equipment separate from a main data processor, receives signals from the processor

upon initiation of selected parts of the data processor program, and supplies appropriate data to the processor to permit the processor program to proceed, or to prevent



the processor program from proceeding further, in dependence upon control settings previously made in the controller.

3,566,363 PROCESSOR TO PROCESSOR COMMUNICATION IN A MULTIPROCESSOR COMPUTER SYSTEM

Graham C. Driscoll, Jr., Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

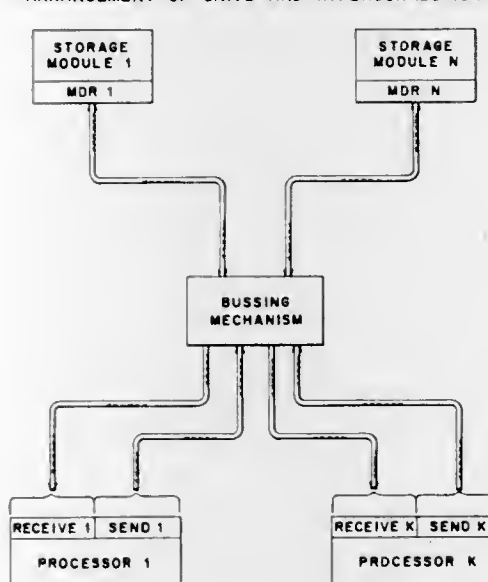
Filed July 11, 1968, Ser. No. 744,185

Int. Cl. G06f 15/16

U.S. Cl. 340—172.5

8 Claims

ARRANGEMENT OF UNITS AND INTERCONNECTIONS



In a multiprocessor computer system, a mechanism is provided allowing individual processor units to communicate with each other via the existing storage bus mechanism. Hardware and controls are provided within the individual processors, the bussing mechanism and within the storage modules whereby a given processor may send a message over the storage bus to the storage module and the storage module controls will initiate communication with the indicated processor unit upon the receipt of such a message.

3,566,364 DATA PROCESSOR HAVING OPERATOR FAMILY CONTROLLERS

Erwin A. Hauck, Arcadia, Calif., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed July 19, 1968, Ser. No. 746,121

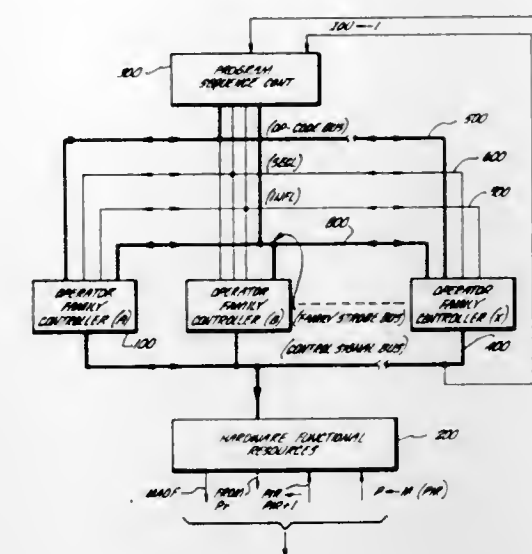
Int. Cl. G06f 9/00, 9/18

U.S. Cl. 340—172.5

29 Claims

A data processor has a number of different physically separate operator family controllers, each for forming

control signals predetermined by an operator provided thereto. A common functional resources apparatus ma-



nipulates data responsive to control signals from any one of the family controllers. A program controller provides operators to the family controllers for execution.

3,566,365 MULTIPHASIC MEDICAL SCREENING SYSTEM

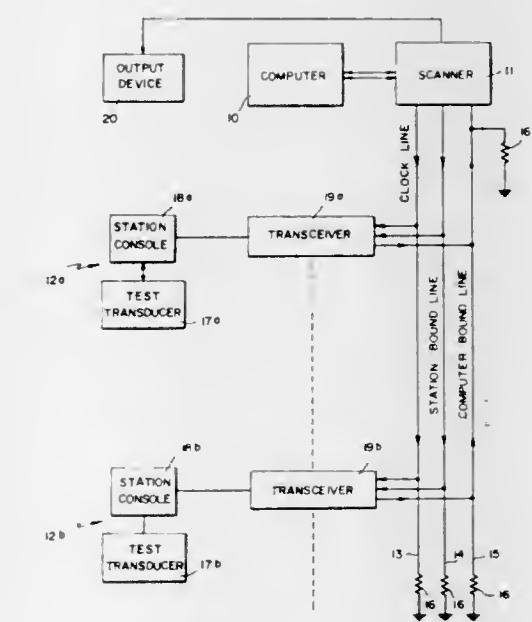
Edward B. Rawson, Lincoln, Daniel B. Schwarzkopf, Stow, Joseph B. Ferguson, Harvard, and Jay H. Ball, Natick, Mass., assignors to Searle Medidata, Inc., Waltham, Mass., a corporation of Delaware

Filed Sept. 12, 1968, Ser. No. 759,389

Int. Cl. G06f 15/02, 15/42

U.S. Cl. 340—172.5

11 Claims



A multiphasic medical screening system in which medical data concerning a patient is derived by suitable transducers and transmitted and processed in real time to produce a medical history and workup of the patient. A plurality of testing stations are provided, each implemented to conduct a particular test or tests, and the stations are selectively polled by a central processor to communicate data to the stations and to receive data from the stations.

3,566,366 SELECTIVE EXECUTION CIRCUIT FOR PROGRAM CONTROLLED DATA PROCESSORS

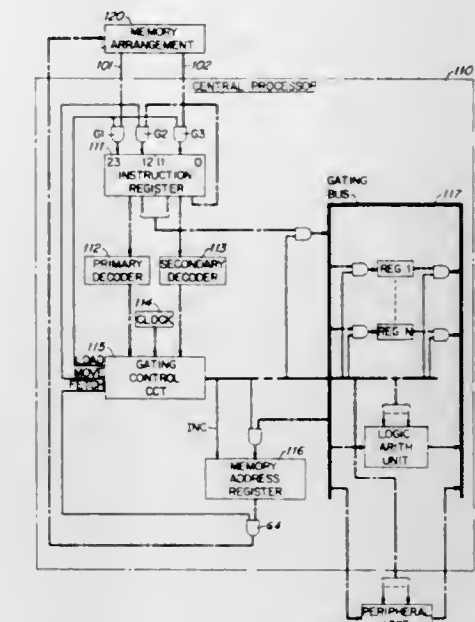
Thomas M. Quinn, West Chicago, and John E. Yates, Glen Ellyn, Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Oct. 25, 1968, Ser. No. 770,718

Int. Cl. G06f 9/06

U.S. Cl. 340—172.5

5 Claims



In a stored program computer employing both half word length instructions and full word length instructions, a circuit arrangement is disclosed for selectively omitting execution of no-operation half word length instructions. The second instruction of a pair of half word length instructions is decoded during execution of the first instruction of the pair and an output signal is generated when the second instruction is a no-operation instruction. The output signal causes the computer to obtain a next instruction word or pair of instruction words from memory without execution of the no-operation instruction.

3,566,367 SELECTION CIRCUIT

Peter A. E. Gardner, Winchester, Michael H. Hallett, Chandler's Ford, and Peter J. Titman, Winchester, England, assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

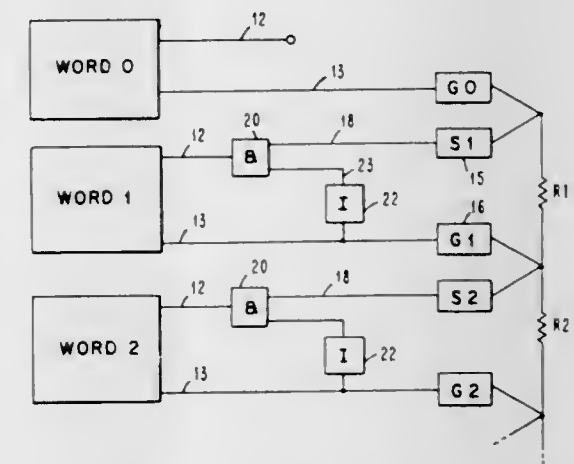
Filed Feb. 20, 1969, Ser. No. 800,974

Claims priority, application Great Britain, Mar. 1, 1968, 9,989/68

Int. Cl. G11c 15/00

U.S. Cl. 340—172.5

9 Claims



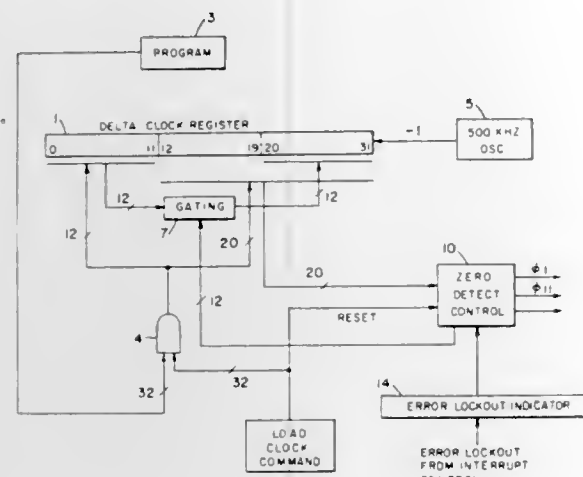
This invention provides an associative memory (or other ordered array of electronic circuits) with means for

stepping from word to word through the array for certain operations and a novel circuit for bypassing defective words. An array with defective components remains operable at a reduced capacity.

3,566,368

DELTA CLOCK AND INTERRUPT LOGIC
Melvin J. De Blauw, West St. Paul, Minn., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed Apr. 22, 1969, Ser. No. 818,373
Int. Cl. G06f 1/04
U.S. Cl. 340—172.5

3 Claims

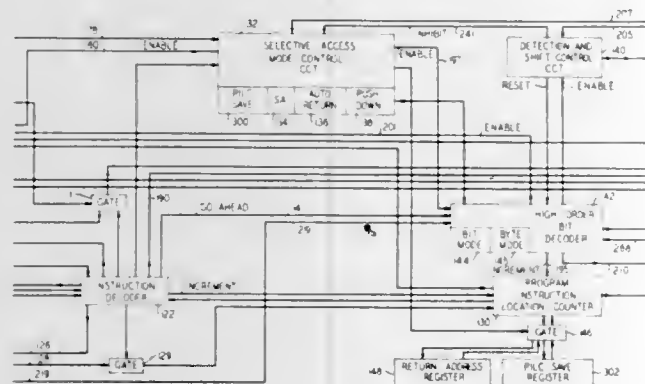


A delta clock system is provided to indicate if a particular task has exceeded a predetermined time limit. However, the clock system contains additional restart time which will be used the first time the clock runs out. At this time a soft interrupt request is generated. The second time the clock runs out a hard interrupt request will occur, and if there is an error lockout signal present, a stop signal will be sent. If there is no lockout signal, the additional time is provided once again, and if the program does not reset the clock or the interrupt routine is not complete, a stop signal will be generated at the end of the second additional time.

3,566,369

INFORMATION PROCESSING SYSTEM UTILIZING REPEATED SELECTIVE EXECUTION OF IN-LINE INSTRUCTION SETS
Thomas J. Chinlund, New York, N.Y., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed May 1, 1969, Ser. No. 820,822
Int. Cl. G06f 9/00, 9/12
U.S. Cl. 340—172.5

12 Claims



A basic selective access system as heretofore proposed is adapted to achieve repeated selective execution (looping through) of in-line instruction sets. Such operation

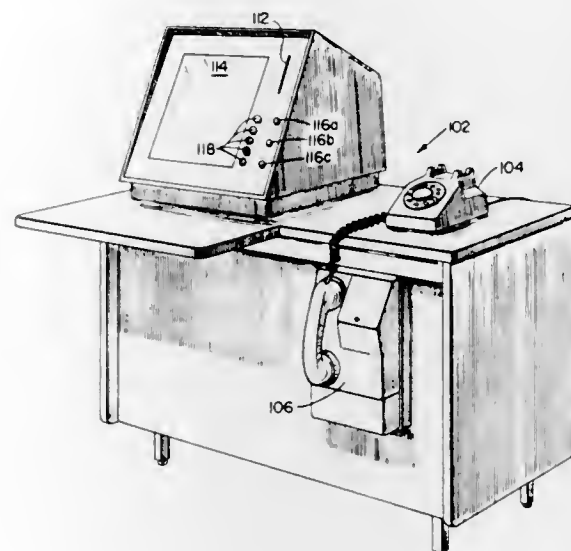
requires that multiple registers be loaded with selection information that includes a jump-mode representation. This disclosure is directed to a modification of such a basic system. The modified system is characterized by a program-instruction-location-counter-save capability that allows the selection information required to accomplish looping to be reduced, simplified and modularized.

3,566,370

AUTOMATED MEDICAL HISTORY TAKING SYSTEM

Harvey R. Worthington, Jr., Cambridge, and Daniel B. Schwarzkopf, Stow, Mass., assignors to Searle Medidata, Inc., Waltham, Mass., a corporation of Delaware
Filed June 10, 1969, Ser. No. 831,930
Int. Cl. G06f 15/02, 15/42; G03b 23/06
U.S. Cl. 340—172.5

12 Claims

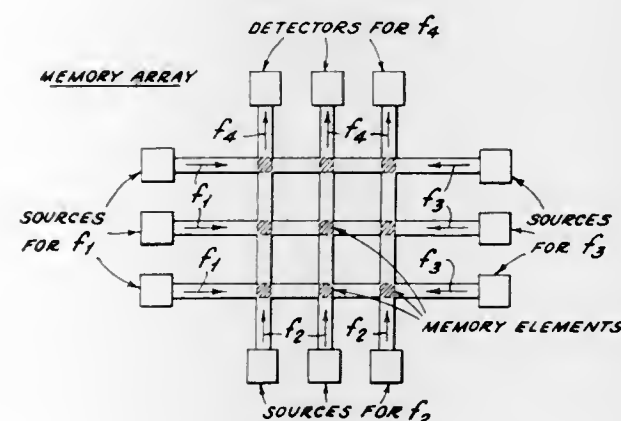


An automated real time system for taking a detailed medical history of a patient. This system comprises a console by which questions are propounded under computer control in a manner responsive to answers given and the history data is assembled and printed out in narrative form for use by the physician.

3,566,371

QUANTUM STATE MEMORY
Frank S. Barnes, 225 Continental View Drive, Boulder, Colo. 80303
Filed Dec. 21, 1967, Ser. No. 692,425
Int. Cl. G11c 13/04; G02b 1/06
U.S. Cl. 340—173

14 Claims



A quantum state memory is described made up of a matrix suitable for conducting electromagnetic radiation along the paths of the matrix to the intersecting points. A suitable material is located at the intersecting points

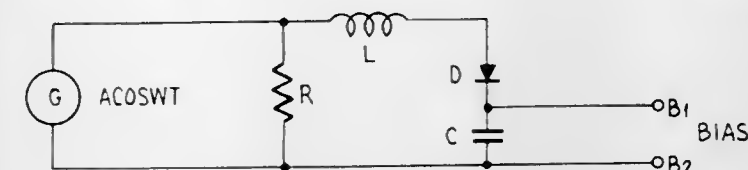
characterized by two quantum states which may be generated by atoms, molecules, or ions in liquids, solids, or gases. The switching between the quantum states is accomplished by subjecting the material at the intersecting points to electromagnetic radiation at two frequencies, in one case, and at a single frequency in the opposite case. Detection means are provided to determine the quantum state.

3,566,372

NONLINEAR SYSTEMS FOR DIGITAL SWITCHING STORAGE AND CONTROL

Frank Hirst, Kew, Victoria, and Peter George Thorne, Parkville, Victoria, Australia, assignors to The University of Melbourne, Parkville, Victoria, Australia, a corporation of Australia
Filed Mar. 4, 1968, Ser. No. 710,368
Int. Cl. G11c 11/20, 11/36
U.S. Cl. 340—173

22 Claims



A nonlinear system for use as logical switching or storage elements, or elements for the control of signals and which mathematically conforms to a nonlinear differential equation and specifically to

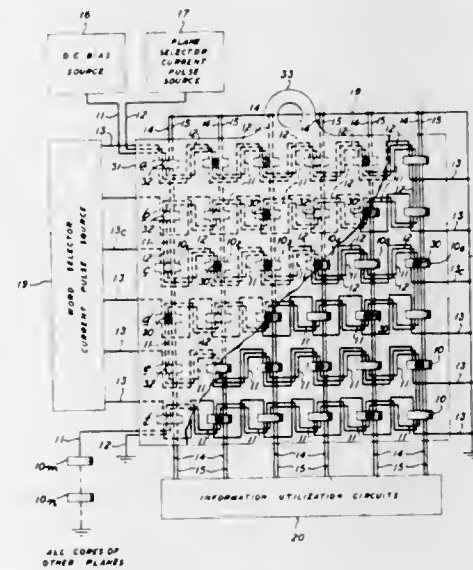
$$\ddot{y} + 2K\dot{y} + (\pi^2/8)\epsilon(y^2 - 1) = \gamma \cos \pi t$$

where $0 < \epsilon \leq 32.0$; $\epsilon = 4/p^2$, p is the ratio of forcing frequency to the fundamental frequency, K is proportional to the damping, $y^2 - 1$ is proportional to the nonlinear restoring force and γ represents the forcing amplitude; the system being arranged to be in at least two separate states and which can be changed from one to another of these states by variation of one of the parameters. The states are normally defined by positions on a hysteresis curve associated with the appearance and disappearance of subharmonic oscillations.

3,566,373

MAGNETIC CORE MEMORY CIRCUITS
Stanton M. Shackell, deceased, late of Mountainside, N.J., by Janice J. Shackell, administratrix, Fanwood, N.J., assignor, by mesne assignments, to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Jan. 10, 1958, Ser. No. 708,127
Int. Cl. G11c 5/02, 11/06, 17/00
U.S. Cl. 340—174

28 Claims



20. A magnetic storage device comprising a plurality of magnetic elements arranged in rows and columns to

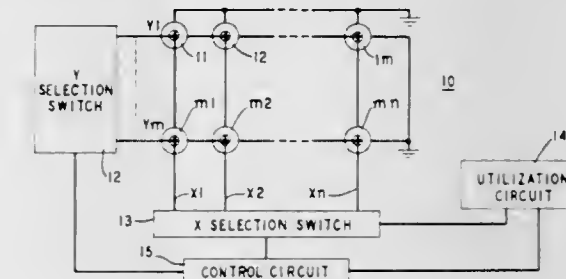
form a matrix, said magnetic elements each being constituted of ferromagnetic material and possessing two stable opposite remanence states, a reading conductor coupled to each magnetic element, and means for permanently recording information in said device by disabling selected elements of the matrix, said disabling means including a plurality of permanent magnets each capable of premagnetizing one of said magnetic elements when in close proximity thereto and thus effectively removing the said premagnetized element from the matrix, and means for bringing said permanent magnets each into the close proximity of one of said selected elements.

3,566,374

NONDESTRUCTIVE READ MAGNETIC MEMORY ARRANGEMENT

Peter I. Bonyhard, Newark, Umberto F. Gianola, Florham Park, and James L. Smith, Bedminster, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Nov. 29, 1968, Ser. No. 780,126
Int. Cl. G11c 5/02, 11/06
U.S. Cl. 340—174

7 Claims



channels of a conductor network. Diode means are provided in the channels to block signal pulses in unselected channels and to protect the sense amplifier from high energy pulses generated by the bit driver when write operations are performed in the memory bit sense lines. The bit-sense lines of the memory device are connected to the various channels by transformer coupling. Voltage switches operated by logic circuitry are connected to the transformer windings to effect the connection of the bit driver and the sense amplifier to the desired memory channel to perform read/write operations in the memory device.

3,566,376

MULTIPLE-ELEMENT STORAGE DEVICES

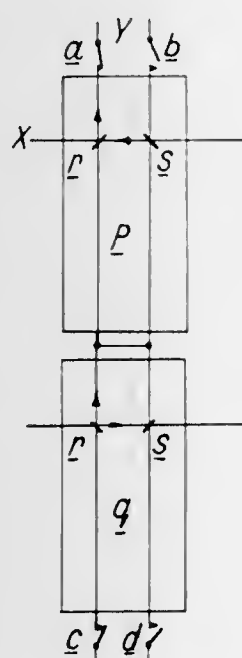
John David Reynolds, Bracknell, England, assignor to Ferranti, Limited, Hollinwood, Lancashire, England, a company of Great Britain and Northern Ireland

Filed Dec. 11, 1967, Ser. No. 689,502

Int. Cl. G11c 5/08, 7/00, 11/06

U.S. Cl. 340—174

4 Claims



A magnetic core store comprises a number of pairs of bit planes each having separate sense wires. Each column conductor passes through cores in both planes of a pair, and pairs of column conductors are interconnected at a point between the two planes of a pair.

3,566,377

MAGNETIC CORE SCANNING CIRCUITRY

Pierre M. Lucas, 20 Rue Tariel, Issy-les-Moulineaux 92, France; Jean F. Duquesne, 120 Rue de Javel, Paris 75, France; Roger L. Courtois, 65 Ave. Paul Vaillant Couturier, Gentilly 94, France; and Charles E. Abraham, 114 Elysees II, La Celle-Saint-Cloud 78, France

Filed Feb. 18, 1969, Ser. No. 800,047

Claims priority, application France, Feb. 20, 1968, 140,585

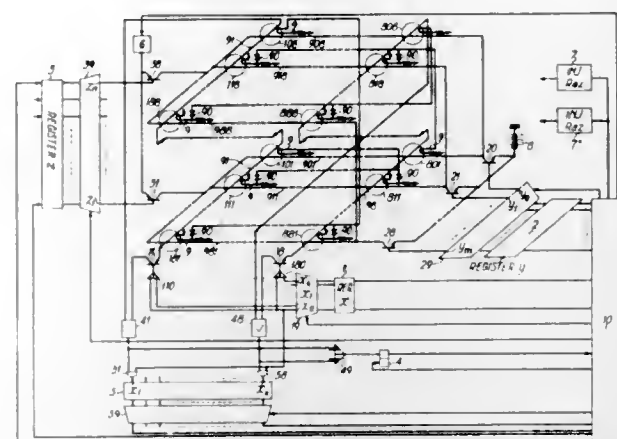
Int. Cl. G11c 5/02, 11/06; G01r 19/16

U.S. Cl. 340—174

3 Claims

Scanning device for testing the states of a large number of external electrical circuits which have an operative and an inoperative state. The device comprises a tridimensional cubic matrix of rectangular hysteresis loop magnetic cores, ones called individual cores which are connected to the external electrical circuits and the other called group cores which are connected in parallel to a plurality of external electrical circuits. Each group core corresponds to

a line of individual cores and a line of group cores corresponds to a plane of individual cores. There is a correlation between two of the coordinates of a group core (the third coordinate being constant) and the two coordinates defining the corresponding line of individual cores. Means are provided for reading-out a line of group cores and



registering the coordinates of those of the group cores of the line which are operating and then for reading-out the lines of individual cores defined by the coordinates correlated to the coordinates of the operating group cores.

3,566,378

BAR-CORE STORAGE

Lorenz Hanewinkel, Paderborn, Germany, assignor to Nixdorf Computer Aktiengesellschaft, a corporation of Germany

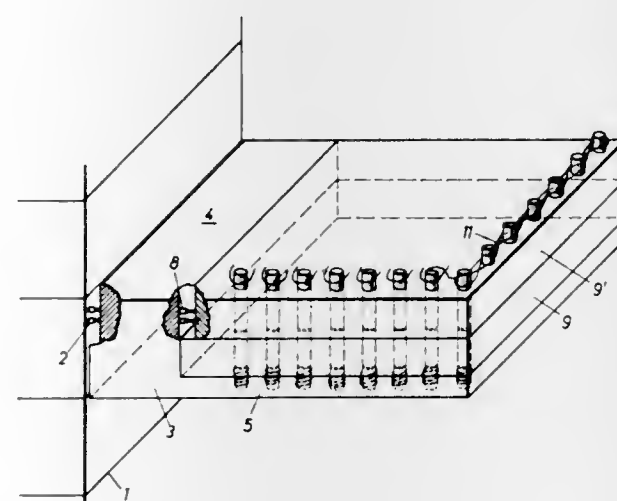
Filed Dec. 30, 1968, Ser. No. 787,747

Claims priority, application Germany, Feb. 2, 1968, P 15 74 520.7

Int. Cl. G11c 11/04; H01f 7/06; H02b 1/04

U.S. Cl. 340—174

3 Claims



Bar-core storage comprises plurality of stacked, panel-like wiring chambers, and at least one panel-like read-winding chamber. Each chamber has openings in alignment with corresponding openings in other chambers, and bar-core sections are accommodated within the openings. Information wires surround the openings of the wiring chambers, and read windings surround the openings of the read-winding chamber. Plugs project from narrow edge of each chamber, and extend in plane of chamber. No part of any chamber extends beyond the top and bottom walls of that chamber.

3,566,379

SHAPED MAGNETIC DRIVE FIELDS FOR MEMORY OPERATION

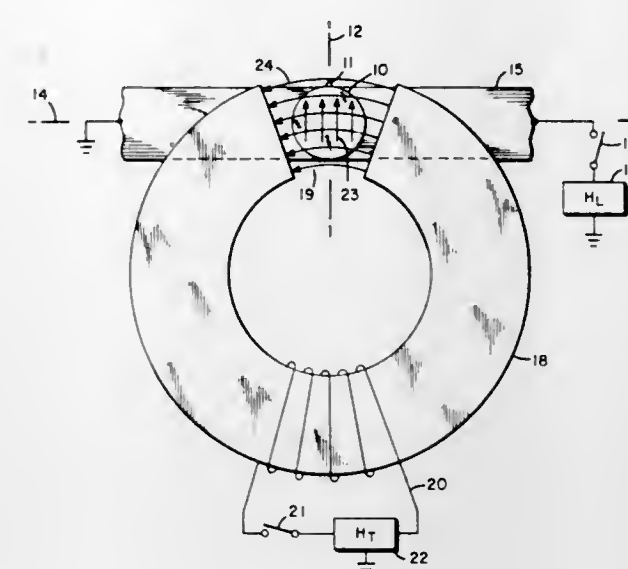
Maynard C. Paul and Paul E. Oberg, Minneapolis, Minn., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed Mar. 5, 1969, Ser. No. 804,506

Int. Cl. G11c 11/14, 27/00

U.S. Cl. 340—174

18 Claims



Methods of and apparatus for generating shaped magnetic drive fields for operating a thin-ferromagnetic-film memory element having uniaxial anisotropy and small, e.g., α_{90} approximately 2 degrees, easy axis dispersion. Shaped conductors are inductively coupled to the memory element for alternatively providing an effective dispersion of the hard axis, or easy axis, drive field. The arrangement is utilized as an analog storage device in one embodiment by concurrently coupling to the memory element: a continuously varying amplitude analog signal that generates a corresponding magnetic easy axis H_L drive field magnitude variation; and, a constant magnitude hard axis H_T drive field of a magnitude equal to or greater than H_K of the memory element and that is directionally curved, or shaped, for temporarily orienting the element's magnetization directions across its planar dimensions in a uniformly varying pattern. When the hard axis drive field is decoupled from the memory element the memory element's varying biased magnetization, due to the shaped hard axis drive field, is set into a partially switched remanent state, or flux level, which level is representative of the amplitude of the analog signal at the instant the hard axis drive field is decoupled, or removed, from the memory element.

3,566,380

TRAVELING DOMAIN WALL MEMORY SYSTEM APPARATUS

Philip E. Shafer, Holmes, Pa., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Original application Feb. 1, 1968, Ser. No. 702,254, now Patent No. 3,493,940, dated Feb. 3, 1970. Divided and this application July 10, 1969, Ser. No. 862,104

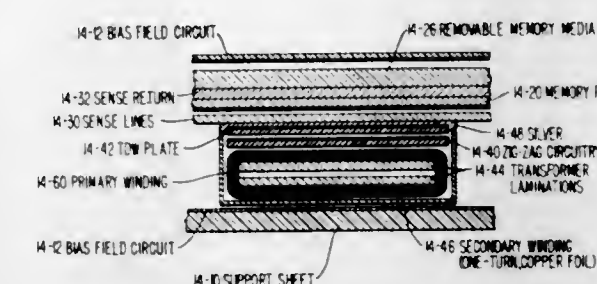
Int. Cl. G11b 5/00

U.S. Cl. 340—174

4 Claims

The present application discloses a memory system apparatus such as might be utilized to store binary digital information in a digital processing system. The apparatus includes means for utilizing the travel of a magnetic domain wall through a magnetic medium to thereby provide a memory replacement for revolving magnetic medium drums and disks as well as for rotating magnetic tapes. The present apparatus provides the basic capability of

these earlier devices while eliminating all mechanical movement. Further, it accomplishes this feat with a



memory system apparatus which has removable magnetic media.

3,566,381

DATA STORAGE MEANS HAVING BOTH FIXED AND REMOVABLE RECORD DISK MEANS

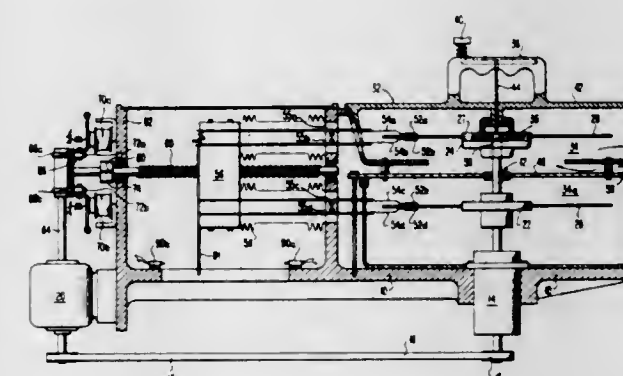
Walter S. Buslik, San Jose, and Ralph E. Marrs, Campbell, Calif., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Sept. 15, 1967, Ser. No. 667,941

Int. Cl. G11b 3/36, 17/26, 19/22

U.S. Cl. 340—174.1

12 Claims



A device for moving a carrier employs perpendicularly disposed shafts, one carrying a flexible disk and the other spaced wheels. A carriage is mounted to one of the shafts, which is threaded, and, when one of the wheels is made to contact the flexible disk, the carriage is transported in a desired direction. When used in a random access magnetic disk file, the carriage supports at least one magnetic head assembly for bidirectional movement relative to the magnetic record disk. The disk file disclosed herein uses a fixed magnetic disk and a removable, replaceable magnetic disk, both seated to the same spindle assembly.

3,566,382

SYSTEM FOR TRANSFER OF DIGITAL DATA BETWEEN A MOVABLE STORAGE MEDIUM AND STATIONARY STORAGE FACILITIES

Reaman P. Niquette, Corona Del Mar, Calif., assignor to Scientific Data Systems, Inc., Santa Monica, Calif., a corporation of Delaware

Filed Dec. 21, 1967, Ser. No. 692,521

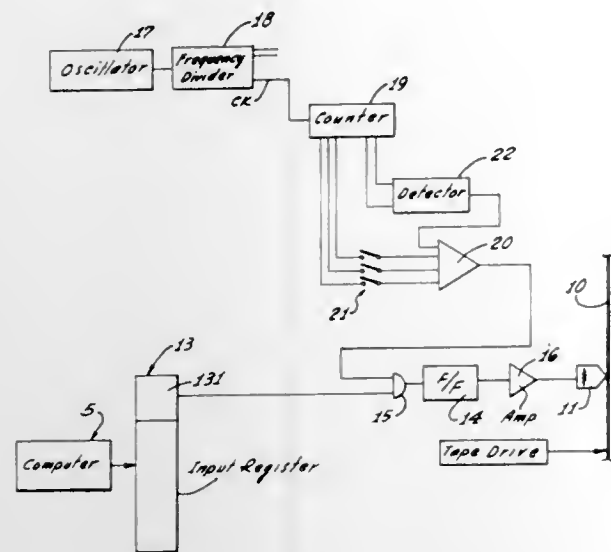
Int. Cl. G11b 5/44, 27/02

U.S. Cl. 340—174.1

38 Claims

Record and reproduce skew is analyzed and digital means are suggested for correction employing counters for counting pulses having frequency considerably in excess of the recorded and reproduced character rate. The numbers to be counted may differ from digit channel to

digit channel in representation of skew. The transfer of signals between record or reproduced transducers and register storage is timed in accordance with the counting. Signal peaks are digitally recognized by counting



the pulses for periods during which reproduced signals exceed a threshold, half the respective count number fixes the time of peak occurrence. Bit crowding is corrected by modifying count numbers representing peak occurrence.

3,566,383

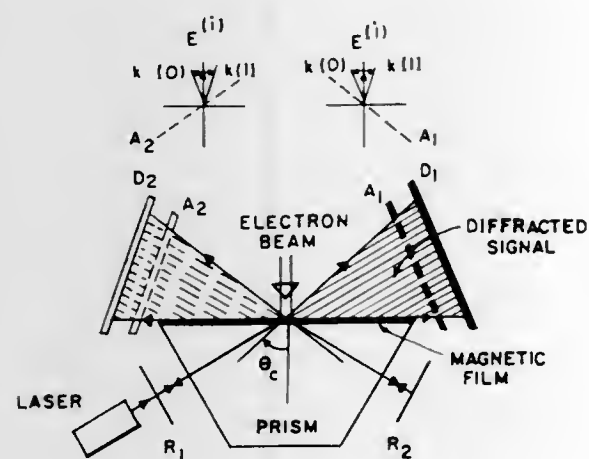
METHODS OF IMPROVING THE SIGNAL-TO-NOISE RATIO OF PHOTON AND ELECTRON BEAM ACCESSED MAGNETIC FILM MEMORY SYSTEM
Donald O. Smith, Lexington, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass., a corporation of Massachusetts

Filed Apr. 29, 1968, Ser. No. 724,847

Int. Cl. G11b 11/10; G11c 11/42

U.S. Cl. 340-174.1

15 Claims



Methods are described for reducing background noise in magnetic-film memories which are to be read magneto-optically with the auxiliary aid of an electron beam. In such memories the principal source of background noise is from the light which is used to illuminate the memory array. The present invention makes use of a selective background and the temperature control of magneto-optical spectra in rare-earth iron garnets, which offer highly satisfactory solution to the array noise problem. In addition, the properties of the rare-earth iron garnets are such that the fundamental signal-to-noise ratio for a single bit is improved by several orders of magnitude when compared to previously considered systems.

3,566,384

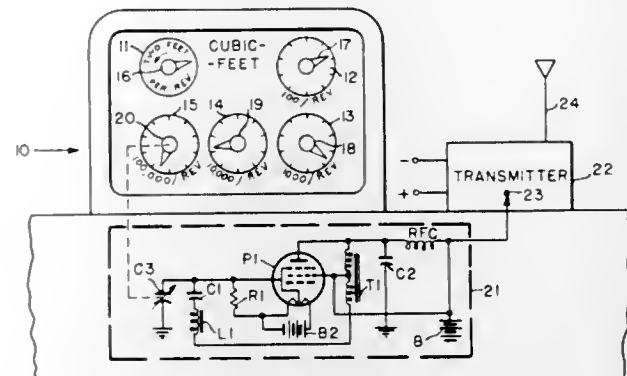
REMOTE METER READING APPARATUS
Thomas E. Smith, Rush, and Wallace R. Straight, Honeoye Falls, N.Y., assignors to Readex Electronics, Inc., Honeoye Falls, N.Y., a corporation of New York

Filed Dec. 18, 1967, Ser. No. 691,433

Int. Cl. G08c 17/00, 19/10, 19/12

U.S. Cl. 340-200

4 Claims



This apparatus enables a meter-reader to read the gas, and/or electric, and/or water meters in a building without entering the building. One of the dials on each meter has its pointer connected to a variable condenser to vary the capacity of the latter as the pointer rotates. This alters the frequency of signal transmitted by a radio transmitter that is connected to the meter. A meter reader may drive by the building in a vehicle containing a receiver and recording device to pick up and record the signal. The frequency of the signal changes, therefore, with the quantity of the utility consumed. For purposes of identification, different customers are on different carrier frequencies; and adjacent meters have different frequency ranges.

3,566,385

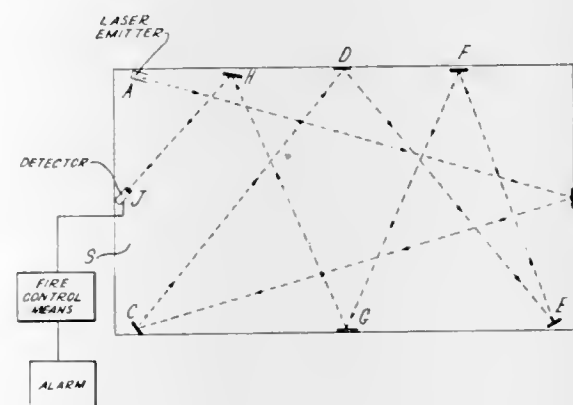
FIRE DETECTING APPARATUS SENSITIVE TO REFRACTION

Dennis Illingworth Lawson, Boreham Wood, England, assignor to National Research Development Corporation, London, England, a British Corporation
Filed Apr. 22, 1968, Ser. No. 723,139

Int. Cl. G08b 21/00

U.S. Cl. 340-228

4 Claims



Fire detecting apparatus comprises a laser, a photocell which are spaced from each other, the photocell being responsive to a state of incidence of the light beam thereon and an alarm and/or fire control apparatus for activation in response to a state of non-incidence of the beam on the detector. The laser and photocell are so arranged, e.g. so the light beam takes a path of zig-zag configuration, that refraction of the beam during its passage through the space in the presence of fire produces the state of non-incidence of the light beam.

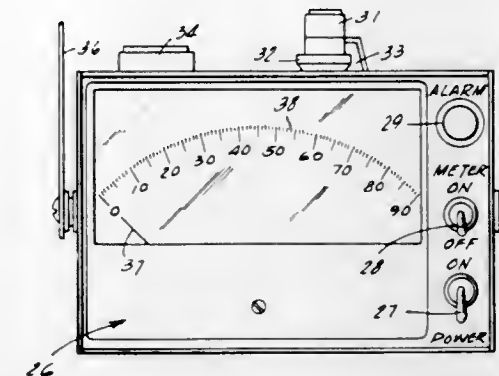
3,566,386

CRANE ANGLE INDICATING SYSTEM
Martin W. Hamilton, Mount Prospect, Ill., assignor to Eaton Yale & Towne Inc., a corporation of Ohio
Filed Feb. 6, 1968, Ser. No. 703,444

Int. Cl. G08b 21/00

U.S. Cl. 340-267

9 Claims



A monitoring and alarm system for a tower crane which warns the operator of the crane if predetermined angular limits are exceeded. Tower cranes must be operated within certain limits as determined by the position of the crane boom and if such limits are exceeded, a dangerous condition exists. The present invention warns if the crane angle reaches a dangerous condition.

3,566,387

MONITORING DEVICE FOR POSITIVE PRESSURE BREATHING APPARATUS

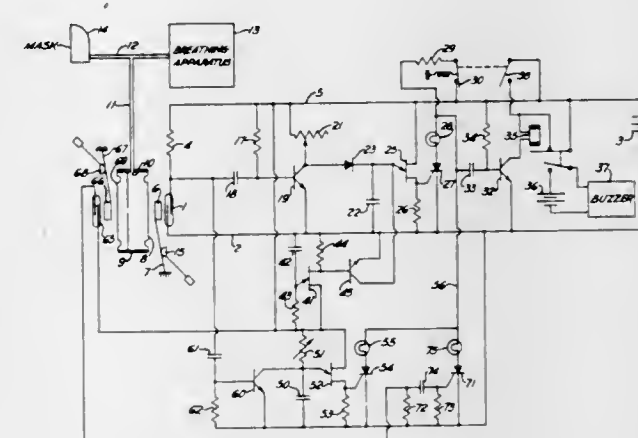
Allen G. Schoener, Verona, Ellison L. Davison, Glenshaw, and Glenn H. Fertig, Cheswick, Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Nov. 14, 1967, Ser. No. 682,895

Int. Cl. G08b 23/00

U.S. Cl. 340-279

5 Claims



The respiration pressure of a patient being treated with positive pressure breathing apparatus is used for closing an electric switch during each inhalation cycle. Every time the switch is closed an electric charge is delivered to a first condenser, which is discharged at regular intervals, but a first electric signal indicator for excessive breathing rate will be actuated by the charge built up on the condenser if it reaches a predetermined value before the condenser is discharged. There also is a second condenser and means for charging the condenser continuously, as well as means for discharging it every time the switch is opened. A second electric signal indicator for inadequate breathing rate will be actuated by the charge built up on the second condenser if it reaches a predetermined value before that condenser is discharged.

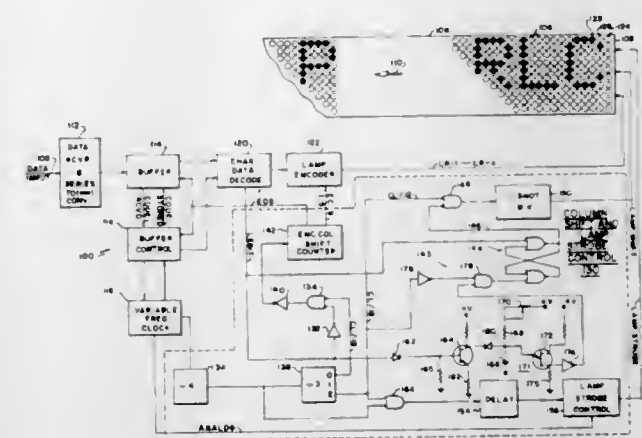
3,566,388

TRAVELING MESSAGE DISPLAY
Russell W. Andrews, Worth, and Robert A. Payne, Des Plaines, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill., a corporation of Virginia
Filed Nov. 20, 1968, Ser. No. 777,229

Int. Cl. H05b 41/44, 39/09

U.S. Cl. 340-334

7 Claims



An improved display system in which a traveling message is smoothly displayed on a fixed matrix in accordance with input data which is received at abruptly varying rates. A circuit is provided for causing the message to continue traveling for a predetermined time interval after the character corresponding to the last received input data has been formed on the display matrix.

3,566,389

CIRCUIT ARRANGEMENT FOR GENERATING A V-SHAPED TRANSFER CHARACTERISTIC
Stig Gustaf Wilhelm Lindquist, Hagersten, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden, a corporation of Sweden

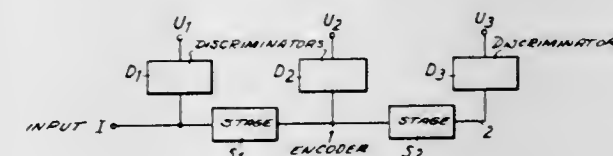
Filed Dec. 21, 1967, Ser. No. 692,576

Claims priority, application Sweden, Jan. 26, 1967, 1,146/67

Int. Cl. H03k 13/17

U.S. Cl. 340-347

1 Claim



An analog-to-digital encoder encodes analog signals to trinary codes. The encoder comprises a cascaded chain of stages having three-level discriminators extending from each stage. Each stage includes a first amplifier with a limited amplitude transfer characteristic. The output of the first amplifier and the input to the stage are analog added and then reamplified to provide analog signals for the associated discriminators and the following stages.

3,566,390

VISUAL INDICATOR FOR A DOORBELL
Constantine S. Zervas, Wayne, and Raymond J. Kean, Lake Hiawatha, N.J., assignors, by mesne assignments, to Sidney Osgood, Brooklyn, N.Y.

Filed June 3, 1968, Ser. No. 733,999

Int. Cl. G08b 5/22

U.S. Cl. 340-330

7 Claims

Solid state circuitry for providing a timed visual indication to a person upon actuation of a doorbell circuit

3,566,397

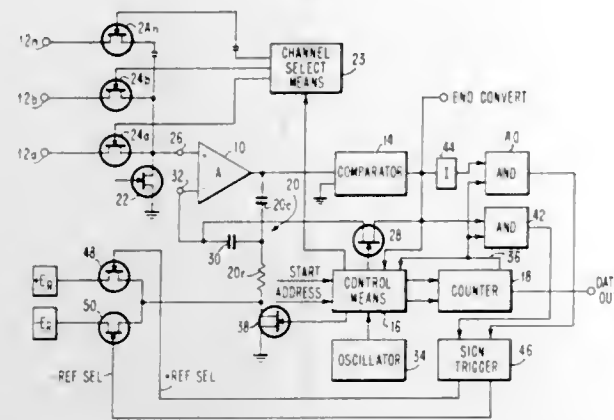
DUAL SLOPE ANALOG TO DIGITAL CONVERTER
Charles A. Walton, Los Gatos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 15, 1969, Ser. No. 791,218

Int. Cl. H03k 13/20

U.S. Cl. 340—347

12 Claims



An analog to digital converter is shown wherein an amplifier is connected in the converter circuit to perform both functions of amplification and integration as well as providing a high input impedance. The converter input is shorted while drift voltages due to the amplifier integrator are compensated by amplifying the drift voltage and utilizing the amplified value as drift compensation by feedback to the input. An unknown voltage signal is next coupled to the potentiometric feedback connected amplifier and the input signal is integrated for a predetermined time. A reference voltage of like sign to the unknown analog signal is then integrated while the amplifier is connected as an inverting integrator. The time that is necessary for the integrator output voltage to reach its initial zero level is measured by a digital representation generating means such as a counter and yields a digital representation of the input analog signal.

ERRATUM

For Class 340—380 see:
Patent No. 3,566,172

3,566,398

CONDITION MONITORING SYSTEM

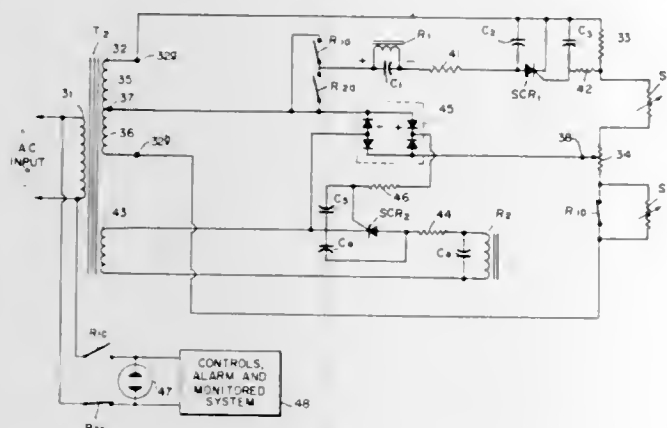
William G. Rowell, 18 Williams St.,
Canton, Mass. 02021

Filed Feb. 14, 1968, Ser. No. 705,347

Int. Cl. G08b 23/00, 29/00

U.S. Cl. 340—409

13 Claims



A condition monitoring system having means for sensing and indicating failures in the components of the system. The system includes a series circuit including one or

more impedances and at least one variable impedance sensing element. Means for producing a signal responsive to the monitored condition is connected across one of the impedances and is responsive to the impedance of the sensor. A second signal producing means is connected across two junctions of the circuit and is responsive to operational changes which may occur in the components of the system. A third signal producing means combines the first two signals to provide a signal which is responsive to both the monitored condition changes and operational changes in the system components.

3,566,399

CONTROL STATION MONITORING SYSTEM FOR REMOTE STATIONS

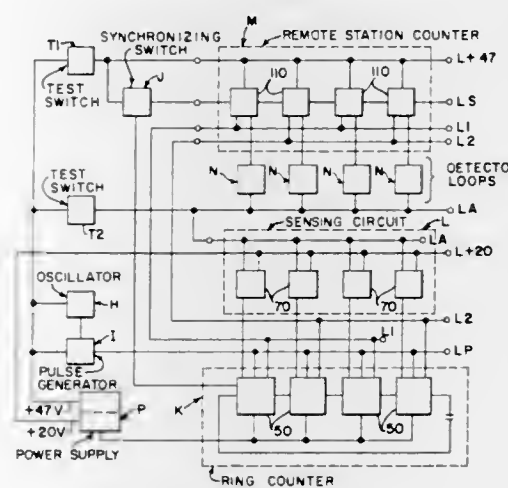
Foster E. Weld, Newton Highlands, Mass., assignor, by mesne assignments, to Gulf + Western Systems Company, New York, N.Y., a corporation of Delaware

Filed Feb. 27, 1968, Ser. No. 708,618

Int. Cl. G08b 29/00

U.S. Cl. 340—409

20 Claims



There is provided a monitoring system for sensing conditions at a plurality of remote stations that is comprised of a plurality of remote station energizable monitoring circuits, each including an associated actuatable means that generates an environmental signal representative of a particular condition occurring at the remote station when actuated during a time period that the associated monitoring circuit is energized. A like plurality of sensing circuits, each associated with one of the monitoring circuits and including condition indicating means, have environmental circuits responsive to the environmental signal from the associated monitoring circuit to energize the condition indicating means. A sequencer circuit sequentially energizes each of the monitoring circuits for a given period of time so that during the given period of time, the then energized monitoring circuit is conditioned to transmit the environmental signal in the event that its actuatable means becomes actuated.

3,566,400

TELEALARM NETWORKS

Pinault Jacques Gilbert, Chatillon-sous-Bagneux, France, assignor to Societe Anonyme: Groupement Atomique Alsacienne Atlantique (G.A.A.A.), Les Plessis-Robinson, Seine, France, a corporation of France

Filed Feb. 18, 1969, Ser. No. 800,054

Claims priority, application France, Feb. 20, 1968,

140,595

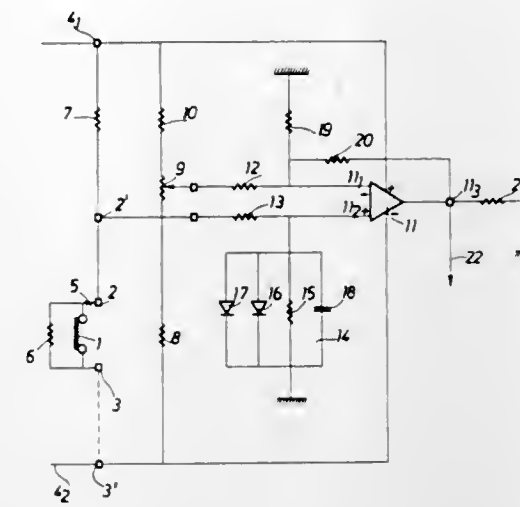
Int. Cl. G08b 23/00

U.S. Cl. 340—409

1 Claim

In remote controlled alarm networks having a plurality of satellite stations connected to a central station, an improvement for reducing the line current to a safe value

for use in explosive or fire risk atmospheres. Use is made of a resistance bridge of which one arm contains a satellite station with a switch operated variable resistance, increasing and/or decreasing pattern to reduce the number of sets of weights which must be stored within the



the output of the bridge being fed to a difference amplifier for supplying an amplified output signal to said central station.

3,566,401

ENGINE WARNING CIRCUIT

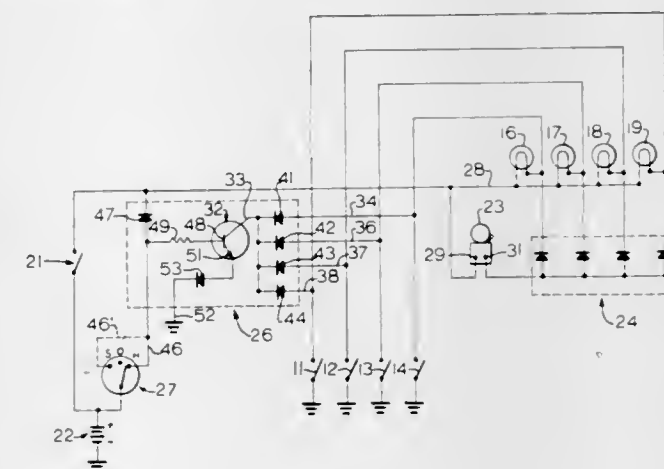
Kerwyn B. Smith and James W. Thais, Decatur, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California

Filed July 29, 1968, Ser. No. 748,282

Int. Cl. G08b 23/00, 29/00

U.S. Cl. 340—411

3 Claims



An electrical warning circuit for a vehicular engine assembly having sensing switches responsive to various operating conditions and a separate visual signal means associated with each of the sensor switches. To determine if the signal means are in working order, testing means are effective to actuate all of the signal means automatically during engine startup and when desired during engine operation. A single audible alarm is actuated along with any one of the signal means in response to its associated sensor switch.

3,566,402

MTI RADAR SYSTEM UTILIZING UNIQUE PATTERNS OF INTERPULSE PERIOD CHOICES TO SIMPLIFY WEIGHTING COEFFICIENTS FOR INDIVIDUAL ECHO PULSES

John W. Taylor, Jr., Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

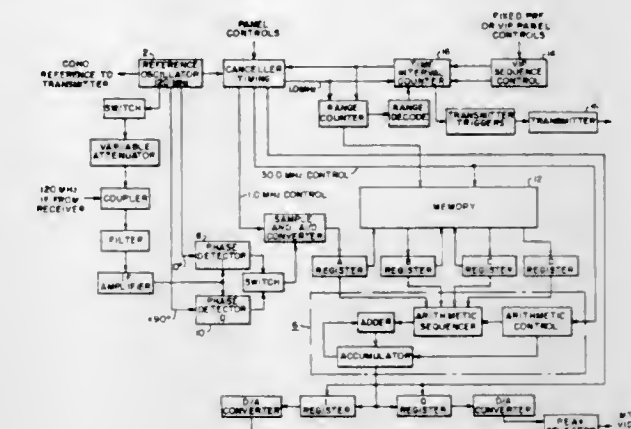
Filed Nov. 18, 1968, Ser. No. 776,409

Int. Cl. G01s 9/42

U.S. Cl. 343—7.7

9 Claims

A variable interpulse period sequence is used in a digital MTI radar system which follows an exponentially



system to achieve an optimum velocity response characteristic.

3,566,403

POLARIZED RADAR DETECTION SYSTEM

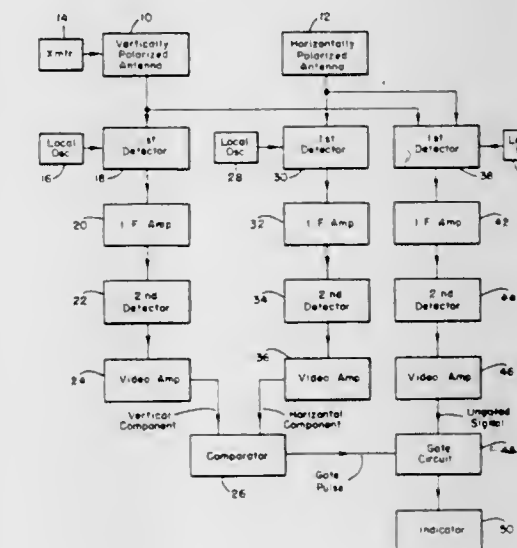
Elmer G. Hills, Chicago, Ill., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware

Filed Mar. 8, 1949, Ser. No. 80,238

Int. Cl. G01s 9/02

U.S. Cl. 343—5

12 Claims



A radar system adapted to differentiate between man-made targets and natural objects in which plane polarized energy is transmitted and, after reflection, echo signals are received by two antennas, one having a plane of polarization coplanar with the plane of polarization of the transmitted energy and the other having a plane of polarization orthogonal thereto. After the echo signals are processed in two separate channels and compared, a blanking signal is generated from signals which suffer the least amount of change in polarization, i.e. echo signals from natural objects to accentuate echo signals from man-made targets.

3,566,404

VEHICLE COLLISION AVOIDANCE SYSTEM
Morris Sorkin, Santa Monica, Calif., assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio

Filed Dec. 16, 1968, Ser. No. 783,994

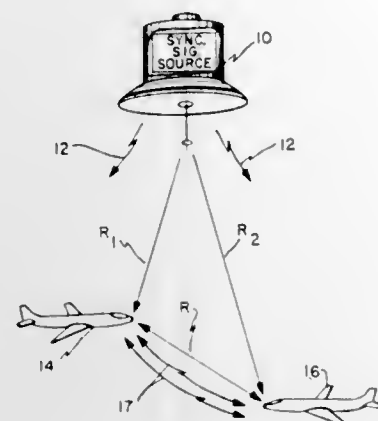
Int. Cl. G01s 9/04, 9/56

U.S. Cl. 343—6.5

14 Claims

A method of an apparatus for avoiding collisions between vehicles, particularly suited for the control of aircraft, utilizing time sharing techniques and being synchronized by satellite emitted signals. Each satellite signal initiates a time cycle which in turn is divided into a

number of time slots. Each aircraft is assigned a time slot during which it may transmit intelligence, including a reference signal. Intelligence is collected during all other times. Each aircraft, having a common time scale with all other aircraft, measures the transmission time of each received reference signal. The transmission time is directly proportional to the distance between the aircraft providing knowledge upon which evasive maneuver may be based. Since the various aircraft will be at differing dis-



tances from the satellite, some error will be present in the measured distance between aircraft. Correction is accomplished by transmitting the measured range to the other aircraft. Thus, each has available the distance between aircraft as measured at each aircraft. The average of the two measured ranges is computed and yields the actual range. A time gate is also provided for excluding the reference signal from aircraft which clearly provide no danger to the aircraft in question.

3,566,405

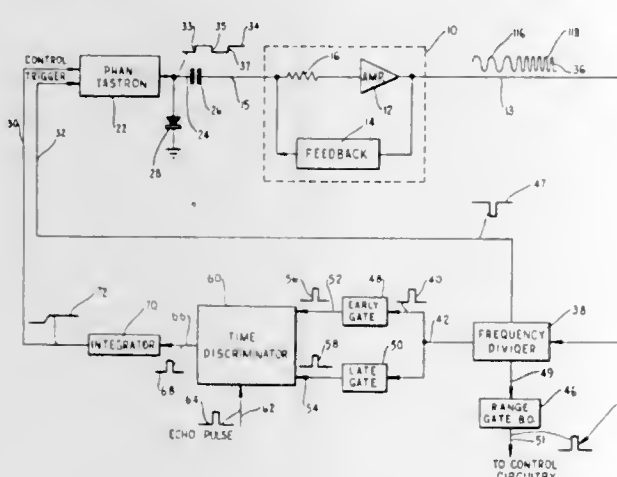
FREQUENCY CONTROLLED RANGE GATE
Lowell C. Parode, Manhattan Beach, and Neal F. Current and Clinton Lew, Los Angeles, Calif., assignors to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Feb. 24, 1958, Ser. No. 717,263

Int. Cl. G01s 9/14

U.S. Cl. 343-7.3

8 Claims



5. A range gate circuit receiving an echo signal to vary the time of occurrence of a range gate pulse defining interpulse periods comprising: a timing circuit having a control input, a trigger input and an output on which output a change from a high to a low potential is formed at a time during each interpulse period proportional to the potential at said control input; a diode connected between said output and a constant potential source; an oscillator con-

nected to said output having a feedback circuit to control frequency; an impedance connected between said feedback circuit and said diode; a frequency divider connected to the output of said oscillator to provide a trigger pulse at a first output to said timing circuit to initiate and terminate interpulse periods, said divider having a second output on which a range gate pulse is formed; coincidence measuring means connected to said first output of said divider to compare said range gate pulse and said echo signal to form an output signal as determined by the amount of coincidence; integrating means to form a potential connected to control said timing circuit in response to the output of said integrating means, whereby the change in frequency of said oscillator during each interpulse period varies the time of occurrence of said range gate pulse to vary with said echo signal.

3,566,406

RADAR ALTIMETER

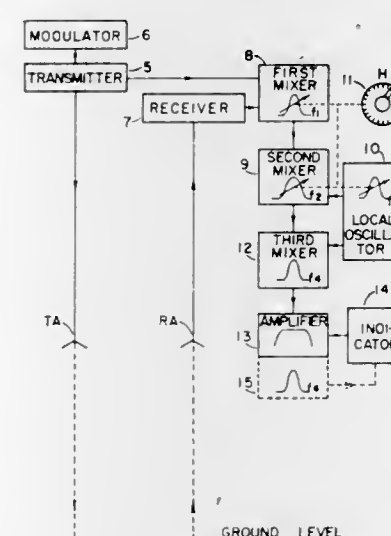
Louis J. Kabell and Conrad W. Roeschke, Albuquerque, N. Mex., assignors, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 15, 1952, Ser. No. 326,032

Int. Cl. G01s 9/24

U.S. Cl. 343-14

6 Claims



1. A radio altimeter for indicating the attainment of a specified altitude comprising means for generating a continuous radio signal of variable frequency, means for cyclically varying the frequency between selected limits, means for radiating toward a reflecting surface the signal so varied, means for receiving the reflected signal, a first, a second and a third mixer and an oscillator, the first and second mixers and the oscillator being provided with output circuits simultaneously tunable to selected frequencies while the output circuit of the third mixer is tuned to a fixed frequency, means for injecting into the first mixer the simultaneously appearing transmitted and reflected signals, means for injecting into the second mixer the output of the first mixer and that of the oscillator, means for injecting into the third mixer the output of the second mixer and that of the oscillator, means for tuning the output circuit of the first mixer to the difference frequency between the signals at the specified altitude and simultaneously the output circuits of the local oscillator and of the second mixer to frequencies of which the difference equals the output frequency of the third mixer and the sum equals the output frequency of the first mixer and means for indicating the appearance of a signal in the output of the third mixer.

3,566,407

MONOPULSE RECEIVING SYSTEM

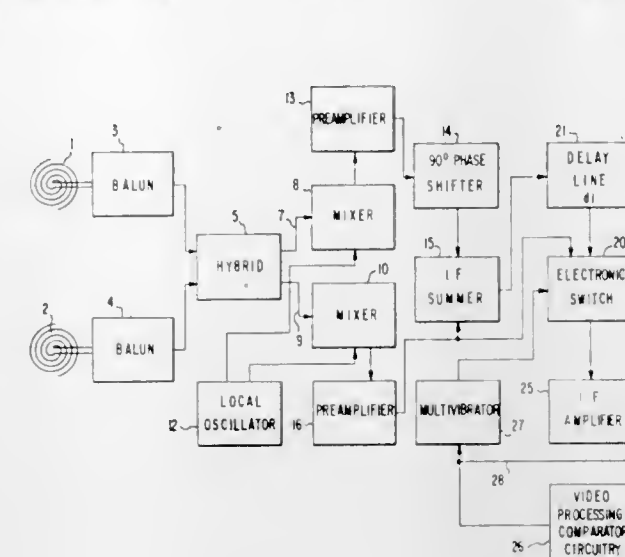
Walter D. Trippe, Orlando, Fla., assignor to Martin-Marietta Corporation, New York, N.Y., a corporation of Maryland

Continuation-in-part of application Ser. No. 471,523, July 13, 1965. This application Dec. 27, 1966, Ser. No. 604,756

Int. Cl. G01s 9/22

U.S. Cl. 343-16

9 Claims



A single channel time multiplexing monopulse receiving system providing a direct undelayed channel normally open through to the intermediate frequency amplifier, and control means responsive to a signal from the direct channel, as delivered by the amplifier, to terminate its transmission to the amplifier input, and for a time period to connect the delayed signal channel to the input of the intermediate frequency amplifier.

3,566,408

METHOD OF AND APPARATUS FOR THREE COLOR-ECHO RANGING

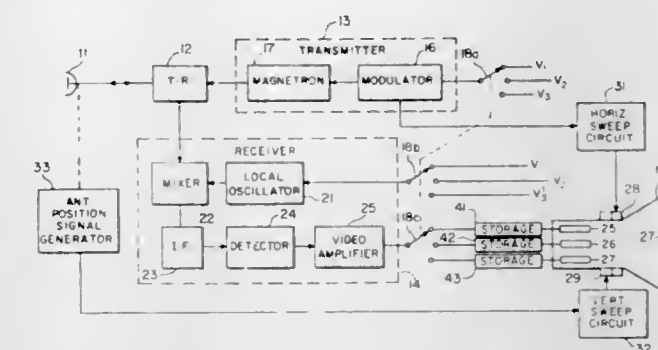
Norman E. Pedersen, Wilmington, Mass., assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware

Filed Feb. 26, 1969, Ser. No. 802,363

Int. Cl. G01s 9/02, 7/28

U.S. Cl. 343-17.1

9 Claims



A method of an apparatus utilizing three-color echo ranging wherein the received signal from each of three successive radar or higher frequency transmission pulses at slightly different frequencies is coupled to a different electron gun of a three-color cathode ray tube. The cathode ray tube is accordingly successively swept, for example, in red at f_0 , in blue at $f_0 + \Delta f$, and in green at $f_0 + 2\Delta f$, thereby providing a display showing three sets of spatially uncorrelated clutter returns as red, blue, and green dots which are dimensionally separated from each other on the face of the cathode ray tube. A target, however, as distinguished from clutter produces a white dot which is the combination of red, blue and green. Signal storage means may be included where the cathode ray tube phosphors have a short decay time compared to the sector scan time of the echo ranging system.

DESIGNS

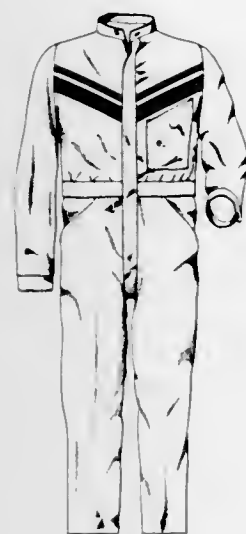
FEBRUARY 23, 1971

219,947
COVERALLS

Sid Lawson, New City, N.Y., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
Original design application Sept. 17, 1968, Ser. No. 13,566. Divided and this application Mar. 19, 1970, Ser. No. 21,970

Term of patent 14 years
Int. Cl. D2—01

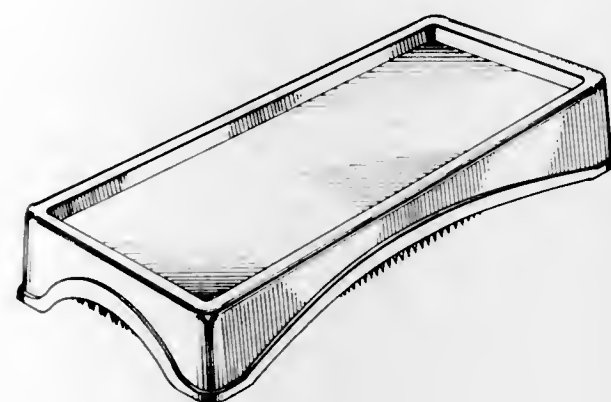
U.S. Cl. D2—29



219,949
HAND BRUSH

Rudolf Vogel, 1140 Laurel Ave., Bridgeport, Conn. 06604
Filed Feb. 6, 1970, Ser. No. 21,305
Term of patent 14 years
Int. Cl. D4—02; D28—03

U.S. Cl. D4—13



219,950
CORDLESS ELECTRIC GRASS SHEAR
James E. Edgell, Bradford Woods, Pa., assignor to H. K. Porter Company (Delaware), Pittsburgh, Pa., a corporation of Delaware

Filed Oct. 23, 1969, Ser. No. 19,686
Term of patent 14 years
Int. Cl. D8—01

U.S. Cl. D8—8

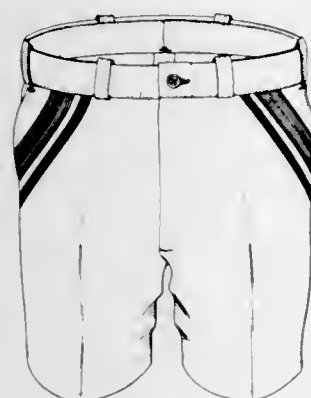


219,948
SHORTS

Sid Lawson, New City, N.Y., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
Original design application Sept. 17, 1968, Ser. No. 13,566. Divided and this application Mar. 19, 1970, Ser. No. 21,973

Term of patent 14 years
Int. Cl. D2—01

U.S. Cl. D2—42



FEBRUARY 23, 1971

U. S. PATENT OFFICE

1759

219,951
ICE REMOVAL TOOL
Ray W. Reed, 2075 Richwood Drive, Pontiac, Mich. 48057
Filed Dec. 10, 1969, Ser. No. 20,431
Term of patent 14 years
Int. Cl. D8—02

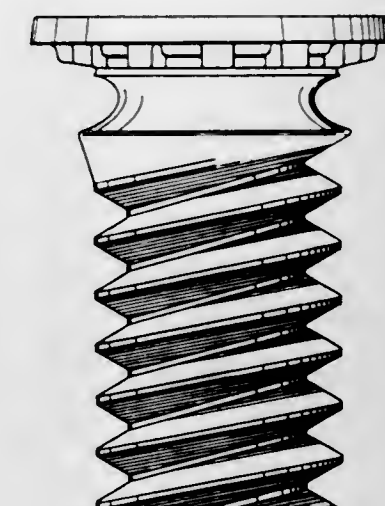
U.S. Cl. D8—14



219,953
STUD

Richard B. Ernest, Richboro, Pa., assignor to Penn Engineering & Manufacturing Corp., Danboro, Pa., a corporation of Delaware
Filed Apr. 1, 1970, Ser. No. 22,191
Term of patent 14 years
Int. Cl. D8—04

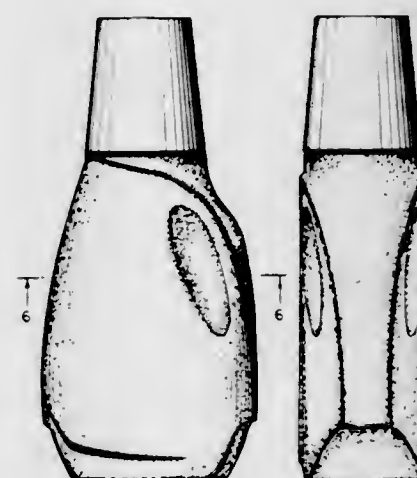
U.S. Cl. D8—267



219,954
JUG OR SIMILAR ARTICLE
Victor Koenigsberg, New York, N.Y., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

Filed Nov. 14, 1969, Ser. No. 20,093
Term of patent 14 years
Int. Cl. D9—01

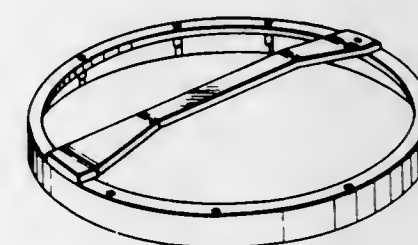
U.S. Cl. D9—45



219,952
CLOSURE TOOL

George Yates, Jr., Glendale, Calif., assignor to Growth International Industries Corp., Cleveland, Ohio, a corporation of Delaware
Filed Oct. 13, 1969, Ser. No. 19,522
Term of patent 14 years
Int. Cl. D8—02

U.S. Cl. D8—40



219,955

COMBINED JEWELRY DISPLAY AND STORAGE BOX

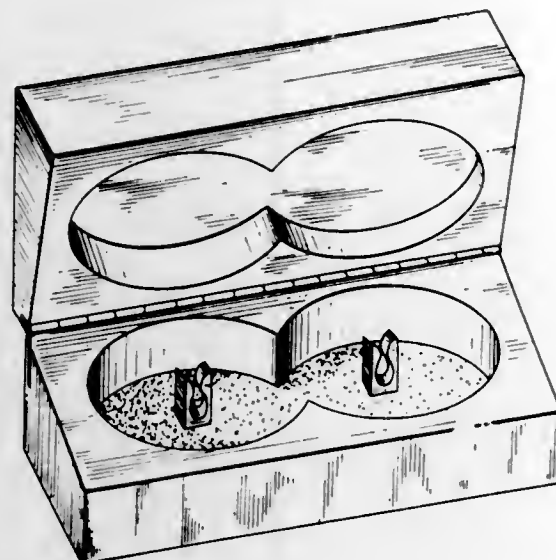
David B. Seaman, New York, N.Y., assignor to Off The Cuff Accessories, Inc., New York, N.Y., a corporation of New York

Filed June 9, 1969, Ser. No. 17,595

Term of patent 7 years

Int. Cl. D9—04

U.S. Cl. D9—189



219,957

PACKAGE FOR CHRISTMAS CARDS OR THE LIKE

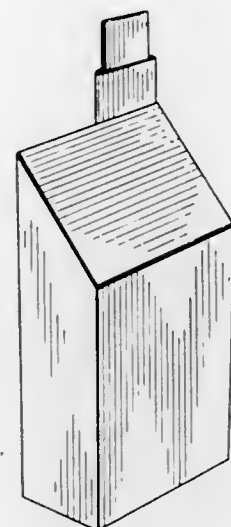
Donald L. Spahr, Kansas City, Mo., assignor to Hallmark Cards, Incorporated, Kansas City, Mo., a corporation of Missouri

Filed Dec. 4, 1969, Ser. No. 20,369

Term of patent 14 years

Int. Cl. D9—04

U.S. Cl. D9—191



219,956

PACKAGING TRAY FOR COOKIES OR THE LIKE

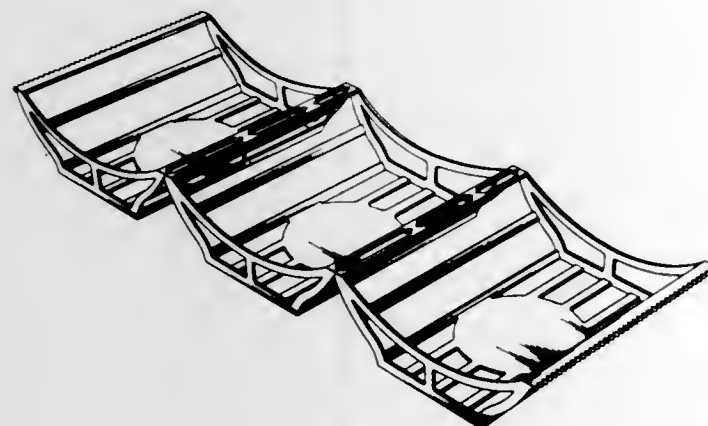
Philip M. Clemens, 1835 Pemberton Drive, Fort Wayne, Ind. 46805

Filed Jan. 5, 1970, Ser. No. 20,758

Term of patent 14 years

Int. Cl. D9—04

U.S. Cl. D9—189



219,958

DISPENSER FOR TOILET BOWL CLEANING COMPOSITION

Charles W. Clark, 95 Andover Ave., Dumont, N.J. 07628

Filed Oct. 20, 1969, Ser. No. 19,612

Term of patent 14 years

Int. Cl. D9—07

U.S. Cl. D9—223



219,959

PACKAGING TRAY

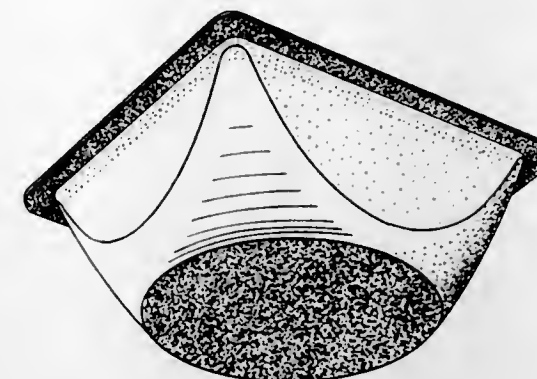
John R. Anderson, Rockford, Ill., assignor to Anderson Packaging, Inc., Rockford, Ill., a corporation of Illinois

Filed Nov. 24, 1969, Ser. No. 20,245

Term of patent 14 years

Int. Cl. D9—04

U.S. Cl. D9—242



219,962

BUILDING

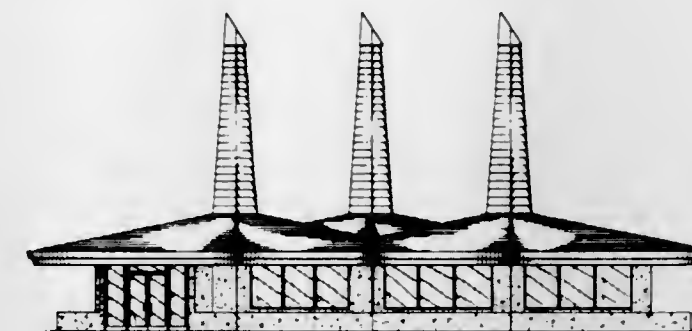
Arthur K. Miner, Chicago, Ill., assignor to International Design Studios, Inc., Chicago, Ill., a corporation of Illinois

Filed Jan. 30, 1970, Ser. No. 21,166

Term of patent 14 years

Int. Cl. D25—04

U.S. Cl. D13—1



219,963

DUMP VEHICLE

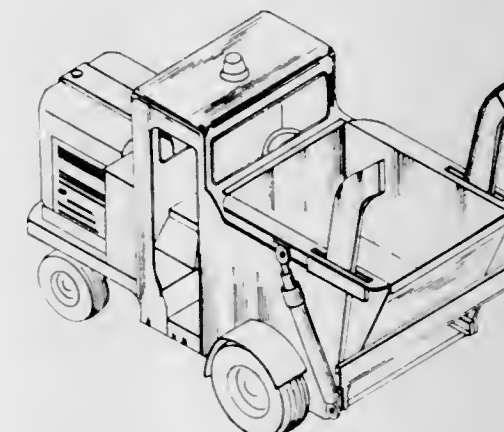
D. E. McCraw, Jr., Charlotte, N.C., assignor to General Underground Equipment Company, Inc., doing business as General Hydraulics Company, Charlotte, N.C., a corporation of North Carolina

Filed July 1, 1969, Ser. No. 18,008

Term of patent 14 years

Int. Cl. D12—09

U.S. Cl. D14—3



219,960

SHIRT COLLAR SUPPORT

Richard S. Mosser, Breslau, Ontario, and Arnold R. Hofstetter, Kitchener, Ontario, Canada, assignors to Cluett Peabody & Co. of Canada Limited, Kitchener, Ontario, Canada

Filed June 17, 1969, Ser. No. 17,741

Claims priority, application Canada May 7, 1969

Term of patent 14 years

Int. Cl. D9—99

U.S. Cl. D9—294



219,961

BUILDING

Macon Guy Saunders, Alexandria, Va., assignor to State Clear's International, Ltd., a corporation of Maryland

Filed Dec. 3, 1969, Ser. No. 20,334

Term of patent 14 years

Int. Cl. D25—04

U.S. Cl. D13—1



219,964

MOTORCYCLE TRAILER

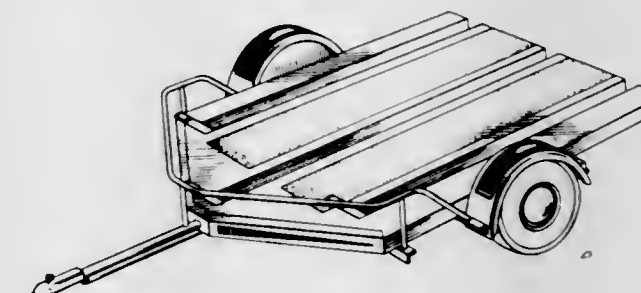
Jarrett J. Ransom, 2713 Pawnee Drive, Amarillo, Tex. 79109

Filed Jan. 8, 1970, Ser. No. 20,808

Term of patent 14 years

Int. Cl. D12—10

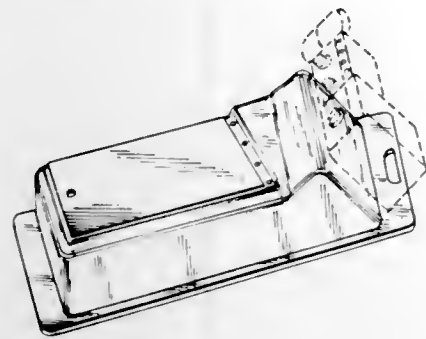
U.S. Cl. D14—3



219,965
VEHICLE CONSOLE

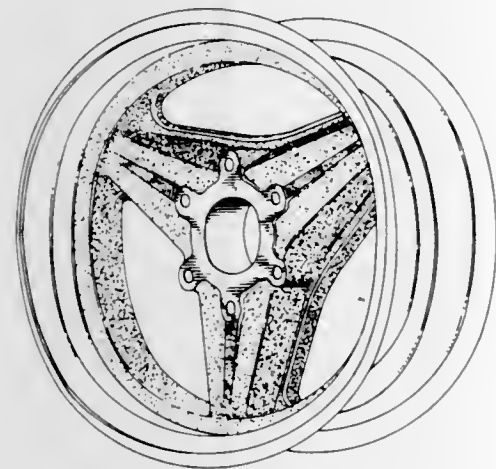
Arliss L. Boothe, Indianola, Iowa, assignor to Auto Safety, Inc., Des Moines, Iowa, a corporation of Iowa
Filed Nov. 12, 1969, Ser. No. 20,047
Term of patent 14 years
Int. Cl. D12-14

U.S. Cl. D14-6



219,966
THREE-SPOKE RACING WHEEL
Henry T. Halibrand, 6469 Nancy St.,
Los Angeles, Calif. 90045
Filed Apr. 21, 1969, Ser. No. 16,841
Term of patent 14 years
Int. Cl. D12-14

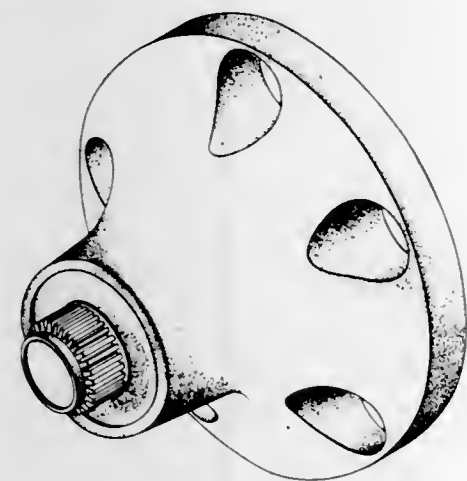
U.S. Cl. D14-30



219,967
HUB CAP

Millard Fillmore Harty, Jr., Bloomfield Hills, Mich., assignor to Motor Wheel Corporation, Lansing, Mich., a corporation of Ohio
Filed Jan. 14, 1970, Ser. No. 20,917
Term of patent 14 years
Int. Cl. D12-14

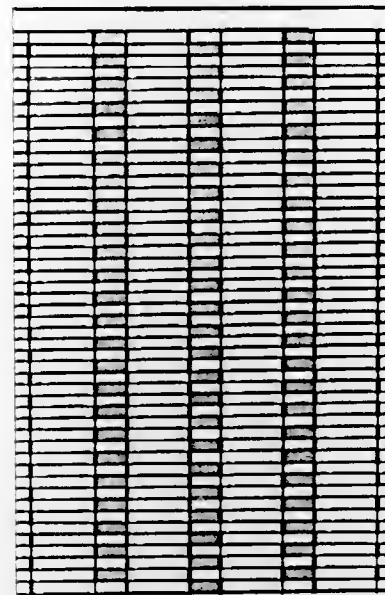
U.S. Cl. D14-30



219,968
WINDOW BLIND

Stanley Barnett, Mount Vernon, N.Y.
(490 Nepperhan Ave., Yonkers, N.Y. 10701)
Filed Feb. 3, 1970, Ser. No. 21,224
Term of patent 14 years
Int. Cl. D25-02

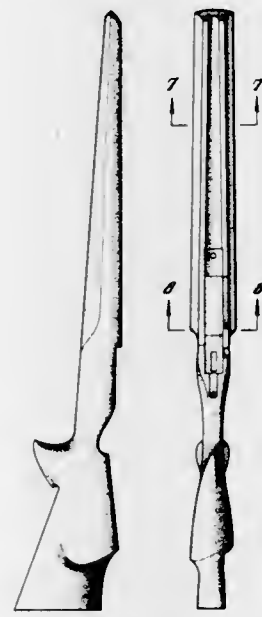
U.S. Cl. D21-6



219,969
GUNSTOCK

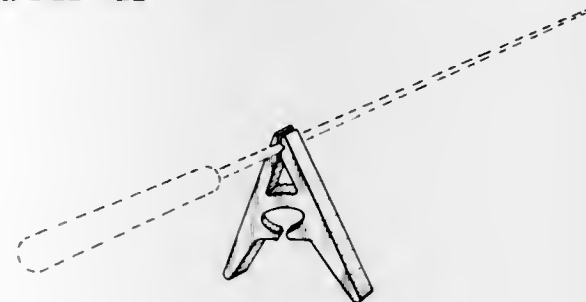
Sigismund A. Selnau, 3907 Firwood,
Lynwood, Calif. 90262
Filed Oct. 27, 1969, Ser. No. 19,734
Term of patent 14 years
Int. Cl. D22-02

U.S. Cl. D22-6



219,970
STAND FOR ICE FISHING ROD
Ferdinand F. Salzmann, Box 5332,
Madison, Wis. 53705
Filed Mar. 19, 1969, Ser. No. 16,331
Term of patent 14 years
Int. Cl. D22-08

U.S. Cl. D22-22



219,971
FISHING ROD HOLDER

John B. Bennett and Leonard L. High, both of 751 S.
Sherman St., Richardson, Tex. 75080
Filed July 29, 1969, Ser. No. 18,449
Term of patent 14 years
Int. Cl. D22-08

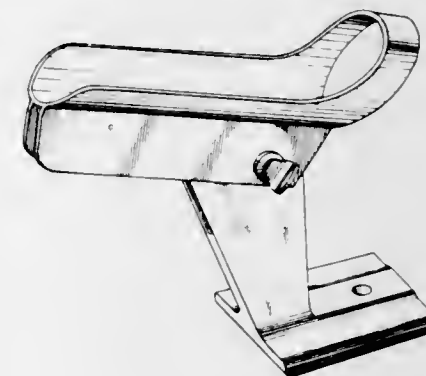
U.S. Cl. D22-22



219,972
FISHING ROD HOLDER

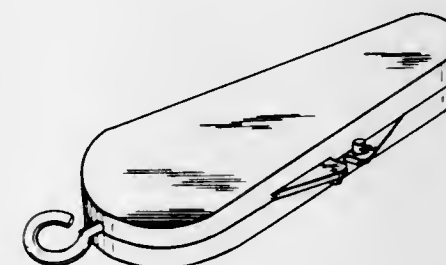
John B. Bennett and Leonard L. High, both of 751 S.
Sherman St., Richardson, Tex. 75080
Filed July 29, 1969, Ser. No. 18,450
Term of patent 14 years
Int. Cl. D22-08

U.S. Cl. D22-22



219,973
COMBINATION CONTAINER AND SAFETY
GUARD FOR FISHHOOKS
Chester J. Sather, 1215 26th St., Ames, Iowa 50010
Filed Dec. 29, 1969, Ser. No. 20,680
Term of patent 14 years
Int. Cl. D22-08

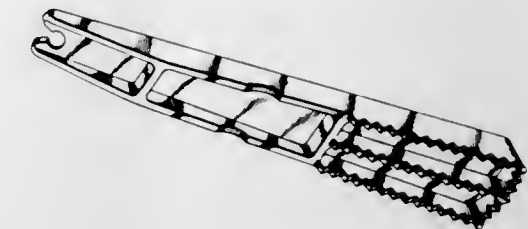
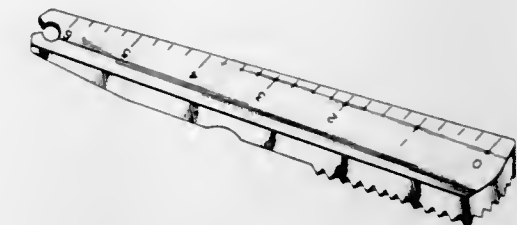
U.S. Cl. D22-23



219,974
COMBINATION FISH SCALER, HOOK
REMOVER, AND RULE

Ferdinand F. Salzmann, Box 5332,
Madison, Wis. 53705
Filed June 27, 1969, Ser. No. 17,933
Term of patent 14 years
Int. Cl. D22-08; D8-02

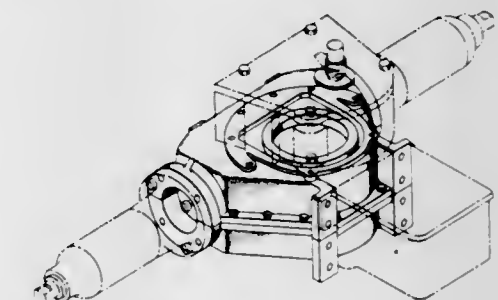
U.S. Cl. D22-31



219,975
VALVE OPERATOR CASING

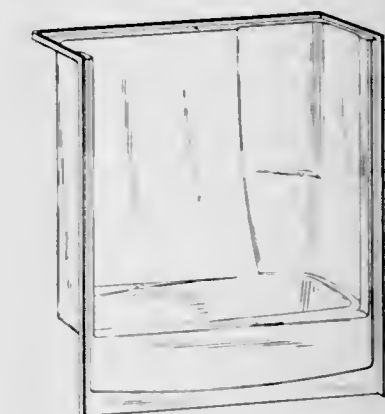
Willem E. Tupker, Sepulveda, Calif., assignor to Bell Aerospace Corporation, a corporation of Delaware
Filed Feb. 17, 1969, Ser. No. 15,794
Term of patent 14 years
Int. Cl. D23-01

U.S. Cl. D23-19



219,976
COMBINATION BATHTUB AND SHOWER UNIT
Merritt W. Seymour, 115 Carol Lane,
Toledo, Ohio 43615
Filed Dec. 11, 1969, Ser. No. 20,457
Term of patent 14 years
Int. Cl. D23-02

U.S. Cl. D23-49



219,977

SPACE HEATER

Thomas Karen, Ashwell, England, assignor to Cannon Industries Limited, Deepfields, Bilston, England, a British company

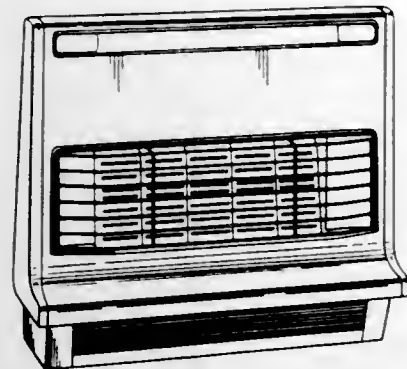
Filed July 7, 1969, Ser. No. 18,086

Claims priority, application Great Britain Jan. 4, 1969

Term of patent 7 years

Int. Cl. D23—03

U.S. Cl. D23—93



219,978

HUMIDIFIER

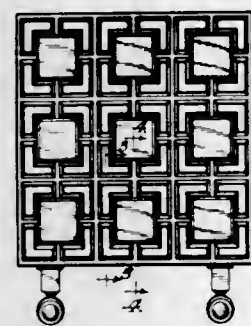
John E. Reed, Glen Ellyn, Ill., assignor to Sunbeam Corporation, Chicago, Ill., a corporation of Delaware

Filed Oct. 10, 1969, Ser. No. 19,508

Term of patent 14 years

Int. Cl. D23—04

U.S. Cl. D23—146



219,979

DENTAL HANDPIECE

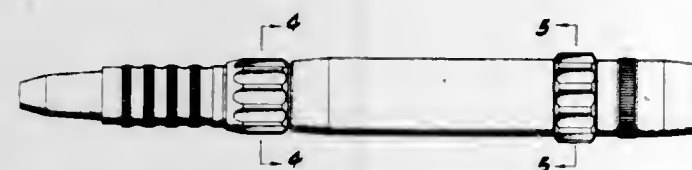
Ronald G. Coss, 2320 McCart Ave., La Habra, Calif. 90631

Filed Jan. 2, 1970, Ser. No. 20,738

Term of patent 14 years

Int. Cl. D24—03

U.S. Cl. D24—1



219,980

CONTROL ENCLOSURE FOR ELECTRICAL AND ELECTRONIC COMPONENTS

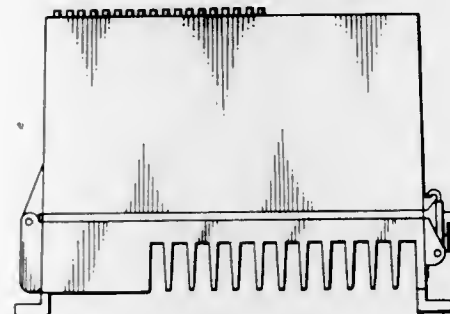
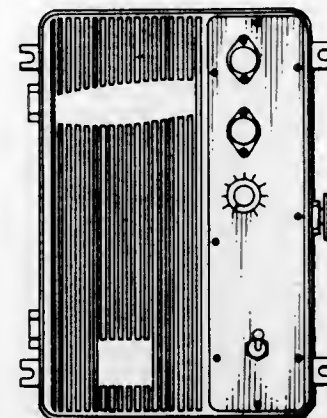
Frederick McMenamy, Bethel Park, and Frank C. Bonidie, Pittsburgh, Pa., assignors to North American Rockwell Corporation, a corporation of Delaware

Filed Aug. 14, 1969, Ser. No. 18,678

Term of patent 14 years

Int. Cl. D14—99

U.S. Cl. D26—5



219,981

INPUT DATA PREPARATION DEVICE

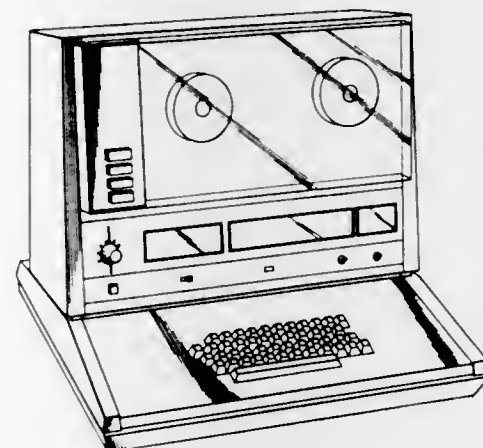
James F. Kleerup, Villa Park, Calif., assignor to Peripheral Business Equipment, Inc., a corporation of California

Filed Jan. 6, 1970, Ser. No. 20,788

Term of patent 14 years

Int. Cl. D14—02

U.S. Cl. D26—5



219,982

FACE PLATE FOR TEMPERATURE CONTROLS DEVICE

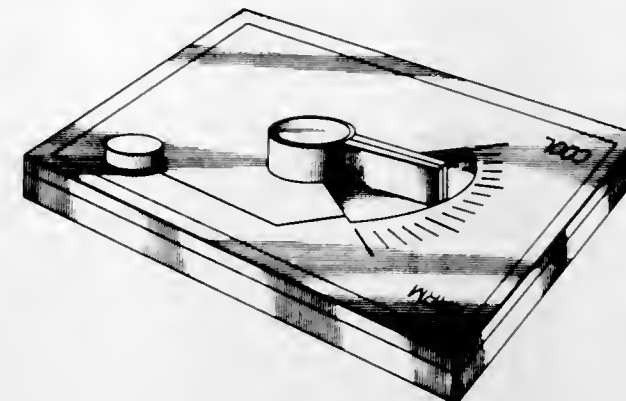
Douglas James Warner and Arnold Wolf, Berkeley, Calif., assignors to Teledyne, Inc., Los Angeles, Calif., a corporation of Delaware

Filed Jan. 21, 1969, Ser. No. 15,407

Term of patent 7 years

Int. Cl. D13—03; D10—09

U.S. Cl. D26—13



219,983

HEARING AID

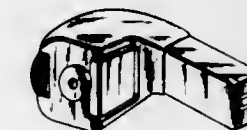
Juan Gasso Bosch, Via Layetana 158, and Jorge Borguno Clua, Ronda Universidad 12, both of Barcelona, Spain

Filed Jan. 10, 1967, Ser. No. 5,370

Term of patent 7 years

Int. Cl. D14—04, 99

U.S. Cl. D26—14



219,984

STORAGE JACK BOX FOR HEAD SETS

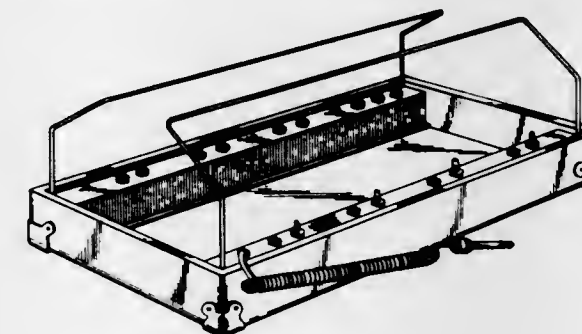
Thomas Albert Scanlon, Barrington, R.I., assignor to Avid Corporation, East Providence, R.I., a corporation of Rhode Island

Filed Jan. 19, 1970, Ser. No. 20,973

Term of patent 14 years

Int. Cl. D14—03

U.S. Cl. D26—14



219,985

COMBINED CHARGER AND HOLDER FOR AN ELECTRIC WET SHAVER

Bruce F. Ray, Danvers, Mass., assignor to The Gillette Company, Boston, Mass., a corporation of Delaware

Filed Dec. 18, 1969, Ser. No. 20,566

Term of patent 14 years

Int. Cl. D13—02

U.S. Cl. D26—15



219,986

ANIMAL SCULPTURE

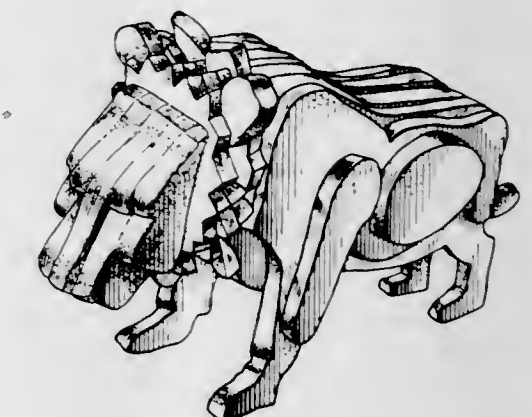
Mandel Horwitz, 270 Euclid Ave., Winnetka, Ill. 60093, and John W. Kearney, 747 W. Montrose Ave., Chicago, Ill. 60613

Filed Dec. 15, 1969, Ser. No. 20,489

Term of patent 14 years

Int. Cl. D11—02

U.S. Cl. D29—23



219,987

FISH AQUARIUM

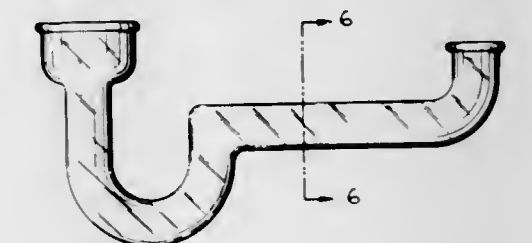
Robert B. Lee, 7400 Sportman Drive, Falls Church, Va. 22043

Filed Mar. 26, 1969, Ser. No. 16,464

Term of patent 14 years

Int. Cl. D30—01

U.S. Cl. D30—6



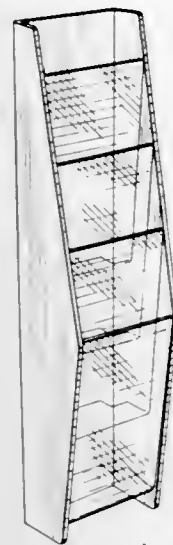
219,988

RACK FOR PAPERS OR THE LIKE

Harlen F. Willis, Kansas City, Mo., assignor to Variform Plastics, Inc., Kansas City, Mo., a corporation of Missouri

Filed Apr. 7, 1969, Ser. No. 16,593
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D33—3



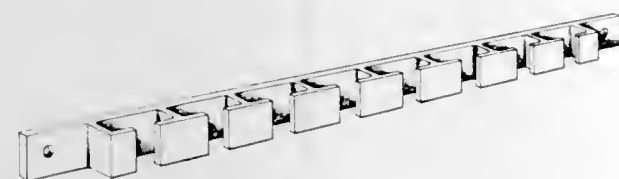
219,989

TIE RACK

John F. Frantonic, 8029 Sigel Lane, Youngstown, Ohio 44514

Filed Dec. 17, 1969, Ser. No. 20,539
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D33—8



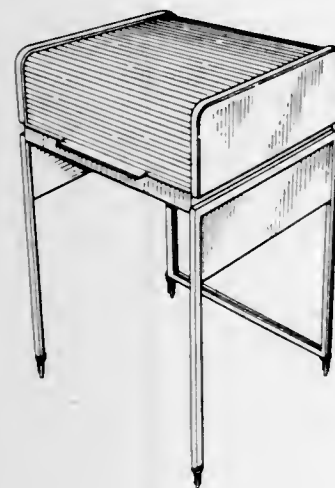
219,990

TYPEWRITER TABLE

Toshihiko Sakow, 3 Horizon Road, Fort Lee, N.J. 07024

Filed Nov. 19, 1969, Ser. No. 20,184
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D33—14



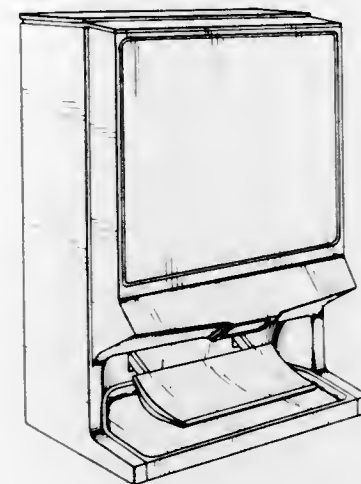
219,991

SOAP LATHER GENERATOR

Donald A. De Varco, Bay Village, Ohio, assignor to Sunbeam Corporation, Chicago, Ill., a corporation of Delaware

Filed Oct. 24, 1969, Ser. No. 19,693
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D33—30



219,992

CABINET FOR A COIN-CONTROLLED SLOT MACHINE

Paul Belokin, Jr., Berwyn, Ill., assignor to Bally Manufacturing Corporation, Chicago, Ill., a corporation of Delaware

Filed Feb. 2, 1970, Ser. No. 21,216
Term of patent 14 years
Int. Cl. D21—04

U.S. Cl. D34—5



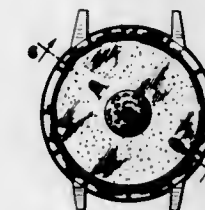
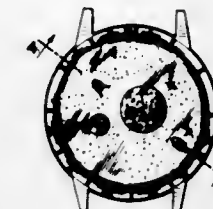
219,993

WRIST WATCH

Cyril C. Gsell, Port Chester, N.Y., assignor to R. Gsell & Company, Inc., New York, N.Y., a corporation of New York

Filed Oct. 10, 1969, Ser. No. 19,501
Term of patent 14 years
Int. Cl. D10—02

U.S. Cl. D42—1



219,995

HOLDER FOR FLOWERS OR THE LIKE

James W. Yates, 45—665 Halekou Place, Kaneohe, Hawaii 96744

Filed July 2, 1969, Ser. No. 18,029
Term of patent 14 years
Int. Cl. D11—99

U.S. Cl. D45—10



219,994

COFFEE PERCOLATOR

Robert O. Ernest, Oak Park, Ill., assignor to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois

Filed May 21, 1969, Ser. No. 17,251
Term of patent 14 years
Int. Cl. D7—04

U.S. Cl. D44—26



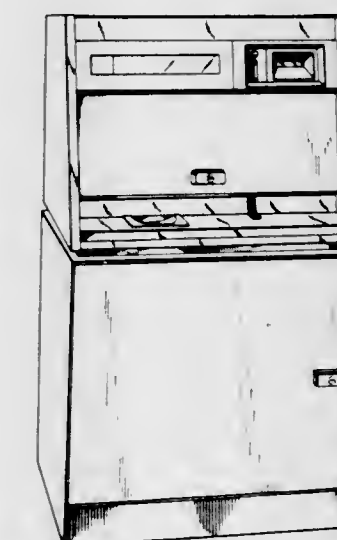
219,996

BILL AND COIN CHANGER

Melvin H. Boldt, Glenview, Ill., assignor to Rowe International, Inc., Whippany, N.J., a corporation of Delaware

Filed Sept. 4, 1969, Ser. No. 18,997
Term of patent 14 years
Int. Cl. D20—99

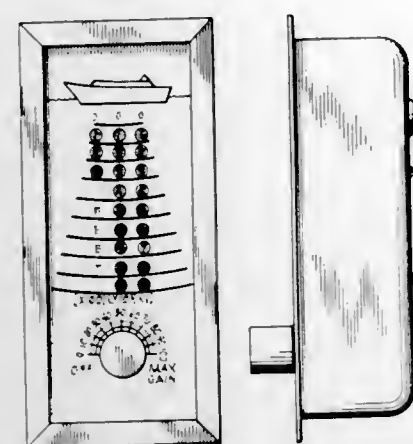
U.S. Cl. D52—4



219,997
DEPTHMETER

Alfons Z. Rachwalski, Miraleste, Calif. (6520 Madeline Cove Drive, Palos Verdes Peninsula, Calif. 90274)
Filed Oct. 14, 1969, Ser. No. 19,549
Term of patent 14 years
Int. Cl. D10—07

U.S. Cl. D52—6

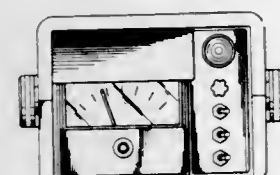


219,998

CRANE BOOM ANGLE INDICATOR

Donald Behnk and Roger Protas, Pittsburgh, Pa., assignors to S.I. Handling Systems, Inc., Easton, Pa., a corporation of Pennsylvania
Filed Dec. 8, 1969, Ser. No. 20,622
Term of patent 14 years
Int. Cl. D10—10

U.S. Cl. D52—6

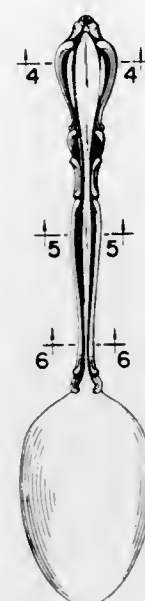


219,999

SPOON OR SIMILAR ARTICLE OF FLATWARE

Siro R. Toffolon, Meriden, Conn., assignor to World Tableware Corporation, Meriden, Conn., a corporation of Delaware
Filed Dec. 11, 1969, Ser. No. 20,459
Term of patent 14 years
Int. Cl. D7—03

U.S. Cl. D54—12

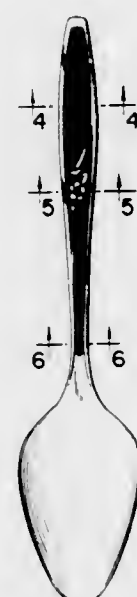


220,000

SPOON OR SIMILAR ARTICLE OF FLATWARE

Robert King, Wallingford, Conn., assignor to World Tableware Corporation, Meriden, Conn., a corporation of Delaware
Filed Dec. 11, 1969, Ser. No. 20,460
Term of patent 14 years
Int. Cl. D7—03

U.S. Cl. D54—12

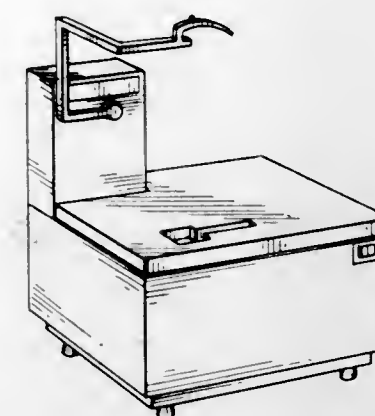


220,001

TABLE MODEL TYING MACHINE

Douglas C. Mills, 1163 Glendale Ave., Adrian, Mich. 49221
Filed Dec. 18, 1969, Ser. No. 20,552
Term of patent 14 years
Int. Cl. D15—05

U.S. Cl. D55—1

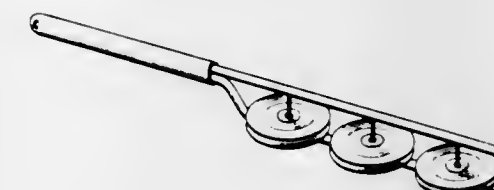


220,002

CYMBAL DRUMSTICK

Raymond D. Barker, 7744 Satsuma Ave., Sun Valley, Calif. 91352
Filed Feb. 12, 1970, Ser. No. 21,408
Term of patent 14 years
Int. Cl. D17—04

U.S. Cl. D56—1

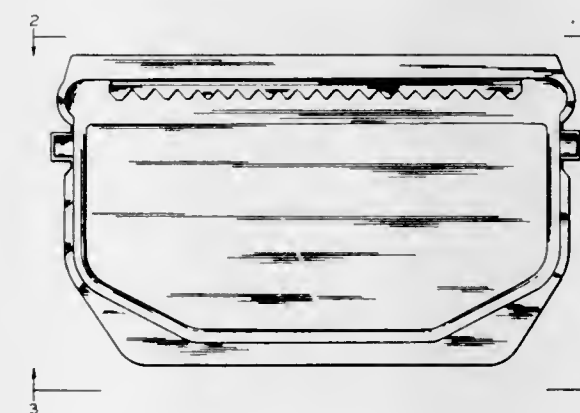


220,003

DISPOSABLE GLUE POT LINERS

Charles M. Lask, % Labor Saving Devices, 1414 S. Michigan Ave., Chicago, Ill. 60605
Filed Dec. 15, 1969, Ser. No. 20,492
Term of patent 14 years
Int. Cl. D5—99

U.S. Cl. D59—2

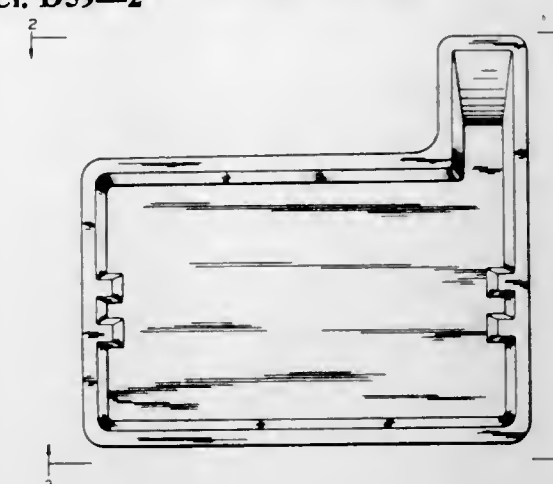


220,004

DISPOSABLE GLUE POT LINER

Charles M. Lask, % Labor Saving Devices, 1414 S. Michigan Ave., Chicago, Ill. 60605
Filed Dec. 15, 1969, Ser. No. 20,493
Term of patent 14 years
Int. Cl. D5—99

U.S. Cl. D59—2



220,005

FILM CASSETTE

Hideaki Akiyama and Tokusaburo Kakiuchi, both of 3-6, 1-chome, Nakamagome, Ohta-ku, Tokyo, Japan
Filed June 3, 1969, Ser. No. 17,482
Term of patent 14 years
Int. Cl. D16—99

U.S. Cl. D61—1



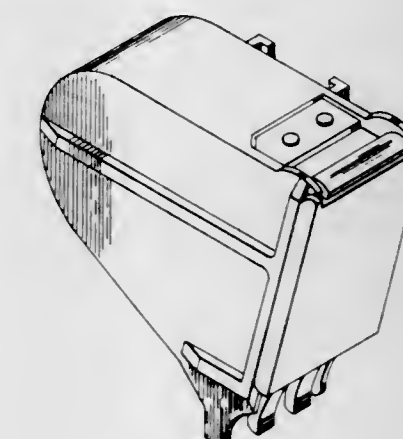
220,006

CARTRIDGE FOR CONTINUOUS RIBBON

William P. Bakken and Donald J. Wanek, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed June 27, 1969, Ser. No. 17,914
Term of patent 14 years
Int. Cl. D18—01

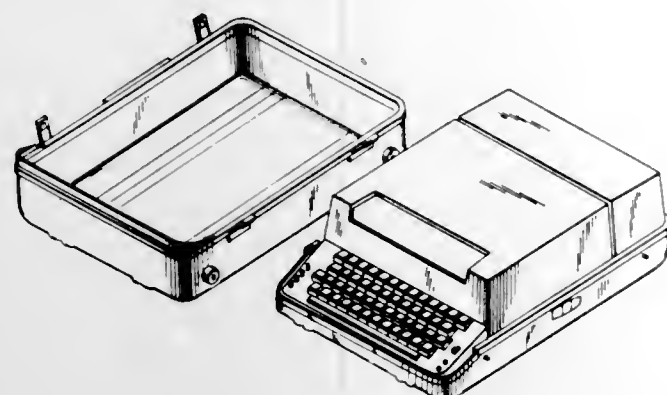
U.S. Cl. D64—11



220,007 PORTABLE PRINTER

Timothy F. Donovan, Huntington, and William L. Gamble, Unionville, Conn., assignors to Mite Corporation, New Haven, Conn., a corporation of Delaware
Filed Sept. 25, 1969, Ser. No. 19,297
Term of patent 14 years
Int. Cl. D18—02

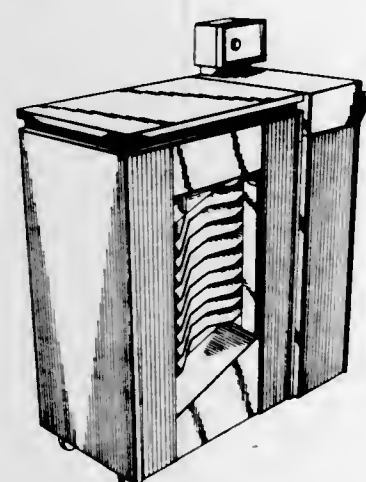
U.S. Cl. D64—11



220,008 COLLATING MACHINE

Logan W. Johnson, Minnetonka, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed Oct. 21, 1969, Ser. No. 19,659
Term of patent 14 years
Int. Cl. D18—99

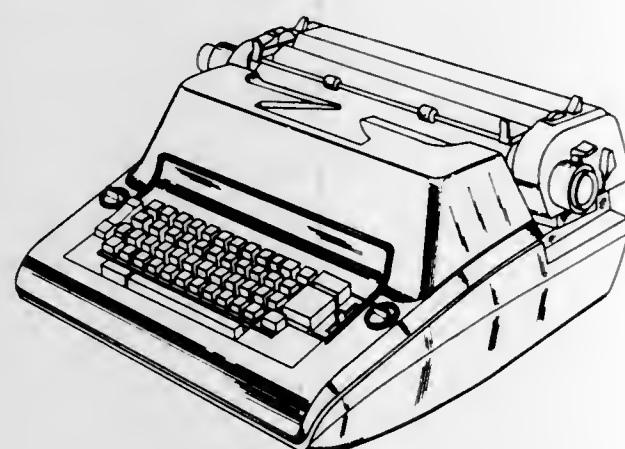
U.S. Cl. D64—11



220,009 TYPEWRITER

Toshihiko Sakow, Fort Lee, N.J., assignor to Litton Business Systems, Inc., New York, N.Y., a corporation of New York
Filed Oct. 24, 1969, Ser. No. 19,715
Term of patent 14 years
Int. Cl. D18—01

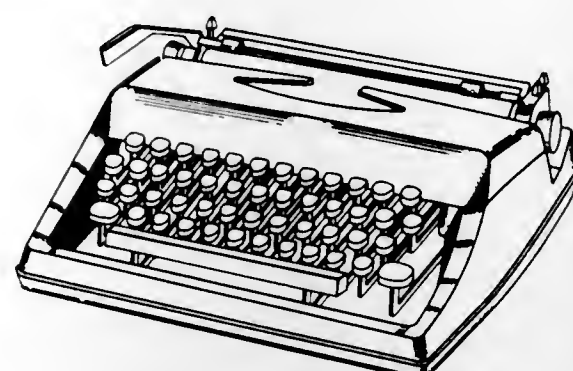
U.S. Cl. D64—11



220,010 TYPEWRITING MACHINE

Gerhard Dietrich and Peterheinz Meyer, Furth, Bavaria, Germany, assignors to Triumph Werke Nuernberg A.G., Nuremberg, Germany
Filed Oct. 27, 1969, Ser. No. 19,742
Claims priority, application Germany May 12, 1969
Term of patent 14 years
Int. Cl. D18—01

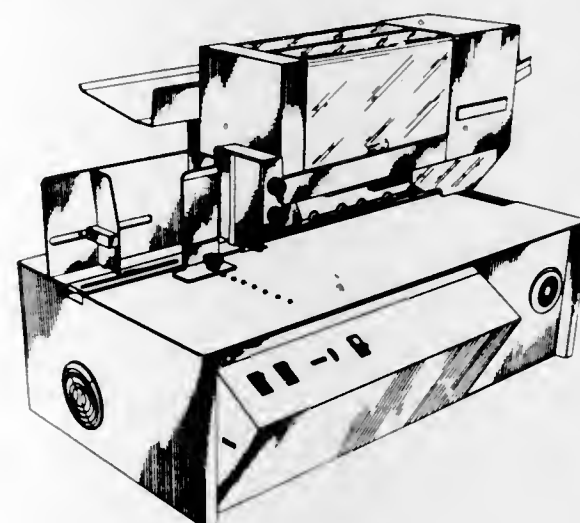
U.S. Cl. D64—11



220,011 ARTICLE ADDRESSING MACHINE

Donald W. Watson, Arlington Heights, Andrew I. Yohana, Des Plaines, and Herbert C. Artelt, Jr., Wildwood, Ill., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Oct. 31, 1969, Ser. No. 19,864
Term of patent 14 years
Int. Cl. D18—02

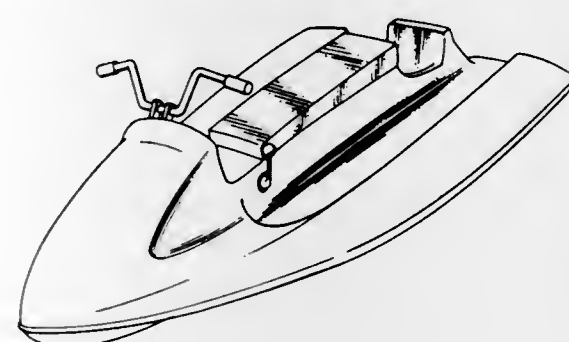
U.S. Cl. D64—11



220,012 BOAT

Harvey L. Snow, San Jose, Calif., assignor to Hydro Cycle Inc., San Jose, Calif., a corporation of California
Filed June 13, 1968, Ser. No. 11,440
Term of patent 14 years
Int. Cl. D12—06

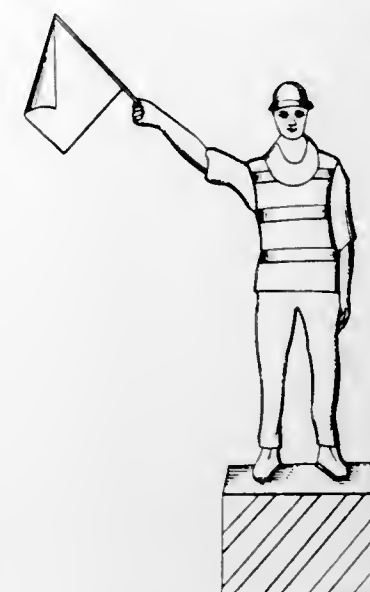
U.S. Cl. D71—1



220,013 WARNING SIGNAL

Martin Kaltman, Flushing, N.Y., assignor to Queens Devices, Incorporated, Long Island City, N.Y., a corporation of New York
Filed Apr. 30, 1969, Ser. No. 16,960
Term of patent 14 years
Int. Cl. D29—99

U.S. Cl. D72—1



220,014 DESK TRAY

Herbert M. Rome, Los Angeles, and Erland G. Paulson, Huntington Beach, Calif., assignors to Eldon Industries, Inc., Hawthorne, Calif., a corporation of California
Filed Jan. 19, 1970, Ser. No. 20,988
Term of patent 14 years
Int. Cl. D19—02

U.S. Cl. D74—9



220,015 DISPLAY STAND

Paul Martin Schremmer, Hunters Hill, New South Wales, Australia, assignor to Movitex & Movigraph Systems Pty. Ltd., Sydney, New South Wales, Australia, a corporation of New South Wales
Filed May 29, 1969, Ser. No. 17,409
Claims priority, application Australia Feb. 24, 1969
Term of patent 7 years
Int. Cl. D6—01

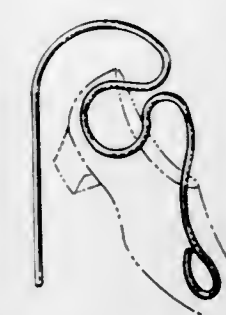
U.S. Cl. D80—9



220,016 WALL MOUNTED SHOE HANGER

Deborah E. Sussman, 11632 San Vicente Blvd., Los Angeles, Calif. 90049
Filed Aug. 4, 1969, Ser. No. 18,513
Term of patent 14 years
Int. Cl. D6—01

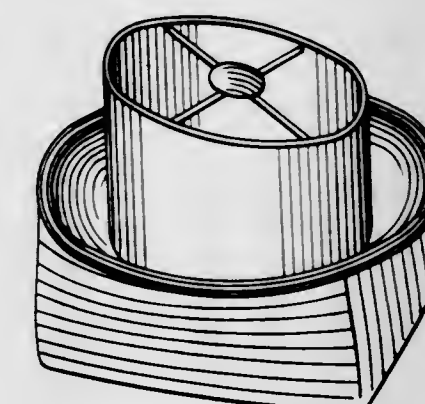
U.S. Cl. D80—10



220,017 ASHTRAY

Loran L. Laughlin, 2541 Maywood Drive, Salt Lake City, Utah 84109
Filed Aug. 28, 1969, Ser. No. 18,904
Term of patent 14 years
Int. Cl. D27—03

U.S. Cl. D85—2



220,018 MUSICAL COMB OR SIMILAR ARTICLE

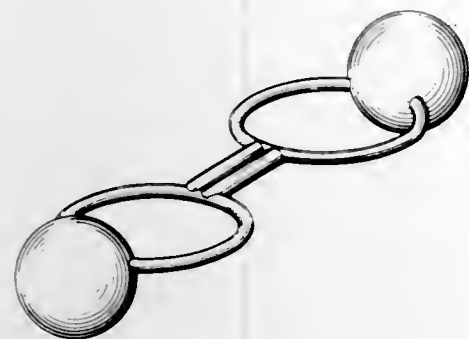
Taizo Ishida, 14 of 2, Tokiwa 4, Urawa-shi, Saitamaken, Japan
Filed May 22, 1969, Ser. No. 17,286
Claims priority, application Japan Feb. 20, 1969
Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D86—8



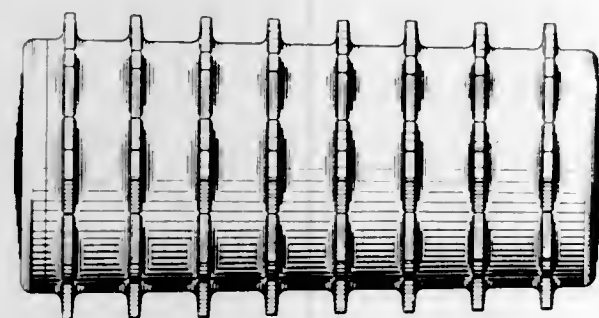
220,019
FLEXIBLE HAIR HOLDER
 Nathan L. Solomon, P.O. Box 550,
 Englewood, N.J. 17631
 Filed Jan. 9, 1969, Ser. No. 15,279
 Term of patent 14 years
 Int. Cl. D3—99

U.S. Cl. D86—10



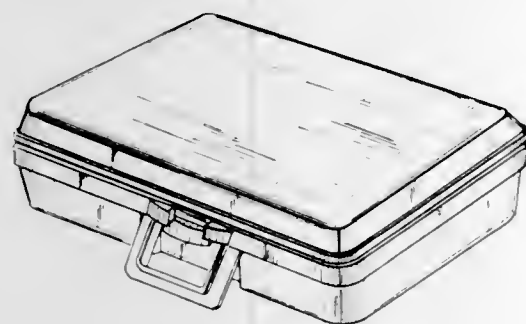
220,020
HAIR CURLER
 John R. Albert, Leawood, Kans.
 (1011 E. 23rd St., Kansas City, Mo. 64108)
 Filed Jan. 12, 1970, Ser. No. 20,880
 Term of patent 14 years
 Int. Cl. D28—03

U.S. Cl. D86—10



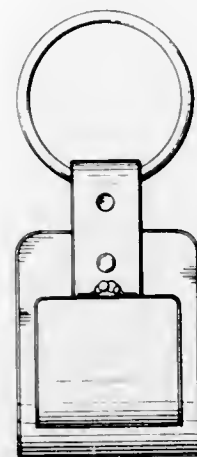
220,021
PORTABLE RETAINING RING CARRYING CASE OR SIMILAR ARTICLE
 Joseph M. Bruening, Cleveland, Ohio, assignor to Bearings, Inc., Cleveland, Ohio, a corporation of Delaware
 Filed Apr. 10, 1969, Ser. No. 16,669
 Term of patent 14 years
 Int. Cl. D3—99

U.S. Cl. D87—1



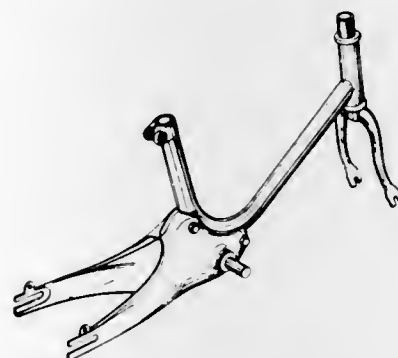
220,022
COMBINED WALLET AND CHANGE PURSE
 Henry C. White, Springfield, N.J. (% Specialty Leather Goods, Inc., 440 Lafayette St., New York, N.Y. 10003)
 Filed Mar. 18, 1970, Ser. No. 21,960
 Term of patent 14 years
 Int. Cl. D3—02

U.S. Cl. D87—3



220,023
BICYCLE FRAME
 Kei Fujiyoshi, Osaka, Kotaro Hata, Nara-shi, and Toshikazu Fujii, Tsunemitsu Yaso, Katsuji Kagayama, Hiroshi Fujimoto, Shigehiro Houjiyou, Toshimi Otuka, and Shigeru Morita, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
 Filed Jan. 6, 1970, Ser. No. 20,777
 Term of patent 14 years
 Int. Cl. D12—11

U.S. Cl. D90—8



220,024
BICYCLE
 Kei Fujiyoshi, Osaka, Kotaro Hata, Nara-shi, and Toshikazu Fujii, Tsunemitsu Yaso, Katsuji Kagayama, Hiroshi Fujimoto, Shigehiro Houjiyou, Toshimi Otuka, and Shigeru Morita, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
 Filed Jan. 15, 1970, Ser. No. 20,930
 Claims priority, application Japan Sept. 16, 1969
 Term of patent 14 years
 Int. Cl. D12—11

U.S. Cl. D90—8



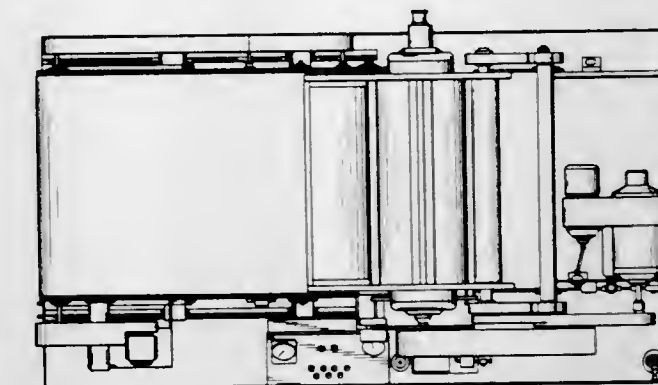
220,025
TIRE
 Glen L. Wittenmyer, Sterling, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
 Filed Nov. 28, 1969, Ser. No. 20,311
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D90—20



220,026
MACHINE FOR PRODUCING RANDOM FIBER WEBS
 Dennis E. Wood, Penfield, N.Y., assignor to Curlator Corporation, East Rochester, N.Y., a corporation of New York
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TO WHOM

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- Clark, Harold Ernst, to Xerox Corporation. Duplicating masters by the manifold process. 3,565,612, Cl. 96-1.
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Schuller, Walter H.; Minor, Jacob C.; and Lawrence, Ray V., to United States of America, Agriculture. Dhalocarbene adduct of rosin derivatives. 3,565,879, Cl. 260-103.

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- Sorkin, Morris, to TRW Inc. Vehicle collision avoidance system. 3,566,404, Cl. 343-6.5
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- Southworth, Ronald W.; and Jacobson, Elmer H., to U.S. Plywood-Champion Paper Inc. Feeder for veneer crowder. 3,565,236, Cl. 198-34.
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- Katchalski, Ephraim; and Yaroslavsky, Shmuel, 3,565,872.
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- Young, Robert R. Methods and means for handling blood test specimens. 3,565,582, Cl. 23-230.
- Young, William H.; Csuthy, Bela; and Guidess, Joseph, to Timex Corporation. Metallized plastic part and process for its production. 3,565,770, Cl. 204-30.
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- Yuki, Tasuku; and Kawana, Takayuki, to Nippon Electric Company. Wave filter of the complex fork type. 3,566,313, Cl. 333-72.
- Yurkowitz, Isidore L., to National Cash Register Company, The. Capsule-cellulose fiber units and products made therewith. 3,565,753, Cl. 162-127.
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- Zannini, Benito Carmine, to International Telephone & Telegraph Corporation. Pneumatic valve positioner. 3,565,391, Cl. 251-28.
- Zeigler, Ralph W., to Fisher Governor Company. Automatic switch-over system. 3,565,095, Cl. 137-115.

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- Zevas, Constantine S.; and Kean, Raymond J., to Osgood, Sidney, mesne. Visual indicator for a doorbell. 3,566,390, Cl. 340-330.
- Ziegler, George William, Jr., to AMP Incorporated. Coaxial connector mounting means. 3,566,334, Cl. 339-64.
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- Zimmer, Peter. Mounting means for cylindrical screen assemblies with counterbalancing means. 3,565,003, Cl. 101-116.
- Zimmerman, Joseph, to Du Pont de Nemours, E. I., and Company. Process for the preparation of graft copolymers using repetitive irradiation and contacting steps. 3,565,780, Cl. 204-159.15.
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- Zimmermann, Gert, to Zimmermann, F., & Company. Coin sorting and counting machine. 3,565,086, Cl. 133-8.
- Ziniuk, Michael A.; and Edwards, Jack J., to Atomic Power Development Associates, Inc. Flowmeter. 3,564,918, Cl. 73-231.
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- Zoludow, Richard S.: *See—*
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- Zurawski, Edward F., to Garco Corporation. Fluorescent tube box suspension system and means. 3,565,385, Cl. 248-343.
- Zwart, Frederik, to A. De Hoop N.V. Lock for connecting structural elements. 3,565,469, Cl. 287-9.
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- Abramo, Samuel V., and N. P. Rockwell. Process for the suspension polymerization of vinyl chloride. T883,024, 2-23-71, Cl. D60—87.1.
Addington, Darryl S. Process and apparatus for drawing synthetic yarn. T883,020, 2-23-71, Cl. D64—290.
Craven, Robert L., and J. F. Hesselberth, to E. I. du Pont de Nemours and Co. Gas drying oven with endless belt and belt cleaner. T883,023, 2-23-71, Cl. D34—85.
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Furrow, Jerry W. T883,026.
Selby, Donald W. T883,029.
Furrow, Jerry W., to E. I. du Pont de Nemours and Co. Process and apparatus for cooling a revolving roll. T883,026, 2-23-71, Cl. D34—9.
Gilman, Paul B., Jr., and F. J. Rauner. Direct positive silver halide emulsions sensitized with chloranil, 1,2-orthoquinone, or polynuclear heterocyclic compounds. T883,031, 2-23-71, Cl. D64—107.
Giordano, Paul M.: See—
Mortvedt, John J., and Giordano. T883,027.
Hanggi, George J., and H. L. Mussett. Controller for glass-blowing. T883,025, 2-23-71, Cl. D37—495.
Harris, Raymond C.: See—
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Hesselberth, John F.: See—
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Kibler, Charles J.: See—
Strickland, Thomas H., and Kibler. T883,022.
Lee, Louis J. Imparting flavor to and retaining flavor in food products by coating with acetylated monoglycerides. T883,030, 2-23-71, Cl. D99—140.
Mortvedt, John J., and P. M. Giordano, to Tennessee Valley Authority. Soil application of iron sulfate with fluid polyphosphate fertilizers. T883,027, 2-23-71, Cl. D71—1.
Mussett, Harry L.: See—
Hanggi, George J., and Mussett. T883,025.
Nealon, James V. Suspended negative contact printing. T883,021, 2-23-71, Cl. D355—78.
Newland, Gordon C., R. C. Harris, and J. W. Tamblin. Polyester compositions. T883,028, 2-23-71, Cl. D60—40.
Rauner, Frederick J.: See—
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Rockwell, Norman P.: See—
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Strickland, Thomas H., and C. J. Kibler. Preparation of ammonium 1,4-cyclohexanedicarboxylate. T883,022, 2-23-71, Cl. D60—514.
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- Aerov, Mikhail E., T. A. Bystrova, N. I. Zelentsova, and V. A. Kulikova, to Nauchno-Issledovatel'skiy Institut Sinteticheskikh Spirtov i Organicheskikh Produktov. Refrigeration process. Re. 27,074, 2-23-71, Cl. D62—112.
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Bleikamp, Roy H., Jr.: See—
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Murphy, Peter C., and P. O. Haarbye; said Haarbye assor. to P. R. Mallory & Co., Inc. Method of fabricating pre-oxidized silver-cadmium oxide electrical contacts. Re. 27,075, 2-23-71, Cl. D29—420.5.
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 Dietrich, Gerhard, and Meyer. 220,010.
 Tupker, Willem E., to Bell Aerospace Corp. Valve operator casing. 219,975, 2-23-71, Cl. D23-19.
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 White, Henry C. Combined wallet and change purse. 220,022, 2-23-71, Cl. D87-3.
 Willis, Harlen F., to Variform Plastics, Inc. Rack for papers or the like. 219,988, 2-23-71, Cl. D33-3.
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CLASSIFICATION OF PATENTS

ISSUED FEBRUARY 23, 1971

NOTE.—First number, class; second number, subclass; third number, patent number

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114	3.565.677	625.69	3.565.115	282	3.565.160	184-15	3.565.213	119	3.565.261	181	3.566.088
123	3.565.675	138-109	3.565.116	312	3.565.161	106	3.565.214	120	3.565.262	238-265	3.565.336
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134	3.565.678		3.565.118	342	3.565.163	12	3.565.216	213-8	3.565.264	24	3.565.338
136	3.565.679		3.565.119	165-1	3.565.164	27	3.565.217	214-8.5	3.565.265	60	3.565.339
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155	3.565.681	139-122	3.565.121	35	3.565.166	271	3.565.218	17	3.565.267		3.565.341
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217	3.565.684		3.565.124	196	3.565.169	58	3.565.221	450	3.565.270	332	3.565.344
218	3.565.685		3.565.125	341	3.565.170	71	3.565.222	501	3.565.271	422	3.565.345
227	3.565.686		3.565.126	384	3.565.171	84	3.565.223	674	3.565.272		3.565.346
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148	3.565.048		3.565.143	174-7	3.565.188	44	3.565.240	68.3	3.565.359	43	3.565.359
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69	3.565.066		3.565.068	156-3	3.565.193	144	3.566.062	144	3.565.377	68	3.565.376
132	3.565.067		3.565.069	18	3.565.194	148	3.566.063	182	3.565.378	188.4	3.565.377
142	3.565.068		3.565.070	62.2	3.565.195	167	3.566.064	193	3.565.379	223	3.565.378
145.5	3.565.069		3.565.071	72	3.565.196	168	3.566.065	263	3.565.380	229	3.565.380
152	3.565.070		3.565.072	73	3.565.197	172	3.566.066	309	3.565.381	243	3.565.381
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201	3.565.072		3.565.074	89	3.565.199	203-11	3.565.383	528	3.565.383	309	3.565.383
212	3.565.073		3.565.075	91	3.565.200	204-1	3.565.384	102	3.565.384	312	3.565.384
214.4	3.565.074		3.565.076	98	3.565.201	30	3.565.385	102	3.565.385	343	3.565.385
268	3.565.075		3.565.077	114	3.565.202	33	3.565.386	102	3.565.386	358	3.565.386
278	3.565.076		3.565.078	148	3.565.203	33	3.565.387	102	3.565.387	249-54	3.565.387
283	3.565.077		3.565.079	150	3.565.204	70	3.565.388	102	3.565.388	63	3.565.388
335.5	3.565.078		3.565.080	212	3.565.205	128	3.565.389	102	3.565.389	121	3.565.389
349	3.565.079		3.565.081	237	3.565.206	131	3.565.390	102	3.565.390	180	3.565.390
351	3.565.080		3.565.082	256	3.565.207	131	3.565.391	102	3.565.391	250-43	3.565.390
422	3.565.081		3.565.083	265	3.565.208	131	3.565.392	102	3.565.392	44	3.565.391
454	3.565.082		3.565.084	311	3.565.209	131	3.565.393	102	3.565.393	49.5	3.566.108
130-5	3.565.083		3.565.085	354	3.565.210	131	3.565.394	102	3.565.394	51.5	3.566.110
132-7	3.565.084		3.565.086	375	3.565.211	131	3.565.395	102	3.565.395	52	3.566.112
46	3.565.085		3.565.088	432	3.565.212	131	3.565.396	102	3.565.396	52	3.566.114
133-8	3.565.086		3.565.090	441	3.565.213	131	3.565.397	102	3.565.397	71.5	3.566.115
	3.565.087		3.565.091	500	3.565.214	131	3.565.398	102	3.565.398	83	3.566.116
134-3	3.565.088		3.565.092	504	3.565.215	131	3.565.399	102	3.565.399	106	3.566.118
135-23	3.565.089		3.565.093	513	3.565.216	131	3.565.400	102	3.565.400	106	3.566.120
136-14	3.565.090		3.565.094	527	3.565.217	131	3.565.401	102	3.565.401	106	3.566.122
20	3.565.091		3.565.095	566	3.565.218	131	3.565.402	102	3.565.402	106	3.566.124
86	3.565.092		3.565.096	576	3.565.219	131	3.565.403	102	3.565.403	106	3.566.126
120	3.565.093		3.565.099	586	3.565.220	131	3.565.404	102	3.565.404	106	3.566.128
121	3.565.094		3.565.100	596	3.565.221	131	3.565.405	102	3.565.405	106	3.566.130
126	3.565.095		3.565.101	606	3.565.222	131	3.565.406	102	3.565.406	106	3.566.132
137	3.565.096		3.565.102	616	3.565.223	131	3.565.407	102	3.565.407	106	3.566.134
142	3.565.097		3.565.103	626	3.565.224	131	3.565.408	102	3.565.408	106	3.566.136
137-68	3.565.098		3.565.104	636	3.565.225	131	3.565.409	102	3.565.409	106	3.566.138
	3.565.099		3.565.105	646	3.565.226	131	3.565.410	102	3.565.410	106	3.566.140
81.5	3.565.099		3.565.106	656	3.565.227	131	3.565.411	102	3.565.411	106	3.566.142
	3.565.100		3.565.107	666	3.565.228	131	3.565.412	102	3.565.412	106	3.566.144
83	3.565.092		3.565.108	676	3.565.229	131	3.565.413	102	3.565.413	106	3.566.146
85	3.565.093		3.565.109	686	3.565.230	131	3.565.414	102	3.565.414	106	3.566.148
	3.565.094		3.565.110	696	3.565.231	131	3.565.415	102	3.565.415	106	3.566.150
115	3.565.095		3.565.111	706	3.565.232	131	3.565.416	102	3.565.416	106	3.566.152
204	3.565.096		3.565.112	716	3.565.233	131	3.565.417	102	3.565.417	106	3.566.154
218	3.565.097		3.565.113	726	3.565.234	131	3.565.418	102	3.565.418	106	3.566.156
240	3.565.098		3.565.114	736	3.565.235	131	3.565.419	102	3.565.419	106	3.566.158
269.5	3.565.099		3.565.115	746	3.565.236	131	3.565.420	102	3.565.420	106	3.566.160
			3.565.116	756	3.565.237	131	3.565.421	102	3.565.421	106	3.56

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42 : 219,948	219,962	49 : 219,976	8 : 219,989	D56- 1 : 220,002	D80- 9 : 220,015
D 4- 13 : 219,949	219,963	93 : 219,977	14 : 219,990	D59- 2 : 220,003	10 : 220,016
D 8- 8 : 219,950	219,964	146 : 219,978	30 : 219,991	D61- 1 : 220,005	D85- 2 : 220,017
14 : 219,951	6 : 219,965	D24- 1 : 219,979	D34- 5 : 219,992	D64- 11 : 220,006	D86- 8 : 220,018
40 : 219,952	30 : 219,966	D26- 5 : 219,980	D42- 1 : 219,993	220,007	10 : 220,019
267 : 219,953	219,967	220,008	D44- 26 : 219,994	D87- 1 : 220,021	
D 9- 45 : 219,954	D21- 6 : 219,968	13 : 219,982	D45- 10 : 219,995	3 : 220,022	
189 : 219,955	D22- 6 : 219,969	14 : 219,983	D52- 4 : 219,996	D90- 8 : 220,023	
219,956	22 : 219,970	219,984	220,010	20 : 220,024	
191 : 219,957	219,971	15 : 219,985	220,011	D92- 15 : 220,026	
223 : 219,958	219,972	D29- 23 : 219,986	219,998		
242 : 219,959	23 : 219,973	D30- 6 : 219,987	220,000		
294 : 219,960	31 : 219,974				

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34- 9 : T883,026	71- 1 : T883,027	99-140 : T883,030	156-180 : T883,029	260- 87.1 : T883,024	264-290 : T883,020
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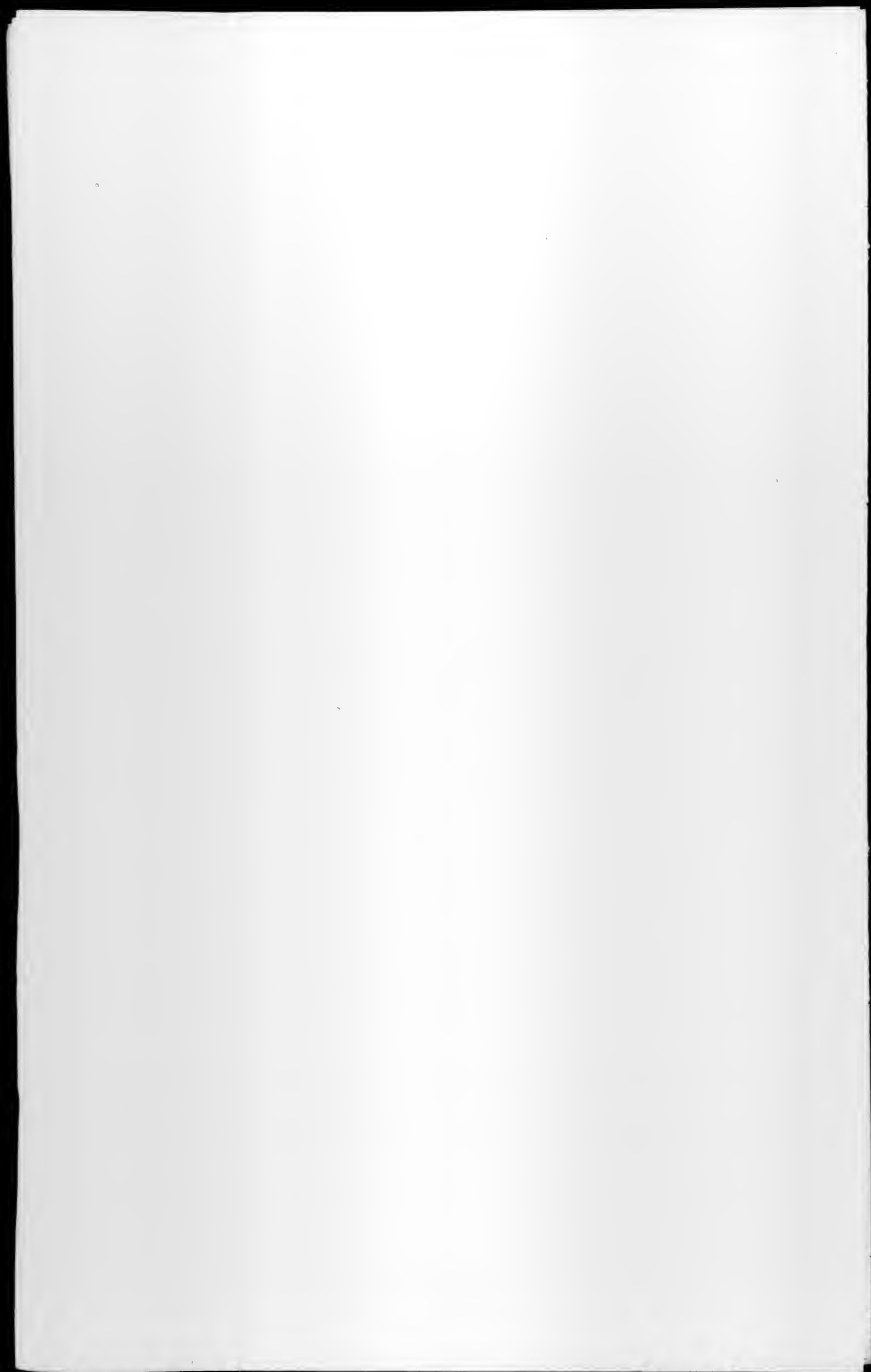
(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1 : 3,564,772	6 : 3,564,928	6 : 3,565,454	6 : 3,566,018	8 : 3,564,621	9 : 3,566,305
3,564,845	3,564,931	3,565,457	3,566,026	3,564,859	3,566,318
3,565,163	3,564,955	3,565,462	3,566,049	3,564,913	3,566,335
3,565,652	3,564,977	3,565,468	3,566,062	3,564,953	3,566,351
3,565,742	3,564,980	3,565,475	3,566,065	3,564,956	3,566,364
2 : 3,565,217	3,564,989	3,565,483	3,566,068	3,565,059	3,566,382
4 : 3,564,625	3,564,992	3,565,486	3,566,081	3,565,436	3,566,396
3,565,674	3,565,000	3,565,513	3,566,088	3,565,684	3,566,405
3,565,728	3,565,005	3,565,521	3,566,096	3,565,671	3,566,414
3,565,932	3,565,011	3,565,528	3,566,100	9 : Re. 27,069	3,566,422
3,566,125	3,565,028	3,565,530	3,566,106	3,564,609	3,566,431
3,566,144	3,565,034	3,565,534	3,566,119	3,564,610	3,566,440
3,566,307	3,565,056	3,565,535	3,566,131	3,564,611	3,566,449
3,566,355	3,565,070	3,565,549	3,566,141	3,564,614	3,566,458
5 : 3,564,613	3,565,090	3,565,556	3,566,145	3,564,618	3,566,467
3,564,751	3,565,097	3,565,557	3,566,156	3,564,673	3,566,476
3,565,128	3,565,099	3,565,569	3,566,159	3,564,839	3,566,485
3,566,226	3,565,112	3,565,578	3,566,160	3,564,852	3,566,494
6 : 3,564,619	3,565,145	3,565,582	3,566,162	3,564,940	3,566,503
3,564,627	3,565,152	3,565,583	3,566,170	3,565,036	3,566,512
3,564,632	3,565,175	3,565,587	3,566,185	3,565,077	3,566,521
3,564,634	3,565,177	3,565,592	3,566,186	3,565,103	3,566,530
3,564,667	3,565,179	3,565,628	3,566,191	3,565,131	3,566,539
3,564,672	3,565,194	3,565,646	3,566,192	3,565,151	3,566,548
3,564,717	3,565,207	3,565,676	3,566,196	3,565,263	3,566,557
3,564,754	3,565,208	3,565,686	3,566,208	3,565,296	3,566,566
3,564,755	3,565,209	3,565,691	3,566,212	3,565,398	3,566,575
3,564,761	3,565,211	3,565,708	3,566,217	3,565,448	3,566,584
3,564,762	3,565,212	3,565,727	3,566,218	3,565,515	3,566,593
3,564,763	3,565,225	3,565,733	3,566,234	3,565,523	3,566,602
3,564,764	3,565,233	3,565,736	3,566,255	3,565,538	3,566,611
3,564,765	3,565,236	3,565,760	3,566,256	3,565,543	3,566,620
3,564,775	3,565,250	3,565,761	3,566,265	3,565,546	3,566,629
3,564,789	3,565,276	3,565,764	3,566,281	3,565,588	3,566,638
3,564,794	3,565,278	3,565,784	3,566,296	3,565,660	3,566,647
3,564,813	3,565,287	3,565,798	3,566,302	3,565,767	3,566,656
3,564,817	3,565,290	3,565,802	3,566,304	3,565,770	3,566,665
3,564,820	3,565,297	3,565,803	3,566,309	3,565,814	3,566,674
3,564,821	3,565,319	3,565,805	3,566,312	3,565,847	3,566,683
3,564,825	3,565,338	3,565,809	3,566,315	3,565,869	3,566,692
3,564,846	3,565,354	3,565,832	3,566,336	3,565,870	3,566,701
3,564,850	3,565,366	3,565,918	3,566,346	3,565,957	3,566,710
3,564,863	3,565,375	3,565,922	3,566,347	3,565,977	3,566,719
3,564,867	3,565,380	3,566,001	3,566,348	3,566,079	3,566,728
3,564,884	3,565,381	3,566,003	3,566,364	3,566,116	3,566,737
3,564,888	3,565,392	3,566,004	3,566,381	3,566,120	3,566,746
3,564,911	3,565,396	3,566,005	3,566,382	3,566,195	3,566,755
3,564,921	3,565,419	3,566,013	3,566,397	3,566,297	3,566,764
3,564,925	3,565,430	3,566,016	3,566,404	3,566,300	3,566,773
3,564,927	3,565,444	3,566,017	3,566,405	3,566,303	3,566,782

12 : 3.566.036	17 : 3.566.006	25 : 3.564.836	26 : 3.565.452	34 : 3.565.406	36 : 3.564.797
3.566.084	3.566.022	3.564.851	3.565.470	3.565.502	3.564.802
3.566.133	3.566.034	3.564.901	3.565.522	3.565.522	3.564.814
3.566.188	3.566.058	3.564.909	3.565.477	3.565.550	3.564.816
3.566.220	3.566.061	3.564.923	3.565.671	3.565.574	3.564.819
3.566.280	3.566.102	3.564.941	3.565.699	3.565.575	3.564.837
3.566.295	3.566.102	3.564.950	3.565.737	3.565.577	3.564.861
3.566.407	3.566.129	3.564.954	3.565.747	3.565.581	3.564.868
13 : 3.564.628	3.566.169	3.565.029	3.565.839	3.565.586	3.564.878
3.564.771	3.566.171	3.565.057	3.565.844	3.565.589	3.564.879
3.564.798	3.566.173	3.565.058	3.565.851	3.565.599	3.564.895
3.564.810	3.566.181	3.565.079	3.565.855	3.565.600	3.564.924
3.565.141	3.566.198	3.565.093	3.565.906	3.565.622	3.564.949
3.565.178	3.566.204	3.565.118	3.565.908	3.565.625	3.564.960
3.566.271	3.566.228	3.565.124	3.565.912	3.565.635	3.564.964
15 : 3.564.750	3.566.272	3.565.130	3.565.972	3.565.647	3.564.982
3.565.074	3.566.323	3.565.142	3.565.975	3.565.653	3.564.985
16 : 3.565.061	3.566.333	3.565.196	3.565.985	3.565.656	3.565.010
3.565.636	3.566.366	3.565.206	3.566.063	3.565.680	3.565.025
17 : Re. 27.070	3.566.386	3.565.219	3.566.165	3.565.702	3.565.041
3.564.641	3.566.388	3.565.256	3.564.730	3.565.707	3.565.042
3.564.647	3.566.401	3.565.286	3.564.984	3.565.712	3.565.062
3.564.668	3.566.403	3.565.318	3.565.088	3.565.721	3.565.068
3.564.684	18 : Re. 27.075	3.565.329	3.565.139	3.565.738	3.565.076
3.564.699	3.565.015	3.565.330	3.565.247	3.565.766	3.565.080
3.564.703	3.565.089	3.565.351	3.565.268	3.565.769	3.565.091
3.564.707	3.565.288	3.565.409	3.565.328	3.565.790	3.565.101
3.564.712	3.565.302	3.565.450	3.565.404	3.565.792	3.565.147
3.564.724	3.565.323	3.565.451	3.565.461	3.565.810	3.565.165
3.564.728	3.565.372	3.565.519	3.565.474	3.565.813	3.565.186
3.564.744	3.565.460	3.565.525	3.565.743	3.565.830	3.565.195
3.564.745	3.565.536	3.565.526	3.565.750	3.565.840	3.565.213
3.564.783	3.565.865	3.565.531	3.565.868	3.565.843	3.565.229
3.564.799	3.566.023	3.565.619	3.566.227	3.565.849	3.565.231
3.564.807	3.566.060	3.565.657	3.566.231	3.565.878	3.565.238
3.564.812	3.566.199	3.565.677	3.566.232	3.565.892	3.565.252
3.564.860	3.566.352	3.565.703	3.566.236	3.565.900	3.565.274
3.564.892	19 : 3.564.669	3.565.710	3.566.260	3.565.902	3.565.285
3.564.898	3.564.936	3.565.735	3.566.301	3.565.903	3.565.294
3.564.942	3.565.049	3.565.746	3.566.356	3.565.907	3.565.304
3.564.944	3.565.052	3.565.771	3.566.368	3.565.913	3.565.327
3.564.948	3.565.082	3.565.800	3.566.379	3.565.914	3.565.361
3.564.951	3.565.095	3.565.825	28 : 3.564.737	3.565.920	3.565.365
3.564.952	3.565.340	3.565.973	3.564.804	3.565.925	3.565.384
3.565.018	3.565.362	3.565.982	3.565.925	3.565.938	3.565.387
3.565.020	3.566.083	3.566.093	3.565.946	3.565.942	3.565.420
3.565.023	3.566.161	3.566.099	3.565.948	3.565.948	3.565.432
3.565.033	20 : 3.564.768	3.566.126	29 : Re. 27.073	3.565.949	3.565.437
3.565.038	3.565.119	3.566.130	3.565.958	3.565.958	3.565.439
3.565.039	3.565.245	3.566.132	3.566.021	3.565.987	3.565.442
3.565.071	3.565.320	3.566.139	3.566.029	3.565.999	3.565.444
3.565.083	21 : Re. 27.076	3.566.183	3.566.031	3.565.127	3.565.445
3.565.111	3.565.418	3.566.201	3.565.443	3.565.127	3.565.445
3.565.162	3.565.467	3.566.216	3.566.032	3.565.149	3.565.507
3.565.180	3.565.553	3.566.249	3.566.035	3.565.508	3.565.512
3.565.182	3.565.524	3.566.254	3.566.067	3.565.512	3.565.517
3.565.183	3.565.326	3.566.278	3.566.090	3.565.517	3.565.518
3.565.198	3.566.331	3.566.293	3.566.105	3.565.519	3.565.539
3.565.199	22 : 3.564.854	3.566.293	3.565.405	3.565.539	3.565.548
3.565.202	3.565.043	3.566.362	3.565.638	3.565.548	3.565.548
3.565.204	3.565.138	3.566.365	3.565.651	3.565.554	3.565.554
3.565.210	3.565.214	3.566.370	3.565.681	3.565.560	3.565.567
3.565.220	3.565.348	3.566.383	3.565.687	3.565.567	3.565.570
3.565.227	3.565.511	3.566.398	3.565.690	3.565.570	3.565.570
3.565.239	3.565.511	3.566.399	3.565.693	3.565.570	3.565.570
3.565.246	3.565.824	3.566.408	3.565.697	3.565.570	3.565.570
3.565.251	3.565.850	26 : Re. 27.071	3.566.077	3.565.570	3.565.570
3.565.258	3.565.873	3.565.873	3.566.077	3.565.570	3.565.570
3.565.260	23 : 3.564.648	3.565.873	3.566.282	3.565.570	3.565.570
3.565.271	3.564.686	3.565.873	3.566.282	3.565.570	3.565.570
3.565.283	3.566.055	3.564.653	3.566.282	3.565.570	3.565.570
3.565.305	3.566.055	3.564.674	3.566.282	3.565.570	3.565.570
3.565.326	24 : 3.564.690	3.564.688	3.566.282	3.565.570	3.565.570
3.565.335	3.564.714	3.564.693	3.566.282	3.565.570	3.565.570
3.565.339	3.564.729	3.564.748	3.566.282	3.565.570	3.565.570
3.565.358	3.564.907	3.564.759	3.566.282	3.565.570	3.565.570
3.565.385	3.565.358	3.564.770	3.566.282	3.565.570	3.565.570
3.565.395	3.565.006	3.564.806	3.566.282	3.565.570	3.565.570
3.565.422	3.565.012	3.564.824	3.566.282	3.565.570	3.565.570
3.565.425	3.565.135	3.564.843	3.566.282	3.565.570	3.565.570
3.565.426	3.565.136	3.564.880	3.566.282	3.565.570	3.565.570
3.565.433	3.565.137	3.564.887	3.566.282	3.565.570	3.565.570
3.565.440	3.565.240	3.564.896	3.566.282	3.565.570	3.565.570
3.565.449	3.565.241	3.564.918	3.566.282	3.565.570	3.565.570
3.565.455	3.565.303	3.564.938	3.566.282	3.565.570	3.565.570
3.565.458	3.565.401	3.564.968	3.566.282	3.565.570	3.565.570
3.565.489	3.565.473	3.564.975	3.566.282	3.565.570	3.565.570
3.565.492	3.565.516	3.564.978	3.566.282	3.565.570	3.565.570
3.565.497	3.565.544	3.564.990	3.566.282	3.565.570	3.565.570
3.565.499	3.565.644	3.565.031	3.566.282	3.565.570	3.565.570
3.565.504	3.565.700	3.565.075	3.566.282	3.565.570	3.565.570
3.565.504	3.565.726	3.565.096	3.566.282	3.565.570	3.565.570
3.565.637	3.565.796	3.565.104	3.566.282	3.565.570	3.565.570
3.565.639	3.565.819	3.565.108	3.566.282	3.565.570	3.565.570
3.565.678	3.565.940	3.565.116	3.566.282	3.565.570	3.565.570
3.565.701	3.566.154	3.565.119	3.566.282	3.565.570	3.565.570
3.565.722	3.566.189	3.565.126	3.566.282	3.565.570	3.565.570
3.565.732	3.566.263	3.565.164	3.566.282	3.565.570	3.565.570
3.565.751	3.566.266	3.565.200	3.566.282	3.565.570	3.565.570
3.565.763	3.566.267	3.565.216	3.566.282	3.565.570	3.565.570
3.565.765	3.566.289	3.565.253	3.566.282	3.565.570	3.565.570
3.565.774	3.566.291	3.565.300	3.566.282	3.565.570	3.565.570
3.565.885	3.566.311	3.565.352	3.566.282	3.565.570	3.565.570
3.565.887	3.566.402	3.565.376	3.566.282	3.565.570	3.565.570
3.565.933	25 : 3.564.746	3.565.414	3.566.282	3.565.570	3.565.570
3.565.942	3.564.776	3.565.415	3.566.282	3.565.570	3.565.570
3.565.991	3.564.809	3.565.435	3.566.282	3.565.570	3.565.570

36	: 3.565.937	39	: 3.564.805	40	: 3.565.197	42	: 3.565.481	45	: 3.565.341	50	: 3.565.149
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	3.565.943		3.564.865		3.565.797		3.565.566		3.566.094	51	: 3.566.221
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	3.565.978		3.564.894		3.565.842		3.565.606	46	: 3.564.790		3.564.929
	3.565.994		3.564.965		3.565.853		3.565.608		3.565.594		3.564.999
	3.566.010		3.564.983		3.565.861		3.565.662		3.566.147		3.565.007
	3.566.011		3.564.998		3.565.862		3.565.675	47	: 3.565.024		3.565.022
	3.566.012		3.565.019		3.565.963		3.565.696		3.565.051		3.565.106
	3.566.014		3.565.035		3.565.969		3.565.704		3.565.223		3.565.254
	3.566.038		3.565.064		3.565.970		3.565.739		3.565.591		3.565.307
	3.566.046		3.565.065	41	: 3.564.753		3.565.748		3.565.665		3.565.389
	3.566.052		3.565.072		3.564.766		3.565.749		3.565.668		3.565.501
	3.566.059		3.565.098		3.564.777		3.565.777		3.565.981		3.565.593
	3.566.076		3.565.110		3.565.017		3.565.781	48	: 3.564.656		3.565.626
	3.566.078		3.565.115		3.565.073		3.565.828		3.564.718		3.565.669
	3.566.086		3.565.117		3.565.107		3.565.841		3.564.740		3.565.812
	3.566.103		3.565.161		3.565.140		3.565.875		3.564.795		3.565.979
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	3.566.146		3.565.309	42	: Re. 27.077		3.565.961		3.564.994		3.566.324
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	3.566.251		3.565.403		3.564.671		3.566.007		3.565.169		3.564.638
	3.566.252		3.565.410		3.564.680		3.566.009		3.565.170		3.564.642
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	3.566.274		3.565.431		3.564.685		3.566.056		3.565.173		3.564.904
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	3.566.351		3.565.558		3.564.871		3.566.210		3.565.337		3.565.968
	3.566.353		3.565.596		3.564.876		3.566.230		3.565.345	55	: 3.564.620
	3.566.354		3.565.654		3.564.882		3.566.241		3.565.346		3.564.637
	3.566.363		3.565.666		3.564.897		3.566.286		3.565.394		3.564.640
	3.566.369		3.565.723		3.564.919		3.566.321		3.565.509		3.564.713
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	3.566.391		3.565.818		3.565.060		3.566.349		3.565.658		3.564.979
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37	: 3.564.630		3.565.876		3.565.129		3.566.380		3.565.679		3.565.081
	3.564.696		3.565.986		3.565.158		3.566.387		3.565.807		3.565.262
	3.564.708		3.565.995		3.565.168	44	: 3.564.735		3.565.811		3.565.267
	3.564.872		3.565.998		3.565.192		3.564.811		3.565.820		3.565.353
	3.564.873		3.565.999		3.565.201		3.564.958		3.565.895		3.565.386
	3.564.874		3.566.019		3.565.215		3.565.224		3.565.917		3.565.490
	3.565.067		3.566.069		3.565.232		3.565.243		3.565.941		3.565.716
	3.565.125		3.566.073		3.565.265		3.565.359		3.565.965		3.565.924
	3.565.127		3.566.092		3.565.269		3.565.382		3.565.992		3.565.928
	3.565.266		3.566.149		3.565.270		3.565.391		3.566.053		3.566.051
	3.566.008		3.566.199		3.565.289		3.566.337		3.566.117		3.566.072
39	: Re. 27.068		3.566.288		3.565.311	45	: 3.564.663		3.566.153		3.566.202
	3.564.649	40	: 3.564.722		3.565.312		3.564.695		3.566.180		3.566.243
	3.564.697		3.564.779		3.565.315		3.564.758		3.566.219		3.566.244
	3.564.721		3.564.862		3.565.350		3.564.796		3.566.257		3.566.287
	3.564.732		3.564.914		3.565.377		3.564.829		3.566.292	56	: 3.565.715
	3.564.736		3.565.044		3.565.412		3.564.830		3.566.399		3.566.328
	3.564.742		3.565.172		3.565.429		3.565.123	49	: 3.565.650		3.566.002
	3.564.743		3.565.174		3.565.466		3.565.334		3.566.179		
	3.564.780										



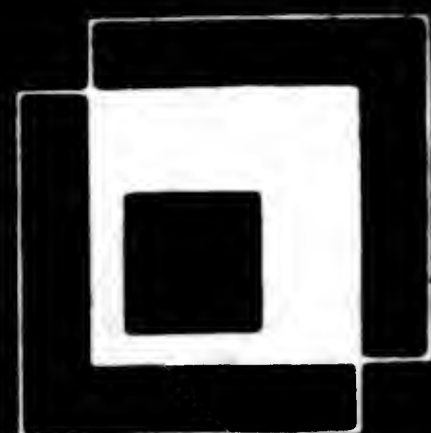
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